



Woodfibre LNG Limited

Canadian Environmental Assessment Agency

2018 Annual Report

EXECUTIVE SUMMARY

Woodfibre LNG Limited (Woodfibre LNG) is proposing to build a liquefied natural gas (LNG) processing facility with marine storage and off-loading (the Project), located approximately seven kilometres southwest of Squamish, British Columbia (BC) within the District of Squamish municipal boundaries at the former Woodfibre Pulp and Paper Mill site.

The Project received a federal Decision Statement on March 17, 2016 from the Canadian Environmental Assessment Agency (CEA Agency). Following a Squamish Nation direction to switch the facility from seawater cooling to air-cooling, Woodfibre LNG obtained a revised federal Decision Statement on March 7, 2018. The Implementation schedule for the Marine Infrastructure Removal (MIR) works was provided to the CEA Agency on November 29, 2018 and to Aboriginal Groups between November 30 and December 3, 2018.

This 2018 Annual Report is in part to fulfil the reporting requirements under Condition 2.6 of the Project's federal Decision Statement and covers the MIR works that occurred in 2018.

Woodfibre LNG worked closely with Squamish First Nation to provide employment and business opportunities in regards to the MIR work. In this regard, Sukwi7 Contracting Limited Partnership and its subcontractor Vancouver Pile Driving Ltd were awarded the contract to complete the MIR work, and Stalkaya Environmental Ltd. (a Squamish Nation member-owned business) and Keystone Environmental Ltd. conducted environmental monitoring work.

Activities undertaken as part of the MIR during November and December of the 2018 reporting year include the removal of marine structures, including creosote timber piles, steel piles, concrete slabs and timber decking. Prior to the start of the MIR works, the required Federal and Provincial permits, approvals and notifications were secured and an Environmental Management Plan (EMP) was developed with mitigation measures and management plans designed to maintain compliance with applicable regulatory requirements and best management practices. Both Keystone Environmental and Stalkaya Environmental Ltd. conducted full time environmental monitoring during the removal works to ensure compliance with the mitigation measures and management plans outlined within the EMP.

Woodfibre LNG undertook consultation with Squamish Nation, Tsleil-Waututh Nation and federal and provincial agencies through independent consultation, as required through the application process for federal permits and through the submission of assessments, notifications, permits and letters to regulatory agencies. Additional review and consultation regarding the EMP were conducted with regulatory agencies and Aboriginal groups and the EMP was updated based on comments received. A copy of the EMP was provided to all Aboriginal groups listed in the Decision Statement.

The environmental monitoring program determined that the mitigation measures outlined in the EMP were effective in maintaining compliance with applicable regulatory requirements and best management practices. There were no exceedances of water quality criteria outside of containment measures and no exceedances of underwater noise thresholds for fish or marine mammals. The MIR did not result in any observable or measurable impacts to migratory birds, species at risk or human health and no heritage or archaeological resources were discovered. There were no reportable spills under the BC Spill Reporting Regulation as a result of 2018 MIR works.

SYNOPSIS

Woodfibre LNG Limited (Woodfibre LNG) propose de construire une installation de traitement du gaz naturel liquéfié (GNL) avec entreposage marin et déchargement (le Projet), qui se situera environ sept kilomètres au sud-ouest de Squamish, Colombie-Britannique (CB) dans le district des limites municipales de Squamish, sur le site de l'ancienne usine de pâtes et papier de Woodfibre.

Le Projet a fait l'objet d'un Avis de décision fédérale de l'Agence canadienne d'évaluation environnementale (ACEE) le 17 mars 2016. Suite à une directive provenant de la Nation Squamish qui impose un circuit de refroidissement à l'air plutôt qu'à l'eau de mer, Woodfibre LNG a obtenu un Avis de décision fédérale modifié le 7 mars 2018. Le calendrier de mise en œuvre des travaux d'enlèvement de l'infrastructure marine (EIM) a été soumis à l'ACEE le 29 novembre 2018 et aux groupes autochtones entre le 30 novembre et le 3 décembre 2018.

Ce rapport annuel de 2018 est destiné en partie à respecter les exigences en matière de rapport en vertu de la condition 2,6 de l'Avis de décision fédérale du Projet, et couvre les travaux d'EIM exécutés en 2018.

Woodfibre LNG a travaillé en étroite collaboration avec la Première Nation Squamish afin de fournir de l'emploi et des occasions d'affaires issus de ces travaux d'EIM. À cet égard, le Sukwi7 Contracting Limited Partnership et son sous-traitant Vancouver Pile Driving Ltd ont obtenu le contrat pour réaliser les travaux d'EIM, et Stalkaya Environmental Ltd. (une entreprise appartenant à la Nation Squamish) avec Keystone Environmental Ltd. ont se sont occupé de la surveillance continue de l'environnement.

Pendant les mois de novembre et décembre 2018, les activités de l'EIM ont compris l'enlèvement de structures marines, y compris des piliers en bois traité à la créosote, des piliers d'acier, des dalles de béton et des pontages de bois. Avant le début des travaux d'EIM, les permis fédéraux et provinciaux, les approbations et les notifications ont été obtenus et un plan de gestion environnementale (PGE) a été mis en place avec des mesures d'allègement et un plan directeur conçu pour maintenir la conformité avec les exigences réglementaires applicables et avec les meilleures pratiques de gestion. Tant Keystone Environmental que Stalkaya Environmental Ltd. ont assuré la surveillance continue de l'environnement durant les travaux d'enlèvement pour s'assurer de la conformité avec les mesures d'allègement et avec le plan directeur exposés dans le PGE.

Woodfibre LNG a tenu des consultations avec la Nation Squamish, la Nation Tsleil-Waututh et avec les agences fédérales et provinciales, par le biais d'un mécanisme indépendant de consultation, tel que requis par le processus d'obtention de permis fédéraux, et par le biais de la soumission d'évaluations, de notifications, de permis et de lettres aux organismes réglementaires. Des vérifications et des consultations additionnelles au sujet du PGE ont été faites auprès des organismes réglementaires et des groupes autochtones, et le PGE a été mis à jour en tenant compte des commentaires. Une copie du PGE a été remise à tous les groupes autochtones cités dans l'Avis de décision.

Selon le Plan de gestion environnementale, les mesures d'allègement décrites dans le PGE ont été efficaces en terme de conformité avec les exigences réglementaires applicables et avec les meilleures pratiques de gestion. Il n'y a pas eu de dépassement des critères sur la qualité de l'eau à l'extérieur de l'enceinte de sécurité et non plus de dépassement des seuils de bruit sous-marin acceptables pour les poissons ou les mammifères marins. Les travaux d'EIM n'ont pas eu d'impacts observables ou mesurables sur les oiseaux migrateurs, les espèces à risque ou sur la santé humaine, et il n'y a pas eu de découverte de patrimoine ou de ressources archéologiques. Il n'y a pas eu de déversement à signaler en vertu de la réglementation sur les rapports de déversements en Colombie-Britannique, suite aux travaux d'EIM en 2018.

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LIST OF ABBREVIATIONS AND ACRONYMS

BC	BRITISH COLUMBIA
DFO	FISHERIES AND OCEANS CANADA
EAC	ENVIRONMENTAL ASSESSMENT CERTIFICATE
EMP	ENVIRONMENTAL MANAGEMENT PLAN
EPP	ENVIRONMENTAL PROTECTION PLAN
HHRA	HUMAN HEALTH RISK ASSESSMENT
LNG	LIQUEFIED NATURAL GAS
MIR	MARINE INFRASTRUCTURE REMOVAL
SNEA	SQUAMISH NATION ENVIRONMENTAL ASSESSMENT AGREEMENT

1. INTRODUCTION

Woodfibre LNG Limited (Woodfibre LNG) is proposing to build a liquefied natural gas (LNG) processing facility with marine storage and off-loading facilities (the Project), located approximately seven kilometres southwest of Squamish, British Columbia (BC) within the District of Squamish municipal boundaries (Figure 1).

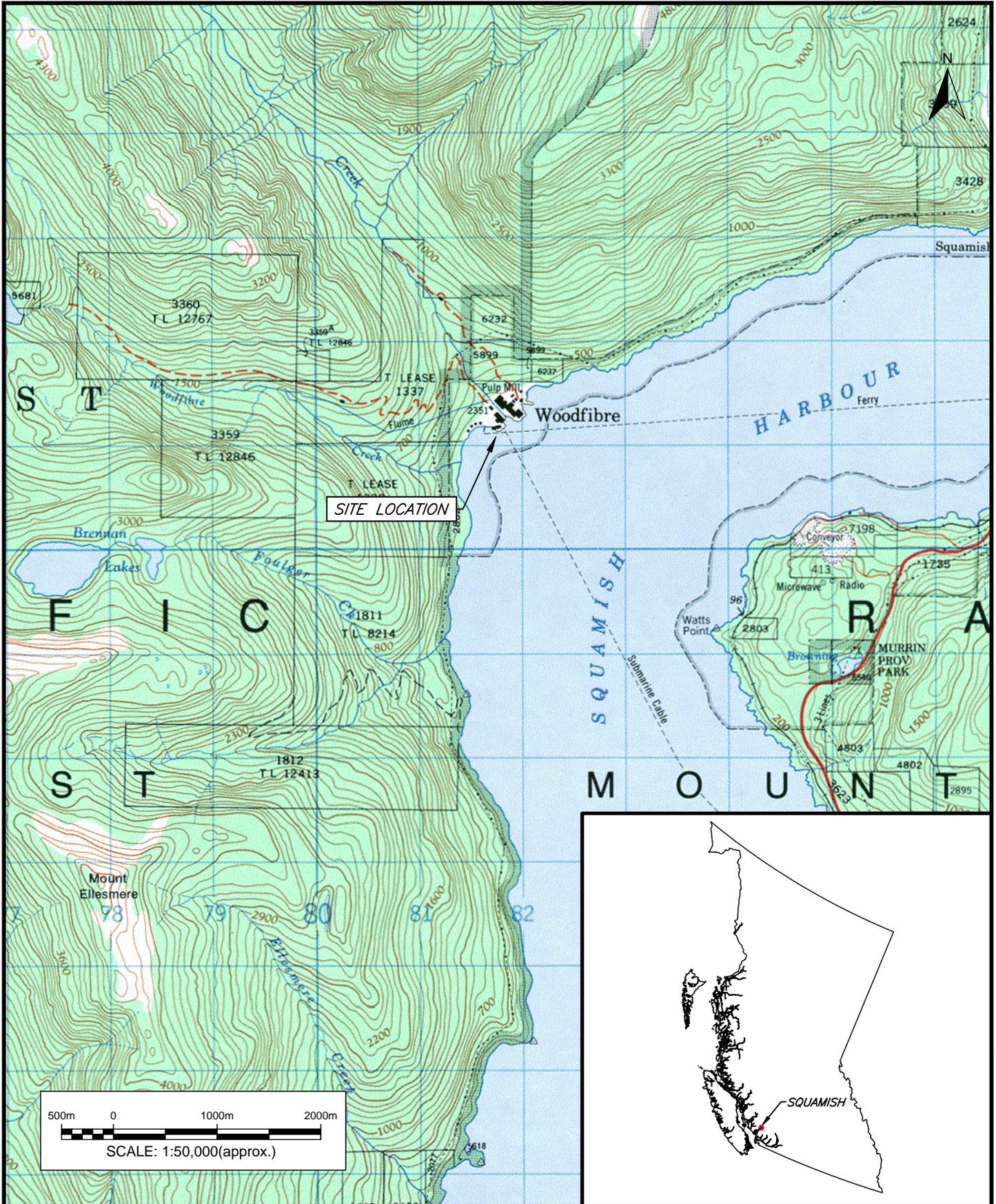
The Project area is located at the former Woodfibre Pulp and Paper Mill site; a fee simple industrially zoned, brownfield site with more than 100 years of industrial use and deep-water marine access. There is no road access to the site, only marine access via Howe Sound. The community of Britannia Beach is approximately 5.5 km southeast of the Project area; Darrell Bay is approximately 6.2 km to the east; and Port Mellon is approximately 22 km southwest. Vancouver is situated approximately 50 km southeast of the Project area.

The Project received a Squamish Nation Environmental Assessment Agreement (SNEA) on October 14, 2015, a provincial Environmental Assessment Certificate (EAC) on October 26, 2015, and a federal Decision Statement on March 17, 2016. Following a Squamish Nation direction to switch the facility from seawater cooling to air-cooling, Woodfibre LNG obtained an EAC Amendment on July 12, 2017 and a revised federal Decision Statement on March 7, 2018.

1.1 Report Requirements

This 2018 Annual Report is in part to fulfill the reporting requirements under Condition 2.6 of the Project's federal Decision Statement. This report covers the Marine Infrastructure Removal (MIR) work conducted after the submission of the Implementation schedule on November 29, 2018 to December 20, 2018, which was the last day of work in 2018.

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PLOT SCALE: 1:1



Woodfibre LNG Site Squamish, B C Woodfibre LNG Limited		
REVISION No. A	DATE Mar. 2019	PROJECT No. 13410

Figure 1
Location Plan

2. CONDITION 2.6.1: ACTIVITIES UNDERTAKEN WITHIN THE REPORTING YEAR

Condition 2.6.1: The Proponent shall prepare an annual report that sets out the activities undertaken in the reporting year to comply with each of the conditions set out in this Decision Statement.

The activities that were undertaken as part of the MIR work during the 2018 reporting year were the removal of marine structures, including creosote timber piles, steel piles, concrete slabs, and timber decking as part of the marine infrastructure clean-up of the remnant pulp and paper mill infrastructure. The activities undertaken as part of the MIR work are summarized in Table 1.

Table 1 2018 MIR Activity Summary

Structure	Removal Activities
Old Timber Wharf	<ul style="list-style-type: none"> • Deck removal with crane and clamshell • Timber pile removal with vibratory hammer and clamshell bucket
Misc. Mooring Dolphins and Frames	<ul style="list-style-type: none"> • Land-based crane used to cut bracing above dolphins • Vibratory hammer used to remove metal and timber piles • Concrete cutting • Underwater metal pile cutting
Ferry Dock	<ul style="list-style-type: none"> • Timber pile removal with clamshell bucket and vibratory hammer • Float removal with crane
Deep Sea Wharf	<ul style="list-style-type: none"> • Metal and timber pile removal with vibratory hammer and clamshell bucket • Timber decking removal with clamshell bucket
Abandoned Railcar Barge Ramp	<ul style="list-style-type: none"> • Concrete cutting • Underwater metal pile cutting
Concrete Pile Supported Slab	<ul style="list-style-type: none"> • Concrete demolition with a hydraulic jack hammer on an excavator

3. CONDITION 2.6.2: INFORMED TECHNOLOGY AND KNOWLEDGE

Condition 2.6.2: The Proponent shall prepare an annual report that documents how the Proponent complied with condition 2.1.

Condition 2.1: The Proponent shall, throughout all phases of the Designated Project, ensure that its actions in meeting the conditions set out in this Decision Statement are considered in a careful and precautionary manner, promote sustainable development, are informed by the best available information and knowledge including community and Aboriginal traditional knowledge, are based on validated methods and models, are undertaken by qualified individuals, and have applied the best available economically and technologically feasible mitigation measures.

Woodfibre LNG engaged Keystone Environmental to provide the appropriately qualified professionals to perform the work required to obtain permits, develop the EMP, and conduct environmental monitoring as described below.

Prior to the start of removal works permits, approvals and notifications were secured by Woodfibre LNG and an EMP was developed by qualified environmental professionals to provide direction to contractors, consultants and monitors performing removal works regarding maintaining compliance with applicable regulatory requirements and best management practices. Full time environmental monitoring was provided throughout the removal works to ensure compliance with the EMP and task-specific contractor Environmental Protection Plans (EPP)s.

3.1 Permitting

Environmental permits, approvals and notifications that were secured prior to the start of 2018 removal works include:

- Fisheries and Oceans Canada (DFO) Fisheries Protection Program Letter of Advice, dated August 10, 2017.
- Keystone Environmental *Fisheries Act* Self-Assessment, dated March 20, 2017.
- *Navigation Protection Act* Approval 2017-500208-001, dated January 9, 2018.
- *Navigation Protection Act* Approval 1957-500028-001 (8200-4857), dated January 11, 2018.
- *Navigation Protection Act* Approval 1961-500014-001 (8200-2517), dated January 11, 2018.
- *Navigation Protection Act* Approval 1964-500021-001 (8200-4903), dated January 11, 2018.
- *Navigation Protection Act* Approval 2003-500729-001 (T1524), dated January 11, 2018.
- DFO Fish and Invertebrate Salvage Licence Number XR 250 2018 for the salvage of invertebrates from piles.

3.2 Environmental Management Plan

Prior to the start of removal works, Keystone Environmental developed an EMP. Woodfibre LNG reviewed and conducted consultation regarding the EMP with relevant regulatory agencies and Aboriginal Groups during a workshop held on October 26, 2018. A tracking table was prepared

and distributed to record consultation and comments by each party. The tracking table included response to the comments on how they would be addressed in an updated version of the EMP. Based on the comments received by regulatory agencies and Aboriginal Groups, the EMP was updated and re-issued on November 28, 2018.

3.3 Environmental Monitoring

During marine removal works, Woodfibre LNG retained Keystone Environmental to act as the full-time lead environmental monitor. On-Site environmental monitoring was also provided full-time by Keystone Environmental, in partnership with Stalkaya Environmental Ltd. (Stalkaya) under the direction of the lead environmental monitor. Stalkaya is a Squamish Nation member owned company and the Stalkaya environmental monitors were members of the Squamish Nation.

The environmental monitors had the authority to stop work if they determined that the removal works had not complied fully with the requirements of the EMP, or were causing or potentially causing environmental damage.

4. CONDITION 2.6.3: CONSULTATION

Condition 2.6.3: For conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during or as a result of the consultation.

The MIR EMP was developed in consultation with Squamish Nation, Tsleil-Waututh Nation, and federal and provincial agencies. Woodfibre LNG undertook communication with Squamish Nation and Tsleil-Waututh Nation regarding marine infrastructure removal works, and emails and letters of support are kept on file by Woodfibre LNG. Consultation with local Indigenous Groups was also conducted as required through the application process for Federal permits including *Navigation Protection Act* approvals/notice of works. Consultation and communication with regulatory agencies was conducted through the submission of assessments, notifications, permits and letters listed in Section 3.1.

Additional review and consultation regarding the EMP were conducted by Woodfibre LNG with relevant regulatory agencies and Aboriginal Groups during a workshop held on October 26, 2018. A tracking table was prepared and distributed to record consultation and comments by each party. The tracking table included response to the comments on how they would be addressed in an updated version of the EMP. Based on the comments received by regulatory agencies and Aboriginal Groups, the EMP was updated and re-issued on November 28, 2018.

The EMP was also distributed to Aboriginal Groups as defined in the federal Decision statement.

4.1 Condition 3.11: Fish and Fish Habitat

The purpose of the MIR was to rehabilitate the marine environment through the removal of marine structures remaining from the historic Woodfibre pulp mill. The clean-up and removal work included the removal of multiple creosote timber and steel piles, wharves and docks along the Site's shoreline. As stated in the DFO Letter of Advice, dated August 10, 2017, DFO's opinion was that the project would not result in serious harm to fish. Based on this, offsetting for the loss of fish and fish habitat was not required. The project will benefit fish and fish habitat through the removal of creosote timber piles, which will result in a decrease in mortality of Pacific herring eggs, which have previously been documented on both creosote timber piles and rockweed (*Fucus sp.*) onsite.

The EMP included a Fish and Fish Habitat Management Plan with mitigation measures, timing restrictions for in-water works, water quality sampling methods and criteria and requirements for underwater noise monitoring.

4.2 Condition 6.2: Noise

The EMP included a noise abatement strategy to limit unnecessary noise disturbance. Any potential issues or complaints regarding the removal works could be submitted to the contact email and phone number identified at the Woodfibre LNG webpage <https://www.woodfibre.lng.ca/contact-us/>, which is regularly monitored. Any complaints received were to be provided to the contractor and environmental monitor and any issues that required resolution were to be coordinated with the contractor, Woodfibre LNG, and the impacted party.

The removal works did not receive noise complaints in 2018.

4.3 Condition 6.5: Human Health

As outlined in the EMP, prior to the commencement of in-water marine removal works a human health and ecological risk assessment for marine sediment was conducted at the site by Keystone Environmental. An additional human health risk assessment (HHRA) was conducted by Keystone Environmental in 2016, utilizing the results of a 2015 “Fish and Shellfish Tissue Assessment Program”. The HHRA evaluated the potential risks to Aboriginal seafood consumers and recreational receptors and determined that risks were found to be acceptable based on a yearly average consumption rate for fish and crab.

Recommended creosote timber pile removal methods outlined in the EMP were adhered to during the removal works including the use of silt curtain containment around all timber pile removal activities and water quality monitoring to assess the effectiveness of the silt curtain containment. No exceedances of water quality outside of the containment were recorded during the 2018 removal works, indicating the containment functioned effectively.

As per the EMP, while pile extraction is not expected to result in increased concentrations of contaminants in surface sediments post-removal, Woodfibre LNG will conduct surface sediment sampling for confirmation purposes.

4.4 Condition 7.1: Marine Transportation

Marine transportation requirements are summarized in the EMP. Limited vessels were used as part of the 2018 removal works. These vessels included:

- Squamish Marine Services Limited (Water Taxi),
- British Columbia Marine Logistics Limited vessels,
- Woodfibre LNG vessel (Fish Whisper),
- Vancouver Pile Driving marine derricks,
- Debris scows, and
- Tug boats.

Vessels working on the Project adhered to the EMP’s marine mammal management plan.

4.5 Condition 8.1: Heritage and Archaeological Resources

Heritage and Archaeological Resources are discussed in the EMP. Woodfibre LNG will develop an archaeological and heritage resources management plan in consultation with Aboriginal groups prior to future construction works.

No heritage or archaeological resources were discovered during the 2018 activities.

4.6 Condition 11.3: Emergency Response Plan

The contractor for the marine removal works prepared a Project Safety Plan that included incident response. The plan is consistent with Woodfibre LNG's occupational health and safety manual. The EMP included spill prevention measures and spill response procedures. The contractor developed a spill response plan that met the requirements of the EMP.

The EMP includes the requirement that incidents with the potential to cause environmental harm (including reportable spills) will be reported to Squamish Nation and Tsleil-Waututh Nation by Woodfibre LNG.

5. CONDITION 2.6.4: FOLLOW UP PROGRAMS

Condition 2.6.4: The Proponent shall prepare an annual report that documents the results of the follow-up program requirements identified in conditions 3.14, 4.3, 6.5, 7.2, and 9.3.

5.1 Condition 3.14 – Fish and Fish Habitat

Environmental monitoring in accordance with the EMP documented in-water works throughout the MIR that had the potential to adversely affect fish and fish habitat, including the effectiveness of mitigation measures in preventing adverse environmental effects. Environmental monitoring for fish and fish habitat included water quality sampling, underwater acoustic monitoring, and marine invertebrate salvage procedures.

5.1.1 Water Quality

Water quality parameters including turbidity and pH were measured using a combination of surface and underwater sampling. Sampling at multiple depths within the water column was undertaken as per the EMP. Samples were taken inside and outside of silt curtain containment during creosote timber pile removal, steel pile removal, and concrete slab removal. The samples were compared to water quality criteria outlined in the EMP.

Water quality sampling associated with creosote timber pile and steel pile removal did not record any exceedances outside of silt curtain containment during the removal works indicating the silt curtain was effective in containing re-suspended sediments. Samples taken inside silt curtain containment following the completion of pile removal activities in an area were also in compliance with water quality criteria prior to opening or relocation of the silt curtain.

Exceedances of water quality criteria were recorded within silt curtain containment for concrete slab removal work that was undertaken from the shoreline with excavators and through concrete cutting procedures. Concrete slab removal using excavators was scheduled during low tide periods and was completed in the dry. Turbidity and pH exceedances were recorded after the completion of low tide works, as the rising tide inundated the work area. Exceedances were temporary, typically lasting one tidal cycle. There were no recorded water quality exceedances outside of the silt curtain containment, for work associated with concrete slab removal using excavators.

Water quality exceedances associated with concrete cutting that was completed near the water surface or underwater were temporary and the associated sediment plumes were smaller compared to concrete removal using excavators. The plumes typically lasted less than 15 minutes after an individual cut was completed. Water quality exceedances were not recorded outside of silt curtain containment during concrete cutting procedures. For concrete cuts made above the water surface, above water containment was installed in addition to a silt curtain around the area of the cut.

5.1.2 Underwater Noise

As outlined in the EMP, pile removal works have not been shown to have the potential to result in serious harm to fish or cause behavioural disturbance for marine mammals. Underwater acoustic monitoring for pile removal is typically not a requirement of regulatory agencies (e.g., DFO). Underwater acoustic monitoring is normally required for the installation of piles using a drop hammer installation method. Although the removal work did not involve pile installation, acoustic monitoring was conducted as described in the EMP to document underwater noise associated with different pile removal activities. This included various sizes of steel pile and timber pile removal using different methods (e.g., clamshell bucket, vibratory hammer, and cable pulls). Underwater acoustic monitoring did not record an exceedance of the injury thresholds for fish or behavioural disturbance thresholds for marine mammals, and additional mitigation measures (e.g., bubble curtains) were therefore not required.

Environmental monitors were authorized to stop work if any marine mammal appeared to be at risk of physical harm or appeared to be visibly disturbed because of removal works. Work stoppages were not required as marine mammals were observed to maintain a safe distance during in-water removal activities, typically not approaching closer than a distance of 50 m from in-water works.

5.1.3 Marine Invertebrate Salvage

The environmental monitors were responsible for performing marine invertebrate salvage from removed piles in accordance with the EMP. The work was completed under a DFO salvage license. Marine invertebrate salvage was infrequent during the Project, as invertebrates were not normally observed attached to removed pilings.

5.1.4 Marine Mammals

Marine mammal observations were completed daily by the environmental monitors from the shoreline and boats during the MIR in compliance with the EMP. Marine mammal observations during the MIR included Harbour seals (*Phoca vitulina*), California sea lions (*Zalophus californianus*), and killer whales (*Orcinus orca*).

Harbour seals were the most commonly observed marine mammal with observations typically made around the mouth of Mill Creek, southeast of the Small Craft Float, and south east of the Hog Fuel Dock. Mitigations established in the marine mammal management plan include measures for underwater noise, equipment operation, and vessel operation.

5.1.5 Equipment Operation

Mitigation measures related to equipment operation included marine mammal observations by environmental monitors and work stoppages if marine mammals were at risk of physical harm from direct contact or appeared visibly disturbed. Contractors were advised by environmental monitors of the potential for work stoppages due to marine mammal presence and advised to report any marine mammal observations to the environmental monitors. No work stoppages were required as marine mammals were observed to maintain a safe distance during in-water removal activities, typically not approaching closer than a distance of 50 m from in-water works. No marine mammals were observed to be injured or disturbed during removal works.

5.1.6 Vessel Operation

Mitigation measures related to vessel operation are outlined in the EMP including procedures for maintaining distance from marine mammals and reducing speed within proximity to marine mammals. All vessel operators were informed of these requirements prior to mobilizing to site. No marine mammals were observed to be injured or in distress during the MIR works.

5.2 Condition 4.3 – Migratory Birds

A bird management plan was included in the EMP to mitigate potential effects from the MIR. The MIR did not require the removal of vegetation, only marine structures.

Harm to or mortalities of migratory birds, raptors, or waterfowl were not observed during the MIR works. Woodfibre LNG intends to install barn swallow nest cups at site prior to the 2019 bird-nesting window.

5.3 Condition 6.5 – Human Health

As described in Section 4.3 above, Woodfibre LNG will conduct sediment sampling within areas where timber piles were removed to confirm that timber pile extraction did not result in increased concentrations of contaminants in surface sediments. This sediment sampling will be conducted in 2019.

5.4 Condition 7.2 – Heritage and Archaeological Resources

As outlined in the EMP, previous assessments did not identify any known archaeological sites within the area of the MIR works, although there is potential for undocumented archaeological sites including subsurface resources, surface lithic scatters, intertidal features and heritage wrecks. The potential for surface and buried features was identified across the site. Chance find protocols were in place to halt work and notify Woodfibre LNG of any suspected archaeological finds.

The MIR was limited to the removal of marine structures and did not involve vegetation or tree removal, excavation or dredging. Heritage or archaeological resources were not identified during removal works.

5.5 Condition 9.3 – Listed Species at Risk – Little Brown Myotis

Bats are protected under the provincial *Wildlife Act* and the federal *Species at Risk Act*. Previous assessments had identified potential bat roosting activity associated with the Deep Sea Wharf and the South Pulp Warehouse. The South Pulp Warehouse was removed during the bat dormant period stated in the EMP (i.e., November 1 to February 2), but as a precaution, Keystone Environmental performed acoustic and visual surveys at the South Pulp Warehouse and Deep-Sea Wharf prior to removal to assess bat presence. Six species were identified at the Site using acoustic monitoring, including the little brown myotis (*Myotis lucifugus*). However, due to low acoustic detections in the area, in combination with no visual observations of bats inside the South Pulp Warehouse, it was determined that the number of bats in the area was likely small and adverse effects to bats from removal works were not anticipated. Demolition of the Deep-Sea Wharf was done under the supervision of the environmental monitors and was

overseen by a qualified environmental professional. Bats were not observed vacating the structures during demolition and additional adaptive management strategies were therefore not required.

Three bat houses were installed at site. Woodfibre LNG intends to install additional bat houses in 2019.

6. CONDITION 2.6.5 – ADDITIONAL MITIGATION MEASURES IMPLEMENTED

Condition 2.6.5: The Proponent shall prepare an annual report that documents any additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined through monitoring and analysis of effectiveness of mitigation measures.

No additional mitigation measures to those presented in the EMP and permits for the works were required to be implemented or proposed. In response to comments provided during the EMP review, Woodfibre LNG has committed to conducting surface sediment sampling to confirm that timber pile removal has not resulted in increased concentrations of PAHs and metals in surface sediments, as demonstrated during previously collected data and studies.

7. SPILL SUMMARY AND CORRECTIVE ACTIONS

There were no reportable spills under the BC Spill Reporting Regulation during 2018 MIR works.

8. REFERENCES

Keystone Environmental 2018 A. Environmental Management Plan Revision 3 –Marine Infrastructure Removal. Prepared for Woodfibre LNG Limited. Burnaby, BC.

Keystone Environmental 2018 B. Bat Roost Survey Results Marine Infrastructure Removal Woodfibre, BC. Burnaby, BC.

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