

Appendix H

Tables

Updated Phase I ESA (2011) Areas of Potential Environmental Concern (APECs) & Areas of Environmental Concern (AECs)

Phase I ESA (2017) New Areas of Potential Environmental Concern

Table 1: 'NAMGIS FIRST NATION - PHASE I ESA								
SUMMARY OF FINDINGS AND RECOMMENDATIONS - APEC'S								
Site/Area		Contamination Risk		Potential Contaminants of Concern	Regulated Parameters Soil or Water	Description of Contamination or Risk	Recommended Action	JMC Decision
APEC ID #	APEC Description	Suspect	Actual					
Ches-la-Kee I.R. No. 3								
	No APECs			None	N/A	N/A	Periodic regulatory environmental audits of Kuterra waste water and fuel handling procedures.	
Ar-Cee-Wy-Ee I.R. No. 4								
	No APECs			None	N/A	N/A	No action recommended	
Ksui-La-Das I.R. No. 6								
6	No APECs			None	N/A	N/A	No action recommended	
Kuldeksuma I.R. No. 7								
	No APECs			None	N/A	N/A	No action recommended	

Table 2: 'NAMGIS FIRST NATION									
UPDATED PHASE I ENVIRONMENTAL SITE ASSESSMENT – APECs and AECs: ALERT BAY I.R. No. 1A, ALERT BAY I.R. No. 1, & NIMPKISH I.R. No. 2									
STANTEC 2011 PHASE I ESA CONCLUSIONS: Results and Recommendations					STANTEC 2014 PHASE II/III ESA CONCLUSIONS: Results and Recommendations			2017 Updated Phase I ESA	
APEC No.	Site/Area	Contaminants of Concern	Contamination Risk	Phase I Recommendation	Phase II Findings	Phase II/III Recommendations	AEC ID No.	Findings	Recommendations
On-Reserve									
Alert Bay I.R. No. 1A									
1-A	I.R.1A (former Landfill)	Hydrocarbons, metals	High	Phase II ESA	Soil concentrations arsenic, copper, lead, and zinc exceed CCME CL SQG. Groundwater concentrations for dissolved iron and manganese above Health Canada and BC CSR DW standards.	AEC 1: Screening Level Risk Assessment (SLRA).	2	Screening Level Risk Assessment (SLRA) not conducted.	Complete Screening Level Risk Assessment (SLRA).
1-B	I.R. 1A (Burn Pile)	Hydrocarbons, metals	Moderate	Phase II ESA	Soil concentrations of copper and zinc in one soil sample above the CCME CL SQG.	AEC 2: Screening Level Risk Assessment (SLRA).	1	Screening Level Risk Assessment (SLRA) not conducted.	Noted in 2014 Phase II ESA to complete Screening Level Risk Assessment of the burn pile. As part of Phase II ESA, conduct soil sampling of the waste pile footprints, burned area and
1-C	I.R. 1A (Sawmill)	Hydrocarbons, metals, phenols	Moderate	Phase II ESA	Groundwater concentrations of dissolved iron & manganese > Health Canada and/or BC CSR DW standards; concentrations of dissolved cadmium > the CCME AW guidelines for long-term exposure.	AEC 3: Screening Level Risk Assessment (SLRA).	4	Screening Level Risk Assessment (SLRA) not conducted.	Noted in 2014 Phase II ESA to complete Screening Level Risk Assessment on the Sawmill. As part of Phase II ESA, conduct surface sampling in areas of burn pile, storage of hazardous materials and creosoted timbers.

Table 2: 'NAMGIS FIRST NATION									
UPDATED PHASE I ENVIRONMENTAL SITE ASSESSMENT – APECs and AECs: ALERT BAY I.R. No. 1A, ALERT BAY I.R. No. 1, & NIMPKISH I.R. No. 2									
STANTEC 2011 PHASE I ESA CONCLUSIONS: Results and Recommendations					STANTEC 2014 PHASE II/III ESA CONCLUSIONS: Results and Recommendations			2017 Updated Phase I ESA	
APEC No.	Site/Area	Contaminants of Concern	Contamination Risk	Phase I Recommendation	Phase II Findings	Phase II/III Recommendations	AEC ID No.	Findings	Recommendations
1-D	I.R. 1A (Public Works Yard)	Hydrocarbons, metals	Moderate	Improve housekeeping practices for waste oil storage	Groundwater concentrations of dissolved iron and manganese greater than the Health Canada and/or BC CSR DW standards; and concentrations of dissolved cadmium above the CCME AW guidelines for long-term exposure.	AEC 4: Screening Level Risk Assessment (SLRA).	3	Screening Level Risk Assessment (SLRA) not conducted.	Noted in 2014 Phase II ESA to complete Screening Level Risk Assessment on the Public Works Yard. As part of Phase II ESA, conduct shallow soil sampling of areas where waste fluids, batteries and other potentially hazardous substances were observed and have been stored.
	I.R. 1A (Former On-Site Residential School)	Hydrocarbons, metals	Moderate	Phase II ESA	Supplemental Phase II ESA: Site is impacted by trace metals (barium, copper, lead, selenium, and zinc), petroleum hydrocarbons (benzene and toluene) and PAHs (naphthalene and phenanthrene) greater than the applicable CCME guidelines. Class 2 NCSCS.	Excavated soils at the time of the site building demolition to meet the CCME guidelines/standards for commercial and/or residential land use.		Hazmat Building Materials removed. Residential school demolished February 2015. Site remediated March 2015. Stantec Confirmation of Remediation April 2015.	Site Closure Tool (SCT) should be completed.
1-E	I.R. 1A (Former On-Site USTs near present day gas station)	Hydrocarbons, metals	High	Phase II ESA	Groundwater concentrations of dissolved manganese above Health Canada DW guidelines (aesthetics). For BC CSR 's health-based guideline concentrations in water were below guideline.	AEC 5: Screening Level Risk Assessment (SLRA)	10	Screening Level Risk Assessment (SLRA) not conducted.	Complete Screening Level Risk Assessment (SLRA).

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STANTEC 2011 PHASE I ESA CONCLUSIONS: Results and Recommendations					STANTEC 2014 PHASE II/III ESA CONCLUSIONS: Results and Recommendations			2017 Updated Phase I ESA	
APEC No.	Site/Area	Contaminants of Concern	Contamination Risk	Phase I Recommendation	Phase II Findings	Phase II/III Recommendations	AEC ID No.	Findings	Recommendations
1-F	(I.R. 1A Former On- Site Vehicle Maintenance)	Hydrocarbons, metals	High	Phase II ESA	One soil sample had concentrations of copper above the CCME CL SQG.	AEC 6: Delineate the contaminated area and conduct Screening Level Risk Assessment (SLRA).	8	Noted 2014 Phase II ESA to complete Screening Level Risk Assessment. Minor amount of soil was removed as part of 2014 Phase II /III ESA.	Acquire record of remediation from Stantec or other party and close FCSI site. Or, if not obtainable, as part of Phase II ESA, conduct shallow surface sampling of soils in area of former vehicle maintenance and repair.
1-G	I.R. 1A (Former On- Site Soil Disposal near fields)	Hydrocarbons, metals	Moderate	Phase II ESA	All soil sample concentrations for petroleum hydrocarbons; PAHs and/or metals less than the applicable guidelines.	No further investigation			
Alert Bay I.R. No. 1									
2-B	I.R. 1 (20 Front St., Current On-Site Staining)	Hydrocarbons, metals	Moderate	Phase II ESA	Soil samples from north excavation sidewall and delineation sample west of the excavation exceeded CCME's PHC F2-F3 and F4. Soil sample south of residential bldg. exceeded CCME's Index of Additive Cancer Risk (IACR) value for protection of human health.	Supplemental soil investigation to delineate extent of remaining contamination.	5	UST removed by 'Namgis Public Works and some soil along Front St. removed. No remediation of lawn area between UST and Front St. No record of Front St. remediation provided.	As part of Phase II ESA, conduct shallow surface sampling of soils in lawn between former site of UST and Front St.
4-A	All Sites (Current On-Site ASTs 03 Front St. & 106 Broughton)	Hydrocarbons, metals	Moderate	Phase II ESA	Soil sample collected beneath AST at 106 Broughton Street exceeded CCME RL guidelines and select metals (arsenic, copper, lead, and zinc). Soil sample collected beneath the AST at 03 Front St. exceeded	Remediation of hydrocarbon contaminated soil at two residential sites. ASTs need secondary containment.	6	Appears that new tank installed at 03 Front Street. No documentation provided of any remediation at either 3 Front St. or 106 Broughton St.	Determine if two sites were remediated or tanks replaced by 'Namgis Public Works.

Table 2: 'NAMGIS FIRST NATION									
UPDATED PHASE I ENVIRONMENTAL SITE ASSESSMENT – APECs and AECs: ALERT BAY I.R. No. 1A, ALERT BAY I.R. No. 1, & NIMPKISH I.R. No. 2									
STANTEC 2011 PHASE I ESA CONCLUSIONS: Results and Recommendations					STANTEC 2014 PHASE II/III ESA CONCLUSIONS: Results and Recommendations			2017 Updated Phase I ESA	
APEC No.	Site/Area	Contaminants of Concern	Contamination Risk	Phase I Recommendation	Phase II Findings	Phase II/III Recommendations	AEC ID No.	Findings	Recommendations
					CCME RL guidelines for petroleum hydrocarbons and select metals (copper, lead, and zinc).				
Nimpkish I.R. No. 2									
3-A	I.R. 2 (On-Site Ship Slipway)	Hydrocarbons, metals	Moderate	Phase II ESA	All sediment samples were greater than the applicable guidelines for select metals and/or PAH parameters.	Delineate contaminated sediments.	7	Shipway contaminated sediments not delineated.	2014 Phase II ESA recommended delineation of contaminated sediments. As Part of Phase II (III) ESA, conduct additional sediment sampling to delineate contaminated sediments.
	Former St. Georges Hospital UST and incinerator sites.	Hydrocarbons, metals		Phase II ESA (EBA/TetraTech)			9	Remediation of UST nest from former hospital site and incinerator was completed as part of ATR. No records provided of site closure. Still a listed FCSI site (05377002)	Located record of site remediation (INAC, EBA and/or 'Namgis First Nation) and complete site closure tool for site.
Off-Reserve									
	I.R. 1 (Former Off-Site ASTs and Fuel)	Hydrocarbons, metals	Moderate	Phase II ESA	Not investigated.				
5-A	(Former Off-Site UST west of Church)	Hydrocarbons, metals	Moderate	Phase II ESA	All soil sample concentrations for petroleum hydrocarbons PAHs, and metals were less than the applicable guidelines.	No further investigation.			

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5-B	Former Off-Site Soil and Tank Disposal:	Hydrocarbons, metals	Moderate	Phase II ESA	Concentrations of tested parameters were less than the applicable standards/guidelines.	No further investigation.			
5-C	Former Off-Site Shell Bulk Plant	Hydrocarbons, metals	High	Phase II ESA	Groundwater concentration dissolved cadmium above CCME AW guidelines for long-term exposure; and groundwater concentrations dissolved manganese above Health Canada DW guidelines (aesthetics). For BC CSR 's health-based guideline concentrations in water were below guideline.	AEC 7: Screening Level Risk Assessment (SLRA		Site has been decommissioned.	No further investigations recommended.
	Former Off- Site Shipyard	Hydrocarbons, metals	High	Phase II ESA	Across (downgradient) Front St. from APEC 5-B. Not investigated.	As per 5-B, concentrations of tested parameters were less than the applicable standards/guidelines. No further investigation.			

Table 3: 'NAMGIS FIRST NATION – PHASE I ESA APECs (2017)

Site/Area		Contamination Risk		Potential Contaminants of Concern	Regulated Parameters Soil or Water	Description of Contamination or Risk	Recommended Action	JMC Decision
APEC /AEC ID #	APEC Description	Suspect	Actual					
APECs								
Alert Bay I.R. No. 1A								
1	Cemetery	✓		PCOCs may include leachate with bacteria, viruses and organic and inorganic chemical decomposition products	Surface water and groundwater: organic and inorganic chemicals	Leachate may impact groundwater and where it daylights to surface drainage ditch.	May be influenced by leachate from upgradient former community landfill. As part of Phase II ESA Install three (3) groundwater wells, one (1) upgradient of cemetery and two (2) downgradient of cemetery. Collect surface downslope of cemetery after recurrent rain events, and sample groundwater water.	
2	Atli St. Contaminated Surface Poned Water	Low		PCOCs: Metals, hydrocarbons, organic and inorganic chemicals.	Surface water and soils; Hydrocarbons and metals	Ponded water and soils may be impact posing dermal and ingestion risks to residents.	As part of Phase II ESA, conduct surface and subsurface soils sampling	
3	Residential ASTs	Low-Med		PCOCs: Hydrocarbons	Soils: Hydrocarbons (BTEX, VPH, LEPH, HEPH, F1-F4), and PAHs	Historic fuel storage may have impacted soil quality at existing and historic heating oil tank sites posing risk of inhalation, dermal and ingestion of contaminants to residents.	As part of Phase II ESA, conduct an inventory of ASTs in the community and where staining observed on dry day around an AST, collect two soil samples from each AST location and select a single sample (based on field observations and headspace screening) for EPH analysis.	
5	Aerodrome Hangar Hazardous Waste	Low		PCOC's Hydrocarbons and metals	Soils: Metals, Hydrocarbons (BTEX, VPH, LEPH, HEPH, F1-F4), and PAHs.	Hazardous materials handling and storage, car parts, salvage equipment may impact surficial soil.	As part of Phase II ESA, conduct shallow surface sampling of soils in areas where hazardous materials storage has occurred and derelict equipment is found.	
Alert Bay I.R. No. 1- Off Reserve								
6	Biocell Village of Alert Bay			PCOC's Hydrocarbons and metals.	Groundwater: Metals, Hydrocarbons (BTEX, VPH, LEPH, HEPH, F1-F4), and PAHs.	Hydrocarbons may pose risk to downgradient ecological resources on Alert Bay I.R. No. 1 and marine environment.	As part of Phase II ESA, acquire any existing and ongoing monitoring data from Village of Alert Bay on groundwater well sampling. Develop environmental investigative course of action as required.	
7	ASTs & Auto Repair Shop Front St.			Auto maintenance and repair facility on unpaved surface. PCOC's Hydrocarbons (e.g., gas, diesel, oil, transmission fluid, power steering and brake fluids, gear oil) and solvents/degreasers.	Soils: Metals, Hydrocarbons (BTEX, VPH, LEPH, HEPH, F1-F4), and PAHs. Groundwater: Hydrocarbons.	Surficial soil and groundwater may be impacted by AST leakage and spillage. May pose risk to Alert Bay ecology.	In 2014 Phase II ESA, no contaminants found from UST. 2017 Phase I ESA observed two (2) non-compliant ASTs. As part of Phase II ESA, install groundwater well on west side of Front St., down-gradient of auto repair facility.	