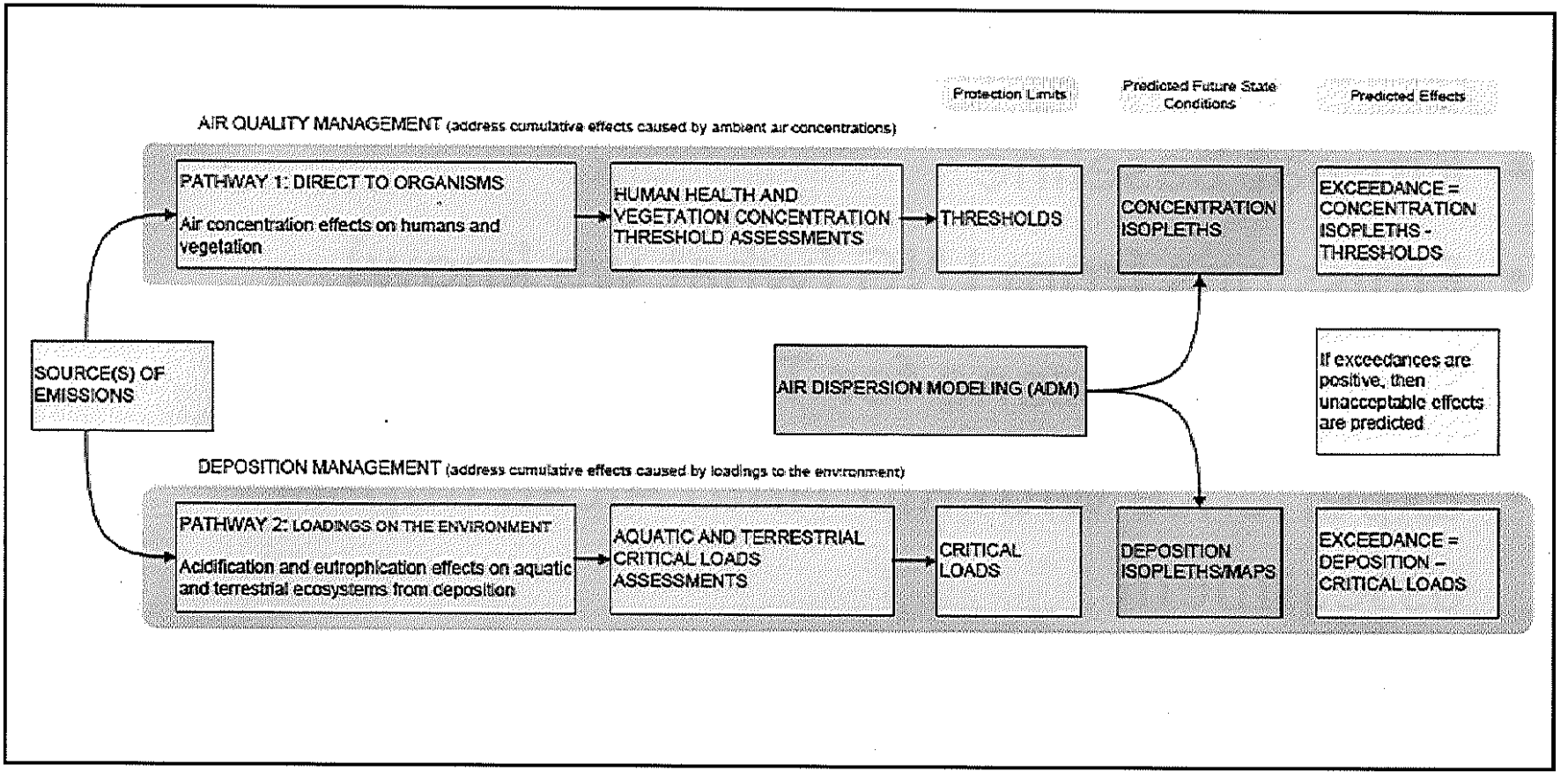
Lines of Evidence: Human Health

- Ambient air quality objectives
- Kitimat baseline
- Emissions from LNG (what we know)
- Scoping of Ozone for Terrace
- Experience with Rio Tinto Alcan impact assessment
- Questions for Shell

Typical Impact Assessment Process



AIR QUALITY OBJECTIVES AND STANDARDS
($\mu g/m^3$)

Contaminant	Averaging Period	Canada maximum desirable	Canada maximum acceptable	Canada maximum tolerable	B.C. level A	B.C. level B	B.C. level C
carbon monoxide	1 hour	15000	35000		14300	28000	35000
	8 hour	6000	15000	20000	5500	11000	14300
formaldehyde	1 hour					Action Level = 60	
						Episode Level = 370	
hydrogen sulphide	1 hour				7.5-14	28-45	42-45
	24 hour				4	6-7.5	7.5-8
lead	24 hour				4	4	6
	30 day geometric mean						
	quarterly						
	annual geometric mean				2	2	3
nitrogen dioxide	1 hour		400	1000			
	24 hour		200	300			
	annual arithmetic mean	60	100				
ozone	1 hour	100	160	300			
	24 hour	30	50				
	annual arithmetic mean		30				
PM10	24 hour					50	
sulphur dioxide	1 hour	450	900		450	900	900-1300
	3 hour				375	665	
	24 hour	150	300	800	160	260	360
	annual arithmetic mean	30	60		25	50	80
total reduced sulphur	1 hour				7	28	
	24 hour				3	6	
total suspended particulate	24 hour		120	400	150	200	260
	annual geometric mean	60	70		60	70	75

CCME CAAQS

Management Level	Management Actions	Proposed Air Management Threshold Values					
		Ozone (ppb)		$PM_{2.5}$ Annual ($\mu g/m^3$)		$PM_{2.5}$ 24h ($\mu g/m^3$)	
		2015	2020	2015	2020	2015	2020
RED	**Actions for Achieving Air Zone CAAQS**						
Threshold		63 ppb	62 ppb	10.0 µg/m3	8.8 µg/m3	28 µg/m3	27 µg/m3
ORANGE	**Actions for Preventing CAAQS Exceedance**						
Threshold		56 ppb		6.4 µg/m3		19 µg/m3	
YELLOW	**Actions for Preventing AQ Deterioration**						
Threshold		50 ppb		4.0 µg/m3		10 µg/m3	
GREEN	**Actions for Keeping Clean Areas Clean**						

Air Quality Objectives / Standards

Contaminant (concentrations in ug/m3)	Averaging Period	Canada (Max. Desired)	Canada (Max Acceptable	CAAQS 2015 (2020)	BC AQ Obj. Level A	WHO	US EPA	Metro-Van
Ozone 1 ug/m3 = 0.5 ppb	1 hour	100	160			100		160
	8 hour			126 (124)			150	126
	24 hour	30	50					
	annual		50					
Sulphur Dioxide 1 ug/m3 = 0.38 ppb	1 hour	450	900		450	500	196	450
	3 hour	NL	NL		375		1,310	
	24 hour	150	300		160	20		125
	Annual	30	60		25			30
Nitrogen Dioxide 1 ug/m3 = 0.53 ppb	1 hour		400			200	188	200
	24 hour		200					
	Annual	60	100			40	100	40
PM10	24 hour				50	50	150	50
	Annual					20		20
PM2.5	24 hour	30		28 (27)	25	25	35	25
	Annual			10(8.8)	8	10	12	8

Potential Source Emissions

- Which Pollutants?
  - Assumed list:
    - NO_x
    - SO_2
    - $PM_{2.5}$
    - CO
    - H_2S
    - VOCs
  - Others that may form downwind, or have been identified elsewhere
    - O_3
    - NH_3
    - Secondary $PM_{2.5}$
    - Hg
  - Other (?)

2012 Ambient NO_2 Concentrations

- Kitimat NO_2 range:

2.1 – 3.2 ppb (2002 – 2008)

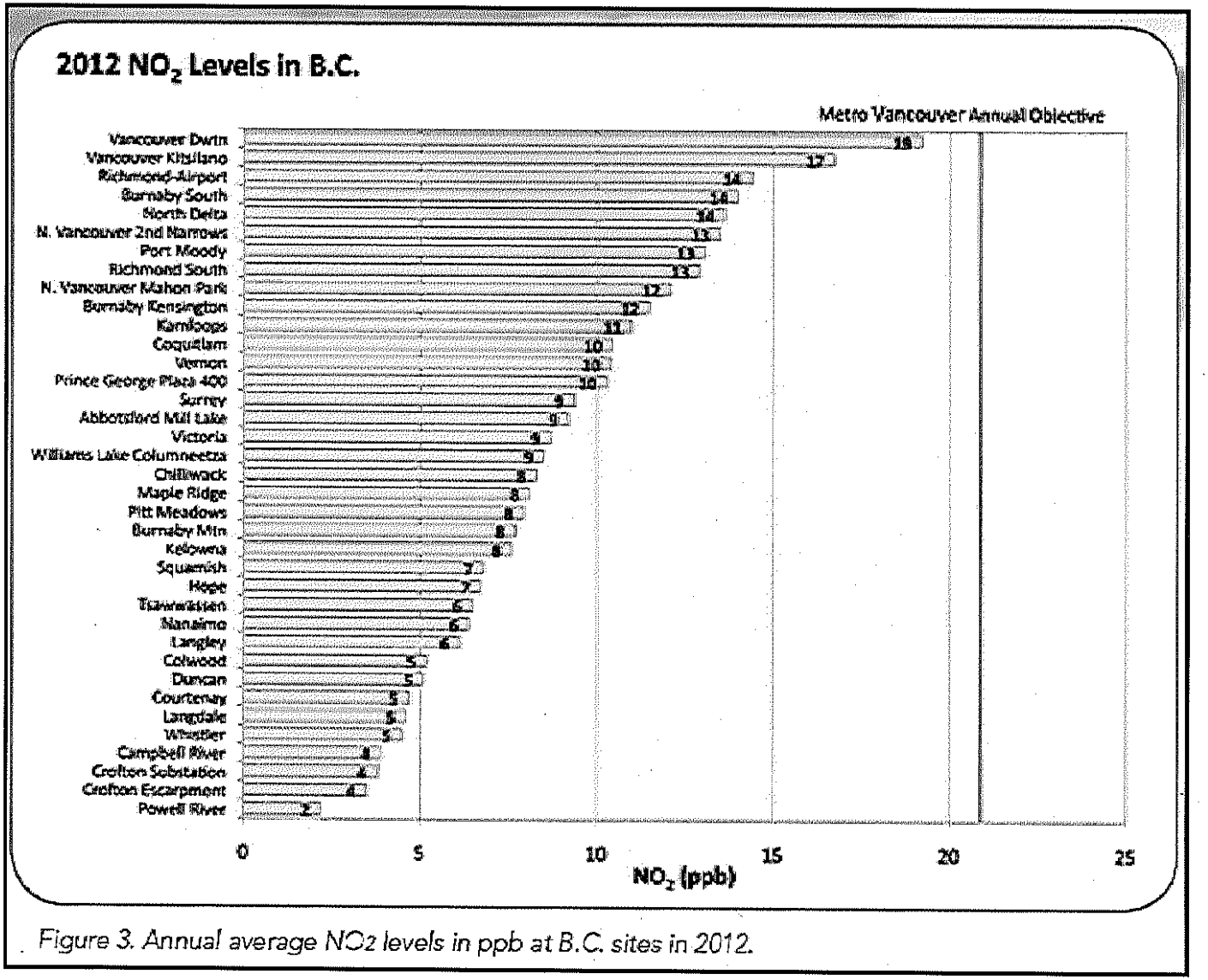


Figure 3. Annual average NO2 levels in ppb at B.C. sites in 2012.

2011 Ambient SO_2 Concentrations

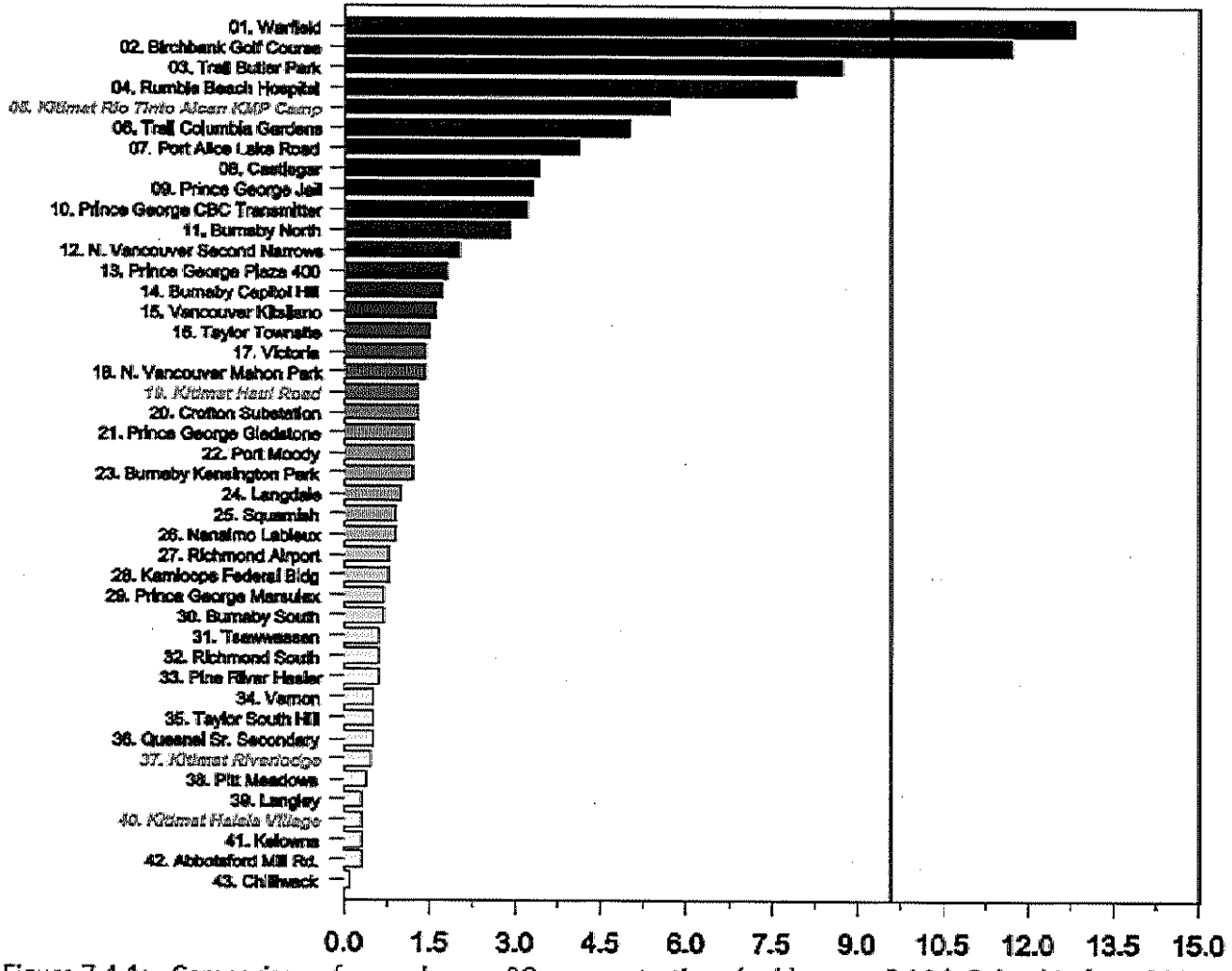


Figure 7.4-1: Comparison of annual mean SO_2 concentrations (ppb) across British Columbia from 2011, highlighting (in green) stations in the Kitimat region. Red line is 9.4 ppb SO_2, the B.C. MOE objective. Source: B.C. Lung Association.

2012 Ambient $PM_{2.5}$

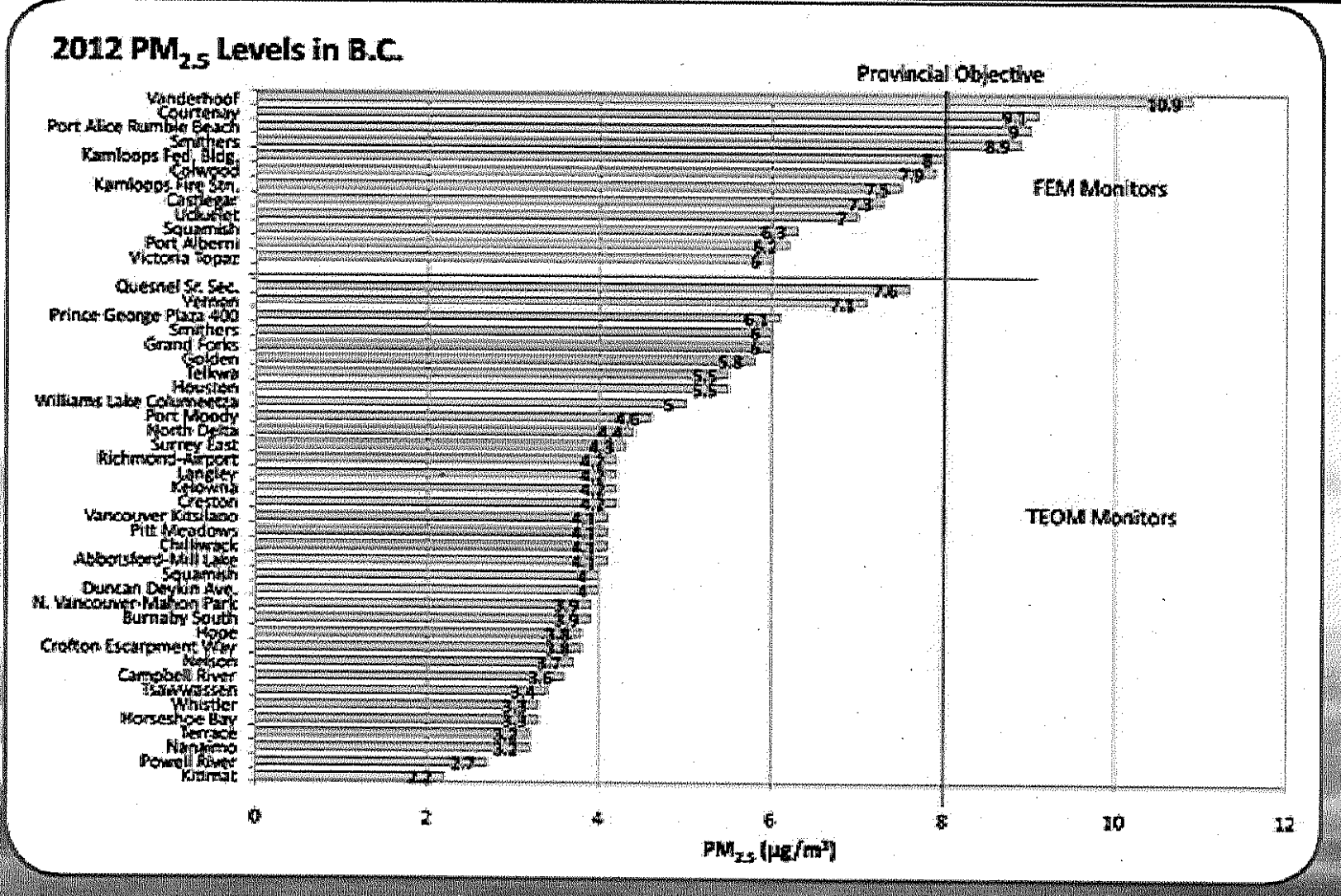


Figure 1. Annual average $PM_{2.5}$ levels in µg/m³ at B.C. sites in 2012. Blue bars show data from TEOM monitors, and green bars show data from FEM monitors.

Scoping Ozone

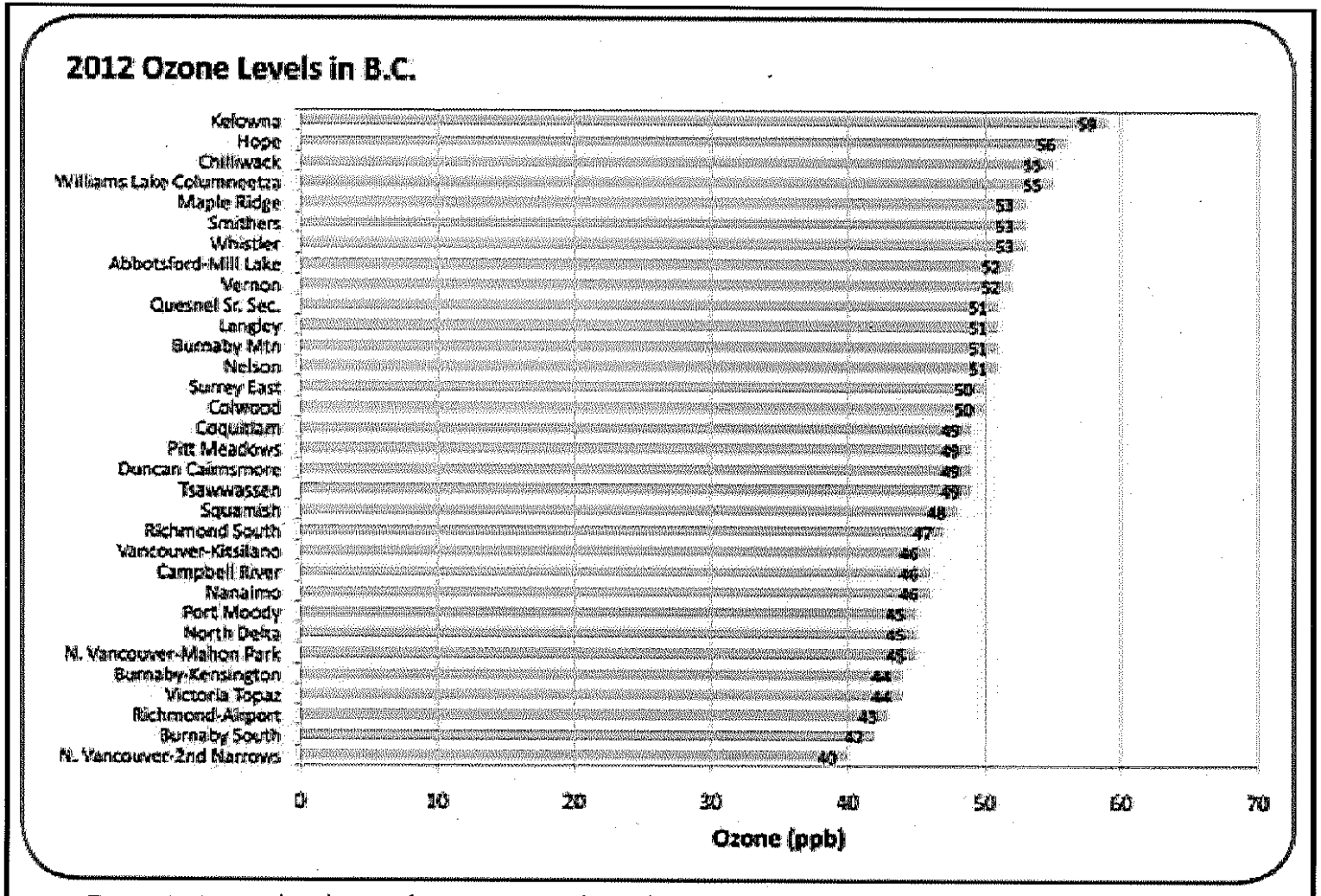


Figure 2. Ozone levels in ppb at B.C. sites, based on the fourth highest daily 8-hour maximum, averaged over 2010-2012.

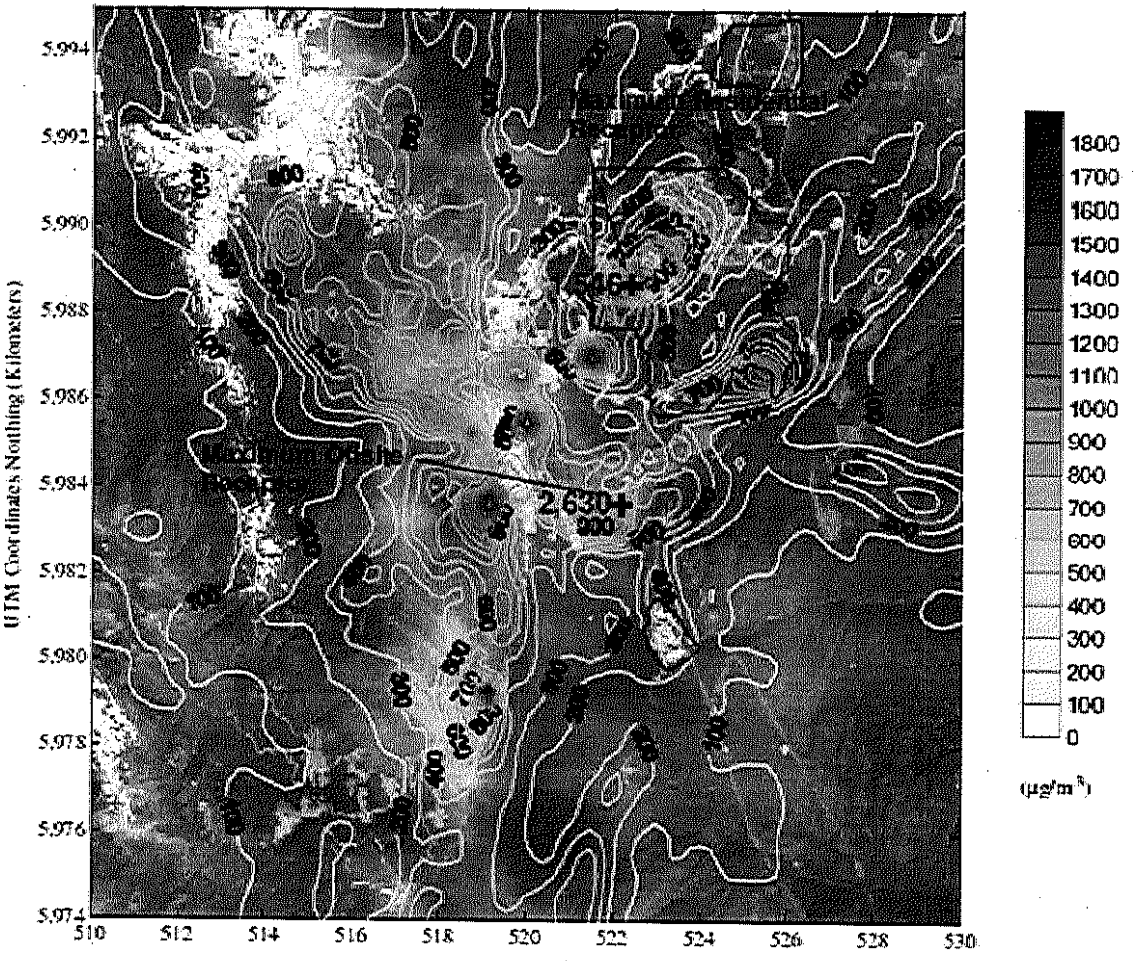
Scoping Ozone

- Limited O_3 data for Kitimat, none for Terrace
- Smithers has high O_3 *relative* to other BC locations
- For perspective, Metrovancouver provided *rough* estimates that every 1 T per day NO_x emissions was equivalent to *roughly 30,000 mixed car and passenger trucks driving between 36 and 50 km/day*

RTA STAR Experience

- High predicted SO_2 concentrations
- Used quantitative risk assessment to further understand potential for increase negative health outcomes

Kitimat Modernization Project
CALPUFF Modeling Results
SO_2 Concentration with Background Concentration (1.5 ppb)
1-hr Averaging Period
2006 CALMET Meteorological Data
Scenario 3A, 3.8% wt sulfur



SO_2 Concentration (µg/m³)

Scenario 3A: 3.8% Coke, 420,600 Metric tonnes Aluminum per year (t Al / yr)

SO_2

Averaging Period	Year	Maximum Concentration – All Receptors [a] ($\mu g/m^3$)	Maximum Concentration - Off-Site [a] ($\mu g/m^3$)	Maximum Concentration - Residential [a] ($\mu g/m^3$)	Pollution Control Objectives [b] ($\mu g/m^3$) Minimum	Maximum	WHO Guidelines [b,c] ($\mu g/m^3$)
1-hour	2006	2,630	2,630	1,546	450	900	500
3-hour	2006	973	973	874	375	665	N/A
24-hour	2006	255	233	191	160	260	20
Annual	2006	25	25	16	25	75	N/A

[a] Modelled concentrations represent the maximum of the meteorological year modelled, and include a background concentrations corresponding to the appropriate to the averaging period. Background concentrations are based on monitoring data at the nearby Kitimaat Village monitoring station, as follows: 1.5 ppb (3.9 $\mu g/m^3$) for the 1 hour and 3 hour averaging periods, 1.2 ppb (3.1 $\mu g/m^3$) for the 24 hour averaging period, and .4 ppb (1.0 $\mu g/m^3$) for the annual averaging period.

[b] Comparisons to the PCO and WHO thresholds do not provide conclusions related to impacts on the environment or human health.

[c] The SO_2 1-hr standard in the WHO Guidelines is based on a 10-minute mean. The form of the standard is conservatively assumed to apply for a 1-hour averaging period.

Maximum Location - All Receptors (UTM, NAD 27, km) East	North	Maximum Location - Off-Site (UTM, NAD 27, km) East	North	Maximum Location - Residential (UTM, NAD 27, km) East	North
522.180	5,983.612	522.180	5,983.612	522.400	5,988.701
518.748	5,985.238	518.748	5,985.238	522.900	5,989.101
519.500	5,981.500	519.134	5,982.741	525.400	5,987.101
518.500	5,987.500	518.500	5,987.500	522.500	5,989.701

Components of Human Health Risk Assessment

- Hazard Identification
  - What are the potential sources of harm and their potential effects
- Exposure Assessment
  - How much do we breathe?
- Concentration-Response
  - Given the concentration in air, how much harm do we expect?
  - Or, how do concentrations in air compare to thresholds?
- Risk Characterization
  - Make interpretations to infer what it means

SO_2 Dose Response Curve

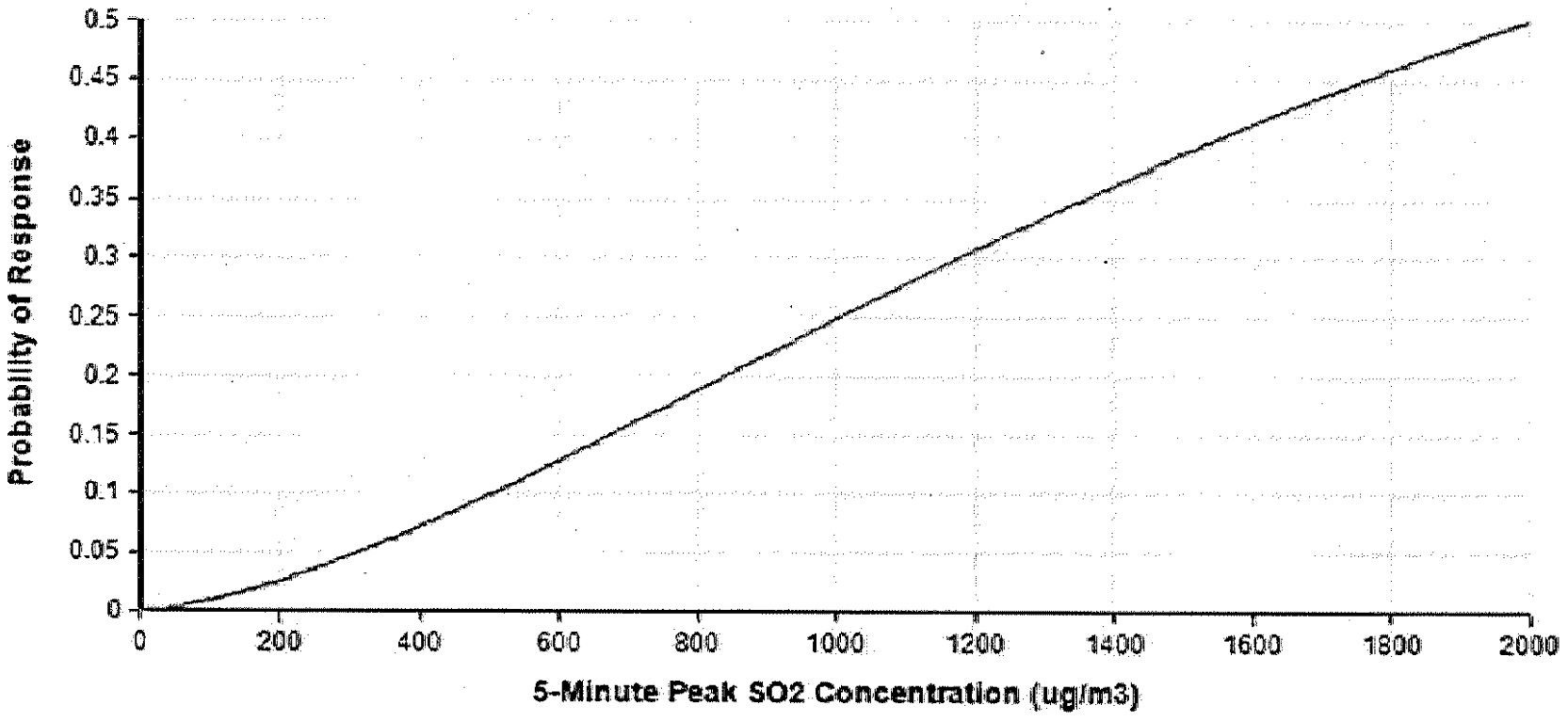
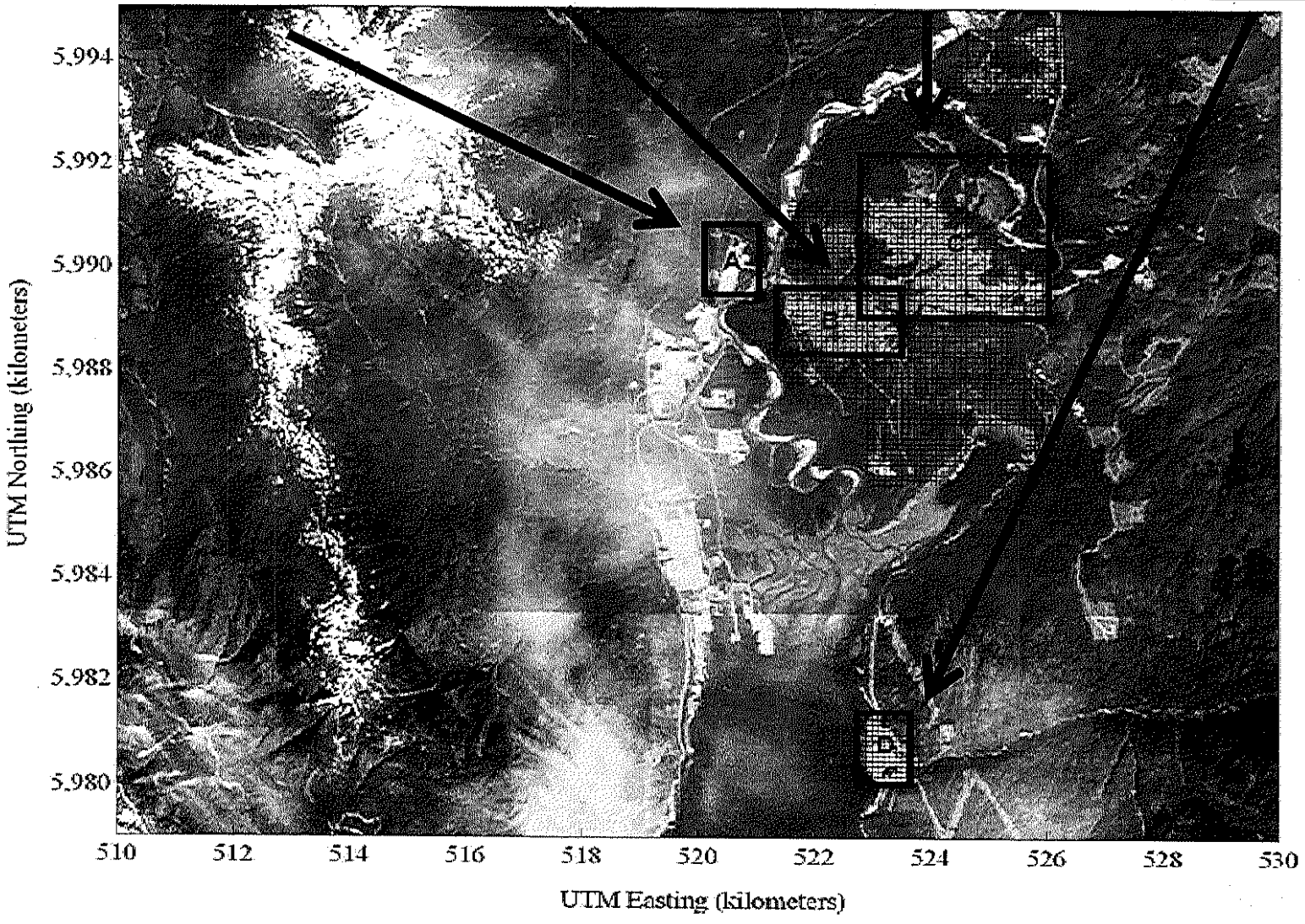


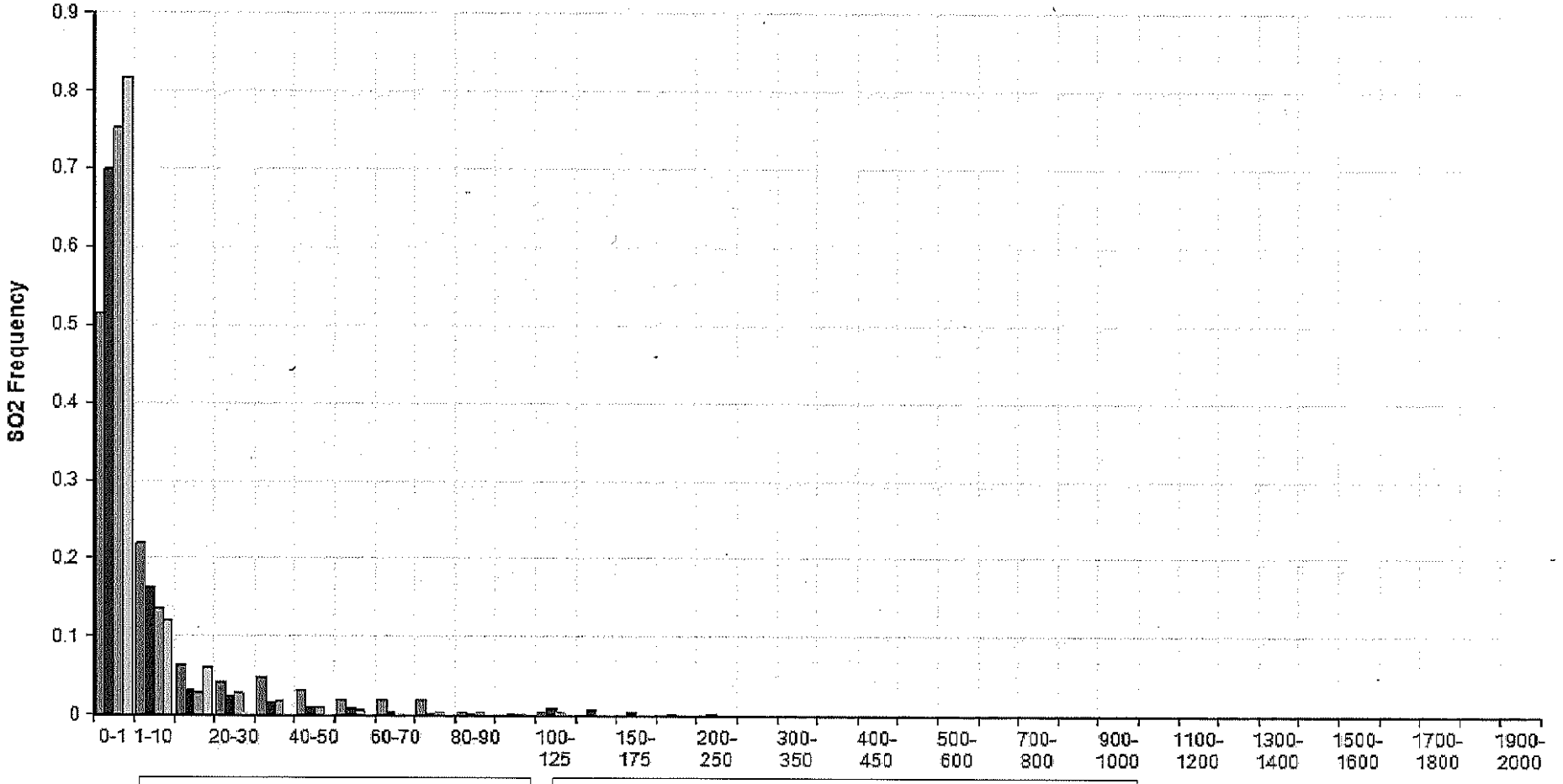
Figure 8.3-1: Concentration-response function (U.S. EPA 2009).

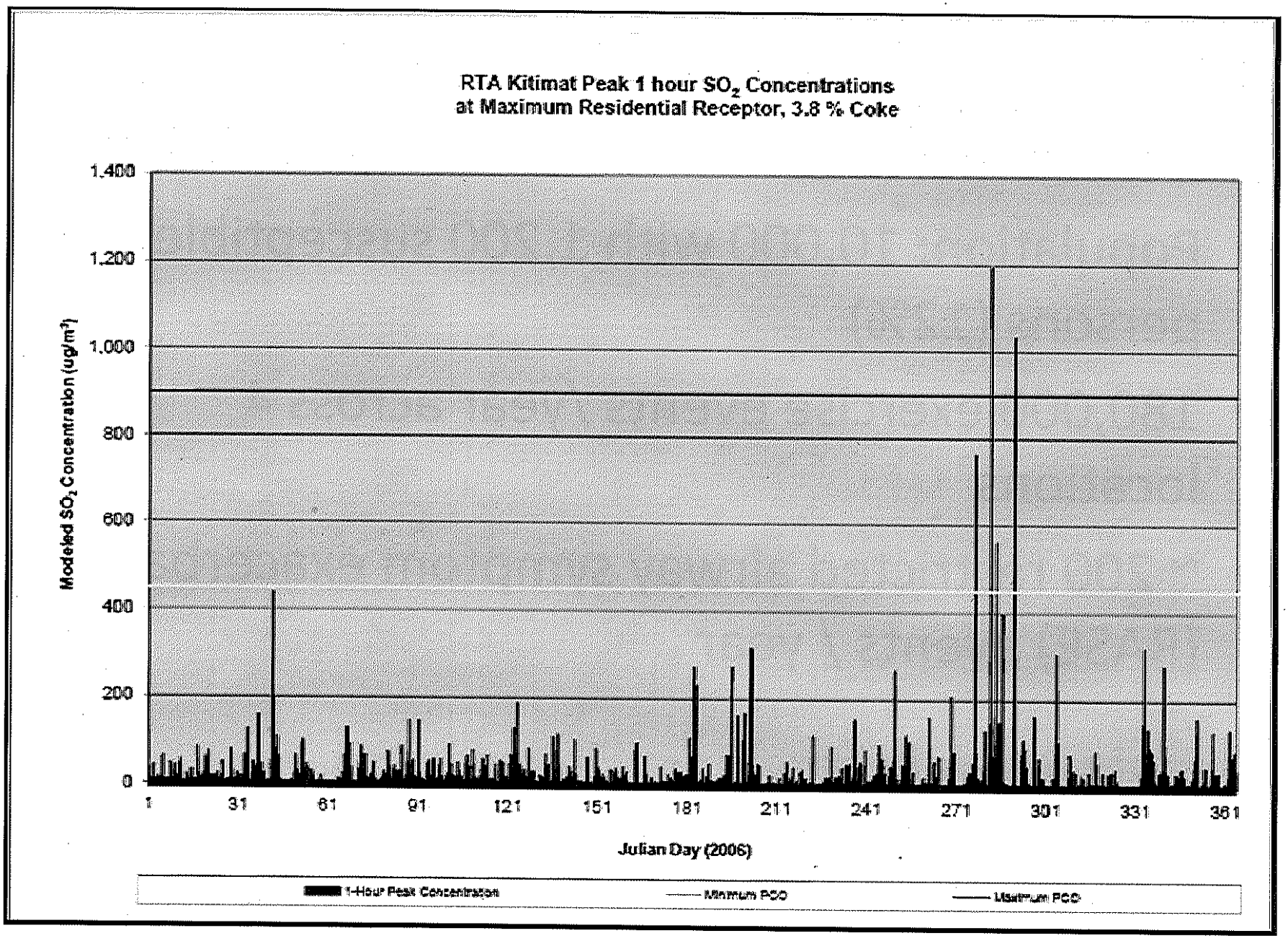
Locations

Service Centre | Lower Kitimat | Upper Kitimat | Kitimaat Village



SO2 Concentration Frequency by Location for 12 Noon in October




RTA Kitimat Peak 1 hour SO2 Concentrations
at Maximum Residential Receptor, 3.8 % Coke
Modeled SO2 Concentration (ug/m3)
1,400
1,200
1,000
800
600
400
200
0
1
31
61
91
121
151
181
211
241
271
301
331
361
Julian Day (2006)
1-Hour Peak Concentration
Maximum PCC

Baseline Scenario Results

- Population: 10,000 with 1,200 susceptible persons (12%)
- 180,000 exercise events /year across 4 locations
- ~ 200 restricted airway symptom exacerbation (RASE) events / year

Overall Risk to Human Health is **Moderate**

- *Likelihood* is **low**:
  - Impacts limited to subpopulation (~12%)
  - expected to experience, on average, less than 1 restricted airway response per year (i.e., 200 events per year across 1200 people)
- *Consequence* is **medium:**
  - Predicted health outcome is reversible,
  - treated (before or after) with medication and/or behaviour modification (stopping or reducing intensity of activity)

The overall conclusion is that the impact of KMP on human health is predicted to be moderate, an acceptable impact but in need of closer scrutiny, with moderate monitoring

Consequence → **Likelihood ↓**	**1 - MINOR** Irritation or mild reversible health effect not requiring medication, behaviour modification, or medical attention.	**2 - MEDIUM** Irritation or mild reversible health effects requiring medication or behavior modification	**3 - SERIOUS** Reversible effect requiring medical attention.	**4 - MAJOR** Irreversible health effect with ongoing mild or moderate disability	**5 - CATASTROPHIC** Fatality or long-term serious disability
A – Almost certain Whole population, frequently affected.					
B – Likely Whole population, infrequently affected					
C – Possible Susceptible sub-population, frequently affected					
D – Unlikely Susceptible subpopulation, infrequently affected		X			
E – Very Unlikely Small susceptible population, infrequently affected					

Questions for Shell and Stantec

- How does Shell intend to characterize air quality impacts (for human health) given:
  - An airshed with other emission sources
  - Multiple pollutants that individually may have multiple health effects (acute and chronic) and also may have further synergistic health consequences
- Some potential options:
  - Threshold comparison
  - Single pollutant risk assessment
  - Multi-pollutant risk assessment
  - A combination of the above

Q + A, Group Discussion

LNG & Health Assessments

Meeting Objective:

Increased awareness among health agencies of upcoming LNG facilities, clairication of respective roles and responsibilities, and process to seek guidance on information requirements and policy framework related to health assessments

Participants

- NHA – Barb Oke, Greg Thibault, Kim Menounos
- BCCDC – Tom Kosatsky
- MOH – Mike Zemanek
- HC – Gladis Lemus
- MOE (Victoria) – Warren McCormick, Natalie Suzuki
- MOE (Regions) – Ed Hoffman, Ian Sharpe, Ben Weinstein
- EAO – Scott Bailey
- Risk Sciences International – Greg Paoli (contractor)

The LNG Juggernaut (Scott Bailey)

- Environmental Assessment Office (EAO) operates under BC Environmental Assessment Act
- Health stated specifically under act (one of 5 pillars)
- Projects trigger act when they exceed certain size
- Need EA certificate before they can proceed to permitting stage
- EAO – about 50 projects right now; 10 LNG-related – most in the north (this number may grow)
- In excess of $50B capital involved with LNG (far outweighing other projects)
- Reorganized office to include 2 teams involved in LNG (one 50%, one 100%)
- Have about 1/3 of office staff working on LNG
- New Ministry of Natural Gas Development
- Struck regulatory working group – strategic issues group involving NR directors to identify barriers to regulatory process
- Normally strikes working group for each EA project, involving technical experts, to review work of proponent
- For LNG, have struck 2 working groups for pipelines and facilities
- Have gaps in the type of expertise that they need to handle massive wave of projects
- Wants to help find solutions to find the right expertise to help

- Other issue is timing of issues – beginning Jan 2014, several projects in application review stage
- Mandated timelines (180 days) for application review
- Through series of meetings with proponent, make sure necessary information is there and appropriate
- Will write final assessment report, with recommendations
- Question re: role of setting terms of reference for assessments (work with working group throughout process) including application information requirements
- EA and permit can be done concurrently, overlapping or following (could be that health information is done at EA process, or done in more detail in secondary authorization process)

Why are LNG facilities special and why health assessment framework needed? (Ian Sharpe)

- New industry to BC that could be very large -- if we can get it right off the bat, will pay big dividends for human health
- Kitimat is confined airshed
- LNG terminals will cluster (e.g. Shell proposal in Kitimat very close to Rio Tinto Alcan (RTA) smelter; other 2 facilities within 16 km of downtown Kitimat; Prince Rupert similar clustering)
- Already existing emission sources and additional proposals for other activities with airborne emissions, with multiple contaminants
- Transportation sources cannot be ignored due to volume of shipping
- Secondary reservoir of contaminants through soil and water, which may result in health effects
- RTA analysis flagged need for careful scrutiny of potential effects
- Highly sensitized public; Kitimat-Terrace is many area of concern right now
- Looking for governance framework for how to mitigate emissions
- LNG is government priority
- Coastal First Nations (Gitgat) extremely concerned that they have early warning of whether AQ may affect human health prior to regulatory process, specifically, the cumulative impacts of multiple sources and multiple pollutants on air quality and health

MOE's Role (Ben Weinstein)

- MOE's role to set requirements under Environmental Management Act (EMA) to ensure discharges to environment do not cause pollution
- Oil & Gas Commission will be decision-maker for LNG authorizations (MOE Environmental Protection Division - EPD - will support)

- EPD's role in EA process to focus on parts leading to EMA permits
- Expertise – engineers, scientists and policy-related
- Lack expertise to speak to health risks – need to work with health agencies regarding this

Health Agency Roles

- NHA (Greg/Barb)
    - LNG is beyond their resources at this time
    - Difficult to bring forward a proposal where increased health risk
    - To look at LNG priority in isolation is challenging for them
    - May be in position to ask the right questions but may not be able to evaluate individual health assessments
    - Not just AQ that is of concern to NHA
- BCCDC (Tom)
    - Not staffed to do health assessments on a routine basis; in whole province, only one designated risk assessment specialist in Fraser Healt
    - BC Environmental Health Policy Committee currently looking at role of environmental health in environmental projects, but early on in discussion
    - Kind of expertise to assess exposures and critically review toxicology just isn't present in BC, and if they start doing these, there will be expectation to continue reviewing these
    - Hiring consultants still requires staff component not present in Health Authorities in BC
- MOH (Mike) – Need to fill this gap; is a challenge to find people in that area (not just toxicology but also exposure)
- Health Canada (Gladis)
    - Health Canada has experience in developing application information requirements as well as guidance documents; can share some of their guidance documents;
    - Happy to provide technical expertise and peer reviews as appropriate; do have expertise in risk communication;
    - Do collaborate a lot with BCCDC – may be medium to long-term study related to cumulative effects
    - Federal government still trying to figure out how they deal with LNGs
- Re: policy framework
    - NHA could be involved (subject to ongoing discussions at more senior levels on resourcing/capacity issues)
    - Policy framework intended to set even set of expectations for all LNG proponents (and may be used elsewhere later for other applications)

- Ian working with MOE strategic policy branch to talk about policy issues at a July 18 workshop; will have a better sense of timing requirements after this workshop

Wrap-up/Next Steps

- Ian would like to reconvene group in near future, subject to more senior discussions involving health authority involvement

MOH/Health Agency Discussion on

A Framework for Health Assessments for LNG Facilities in B.C.

Meeting Objective:

Increased awareness among health agencies of upcoming LNG facilities, clarification of respective roles and responsibilities, and guidance on information requirements and policy framework related to health assessments.

Invitees: *[Do you want to invite someone from OGC or EAO?]*

Barb Oke (NHA)

David Bowering (NHA)

Tom Kosatsky (BCCDC) – accepted

Mike Zemanek (MOH) -- accepted

Christ Carlsten (UBC) – declined

Ian Sharpe (MOE) -- accepted

Ben Weinstein (MOE) -- accepted

Ed Hoffman (MOE)

Natalie Suzuki (MOE)

Chair: Ian?

Draft Agenda *[speakers?]*

- Introductions [10 min]
- The LNG juggernaut - an overview [20 min]
- Why a health assessment framework is necessary? [10 min]
- Roles/responsibilities regarding health assessments and framework [35 min]
    - Traditional roles/responsibilities within environmental assessments and authorizations
    - Possible role in framework development
    - Gaps and capacity issues
- Managing expectations [20 min] [i.e. *what are the questions driving the health assessments, how do they differ among the different parties, and how can these expectations be addressed given policy/info gaps?*]

- Different info needs of the public, health agencies and statutory decision-maker
- Bridging the gaps

- Are LNG facilities special (from a health assessment perspective)? [15 min]
  - Generic frameworks
  - Considerations of cumulative effects???
  - Consideration of acute (including sensitive sub-populations) vs chronic effects???
- Wrap-up and next steps [10 min]

MOE Traditional Roles, Responsibilities for Environmental Management Act Permitting and Environmental Assessment Act Certification

Potential Role of MOE in Framework Development

Ben Weinstein
Environmental Protection Division
BC Ministry of Environment
Ben.Weinstein@gov.bc.ca
250.847.7224

EMA Authorizations:

- Role of EPD to administer *EMA* which authorizes discharges of waste into environment
  - Authorizations set requirements for protection of the environment and human health
  - Use cyclic approaches to impact assessment and ongoing authorization decisions
    - set → check → evaluate
- Role of EPD to set provincial policy for how to do the above
- For oil and gas activities, EPD supports OGC as decision maker.
  - OGC follows MOE policies

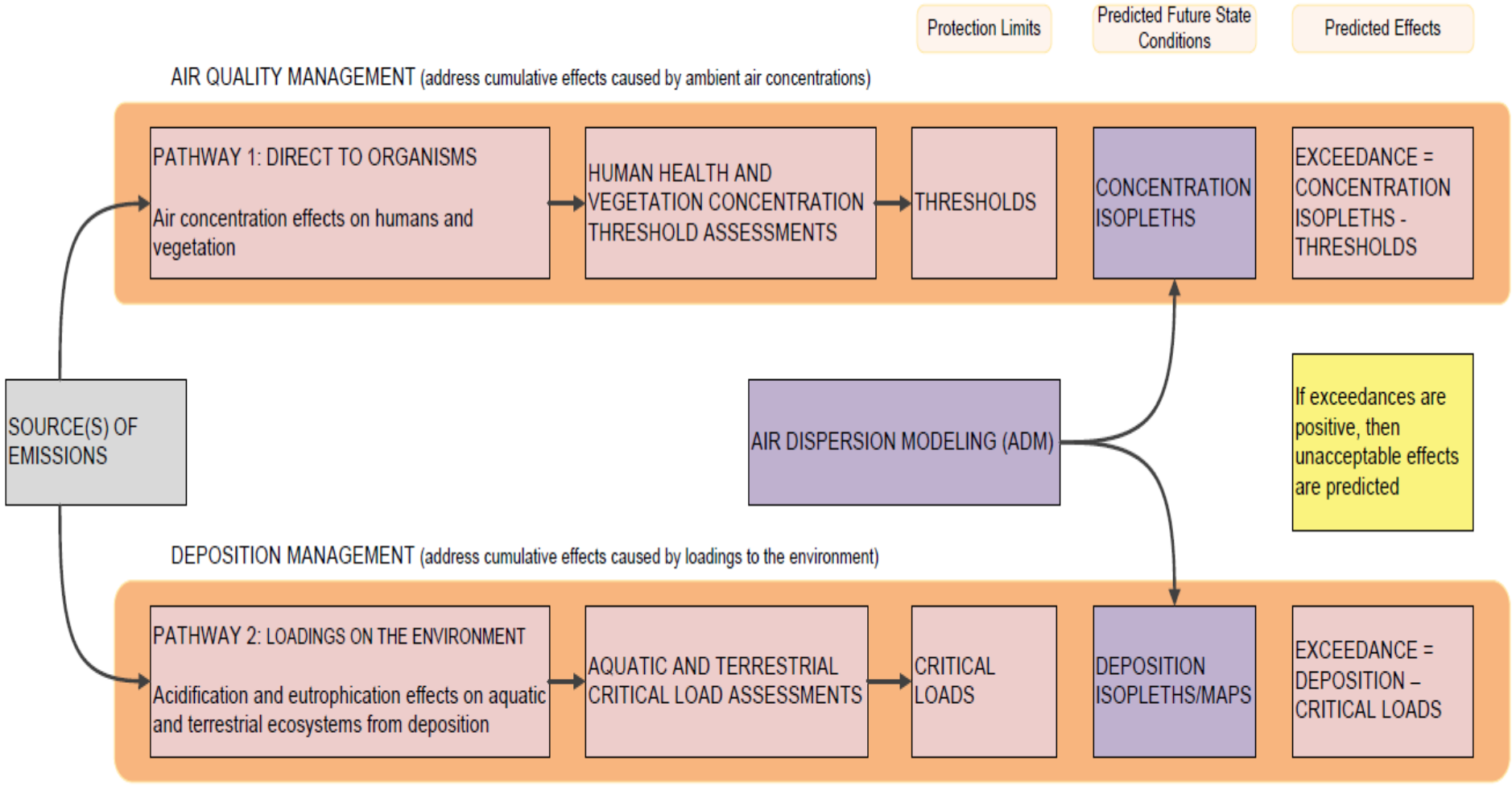
EA Act Decisions

- EPD focus on parts leading to subsequent *EMA* permitting
- Sets policy for how to do this
- Assists in developing application information requirements (AIR) in EA processes
- Reviews application
- Makes recommendations on certification decision and requirements
- Assists in compliance and compliance management

EPD Staff + Expertise

- Statutory decision makers (not when OGAA involved)
- Engineers and other technical staff who specialize in authorizations & compliance (eg: setting policy, writing permits, inspections, etc.)
- Meteorologists and biologists who specialize in human and environmental health impact assessment (eg: setting ambient air quality objectives, evaluating results of air quality modelling, developing monitoring programs, etc.)
  - From an air quality perspective, staff are more specialized in connecting emissions to receptors than evaluating the effects of pollutants on receptors

Impact Assessment Model for Airborne Emissions



graphic by Fraser McKenzie

Health Assessments

- Usually required in some form for EA but not necessarily for permitting decisions
- Statutory decision maker at any time may ask for any additional information to support decision
  - For example: additional information can take the form of a risk assessment to better understand what quantitative risk is to people or environment.
    - This was the case in a recent decision made in Kitimat when predicted concentrations exceeded AQ objectives

MOE Role in Health Assessments

- Ensure that air quality modelling completed to prescribed standards
- Review input data / assumptions
- Review output data / assumptions
- Ensure that ambient monitoring network(s) are developed to answer appropriate questions

Where EPD Relies on Others

- MOE does not have health expertise required to:
  - Set policy and do comprehensive application reviews *on its own*
    - Need input/collaboration from other experts from NH, BCCDC, MOH, HC, others
  - Translate modelled air quality concentrations to estimated health impacts
  - Put predicted changes in health risks into proper context

Role of MOE in Framework Development

- Based on needs, MOE proposing to create a broad-based team to develop:
  - Health assessment framework,
  - Assessment information requirements,
  - Process for ongoing support for authorizations.
- MOE to play important leadership role:
  - Coordinating
  - Facilitating
  - Harnessing

MOH/Health Agency Discussion on
A Framework for Health Assessments for LNG Facilities in B.C.
Wednesday, July 10, 2013 (10:00-noon, PDT)

(Call-in number: s.17, s.15 access code: s.17, s.15

Meeting Objective:
Increased awareness among health agencies of upcoming LNG facilities, clarification of respective roles and responsibilities, and guidance on information requirements and policy framework related to health assessments.

Chair: Ian Sharpe

Draft Agenda

- Introductions [10 min]
- The LNG juggernaut - an overview [EAO -- 20 min]
- What makes LNG facilities special, and why a health assessment framework is necessary? [Ian – 15 min]
- Roles/responsibilities regarding health assessments and framework [35 min]
    - Traditional roles/responsibilities within environmental assessments and authorizations
    - Possible role in framework development
        - MOE [Ben Weinstein -- 10 min]
        - Health agencies [Barb/Tom/Mike -- 25 min]
- What are the gaps (info/policy/resources) and how to bridge them? [all -- 30 min]
- Wrap-up and next steps [Ian -- 10 min]

EAO - LNG PROJECT STATUS SUMMARY

Updated: June 24, 2013	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15
Natural Gas Transmission System (Spectra)	PD (Oct'12) & S10 (Nov'12)		Sec 11 Order (May 2013)						AIR			Application Prep (Proponent)				Eval	Application Review						Decision							
Coastal GasLink (TransCanada)	PD (Oct'12) & Sec 10 (Dec'12)			Sec 11 Order (Mar 2013)			AIR (May 2013)		Application Prep (Proponent)							Eval	Application Review						Decision							
LNG Canada Export Terminal (Shell)						PD (Mar 2013) & S10 (Apr 2013)		Sec 11 (Jun 2013)	AIR				Application Prep (Proponent)				Eval	Application Review								Decision				
Prince Rupert LNG (British Gas)							PD (Apr 2013) & S10 (May 2013)		Sec 11	AIR			Application Prep (Proponent)			Eval	Application Review								Decision				
Pacific Northwest LNG (Petronas/Progress)							CEAA PD (Apr 2013)		PD	S.11	AIR		App Prep (Proponent)			Eval	Application Review						Decision						
Prince Rupert Gas Transmission (TransCanada)								PD (May 2013) & S10 (Jun 2013)		Sec 11		AIR				Application Prep (Proponent)								Eval	Application Review				
Pacific Trail Pipelines (Apache/Chevron) AMENDMENT								Amendment #3 decision				Amendment #4																		
Eagle Mountain - Woodfibre Gas Pipeline (FortisBC Energy)									PD/ S10	Sec 11		AIR				Application Prep (Proponent)											Eval	Application Review	
Pacific Northern Gas Transmission Expansion										PD/ S10	Sec 11			AIR									App Prep (Proponent)			Eval	Application Review		
Woodfibre LNG (Pacific Oil & Gas)											PD & Sec 10			Project plan not yet available															

Current Focus in EA Process	*status report is based on current project plan timelines that are subject to change - document will be updated regularly
Issue - see notes	**Pacific Northwest LNG - in CEAA process; BC EA - issues a) whether to come into BC process and b) scope of BC process given jurisdictional issue (recommended response - advise company to use EAO model for BG).**
Pre-EA	Pre-EA means Proponents are actively working with BC EAO to prepare their Project Descriptions and project plans. Note: Amendment 4 - details unavailable, likely proposed route changes from Burns Lake to Summit Lake

LEGEND		
	PD = Project Description	AIR = Application Information Requirements
	S10 (Sec 10) = Formally into BC environmental assessment process	App Prep = Proponent prepares Application for EA review
	S11 (Sec 11) = Definition of EA scope and directions to Proponent	Eval = Formal screening of Application against AIR
	Amendment = Legal document approving changes to an existing EA certificate for which the ED, EAO or the Minister of Environment is the decision-maker.	

I:\EAO\EAO_SHARED\SECTORS\Oil and Gas\LNG\LNG Dashboard\EAO LNG Project Status Chart_06_26_2013

APPLICATION INFORMATION REQUIREMENTS TEMPLATE

With Respect to

an Application

for an Environmental Assessment Certificate

pursuant to the *Environmental Assessment Act,* S.B.C. 2002, c.43

Prepared by:

Environmental Assessment Office

Last Updated:

May 27, 2013

BRITISH COLUMBIA

Note on the May 27, 2013 version of the AIR template:

The AIR template was updated in May 2013 to reflect new policy at Environmental Assessment Office (EAO) and the enactment of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). Changes to the template relate to three key areas:

1) **Former federal information requirements**
   The former Part D on federal information requirements has now been eliminated as a stand-alone component of the AIR template. Any federal information requirements that were not previously a BC requirement have been incorporated into the AIR template to reflect best practices in environmental assessment.

2) **Substitution**
   To date, EAO has announced three substitution requests for environmental assessments that would otherwise be subject to assessment by the Canadian Environmental Assessment Agency (the Agency) under CEAA 2012. EAO expects to submit requests for further substitutions in the future and, as such, the AIR template now includes guidelines for projects that may undergo substituted environmental assessments. Some changes in approach may also be required for coordinated federal-provincial environmental assessments as a result of CEAA 2012. Additional direction for coordinated environmental assessments will be developed by EAO and the Agency.

3) **Assessment methodology and valued components**
   EAO's instructions on the selection of valued components, assessment of potential effects, and significance analysis have been removed from this version of the AIR template. Updated information requirements for these steps are being developed, pending the finalization of new guidance on the identification and selection of valued components and associated significance analysis. These instructions are anticipated to be completed in summer 2013. In the interim, proponents should consult with their project leads on assessment methodology that should be followed in developing parts 4 – 9 of the draft Application Information Requirements.

PREFACE TO THE APPLICATION INFORMATION REQUIREMENTS TEMPLATE

In British Columbia, certain proposed major projects are required to obtain an Environmental Assessment Certificate (Certificate) in accordance with British Columbia's *Environmental Assessment Act* (Act). An Application for an Environmental Assessment Certificate (Application) must be made by the proposed project Proponent to Environmental Assessment Office (EAO), and the Application must comply with the Application Information Requirements (AIR), which are formally approved by EAO.

Purpose of the AIR

The AIR specifies the information that will be needed to conduct an environmental assessment (EA) and that is to be provided by the Proponent in its Application.

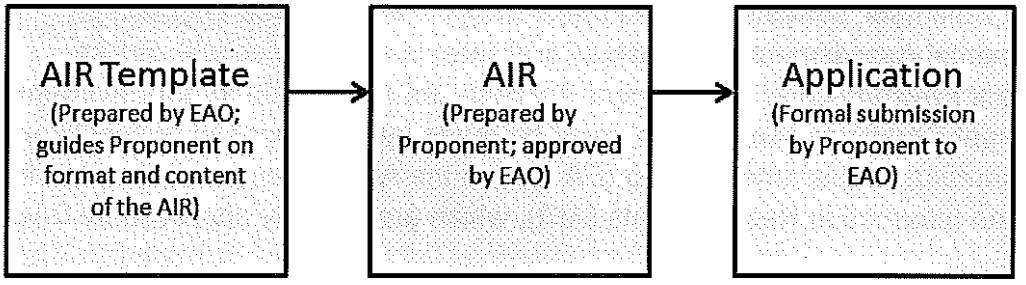
Purpose of the AIR Template

The purpose of the AIR Template is to provide a common framework for identifying the information to be collected and the analysis to be conducted in an EA, and to ensure that an Application follows the same format and requirements for content (see Figure 1). The Template has been developed for use by all Proponents so that AIR and Application documents for all proposed projects will be clear, comprehensive, and consistent in terms of structure and content.

EAO expects that Proponents will follow the Template as closely as possible, recognizing that there may be proposed projects that require minor deviations from the format provided. Proposed deviations from the Template should be discussed during the early stages of development of the AIR with the EAO project lead for a proposed project.

Following the submission of the draft AIR by a Proponent to EAO, EAO circulates the draft AIR to the Working Group and First Nations for review and comment. A public comment period is subsequently held on the draft AIR and the Proponent must document issues raised in the comments, Proponent responses to those issues, and any changes made to the draft AIR. The final AIR requires approval by EAO.

Figure 1: Relationship between the AIR Template, AIR and Application



Projects that Require both Federal and Provincial Assessment

For projects that require both federal and provincial assessments, there are multiple options for how EAO and the Agency can work together to conduct the assessment. Depending on the approach that is selected, the format and content of the AIR may need to be varied to some extent.

Substitution is a tool enabled by CEAA 2012. If a request for substitution is approved by the federal Minister of the Environment, EAO would conduct a single assessment that meets both federal and provincial requirements. At the conclusion of that process, EAO's assessment report would be provided to the federal Minister and the appropriate BC Ministers for their respective decisions. For substituted assessments, it is critical that an Application document how the requirements of CEAA 2012 have been met in order to support the federal Minister's decision. To assist proponents in doing so, this AIR template contains a number of text boxes with specific instructions for identifying and assessing information requirements identified in CEAA 2012.

Coordinated federal-provincial EAs have been undertaken for some time. Under coordination, both EAO and the Agency conduct separate reviews, with process steps, consultation activities, public comment periods, and other activities aligned to the greatest degree possible. Under CEAA 2012, EAO and the Agency will no longer be issuing joint AIR/Environmental Impact Statement Guidelines (EISg) documents, and typically, the federal EISg will be issued before the provincial AIR. Wherever possible, EAO will align the AIR requirements with federal EISg requirements, to assist proponents in working towards the production of a single Application/Environmental Impact Statement document.

Another type of federal-provincial review process that may be selected is a joint review panel.

Information and records relating to EA are available on the EAO website at www.eao.gov.bc.ca. Questions or comments specific to this template can be directed to:

Environmental Assessment Office
PO Box 9426 Stn Prov Govt
Victoria BC V8W 9V1
Phone: 250 356-7441
Fax: 250 356-7440
Email: eaoinfo@gov.bc.ca

INSTRUCTIONS

This Template is to be used by Proponents when preparing their AIR. When using this Template, please note the following points:

1. Regular text (not highlighted or in italics) provides direction for what to include in the AIR and is generally suitable for all AIRs and need not be tailored on a project by project basis. Unless otherwise indicated, the Proponent must provide the information indicated in the AIR Template in its AIR, and subsequently in its Application.
2. Italicized text provides guidance or overall context to assist with completing the relevant section. Whether the italicized text relates to the AIR, the Application, or both is noted at the beginning of the italicized text. Italicized text must be deleted prior to submitting the AIR to EAO.
3. Text highlighted in yellow is provided as an example, and must be reviewed and customized for each individual project. The examples provided were taken from Applications of certified projects.
4. Proponents should follow the Table of Contents of the Template (i.e. use section numbers and headings provided), but subject to discussion and approval of EAO project lead, modifications may be made if there are good reasons (e.g., where additional section levels are required to clearly present information).

TITLE PAGE

The title page for the approved AIR will be provided to the Proponent by EAO.

PREFACE TO THE AIR

The Proponent must describe the purpose of the AIR document in the preface to the AIR including the following components:

- A Brief description of the proposed project and the trigger(s) for the BC environmental assessment (EA) and, if applicable, the federal EA. State that completion of the EA process is required prior to construction of the proposed project;
- For projects requiring both federal and provincial EAs, an indication of whether a substituted, coordinated, or other type of review process is being undertaken by Canada and BC;
- A statement that the purpose of the AIR is to identify the information to be provided by the Proponent in the Application;
- Identification of the provincial, federal and local government agencies, First Nations and Nations with Treaties or agreements (Treaty Nations[1]), and other parties involved in the development of the AIR and the process for incorporating their comments;
- A description of the process for incorporating public input into the AIR; and,
- A description of the next steps in the EA process.

[1] For the purposes of this document, 'Treaty Nations' is defined as any aboriginal group with a signed Treaty or final agreement (including Tsawwassen First Nation, Nisga'a Nation and Treaty 8 Nations).

TABLE OF CONTENTS

[*The Table of Contents provides the structure for the information to be presented in the AIR and in the Application. If the Proponent identifies a need for a change in the Table of Contents for the Application, this must be discussed with EAO project lead prior to making the change.*]

This section provides an outline of all document components, including volumes, sections, sub-sections, lists of references, appendices, figures, tables and photographs in the AIR and in the Application.

List of Tables

TABLE OF CONCORDANCE

The Proponent must commit to provide a table of concordance (using the format below) in the Application that presents all requirements for content and methodological approaches in the approved AIR that are to be addressed by the Application, with volume, section, and page references.

Table 1: Table of Concordance between Approved AIR and Application Documentation

AIR SECTION	BRIEF DESCRIPTION OF RELEVANT SECTION AND SUB-SECTION	APPLICATION VOLUME AND SECTION

PREFACE TO THE APPLICATION

The Proponent must commit to provide the following in the Application:

- A statement that the proposed project is subject to review under the BC *Environmental Assessment Act* (Act) and the trigger for the review under the Act;
- A statement on whether the proposed project is subject to review (or not) under the *Canadian Environmental Assessment Act 2012* (CEAA 2012) and why (or why not), or include a statement that the proposed project may be subject to review under CEAA *2012;*
- If the proposed project is subject to a federal EA, a statement on whether it is undergoing a coordinated, substituted, or other type of assessment with the Province;
- Information on any other EA processes the proposed project is undergoing (if applicable);

  [*For example, National Environmental Policy Act, Presidential Permits, Yukon Environmental and Socio-Economic Assessment Act, Aboriginal EA process, etc.*]

- A statement that the Application has been developed pursuant to the AIR approved by EAO and complies with relevant instructions provided in the Section 11 Order;

- Identification of the provincial, federal and local government agencies, First Nations and other parties involved in the development of the Application.

ACRONYMS

[*EAO encourages Proponents to keep acronyms to a minimum.*]

The Proponent must commit to provide in the Application a list of all acronyms and abbreviations used and their definitions.

AIR:	Application Information Requirements
BC:	British Columbia
BMP:	best management practices
CEAA 2012:	Canadian Environmental Assessment Act 2012
Agency:	Canadian Environmental Assessment Agency
EA:	Environmental Assessment
EAO:	Environmental Assessment Office
VC:	Valued Component

EXECUTIVE SUMMARY

The Proponent must commit to provide the following in the Application:

- A brief description of the proposed project;
- A summary of the consultations undertaken;
- A summary of the issues and potential project effects;
- A summary of the recommended mitigation measures;
- A summary of the potential cumulative and residual effects;
- A summary of the follow up programs proposed (if applicable); and,
- Proponent conclusions resulting from the EA.

PART A – INTRODUCTION AND BACKGROUND

1 Purpose of the Application

The Proponent must provide a description of the purpose of the Application.

2 Proposed Project Overview

2.1 Proponent Description

The Proponent must provide the following in the AIR and the Application:

- A detailed description of the Proponent, including history, type of company, affiliations, headquarters location and contact information including contact names, addresses, telephone numbers, fax numbers and e-mail addresses;
- The name and contact for the firm/individual managing the EA of the proposed project; and,
- Identification of information in the Application that has been prepared by a qualified professional and information related to the qualified professional's expertise.

2.2 Proposed Project Description

The Proponent must state in the AIR and the Application:

- The threshold in the BC *Reviewable Projects Regulation* (B.C. Reg. 370/02) that has been met such that the proposed project is required to undergo BC EA (or description of other mechanism by which the proposed project entered BC EA, (i.e. section 6 or 7 of the Act);
- If applicable:
    - The known or likely threshold that has been met under the CEAA 2012 *Regulations Designating Physical Activities*;
    - Whether the Agency has determined that a federal EA is required;
    - Whether the proposed project is undergoing a substituted, coordinated, or other type of federal and provincial review process; and,
    - If project has been designated as a major resource project pursuant to the federal Cabinet Directive on Improving the Performance of the Regulatory System for Major Resource Projects.
- A description of the purpose of the project. This should be from the perspective of the proponent, and if project objectives are related to or contribute to broader private or public sector policies, plans, or programs, this information should be included.

- A Description of the location of the proposed project and the longitude and latitude of the site and maps showing both regional context (identify nearby communities) and site-specific setting;
- Identification of the distance to nearby communities and note the communities on the regional map;
- A description of the relevant history of the proposed project (e.g. mineral exploration history, past proposals to EAO or federal agencies);
- A description of all on-site components and associated on-site and off-site infrastructure and other facilities associated with the proposed project, and include figures of components;
- A description of the activities associated with construction, operation and decommissioning of the proposed project and provide figures of activities;
- A description of the capital construction phase and the length or lifetime of the proposed project in years; and,
- A summary of the environmental management system and adaptive management approach for the proposed project.

2.3 Provincial Scope of Proposed Project

The Proponent must provide the following in the AIR and the Application:

- A description of the scope of the proposed project to be assessed in the provincial EA (pursuant to the section 11 Order) in the Application.

For projects undergoing a substituted EA:
The Provincial information requirements for substituted EAs must be designed to incorporate federal information requirements that are contained in subsection 19(1) of CEAA 2012, including environmental effects as defined in section 5 of CEAA 2012.

2.4 Federal Scope of Proposed Project (if applicable)

Where a proposed Project is undergoing a coordinated federal and provincial EA, the Proponent must provide the following in the AIR and the Application:

- A description of the scope of the proposed project to be assessed as determined by the Agency.

2.5 Alternative Means of Undertaking the Proposed Project

The Proponent must provide in the AIR:

- A brief description of the alternative means of carrying out the Project and identification of the alternative means that will be assessed in the Application; and
- A description of the methodology and criteria that will be used to evaluate alternatives. Alternatives should be evaluated using the same criteria, and a rationale should be provided for why each criterion was selected.

The Proponent's Application must identify and consider the effects of alternative means of carrying out the Project, and must specifically:

- Provide an assessment of the alternative means of carrying out the proposed project that are technically and economically feasible; and,
- Identify the rationale for selecting the preferred alternative.

For projects undergoing a substituted EA:

Consideration of the alternative means of undertaking the project and the environmental effects of any such alternative means must include specific reference to environmental effects as they are identified in section 5 of CEAA 2012.

2.6 Project Land Use

The Proponent must commit to provide the following in the Application:

- A description of the land ownership and land use regime (for example, fee simple, Crown land, Indian Reservation, description of zoning, Agricultural Land Reserve designation, applicable Land and Resource Management Plans and other land use designations as applicable) including tenures, licenses, permits or other authorizations that would be potentially affected by the proposed project and report on the status of consultations with holders of such tenures and permits, and private land owners on resolving issues with tenure and permit holders;
- Identification of the Land and Resource Management Plans that the proposed project overlaps and list the management objectives of the Land and Resource Management Plans;
- Identification of existing and proposed management and monitoring programs or regional studies;
- Identification of other developments, even if not directly related to the proposed project, that may result in overlapping effects with the proposed project; and,
- Identification of future developments that are reasonably foreseeable and sufficiently certain to proceed.

2.7 Project Benefits

The Proponent must commit to provide the following in the Application:

- Initial capital construction cost estimates including:
  - Breakdown of costs for the land, buildings, and equipment associated with the proposed project; and,
  - Indicate the potential for use of local facilities and indicate if these are currently under-utilized.
- Estimated operating costs over the life of the proposed project (for land, buildings and equipment) including:
  - Estimated annual operating costs (excluding labour);
  - Indicate how the costs are measured (i.e., current dollar value or the use of Net Present Value); and,
  - Costs for decommissioning/closure/abandonment/reclamation.
- Employment estimates including:
  - Direct employment, stated in number of person years (PY)[2] to be created by major job category (e.g., labour, management, business services) during construction and operation, distinguishing among full-time, part-time and seasonal workers;
  - Wage levels, by major job category, for the construction and operating periods;
  - Breakdown of the number of people that will be hired locally, provincially, nationally or internationally;
  - Potential for the Proponent to use local human resources currently under-utilized;
  - Identification of any relevant employment policies/practices (e.g., Does the Proponent have a local hiring strategy?); and,
  - Projection of indirect employment (i.e., employment in industries that supply goods and services used to produce an industry's output or to be consumed by individuals) for the construction and operation phases of the proposed project. Include any assumptions relating to industry specific multipliers or other multipliers used.
- Contractor supply services estimates including:

[2] PY is defined as a single person employed full-time for one year.

- The major types of businesses/contractors, broken down at the local, provincial, and national level that will benefit from the overall proposed project;
- Value of supply of service contracts expected for both the construction and operation phases of the proposed project; and,
- Information about a local purchasing strategy, if any.

- Annual government revenues for the construction and operation phases of the proposed project including:
  - Local/municipal (property taxes, other);
  - Regional District (taxes, other);
  - Provincial (income tax, sales tax, lease, license and tenure, royalties, other); and,
  - Federal (income tax, payroll taxes, other).
- A statement of all assumptions and reference information sources for the above information;
- For wind and hydro projects, provide estimated GHG emission reductions; and
- Identification of proposed project contributions to community development.

[*The following is a list of references to be used in providing the above information:*

- *BC Stats, Quarterly Regional Statistics – http://www.bcstats.gov.bc.ca/pubs/pr_qrs.asp*
  - *Quarterly data on Labour Force Survey, manufacturing, building permits, tourism, incorporations and bankruptcies, economic structure, unemployment, income assistance and population.*
- *BC Stats, BC Input-Output Model - http://www.bcstats.gov.bc.ca/pubs/pr_pem.asp*
  - *Economic (GDP, employment) and government revenue multipliers allow users to quickly gauge the potential impact of industrial development/contraction in the Province.*
- *BC Stats, Current Labour Force Data - http://www.bcstats.gov.bc.ca/pubs/pr_lfs.asp*
  - *This summary of labour force conditions shows employment and unemployment by age, gender, occupation and industry, with a breakdown for Development Regions, Metropolitan Vancouver and Victoria.*
- *BC Stats, Regional District Data - http://www.bcstats.gov.bc.ca/regions.asp*
  - *Breakdown of regional statistics by population, socioeconomic profile, Aboriginal profiles, and population projections.*
- *BC Stats, Socioeconomic profiles - http://www.bcstats.gov.bc.ca/data/sep/index.asp*

- *The profiles consist of charts and tables for the 26 Regional Districts, 86 Local Health Areas, 16 Health Service Delivery Areas, 5 Health Authorities, 8 Development Regions, and 15 College Regions within the Province of British Columbia. Also included are the special geographies of the Georgia, Fraser, and Columbia Basins.*

- *Statistics Canada - Community Profiles - http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E*
  - *These profiles present community-level information from the 2006 Census of Population.*

Detailed company financial information should not be included in the Application.]

2.8 Applicable Permits

The Proponent must commit to provide the following in the Application:

- A list of all applicable provincial and federal licenses, permits and/or approvals required for the construction, operation and decommissioning of the proposed project and the associated responsible regulatory agency; and,
- An indication of whether a request for concurrent permitting is being requested under the Act pursuant to the *Concurrent Approval Regulation* (BC Reg. 371/2002).

For projects undergoing a substituted EA:
Proponents should note that under subsection 5(2) of CEAA 2012, if the proposed project will require a federal authority to exercise a power or perform a duty or function conferred on it under any federal Act other than CEAA 2012, they will need to consider certain environmental effects in addition to those listed in subsection 5(1).

3 Assessment Process

3.1 Provincial and Federal (if applicable) Involvement and Issues Tracking

The Proponent must commit to provide the following in the Application:

- A list of the federal and provincial agencies/departments/organizations likely to be involved in the EA and their anticipated or confirmed roles;
- A list of applicable federal and provincial milestones (including any milestones under substitution). Milestones must include, but are not limited to, issuance of

section 10 and 11 orders, working group meetings and public comment periods; and,

[*Can divide into sub-categories, e.g., agencies, public, stakeholders, etc.*]

- An issues tracking document that describes issues and concerns raised and the degree to which issues are considered resolved or addressed by the Proponent and other parties during the preparation of the AIR and the Application. Issues tracking tables are required for each of the following groups: public, First Nations and local, provincial and federal government agencies.

  [*EAO project leads will provide Proponents with guidance on preparing issues tracking tables.*]

3.2 First Nations Information Distribution and Consultation

[*Substantial detail on First Nations Consultation is required in the Application under Part C First Nations Information Requirements.*]

The Proponent must commit to provide the following in the Application:

- A summary of the consultation activities undertaken with the identified First Nations and Treaty Nations potentially affected by the proposed project (as identified in the section 11 Order).

3.3 Public and Agency Information Distribution and Consultation

[*This section of the Application should summarize the Proponent's past and proposed public and agency consultation initiatives, in accordance with the consultation provisions set out in the section 11 order.*]

The Proponent must commit to provide the following in the Application:

- A summary of the consultations with public and other key stakeholders, federal, provincial and local government agencies;
- A description of the means of information distribution and consultation used including the following:
  - Public meetings and open houses;
  - One-on-one meetings with interested parties;
  - Publication of articles in the media, enclosures and community newspapers;
  - Through interviews on local radio and television; and,
  - By means of participation in community events.
- A summary of the issues, concerns and interests identified during these consultations, and how these matters were addressed.

3.3.1 Pre-Application Consultation

The Proponent must commit to provide the following in the Application:

- A report on consultations undertaken in the pre-application stage, covering both the preparation of the AIR and the Application, specifically:
    - A report on the consultations with public and other key stakeholders;
    - A summary and/or report on the consultations with federal, provincial and local government representatives; and,
    - An issues tracking document that identifies issues and concerns raised by the public and government agencies and the degree to which issues are considered resolved or addressed by the Proponent and other parties during the preparation of the AIR and the Application.

        [*EAO project leads will provide Proponents with guidance on preparing issues tracking documentation.*]

3.3.2 Consultation Planned During Application Review

The Proponent must commit to provide the following in the Application:

- A plan describing the public consultation program proposed for the Application review stage of the EA process;
- A plan describing the proposed programs for consultation with government agencies; and,
- A description of the proposed methods and process to resolve outstanding issues.

PART B – ASSESSMENT OF POTENTIAL EFFECTS, INCLUDING CUMULATIVE EFFECTS, PROPOSED MITIGATION MEASURES, AND THE SIGNIFICANCE OF ANY RESIDUAL EFFECTS

4 General

PLEASE NOTE:

The information requirements and format for Sections 4 – 9 will be updated pending finalization of new EAO guidance for the selection of valued components and assessment of potential effects.

This guidance is anticipated to be completed during summer 2013. In the interim, proponents should consult with their project leads on the assessment methodology that should be followed in developing parts 4 – 9 of the draft Application Information Requirements.

For projects undergoing a substituted EA:

Reminder: The environmental assessment must be conducted and the results reported in a way that will enable a determination of whether the project will result in adverse environmental effects as defined in section 5 of CEAA 2012.

If it is determined that the proposed project will not result in an environmental effect defined in section 5 (e.g. there will be no transboundary environmental effects), a rationale to substantiate this conclusion must be provided in either the AIR or the Application; in the presence of a defensible rationale, no further assessment is required.

If the project will result in an environmental effect (e.g. there will be an impact on migratory birds), then that effect must be examined by either including the effect as a valued component in the environmental assessment or by assessing the effect within a broader valued component. In either case, the objective is to clearly demonstrate that the effects have been considered and to report them in a manner that enables a conclusion to be reached on the significance of any adverse effect after taking mitigation into account for the purposes of CEAA 2012 decision-making.

CONT: <u>For projects undergoing a substituted EA:</u>

For each subsection 5(1) or 5(2) environmental effect, the proponent must commit to including in the Application: whether potential environmental effects, including cumulative impacts, have been identified; if they have, what mitigation measures are proposed to mitigate these impacts; if, taking into account the mitigation measures, any residual impacts have been identified and an indication of the significance of those residual effects, including any cumulative environmental effects.

If no impacts are identified for a particular section 5 environmental effect, the Proponent must provide analysis to document this finding.

Finally, the proponent must clearly identify whether each valued component contained in the AIR and Application has been included to address provincial EA requirements, CEAA 2012 requirements (based on CEAA 2012 factors), or both.

5 Assessment of Potential Environmental Effects

5.1 Environmental Background

[*In describing the existing biophysical environment, the Proponent must identify the Valued Components (VCs). VCs should include environmental features and indicators of environmental health. Examples include Species at Risk (plants and wildlife including federal and provincial listings), Species of Management Concern as identified in the provincial Conservation Framework database, Water Quality and Quantity, Air Quality, Soil Stability, etc. Valued Components can be organized into subject areas (e.g. Terrestrial VCs) to assist in the organization of the AIR and the Application.*]

The Proponent must commit to provide the following in the Application:

- A general description of the existing biophysical environment, including surrounding areas within the zone of potential influences of the proposed project.

  [*Include the following subject areas where applicable: Geophysical Environment, Atmospheric Environment, Aquatic Environment, Surface Hydrology, Groundwater, Terrestrial Environment, Wetlands, Migratory Birds, Wildlife, and Species at Risk.*]

5.1.1 [Valued Component #1]

5.2 Summary of Assessment of Potential Environmental Effects

The Proponent must commit to complete the following table in the Application for all VCs.

5.3 [Subject Area #1 e.g. Geophysical Environment]

For projects undergoing a substituted EA:

Reminder: The environmental assessment must be conducted and the results reported in a way that will enable a determination of whether the project will result in adverse environmental effects as defined in section 5 of CEAA 2012.

If it is determined that the proposed project will not result in an environmental effect defined in section 5 (e.g. there will be no transboundary environmental effects), a rationale to substantiate this conclusion must be provided in either the AIR or the Application; in the presence of a defensible rationale, no further assessment is required.

CONT: For projects undergoing a substituted EA:

If the project will result in an environmental effect (e.g. there will be an impact on migratory birds), then that effect must be examined by either including the effect as a valued component in the environmental assessment or by assessing the effect within a broader valued component. In either case, the objective is to clearly demonstrate that the effects have been considered and to report them in a manner that enables a conclusion to be reached on the significance of any adverse effect after taking mitigation into account for the purposes of CEAA 2012 decision-making.

Under subsections 5(1)(a) and 5(1)(b) of CEAA 2012, the specific environmental components to be assessed are:

- Any change that may be caused to fish, as defined in section 2 of the *Fisheries Act* and fish habitat as defined in subsection 34(1) of that Act;
- Any change that may be caused to aquatic species as defined in subsection 2(1) of the *Species at Risk Act*;
- Any change that may be caused to migratory birds as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*; and
- Any change that may be caused to the environment that would occur on federal lands, in another province, or outside of Canada.

In addition, under subsection 5(2), if the proposed project will require a federal authority to exercise a power or perform a duty or function under any federal Act besides CEAA 2012, the assessment must take into account any environmental effect, other than those referred to in subsection 5(1) that may be caused to the environment that is directly linked or necessarily incidental to that federal decision, as well as the effect of any such change on:

- Health and socio-economic conditions;
- Physical and cultural heritage; and
- Any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance.

Table 2: Summary of Assessment of Potential Environmental Effects[3]

VALUED COMPONENTS (NOTE *PHASE OF PROJECT*)[4]	POTENTIAL EFFECTS	KEY MITIGATION MEASURES	SIGNIFICANCE ANALYSIS OF RESIDUAL EFFECTS (SUMMARY STATEMENT)

[3] (Additional tables to be prepared by Proponent for economic, social, health and heritage potential effects)

[4] Construction Phase = C; Operation Phase = O; Closure Phase = C; and Decommissioning Phase = D (other phases can be added as needed)

6 Assessment of Potential Economic Effects

6.1 Economic Background

6.2 [Subject Area #1]

6.2.1 [Valued Component #1]

6.3 Summary of Assessment of Potential Economic Effects

[*Provide same summary table as outlined for environmental effects in Section 5.*]

For projects undergoing a substituted EA:

Reminder: The environmental assessment must be conducted and the results reported in a way that will enable a determination of whether the project will result in adverse environmental effects as defined in section 5 of CEAA 2012.

If it is determined that the proposed project will not result in an environmental effect defined in section 5 (e.g. there will be no transboundary environmental effects), a rationale to substantiate this conclusion must be provided in either the AIR or the Application; in the presence of a defensible rationale, no further assessment is required.

If the project will result in an environmental effect (e.g. there will be an impact on migratory birds), then that effect must be examined by either including the effect as a valued component in the environmental assessment or by assessing the effect within a broader valued component. In either case, the objective is to clearly demonstrate that the effects have been considered and to report them in a manner that enables a conclusion to be reached on the significance of any adverse effect after taking mitigation into account for the purposes of CEAA 2012 decision-making.

With respect to potential economic effects, the AIR and the Application must describe any effects of a change in the environment on the socio-economic conditions of Aboriginal peoples and the effects of any change to the environment directly linked or necessarily incidental to federal decisions on overall socio-economic conditions.

7 Assessment of Potential Social Effects

[*Repeat approach as outlined for environmental effects in section 5.*]

7.1 Social Background

[*Valued Components (VCs) are activities or sites of social and cultural importance including, but not limited to, land and resource use, First Nation community interests, and other features or indicators of community wellbeing and quality of life.*]

7.2 [Subject Area #1]

7.2.1 [Valued Component #1]

7.3 Summary of Assessment of Potential Social Effects

[*Provide same summary table as outlined for environmental effects in Section 5.*]

For projects undergoing a substituted EA:

Reminder: The environmental assessment must be conducted and the results reported in a way that will enable a determination of whether the project will result in adverse environmental effects as defined in section 5 of CEAA 2012.

If it is determined that the proposed project will not result in an environmental effect defined in section 5 (e.g. there will be no transboundary environmental effects), a rationale to describe this conclusion must be provided in either the AIR or the Application; in the presence of a defensible rationale, no further assessment is required.

If the project will result in an environmental effect (e.g. there will be an impact on migratory birds), then that effect must be examined by either including the effect as a valued component in the environmental assessment or by assessing the effect within a broader valued component. In either case, the objective is to clearly demonstrate that the effects have been considered and to report them in a manner that enables a conclusion to be reached on the significance of any adverse effect after taking mitigation into account for the purposes of CEAA 2012 decision-making.

With respect to potential social effects, the AIR and the Application must describe any effects of a change in the environment on the socio-economic conditions of Aboriginal peoples and the effects of any change to the environment directly linked or necessarily incidental to federal decisions on overall socio-economic conditions.

8 Assessment of Potential Heritage Effects

[*Repeat approach as outlined for environmental effects in section 5.*]

8.1 Heritage Background

[*British Columbia's archaeological resources are protected under the Heritage Conservation Act. The Heritage Conservation Act and the Freedom of Information and Protection of Privacy Act provide for withholding detailed site location information from the public to prevent vandalism and other unauthorised alterations. To this end, information (including Applications) and posted on EAO's Project Information Centre or the Agency's Project Registry must not include specific site locations on maps. Sites plotted on maps at 1:250,000 scale are acceptable; 1:50,000 may be acceptable; while larger scales are not acceptable. Textual descriptions of sites must not include precise location descriptions or georeferences. The Proponent should work with their archaeologist to ensure such information remains confidential.*

Generally, the BC Archaeology Branch does not participate as a member of EA technical working groups. The Archaeology Branch does not review Applications or other submissions unless requested by EAO. The Archaeology Branch requests that project Proponents retain the services of a consulting archaeologist to conduct an archaeological impact assessment (AIA) consistent with the British Columbia Archaeological Impact Assessment Guidelines (Archaeology Branch 1998, available on the Archaeology Branch website). AIA's are conducted under permits and the Archaeology Branch will review permit reports and provide input to the EA process once permit reports have been accepted. The Proponent should ensure that their archaeologist's permit reports are submitted to the Archaeology Branch well in advance of EA process deadlines.

Definitions from the Heritage Conservation Act:

***"heritage object'** means, whether designated or not, personal property that has heritage value to British Columbia, a community or an aboriginal people;*

***"heritage site"** means, whether designated or not, land, including land covered by water, that has heritage value to British Columbia, a community or an aboriginal people; and,*

***"heritage value"** means the historical, cultural, aesthetic, scientific or educational worth or usefulness of a site or object.*

Valued Heritage Components include those sites or objects included within the definitions from the Heritage Conservation Act.]

8.2 [Subject Area #1]

8.2.1 [Valued Component #1]

8.3 Summary of Assessment of Potential Heritage Effects

[Provide *same summary table as outlined for environmental effects in Section 5.*]

For projects undergoing a substituted EA:

Reminder: The environmental assessment must be conducted and the results reported in a way that will enable a determination of whether the project will result in adverse environmental effects as defined in section 5 of CEAA 2012.

If it is determined that the proposed project will not result in an environmental effect defined in section 5 (e.g. there will be no transboundary environmental effects), a rationale to substantiate this conclusion must be provided in either the AIR or the Application; in the presence of a defensible rationale, no further assessment is required.

If the project will result in an environmental effect (e.g. there will be an impact on migratory birds), then that effect must be examined by either including the effect as a valued component in the environmental assessment or by assessing the effect within a broader valued component. In either case, the objective is to clearly demonstrate that the effects have been considered and to report them in a manner that enables a conclusion to be reached on the significance of any adverse effect after taking mitigation into account for the purposes of CEAA 2012 decision-making.

With respect to potential heritage effects, the AIR and the Application must describe:

- any effects of a change in the environment on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance to aboriginal peoples; and
- any effects of any change to the environment directly linked or necessarily incidental to federal decisions on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

9 Assessment of Potential Health Effects

[*Repeat approach as outlined for environmental effects in Section 5.*]

9.1 Health Background

[*Valued Components may include worker safety and health, recreational or aesthetic features, levels of physical activities in the region, and other features or indicators of community health.*

Of particular concern in connection with any proposed project are the likely implications, if any, for the continuation and expansion of opportunities for physical activity and various recreational pursuits in the vicinity of the proposed project. Such opportunities would apply to anyone using or visiting the area in general, as well as workers employed at the proposed project.]

9.2 [Subject Area #1]

9.2.1 [Valued Component #1]

9.3 Summary of Assessment of Potential Health Effects

[*Provide same summary table as outlined for environmental effects in Section 5.*]

For projects undergoing a substituted EA:

Reminder: The environmental assessment must be conducted and the results reported in a way that will enable a determination of whether the project will result in adverse environmental effects as defined in section 5 of CEAA 2012.

If it is determined that the proposed project will not result in an environmental effect defined in section 5 (e.g. there will be no transboundary environmental effects), a rationale to describe this conclusion must be provided in either the AIR or the Application; in the presence of a defensible rationale, no further assessment is required.

If the project will result in an environmental effect (e.g. there will be an impact on migratory birds), then that effect must be examined by either including the effect as a valued component in the environmental assessment or by assessing the effect within a broader valued component. In either case, the objective is to clearly demonstrate that the effects have been considered and to report them in a manner that enables a conclusion to be reached on the significance of any adverse effect after taking mitigation into account for the purposes of CEAA 2012 decision-making.

With respect to potential health effects, the AIR and the Application must describe the effects occurring in Canada of any change that may be caused to the environment by the proposed project with respect to the health conditions of Aboriginal peoples.

10 Accidents or Malfunctions

The Proponent must commit to provide the following in the Application:

- Identification of potential accidents, malfunctions and unplanned events that could occur in any phase of the proposed project; the likelihood and circumstances under which these events could occur; and the environmental effects and/or consequences that may result from such events, assuming contingency plans are not fully effective; and
- Description of how each potential accident, malfunction or unplanned event would be managed or mitigated.

[*Potential effects that will be assessed include, but are not limited to:*

- *Contamination due to construction equipment fuel or hydrocarbon spills (e.g. during refuelling operations);*
- *Spills of hazardous substances stored on site (reagents, fuels, contained liquid waste);*
- *Unintended leakage from containment ponds;*
- *Accidental release of contaminants from stockpiles of ore or waste rock;*
- *Breach or failure of tailings dam or other containment structure;*
- *Leakage or spill of materials with potential risks to the environment (including petroleum products, chemicals and other materials) as a result of highway, road, marine, air, pipeline, and/or rail transportation;*
- *Leakage or spill of materials with potential risks to the environment (including petroleum products, chemicals and other materials) as a result of the construction, operation, or maintenance of the proposed project on or off-site;*
- *Accidental discharge of off-specification effluent from treatment plants;*
- *Power outages;*
- *Fires or explosions that could potentially be caused during construction or operation, such as brush fires caused by clearing and construction activities;*
- *Fly rock from blasting;*
- *Flooding, erosion and burial as a result of potential reservoir or tailings pond dam failures;*
- *Acid or metal leaching downstream of reservoirs, tailings ponds, road cuts, or other excavation; and,*

- *Sediment releases into watercourses.*]

For projects undergoing a substituted EA:

Consideration of potential accidents and malfunctions must include specific reference to environmental effects as they are identified in section 5 of CEAA 2012.

11 Effects of the Environment on the Project

The Application must take into account how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (e.g. flooding, landslides) could adversely affect the project and how this in turn could result in impacts to the environment.

The Proponent must commit to provide the following in the Application:

- Identify the environmental factors deemed to have possible consequences on the proposed project, including, but not necessarily limited to consideration of natural hazards such as:
  - extreme weather events (lightning, heavy precipitation, extreme temperatures, flooding, drought and wind);
  - natural seismic events and associated effects such as seiches, liquefaction, subsidence; and tsunamis;
  - volcanic events;
  - fire;
  - slope stability and mass wasting events (e.g., debris flows/torrents; rock fall; snow avalanche);
  - winter; and,
  - climate change.
- Identify any changes or effects on the project that may be caused by the above-mentioned environmental factors, whether the changes or effects occur within or outside of Canada;
- Identify the likelihood and severity the changes or effects; and,
- Identify mitigation measures, including design strategies, planned to avoid or minimize the likelihood and severity the changes or effects.

For projects undergoing a substituted EA:

Consideration of effects of the environment on the proposed project must include specific reference to environmental effects as they are identified in section 5 of CEAA 2012.

12 Summary of Proposed Environmental and Operational Management Plans

[*A comprehensive list of plans should be provided in the AIR. A comprehensive list of plans, and detailed descriptions of the plans, should be provided in the Application.*]

The Proponent must commit to provide the following in the Application:

- List all Environmental Management and Operational Plans for all phases of the proposed project that would be needed for construction, operations and maintenance, and where relevant, decommissioning.

  Examples include, but are not limited to, the following:

  - Surface water quality monitoring and protection plan;
  - Groundwater quality monitoring and protection plan;
  - Erosion prevention and sediment control plan;
  - Construction waste management plan;
  - Acid rock drainage management plan;
  - Air quality monitoring and dust control plan;
  - Water management and hydrometric monitoring plan;
  - Fisheries and aquatic life monitoring plan;
  - Contaminated sites management plan;
  - Solid waste management reduction and recycling plan;
  - Hazardous waste management plan;
  - Accidents and malfunctions plan;
  - Natural hazards management plan (e.g. snow avalanches, landslides, floods);
  - Emergency response plan;
  - Fire hazard and abatement plan;
  - Landscape design and restoration plan;
  - Soil salvage and site reclamation plan;
  - Wildlife/vegetation monitoring plan;
  - Human/bear conflict management plan;
  - Archaeological sites management plan; and,
  - Facility decommissioning and closure plan.

13 Compliance Reporting

[*The reporting structure will include the type and frequency of reports to be submitted to EAO and/or other regulatory federal or provincial agencies. EAO posts compliance reports prepared as a condition of the EA certificate on its website.*]

The Proponent must commit to provide the following in the Application:

- Reporting structure as identified within the environmental management plans, monitoring plans and commitments.

PART C – FIRST NATIONS INFORMATION REQUIREMENTS

[*Prior to completing this section, Proponents should (i) review the First Nation consultation reports available on the EAO website from other recent projects that have received EA certificates, and (ii) contact the EAO project lead for the proposed project.*

For guidelines on ways to obtain and present required First Nations information, see the Proponent Guide for Providing First Nation Consultation Information (Treaty and Non-Treaty First Nations) on the EAO website.

Note that in coordinated EAs, federal and provincial First Nations consultation requirements may differ in some cases.]

14 Background Information

The Proponent must commit to provide the following in the Application:

- A listing of the First Nations and Treaty Nations that could be potentially impacted by the proposed project and their asserted or established traditional territory;
- Maps of the asserted or traditional territory of the potentially impacted First Nations and Treaty Nations; and,
- Background information for each of the potentially impacted First Nations including but not limited to ethnography, language, land use setting and planning, governance, economy and reserves.

15 Aboriginal Rights and Treaty Rights

The Proponent must commit to provide the following in the Application:

- An identification of past, present and anticipated future uses of the proposed project area by aboriginal groups;
- An identification of any specific asserted aboriginal rights (including title) about which the Proponent receives information from First Nations or other sources;
- An identification of potential impacts of the proposed project on the uses and asserted rights identified by way of the preceding two bullet points;
- For proposed projects which are situated within or close to geographical areas encompassed by existing treaties, an identification of the treaty rights which could be impacted by the proposed project; and,
- A description of mitigation measures to avoid or reduce such impacts.

16 Other Aboriginal Interests

The Proponent must commit to provide the following in the Application:

- An identification of aboriginal interests with respect to potential social, economic, environmental, heritage and health effects of the proposed project (to the extent not already identified in section 13 above); and,
- A description of how these interests have been addressed.

For projects undergoing a substituted EA:

Reminder: Under subsection 5(1)(c), the Proponent must describe and demonstrate how it has addressed the following effects occurring in Canada of any change that may be caused to the environment by the proposed project with respect to Aboriginal peoples:

- Health and socio-economic conditions;
- Physical and cultural heritage;
- The current use of lands and resources for traditional purposes; and
- Any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance.

Typically, these factors can be addressed through the proponent's valued component analysis, but some reference to these factors may also be appropriate in this section.

17 Aboriginal Consultation

The Proponent must commit to provide the following in the Application:

- A summary of past and planned aboriginal consultation activities; and,
- A description of key aboriginal issues of relevance to the EA and responses to these issues.

[*Issues and responses must be summarized in a tracking table, and will be posted on EAO's Project Information Centre. EAO project leads will provide Proponents with guidance on preparing issues tracking tables.*]

For projects undergoing a substituted EA:

The Proponent must describe and demonstrate how it has addressed the following:

- Specific issues and concerns raised by Aboriginal groups in relation to the potential adverse impacts of the project on potential or established Aboriginal and treaty rights;

CONT: For projects undergoing a substituted EA:

- Where and how Aboriginal traditional knowledge or other Aboriginal views were incorporated into the consideration of environmental effects and potential adverse impacts on potential or established Aboriginal and treaty rights and related interests; and,
- Efforts undertaken to engage with Aboriginal groups as part of collecting the information identified above.

18 Summary

The Proponent must commit to provide the following in the Application:

- An identification of accommodation measures including design considerations, mitigation measures and specific commitments which address potential effects on the matters identified in section 13 above and provided in the form of the following table.

Table 3: Summary of Potential Effects on Aboriginal Activities and Accommodation Measures

POTENTIAL EFFECTS ON ABORIGINAL ACTIVITIES	ACCOMMODATION MEASURES
E.g. Disruption of food fishing activities by passage of barge	E.g. Proponent commitment to an adaptive management strategy, the *Aquatic Effects Monitoring and Management Plan* and a transportation communications plan to inform fishers of the barge schedule and minimize disruption and impacts to harvesting. Proponent commitment to maintain daily trip log and meet with First Nations prior to, during and after each food fishing season to identify impacts and methods to address impacts.

PART D – CONCLUSIONS

19 Summary of Residual Effects

The Proponent must commit to provide the following in the Application:

- Summary information for each environmental, economic, social, heritage or health effect that cannot be completely avoided or mitigated through the re-design or relocation of the proposed project or through Proponent commitments in the manner set out in the following table.

Table 4: Summary of Residual Effects

POTENTIAL EFFECT	PROJECT PHASE	CONTRIBUTING PROJECT ACTIVITY OR PHYSICAL WORKS	PROPOSED MITIGATION	SIGNIFICANCE[5]
EFFECT CATEGORY (E.g. Archaeology, Wildlife, Fish and Fish Habitat)				
E.g. Impacts to archaeological sites; Disturbance to Bald Eagle nests; Direct loss/ mortality of fish	E.g. Construction; Operation; Decommissioning/ Closure	E.g. Ground disturbance associated with the construction of towers and /or power poles along the transmission line right-of-way; Detailed design of transmission right of way and location of structures; Physical disturbance from access road bridge footprint	E.g. Final design to avoid as many sites and culturally modified trees as possible; Conduct updated nest survey at detailed design stage, and during construction maintain a 100 to 200m vegetated buffer around active eagle nests (based on site-specific assessment)	E.g. No significant residual adverse effect; negligible, low, moderate or severe significant residual adverse effect

[5] Final significance determination rests with EAO and the federal responsible authority (under CEAA 2012, this must be either the Canadian Environmental Assessment Agency, the National Energy Board, or the Canadian Nuclear Safety Commission).

20 Summary of Mitigation Measures

The Proponent must provide the following in the Application:

- A summary of proposed mitigation measures to prevent or reduce adverse environmental, economic, social, heritage or health effects; and,
- An identification, in the following table, of the specific mitigation measures.

Table 5: Proponent's Table of Proposed Mitigation Measures

Number	Proposed Mitigation Measure	Timing
Number each mitigation measure.	Group mitigation measures by project phase (e.g., detailed design, construction, operations, decommissioning, or all project phases), and then by valued components within each project phase. Mitigation measure wording should be clear and measurable.	Specify when the mitigation measure would be undertaken, including during which project phase. For example: • "Pre-construction: no later than 10 days after permit X is issued." • "Pre-construction: at least 30 days before construction begins." • "Construction: ongoing during construction." • "Operations: at least once per month throughout project operation." • "Ongoing throughout project, from pre-construction to decommissioning."

21 Conclusion

The Proponent must commit to provide the following in the Application:

- A summary of the Proponent's understanding of the BC EA process in promoting sustainable development while minimizing effect to environmental, economic, social, heritage and health values.
- A description of how the proposed project aligns with the goal of the BC EA process; and,
- A statement of request for an EA Certificate for the proposed project and the need (if applicable) to successfully complete a federal EA and subsequent permitting/authorization processes prior to proceeding with proposed project construction, operation and decommissioning.

REFERENCES

The Proponent must commit to provide a list of references used in developing the AIR and the Application.

APPENDICES

The Proponent must commit to provide applicable appendices to the Application. Where information is prepared by professionals and provided under their professional seal, identify this in the Application where applicable and append sealed studies to the Application.

For projects undergoing a substituted EA:

The proponent must commit to provide an Appendix in the Application that summarizes how all subsection 5(1), 5(2), and 19(1) requirements of the CEAA 2012 have been considered as part of the assessment for the purposes of substitution.

The summary for each requirement should be concise and succinct, yet provide sufficient detail to enable the reader to understand key issues or impacts related to CEAA 2012 factors. The summary should describe:

- How each environmental effect listed in section 5 of CEAA 2012 was considered; whether potential environmental effects, including cumulative impacts, were identified; what mitigation measures are proposed to mitigate these impacts; if residual impacts remain after taking the proposed mitigation measures into account, the significance of those residual impacts; and proponent recommendations with respect to any follow-up program elements.
- How factors to be considered under section 19(1) of CEAA 2012 were taken into account as part of the assessment, and what conclusions are drawn for each factor.

The summary should also identify the sections in the Application where additional information on section 5 and 19(1) requirements can be found.

See sample substitution summary table below.

Sample substitution summary table:

Effect or factor	Summary of assessment	More information
Fish as defined in section 2 of the *Fisheries Act* and fish habitat as defined in subsection 34(1) of that Act	• Identify any fish or fish habitat potentially impacted by the project and whether or not they were selected as Valued Components for the assessment (e.g. Dolly Varden, Rainbow Trout spawning habitat). • Identify any effects, including cumulative effects, to identified fish or fish habitat and technically and economically feasible mitigation measures proposed to mitigate these effects, including design changes. • Identify whether any residual effects remain after the application of mitigation measures. • With the application of mitigation measures, determine whether the residual effects, including residual cumulative effects, are significant. • Identify any proposed follow-up program activities to verify predicted effects (or their absence), and to confirm the effectiveness of mitigation measures. • If no effects were identified, describe this finding and provide a rationale.	Section(s) ___
Aquatic species as defined in subsection 2(1) of the *Species at Risk Act*	• Identify any aquatic species potentially impacted by the project and whether or not they were selected as Valued Components for the assessment; • Identify any effects, including cumulative effects, to identified fish or fish habitat and technically and economically feasible mitigation measures proposed to mitigate these effects, including design changes. • Identify whether any residual effects remain after the application of mitigation measures. • With the application of mitigation measures, determine whether the residual effects, including residual cumulative effects, are	Section(s) ___

Effect or factor	Summary of assessment	More information
	significant. • Identify any proposed follow-up program activities to verify predicted effects (or their absence), and to confirm the effectiveness of mitigation measures. • If no effects were identified, describe this finding and provide a rationale.	
Migratory birds as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*	• Identify any migratory birds potentially impacted by the project and whether or not they were selected as Valued Components for the assessment (e.g. sandpipers, geese, loons); • Identify any effects, including cumulative effects, to identified fish or fish habitat and technically and economically feasible mitigation measures proposed to mitigate these effects, including design changes. • Identify whether any residual effects remain after the application of mitigation measures. • With the application of mitigation measures, determine whether the residual effects, including residual cumulative effects, are significant. • Identify any proposed follow-up program activities to verify predicted effects (or their absence), and to confirm the effectiveness of mitigation measures. • If no effects were identified, describe this finding and provide a rationale.	Section(s) ___
Changes to the environment on federal lands, in another province, or outside Canada	• Identify any changes, including cumulative effects, that the proposed project may cause to the environment that may occur on federal lands, in another province, or outside of Canada. • Identify any proposed technically and economically feasible mitigation measures. • Identify whether any residual effects remain after the application of mitigation measures.	Section(s) ___

Effect or factor	Summary of assessment	More information
	• With the application of mitigation measures, determine whether the residual effects, including residual cumulative effects, are significant. • If no effects were identified, substantiate this finding and provide a rationale.	
Effects of changes to the environment on Aboriginal peoples	• With respect to Aboriginal peoples, identify the effects (occurring in Canada) of any changes the proposed project may cause to the environment on: o Health and socio-economic conditions, o Physical and cultural heritage, o The current use of lands and resources for traditional purposes, and o Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. • Identify any proposed technically and economically feasible mitigation measures. • Identify whether any residual effects remain after the application of mitigation measures. • With the application of mitigation measures, determine whether the residual effects, including residual cumulative effects, are significant. • If no effects were identified, describe this finding and provide a rationale.	Section(s) ___
Changes to the environment that are directly linked or necessarily incidental to federal decisions under Acts other than CEAA 2012.	• Describe any changes to the environment that are directly linked or necessarily incidental to federal decisions. • Identify any proposed technically and economically feasible mitigation measures. • Identify whether any residual effects remain after the application of mitigation measures. • With the application of mitigation measures, determine whether the residual effects,	Section(s) ___

Effect or factor	Summary of assessment	More information
	significant. • If no effects were identified, describe this finding and provide a rationale.	
The requirements of the follow-up program in respect of the proposed project [6]	• Summarize any proposed follow-up program activities in relation to environmental effects as defined in section 5 of the CEAA 2012, particularly in areas where scientific uncertainty exists in the prediction of effects. The follow-up program may include monitoring plans, and contingency or adaptive management provisions to be implemented if monitoring results indicate corrective action is required. • The summary may point to proposed follow-up program elements and how the proponent intends to implement them, and provide an explanation of why these follow-up programs are recommended.	Section(s) ___
Alternative means of carrying out the proposed project that are technically and economically feasible and the environmental effects of any such alternative means	• The summary should briefly describe the alternative means considered by the Proponent and any environmental effects as defined in section 5 of the CEAA 2012 associated with those alternative means	Section(s) ___
Any change to the proposed project that may be caused by the environment	• The summary should briefly describe any changes to the proposed project that could be caused by the environment and list any design or mitigative measures that were adopted in response to this analysis.	Section(s) ___

[6] Note: CEAA 2012 defines a follow-up program as "a program for (*a*) verifying the accuracy of the environmental assessment of a designated project; and (*b*) determining the effectiveness of any mitigation measures."

Pages 89 through 93 redacted for the following reasons:
- -
s.13, s.17