Rio Tinto Alcan

Practices and lessons learned

towards effective permitting for major projects in British Columbia

Presentation to: the Environmental Managers Association of British Columbia

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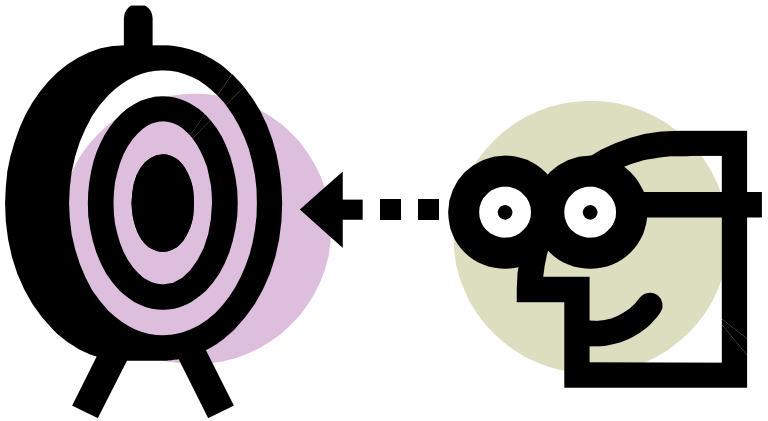
Kitimat Modernization Project

Rio Tinto Alcan

Objectives

- Share permitting practices and lessons learned from a current major project.
- Share experiences with resolving some very complex permitting challenges that involve contaminated site remediation, hazardous waste management, contaminated water management, and landfill expansion.
- Interactive presentation – questions and discussions are welcome.



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Agenda

1. RTA and the Kitimat Modernization Project (KMP)
2. Discuss “effective permitting”
3. Key factors that affect the success of permitting
4. Case studies:
    a. KMP permitting
    b. Municipal permitting
5. Summary – key learnings and sharing points

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About Rio Tinto Alcan

- Aluminium smelter in Kitimat, British Columbia operating since 1953
- Technology: VSS (vertical stud Soderberg)
- Current Operating Production: 185ktm
- Products: aluminium sheet and remelt Ingots; and surplus electrical power
- Market: 85% Asia/Pacific, 15% NA
- Power Generation: 793 MW average
- Capex investment at ~ $46 million/year
- Direct contribution to B.C. economy

  ~ $300 million per year

Rio Tinto Alcan's industrial facilities in BC

Kitimat Modernization Project

Building the future together.

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What is KMP?

One of the largest private projects in BC (perhaps Canada) at a projected cost of –

- **US$3.3 billion**

Located in Kitimat, northwestern BC

It is the modernization of the 60 year old aluminium smelter

Total people presently working on project:

- **Presently: 1300**
- **Peak: 2000 to 2500**

$2.3 billion committed to date with a **burn rate of $3.1 million per day!**

40% complete (engineering, procurement and construction) Construction: 22%

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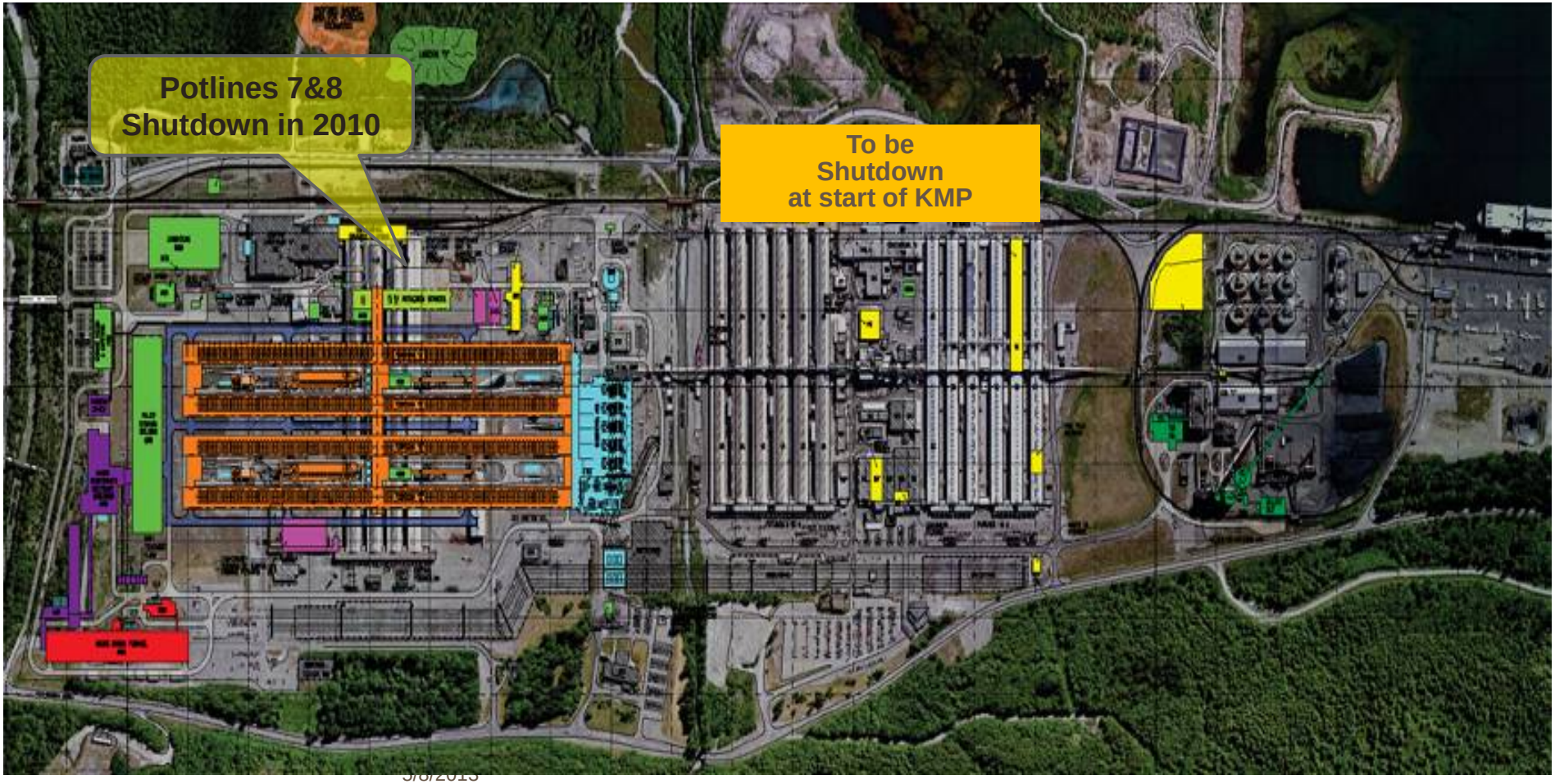
KMP project layout

A complex project built within a restricted space, surrounded by 60 years of legacies



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Aluminium smelting process

Vertical Stud Söderberg (VSS) Cells

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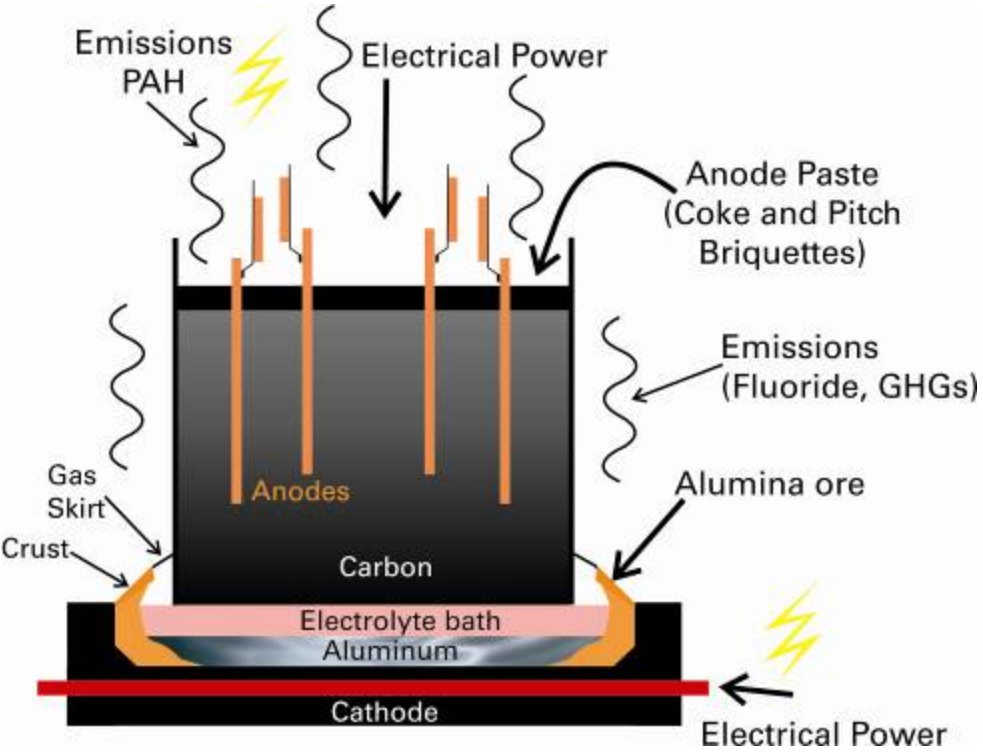
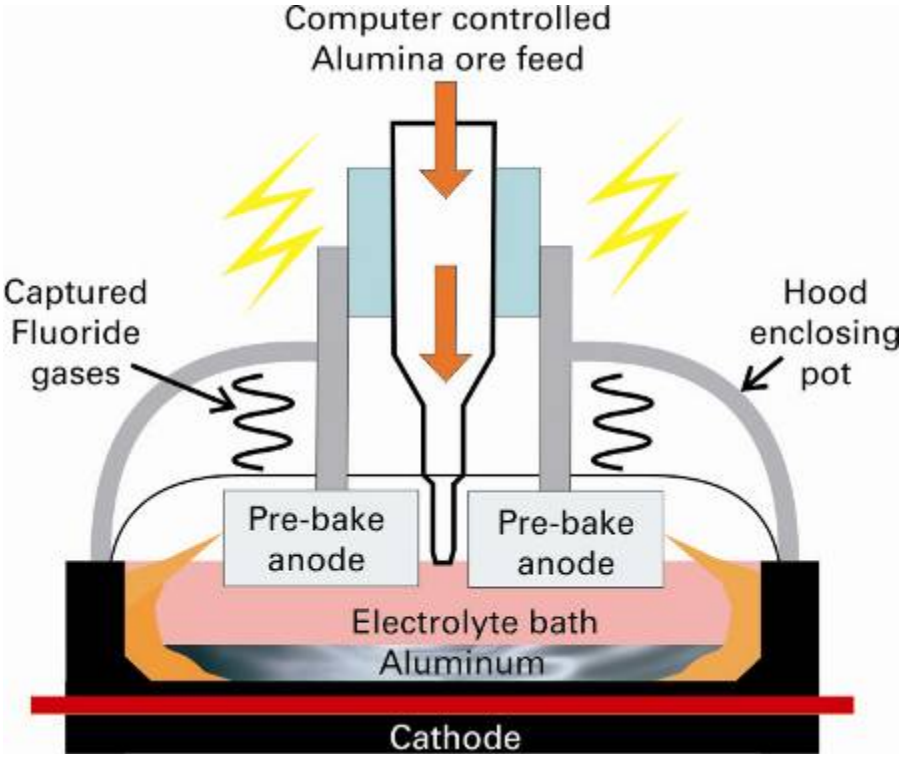
What is modernization about?

Old
VS Soderberg



New
Prebake AP 3X+



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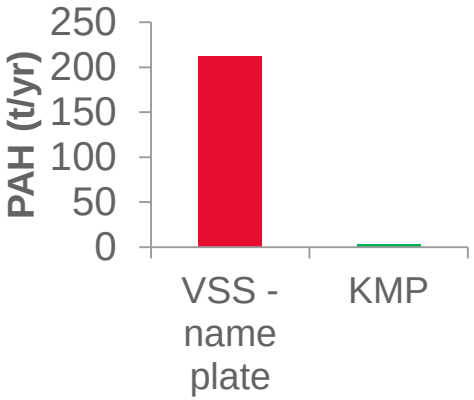
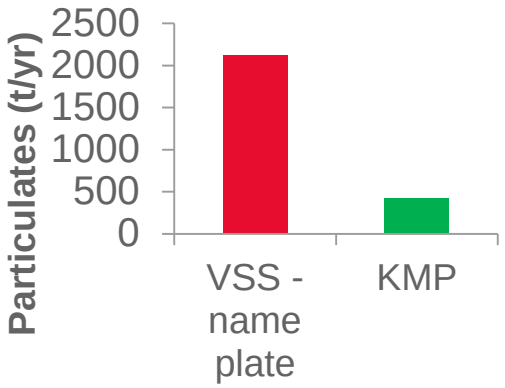
KMP environmental performance

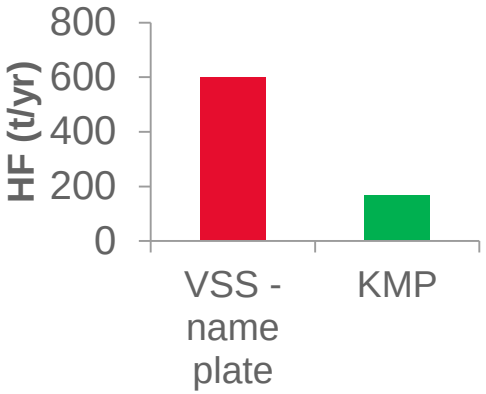
Polycyclic Aromatic Hydrocarbons



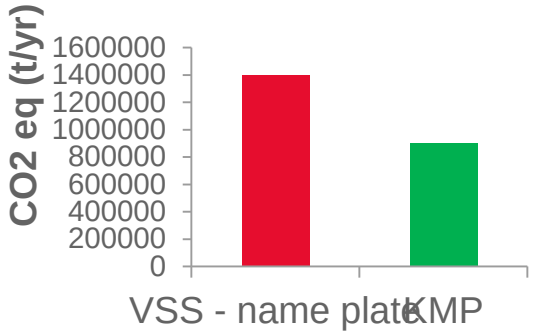
Particulates



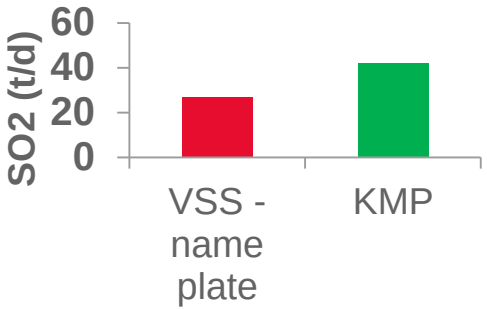
Gaseous Fluoride (HF)



Greenhouse Gases



Sulphur Dioxide Emissions



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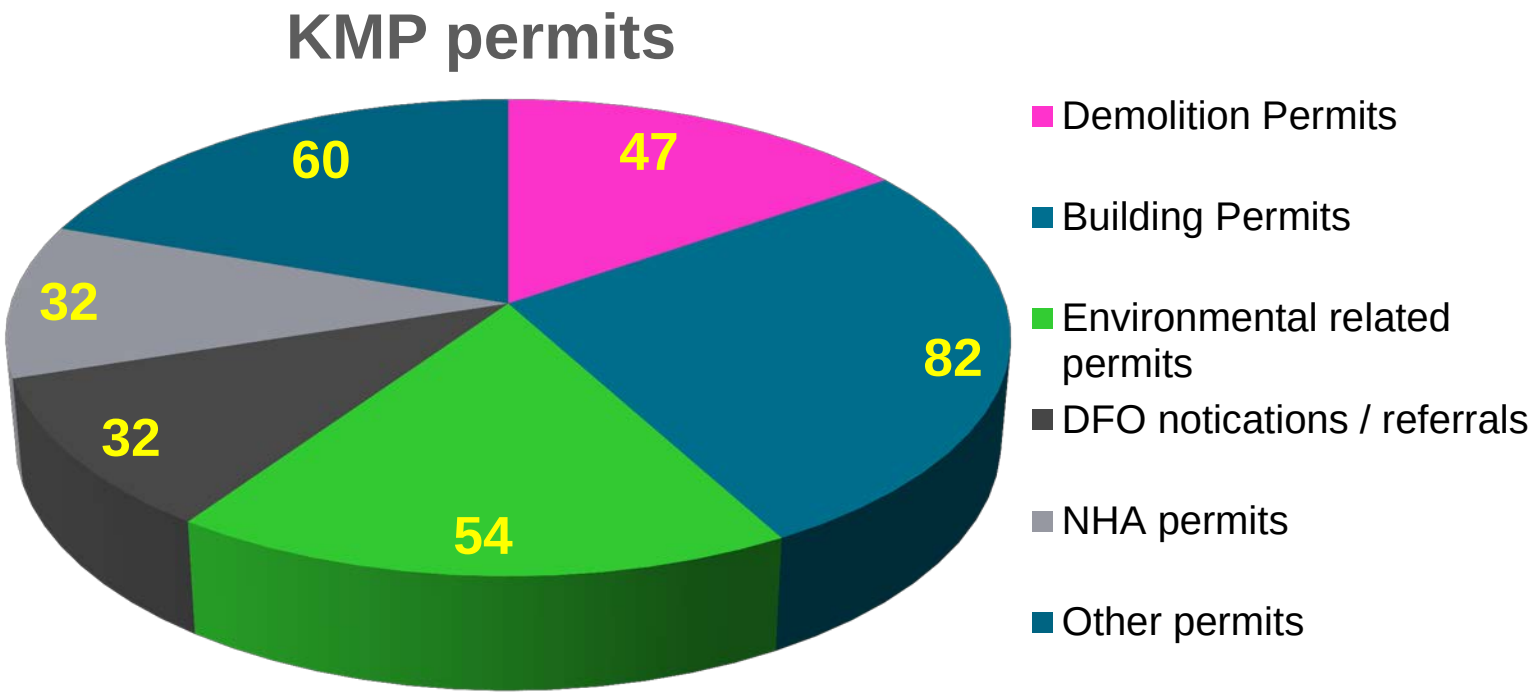
KMP permits

KMP has required many permits ranging from simple sanitary holding tank authorizations to highly complex site releases.



307 permits

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KMP challenging permits

- **Hazardous waste storage facilities** – obtaining variances necessary for storage facilities to fit the project needs
- **Building demolition** – Defining how clean is clean
- **Building demolition** – Site Release Letter
- **Construction water** – Developing construction water management plans and infrastructure to safely manage potentially contaminated water
- **Landfill expansion permit amendment** – expanding the on-site landfill to handle an additional 450,000m3 of waste material.
- **Operational permitting** – Best Available Technologies review

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Building cleaning and inspection

Potroom building cleaning – Work crews vacuumed and hand cleaned every surface.

Technical Services consultant completed inspections following cleaning with visual, “glove” and card tests to pass a building as being clean and ready for demolition.

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Effective permitting

Effective permitting

- Identifying and managing ALL the required permits.
- Zero delays in project and construction schedule
- Ability to strategically influence project schedule, scope and construction methodology.
- Develop the appropriate balance of costs and resource allocation to achieve a positive permitting outcome.

Avoid hitting the proverbial brick wall when project resources are committed and waiting for the permit to proceed.

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Nine successful elements of permitting

Elements for successful permitting

- Permit planning or permitting strategy
- Management of change
- Managing internal expectations
- Stakeholder engagement
- Building trust and alignment
- Setting battery limits
- Regulatory resource capacity
- Project team support
- Environmental monitoring

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Nine successful elements of permitting

1) Permit planning or permitting strategy

- Understanding the process for each specific type of permit;
- Identifying critical path permits;
- Assessing permit risks and developing a risk register;
- Develop strategies to mitigate risks;
- Develop internal processes and management system for permitting;
- Have clear roles and responsibilities;
- Develop an Internal communications structure;
- Feedback loop to project planning
- Understanding the information quality and detail required for each type of permit, and
- Always have a ‘Plan B, C, or D’ depending on the criticality of the permit.

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Example - Risk Assessment – 5x5 matrix

	Consequence				
Likelihood	1 – Minor	2 – Medium	3 – Serious	4 – Major	5 – Catastrophic
A – Almost Certain					
B – Likely					
C – Possible					
D – Unlikely					
E – Very Unlikely					

Low	No impact or acceptable impact; routine monitoring
Moderate	Acceptable impact but in need of closer scrutiny; moderate monitoring
High	Unacceptable impact; contingency / response action; intensive monitoring
Critical	Extremely unacceptable impact; critical response action; very intensive monitoring

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Nine successful elements (continued)

2) Management of change

- Changes do occur when project scope is detailed and construction starts;
- Important to have a management system tool for tracking and assessing changes, and
- Need to evaluate the impact of a scope or method change on permits, permitting process and regulatory requirements.

3) Managing internal stakeholders expectations

- Internal stakeholders are one of the most import groups to take into account;
- Develop a map of internal stakeholders, roles, responsibilities, level of involvement, and communications, and
- Communication on information and effort needs to develop and complete an application.
- Examples to consider:
  - Are post project (or operations) monitoring obligations agreed to by the future owner.
  - Can the area construction manager accept the timeline.

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Example - permitting status report

	Quantity	In Progress	Completed	Delays caused	Comment
Early Works Construction	5	0	1	0	•Permits required for concrete batch plant, aggregate extraction, rock quarry
Soil Remediation	5	5	1	0	•Notifications and release letter linked to demolition permits.
Roads, Bridges, and P-Mod Strategy	14	4	0	0	•Scoping of Euorcan Wharf upgrades required for initiation of long lead time permits •Delayed progress on Moore Creek Bridge permitting
Operation Relocations	1	1	0	0	•Initial review of relocation list indicates minor and administrative permit amendments. •Assumed grouping of relocations in one permit amendment.
Campsite and laydown yards	6	0	0	0	•Scoping assessment required for stormwater management. •Primarily building and occupation related permits.

On Target | Concern | At Risk | Risk of Project Delay

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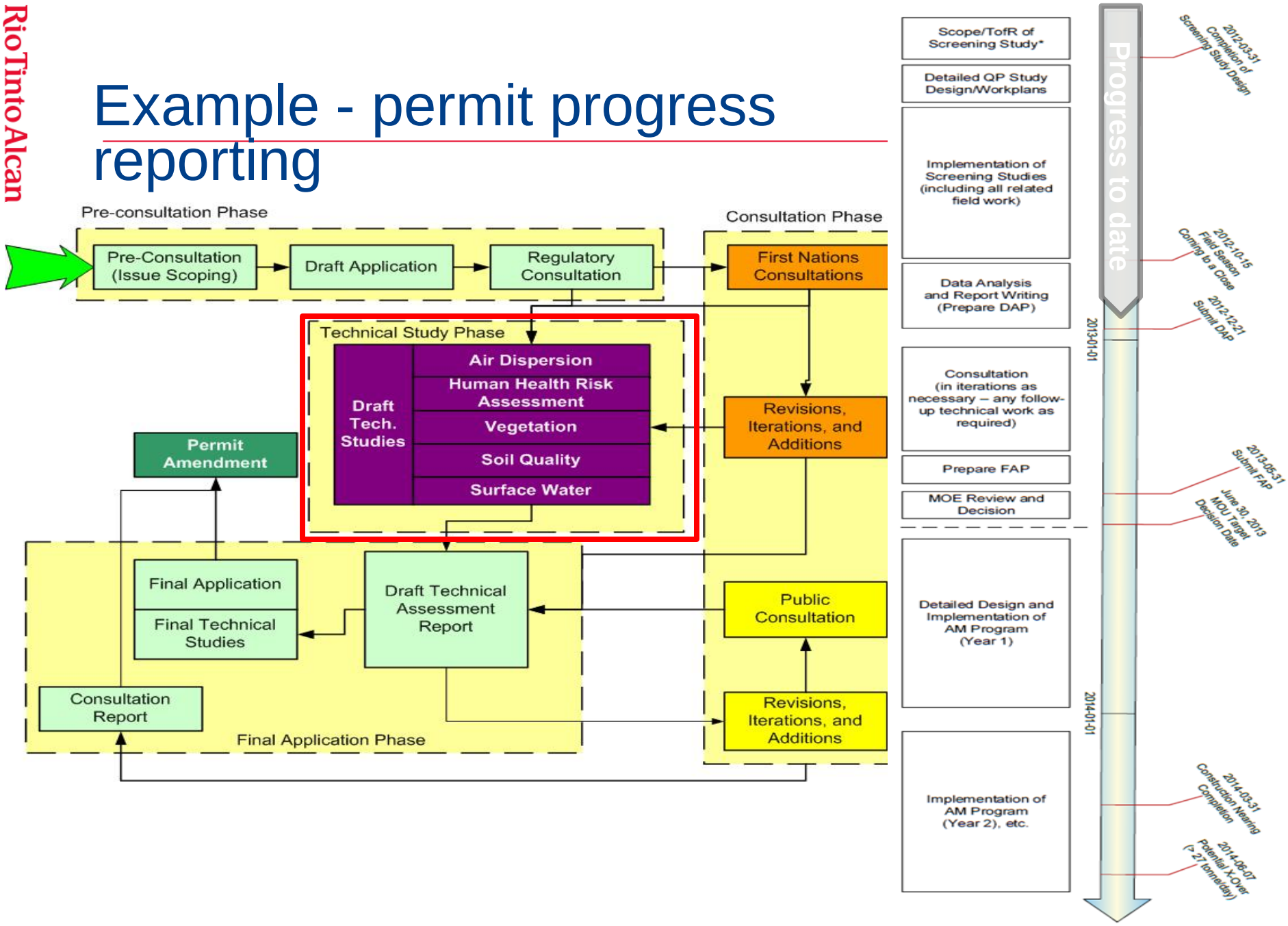
Example - permit progress reporting



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Nine successful elements (continued)

4) Stakeholder engagement

- Need to know who the stakeholders are;
- Include regulatory, First Nations, NGOs, and community groups or general public members, and
- Stakeholder mapping and developing an engagement strategy should be considered.

5) Building trust and alignment

- To reduce a precautionary stance, a trusting relationship needs to be established;
- Develop a positive forum for building relations and understanding stakeholder positions;
- demonstrate a follow through on commitments;
- involve the right people at meetings who can inform, represent, or decide;
- Identify gaps in positions and develop strategies to close, and
- Communicate the decision process for your project.

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Stakeholder site tours to view key areas of environmental project scope

BC Hazardous waste Group and Land Remediation Branch site tour

Hazardous waste storage facility – a permitted facility

Viewing of the metal salvage and sizing facility

Viewing of one of 5 construction water ponds

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Nine successful elements (continued)

6) Setting battery limits

- A difficult but critical step is to define the boundaries of a project in time, space, effort and resources;
- Develop written plans that define project boundaries, and
- Develop processes for managing scenarios when an issues cross project boundaries.

7) Regulatory resource capacity

- Understanding the capacity of an agency to respond to an application is important – affects timing;
- Other projects and issues will compete with your applications for regulator attention;
- If more than one application will go to the same agency, consider options for bundling applications, and
- Take the time to know the people behind the “Front Counter” who will process the applications.

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Nine successful elements (continued)

8. Project team support

- Essential to have good support from the project;
- Build mini-project teams for completing a permit application, and
- Technical services contract providing multidisciplinary professional support for both defined and as-needed scopes.

9. Environmental monitoring

- Key element in managing a regulator or stakeholder's uncertainty with a permit application;
- Need to define a robust but cost effective monitoring programs;
- Discuss upfront the protocols on reporting and key performance indicators, and
- Experienced and good quality environmental monitors are becoming hard to find.

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Case study: permit management

Issues:

1) Significant brownfield redevelopment project overtop existing smelting operations that could not be stopped
2) Concern on how to physically bound the extent of environmental issues that the project would address – scope, time and budgets
3) Large number of permits - 307, some complex
4) Construction permitting was linked into the existing P2 Multimedia Waste Discharge Permit
5) Regulators were not experienced with permitting a major project
6) First Nations Consultations required for most permitting
7) Tight project timelines to secure a Notice to Proceed from the Board of Directors

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Case study: KMP permitting approach

A path that we did not take:

"'Season's Greetings' looks O.K. to me. Let's run it by the legal department."

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Case study: KMP permitting approach

- Developed a collaborative stakeholder engagement strategy.
- Formed an Environmental Consultation Committee (ECC) with BC Ministry of Environment, Haisla First Nation, and Rio Tinto Alcan.
- Structured discussions to share information and learnings, focus on outcomes and development of processes to work through the permitting issues.
- Strategic project review and developing prioritized list of issues for the ECC.
- Frequent and routinely scheduled meetings with set agendas to work through.

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Good practice

- Structured agendas to keep the committee on track and in pace with the project schedule.
- Developed an ECC Issue Tracking table with a “Dash Board” status indicator.

	ECC Representatives		
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Paul Henning (PH)		Ian Sharpe (IS)	Michael Gordon (MG)
Michel Lamarre (ML)		Frazer McKenzie (FM)	Gillian Bakker (GB)
Kerry Moran (KM)			
Kirk Grossmann (KG)			
Katherine Voigt (KV)			
Shawn Zettler (SZ)			
Marc Cuellar-Roerhi (MCR)			
Steve Ferris (SF)			

Update: July 23, 2012

Item		Comment	Business
1. ECC Consultation		• Lapointe Engineering is developing a web forum to post all ECC documents, reports, and status updates.	KMP
2. Campsite Stormwater Discharge		• Permit application will be submitted around August 15th • Advertising from August 15th – 30th • Consultation period will commence on September 4th. • Triton is continuing to monitoring the stormwater discharges.	KMP
3. Waste Materials Management Plan		• C&D work is progressing well and consistent with the WWMP. • **Presently waiting on the Environment Canada Waste export permit to resume shipments of hazardous wastes.** • Initial shipment of C&D wastes sent to Sarnia, Ontario. • Approximately 1000 bags of C&D dusts in the PSB waiting for on the export permit • IOSA will be amended to include storage of hazardous waste contaminate soils. • Pitch tanker rail cars (B242) are undergoing PCB removal. Rail cars will be cut up and sent to Alberta for disposal.	KMP
4. Hazardous Waste Soils Management Plan		• The hazardous waste soils management plan will be issued for around August 3rd. • Section 51 application for the non-conformances the to the BC Hazardous waste regulation is being prepared by SNC Lavalin.	KMP

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Benefits

- Fully transparent process.
- Allowed for shared understandings.
- Stakeholders accepting ownership of the process and outcomes.
- Able to have early identification of critical issues and develop on time mitigation measures.
- Forum allowed the group to be hard on the issues and not on the people.
- Reduced time to complete permits.
- Developed project advocates.
- Allowed the exploration of unique and innovative proposals and obtain timely approvals.

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Lessons learned

- Collaborative forums are resource intensive and require dedicated resources to administer.
- Collaborative solutions may not always be the best, need to ensure the process has the ability to adjust.
- Patience is required to work through a collaborative process.

- **Overall** – benefits out weigh the cons, and a collaborative stakeholder forum is worthwhile way to mitigate project risks.

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Case study: municipal building and demolition permits

Issues:

- 129 Demolition and Building Permits were required.
- Project could not start until the demolition permits were obtained.
- BC Contaminated Sites Regulation (BC CSR) triggered through Site Profiles designating the site as a HIGH RISK due to industrial activities.
- All municipal land development permits were FROZEN until BC Ministry of Environment issued a Site Release Letter.
- 60 year of heavy industrial activities has lead to process residues in the soil and groundwater – PAHs, fluorides, hydrocarbons, SAD cyanides, and metals.
- Project schedule and budget did not allow for standard approach under the BC CSR.

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Case study: KMP permitting approach

- Early recognition for the need to establish boundaries for soil and groundwater remediation.
- Separate project resolvable issues from the larger legacy issues that would be left for resolution under future operations.
- Remediation within the foot print of the project construction.
- Leverage the ECC forum and resources for a collaborative process to bound the soil remediation scope and seek a release letter.

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Good practice

- Developed a technical services contract with an environmental firm to address complex brownfield issues.
- Maintained a transparent process with stakeholders throughout the BC CSR process.

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Outcome

- Difficult and lengthy process.
- Initial adverse reaction from BC Land Remediation Branch.
- Concerns over timing and proposed variance to the BC CSR guidance documents.
- Through dialogue with a BC Rostered Professional, demonstration of the intent to meet the CSR was made.
- Establish agreed boundaries for soil remediation.
- Set expectations for the process to investigate and remediate contaminated soil within the project's footprint.
- Developed a soil management program.
- Established a monitoring and reporting protocols with professional oversight.

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Lessons learned

- BC CSR issues need to be addressed early in the project.
- Variances from guidelines can cause a precautionary stance.
- Quick follow-up on committed actions.
- Regulations that have associated links may not be consistent and require time to work through.
- Provide sustained effort to work through complex issues under the BC CSR.
- Early engagement of the right professionals in discussions with the BC Land Remediation Branch.
- A collaborative forum helped reach a good solution.

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Summary

- Major project permitting, depending on the context can require a complex process to manage and successfully complete.
- Success requires strategic thinking, having alternative plans and being able to adapt as changes occur.
- Permitting can have significant cost and value impacts to a project if they go astray.
- Nine elements of successful permitting were employed as part of the KMP process that allowed on-time delivery of key permits and allowed the exploration of value savings alternative solutions.
- Fundamental to success is stakeholder engagement and a transparent collaborative approach used by KMP is a recommended method for other major projects to consider.