DESIGNING FOR DECOMMISSIONING WORKSHOP

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1) **Workshop Purposes:**
   - encourage individual participation
   - identify a range of issues
   - generate a list of issues
   - develop groupings of issues into "themes"

2) **Approach:**
   - introduction and obtain agreement on workshop purposes and "focusing question"
   - brainstorm issues relevant to focusing question
   - group issues into themes (some issues fall into multiple themes)
   - divide participants into equal size groups, each representing a theme
   - each theme group develops important considerations and components in "Designing for Decommissioning"
   - presentations by each theme group

3) **Focusing Question:**

What do you believe are the most important issues that face the mining industry in "Designing for Decommissioning?"

THEME: "GEO" ENVIRONMENTAL & ENGINEERING

Issues:

1) geotechnical - long term stability
2) comparison of other industry standards and requirements
3) designing for flexibility
4) behaviour of material (characteristics)
5) modelling
6) water release standards
7) test sites to verify design
8) zero effluent
9) perpetual maintenance
10) reducing liability
11) reintegration of reclaimed land into social context
12) ability to predict and quantify impacts
13) technology for tailings disposal
14) long term performance monitoring
15) models, confidence, time frame
16) changing technologies
17) understanding risk
18) target for zero maintenance
19) long term economic/environmental sustainability
20) design to meet land use needs
21) old school of thought
22) design for a specific recurrence interval
23) design from case studies
24) understanding conditions
25) international companies
26) mechanisms for design criteria

THEME: REGULATORY

Issues:

1) acceptance of design using B.A.T.
2) Federal vs. Provincial - duplication/conflicting
3) financial assurances
4) modelling
5) water release standards
6) zero effluent
7) perpetual maintenance
8) public involvement (acceptable end land use)
9) no net loss (range beyond wildlife/fish/habitat)
10) relationship of bond to actual cost/risk
11) old vs. new (different standards - different times)
12) operations that pre-date regulations
13) reducing liability
14) ability to predict and quantify impacts
15) long term performance monitoring
16) approval of design
17) mechanisms to account for changing times, standards, economics
18) understanding risk
19) lack of government direction
20) design to meet land use needs
21) more First Nations design and jurisdiction input
22) when is it done?
23) changing government direction and how do you plan for it
24) old school of thought
25) decommissioning standards
26) design for a specific recurrence interval
27) international comparisons
28) mechanisms for design criteria - reasonable and realistic

THEME: FINANCIAL

Issues:

1) what is realistic/priorities
2) financial assurances
3) systematic updates of costs
4) zero effluent
5) convincing B.O.D. to design for decommissioning
6) relationship of bond to actual cost/risk
7) reducing liability
8) mechanisms to account for changing times, standards, economics
9) understanding risk
10) long term eco/environ sustainabilitity
11) old school of thought
12) mechanisms for design criteria - reasonable & realistic

THEME: PLAN

Issues:

1) company reporting policy - paper trail
2) designing in flexibility
3) modelling
4) convincing B.O.D. to design for decommissioning
5) what are design objectives
6) no net loss
7) old vs. new - different standards/times
8) reducing liability
9) reintegration of reclaimed land into social context
10) minimizing disturbed areas
11) models/confidence/time frame
12) design towards decommissioning
13) mechanisms to account for changing times, standards and economics
14) understanding risk
15) target for zero maintenance
16) holistic view - day 1 to end
17) time frame for decommissioning - liability
18) changing government directions & how do you plan for it
19) old school of thought
20) staged decommissioning

THEME: PUBLIC & STAKEHOLDER RELATIONS

Issues:

1) convincing B.O.D. to design for decommissioning
2) public involvement (acceptable end land use)
3) public response to results (need public confidence)
4) old vs. new - different standards/different times
5) operations that pre-date regulations
6) re-integration of reclaimed land into social context
7) models/confidence/time frame
8) approval of design
9) land ownership/public vs. private
10) understanding risk
11) design to meet land use needs
12) First Nations input - design and jurisdiction
13) old school of thought
14) public education

KEY POINTS FROM THEME GROUPS

1) "GEO" Environmental & Engineering

- have a sound understanding of site conditions and end land use objective
- define acceptable risk, based on prevailing social & economic conditions and recognizing that these are constantly changing over time
- design the decommissioning plan based on acceptable risk and at the least cost
- a "feed-back" mechanism is required to revisit the plan to account for changing conditions (physical, social & economic)

2) Regulatory

- must have a complete understanding of the major regulatory issues affecting decommissioning design:
  - the regulatory system/how was it developed
  - the review/approval system
  - standards and criteria
- even in the absence of design standards, industry has to "take the bull by the horns" and develop decommissioning plans. Absence of standards should not be viewed as a restriction - the process should be viewed as dynamic
- the regulatory system has to be interactive - "feed-back loop"
- move to self-regulation is inevitable/audits necessary
- public involvement is key to avoid impression of "fox in the chicken coop"
- Government/Industry Partnerships endorsed (eg. Potash)

3) **Financial**

- must determine what is realistic and establish priorities (eg. how realistic is "zero effluent" - nothing to decommission)
- decommissioning is now part of B.O.D.'s vocabulary - not so in the past, still a ways to go
- spend reclamation/decommissioning dollars while you are operating - reduce liability
- question need/amount of financial assurance if you are designing for decommissioning - don't make it a disincentive to economic activity
- objectives have to be defined in order to develop a plan which you can then cost
- difficulty in determining "costs" to future generations
- increase public awareness

4) **Plan**

- understanding risk is key, but complicated because standards are not clear
- in some cases technology has to be developed, therefore, you can't develop or cost the plan
- plan must be flexible to account for changes/unforeseen
- staged decommissioning is preferable - less cost and reduced liability
- discrepancies between Provincial/Federal regulations need to be reconciled - regulations can't be unachievable
- develop generic guidelines, then be site specific
- must determine end land use

5) Stakeholder & Public Relations

- Primary - any member of public who will have an interest and who may be affected (eg. First Nations, Prov/Fed government, project owners/shareholders)
- Secondary - special interest groups (no direct ties to project)
- involve primary stakeholders from the outset and keep involved throughout project life
- set objectives common to all primary stakeholders
- establish end land use/develop conceptual model
- allow feed-back leading to final concepts near time of decommissioning
- involve public in methods/technology to be used
- all of above to be done in atmosphere of "trust"; use education, consultation vs. information; be proactive not reactive

ENVIRONMENTAL MANAGEMENT FOR MINING

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