

Granular Resource Requirements for Proposed Mackenzie Valley Pipelines:

Technical Papers and Workshop Proceedings

**Sponsored by:
Northern Oil and Gas Action Program (NOGAP) Project A4:
Granular Resources Inventory and Management**

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SECTION 10.

WORKGROUP PLENARY SESSION

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(Presented by Bob Mahnic, Communiplan/Stanley)

To this point, this NOGAP workshop on Mackenzie Valley granular resources has primarily consisted of both technical and discussion panel presentations. Each of the panel sessions was concluded with a question and answer period. To conclude this workshop I would suggest that we proceed through a plenary group problem solving exercise to identify any outstanding issues or concerns. This has been a unique workshop in that we are dealing with the results of past research and development initiatives and how they might affect future program and policy development for a long-heralded series of granular resource-dependent projects--development of a major gas or oil pipeline system through the Mackenzie Valley and the northward extension of the Mackenzie Highway from the Wrigley area to the Mackenzie Delta.

This workshop has concentrated on the importance of information--northern granular resources information. One of the questions that needs to be addressed during the group plenary session relates primarily to northern granular resource information gaps that need to be filled. I suggest that we use a simple problem solving model as a framework for these discussions.

There are at least seven steps identified for effective problem solving:

- Step 1. Define the problem--exactly what is the problem you're trying to solve or to work towards?
- Step 2. List symptoms of the problem--what do we see now?
- Step 3. Review possible causes of the problem--why are we seeing that type of behaviour or that type of activity?
- Step 4. List the alternative solutions--what are some of the possibilities of addressing this particular problem?
- Step 5. Evaluate the alternatives--can you list potential ways to deal with the problem? Which alternatives seem most appropriate?
- Step 6. Priorize appropriate alternative solutions. Choose the best alternative to address that problem.
- Step 7. Develop an action plan leading to problem resolution.

In recognition of the time constraints that we have today, it is quite unlikely that we will be unable to complete a full seven-step problem solving process. Nonetheless, we should try to use this as a framework for the group plenary discussion over the next one or two hours. Given the considerable technical and practical expertise assembled at this workshop we may provide Bob Gowan with several strategic objectives leading to a new NOGAP granular resources program action plan. We should consider the following:

1. Are there significant gaps in the current northern granular resource information? Are these information gaps primarily database related? Is there a need for more ground-truthing, inventory related research, or other issues.
2. Can the "future research requirements" identified in the workshop plenary session be completed within the short-term NOGAP timeframe (1 or 2 years) or are they longer-term projects of at least 5 to 10 years in duration, projects which may require other non-NOGAP funding? By examining the anticipated funding requirements and timelines of these projects, alternatives can be prioritized.

3. Do we have enough information to form an action plan? Alternatives need to be prioritized and evaluated. It may be useful for the participants of this workshop to suggest one or two recommended actions to be implemented in future NOGAP granular research.

Based on the excellent presentations of the past two days, and my own experience in workshop facilitation, I would suggest there are at least two ways to look at northern granular research. One view is that granular research is primarily technical and physical environment-oriented. This kind of activity has been conducted traditionally--inventory programs; ground-truthing programs; and database programs are concentrated on the technical and the physical side. The second broad area of granular research attention needs to focus on the human environmental effects. As we are all aware, there is a growing need to also consider the social, cultural, and economic issues and consequences of northern granular resource development. Future granular resource development will require that effects on both the human and physical environments be carefully considered.

The group plenary session consisted of an informal discussion and brain-storming session to identify outstanding concerns or issues. The workshop agenda was used as topical outline to facilitate the plenary session discussions. Flip chart information and audio-tape recordings were used to record the comments made by plenary session participants. This information was edited and grouped for easier issue/problem identification purposes. The reader should also note that other research recommendations were made by several of the technical and discussion panel members in their individual presentations. In some instances, these comments were not re-iterated in the plenary session and therefore, despite their potential applicability, do not appear in this listing.

Through the course of the plenary session discussions, eight major granular resource topical issue areas were identified:

1. Sources of borrow information.
2. Regional borrow inventories research.
3. Borrow materials usage.
4. Competing uses for borrow materials.
5. Tracking/monitoring of actual borrow use.
6. Industrial demands for borrow resources.
7. Potential constraints to borrow development.
8. Need for monitoring studies of quarry sites adjacent to or in watercrossings.

Each of the eight issue/topics is highlighted below and plenary session participant comments are indicated in each case.

Issue #1. Sources of Borrow Information

One of the main issues participants identified concerned the lack of dissemination of the extensive northern granular resources database and mapping information. This problem has been recognized and information "holders" indicated they are examining various methods of information delivery to resolve the problem. Obstacles such as the status of proprietary information and financial costs associated with product dissemination also require attention. A summary of related comments included:

- Lack of dissemination of information to stakeholders:
 - ASTIS Bibliography;
 - DIAND Reports/Information; and,
 - NOGAP Reports.
- User-Pay (development costs).
- Proprietary information (completeness of inventory, *Access to Information Act*).

- Expanded geographical area for database coverage (Yukon and other NWT):
 - GSC Mapping; and,
 - Northern Land Use Planning.
- Have we already "got it all"?
- Need to match informational needs on a supply/demand basis.

Issue #2. Regional Borrow Inventories Research

Most plenary session participants felt that the regional borrow inventories research program has been thoroughly addressed in earlier NOGAP work programs. There was consensus that the regional borrow inventories should be updated to reflect environmental and cultural/heritage resource concerns. While better cost information concerning various modes/regions of granular resource development was indicated as an area in need of further research; others indicated that in the absence of a major project such information may not be critical at this time. A summary of related comments included:

- There are "no gaps left".
- We are already "choking on information".
- Need better supply/demand matching.
- "What we really need is a project".
- Need to get available information into the public domain (e.g., DIAND's "QuickMap" computerized northern granular database program).
- Need to update inventories to reflect environmental concerns and archaeological/cultural impacts.
- Small projects require information on site-specific concerns on borrow availability.
- Need better information on costs:
 - Project dependent;
 - Access/hauling costs in different borrow management areas; and,
 - New royalties/royalty regimes with land claims.

Issue #3. Borrow Materials Usage

Several plenary session participants identified the need for more research and investigation into borrow materials usage including the identification of suitable re-use situations, better management of the existing resources and the use of replacement technologies such as foam padding or other types of fill material. A summary of related comments included:

- Identify where borrow materials can be re-used:
 - Camp pads or stockpile sites;
 - Airstrips;
 - Former access roads;
 - Offshore and near shore drill islands; and,
 - Note environmental concerns related to re-use.
- Examine the suitability of rock chips/shale as alternatives to opening new pits.

- Evaluate the use of geotextile materials, etc. in areas suitable for re-use.
- Establish and implement sound management of resources (especially for highway embankment construction and other large-volume construction uses).
- Examine replacement technologies that may be suitable substitutes:
 - Foam or other synthetics;
 - Other types of fill; and,
 - Cost is a major factor.

Issue #4. Competing Uses for Borrow Materials

It was noted that much of the NOGAP-funded research has had, by definition, a bias towards the identification of oil, gas, and pipeline granular needs in the Mackenzie Valley and Delta areas. It was suggested by several plenary session participants that the scope of northern granular research be expanded to include other uses such as highways and airports. A summary of related comments included:

- Expand existing database to include other non-energy uses:
 - Highways;
 - Airports; and,
 - Protected areas.

Issue #5. Tracking/Monitoring of Actual Borrow Use

It was noted that regional borrow material inventories may require updating as this information does not recognize recent extraction of granular resources by communities, government and industry. Several suggestions were made in relation to improving quarry return statistical information. A summary of related comments included:

- Need for better statistics on quarry returns:
 - GNWT;
 - DIAND;
 - ILA Permits; and,
 - Others.
- Former pit sites to be re-evaluated for remaining borrow potential.
- Pit exhaustion needs to be more closely monitored.

Issue #6. Industrial Demands for Borrow Resources

A significant portion of the plenary discussion related to potential industrial demands of Mackenzie Valley and Delta area granular resources. It was suggested that industry keep government, the communities and aboriginal groups apprised of any granular-dependent developments well in advance of the commencement of field construction. Industry representatives indicated the need for better haulage, royalty and regulatory regime information to help with project economic and logistical planning. Adopting a "team" approach to northern development planning was suggested and strongly supported by the plenary session participants. A summary of related comments included:

- "What if" questions need to be answered, especially project timing:
 - Cameron Hills/IPC developments (50 km truck/tanker haul road);
 - HONDO pipeline project;

- Norman Wells extension to Beaufort/Delta area; and,
- Polar-Delta Gas project.
- Better information is needed to determine granular needs.
- The size of a project will have an impact on granular needs:
 - Approvals process for granular access needs to be streamlined;
 - Cost implications need to be better understood (haulage, royalties, etc.); and,
 - Borrow sources available to industry need to be identified.
- Sand versus foam issue requires further analysis and study (for pipeline ditch padding).
- Economic "window of opportunity" needs to be understood and addressed by regulators and aboriginal groups:
 - Regulatory delays can force cancellation or termination of projects;
 - Volatile commodity prices can cause uncertainty in lending markets; and,
 - Other competing countries are producing produce more cheaply or more quickly.
- Team approach to development is recommended.

Issue #7. Potential Constraints to Borrow Development

Future borrow development must address significant constraints such as biophysical impacts, fisheries and wildlife interactions, heritage and cultural resource impacts, land claims jurisdictional changes and other resource management issues. It was strongly suggested that the lack of sufficient or appropriate granular development impact information could trigger costly and time-consuming environmental assessments or reviews. A summary of related comments included:

- Biophysical constraints (permafrost, flooding, slumping).
- Fisheries/wildlife impacts during and post-borrow removal.
- Information gaps that may trigger reviews or assessments:
 - Site-specific locations/conflicts;
 - Cultural/archaeologically significant sites;
 - Community/local knowledge; and,
 - Mackenzie Valley has some areas of incomplete data collection.
- Land Claims:
 - New regulatory regime; and,
 - New royalty structures.
- Land Use Planning:
 - Potential land use conflicts.
- Resource Management:
 - potential resource management conflicts.

Issue #8. Need for Monitoring Studies of Aquatic/Quarrying Areas

Some interest was indicated by plenary session participants for more long-term studies of quarrying effects, especially those that are in close proximity of water sources. A summary of related comments included:

- Monitoring of Norman Wells production islands; and,
- Monitoring of Aklavik-area pits.

Potential Funding Sources

Following the identification and discussion of the previously-noted issue/topics, plenary session participants were asked to identify some of the potential alternative sources of funding that might be available to conduct further borrow research in the Mackenzie Valley and Delta regions. The following is a preliminary listing of potential sponsors:

- Grants, etc. (NSERC);
- NOGAP funding;
- Industry sponsors;
- Aboriginal groups;
- Academic research community; and,
- Consultant groups.

Recommendations for Future NOGAP Sponsorship

The time constraints of the plenary session allowed for the preliminary identification and discussion of perhaps 10 or 15 future research studies that might be considered for NOGAP funding. Several excellent suggestions are noted in the preceding "issue" reviews. Two projects were noted for possible short-term NOGAP support:

1. Cameron Hills/IPC development proposal for 50 km truck/tanker haul road--need for borrow resource inventory and terrain evaluation study.
2. Mackenzie Valley Environmental Atlas--opportunity to consolidate/compile fisheries, archaeology, and other studies of potential limitations concerning borrow resource areas.

As noted, this is only a preliminary identification of NOGAP-related granular resource study needs. Further assessment, evaluation, prioritization and action planning will be required.