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**BEAUFORT SEA GRANULAR RESOURCES
WORKSHOP OF FEBRUARY 14, 1992**

**APPENDIX
RECOMMENDATIONS AND PRIORITIES**

JULY, 1992

**APPENDIX
SUMMARY OF RECOMMENDATIONS AND PRIORITIES**

The following recommendations have been interpreted from direct comments and the editor's interpretation of implied statements made during the Workshop.

A NOGAP STUDY AREAS

A.1 Yukon Shelf

- .1 Sampling of the prospects identified in the NOGAP study is needed to confirm interpretations of thickness.
- .2 Most of the data collected in this area was not collected for granular resource exploration. Therefore, geophysical work with more appropriate tools might help to improve the understanding of the granular deposits.
- .3 Additional exploration should focus on the area of mega-ripples along the edge of the Shelf at the Mackenzie Trough and in the shallow to mid-depth water range.

A.2 Herschel Island

- .1 There are several areas along the coast where gravel is suspected but which have not been explored.
- .2 The thickness of most deposits in this area has not been determined. Some boreholes or resistivity might be considered.
- .3 Gulf collected some seabed data when looking for set down areas for the Molikpaq. These have not been looked at for evidence of granular deposits or their geological value.

A.3 Issigak

- .1 The stratigraphic link between Issigak and Tarsiut should be confirmed because it is fundamental to the interpretation of age.
- .2 The morphology of Issigak should be tested by on site examination.
- .3 The results of that examination should be used to direct further investigation of either an upstream source (fluvial model) or bathymetrically similar deposit (strand line model).
- .4 The Arctos set-up might be appropriate for exploring in the shallow water between Issigak and Pelly Island.
- .5 Steve Blasco may have a couple of boxes containing multi-channel data from ESSO's lost data set for the area between Issigak and Tarsiut.

- .6 Bathymetric work sheets at CHS may provide details of local relief that indicate similar deposits or help to interpret the origin of the deposit.

A.4 Isserk

- .1 Delineation of granular resources has been hampered by a thin upper sand layer which seismically obscures a lower sand which includes some gravel rich facies. New seismic methods, including heave compensation or resistivity methods should be used to improve our understanding of the deposit.
- .2 Borehole control is needed in the southwest corner of the block.
- .3 More exploration is needed on the tail of the deposit which extends to the southeast outside the block.
- .4 Detailed look at bathymetric work sheets at CHS may provide new exploration prospects in the area.

A.5 Erksak

- .1 Borehole control for seismic interpretation is incomplete. Good prospects have been identified in Erksak Channel and along the edge of Kugmallit Channel, but these need borehole confirmation.

A.6 Banks Island

- .1 Dredging in this area will comprise selective development of small pockets of till in rock. The use of correlation curves based on a few boreholes to help interpret seismic data would simplify the exploration process.
- .2 Accurate bathymetric mapping is needed for navigation of dredges and would help to identify pockets of till.

A.7 Amauligak Area

- .1 This should be the focal point of granular resource exploration during next few years. More distant potential sources should be de-emphasized.
- .2 Gravel prospects near the Amauligak area are much more valuable than sand prospects.

A.8 Arnak/Akpak

- .1 Old strand line features identified in the Arnak area should be delineated and evaluated. There is evidence of gravel in these.

B GEOLOGICAL OBJECTIVES (for Granular Resource Application)

1. The stratigraphic schism between on-shore and off-shore has resulted in geological models that may be overlooking gravel deposits. Detailed work on the area between Amauligak, Issigak and Richards Island is needed to resolved.
2. The geo-chronology of Toker Point tills and the marine limit of Toker Point is disputed by many. Mapping and dating to confirm or modify the models are needed.
3. The gradational character and variation of Toker Point till should be assessed for its potential as a source of granular materials after re-working. Perhaps it is too fine grained to worry about.
4. Similarly, the geologic and gradational character of tills on Hooper Island and Pelly Island need to be correlated with Toker Point deposits and possible granular deposits.
5. The geological models suggest the first priority for granular resources exploration should be in the Amauligak/Issigak/North Head triangle. The second priority is the Kaglulik Plain, including Erksak, if only to prove there is not any viable sources out there. The third priority is the Yukon/Herschel area.

C DATA ARCHIVES

1. A thorough search for seismic records of shallow marine deposits should be undertaken to retrieve valuable data, identify lost and destroyed records, and establish an archive.
2. The database of geophysical track plots should be modified to show lost, destroyed, archived, good, bad, etc., quality assessment information.
3. A government agency should be selected to archive all marine seismic data. The Atlantic Geoscience Centre, National Energy Board and Institute of Sedimentary and Petroleum Geology were suggested as acceptable curators.

D DATABASE/GIS

1. Engineering and geological applications of borehole database require capabilities to generate cross-section incorporating borehole data. Some facilities to incorporate seismic data into the section will be needed in the long term.
2. Methods of incorporating seismic data into cross-sections generated by the database should be developed in stages.
3. NOGAP funding should not be used for developing cross-section generating capabilities. Perhaps PERD and GSC money should be used.

4. GIS development incorporating data available in other specialty databases should proceed slowly, as required at present.
5. GIS should incorporate bathymetric base maps, modified bathymetric data (CSR's data) and the facility to input new digital data from CHS.
6. GIS should incorporate radio carbon dates and 1:250,000 geological maps.
7. NOGAP funding should be reserved for GIS development relating directly to granular resource applications. It should not be used for engineering, geological, logistical or infrastructure input.

E NEW TECHNOLOGY

1. The concept of a towed video system that is able to contour fly over the bottom was advanced to study/document bottom features such as boulders, ripples and gravel deposits.
2. The need to develop and incorporate heave compensation on seismic equipment systems was raised many times.
3. The incorporation of GPS techniques for navigation and heave compensation post-processing was identified as a significant technological advance.
4. The Coast Guard should be asked to provide low frequency modulated radio beacons for GPS applications in the Beaufort.
5. Resistivity techniques offer the ability to see into and through granular deposits which seismic methods cannot do. Continued development of resistivity should be promoted and complementary seismic/resistivity programs should be tried.
6. Seabed sediments and pore water should be routinely sampled and tested for resistivity and salinity to establish an atlas of resistivity calibration data for the Beaufort.
7. Research of sonar/bathymetric data already collected should be conducted to assess whether that data can provide an indication of seabed resistivities hence sediment type on a first approximation basis. Further CHS bathymetric work should be modified to record seabed resistivity data for this purpose.
8. The use of resistivity from the ice (winter program) is a feasible method of investigating bathymetric anomalies which may be identified by a re-examination of the CHS work sheets.
9. It is recommend that field trials be held in the Fraser Delta area to perfect suites of geophysical equipment, bathymetric techniques, and sampling tools before taking them to the Beaufort Sea.