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Perhaps due to a lack of continuity on our part we find ourselves between a rock and hard place with line widths in some of the jurisdictions we work in. We spent a year mulling over line widths in Alberta along with the regulator, Alberta Sustainable Resource Development, CAPP and SEPAC. The solution worked out was reasonable – as the old saying goes – If everyone leaves the table pissed off you probably have a good deal. We are now in discussions of a similar nature with Saskatchewan and soon to follow the NWT.

Line widths for seismic are generally dictated by the equipment that follows (as in the seismic drills or the vibrators depending upon source type). The lower end is generally captured by safety. In BC the lowest line width OHS regulations refer to is a 1.75 metre wide line. Arguably four people carrying a stretcher require at least this width. Alberta refers in its Geophysical Field Report (GFR) to a minimum of 1.0 metre width. In some cases it may be argued that we can achieve a zero line width if the trees are of a sparse nature that allows us to freely move in and amongst the forest without having to take down any standing timber. As an industry we prefer about a 2.0 meter line width as a minimum as generally this allows for some type of ATV to be used in rescue and evacuation situations. In more remote situations we definitely need wider lines in order to ensure equipment mobility and safety. As well it must be recognized that 2-D's require more width than 3-D's just by their logistical nature with geophones being implanted along the same corridor as the source points.

Having said all of this we are challenged with equipment availability. With the Oil Industry economic roller coaster creating and sustaining enough equipment is often akin to using a crystal ball to see the future. Our average line width last year in Alberta was somewhere around 2.75 meters – this would have meant that some lines in remote areas still may have been 5 meters in width in order to accommodate equipment and safety. As such the matrix developed in Alberta has allowed for flexibility, recognition of equipment constraints all the while keeping an eye to the future of continuing to try to reduce the width and the footprint.

Oil Sands and CoalBed Methane has created awareness of another regulatory challenge – that of line spacings. As we attempt to image a shallower target line spacing has reduced from a traditional 400 metres down to 40 to 60 metres in some cases. CoalBed Methane is a bit broader – perhaps 100 to 120 metres. The concept of line spacing intensity is also reflected in the matrix.

Thus we now find ourselves in a situation in Saskatchewan where the regulators are limiting us to 2.2 metres. This becomes unreasonable as we move farther north to more remote areas. The activity in northern Saskatchewan is increasing and soon exploration of their OilSands will take on its own life. The availability of equipment and the practicability of use in remote areas serve as powerful limiters. The NWT is considering similar restrictions at the 2.5 meter limit. This is even a greater challenge given the landscape north of 60, the winter-only access to many areas and the challenges with

safety and access. We face significant challenges in the year ahead working with Governments to find acceptable solutions.

EXCERPT FROM ALBERTA'S GFR

The objective is to create a maximum LIS line width standard for 2D and 3D seismic programs within the province. The following tables will be used in designing a geophysical program. All other restrictions that apply to a program (e.g. wildlife restrictions, cut block restrictions, etc.) must be overlaid and will take precedent over these standards

3D Explosive Programs		
(Smallest source or receiver line spacing dictates the intensity of a 3D program)		
Intensive LIS Programs (=130 m spacing)	Intermediate LIS Programs (> 130 m =300 m spacing)	Non-Intensive LIS Programs (>300 m spacing)
R = 2.0 m width	R = 2.0 m width	R = 2.0 m width (Heli Assist) R = 3.5 m width
S = 3.0 m width	S = 3.8 m width	S = 4.5 m width (allows cat cut)

Note: Heli assist utilizes helicopters to support standard program layout (doesn't include heli-portable programs).

3D NON-Explosive Programs	
(Smallest source or receiver line spacing dictates the intensity of a 3D program)	
Intensive LIS Programs (=150 m spacing)	Non-Intensive LIS Programs (>150 m spacing)
R = 2.0 m width	R = 2.0 m width
S = 3.0 m width	S = 4.5 m width

Note The maximum receiver line width to accommodate quad access and geophones is 2.0 m. Using receiver lines for any type of access, other than quads, is to be reviewed under the access section. Should additional access be required on the receiver lines to accommodate other equipment up to 3.5m wide, additional planning, discussions and clarification with the land manager are required. This will be reflected within the submission of the geophysical field report: For example;

- a. Why is additional access required?
- b. What alternatives have been considered and/or dismissed, why?
- c. are there existing lines that can be used?, or
- d. How many lines would be widened and show specifically which ones.

2D Explosive (mulch)	2D Non-Explosive
R/S = 4.0 m width	R/S = 4.5 m width

Note: Source lines for the intensive 3D explosive programs will be reassessed to determine if a 2.75m and 2.5m line width can be applied by fall of 2008 and 2009 respectively.

Source lines for the intermediate 3D explosive programs will be reassessed to determine if a 3.0m line width can be applied by fall of 2009.

From the Thursday Files:

The market can remain illogical for longer than you or I can remain solvent.

- Lord Keynes