Size Does Matter (Part II): Controlling Design & Technical QC of Large 3D Data Sets in Western Canada (Back to Basics)

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Summary

Given the recent increase in large 3D data sets being acquired in Western Canada, a number of concerns arise as to the technical QC of design and recording parameters/tolerances. Maintaining the integrity and maximizing value of all data sets is critical. In order to do this we must return to the basics of design and tolerance settings to insure we accomplish our objectives, while at the same time assessing the cost associated with these recommendations.

Overview /Discussion

The authors in discussion with other Geoscientists and Field Operations personnel identified a number of trends that appear to create a growing concern that as 3D's grow in size, many of the fundamentals of 3D Design and Tolerances are being ignored. This paper identifies some of the concerns and provides a discussion of the consequences. During the review process, many instances were identified of perceived cost benefit that did not harm data quality – this paper will provide a contrary point of view.

Primary subjects reviewed will be the Design of 3D (including a discussion of footprint, overshooting and undershooting data volumes, azimuth distribution, offset distribution and script files) and tolerances of recording instruments (the impact on cost and data quality).

Conclusions:

Recognizing the value of a proper design simulation is paramount to meeting today's imaging requirements. Design simulation can identify areas of concern and correct these scenarios at an early stage, ultimately reducing the cost of exploration. Proper design combined with appropriate tolerances for equipment will increase the validity of the data and improve resolution for difficult plays. Ultimately the cost for acquiring high quality data within strict guidelines is less expensive than the results delivered from acquiring good data with no guidelines (or so we believe).