You Can Get There From Here!

Kathy A. Taerum*
ConocoPhillips Canada, Calgary, AB, Canada
Kathy.A.Taerum@conocophillips.com

The Canadian Oil & Gas Industry Flow to NAD83

The O&G industry is embracing (or perhaps is bracing itself for) the move to a single mapping datum.

Before the end of 2006, Western Canada provincial governments had completed the migration of their databases. Oil and Gas producers, software & data vendors and service providers however, are at various stages in the migration to the North American Datum 1983. With a potential mix of coordinate data from different sources, it's more important than ever to ask questions about the spatial data that is incorporated into your work.

Simply expressing everything in lat/longs does NOT avoid the datum issue?

Even when using latitudes and longitudes to describe the location of points on the earth, one needs to know which Spheroid (the mathematical shape that approximates the shape of the earth) is the reference and the Datum, which tells us where the reference system is anchored to the spheroid.

The spheroid associated with NAD83 (GRS80) has a pole-to-equator axis that is 168.5 meters greater than the Clarke 1866 spheroid (slightly flatter spheroid used with NAD27.) Thus if you traverse an arc from equator to the pole, you'll travel through $2\pi(r_2-r_1)/4 = 264.7$ meters of extra real estate between latitude zero and latitude ninety than on the Clarke 1866 spheroid.

Datum issues are unavoidable, whether you work in lat/longs or rectangular coordinates. Geologists, geophysicists and geo-techs all play an important role in gate-keeping the spatial data that they use and distribute. It's in everyone's best interest to identify the spheroid and datum of every set of coordinate data and to provide provincial township grid version and UTM Zone information, as applicable. The only CAPP endorsed way in Canada to transform geographic coordinates from NAD27 to NAD83 and vice versa is by use of the National Transformation grid Version 2 (NTv2.)

B.C., Alberta and Saskatchewan distribute data in NAD83 only. Most data vendors are able to provide coordinate data referenced to either datum. The CAPP Geomatics Committee endorses

the use of a standard information form for intercompany spatial data exchange. Ask your software vendors whether their applications handle datum transformations.

Good data management practices and an awareness of datum issues will go a long way in avoiding dry hole costs due to misplaced locations.