

To: Ron Stefik
Senior Reservoir Engineering Technician
Resource Conservation Branch
Oil and Gas Commission
Victoria, British Columbia

Date: October 28, 2003

File: 10510-01-024

Re: Survey system used in theoretical townships within the Peace River Block
for oil and gas well spacing

Further to your e-mail of September 23, 2003, I have conducted research into the method used to define oil and gas well spacing areas in unsurveyed portions of the Peace River Block and provide the following information.

In the Peace River Block oil and gas well spacing and target areas are defined by offsets from quarter section boundaries and by offsets from section boundaries respectively.

Where the Peace River Block was surveyed, the 3rd Dominion Township system of survey was used. Under the 3rd system, 66 foot wide road allowances were placed on the west side of each section and on the south side of every second section in the townships. The sections were surveyed to be 5280 feet north to south and east to west.

In unsurveyed portions of the Peace River Block it became the convention of the oil and gas survey industry to adopt the 4th Dominion system of survey to define the section structure and the resultant oil and gas target areas. In the 4th Dominion system of survey no roads are placed between the sections. Rather, the areas of each section are enlarged such that the total width and height of townships are the same as townships surveyed under the 3rd system.

The Surveyor General Branch appears to have endorsed this practice in the 1960s and 1970s. I understand from talking with one of the surveyors in practice in the oil patch that he approached what was then the Geographic and Legal Surveys Division of the Surveys and Mapping Branch of the Department of Lands, Forests and Water Resources in the 1960s. He made a request for a coordinate listing of section corners of unsurveyed portions of the Peace River Block. On May 15, 1968 a table of coordinates for certain theoretical corners within the Peace River Block was published by the Surveyor General. Although I cannot find the actual listing of coordinates, I have the covering letter that evidently accompanied the listing. The covering letter contains a number of notes including, "*The coordinates for all points have been computed for the 4th System of Survey...". A copy of this covering letter is enclosed for your review.

I have located a second document in our records dated September 9, 1977 which includes both a covering letter and a list of coordinates. On the covering page are two statements of interest, "*These co-ords are to be used for wellsite location purposes only*", and "*The values were computed by Survey Control, Field Operations Division*".

I asked two surveyors in practice in the oil patch to review their copies of the coordinate listing as I wanted to compare the listing attached to the September 9, 1977 memorandum with the listing used by surveyors in industry. It appears that the listing in use by the surveyors is the same as the listing in my records.

To conclude, the oil and gas survey industry has been using the 4th Dominion Township system of survey in those portions of the Peace River Block that were not surveyed for at least the past 35 years. This practice has been accepted and supported by the Crown as is evidenced by the publication of coordinates, using the 4th Dominion Township system, for certain section corners in unsurveyed portions of the block.

To answer your question of September 23, 2003, there is no road allowance on the west side of theoretical Section 33, Township 82, Range 20, West of the 6th Meridian, Peace River District.

If you wish to discuss this matter further, please feel free to call me.

Jeff Beddoes, B.C.L.S., C.L.S.
Deputy Surveyor General
Telephone No. (250) 952-5324
E-mail: jeff.beddoes@gems6.gov.bc.ca

JB:np

cc: S. D. Pengelly, B.C.L.S., McElhanney Associates, 10012 97th Avenue,
Fort St. John, British Columbia V1J 5P3
K. A. Longstaff, B.C.L.S., Longstaff Land Surveying Ltd., 200 Pioneer Square
9900 100th Avenue, Fort St. John, British Columbia V1J 5S7
S. R. Keddy, B.C.L.S., Focus Surveys, 10070-117th Avenue,
Grande Prairie, Alberta T8V 7S4
R. T. Redfem, B.C.L.S., Waberski Darrow Survey Group Ltd., 10720 100th Avenue
Fort St. John, British Columbia V1J 1Z3
The Corporation of Land Surveyors of the Province of British Columbia,
306-895 Fort Street, Victoria, British Columbia V8W 1H7

SUPPLEMENT 1

TABLE OF RECTANGULAR COORDINATES ON THE POLYCONIC PROJECTION - 56°N - 121° W

For use in Land Act and Petroleum and Natural Gas Act surveys
In Townships 85 and 86 Ranges 21 to 26 inclusive W 6 M and
In Townships 87 and 88 Ranges 21 to 25 inclusive W 6 M

The coordinates of unsurveyed points have been derived from a balanced traverse along the north and west boundaries of the Peace River Block and the Twenty-second Base Line. This balancing together with the projection scale factor will cause bearings and distances derived from the coordinates to differ slightly from theoretic values.

The coordinates of surveyed points have been obtained from the best available balanced circuits including pipe line surveys where necessary. These circuits have closing errors in the order of 1:3000 to 1:5000. Distances measured on the ground may therefore be expected to disagree with calculated distances by amounts of this order.

After establishment of section corners on the ground using the theoretical coordinates the Azimuth on the plan representing the survey should be referred to the central meridian of the appropriate township, as usual.

Coordinates of points on rights of way to be used as starting points for legal surveys will be supplied with the instructions for the survey, by Legal Surveys Division. Coordinates for the same purpose for well site surveys may be obtained on request to the Geographic Division.

Notes:

272C is the post on the West Boundary of the Peace River Block 196.35 feet northerly from the point of intersection with the 22nd Base Line.

*The coordinates for all points have been computed for the 4th System of Survey. Since some surveys were done on 3rd System the coordinated position does not coincide with the post on the ground in the following cases, these being marked with asterisks on the lists of coordinates. The following coordinate points are 0.25 chain southerly from the post on the ground: 162C, 163C, 164C, 208C, 209C.

The following coordinated points are 0.50 chain southerly from the points on the ground: 133C, 134C, 135C, 102D, 180C, 224C, 225C, 226C, 266C, 267C, 268C, 269C, 270C, 271C, 230D, 231D.

The following coordinated points are 0.75 chain southerly from the post on the ground: 138C, 139C, 186C, 247D, 243D, 249D.

G.S. Andrews,
Surveyor General and Director,
Surveys and Mapping Branch,
Department of Lands, Forests and Water Resources

SUPPLEMENT 2

September 9, 1977

Rectangular co-ordinates on Polyconic Projection – 56° - 121°

The coordinates of the unsurveyed points are balanced values derived from 21st base line and adjoining surveyed townships.

These co-ords are to be used for wellsite location purposes only.

The only control within the area at this time are trig stns along the Peace and Pine Rivers.

The values were computed by Survey Control, Field Operations Division.