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THE CANADIAN UNIQUE WELL IDENTIFIER

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I GENERAL DESCRIPTION

The Unique Well Identifier (UWI) is the standard well identification which was developed for the Petroleum Industry by the Geoscience Data Committee of the Canadian Petroleum Association and has been adopted by the oil and gas regulatory agencies of the four Western Provinces, and Regulators using the Federal Permit System (including the NEB, C-NOPB, and C-NSOPB.) It consists of 16 characters that make up four basic components; the legal survey location for one of four Canadian survey systems and three codes. These together define the approximate geographical location of a well and may define a significant drilling or producing event.

The Unique Well Identifier, although based on the legal survey position of a well, is primarily for identification, rather than location. The location component describes a small land area, not the exact position of the well. In the Federal Permit System, this small land area corresponds to the surface location of the well. In all other systems, the location component identifies the small land area corresponding to the well bottom.

II FORMAT

The Unique Well Identifier with its four Basic Components and four Survey Systems is formatted for input to computer systems as follows:

Components -	A	B	C												D	
	SURVEY SYS. CODE	LOCATION EXCEPTION CODE	LEGAL SURVEY LOCATION												EVENT SEQ. CODE	
Survey Systems 1 - -			LSD	SEC	TWP	RGE	E/WMER									
2 - -			QTR	UNIT	BLK	PQ	LQ	SIX								
3 - -			UN	SEC	LATITUDE				LONGITUDE							
4 - -			LATITUDE				LONGITUDE									
Record Positions -	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

<u>Components</u>	<u>Record Positions</u>
A - Survey System Code	1
B - Location Exception Code	2-3
C - Legal Survey Location	4-15
1 - DLS	
2 - NTS and BC Grid	
3 - Federal Permit	
4 - Geodetic Coordinates	
D - Event Sequence Code	16

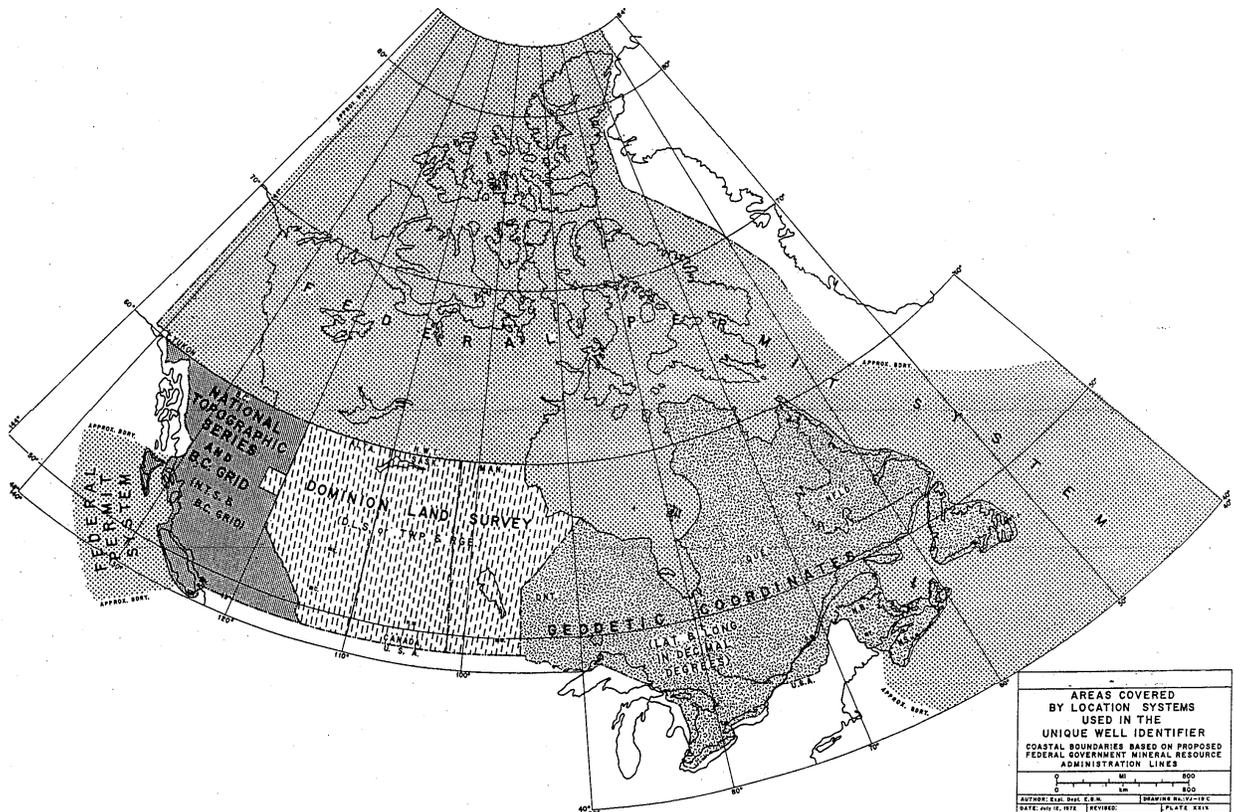
III COMPONENTS

A. SURVEY SYSTEM CODE

A one-character code in position 1 indicating the Survey System by which the well is located, and the set of location items that will follow in Identifier positions 4 – 15.

The Legal Survey (or location) Systems, the Areas where they are applied and their designated Codes are as follows:

CODE	SURVEY SYSTEM	GEOGRAPHIC AREA USED
1	Dominion Land Survey System (DLS or Township and Range)	Alberta, Saskatchewan, Manitoba and Peace River block of British Columbia
2	National Topographic Series map grid subdivided by the BC Land Grid System (NTS & BC Grid)	British Columbia except Peach River block
3	Federal Permit System (FPS)	Canada lands in the Northwest Territory, Yukon Territory, Arctic Offshore, East and West Coast offshore areas and Hudson bay and Hudson Strait
4	Geodetic Coordinates (Geodetic or Latitude and Longitude)	Ontario, Quebec and Maritime provinces



Map 1: Areas Covered by Location Systems Used in the Unique Well Identifier.

B. LOCATION EXCEPTION CODE

A two-character code in positions 2 and 3 identifying those cases where more than one well is drilled in the smallest land area described by the Legal Survey System.

DLS, NTS and Geodetic Systems

The first (or left-most character) further defines the **Position** of the well and the second (or right-most) character indicates the drilling **Sequence** of wells in the defined Position, as follows:

(1) Position

A numeric or alphabetic character in position 2 designating the position of the well within, or in relation to the smallest area of the Survey System by which the well is located. The first or only well typically located in the smallest survey area is coded zero.

(2) Sequence

A number in position 3 indicating the chronological sequence in which the well was drilled when more than one well has been drilled within the smallest area described by the Legal Survey Location and the Exception Position code.

CODE	DRILLING SEQUENCE
0	1 st well in the location
2	2 nd well in the location
3	3 rd well in the location (to a maximum of 9)

Federal Permit System

The location exception code is numerical, assigned sequentially as wells are approved. The location exception code increments from zero, skipping the code "01" in order to allow synchronization with well names (e.g., 00, 02, 03.)

C. LEGAL SURVEY LOCATION

A set of items for one of four Legal Survey Systems, in positions 4 to 14 or 15, defining the Location of a small land area (LSD, ¼ Unit, etc.) of the surface location (Federal Permit System) or under which the hole bottoms (all other systems).

References, descriptions of the terms with abbreviations, and the relative sizes of the grid areas used in each system are given in Appendix A. Typical example values and exceptions are as follows:

(1) DLS (normally 11 characters – positions 4 – 14)

LSD	SEC	TWP	RGE	E/W	MER
11	22	045	15	W	5

When the LSD is unknown, it is coded 00. In rare cases where the well has been drilled in an "A" township and/or range (in Saskatchewan) an "A" is entered in column 15.

(2) NTS and BC Grid (11 characters – position 4 – 14)

B.C. GRID			N.T.S. GRID		
QTR	UNIT	BLK	PQ	LQ	SIX
B	035	E	094	G	12

(3) Federal Permit System (12 characters – positions 4 – 15)

UNIT	SEC	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
F	55	62	20	121	45

Latitude and longitude refer to the northeast corner of a permit which is 10 minutes by 15 minutes (10' x 3-4' north of 70°). Section (SEC) 100 is coded 00.

(4) Geodetic Coordinates (11 characters – positions 4 – 14)

DEGREES LATITUDE	DEGREES LONGITUDE
45123	073123

Latitude and longitude refer to the centre point of a small rectangular area. A decimal point is implied before the last three digits of both numbers. When the well position has been surveyed to a greater accuracy than three decimal degrees both latitude and longitude are rounded up from the fourth decimal place.

LEADING ZEROS

When the maximum number of positions for any location item (LSD, BLK, etc.) is not filled with significant digits, leading zeros are entered to complete the allotted positions.

NUMBER PADDING

When Survey system 1, 2, or 4 (DLS, NTS & BC Grid, or Geodetic) is used, position 15, which is not required, is coded zero (0) in order to maintain a complete Unique Well Identifier of constant length (16 characters).

D. EVENT SEQUENCE CODE

A one-character code in position 16 identifying, in chronological sequence, a significant drilling and/or completion operation at the well which yields a separate and unique set of geological or production data (DLS, NTS, geodetic) or new borehole is created (FPS.) The initial drilling and first completion are coded zero (0) and subsequent events 1-9. If necessary, the alphabetic series beginning with "A" to continues the 'numbering' (e.g. ...8,9,A,B,C...).

Typical application of the code is given in section VI, C.

The Alberta Energy Resources Oil and Gas Conservation Board uses zero (0) for the initial drilling and 2 – 9 subsequent events (see Appendix D).

The Saskatchewan Department of Mineral Resources uses a Special Identification code (ID) in place of the Event Sequence code (see Appendix C).

Under the Federal Permit System, if a well is suspended then re-entered to finish the drilling of the originally approved well, the UWI will not change. The UWI for a well will remain the same unless new borehole is created beyond Final Total Depth or because of a sidetrack.

IV. RECORDING INPUT

Typical Unique Well Identifiers as recorded for computer systems are as follows:

	Survey Sys. Code	Location Exception Code		Legal Survey System												Event Seq. Code
DLS	1	0	0	1	1	2	2	0	4	5	1	5	W	5	0*	0
NTS & BC Grid	2	0	0	B	0	3	5	E	0	9	4	G	1	2	0*	0
Federal Permit	3	0	0	F	5	5	6	2	2	0	1	2	1	4	5	0
Geodetic	4	0	0	4	5	1	2	3	0	7	3	1	2	3	0*	0
*Number Padding																

It is mandatory that all of the positions of each of the components contain either a numeric digit or an alphabetic character.

V. OUTPUT CONVENTIONS

The manner in which Unique Well Identifiers have been printed in reports and publications has varied. Different spacing, character size, and special characters have been used, for example:

100/15-01-010-06W4/00
 1-01-02-08-031-22-W3-00
 200a029E094H0500
 F-43-68-10-133-15
 300F436810133150

For ease in recognition and convenience in working in well data from several sources and different areas of Canada, the following output formats are recommended:

DLS	100/ 16-25-123-15-W-6 /02
NTS & BC Grid	2BO/ D 72-L / 94-P-16 /00
Federal Permit	302/ L99 76-50 120-45 / 0
Geodetic	400/ 79.999 / 104.999 / 00

VI. APPLICATION

A. CHANGES

The unique well Identifier is assigned prior to the drilling of a well and will remain unchanged except in the following cases:

(1) Deviation

A well drilled in the DLS, NTS or geodetic survey systems will have the Legal Survey Location in the Identifier assigned prior to drilling. This Identifier defines the land unit under which it is anticipated the well will bottom. If the well does not bottom under the designated unit, that Identifier is cancelled and a new Identifier is assigned to the well with the correct Legal Survey Location for the actual bottom hole location.

(2) Resurveys

A borehole drilled in unsurveyed territory may be found, after improved survey data are established, to have been inaccurately located. When the newly established position is not consistent with the Legal Survey Location in the initial Identifier, it is cancelled and a new Identifier is assigned with the correct Legal Survey Location.

B. MULTIPLE WELLS DRILLED FROM ONE LOCATION

(1) DLS, NTS Geodetic Systems

When two or more wells are drilled from a common surface location (i.e. drill site or island) they will be bottomed in either:

- 1.) Different geological zones under the same Legal Survey Location and/or
- 2.) Different Legal Survey Locations (i.e. drainage or spacing units).

In each case they are assigned Identifiers with the Legal Survey Locations for the land units under which they bottomed. The Identifiers for case (1) will also have Location Exception – Sequence Codes representing the chronological order of drilling to the bottom-hole Legal Survey Location.

(2) Federal Permit System

When two or more wells are drilled from a common surface location (drill site, pad, platform or island) Identifiers corresponding to their surface location will be issued. For each entirely new borehole approved to be drilled from the common surface location, the location exception code will be incremented. In order to synchronize with the well names, the location exception code will be assigned as 00 for the first well, 02 for the second well, and 03 for the third well in that block.

In all areas covered by the Federal Permit System (FPS) grid, the only area where bottom hole location has been used historically has been the Norman Wells Field in the NWT. All other UWIs have been issued based on surface location. The Norman Wells Field is documented as an exception to the surface location method of UWI determination, due to the fact that those UWIs were created according to an earlier version of this document.

C. EVENTS

DLS, NTS or geodetic survey systems

The first event is the initial drilling and first completion, which is identified by the Identifier assigned prior to commencement of drilling (providing there is no location change as noted above) with an Event Sequence Code of zero. Additional Identifiers are assigned with increasing Event Sequence Codes for additional significant new drilling, completion, or evaluation operations as follows:

- 1.) Deepening – (as a separate operation) which adds new geological data.2.) Sidetracking which adds new geological data by re-penetrating the same or another sequence of rocks.
- 3.) Multiple completion or re-completion in a second, third, etc., zone which will contribute separate production data.
- 4.) Re-evaluation (as a separate operation) by testing, logging, etc., which adds new geological data.

When deepening or sidetracking results in the bottom of a new event portion of a well being located under a different land unit than was initially defined, the Identifier will change. The additional Identifier assigned to the new event (initially or as a change) will have the Legal Survey Location for the subsequent bottom location, and an event sequence code representing the sequence of the event in the well (i.e. not zero).

Federal Permit System

For the Federal Permit System, when the deepening is within the specifications of the original license approval, it does NOT increment the Event Sequence Code.

D. EXCEPTION TO BOTTOM HOLE LOCATION FOR THE DLS, NTS, OR GEODETIC SURVEY SYSTEMS

In rare instances the producing zone in a slanted hole is under a different land unit than the bottom of the hole. The Identifiers, for these cases, are given the Legal Survey Location for the land unit from which production is obtained.

APPENDIX A**REFERENCES AND TERMS USED FOR THE FOUR SURVEY SYSTEMS IN THE UNIQUE WELL IDENTIFIER****I DOMINION LAND SURVEY (System 1)****REFERENCE:**

Government of Canada,

Department of Energy Mines and Resources, 1961

Manual of Instructions for the Survey of Canada Lands

Queens Printer and Controller of Stationery, Ottawa

TERMS:

NAME	ABBREVIATION	DESCRIPTION
Legal Subdivision	LSD	Smallest area. 16.2 ha, 402 m by 402 m (40 ac, 1320 ft by 1320 ft) Numbered 1-16
Section	SEC	Intermediate area. 16 LSD's, 256 ha, 1.6 km by 1.6 (640 ac, 1 mi by 1 mi) Numbered 1-36
Township	TWP	Largest area. 36 sections 9.7 km by 9.7 km (6 mi by 6 mi) Also the distance, in the number of Township rows, north from the Canada/U.S. boundary, or the regional north-south coordinate with an origin at 49 ⁰ Latitude. Numbered south to north 1-126
Range	RGE	The distance in the number of Township columns, east or west of meridians, or the regional east-west coordinate between Meridians. Numbered 1-34 for Meridian 1, and 1-30 for Meridians 2-6.
Direction of Range Numbering	E/W	The direction of Ranges either east or west from a meridian. Lettered "E" or "W" when Meridian = 1; "W" only when Meridian = 2-6
Meridian	MER	East-West coordinate origin for Ranges. Numbered 1-6. No. 1 is at longitude 97 ⁰ 27' 28.4" and 2-6 are West at 4 ⁰ intervals starting at 102 ⁰ .

II NATIONAL TOPOGRAPHIC SERIES AND B.C. GRID (System 2)**REFERENCE:**

Province of British Columbia, 1956

Petroleum and Natural Gas Act, 1954, PERMIT AND LEASE GRID SYSTEM

Ministry of Mines and Petroleum Resources, Victoria

TERMS:

NAME	ABBREVIATION	DESCRIPTION
Quarter	QTR	Smallest B.C. Grid area Approximately 16 ha (40 ac). Lettered A-D
Unit	UNIT or UN	Intermediate B.C. Grid area 4 quarters or 1/100 of a Block 30 seconds by 45 seconds. Numbered 1-100
Block*	BLK	Largest B.C. Grid area 100 units or 1/12 of the smallest NTS area (Sixteenth) 5 minutes by 7.5 minutes. Lettered A-L
Primary Quadrangle	PC	Largest NTS area Basic NTS sub-division 4 ⁰ N-S, 8 ⁰ E-W. Numbered (in B.C.) 82-114
Lettered Quadrangle	LQ	Intermediate NTS area 1/16 of a Primary Quadrangle 1 ⁰ by 2 ⁰ . Lettered A-P
Sixteenth	SIX	Smallest NTS area used in UWI 1/16 of a Lettered Quadrangle 15 minutes by 30 minutes. Numbered 1-16
* Previously named Zone		

III FEDERAL PERMIT (System 3)**REFERENCE:**

Government of Canada,

Canada Oil and Gas Land Regulations, SOR/61-253,

Made Under the Territorial Lands Act and the Public Lands Grants Act

Queens Printer and Controller of Stationery, Ottawa

TERMS:

NAME	ABBREVIATION	DESCRIPTION
Unit	UNIT or UN	Smallest area 1/16 or a Section (intermediate area). From 14 to 20 ha (35-50 ac) Lettered A-P
Section	SEC	Intermediate area 16 units or 1/60, 1/80 or 1/100 or a Grid (largest area) according to latitude. From 240 to 325 ha (600-800 ac) 1 minute north-south and from 1.5 minutes to 5 minutes east-west. Numbered 1-99 and 00 (00=100)
Grid		A Grid is the largest area, 10 minutes by 15 minutes south of latitude 70 ⁰ and 10 minutes by 30 minutes north of latitude 70 ⁰ Approximately 18 km (11 mi) north-south and from 8 to 18 km (5-11 mi) east-west. It is identified by its north and east boundaries as follows:
Degrees-Latitude	DEG	Degrees north latitude at the north boundary of a Grid. Numbered 40 – 85
Minutes-Latitude	LAT	Minutes of latitude at the north boundary of a Grid. Numbered 00, 10, 20, 30, 40 or 50
Degrees - Longitude	DEG	Degrees of longitude at the east boundary of a Grid Numbered 42-141
Minutes – Longitude	MIN	Degrees of longitude at the east boundary of a Grid Numbered 00, 15, 30 or 45

IV GEODETIC COORDINATES (System 4)**TERMS:**

NAME	ABBREVIATION	DESCRIPTION
One small rectangular area (not named) approximately 110 m (360 ft) north-south by 80 m (260 ft) east-west, at 45 ⁰ latitude, or about 0.85 ha (2.1 ac), identified by its centre point as follows:		
Latitude	LATITUDE	North latitude of the centre point of the area. Degrees to 3 decimal places. Numbered 40000-83000 with an implied decimal prior to the last three digits.
Longitude	LONGITUDE	Longitude of the centre point of the area. Degrees to 3 decimal places. Numbered 42000-141000 with an implied decimal prior to the last three digits.

APPENDIX B**LOCATION EXCEPTION CODES FOR
THE DLS & OTHER SYSTEMS**

Special Exception Position codes have been defined for use with the DLS system according to the spacing units for which wells are licensed as follows:

CODE	WELL SPACING UNIT AND/OR POSITION	
0	Forty Acre spacing or more - usually center of LSD	Typical
A	Twenty Acre Spacing or less – S.E. quarter of LSD	Exceptions
B	Twenty Acre Spacing or less – S.W. quarter of LSD	Exceptions
C	Twenty Acre Spacing or less – N.W. quarter of LSD	Exceptions
D	Twenty Acre Spacing or less – N.E. quarter of LSD	Exceptions
S	Road Allowances wells located South of LSD	Exceptions
W	Road Allowances wells located West of LSD	Exceptions

Wells which are drilled in the centre of sections or on boundary lines between LSD's are arbitrarily assigned to an LSD by the licensing agency.

No special Exception Position codes have been defined for use with the other Survey Systems (NTS & BC Grid, Federal Permit, and Geodetic). They will be arbitrarily assigned by the regulatory agencies concerned, starting with "A".

Examples of the combined Location Exception codes for Position and Sequence as used with the DLS System (except in Saskatchewan) follow:

1 st well on normal spacing	00
2 nd well on normal spacing	02
1 st well in SE ¼ LSD	A0
2 nd well in SE ¼ LSD	A2
1 st well in SW ¼ LSD	B0
1 st well in NW ¼ LSD	C0
2 nd well on road allowance south of LSD	52

The Saskatchewan Department of Mineral Resources uses a modified version of the Exception Code (see Appendix C). Important differences are that it is entirely numeric and the first well is numbered 1 rather than 0.

APPENDIX C**UNIQUE WELL IDENTIFIER CODES USED BY THE
SASKATCHEWAN DEPARTMENT OF MINERAL RESOURCES****I LOCATION EXCEPTION (or Quad) CODE (Positions 2 and 3)**

Position 2 denotes the approximate position of the well within the LSD, and Position 3 the number of individual wells on that location.

Codes for the combined columns are as follows:

CODE	DESCRIPTION
01-09	Approximate centre of LSD
11-19	SE ¼ LSD
20	On boundary between SE & SW ¼'s of LSD
21-29	SW ¼ LSD
30	On boundary between SW & NW ¼'s of LSD
31-39	NW ¼ of LSD
40	On boundary between NW & NE ¼'s of LSD
41-49	NE ¼ LSD
50	On boundary between NE & SE ¼'s of LSD
51-59	Road Allowance South boundary
61-69	Road allowance West boundary
70-74	Approximate Centre of ¼ Section (followed by the number of the lowest numbered LSD in the LSD field).
75-79	Approximate Centre of Section (followed by 00 in the LSD field)
81-89	Approximate Centre or on Centre line of 80 acre tract (followed by the number of the lowest numbered LSD in the LSD field).
91-94	Directionally drilled holes from one LSD to another (followed by the number of the LSD, in which the hole bottoms in the LSD field).
95-99	If location in LSD is unknown, reverse order of date (Oldest Unknown = 99)

II SPECIAL IDENTIFICATION (or ID) CODE (used in position 16 in place of the Event Sequence Code)

CODE	DESCRIPTION
0	Original Oil Well
1	Re-entry
2	Recompletion Oil to Oil (Plug-back)
3	Second Recompletion Oil to Oil
4	Dual (Also Twin if two strings of casing are used in the same well bore. Do not use for twin wells which have separate well bores as the difference is indicated in the quad.
5	Gas
6	Water Source
7	Water Injector

APPENDIX D**APPLICATION OF THE UNIQUE WELL IDENTIFIER BY THE
ALBERTA ENERGY UTILITIES BOARD****I. CONVENTIONAL HYDROCARBON WELLS**

The Alberta Energy Utilities Board (AEUB) assigns Unique Well Identifiers to all wells licensed according to the Regulations under the Oil and Gas Conservation Act (i.e. conventional hydrocarbon wells). The Canadian Petroleum Association definitions are followed in originating Identifiers. The conditions under which they are issued and the specific uses of the event sequence code are as follows:

A. Issuing

The Unique Well Identifier is issued by the AEUB at the time of licensing each well. Where a license has been cancelled the Identifier is also cancelled and may be subsequently reassigned in the same form to a well licensed later in the same legal subdivision. In rare instances where two wells have been licensed in a legal subdivision and the second well is drilled before the first one is cancelled, the identifier of the first well is cancelled and is assigned to the second well in the place of its previous Identifier.

A well is licensed and an Identifier assigned to a "Projected" bottom hole location (LSD). When a well inadvertently bottoms in another location the original Identifier is cancelled and a new Identifier is issued with the actual bottom hole location.

A well licensed to be drilled in the centre of a section or on a boundary between two legal subdivisions, is assigned the nearest legal subdivision north and, if necessary, east of the well location.

A change in the size of the drilling spacing unit does not necessitate a change in the location exception code originally assigned.

B. Event Sequence Code

When a well is licensed, it receives an event sequence code of "0" (zero). This code identifies the first set of data, and the completion information for the first completed zone. With the completion of other zones, or the drilling of a new portion of the hole that provides additional geologic data, event sequence codes of 2, 3, 4,....9; are issued in chronological order. (Event sequence code 1 is not used).

An event sequence code other than zero, is created as a result of:

1. Deepening of a Well:

The licensee must apply to the Board to deepen a well to a new geological zone. The re-drilling operations may supply new data as well as some new basic data which require separate identification, therefore a new Identifier with a higher event sequence code is assigned. (When a well is deepened as a rework operation without penetrating a new zone, however, a new identifier is not issued).

2. Re-entry of an Abandoned Well:

The licensee must formally apply to the Board to re-enter an abandoned well, to deepen, whipstock, evaluate a formation, complete for production or complete as a service well all of which will create new data unique to the re-entry operation. To identify these data as distinct from previous data sets another Identifier with a new event sequence code is assigned.

3. Whipstocked Portion of a Well:

When an original hole is plugged back, a whipstock set and a second hole directionally drilled to a new target, it is a second event which creates an additional set of data. A second Identifier with a new event sequence code, is assigned to the new hole and first completion therein. The original hole, and the first completion within the original hole, if applicable, would retain the Identifier with the initial event sequence code.

A normal, original, directionally drilled well (not sidetracked) retains its original Identifier unless the bottom hole location differs from the projected location.

4. Second and Subsequent Completions:

At the time a well is officially completed in more than one pool, new Identifiers, additional to the one issued with the license, will be issued with consecutive sequence numbers, to identify the data for completions in the second, third, etc. pools.

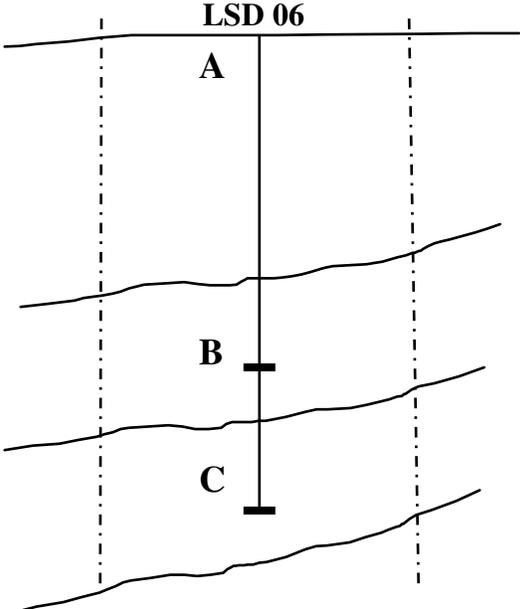
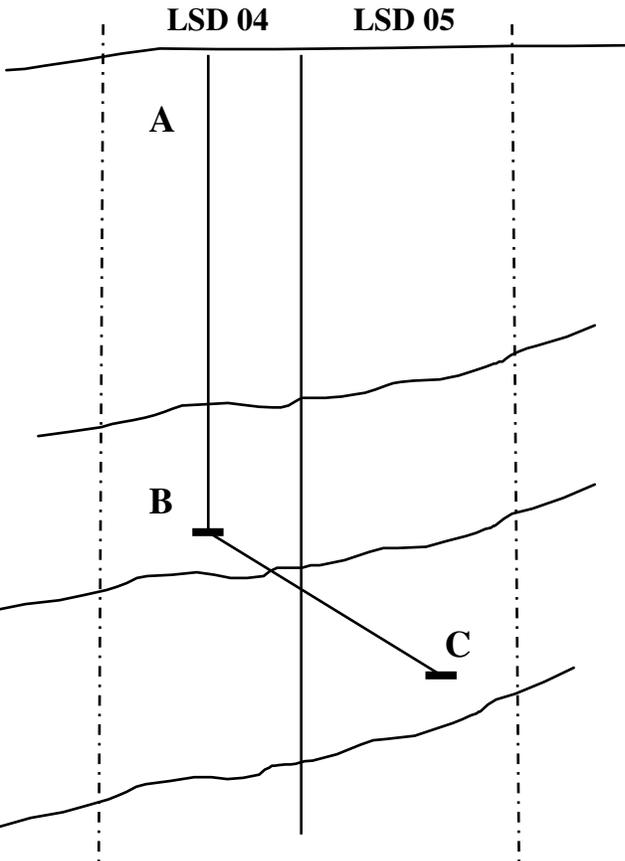
All above events (1-4) create new sets of data and corresponding identifiers. In each case the event sequence code specifies the event and serves as a reference to the data obtained from the event.

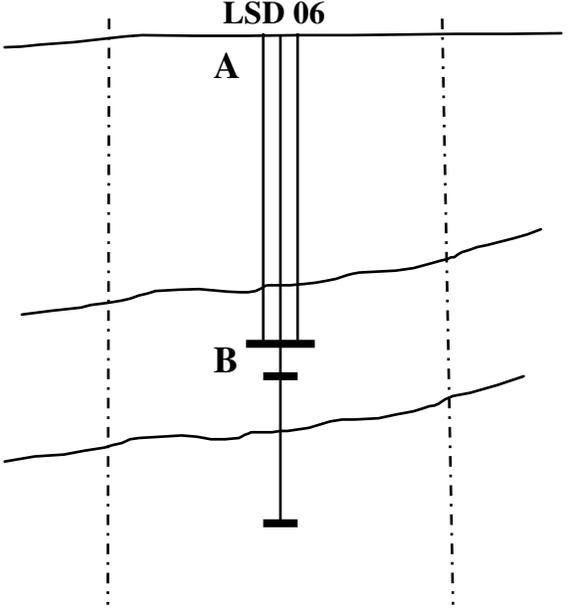
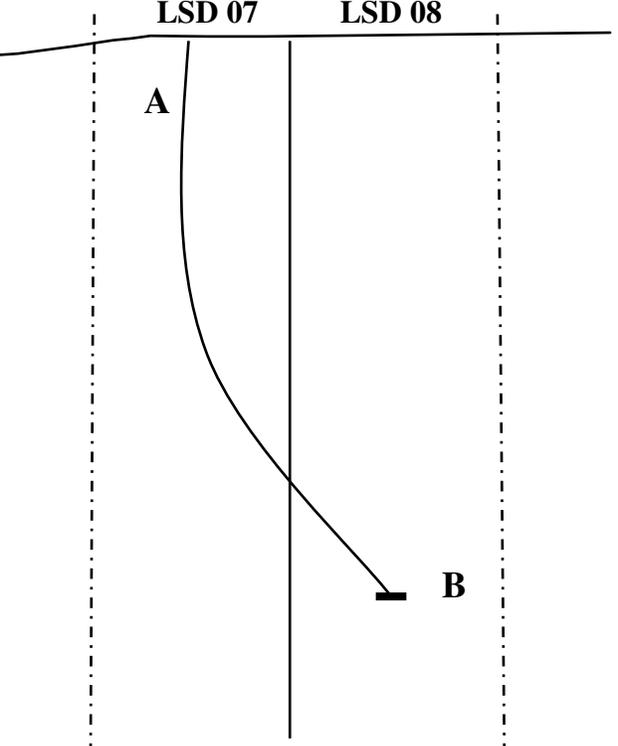
C. Examples

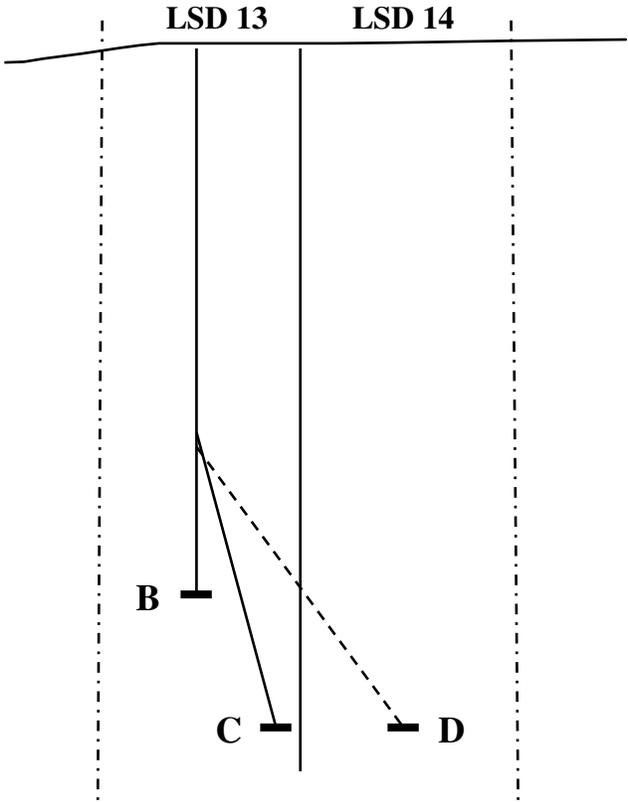
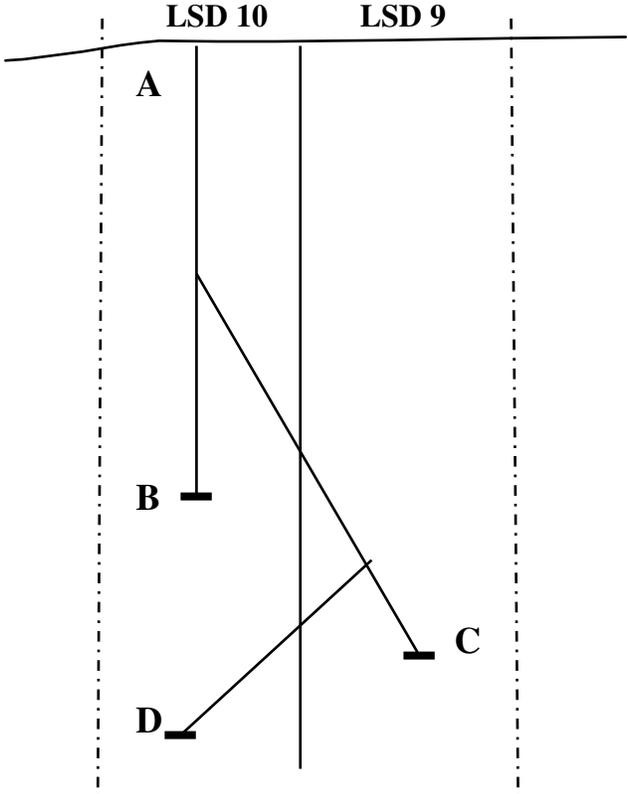
Examples of the assignment of Identifiers in special cases are as follows:

1. Dual Completion

<p>1. DUAL COMPLETION</p> <p>Lower zone or initial completion retains originally assigned Identifier of 00/ 06-12-045-12W-4 / 0</p> <p>Upper zone or subsequent completion is assigned an Identifier of 00/ 06-12-045-12-W-4 / 2</p> <p>(Event sequence codes are assigned chronologically, however if both zones are completed in the same re-work operation the lower zone is deemed to be completed first).</p>	
<p>2. RE-COMPLETION OF A WELL IN A NEW POOL</p> <p>Lower zone has a previously assigned Identifier of 00/ 06-13-045-12-W-4 / 0</p> <p>Newly completed zone is assigned a new Identifier of 00/ 06-13-045-012-W-4 / 2</p> <p>(In this example the abandoning of the old zone does not require the issue of an Identifier with a new event sequence code).</p>	

<p>3. DEEPENING OF AN EXISTING WELL TO A NEW GEOLOGIC HORIZON</p>	 <p>The diagram shows a geological cross-section with four tilted layers. A vertical well path is shown. The top section is labeled 'A' and is bounded by a horizontal line labeled 'LSD 06'. Below 'A' is section 'B', and below 'B' is section 'C'. Section 'C' extends deeper into the lower layers. Vertical dashed lines indicate the boundaries of the well path.</p>
<p>Existing well A-B has Identifier of 00/ 06-14-045-12-W-4 /0</p> <p>Deepened portion of the well B-C is assigned a new Identifier of 00/ 06-14-045-12-W-4 /2</p>	
<p>4. DEEPENING OF AN EXISTING WELL TO A NEW GEOLOGICAL HORIZON BY WHIPSTOCKING</p>	 <p>The diagram shows a geological cross-section with four tilted layers. A vertical well path is shown. The top section is labeled 'A' and is bounded by a horizontal line labeled 'LSD 04'. Below 'A' is section 'B', and below 'B' is section 'C'. Section 'C' is a diagonal line that originates from the well path in section 'B' and extends downwards and to the right. Vertical dashed lines indicate the boundaries of the well path. The top right section is labeled 'LSD 05'.</p>
<p>Existing well A-B has an Identifier of 00/ 04-14-045-12-W-4 /0</p> <p>When deepened portion is “projected” to bottom in LSD 5, or when it inadvertently bottoms in LSD 5, the new hole from A to C is assigned a new Identifier of 00/ 05-14-045-12-W-4 /2</p> <p>(It is given an event sequence of 2 to indicate that the new bore hole originated from an existing well).</p>	

<p>5. RE-ENTRY OF AN EXISTING ABANDONED WELL</p>	
<p>6. DIRECTIONALLY DRILLED WELL "PROJECTED" TO BOTTOM IN A SPECIFIED LEGAL LOCATION</p>	
<p>At the time of licensing the well is assigned its "projected" location. When "projected" to LSD 08 it is assigned an Identifier of 00/ 08-18-045-12-W-4 /0 When "projected" to LSD 07 but inadvertently bottomed in LSD 08, the Identifier, at the time of licensing, would have been 00/ 07-18-045-12-W-4 /0 and it would subsequently be changed to 00/ 08-18-045-12-W-4 /0</p>	

<p>7. WHIPSTOCKED HOLE FROM AN EXISTING WELL</p>	 <p>The diagram illustrates a well path starting in LSD 13 and ending in LSD 14. A horizontal line at the top represents the surface, with vertical dashed lines marking the boundaries of LSD 13 and LSD 14. A solid vertical line descends from the surface in LSD 13 to point B. From point B, a solid line descends to point C, which is also in LSD 13. A dashed line then descends from point B to point D, which is in LSD 14. This represents a whipstocked hole that is projected to bottom in LSD 13 but actually bottoms in LSD 14.</p>
<p>8. UNUSUAL WHIPSTOCK OF A HOLE FROM AN EXISTING WHIPSTOCKED HOLE (For illustration only)</p>	 <p>The diagram illustrates a well path starting in LSD 10 and ending in LSD 9. A horizontal line at the top represents the surface, with vertical dashed lines marking the boundaries of LSD 10 and LSD 9. A solid vertical line descends from the surface in LSD 10 to point A. From point A, a solid line descends to point B, which is also in LSD 10. From point B, a solid line descends to point C, which is in LSD 9. This represents an unusual whipstock where a hole is projected to bottom in LSD 10 but actually bottoms in LSD 9.</p>
<p>Existing well A-B has an Identifier of 00/ 10-21-045-12-W-4 /0</p> <p>Bore hole A-C would have an Identifier of 00/ 09-21-045-12-W-4 /2</p> <p>Bore hole A-D would have an Identifier of 00/ 10-21-045-12-W-4 /3</p>	

In each of the above cases the event sequence codes may be greater than shown, depending on any previous events that may have taken place.

The AEUB, in its General Well Data System generates a set of records for each Unique Well Identifier. Records generated for events subsequent to the original event (0) contain the data resulting from the new event and also duplicate sets of all data generated by any previous events.

II. OIL SAND WELLS

Wells licensed under the Oil and Gas Conservation Board Regulations as oil sand wells (i.e. wells penetrating oil sands deposits) have been assigned Unique Well Identifiers. New wells are usually licensed in groups without specific locations and Identifiers are assigned after drilling has been completed. These Identifiers differ with the Canadian Petroleum Association definitions as follows:

A. Location Exception Code

The two positions (2 and 3) are combined to identify any well drilled in the smallest land area described by the Legal Survey Location (i.e. LSD). The code used is a double alphabetic starting with AA and having the letter in the right position advancing from A to Z for each letter in the left position which advances likewise, except that letters I and O are not used. Assignment is usually in chronological order of drilling.

B. Event Sequence Code

The Event Sequence Code is always zero (0).

APPENDIX E

**DEVELOPMENT AND APPLICATION OF THE
CANADIAN PETROLEUM ASSOCIATION UNIQUE WELL IDENTIFIER**

On behalf of the National Advisory Committee on Research in the Geological Sciences, Dr. S.C. Robinson of the Geological Survey of Canada in October 1964, requested a brief from the petroleum industry on the most satisfactory method of defining geographical locations, suitable for identification, and machine processing and plotting of scientific data.

The Canadian Petroleum Association formed a Well Data Committee which examined the petroleum industry requirements and recommended the use of a Universal Location Reference Number and a Unique Well Identification Number. The Board of Governors of the Canadian Petroleum Association approved the Committee report and forwarded it to Dr. Robinson in August of 1965. It was subsequently approved in principle by the Canadian Mines Ministers Conference of September 14, 1965.

Shortly thereafter Unique Well Identifiers were assigned by the regulatory agencies of the four Western Provinces and the Federal Department of Indian Affairs and Northern Development for all new well licenses issued and these were published in current drilling reports. The backlog for all previously drilled wells was completed later.

Since that time the Unique Well Identifier has been used as the control element and/or well reference in geological and production well data processing systems developed by the Alberta Energy Resources Conservation Board, the Saskatchewan Department of Mineral Resources, the Canadian Oil Scouts Association, several petroleum service companies and numerous operating companies. The acceptance, application and usefulness of the Identifier in the petroleum industry was monitored by the Canadian Petroleum Association on two occasions and found to be favorably accepted and used almost exclusively for identifying and matching wells in Canadian systems.

In February of 2000, the Eastern Canada Standards Workgroup began reviewing the usage of the UWI for east coast offshore areas. It was observed that there was no single method used to assign the UWI within the Federal Permit System, therefore, it was determined that some changes were necessary to the construction of the UWI in order to meet the business needs of those involved in exploration, producing and regulatory activities in the area. Using a collaborative approach, each component of the UWI has been discussed, and modifications made where necessary. It is a credit to the original authors of this document that only minor changes were necessary in order to restore the synchronization and utility intended by the original document.