

Appendix 2 Unique Well Identifiers

General Description

The unique well identifier (UWI) is the standard well identification that was developed for the petroleum industry by the Geoscience Data Committee of the Canadian Petroleum Association (CPA) and has been adopted by the oil and gas regulatory agencies of the four western provinces and federal areas. It consists of 16 characters, which make up four basic components:

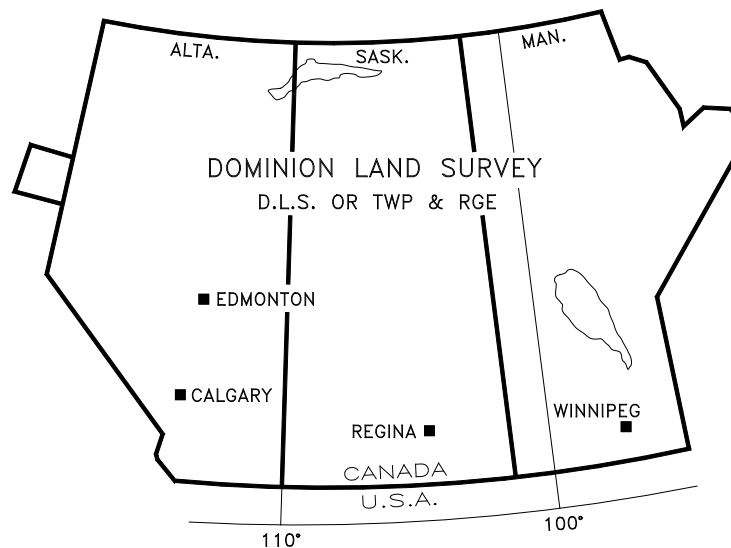
- 1) legal survey location
- 2) survey system code
- 3) location exception code
- 4) event sequence code

Together these define the approximate geographical location of the bottom of a drill hole and a specific drilling or producing event at the drill hole.

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 the bottomhole location of the well, not the surface position of the well.

Dominion Land Survey System

The legal survey location component for Alberta is the Dominion Land Survey (DLS) system, which is used in Alberta, Saskatchewan, Manitoba, and a portion of British Columbia.



Unique Well Identifier Format

The correct unique well identifier format is the 16-character format shown below:

SS	LE		LSD		SC		TWP			RG	W	M	P	ES	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

The DLS system is designated in the unique well identifier format by a 1 in the first position.

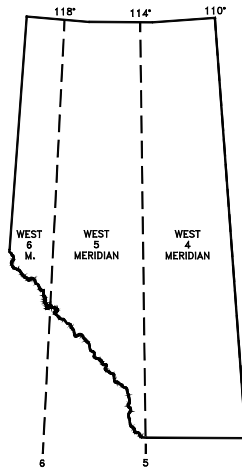
SS	LE		LSD		SC		TWP			RG	W	M	P	ES
1														

Acceptable value(s): 1 for Alberta
 Abbreviation: S or SS

Meridian

For the purposes of survey locations, the province of Alberta is subdivided into three areas defined by the **meridians** of longitude.

For unique well identifier purposes, these are referred to as west (W) of the fourth, fifth, and sixth meridians.



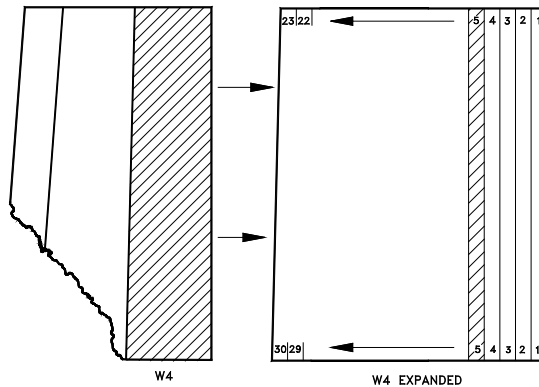
Example:

SS	LE	LSD	SC	TWP	RG	W	M	P	ES
1						W	4		

Acceptable values: W4, W5, W6

Range

Each area (i.e., West 4, West 5, and West 6) subdivides into ranges, as shown below:



Example:

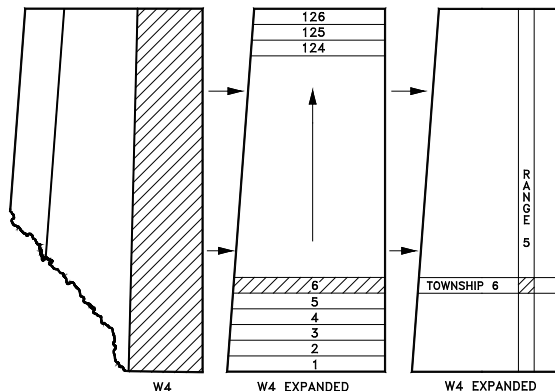
SS	LE	LSD	SC	TWP	RG	W	M	P	ES
1					0 5	W	4		

Acceptable values: Ranges are numbered from 1 to 30. Note that West of the sixth meridian contains a maximum of 14 ranges only.

Approximate size: A range measures 9.7 km (6 miles) east to west.

Township

Each area west of a meridian subdivides north-south into townships, as shown below:



Example:

SS	LE	LSD	SC	TWP			RG		W	M	P	ES
1				0	0	6	0	5	W	4		

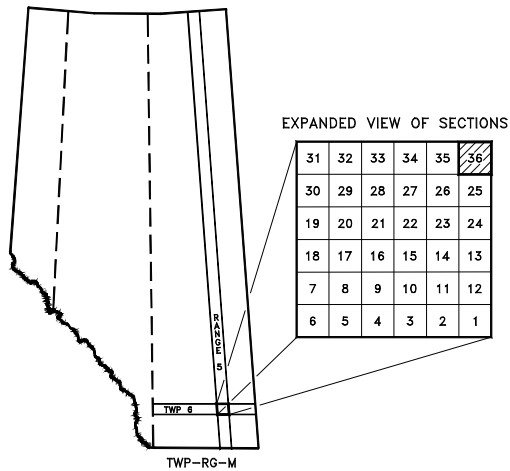
Acceptable values: Townships are numbered 001–126.

Approximate size: A township measures 9.7 km (6 miles) north to south.

Abbreviation: TWP

Section

After township, range, and meridian have been located for a drill hole, the next portion of the DLS is the section.



Example:

SS	LE	LSD	SC	TWP			RG		W	M	P	ES
1			3 6	0	0	6	0	5	W	4		

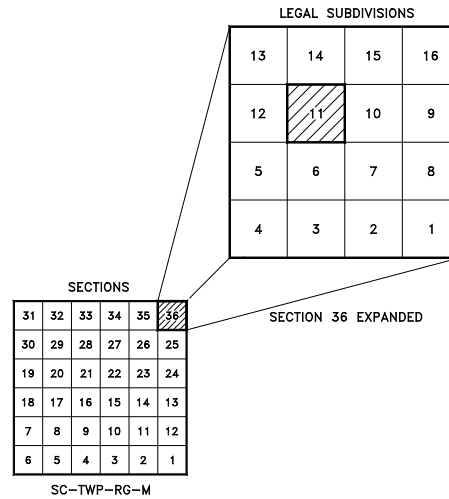
Acceptable values: Sections are numbered 1–36.

Approximate size: A section measures 1.609 by 1.609 km (1 mile by 1 mile).

Abbreviations: SEC or SC

Legal Subdivision

The smallest division in the DLS system is the legal subdivision.



Example:

SS	LE	LSD		SC		TWP			RG	W	M	P	ES
1		1	1	3	6	0	0	6	0	5	W	4	

Acceptable values: Legal subdivisions are numbered from 1 to 16.

Approximate size: A legal subdivision measures 402 by 402 metres (1320 by 1320 feet).

Abbreviation: LS or LSD

Location Exception Code

The location exception code is used to identify cases where there is more than one well licensed on the smallest land area described by the DLS system. That is, the location exception code is used to describe more than one licensed well in a legal subdivision.

Example:

SS	LE	LSD		SC		TWP			RG	W	M	P	ES
1	0 2	1	1	3	6	0	0	6	0	5	W	4	

This example illustrates the second licensed well in LSD 11-36-006-05W4.

Acceptable values: Local exception codes are numbered 00, 02–99.

Exceptions: 01 is not used.

Abbreviation: LE

In addition, the location exception is generally used to describe the sequence in which the drill holes were licensed in the legal subdivision.

Event Sequence Code

The event sequence code is a one-character code indicating the chronological sequence of a significant drilling and/or completion operation of a drill hole that yields a separate and unique set of geological or production data.

Example:

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
1	0	2	1	1	3	6	0	0	6	0	5	W	4		2

This example illustrates a second event sequence in the second drill hole in LSD 02/11-36-006-05W4/2.

Acceptable values: 0, 2–9

Exceptions: 1 is not used.

Abbreviation: ES

Padding Character

This is an unused character in the unique well identifier format and is left blank. This position is required in other survey systems.

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
1	0	2	1	1	3	6	0	0	6	0	5	W	4		2

Abbreviation: P

Application to Resource Areas

The following section explains the exact usage of the unique well identifier as it applies to the oil and gas and oil sands areas.

Oil and Gas Areas

The first well licensed in an LSD is indicated as

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
	0	0													

The second well licensed in an LSD is indicated as

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
	0	2													

The thirteenth well licensed in an LSD is indicated as

SS	LE		LSD		SC		TWP		RG		W	M	P	ES
	1	3												

Acceptable values: 00, 02–99

Exceptions: 01 is not used.

Oil Sands Resource Area

The oil sands resource area employs the same components of the unique well identifier as the oil and gas identifiers. However, the location exception portion of the unique well identifier has different code designations.

Oil Sands Location Exception Codes

The following location exception designations are used for oil sands evaluation (OV) drill holes.

Example:

SS	LE		LSD		SC		TWP		RG		W	M	P	ES
	A	A												

Acceptable values: AA through HZ, with the sequence AA, AB, AC... AZ, BA, BB, BC... HW, HX, HY, HZ

Exceptions: The use of I or O is not acceptable (e.g., BI, BO, GI, GO, etc., are not acceptable).

The location exception codes for OV wells may not always be assigned in the chronological order of licensing. For example, the first OV well licensed in an LSD may have a location exception code other than AA.

An oil sands evaluation drill hole that bottom holes in a road allowance will be assigned a road allowance location exception code as it outranks an oil sands location exception code.

Multiple Resource Occurrences

If more than one resource is encountered by a drill hole, identify each resource with the appropriate location exception code of the unique well identifier.

Using the first well licensed in an LSD as an example, identify a conventional oil and gas resource as:

SS	LE		LSD		SC		TWP		RG		W	M	P	ES
1	0	0	1	0	2	0	0	3	0	1	5	W	4	0

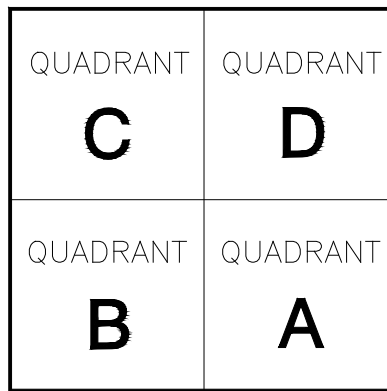
For the same well, identify an oil sands resource as:

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
1	A	A	1	0	2	0	0	3	0	1	5	W	4		2

Quadrants

Quadrants only exist for historical wells and are no longer assigned as part of new UWIs. Previously, if a drilling spacing unit (DSU) was less than 16 hectares (40 acres) or one LSD, quadrants within an LSD were designated, as follows:

1 LEGAL SUBDIVISION



Example:

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
	A														

Acceptable values: A, B, C, D

Approximate size: One quadrant measures 201 by 201 metres.

The second digit of the location exception code indicates the chronological sequence in which the wells were drilled in the quadrant.

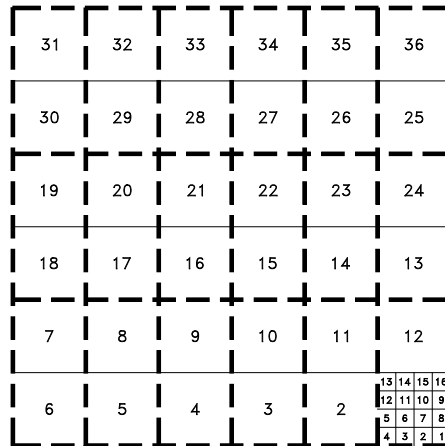
For example, indicate the first well drilled in Quadrant A as follows:

SS	LE		LSD		SC		TWP			RG		W	M	P	ES
	A	0													

Acceptable values: 0, 2–9

Exceptions: 1 is not used.

Road Allowances



The darkened lines above indicate road allowances. A well that terminates (i.e., TD) in a road allowance is referenced either south (S) or west (W) of the legal subdivision indicated in the unique well identifier.

For example, assign a local exception code of south (S) for a well terminating in the SW section of the road allowance of a legal subdivision.

SS	LE	LSD	SC	TWP	RG	W	M	P	ES
	S								

Acceptable values: S or W

Approximate size: A road allowance is 20 or 30 metres wide.

The second digit of the location exception code indicates the logical sequence in which the wells were licensed in the road allowance.

For example, indicate the first well in a road allowance as follows:

SS	LE	LSD	SC	TWP	RG	W	M	P	ES
	S	0							

Acceptable values: 0, 2–9

Exceptions: 1 is not used.

Water Sources

A unique well identifier's location exception code is also used to designate locations from which source water is produced for wells >150 m deep.

Use (F) for freshwater wells and (O) for other.

Example:

SS	LE	LSD	SC	TWP	RG	W	M	P	ES
	F								

Acceptable values: F, O

Use the second digit of the location exception code to indicate the sequence, in chronological order, in which the water source locations were used.

For example, indicate the first water source well as follows:

SS	LE	LSD	SC	TWP	RG	W	M	P	ES
	F	1							

Acceptable values: 1, 2–9

Exceptions: 0 is not used.

Examples of Unique Well Identifiers

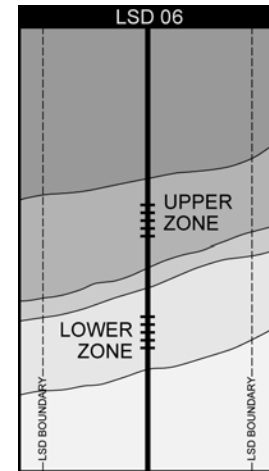
1) Multiple completions

An initial completion retains the originally assigned unique well identifier with the zero event sequence (e.g., 00/06-12-045-12W4/0).

Subsequent completions are assigned the next event sequence (e.g., 00/06-12-045-12W4/2).

If a well is completed in two or more commingled pools (SD and DE), all pools may be assigned to one event sequence (e.g., 00/06-12-045-12W4/0).

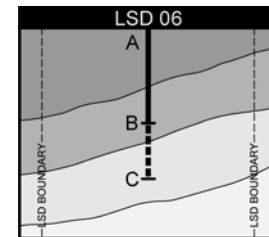
Event sequence codes are assigned chronologically. However, if both pools are completed in the same operation, the lower pool is deemed to be completed first.



2) Deepening of an existing well to a new geological horizon

An existing well, A to B, has a unique well identifier of 00/06-14-045-12W4/0.

The deepened portion of the well, A to C, is assigned a new unique well identifier of 00/06-14-045-12W4/2.

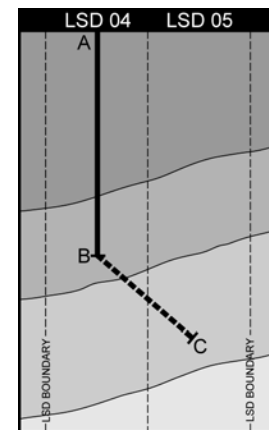


3) Deepening of an existing well to a new geological horizon by whipstocking

Existing well, A-B, has a unique well identifier of 00/04-14-045-12W4/0.

When the deepened portion is projected to bottom in LSD 05 or inadvertently bottoms in LSD 5, the new hole from A to C is assigned a new unique well identifier of 00/05-14-045-12W4/2.

It is given an event sequence of 2 to indicate that the new borehole originated from an existing well.

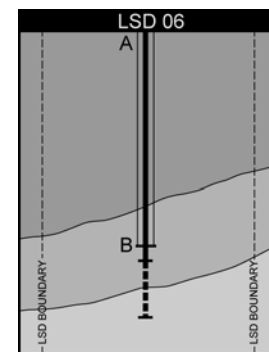


4) Re-entry of an existing abandoned well

This case applies when the abandonment plugs are drilled out.

An existing abandoned well, A to B, has a unique well identifier of 00/06-17-045-12W4/0.

Re-entry data are assigned a new unique well identifier of 00/06-17-045-12W4/2.

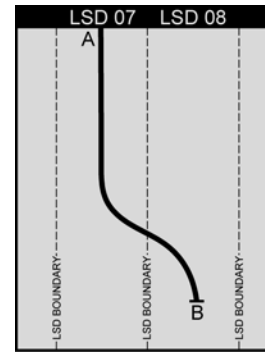


5) Directionally drilled well projected to bottom in a specified legal location

At the time of licensing, the well is assigned its projected location.

When projected to LSD 08, it is assigned a unique well identifier of 00/08-18-045-12W4/0.

When projected to LSD 07 but inadvertently bottomed in LSD 08, the unique well identifier at time of licensing would be 00/07-18-045-12W4/0 and would subsequently be changed to 00/08-18-045-12W4/0.

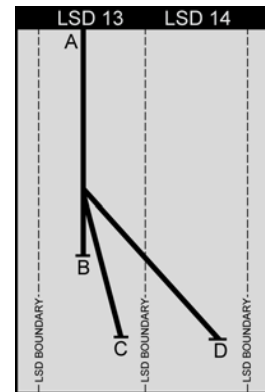


6) Whipstocked hole from an existing well

An existing well, A to B, has a unique well identifier of 00/13-20-045-12W4/0.

When the whipstocked hole is projected to bottom in LSD 13, it is assigned a unique well identifier of 00/13-20-045-12-W4/2. This identifier remains unchanged if it actually bottoms in LSD 13 (A to C).

If the whipstocked hole inadvertently bottoms in LSD 14 (A to D), it is assigned a new unique well identifier of 00/14-20-045-12W4/2.



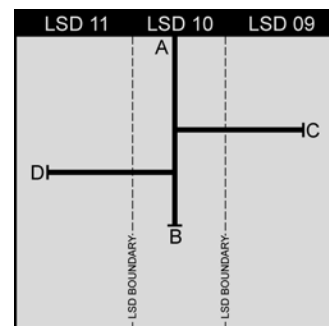
7) Horizontal wells

An existing well, A to B, has a unique well identifier of 00/10-21-045-12W4/0.

Borehole A to C would have a unique well identifier of 00/09-21-045-12W4/2.

Borehole A to D would have a unique well identifier of 00/11-21-045-12W4/3.

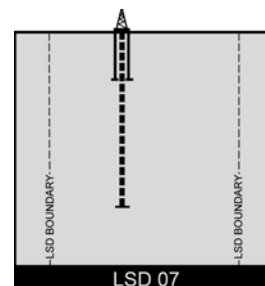
Each new borehole (A to C and A to D) is assigned an event sequence in the order that they were drilled.



8) Preset surface casing

A well that was preset with surface casing is always assigned the initial well event sequence /0 (e.g., 00/07-21-045-12W4/0).

After the well is drilled to licensed total depth, the event sequence remains the same (e.g., 00/07-21-045-12W4/0).

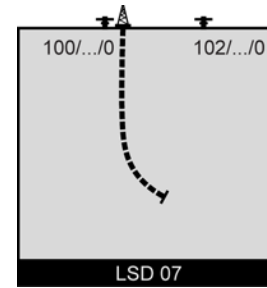


9) Cancelled well licence(s)

At the time of licensing, the local exception code of the unique well identifier is assigned based on the sequence that the wells were licensed.

In the example on the right, the unique well identifiers 00/07-21-045-12W4/0 and 02/07-21-045-12W4/0 were assigned to the first two licensed wells, but were never drilled. The third licensed well is assigned a unique well identifier of 03/07-21-045-12W4/0.

Unique well identifiers for cancelled well licenses are not re-assigned.

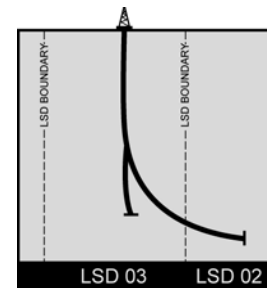


10) Horizontal leg drilled out of a vertical wellbore

The unique well identifier is assigned based on the projected bottomhole location of the longest drill leg.

In the example on the right, the unique well identifier assigned at licensing is 00/02-15-054-06W4/0.

As there are two drilling legs, a unique well identifier of 00/02-15-054-06W4/2 is created during the drilling data submission. After receiving details on the directional survey, the ERCB will amend the unique well identifier for the vertical well event to 00/03-15-054-06W4/0.



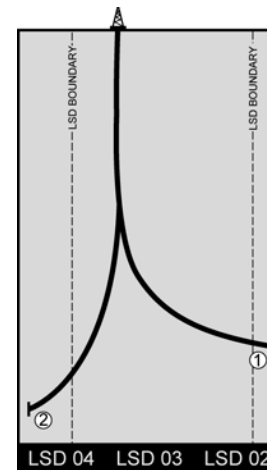
11) The bottomhole location of a drilling leg in a different LSD

The unique well identifier is assigned based on the projected bottomhole location of the longest drilling leg.

In the example on the right, the unique well identifier assigned at licensing is 00/04-15-054-06W4/0.

As there are two drilling legs, a unique well identifier of 00/04-15-054-06W4/2 is created during the drilling data submission. After receiving details on the directional survey for both drilling legs, the ERCB will amend the unique well identifier of the first drilling leg to 00/02-15-054-06W4/0.

The details on the directional survey will confirm the bottomhole location for the second drilling leg as 00/04-15-054-06W4/2.

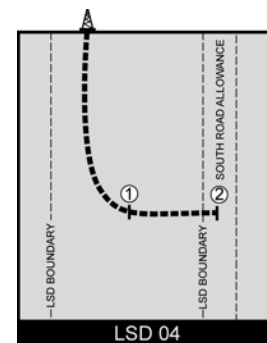


12) Oil sands, road allowances, and water source wells

Unique well identifiers use different local exception codes to designate conventional resources, oil sands, road allowances, and water source wells.

Using the example on the right, if drill hole (1) encounters a conventional oil and gas or coal bed methane or shale gas formation, a numeric value (00, 02 to 99) will be assigned to the local exception code.

The value "01" is not used (e.g., 00/04-08-070-03W4/0).



If drill hole (1) encounters an oil sands pool, an alpha character (AA to HZ) will be assigned to the local exception code. The characters “I” and “O” are not used (e.g., AA/04-08-070-03W4/0).

If drill hole (1) is located on a water source location, an alphanumeric character will be assigned to the local exception code, beginning with either an “F” for a freshwater well or an “O” for other (e.g., F1/04-08-070-03W4/0). The second digit of the local exception code represents the order in which the well was licensed. Zero (0) is not used.

If drill hole (2) is drilled and the bottomhole is in a road allowance, an alphanumeric character is assigned to the local exception code, beginning with either an “S” if south of the LSD or a “W” if west or southwest of the LSD (e.g., S0/04-08-070-03W4/0). The second character of the location exception code represents the order in which the well was licensed. One (1) is not acceptable.

Local exception codes for road allowances outrank code designations for water source wells and conventional and unconventional resources.

13) Re-entered wells

Re-entry operations are performed on an abandoned well by a different licensee. A new well licence is issued and the next available well event sequence is assigned at the time of licensing. For example, if the unique well identifier of the abandoned well is 00/09-11-065-04W4/0, a re-entry approval will generate a new licence which will be assigned a unique well identifier of 00/09-11-065-04W4/2.

