Alberta Energy Regulator

Integrated Geological Data System

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Security Classification: Public

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Overview

The Alberta Energy Regulator (AER) Integrated Geological Data System (IGDS) is a database that contains reservoir evaluation data on a zone basis for the majority of wells in Alberta. The header information is submitted by Industry, all the geological parameters are from analysis work done by AER geologists ang geolocical technicians based on Industry submitted logs and core.

Nonconfidential interpretive geological data in the IGDS is released on a monthly basis unless the well is confidential below a certain formation. In such cases the entire well is kept confidential. The file contains:

- Zone top and base for productive or potentially productive zones
- Porosity top and base
- Fluid interface depth, if present
- Net and gross pay thickness
- Average porosity and water saturation
- Porosity and permeability cutoff, and water resistivity, where available

File Characteristics

- Record Format - Fixed length
- Record Length - 300 bytes
- File Size - Exceeds 600 megabytes
- Data Format - ASCII - Tab delimited data fields
- Sequence - Ascending sequence of:
  1. CPA Identifier - Bytes 01 - 13
  2. Record Type - Bytes 15 - 16
  3. Formation Code - Bytes 18 – 21

Problem Resolution

If you encounter problems with this product, please email Informationrequest@aer.ca. Please identify the problem as one or more of the following:

- Problems relating to distribution
- Problems relating to data
- Other problems

Available Format

This product is available in TXT. Products are zipped prior to being uploaded to FTP site.

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New Subscribers

To become a subscriber of this product please email your request specifying product name and subscription frequency to InformationRequest@aer.ca , you will be asked to provide a letter of intent at the time of order

Rights

The AER retains the proprietary rights on all data sold.

The AER retains the proprietary rights on all data sold. Subscribers of this product are permitted to use the data file to select and process data for internal or client use and to release to their clients copies of small portions of the file that result from specialized data retrievals. Copying an entire file or a large portion of a file for resale is not permitted.

Confidentiality

All files and programs are processed to exclude confidential data. As data is released from confidential status, it is made available to purchasers of the update service.

Disclaimer

- The AER makes no representation, warranties or guarantees, expressed or implied, for the fitness of the data files with respect to intended use.
- The AER accepts no responsibility whatsoever for any inaccuracy, errors, or omissions in the data files.
- The AER shall not be responsible for any costs incurred by a company for the conversion, installation, or improvement of the data files.
- The AER does not guarantee the continuing availability of any data or the consistency of the transfer record format.
- Note that the IGDS is an internal working database, subject to further interpretations and changes by AER staff.

Security Classification: Public

Format Character Description

Format Character	Definition	Description
9	Numeric	Represents any numeric character: 0 - 9.
A	Alphabetic	Represents any alphabetic character: A - Z.
C	Character	Represents any displayable character: 0 - 9, A - Z, punctuation, space, etc.
T	Tab (x'09')	Represents the horizontal tab character.
X	Alphanumeric	Represents any alphabetic or numeric character: A - Z, 0 - 9.
.	Explicit Decimal Point	Indicates the position of the decimal point in a numeric field.
(9)	Repetition Factor	Indicates the repetition count for the format character immediately to the right.

Examples:

1. 9999.99 - represents a numeric field with an explicit decimal point 2 digits from the right. The number 25.78 would be represented as 0025.78 in the file.

2. (35)C - represents a 35 character field containing any displayable characters: 0 - 9, A - Z, punctuation, space, etc. An example would be the well name: TALISMAN 5D CHAUVS 5-14-43-2 padded on the right with spaces to form a character field 35 characters long

Note: The 'Format' column (column 6) of all subsequent Data File Record Format definitions contain Format Characters to define the characteristics of each data field. These characteristics include:

1. Data field length.
2. Data field composition: Alphabetic, Numeric, Alphanumeric, or any Displayable Character.
3. The location of the explicit decimal point for Numeric fields.

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Integrated Geological Data System

Record Format

Security Classification: Public

Record Key Format

No.	Element Name	Units	Location	Size	Format	Comments
1	CPA Identifier		001-013	13		Format detail follows
	Township		001-003	3	999	
	Meridian		004-004	1	9	
	Range		005-006	2	99	
	Section		007-008	2	99	
	Legal Subdivision		009-010	2	99	
	Location Exception		011-012	2	XX	
	Event Sequence		013-013	1	9	
	Tab Delimiter		014-014	1	T	
2	Record Type		015-016	2	99	Valid values: 00, 10, 20, 30, 40
	Tab Delimiter		017-017	1	T	
3	Formation Code		018-021	4	9999	Value is always 0000 for Record Type 00

Note: This Record Key applies to all of the following record types, and is referenced as the first element of each Record Format definition.

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric,
. = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 00 Format - Basic Well Data

No.	Element Name	Units	Location	Size	Format	Comments
1	Record Key		001-021	21		Refer to Record Key Format for details
	Tab Delimiter		022-022	1	T	
2	Unique Well Identifier		023-041	19		Format detail follows
	Location Exception		023-024	2	XX	
	Slash (/)		025-025	1	C	
	Legal Subdivision		026-027	2	99	
	Dash (-)		028-028	1	C	
	Section		029-030	2	99	
	Dash (-)		031-031	1	C	
	Township		032-034	3	999	
	Dash (-)		035-035	1	C	
	Range		036-037	2	99	
	W		038-038	1	A	
	Meridian		039-039	1	9	
	Slash (/)		040-040	1	C	
	Event Sequence		041-041	1	9	
	Tab Delimiter		042-042	1	T	
3	Well Name		043-078	36	(36)C	
	Tab Delimiter		079-079	1	T	
4	License Number		080-088	9	(9)X	
	Tab Delimiter		089-089	1	T	
5	KB Elevation	m	090-096	7	9999.99	
	Tab Delimiter		097-097	1	T	
6	Well Total Depth	m	098-104	7	9999.99	
	Tab Delimiter		105-105	1	T	
7	Blank		106-300	195	(195)C	Remainder of record consists of blanks

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric,
. = Explicit Decimal Point, (9) = Repetition Factor

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Record Type 10 Format - Formation Data

No.	Element Name	Units	Location	Size	Format	Comments
1	Record Key		001-021	21		Refer to Record Key Format for details
	Tab Delimiter		022-022	1	T	
2	Formation Name Abbrev		023-031	9	(9)C	
	Tab Delimiter		032-032	1	T	
3	Zone Description		033-042	10	(10)C	
	Tab Delimiter		043-043	1	T	
4	Evaluation Method Code		044-044	1	C	
	Tab Delimiter		045-045	1	T	
5	Pay Exception Code		046-046	1	9	
	Tab Delimiter		047-047	1	T	
6	Oil Sands Confidence Code		048-049	2	99	
	Tab Delimiter		050-050	1	T	
7	Blank		051-300	250	(250)C	Remainder of record consists of blanks

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric,
. = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 20 Format – Depth Data

No.	Element Name	Units	Location	Size	Format	Comments
1	Record Key		001-021	21		Refer to Record Key Format for details
	Tab Delimiter		022-022	1	T	
2	Depth Type Code		023-024	2	99	
	Tab Delimiter		025-025	1	T	
3	Zone Top	m	026-032	7	9999.99	
	Tab Delimiter		033-033	1	T	
4	Zone Top Selection Basis Code		034-034	1	9	See Selection Basis Code definition
	Tab Delimiter		035-035	1	T	
5	Porosity Top	m	036-042	7	9999.99	
	Tab Delimiter		043-043	1	T	
6	Porosity Top Selection Basis Code		044-044	1	9	See Selection Basis Code definition
	Tab Delimiter		045-045	1	T	
7	Unit 1 Top	m	046-052	7	9999.99	See Unit Top definition
	Tab Delimiter		053-053	1	T	
8	Unit 1 Top Selection Basis Code		054-054	1	9	See Selection Basis Code definition
	Tab Delimiter		055-055	1	T	
9	Unit 2 Top	m	056-062	7	9999.99	See Unit Top definition
	Tab Delimiter		063-063	1	T	
10	Unit 2 Top Selection Basis Code		064-064	1	9	See Selection Basis Code definition
	Tab Delimiter		065-065	1	T	
11	Unit 3 Top	m	066-072	7	9999.99	See Unit Top definition
	Tab Delimiter		073-073	1	T	
12	Unit 3 Top Selection Basis Code		074-074	1	9	See Selection Basis Code definition
	Tab Delimiter		075-075	1	T	
13	Gas/Oil Interface	m	076-082	7	9999.99	
	Tab Delimiter		083-083	1	T	
14	Gas/Oil Interface Selection Basis Code		084-084	1	9	See Selection Basis Code definition
	Tab Delimiter		085-085	1	T	
15	Gas/Water Interface	m	086-092	7	9999.99	
	Tab Delimiter		093-093	1	T	
16	Gas/Water Interface Selection Basis Code		094-094	1	9	See Selection Basis Code definition
	Tab Delimiter		095-095	1	T	

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric, . = Explicit Decimal Point, (9) = Repetition Factor

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Record Type 20 Format – Depth Data (Continued)

No.	Element Name	Units	Location	Size	Format	Comments
17	Oil/Water Interface	m	096-102	7	9999.99	
	Tab Delimiter		103-103	1	T	
18	Oil/Water Interface Selection Basis Code		104-104	1	9	See Selection Basis Code definition
	Tab Delimiter		105-105	1	T	
19	Water/Oil Interface	m	106-112	7	9999.99	
	Tab Delimiter		113-113	1	T	
20	Water/Oil Interface Selection Basis Code		114-114	1	9	See Selection Basis Code definition
	Tab Delimiter		115-115	1	T	
21	Porosity Base	m	116-122	7	9999.99	
	Tab Delimiter		123-123	1	T	
22	Porosity Base Selection Basis Code		124-124	1	9	See Selection Basis Code definition
	Tab Delimiter		125-125	1	T	
23	Zone Base	m	126-132	7	9999.99	
	Tab Delimiter		133-133	1	T	
24	Zone Base Selection Basis Code		134-134	1	9	See Selection Basis Code definition
	Tab Delimiter		135-135	1	T	
25	Bitumen Top	m	136-142	7	9999.99	
	Tab Delimiter		143-143	1	T	
26	Bitumen Top Selection Basis Code		144-144	1	9	See Selection Basis Code definition
	Tab Delimiter		145-145	1	T	
27	Bitumen Base	m	146-152	7	9999.99	
	Tab Delimiter		153-153	1	T	
28	Bitumen Base Selection Basis Code		154-154	1	9	See Selection Basis Code definition
	Tab Delimiter		155-155	1	T	
29	Blank		156-300	145	(145)X	Remainder of record consists of blanks

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric,
. = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 30 Format – Pay Data

No.	Element Name	Units	Location	Size	Format	Comments
1	Record Key		001-021	21		Refer to Record Key Format for details
	Tab Delimiter		022-022	1	T	
2	Pay Top Code		023-024	2	99	See Depth Code Table
	Tab Delimiter		025-025	1	T	
3	Log Pay Top Depth	m	026-032	7	9999.99	
	Tab Delimiter		033-033	1	T	
4	Pay Base Code		034-035	2	99	See Depth Code Table
	Tab Delimiter		036-036	1	T	
5	Log Pay Base Depth	m	037-043	7	9999.99	
	Tab Delimiter		044-044	1	T	
6	Pay Type Code		045-046	2	99	See Pay Type Code Table - Numeric
	Tab Delimiter		047-047	1	T	
7	Oil Sands Resource Code		048-049	2	CC	
	Tab Delimiter		050-050	1	T	
8	Log Gross Pay	m	051-057	7	9999.99	
	Tab Delimiter		058-058	1	T	
9	Log Net Pay	m	059-065	7	9999.99	
	Tab Delimiter		066-066	1	T	
10	Log Net Pay Value Indicator		067-067	1	C	See Value Indicator definition
	Tab Delimiter		068-068	1	T	
11	True Vertical Depth Gross Pay	m	069-074	6	999.99	
	Tab Delimiter		075-075	1	T	
12	True Vertical Depth Net Pay	m	076-081	6	999.99	
	Tab Delimiter		082-082	1	T	
13	True Vertical Depth Net Pay Value Indicator		083-083	1	C	See Value Indicator definition
	Tab Delimiter		084-084	1	T	
14	Core Gross Pay	m	085-090	6	999.99	
	Tab Delimiter		091-091	1	T	
15	Core Gross Pay Value Indicator		092-092	1	C	See Value Indicator definition
	Tab Delimiter		093-093	1	T	
16	Core Net Pay	m	094-099	6	999.99	
	Tab Delimiter		100-100	1	T	

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric, . = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 30 Format – Pay Data (Continued)

No.	Element Name	Units	Location	Size	Format	Comments
17	Core Net Pay Value Indicator		101-101	1	C	See Value Indicator definition
	Tab Delimiter		102-102	1	T	
18	Oil Sands Pay Top Depth	m	103-109	7	9999.99	
	Tab Delimiter		110-110	1	T	
19	Oil Sands Pay Base Depth	m	111-117	7	9999.99	
	Tab Delimiter		118-118	1	T	
20	Allowable Indicator		119-119	1	C	
	Tab Delimiter		120-120	1	T	
21	Isopach Indicator		121-121	1	C	
	Tab Delimiter		122-122	1	T	
22	Assignment Area	ha	123-126	4	9999	
	Tab Delimiter		127-127	1	T	
23	Assignment Indicator		128-128	1	C	
	Tab Delimiter		129-129	1	T	
24	Oil Column Thickness	m	130-135	6	999.99	
	Tab Delimiter		136-136	1	T	
25	Oil Column Thickness Value Indicator		137-137	1	C	See Value Indicator definition
	Tab Delimiter		138-138	1	T	
26	Total Assigned Pay	m	139-145	7	9999.99	
	Tab Delimiter		146-146	1	T	
27	Total Assigned Pay Value Indicator		147-147	1	C	See Value Indicator definition
	Tab Delimiter		148-148	1	T	
28	Porosity Cutoff	Fract	149-152	4	9.99	
	Tab Delimiter		153-153	1	T	
29	Porosity Cutoff Value Indicator		154-154	1	C	See Value Indicator definition
	Tab Delimiter		155-155	1	T	
30	Permeability Cutoff	mD	156-160	5	99.99	
	Tab Delimiter		161-161	1	T	
31	Permeability Cutoff Value Indicator		162-162	1	C	See Value Indicator definition
	Tab Delimiter		163-163	1	T	
32	Thickness Cutoff	m	164-167	4	99.9	
	Tab Delimiter		168-168	1	T	

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric, . = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 30 Format – Pay Data (Continued)

No.	Element Name	Units	Location	Size	Format	Comments
33	Thickness Cutoff Value Indicator		169-169	1	C	See Value Indicator definition
	Tab Delimiter		170-170	1	T	
34	Bitumen Mass Percent Cutoff	Fract	171-175	5	9.999	
	Tab Delimiter		176-176	1	T	
35	Bitumen Mass Percent Cutoff Value Indicator		177-177	1	C	See Value Indicator definition
	Tab Delimiter		178-178	1	T	
36	Shale Volume Cutoff	Fract	179-182	4	9.99	
	Tab Delimiter		183-183	1	T	
37	Shale Volume Cutoff Value Indicator		184-184	1	C	See Value Indicator definition
	Tab Delimiter		185-185	1	T	
38	Water Saturation Cutoff	Fract	186-189	4	9.99	
	Tab Delimiter		190-190	1	T	
39	Water Saturation Cutoff Value Indicator		191-191	1	C	See Value Indicator definition
	Tab Delimiter		192-192	1	T	
40	Porosity Average	Fract	193-196	4	9.99	
	Tab Delimiter		197-197	1	T	
41	Porosity Average Value Indicator		198-198	1	C	See Value Indicator definition
	Tab Delimiter		199-199	1	T	
42	Permeability Average	mD	200-206	7	9999.99	
	Tab Delimiter		207-207	1	T	
43	Permeability Average Value Indicator		208-208	1	C	See Value Indicator definition
	Tab Delimiter		209-209	1	T	
44	Bitumen Mass Percent Average	Fract	210-214	5	9.999	
	Tab Delimiter		215-215	1	T	
45	Bitumen Mass Percent Average Value Indicator		216-216	1	C	See Value Indicator definition
	Tab Delimiter		217-217	1	T	
46	Shale Volume Average	Fract	218-221	4	9.99	
	Tab Delimiter		222-222	1	T	
47	Shale Volume Average Value Indicator		223-223	1	C	See Value Indicator definition
	Tab Delimiter		224-224	1	T	

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric, . = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 30 Format – Pay Data (Continued)

No.	Element Name	Units	Location	Size	Format	Comments
48	Water Saturation Average	Fract	225-228	4	9.99	
	Tab Delimiter		229-229	1	T	
49	Water Saturation Average Value Indicator		230-230	1	C	See Value Indicator definition
	Tab Delimiter		231-231	1	T	
50	Water Resistivity	Ω·m	232-237	6	99.999	Water Resistivity at formation temperature
	Tab Delimiter		238-238	1	T	
51	Water Resistivity Value Indicator		239-239	1	C	See Value Indicator definition
	Tab Delimiter		240-240	1	T	
52	Water Resistivity Source Code		241-241	1	9	
	Tab Delimiter		242-242	1	T	
53	Residual Oil Saturation	Fract	243-246	4	9.99	
	Tab Delimiter		247-247	1	T	
54	Residual Oil Saturation Value Indicator		248-248	1	C	See Value Indicator definition
	Tab Delimiter		249-249	1	T	
	Geological Pool Data		250-270	21		Detail follows
55	Field / Strike Area Code		250-253	4	9999	
	Tab Delimiter		254-254	1	T	
56	Geological Pool Code		255-261	7	(7)9	
	Tab Delimiter		262-262	1	T	
57	Gas Pool Sequence Code		263-265	3	999	See Pool Sequence Code definition
	Tab Delimiter		266-266	1	T	
58	Oil Pool Sequence Code		267-269	3	999	See Pool Sequence Code definition
	Tab Delimiter		270-270	1	T	
	Area / Deposit Data		271-283	13		Detail follows
59	Oil Sands Area Code		271-274	4	CCCC	
	Tab Delimiter		275-275	1	T	
60	Oil Sands Deposit Code		276-282	7	(7)9	
	Tab Delimiter		283-283	1	T	
	Sector / Pool Data		284-300	17		Detail follows
61	Oil Sands Sector Code		284-287	4	CCCC	
	Tab Delimiter		288-288	1	T	
62	Oil Sands Pool Code		289-295	7	(7)9	
	Tab Delimiter		296-296	1	T	

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric, . = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 30 Format – Pay Data (Continued)

No.	Element Name	Units	Location	Size	Format	Comments
63	Oil Sands Pool Sequence Code		297-299	3	999	See Pool Sequence Code definition
	Tab Delimiter		300-300	1	T	

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric, . = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Record Type 40 Format – Other Evaluation Data

No.	Element Name	Units	Location	Size	Format	Comments
1	Record Key		001-021	21		Refer to Record Key Format for details
	Tab Delimiter		022-022	1	T	
2	Formation Name Abbrev		023-031	9	(9)C	
	Tab Delimiter		032-032	1	T	
3	Zone Description		033-042	10	(10)C	
	Tab Delimiter		043-043	1	T	
4	Zone Top	m	044-050	7	9999.99	Value is always True Vertical Depth
	Tab Delimiter		051-051	1	T	
5	Zone Base	m	052-058	7	9999.99	Value is always True Vertical Depth
	Tab Delimiter		059-059	1	T	
6	Pay Type Code		060-061	2	CC	See Pay Type Code Table - Alphabetic
	Tab Delimiter		062-062	1	T	
7	Blank		063-300	238	(238)X	Remainder of record consists of blanks

Format Character Definition: 9 = Numeric, A = Alphabetic, C = Character, T = Tab (x'09'), X = Alphanumeric,
. = Explicit Decimal Point, (9) = Repetition Factor

Security Classification: Public

Data Element Definition

Data Element	Definition
Allowable Indicator	Indicates if an O-38 form 'Application For A New Well Base Allowable Or Base MRL' has been received and evaluated. Valid values include: Blank - O-38 has not been received. 0 - O-38 has not been received. N - O-38 has not been received. Y - O-38 has been received and evaluated.
Assignment Area	The area surrounding a well for which reserves have been proven. The area size is interpreted taking into consideration facies, well control, and engineering studies. Assignment area is only determined for wells that are not isopached. The value is expressed in hectares.
Assignment Indicator	Indicates if a zone is on assignment rather than isopached. Valid values include: Blank - Assignment not used. 0 - Assignment not used. J - Zone is on joint assignment – involves two or more wells within the same pool. N - Assignment not used. Y - Zone is on assignment but no assignment area is given. Used only for oil evaluations.
Bitumen Base	Depth assigned to the last point where the applicable cutoffs are met or exceeded for a bitumen filled zone. Zero is not valid, and denotes a null value. The value is expressed in meters.
Bitumen Mass Percent Average	The percent of total rock mass including matrix, shale, water, and bitumen that is due to bitumen. Calculated only for zones where total pay is assigned. The value is expressed as a fraction.
Bitumen Mass Percent Cutoff	Minimum bitumen mass percent required for an interval to be included as net pay. The value is expressed as a fraction.
Bitumen Top	Depth assigned to the first point where the applicable cutoffs are met or exceeded for a bitumen filled zone. Zero is not valid, and denotes a null value. The value is expressed in meters.
Core Gross Pay	All core analyzed, quantitatively and qualitatively, between pay top and pay base from core. The value is expressed in meters.
Core Net Pay	Pay determined by applying cutoffs to core gross pay. The value is expressed in meters.
CPA Identifier	The CPA Identifier or Unique Well Identifier is the standard well identification developed by the Canadian Petroleum Association. It consists of three basic components: the legal survey location, the location exception code, and the event sequence code. These together define the approximate geographic location of an entity (drill hole, catalogue identifier, etc). The identifier should be unique, however variances may occur due to the Identifier corresponding to a top-hole or bottom-hole location.
Depth Type Code	A code which indicates whether the depth is a Measured Log Depth, a True Vertical Depth, or a Core Analysis Depth. All codes are described in the Depth Type Code Table found in the next section of this document.
Evaluation Method Code	A code which indicates the method used to calculate reservoir parameters in an evaluated zone. For example a value of 6, denoting a 'core only' method, is used when logs are inadequate or not present and all results are from core. All codes are described in the Evaluation Method Code Table found in the next section of this document.
Field / Strike Area Code	The official code for the Field in which a well or drill hole is licensed or drilled. A Field is a geographic area legally defined by a Field Order. A Strike Area is any area that has had some indication of hydrocarbon and has the same code and name as the Field that it contains. A Strike Area has an extent that is equal to or greater than its Field. Many Strike Areas do not contain a Field since proven reserves have not yet been assigned. Field and Strike Area outlines can be viewed by accessing the Board Order System on the AER website.
Formation Code	Code identifying a specific mappable rock unit. All geologic rock units are coded as formations, even though stratigraphically the unit may be a group, formation, or member. Formation codes are used to identify a rock unit for evaluation purposes and are used in creating pool codes. Formation codes and names can be queried on the AER website.

Security Classification: Public

Data Element Definition (Continued)

Data Element	Definition
Formation Name Abbrev	The abbreviated name of a mappable rock unit. The AER codes all mappable rock units as formations, even though stratigraphically the unit may be a group, formation, or member. Formation names are used to identify a rock unit for evaluation purposes and are used in creating pool names
Gas / Oil Interface	Depth assigned to the gas / oil interface. Zero is not valid, and denotes a null value. The value is expressed in meters.
Gas / Water Interface	Depth assigned to the gas / water interface. Zero is not valid, and denotes a null value. The value is expressed in meters.
Geological Pool Code	A code assigned by the AER denoting a natural underground reservoir containing or appearing to contain an accumulation of oil or gas or both, separated or appearing to be separated from any other such accumulation. System specific information: A pool is uniquely identified by its Field / Pool / Sequence Code. This code is comprised of a 4 digit Field / Strike Area Code, a 7 digit Pool Code, and a 2 digit Sequence Code. The Pool Code is composed of a leading zero, a 4 digit formation code, and a 2 digit suffix. The formation code will be any formation code allowed to be a declared pool. The 2 digit suffix will have a value of between 00 and 52 for defined pools, and a 98 for undefined pools. The Sequence Code is used to ensure the uniqueness of all undefined pools. This is a system generated number between 001 and 999. Defined pools generally have a sequence of 000 unless there are multiple hydrocarbon occurrences, in which instance the Sequence Code is also used to uniquely identify these pools. These occurrences include multiple gas caps or oil legs to a pool, and multiple sands that are given the same Pool Code. Formation codes, pool codes and pool names can be queried on the AER website. Pool outlines can be viewed by accessing the Board Order System on the AER website.
Isopach Indicator	Indicates if total pay assigned is based on a net pay isopach evaluation as follows: Blank - Net pay isopach map not used. H - Horizontal well, net pay data not isopached. M - Net pay isopach map not used due to map space limitations, etc. N - Net pay isopach map not used. Y - Net pay isopach map used.
KB Elevation	The elevation of the Kelly Bushing relative to sea level. The value is expressed in meters.
License Number	An identifier assigned by the AER when application is made to drill a well.
Log Gross Pay	Pay base from logs minus pay top from logs. The value is expressed in meters.
Log Net Pay	Pay determined by applying cutoffs to log gross pay. The value is expressed in meters.
Log Pay Base Depth	Depth assigned to the base of pay in a reservoir based on log interpretation. Depth must be one of the following: Zone Base, Porosity Base, Unit 2 Top, Unit 3 Top, Gas / Oil Interface, Oil / Water Interface, Gas / Water Interface, Water / Oil Interface, or Bitumen Base. When the depth is an interface or a bitumen base, then the Pay Type must be appropriate. For example, when the Log Pay Base Depth is the Oil / Water Interface, then the Pay Type must be a 2 which denotes an oil zone. Valid pay type codes are listed in the Pay Type Code Table - Numeric found in the next section of this document. The Log Pay Base Depth is expressed in meters.
Log Pay Top Depth	Depth assigned to the top of pay in a reservoir based on log interpretation. Depth must be one of the following: Zone Top, Porosity Top, Unit 1 Top, Unit 2 Top, Unit 3 Top, Gas / Oil Interface, Oil / Water Interface, Gas / Water Interface, Water / Oil Interface, or Bitumen Top. When the depth is an interface or a bitumen top, then the Pay Type must be appropriate. For example, when the Log Pay Top Depth is the Oil / Water Interface, then the Pay Type must be a 3 which denotes a water zone. Valid pay type codes are listed in the Pay Type Code Table - Numeric found in the next section of this document. The Log Pay Top Depth is expressed in meters.

Security Classification: Public

Data Element Definition (Continued)

Data Element	Definition
Oil Column Thickness	The thickness of the oil zone, expressed in meters, after removing rock matrix and non-oil filled porosity. Oil Column Thickness = (net pay) x (porosity) x (oil saturation). Used in oil sands evaluations. The value is expressed in meters.
Oil Sands Area Code	A code identifying a geographic area and specific geologic strata as declared by an Oil Sands Area Order. Hydrocarbons other than gas or coal within the declared Oil Sands Area are considered as bitumen for the purposes of AER regulations. All codes are described in the Oil Sands Area Code Table found in the next section of this document.
Oil Sands Confidence Code	A code identifying the quality of data and evaluation. This is required for surface mineable oil sands, and is optional for insitu oil sands accumulations. Confidence codes are automatically created for pay types: PI (01), NI (09), NP (09), ER (03), and ND (03). Refer to the Alphabetic Pay Type Code Table and Numeric Pay Type Code Table, found in the next section of this document, for a description of all pay type codes. All codes are described in the Oil Sands Confidence Code Table found in the next section of this document.
Oil Sands Deposit Code	A code identifying a specific grouping of all accumulations of bitumen within a formation, within an oil sands area. By definition oil sands deposits only occur within oil sands areas. All codes are described in the Oil Sands Deposit Code Table found in the next section of this document.
Oil Sands Pay Base Depth	Base of oil sands pay determined from computerized log analysis where cut-offs have been applied to define the pay interval. The value must fall within the interval defined by the Pay Top and Pay Base Depths. The value is expressed in meters.
Oil Sands Pay Top Depth	Top of oil sands pay determined from computerized log analysis where cut-offs have been applied to define the pay interval. The value must fall within the interval defined by the Pay Top and Pay Base Depths. The value is expressed in meters.
Oil Sands Pool Code	A code identifying a specific accumulation of bitumen within a reservoir rock physically separate from other such pools. Each pool has a unique number within an Oil Sands Sector.
Oil Sands Resource Code	A code indicating an oil sands reserves type obtained by applying cutoffs that define a specific reserves type (ie. in place cutoffs are used to define in place reserves, mineable cutoffs are used to define mineable reserves). All codes are described in the Oil Sands Resource Code Table found in the next section of this document.
Oil Sands Sector Code	A code identifying a subdivision of an oil sands area. As of February 1, 1990, only the Cold Lake Oil Sands Area has sectors defined. Sector codes are used in a manner similar to field codes and start with the first letter of the oil sands area name. All codes are described in the Oil Sands Sector Code Table found in the next section of this document.
Oil / Water Interface	Depth assigned to the oil / water interface. Zero is not valid, and denotes a null value. The value is expressed in meters.
Pay Base Code	A code identifying the depth at which the pay base occurs in a reservoir. Valid values for this code are shown in the Depth Code Table found in the next section of this document.
Pay Exception Code	A code that allows abnormal but valid data to pass the edit requirements. All codes are described in the Pay Exception Code Table found in the next section of this document.
Pay Top Code	A code identifying the depth at which the pay top occurs in a reservoir. Valid values for this code are shown in the Depth Code Table found in the next section of this document.
Pay Type Code	A code identifying the type of resource (ie. gas, oil, bitumen) or the reason for the lack of resource (ie. wet, tight, not deposited). All codes are described in the Pay Type Code Table - Alphabetic and the Pay Type Code Table - Numeric found in the next section of this document.
Permeability Average	The average permeability calculated only for a unit or zone where total pay is assigned. The value is expressed in millidarcys.
Permeability Cutoff	Minimum permeability required for an interval to be included as net pay. The value is expressed in millidarcys.

Security Classification: Public

Data Element Definition (Continued)

Data Element	Definition
Pool Sequence Code	A sequence code is used, when required, to uniquely identify individual parts of a pool, including all single well and joint assignments, of the same pay type which are assigned to the same pool. When multiple gas caps exist for an oil leg, or vise versa, at least one gas isopach and one oil isopach will have a common sequence code. Gas isopachs that require a sequence code get a gas sequence code, and oil and hydrocarbon isopachs that require a sequence code get an oil sequence code. Bitumen pools have an oil sands sequence code.
Porosity Average	The average porosity calculated only for a unit or zone where total pay is assigned. The value is expressed as a fraction.
Porosity Base	Depth assigned to the deepest point where the porosity meets or exceeds the porosity cutoff. Zero is not valid, and denotes a null value. The value is expressed in meters.
Porosity Cutoff	Minimum percent porosity required for an interval to be included as net pay. The value is expressed as a fraction.
Porosity Top	Depth assigned to the shallowest point where the porosity meets or exceeds the porosity cutoff. Zero is not valid, and denotes a null value. The value is expressed in meters.
Residual Oil Saturation	Percent of porosity in a gas zone that is filled with residual oil. The value is expressed as a fraction.
Selection Basis Code	A code identifying the source of the specific depth value. All codes are described in the Selection Basis Code Table found in the next section of this document.
Shale Volume Average	The percent of rock that was formed by the consolidation of clay, mud, and silt and has a particle size less than 0.0625 mm. Calculated only for a unit or zone where total pay is assigned. The value is expressed as a fraction.
Shale Volume Cutoff	Maximum percent shale volume allowed for an interval to be included as net pay. The value is expressed as a fraction.
Thickness Cutoff	Minimum thickness required for an interval to be included as net pay. Used mainly in oil sands evaluations. The value is expressed in meters.
Total Assigned Pay	The proven pay assigned to a given unit or zone used to calculate in-place reserves in a pool or deposit. The value is expressed in meters.
True Vertical Depth Gross Pay	Pay base corrected to vertical, minus pay top corrected to vertical. The value is expressed in meters.
True Vertical Depth Net Pay	Pay determined by applying cutoffs to True Vertical Depth Gross Pay. The value is expressed in meters.
Unique Well Identifier	See definition for CPA Identifier.
Unit Top	Units are used for zones where up to 3 evaluations may be required for the same fluid type, using different cutoffs. An example would be one where the Unit 1 Top is the top of the conglomerate and the Unit 2 Top is the top of the sandstone. The conglomerate and sandstone are in communication and are evaluated as one zone, but different cutoffs are used resulting in 2 distinct intervals. Zero is not valid, and denotes a null value. The value is expressed in meters.
Value Indicator	January 2018 - No longer used and has become obsolete, therefore will be blank in all cases. Value indicators that previously had a value of 0 (to indicate a null value) will not be included in the file.
Water / Oil Interface	Depth assigned to the water / oil interface. Zero is not valid, and denotes a null value. The value is expressed in meters.
Water Resistivity	The resistivity of formation waters at formation temperature, expressed in ohm-meters.

Security Classification: Public

Data Element Definition (Continued)

Data Element	Definition
Water Resistivity Source Code	Code indicating the source of the water resistivity value. All codes are described in the Water Resistivity Source Code Table found in the next section of this document.
Water Saturation Average	The average water saturation calculated only for a unit or zone where total pay is assigned. The value is expressed as a fraction.
Water Saturation Cutoff	Maximum percent water saturation allowed for an interval to be included as net pay. The value is expressed as a fraction.
Well Name	Name assigned to the well at the time the well is licensed by the AER.
Well Total Depth	The total drilled depth of the well relative to the Kelly Bushing. The value is expressed in meters.
Zone Base	Depth assigned to the base of the zone. Zero is not valid, and denotes a null value. The value is expressed in meters.
Zone Description	A description identifying a specific zone within a formation. It is used to keep all evaluated formations within a wellbore unique.
Zone Top	Depth assigned to the top of the zone. Zero is not valid, and denotes a null value. The value is expressed in meters.

Security Classification: Public

Integrated Geological Data System

Code Description

Security Classification: Public

Depth Code Table

Code	Description	Comments
00	Depth not available or not present	
01	Zone top	
02	Porosity top	
03	Unit 1 top	
04	Unit 2 top	
05	Unit 3 top	
06	Gas/Oil interface	
07	Gas/Water interface	
08	Oil/Water interface	
09	Porosity base	
10	Zone base	
11	Bitumen top	Determined on the basis of a specific cutoff
12	Bitumen base	Determined on the basis of a specific cutoff
13	Water/Oil interface	

Security Classification: Public

Depth Type Code Table

Code	Description	Comments
01	Measured Log Depth	
02	Core Analysis Depth	
03	Calculated True Vertical Depth	

Security Classification: Public

Evaluation Method Code Table

Code	Description	Comments
Blank	Unknown	
0	Unknown	Applies to historical data only
1	Manual log evaluation	
2	Computerized log evaluation	
3	Programmable log evaluation	
4	Company reported	
5	Other	
6	Core only	
7	S-4 non-horizontal	Reservoir evaluation based on company completion information. Well is non-horizontal.
8	S-4 horizontal	Reservoir evaluation based on company completion information. Well is horizontal.
H	Horizontal	

Security Classification: Public

Oil Sands Area Code Table

Code	Description	Comments
Blank	Oil Sands Area Code not applicable	Conventional oil or gas evaluation
A001	Athabasca Oil Sands Area	
A010	Cold Lake Oil Sands Area	
A015	Peace River Oil Sands Area 2	
A016	Peace River Oil Sands Area 1	

Security Classification: Public

Oil Sands Confidence Code Table

Code	Description	Comments
00	No confidence code assigned	
01	Not confident	
02	Tolerable	
03	Satisfactory	
04	Good	
05	Type well	
09	No information	

Security Classification: Public

Oil Sands Deposit Code Table

Code	Description	Comments
0000000	Oil Sands Deposit Code not applicable	Conventional oil or gas evaluation
0262100	Upper Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0271000	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0275000	Lower Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0280000	Clearwater	Present in the Cold Lake Oil Sands Area
0305000	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0306200	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0556000	Belloy	Present in the Peace River Oil Sands Areas
0611900	Upper Debolt	Present in the Peace River Oil Sands Areas
0639800	Lower Debolt	Present in the Peace River Oil Sands Areas
0640000	Shunda	Present in the Peace River Oil Sands Areas
0642000	Pekisko	Present in the Peace River Oil Sands Areas
0696000	Nisku	Present in the Athabasca Oil Sands Area
0716000	Grosmont	Present in the Athabasca Oil Sands Area

Note: A number of oil sands deposit codes exist in addition to those specified above, and are shown in the following table. These will be reviewed and addressed in future releases of this data file, and can be considered as interim.

Security Classification: Public

Oil Sands Deposit Code Table – Interim

Code	Description	Comments
0262000	Grand Rapids	Present in the Cold Lake Oil Sands Area
0262098	Grand Rapids	Present in the Athabasca Oil Sands Area
0262101	Upper Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0262102	Upper Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0262106	Upper Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0262107	Upper Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0262109	Upper Grand Rapids	Present in the Athabasca Oil Sands Area
0262110	Upper Grand Rapids	Present in the Athabasca Oil Sands Area
0262111	Upper Grand Rapids	Present in the Athabasca Oil Sands Area
0262198	Upper Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0271001	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271002	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271003	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271005	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271006	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271008	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271009	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271010	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271011	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271012	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0271098	Middle Grand Rapids	Present in the Athabasca Oil Sands Area
0275001	Lower Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0275002	Lower Grand Rapids	Present in the Athabasca Oil Sands Area
0275003	Lower Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0275005	Lower Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0275006	Lower Grand Rapids	Present in the Athabasca Oil Sands Area
0275008	Lower Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0275098	Lower Grand Rapids	Present in the Athabasca and Cold Lake Oil Sands Areas
0280001	Clearwater	Present in the Cold Lake Oil Sands Area

Security Classification: Public

Oil Sands Deposit Code Table – Interim (Continued)

Code	Description	Comments
0280013	Clearwater	Present in the Cold Lake Oil Sands Area
0280098	Clearwater	Present in the Cold Lake Oil Sands Area
0305001	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305002	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305003	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305006	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305007	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305008	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305009	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305010	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305012	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305014	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305015	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305016	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305017	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305018	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305019	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305020	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305022	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305023	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305024	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305025	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305026	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305027	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305028	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305029	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305030	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305031	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0305098	Bluesky / Gething	Present in the Peace River Oil Sands Areas
0306201	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306202	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306203	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306205	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306206	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas

Security Classification: Public

Oil Sands Deposit Code Table – Interim (Continued)

Code	Description	Comments
0306207	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306208	Wabiskaw / McMurray	Present in the Athabasca Oil Sands Area
0306210	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306211	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306212	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0306215	Wabiskaw / McMurray	Present in the Athabasca Oil Sands Area
0306298	Wabiskaw / McMurray	Present in the Athabasca and Cold Lake Oil Sands Areas
0611901	Upper Debolt	Present in the Peace River Oil Sands Areas
0611998	Upper Debolt	Present in the Peace River Oil Sands Areas
0639801	Lower Debolt	Present in the Peace River Oil Sands Areas
0639898	Lower Debolt	Present in the Peace River Oil Sands Areas
0640001	Shunda	Present in the Peace River Oil Sands Areas
0640098	Shunda	Present in the Peace River Oil Sands Areas
0642098	Pekisko	Present in the Peace River Oil Sands Areas
0696001	Nisku	Present in the Athabasca Oil Sands Area
0710498	Upper Ireton	Present in the Athabasca Oil Sands Area
0716001	Grosmont	Present in the Athabasca Oil Sands Area

Security Classification: Public

Oil Sands Resource Code Table

Code	Description	Comments
Blank	No resource code assigned	
00	No resource code assigned	
01	Significant	
02	In place	
03	Mineable	
04	Established	
05	Company	
09	Core only evaluation	

Security Classification: Public

Oil Sands Sector Code Table

Code	Description	Comments
Blank	Oil Sands Sector Code not applicable	
C001	Frog Lake	Cold Lake Oil Sands Area
C002	Lindbergh	Cold Lake Oil Sands Area
C003	Saint Paul	Cold Lake Oil Sands Area
C004	Saddle Lake	Cold Lake Oil Sands Area
C005	Mann Lake	Cold Lake Oil Sands Area
C006	Bonnyville	Cold Lake Oil Sands Area
C007	Beaverdam	Cold Lake Oil Sands Area
C008	Cold Lake	Cold Lake Oil Sands Area
C009	Wolf Lake	Cold Lake Oil Sands Area
C010	Seibert Lake	Cold Lake Oil Sands Area
C011	Fisher Creek	Cold Lake Oil Sands Area
C012	Primrose	Cold Lake Oil Sands Area
C921	Frog Lake / Lindbergh	Cold Lake Oil Sands Area
C922	Lindbergh / Saint Paul	Cold Lake Oil Sands Area
C924	Frog Lake / Beaverdam	Cold Lake Oil Sands Area
C925	Lindbergh / Beaverdam	Cold Lake Oil Sands Area
C930	Beaverdam / Bonnyville	Cold Lake Oil Sands Area
C934	Mann Lake / Seibert Lake	Cold Lake Oil Sands Area
C953	Lindbergh / Beaverdam / Bonnyville	Cold Lake Oil Sands Area
C972	Saddle Lake / Saint Paul / Mann Lake / Bonnyville	Cold Lake Oil Sands Area

Security Classification: Public

Pay Exception Code Table

Code	Description	Comments
0	Normal evaluation	Default
1	Porosity-meters evaluation	
2	Infill well S-4 evaluation	Reservoir evaluation based on company completion information. Well is within an existing pool boundary.
3	Depth exceeds TD	
4	Depth exceeds TD and evaluation in porosity-meters	
5	Valid intersecting zones	Applies to bitumen zone intersecting with bitumen, gas, or potential zones.
6	Core depths present but core gross and net intervals not available	
7	Infill wells	
8	S-4 single well gas pool	Reservoir evaluation based on company completion information. Gas well is considered as s single well pool.
9	Historical data irregularity with intersecting zones	Currently no longer used

Security Classification: Public

Pay Type Code Table - Alphabetic

Code	Description	Comments
BT	Bitumen	
ER	Zone completely eroded	
HO	Heavy oil	
ND	Not deposited	
NE	Not evaluated infill well	
NI	No information	
NP	Not penetrated	
PB	Potential bitumen	
PD	Poorly developed	
PG	Potential gas	
PI	Poor or insufficient data	
PO	Potential oil	
SC	Shale filled channel	
SH	Shale	
TI	Tight	
WT	Wet	

Security Classification: Public

Pay Type Code Table - Numeric

Code	Description	Comments
01	Gas	
02	Oil	
03	Water	
04	Hydrocarbon	
05	Crude bitumen	
06	Potential oil	
09	Potential gas	
10	Evaluated – no resource	
11	Potential bitumen	

Security Classification: Public

Selection Basis Code Table

Code	Description	Comments
0	Unknown	Applies to historical data only
1	Core analysis	
2	Test information	
3	Log interpretation	
4	Pool average	
5	Company reported	
6	Assumed	
7	Total depth	
8	Greater or less than depth indicated	Zone may extend above or below the depth indicated.

Security Classification: Public

Water Resistivity Source Code Table

Code	Description	Comments
0	Water resistivity not required	
1	Assigned	
2	Catalogue	Canadian Well Logging Society Catalogue
3	Water analysis	
4	Log calculation	
5	Core analysis	
6	Other	
7	Unknown	
8	Water resistivity not used	Water saturation estimated or based on the pool average.

Security Classification: Public