Alberta Energy Regulator

Enhanced Pipeline Graphics File

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1 Introduction

1.1 Overview

The Enhanced Pipeline Graphics File contains all oil and gas pipelines approved by the Alberta Energy Regulator. This data represents the best information available to the AER at the date of publication. Information on specific pipeline location should be obtained from the survey plans, owners, and field observations. This dataset excludes low pressure distribution lines. From October 1, 2016, pipelines with a "removal" status will be removed from the dataset if the AER receives a letter verifying the removal of the pipeline, otherwise the pipelines will be included in the dataset with the status of "removal."

Pipeline installations associated with a pipeline licence are also included in this product as a point shapefile. A pipeline installation will be linked to a pipeline licence. There may be line segments associated with the pipeline installation licence or it may be a standalone installation on a licence.

The unmapped pipeline and pipeline installation csv files do not have a spatial reference, therefore are not in the shapefile.

1.2 Available Formats and Publications

- CSV
- Shapefile

Both publications are available daily through the www.aer.ca website at no charge.

This layout is for the CSV format.

1.3 Problems

If you have any questions about the enhanced pipeline shapefiles and CSV files, please contact inquiries@aer.ca.

1.4 Confidentiality

All files and programs are processed to exclude confidential data. Data is made available once it has been released from confidential status.

1.5 Disclaimer

The AER

- makes no representation, warranties, or guarantees, expressed or implied, for the fitness of the data file with respect to intended use;
- accepts no responsibility for any inaccuracies, errors, or omissions in the data file;
- accepts no responsibility for any costs incurred by a company to convert, install, or improve the data file; and
- makes no guarantee to the continuing availability of any data or the consistency of the format of transferred data.

2 Pipelines

The table below lists the attributes and the attributes descriptions found in the pipelines shapefile.

Attribute	Description	
Licence_Number	The pipeline licence number	
NEB_Pipeline_Indicator	Indicates if pipeline is property of the National Energy Board (NEB-80000 series).	
Segment_Line_Number	A number identifying a pipeline segment with the same engineering specifications for a given licence.	
Licence_Line_Number	A concatenation of Licence_Number and Segment_Line_Number to make a specific line segment unique.	
Pipeline_Licence_Segment_Id	A unique identifier for a particular pipeline segment. This unique surrogate identifier is required to properly support licence transfers since the segment licence number and line number can change between licences.	
Company_Name	Name of the business associate, usually the legal name. A business associate's name can change over time.	
BA_CODE	A business associate code obtained from Petrinex (Canada's Petroleum Information Network) that identifies licensees, agents or any company that does business with the AER (e.g. drilling companies).	
Pipeline_Specification_Id	Identifies a set of pipeline specifications that apply to one or more licensed pipeline segments.	
Segment_Length	Length of the segment in kilometers (km).	
Segment_Status	The operating status of the line.	
	Abandoned	The permanent deactivation of a pipeline done in a manner that ensures the pipeline is left in a permanently safe and secure

		condition.
	Discontinued	The temporary deactivation of a pipeline or part of a pipeline.
	Not Constructed	The pipeline was not constructed prior to expiry of the permit. If the licensee wants to construct after permit expiry they must reapply for approval.
	Operating	The pipeline segment is approved, constructed, licensed and carrying substance.
	Permitted	The pipeline has been approved for construction, and may or may not be constructed and/or operating. Permitted status stays as such for one year after approval for construction has been given. Construction must begin within that time frame.
	Removed	Pipelines to be removed or partially removed, including crossings of roads, railways, and watercourses.
Segment_From_Facility	The type of facility attached to the start of the pipeline segment.	
From_Location	A sequential number that uniquely identifies the legal subdivision where a pipeline segment's starting point is located.	
Segment_to_Facility	The type of facility attached to the end of a pipeline segment.	
To_Location	A sequential number that uniquely identifies the legal	

	subdivision where a pipeline segment's end point is located.
H2S_Release_Volume	The volume of Hydrogen Sulfide in cubic meters that could be released to atmosphere from a pipeline segment in the event of a release of fluid from the pipeline.
H2S_Release_Level	There are specific setback distances between pipelines containing gas or oil effluent > 10 mol/kmol H2S and permanent dwellings, unrestricted country developments, urban centres, or public facilities. These setback distances are grouped into levels based on the H2S release volume.
H2S_Content	Hydrogen sulfide (H2S) content of a substance.
Pipe_Technical_Standard	The technical standard to which a pipeline is or will be constructed.
Pipe_Outside_Diameter	Outside diameter of a pipeline in millimetres.
Pipe_Wall_Thickness	Wall thickness of a pipe in millimetres.
Pipe_Type	The CSA, API or ASTM standards for pipe manufacture. A defined set of values do not exist for this value. A reference table R_Pipe_Type is close, but not complete. An FK relationship did not work for the business and was removed.
Pipe_Grade	The pipe grade, alloy or compound specification. A defined set of values do not exist for this value. A reference table R_Pipe_Grade is close, but not complete. An FK relationship did not work for the business and was removed.
Pipe_Material	Material from which the pipeline is manufactured.
Pipe_Max_Operating_Pressure	Maximum operating pressure of the pipe.
Pipe_Stress_Level	Stress level of a pipe expressed as percent % of yield strength.

Pipe_Joint_Method	Method for joining lengths of pipe.
Pipe_Internal_Protection	Method of internal protection.
Field_Centre	Name of field center. An AER field centre is an AER centre that is located in an area of the province and is staffed to do the following for that area of the province: - provide 24 hour response to emergency, release, and complaint incidents; - inspect operations at wells, pipelines, and facilities in that area to ensure compliance with acts and regulations; - participate in public-industry liaison committees and facilitate the resolution of landowner-industry conflicts; and - answer information requests from the public.
Bidirectional_Pipeline_Ind	A flag (YES) indicating that the pipeline allows for flow in either direction.
HDD_Bored_Ind	A flag (YES) indicating that the pipeline crosses a watercourse that appears on the OneStop Map Viewer and where construction methods at that watercourse crossing will use horizontal directional drilling or boring.
Liner_Grade	The grade of a freestanding pressure containing pipe that has been installed in an existing pipeline.
Liner_Type	The type of a freestanding pressure containing pipe that has been installed in an existing pipeline.
Pipeline_External_Protection	The type of external coating for the pipe.
Pipeline_Environment	An indicator that the pipeline crosses a lake (LC), river (RC) or creek (CC) that appears on the 1:1,000,000 scale Alberta Base Plan Map.
Pipeline_Class_Location	The class location as defined in CSA Z662- Oil and Gas

	Pipeline Systems, is a geographical area classified according to its approximate population density and other characteristics that are considered when designing and pressure testing piping to be located in the area.	
Substance_1	A substance that is used by or results from petroleum and natural gas operations. Note: If the pipeline segment carries multiple substances, the highest priority substance will be applied.	
	Sour Natural Gas	Natural Gas with >10 mol/kmol of H2S content
	HVP Products	Butane, ethylene, propane, pentanes, liquid ethane
	LVP Products	Condensate, diesel fuel, gasoline, heating oil, hydrocarbons diluents, kerosene, solvents
	Crude oil	Blended crude bitumen, crude oil, synthetic crude oil
	Oil well effluent	Multiphase fluids
	Natural gas	Methane, natural gas with <= 10 mol/kmol H2S content
	Fuel gas	Fuel gas
	Salt water	Produced water
	Miscellaneous liquids	Ammonia, caustic, glycol, methanol, polymer, Sulphur, carbon dioxide
	Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, nitrogen, steam
	Fresh water	Potable water, surface water

Substance_2	A substance that is used by or results from petroleum and natural gas operations.	
	Sour Natural Gas	Natural Gas with >10 mol/kmol of H2S content
	HVP Products	Butane, ethylene, propane, pentanes, liquid ethane
	LVP Products	Condensate, diesel fuel, gasoline, heating oil, hydrocarbons diluents, kerosene, solvents
	Crude oil	Blended crude bitumen, crude oil, synthetic crude oil
	Oil well effluent	Multiphase fluids
	Natural gas	Methane, natural gas with <= 10 mol/kmol H2S content
	Fuel gas	Fuel gas
	Salt water	Produced water
	Miscellaneous liquids	Ammonia, caustic, glycol, methanol, polymer, Sulphur, carbon dioxide
	Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, nitrogen, steam
	Fresh water	Potable water, surface water
Substance_3	A substance that is used by or results from petroleum and natural gas operations.	

	Sour Natural Gas	Natural Gas with >10 mol/kmol of H2S content
	HVP Products	Butane, ethylene, propane, pentanes, liquid ethane
	LVP Products	Condensate, diesel fuel, gasoline, heating oil, hydrocarbons diluents, kerosene, solvents
	Crude oil	Blended crude bitumen, crude oil, synthetic crude oil
	Oil well effluent	Multiphase fluids
	Natural gas	Methane, natural gas with <= 10 mol/kmol H2S content
	Fuel gas	Fuel gas
	Salt water	Produced water
	Miscellaneous liquids	Ammonia, caustic, glycol, methanol, polymer, Sulphur, carbon dioxide
	Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, nitrogen, steam
	Fresh water	Potable water, surface water
Original_Licence_Number	The original licence number for the segment. This is used to track the original licence where a segment has been transferred to another licence.	
Original_Pipe_Specification_Id	The original segment specification ID. This is used to track the original licence data where a segment has been	

	transferred to another licence.	
Original_Segment_Line_Number	The original segment line number for the segment. This is used to track the original licence where a segment has been transferred to another licence.	
Licence_Approval_date	The original date the segment was licensed. This is used to track the original licence where a segment has been transferred to another licence.	
Original_Licence_Issue_Date	The original date the installation was licensed. This is used to track the original licence where an installation is transferred to another licence.	
Permit_Approval_Date	Date on which construction approval was granted.	
Permit_Expiry_Date	The date that the segment or installation will convert from "Permitted" status to "Operating" status, normally one year from the permit date. Currently only used for new construction, may be used for amendment applications at some future date.	
Last_Occurance_Year	Year of last construction, test or status change.	
Above_Ground_Pipeline	Indicates whether pipeline is above ground. Surface line crossing indicates an above ground pipeline.	
Geometry_Source NOTE: This attribute does not exist in the unmapped Pipelines CSV file.	The source of the geometry for the feature.	
	As-Planned	Pipeline drawings created during the planning stage.
	Constructed	Construction drawings generated in support of pipeline construction.
	As-Built	Pipeline drawings depicting the actual location of the pipeline infrastructure post construction.
	ROW Centreline	The location of the pipeline as

		defined by the centre of the right-of-way (ROW).
	Mapping	AER manipulated spatial data in support of base plan products.
Shape_Length	Length of feature in internal units.	

3 Pipeline Installations

The table below lists the attributes and the attributes descriptions found in the pipeline installations shapefile.

Attribute	Description
Licence_ID_Installation_Number	Licence installation number
Pipeline_Licence_Number	The pipeline licence number
Pipeline_Installation_ID	A number identifying an installation that is part of a pipeline and is covered by the pipeline licence.
Installation_Type	The type of pipeline installation. Possible types: • CS - Compressor station • PS - Pump station • RS - Regulator station, • MS - Meter station • MR - Meter/Regulation station • LH - Line heater • LR - Oil terminal
BA_ID	Business Associate identification code.
BA Name	Name of the business associate, usually the legal name. A business associate's name can change over time.
Permit Approval Date	Date of the most recent approval of an application related to that installation.
Permit Expity Date	Date that the segment or installation will convert from Permitted status to Operating status, normally one year from the permit date.
Licence_Approval_Date	Date on which operating approval was granted.
Installation_Power	Power rating of the pipeline installation. Only valid for pumping stations.
Prime_Mover	The power source at a pipeline installation.

Geometry_Source	The source of the geometry for the feature.	
	As-Planned	Pipeline drawings created during the planning stage
	Constructed	Construction drawing generated in support of pipeline construction
	As-Built	Pipeline drawings depicting the actual location of the pipeline infrastructure post construction
	ROW Centreline	Location of the pipeline as defined by the centre of the right-of-way
	Mapping	AER manipulated spatial data in support of base plan products.
Installation_Location	A sequential number that uniquely identifies the legal subdivision where a pipeline installation is located.	
Pipeline_Installation_Status	The operating status of the installations.	
	Abandoned	The permanent deactivation of a pipeline installations done in a manner that ensures the Installation is left in a permanently safe and secure condition
	Discontinued	The temporary deactivation of a pipeline installation.
	Not Constructed	The pipeline installation was not constructed prior to expiry of the permit. If the licensee wants to construct after permit expiry they must reapply for approval.
	Operating	The pipeline installation is approved, constructed, licensed and carrying substance.
	Permitted	The pipeline installation has been approved for construction, and may or may not be constructed and/or operating. Permitted status stays as such for one year after approval for

		construction has been given. Construction must begin within that time frame.
	Removed	Pipelines installations to be removed or partially removed, including crossings of roads, railways, and watercourses.
Original_Installation_Number	The original licence number for the installation. This is used to track the original licence where a segment is transferred to another licence.	
Original_Installation_ID	The original installation number for the installation. This is used to track the original licence where an installation is transferred to another licence.	
Original_Licence_Issue_Date	The original date the installation was licensed. This is used to track the original licence where an installation is transferred to another licence.	
Field_Centre	Name of field center. An AER field centre is an AER centre that is located in an area of the province and is staffed to do the following for that area of the province: - provide 24 hour response to emergency, release, and complaint incidents; - inspect operations at wells, pipelines, and facilities in that area to ensure compliance with acts and regulations; - participate in public-industry liaison committees and facilitate the resolution of landowner-industry conflicts; and - answer information requests from the public.	
H2S_Content	Hydrogen sulfide content of the substance that is handled by the installation in mol/kmol.	
Substance_1	A substance that is used by or results from petroleum and natural gas operations. Note: If the pipeline segment carries multiple substances, the highest priority substance	

	will be applied.	
	Sour Natural Gas	Natural Gas with >10 mol/kmol of H2S content
	HVP Products	Butane, ethylene, propane, pentanes, liquid ethane
	LVP Products	Condensate, diesel fuel, gasoline, heating oil, hydrocarbons diluents, kerosene, solvents
	Crude oil	Blended crude bitumen, crude oil, synthetic crude oil
	Oil well effluent	Multiphase fluids
	Natural gas	Methane, natural gas with <= 10 mol/kmol H2S content
	Fuel gas	Fuel gas
	Salt water	Produced water
	Miscellaneous liquids	Ammonia, caustic, glycol, methanol, polymer, Sulphur, carbon dioxide
	Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, nitrogen, steam
	Fresh water	Potable water, surface water
Substance_2	A substance that is used by or results from petroleum and natural gas operations.	
	Sour Natural Gas	Natural Gas with >10 mol/kmol of H2S content
	HVP Products	Butane, ethylene, propane, pentanes, liquid ethane

	LVP Products	Condensate, diesel fuel, gasoline, heating oil, hydrocarbons diluents, kerosene, solvents
	Crude oil	Blended crude bitumen, crude oil, synthetic crude oil
	Oil well effluent	Multiphase fluids
	Natural gas	Methane, natural gas with <= 10 mol/kmol H2S content
	Fuel gas	Fuel gas
	Salt water	Produced water
	Miscellaneous liquids	Ammonia, caustic, glycol, methanol, polymer, Sulphur, carbon dioxide
	Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, nitrogen, steam
	Fresh water	Potable water, surface water
Substance_3	A substance that is used by or results from petroleum and natural gas operations.	
	Sour Natural Gas	Natural Gas with >10 mol/kmol of H2S content
	HVP Products	Butane, ethylene, propane, pentanes, liquid ethane
	LVP Products	Condensate, diesel fuel, gasoline, heating oil,

	hydrocarbons diluents, kerosene, solvents
Crude oil	Blended crude bitumen, crude oil, synthetic crude oil
Oil well effluent	Multiphase fluids
Natural gas	Methane, natural gas with <= 10 mol/kmol H2S content
Fuel gas	Fuel gas
Salt water	Produced water
Miscellaneous liquids	Ammonia, caustic, glycol, methanol, polymer, Sulphur, carbon dioxide
Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, nitrogen, steam
Fresh water	Potable water, surface water