

PRODML Technical Reference Guide

For PRODML v2.0

PRODML Overview	The PRODML standard facilitates data exchange among the many software applications used in production operations, which helps promote interoperability and data integrity among these applications and improve workflow efficiency.
Version of standard	2.0
Abstract	Listing of all data objects, elements, and definitions generated from the UML model. For an overview of PRODML, including a list of resources, see the <i>PRODML Technical Usage Guide</i> .
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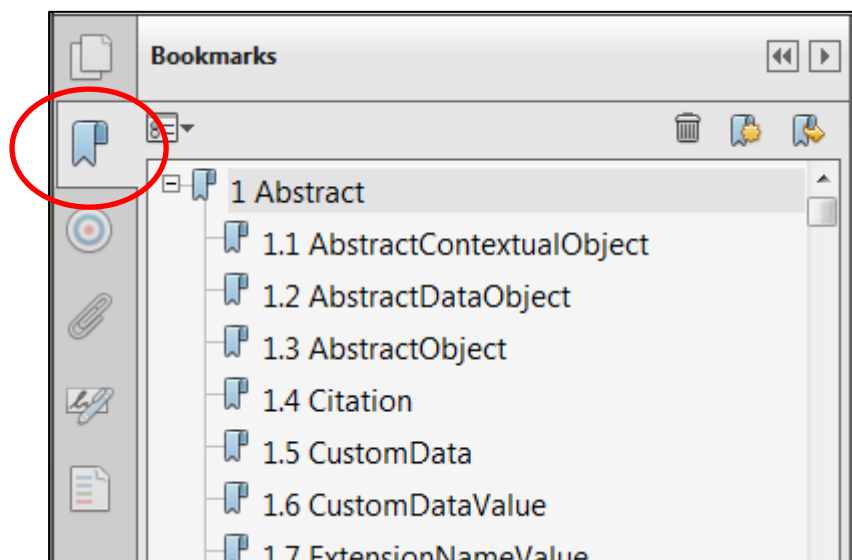
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1 DasAcquisition

Package: xsd_schemas

Notes: Schema for distributed acoustic sensing (DAS) acquisition.

1.1 DasAcquisition

Type: Group **Stereotype:** «XSDcomplexType»

Detail: Created: 4/6/2015 Last modified: 12/5/2016

Notes: Contains metadata about the DAS acquisition common to the various types of data acquired during the acquisition, which includes DAS measurement instrument data, fiber optical path, time zone, and core acquisition settings like pulse rate and gauge length, measurement start time and whether or not this was a triggered measurement.

Attributes

Name	Type	Notes
AcquisitionDescription	String2000	Free format description of the acquired DAS data.
AcquisitionId	UuidString	A universally unique identifier (UUID) for an instance of a DAS acquisition.
DasInstrumentBox	DasInstrumentBox	Description of the measurement instrument. Often referred to as interrogator unit or IU.
FacilityId	String64	This is a human-readable name for the facility or facilities which this acquisition is measuring.
GaugeLength	LengthMeasure	A distance (length along the fiber) which the DAS interrogator unit manufacturer designs and implements by hardware or software to affect the interrogator unit spatial resolution.
GaugeLengthUnit	String64	Only required in an HDF5 (H5) file to record the unit of measure of the gauge length.
MaximumFrequency	FrequencyMeasure	The maximum signal frequency a measurement instrument can provide as specified by the vendor. This is the Nyquist frequency (or some fraction thereof) of PulseRate.
MeasurementStartTime	TimeStamp	The time-date specification of the beginning of a data 'sample' in a 'time series' in ISO 8601 compatible format. This is typically a GPS-locked time measurement.
MinimumFrequency	FrequencyMeasure	The minimum signal frequency a measurement instrument can provide as specified by the vendor.
NumberOfLocs	NonNegativeLong	The total number of 'locs' (acoustic sample points) acquired by the measurement instrument in a single 'scan' of the fiber.
OpticalPath	FiberOpticalPath	Description of the fiber optical path. A fiber optical path consists of a series of fibers, connectors, etc. together forming the path for the light pulse emitted from the measurement instrument.
PulseRate	FrequencyMeasure	The rate at which the interrogator unit interrogates the fiber sensor. For most interrogators, this element is informally known as the 'pulse rate'.

Name	Type	Notes
PulseWidth	TimeMeasure	The width of the 'pulse' sent down the fiber.
PulseWidthUnit	String64	Only required in an HDF5 (H5) file to record the unit of measure of the pulse width. Default is nanoseconds (ns).
SpatialSamplingInterval	LengthMeasure	The separation between two consecutive 'spatial sample' points on the fiber at which the signal is measured. Not to be confused with 'spatial resolution'.
SpatialSamplingIntervalUnit	String64	Only required in an HDF5 (H5) file to record the unit of measure of the sampling interval.
StartLocusIndex	NonNegativeLong	The first 'locus' acquired by the interrogator unit. Where 'Locus Index 0' is the acoustic sample point at the connector of the measurement instrument.
TriggeredMeasurement	boolean	Measurement for an acquisition that requires synchronization between a transmitting source (Tx) and a recording (Rx) measurement system. It must be recorded for every measurement regardless of what application it will serve.
VendorCode	BusinessAssociate	Description of the vendor providing the DAS data acquisition service. Note that in the HDF5 (H5) file, this is a single string describing vendor name and some additional information that the vendor deems relevant, e.g., 'VendorX FBE data version 2.3'.

Associations

Association	Notes
From: DasAcquisition. To: AbstractObject <i>Generalization</i>	
0..1 From: DasAcquisition.Custom To: DasCustom <i>Association</i>	
0..* From: DasAcquisition.Raw To: DasRaw <i>Association</i>	
0..* From: DasAcquisition.Calibration To: DasCalibration <i>Association</i>	
0..1 From: DasAcquisition.Processed To: DasProcessed <i>Association</i>	

1.2 DasCalibration

Type: Group **Stereotype:** «XSDcomplexType»

Detail: Created: 4/6/2015 Last modified: 11/29/2016

Notes: This object contains a mapping of loci-to-fiber distance along the optical path for the DAS acquisition. The actual calibration points are provided in an array of DasCalibrationPoint structures consisting of three elements: a locus index, the corresponding fiber distance, and a description of the calibration type. Provide as many calibration points as necessary.

Attributes

Name	Type	Notes
CalibrationDatum	WellboreDatumReference	Datum used as basis for measurement of calibration point distance and length.
CalibrationDescription	String2000	Free format description of the DAS calibration provided for an instance of a DAS acquisition.
CalibrationFacilityLengthUnit	String64	Unit of measurement of FacilityLength value CalibrationPoints
CalibrationIndex	NonNegativeLong	The nth count of this Calibration in the Acquisition. Recommended if there is more than 1 Calibration in this Acquisition. This index corresponds to the Calibration array number in the H5 file.
CalibrationOpticalPathDistanceUnit	String64	Unit of measurement of OpticalPathDistance value CalibrationPoints
FacilityKind	FacilityKind	Enumeration to indicate the type of facility (well or pipeline) for this acquisition.
FacilityName	String64	Indicates which facility is being calibrated.
NumberOfCalibrationPoints	NonNegativeLong	The total number of calibration points in the array.

Associations

Association	Notes
1..* From: DasCalibration.CalibrationDataPoints To: DasCalibrationPoint <i>Association</i>	
From: DasCalibration. To: FacilityKind <i>Dependency</i>	
0..* From: DasAcquisition.Calibration To: DasCalibration <i>Association</i>	

1.3 DasCalibrationPoint

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 2/23/2016 Last modified: 11/3/2016

Notes: This object contains calibration points in the array

Attributes

Name	Type	Notes
CalibrationFacilityLength	LengthMeasure	The 'facility length' corresponding to the CalibrationOpticPathDistance. The 'facility length' is the length along the 'optical path' and is corrected for overstuffing, additional fiber in turnaround-sub or H-splices that increase the optical path length on the OTDR, but not the actual facility length.
CalibrationLocusIndex	NonNegativeLong	The locus index for the calibration point. Where 'Locus Index 0' is the acoustic sample point at the connector of the measurement instrument.
CalibrationOpticalPathDistance	LengthMeasure	The 'fiber distance' corresponding with the locus index of the calibration point. This is similar to the OpticalPathDistance used in DTS. This 'fiber distance' is the distance from the connector of the measurement instrument to the acoustic sample point along the fiber that is the furthest from the measurement instrument for that particular test.
CalibrationType	DasCalibrationTypeExt	A brief meaningful description of the type of calibration point. This is an extensible enumeration type. Current reserved keywords are 'locus calibration', 'tap test' and 'last locus to end of fiber' for commonly used calibration points.

Associations

Association	Notes
From: DasCalibrationPoint. To: DasCalibrationTypeExt <i>Dependency</i>	
From: DasCalibration.CalibrationDataPoints To: DasCalibrationPoint <i>Association</i>	

1.4 DasCalibrationType

Type: Enumeration *Stereotype:*

Detail: Created: 5/11/2016 Last modified: 12/5/2016

Notes: Specifies the types of calibration.

Attributes

Name	Type	Notes
last locus to end of fiber		Calibration point describing the fiber distance between the last locus acquired and the end of the fiber.
locus calibration		Calibration point describing the relationship between acquired locus number, optical path (fiber) distance, and facility length.
tap test		Calibration point describing the location of the (well head) tap test as a relationship between estimated locus number, optical path (fiber) distance, and facility length. This calibration point is often acquired in the field during acquisition start to obtain the approximate position of the well head along the fiber.

Associations

Association	Notes
From: DasCalibrationType. To: TypeEnum <i>Generalization</i>	
From: DasCalibrationTypeExt. To: DasCalibrationType <i>Generalization</i>	

1.5 DasCalibrationTypeExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 5/11/2016 Last modified: 11/3/2016

Notes: This extension of calibration type

Associations

Association	Notes
From: DasCalibrationTypeExt. To: EnumExtensionPattern <i>Generalization</i>	
From: DasCalibrationTypeExt. To: DasCalibrationType <i>Generalization</i>	
From: DasCalibrationPoint. To: DasCalibrationTypeExt <i>Dependency</i>	

1.6 DasCustom

Type: Group *Stereotype:* «XSDcomplexType»

Detail: Created: 4/6/2015 Last modified: 11/3/2016

Notes: This object contains service–provider-specific customization parameters. Service providers can define the contents of this data element as required. This data object has intentionally not been described in detail to allow for flexibility.

Note that this object is optional and if used, the service provider needs to provide a description of the data elements to the customer.

Associations

Association		Notes
	From: DasCustom. To: CustomData <i>Generalization</i>	
0..1	From: DasAcquisition.Custom To: DasCustom <i>Association</i>	
0..1	From: DasSpectra.Custom To: DasCustom <i>Association</i>	
0..1	From: DasFbe.Custom To: DasCustom <i>Association</i>	
0..1	From: DasRaw.Custom To: DasCustom <i>Association</i>	

1.7 DasDimensions

Type: Enumeration *Stereotype:*

Detail: Created: 2/24/2016 Last modified: 12/5/2016

Notes: Specifies the possible orientations of the data array. For multiple H5 files:

- Must specify that the indexes split OVER TIME
- Even if loci were the index
- Each divided file still contains the split time array

Attributes

Name	Type	Notes
frequency		Enumeration value to indicate the frequency dimension in a multi-dimensional array.
locus		Enumeration value to indicate the locus dimension in a multi-dimensional array.
time		Enumeration value to indicate the time dimension in a multi-dimensional array.

Associations

Association	Notes
From: DasDimensions. To: TypeEnum <i>Generalization</i>	

1.8 DasExternalDatasetPart

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/23/2016 Last modified: 11/3/2016

Notes: Array of integer values provided explicitly by an HDF5 dataset. The null value must be explicitly provided in the NullValue attribute of this class.

Attributes

Name	Type	Notes
PartEndTime	TimeStamp	The timestamp in human readable, ISO 8601 format of the last recorded sample in the sub-record of the raw data array stored in the corresponding HDF data file.
PartStartTime	TimeStamp	The timestamp in human readable, ISO 8601 format of the first recorded sample in the sub-record of the raw data array stored in the corresponding HDF data file.

Associations

Association	Notes
From: DasExternalDatasetPart. To: ExternalDatasetPart <i>Generalization</i>	

1.9 DasFbe

Type: Group **Stereotype:** «XSDcomplexType»

Detail: Created: 4/27/2015 Last modified: 11/30/2016

Notes: This object contains the attributes of FBE processed data. This includes the FBE data unit, location of the FBE data along the fiber optical path, information about times, (optional) filter related parameters, and UUIDs of the original raw and/or spectra files from which the files were processed. Note that the actual FBE data samples and times arrays are not present in the XML files but only in the HDF5 files because of their size. The XML files only contain references to locate the corresponding HDF files containing the actual FBE samples and times.

Attributes

Name	Type	Notes
FbeData	DasFbeData	A DAS array object containing the FBE DAS data.
FbeDataTime	DasTimeArray	A DAS array object containing the sample times corresponding to a single 'scan' of the fiber. In a single 'scan', the DAS measurement system acquires raw data samples for all the loci specified by StartLocusIndex and NumberOfLoci. The 'scan' frequency is equal to the DAS acquisition pulse rate.
FbeDataUnit	String64	Data unit for the FBE data.
FbeDescription	String2000	Description of the FBE data.
FbeIndex	NonNegativeLong	The nth count of this Fbe instance in the Acquisition. Recommended if there is more than 1 Fbe instance in this Acquisition. This index corresponds to the Fbe array number in the H5 file.
FilterType	String64	A string describing the type of filter applied by the vendor. Important frequency type filter classes are: frequency response filters (low-pass, high-pass, band-pass, notch filters) and butterworth, chebyshev and bessel filters. The filter type and characteristics applied to the acquired or processed data is important information for end-user applications.
NumberOfLoci	NonNegativeLong	The total number of 'loci' (acoustic sample points) acquired by the measurement instrument in a single 'scan' of the fiber.
OutputDataRate	FrequencyMeasure	The rate at which the FBE data is provided for all 'loci' (spatial samples). This is typically equal to the interrogation rate/pulse rate of the DAS measurement system or an integer fraction thereof. Note this attribute is mandatory for FBE and spectrum data. For raw data this attribute is optional.
RawReference	UuidString	A universally unique identifier (UUID) for the HDF file containing the raw data.
SpatialSamplingInterval	LengthMeasure	The separation between two consecutive 'spatial sample' points on the fiber at which the signal is measured. It should not be confused with 'spatial resolution'. If this data element is present in the DASFbe object, then it overwrites the

Name	Type	Notes
		SpatialSamplingInterval value described in DASAcquisition.
SpatialSamplingIntervalUnit	String64	Only required in Hdf5 file to record the unit of measure of the sampling interval of the Fbe.
SpectraReference	UuidString	A universally unique identifier (UUID) for the HDF file containing the spectra data.
StartLocusIndex	NonNegativeLong	The first 'locus' acquired by the interrogator unit, where 'Locus Index 0' is the acoustic sample point at the connector of the measurement instrument.
TransformSize	NonNegativeLong	The number of samples used in the TransformType.
TransformType	String64	A string describing the type of mathematical transformation applied by the vendor. Typically this is some type of discrete fast Fourier transform (often abbreviated as DFT, DFFT or FFT).
uuid	UuidString	A universally unique identifier (UUID) of an instance of FBE DAS data.
WindowFunction	String64	The window function applied to the sample window used to calculate the frequency band. Example 'HANNING', 'HAMMING', 'BESSEL' window.
WindowOverlap	NonNegativeLong	The number of sample overlaps between consecutive filter windows applied.
WindowSize	NonNegativeLong	The number of samples in the filter window applied.

Associations

Association	Notes
0..1 From: DasFbe.Custom To: DasCustom <i>Association</i>	
0..* From: DasProcessed.Fbe To: DasFbe <i>Association</i>	

1.10 DasFbeData

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 5/28/2015 Last modified: 11/30/2016

Notes: Two dimensional (loci & time) array containing processed frequency band extracted data samples. This processed data type is obtained by applying a frequency band filter to the raw data acquired by the DAS acquisition system. For each frequency band provided, a separate DASFbeData array object is created.

Attributes

Name	Type	Notes
Dimensions	DasDimensions	An array of two elements describing the ordering of the FBE data array. The fastest running index is stored in the second element. For example the {'time', 'locus'} indicates that 'locus' is the fastest running index. Note that vendors may deliver data with different orderings.
EndFrequency	FrequencyMeasure	End of an individual frequency band in a DAS FBE data set. This typically corresponds to the frequency of the 3dB point of the filter.
FbeDataIndex	NonNegativeLong	The nth count of this DasFbeData in the DasFbe. Recommended if there is more than 1 dataset in this Fbe. This index corresponds to the FbeData array number in the H5 file.
StartFrequency	FrequencyMeasure	Start of an individual frequency band in a DAS FBE data set. This typically corresponds to the frequency of the 3dB point of the filter.

Associations

Association	Notes
1 From: DasFbeData.FbeDataArray To: AbstractNumericArray <i>Association</i>	

1.11 DasInstrumentBox

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 12/28/2015 Last modified: 11/3/2016

Notes: The group of elements corresponding to a DAS instrument box.

Attributes

Name	Type	Notes
FacilityIdentifier	FacilityIdentifier	Identifies the facility to which an instrument is attached. Type is the PRODML Common Facility Identifier.
FirmwareVersion	String64	Firmware version of the DAS Instrument box.
Instrument	Instrument	The general data of an instrument, including vendor information, in the installed system.
InstrumentBoxDescription	String2000	An identification tag for the instrument box. A serial number is a type of identification tag however some tags contain many pieces of information. This structure just identifies the tag and does not describe the contents.
Parameter	IndexedObject	Additional parameters to define the instrument box as a piece of equipment. These should not be parameters to define the installation or use of the box in the wellbore, or other system. This element should be used only if an appropriate parameter is not available as an element, or in the calibration operation.
PatchCord	DtsPatchCord	Description of the patch cord connecting the fiber optic path to the DAS instrument box connector.
SerialNumber	String64	An identification tag for the instrument box. A serial number is a type of identification tag however some tags contain many pieces of information. This structure just identifies the tag and does not describe the contents.

Associations

Association	Notes
From: DasInstrumentBox. To: AbstractObject <i>Generalization</i>	

1.12 DasProcessed

Type: Group **Stereotype:** «XSDcomplexType»

Detail: Created: 7/13/2015 Last modified: 11/3/2016

Notes: This object contains data objects for processed data types and has no data attributes. Currently only two processed data types have been defined: the frequency band extracted (FBE) and spectra. In the future other processed data types may be added.

Note that a DasProcessed object is optional and only present if DAS FBE or DAS spectra data is exchanged.

Associations

Association		Notes
0..*	From: DasProcessed.Spectra To: DasSpectra <i>Association</i>	
0..*	From: DasProcessed.Fbe To: DasFbe <i>Association</i>	
0..1	From: DasAcquisition.Processed To: DasProcessed <i>Association</i>	

1.13 DasRaw

Type: Group **Stereotype:** «XSDcomplexType»

Detail: Created: 4/6/2015 Last modified: 11/30/2016

Notes: This object contains the attributes of raw data acquired by the DAS measurement instrument. This includes the raw data unit, the location of the raw data acquired along the fiber optical path, and information about times and (optional) triggers. Note that the actual raw data samples, times and trigger times arrays are not present in the XML files but only in the HDF5 files because of their size. The XML files only contain references to locate the corresponding HDF files, which contain the actual raw samples, times, and (optional) trigger times.

Attributes

Name	Type	Notes
NumberOfLoci	NonNegativeLong	The total number of 'loci' (acoustic sample points) acquired by the measurement instrument in a single 'scan' of the fiber.
OutputDataRate	FrequencyMeasure	The rate at which the spectra data is provided for all 'loci' (spatial samples). This is typically equal to the interrogation rate/pulse rate of the DAS measurement system or an integer fraction thereof. This attribute is optional in the Raw Data object. If present, it overrides the Acquisition PulseRate. If not present, then OutputDataRate is assumed equal to the PulseRate.
RawData	DasRawData	A DAS array object containing the raw DAS data.
RawDataTime	DasTimeArray	A DAS array object containing the sample times corresponding to a single 'scan' of the fiber. In a single 'scan', the DAS measurement system acquires raw data samples for all the loci specified by StartLocusIndex . The 'scan' frequency is equal to the DAS Acquisition Pulse Rate.
RawDataTriggerTime	DasTimeArray	A DAS array object containing the times of the triggers in a triggered measurement. Multiple times may be stored to indicate multiple triggers within a single DAS raw data recording. This array contains only valid data if TriggeredMeasurement is set to 'true' in DAS Acquisition.
RawDataUnit	String64	Data unit for the DAS measurement instrument.
RawDescription	String2000	Free format description of the raw DAS data acquired.
RawIndex	NonNegativeLong	The nth count of this Raw instance in the Acquisition. Recommended if there is more than 1 Raw instance in this Acquisition. This index corresponds to the Raw array number in the H5 file.
StartLocusIndex	NonNegativeLong	The first 'locus' acquired by the interrogator unit. Where 'Locus Index 0' is the acoustic sample point at the connector of the measurement instrument.
uuid	UuidString	A universally unique identifier (UUID) for an instance of raw DAS data.

Associations

Association		Notes
0..1	From: DasRaw.Custom To: DasCustom <i>Association</i>	
0..*	From: DasAcquisition.Raw To: DasRaw <i>Association</i>	

1.14 DasRawData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/28/2015 Last modified: 11/3/2016

Notes: Two- dimensional array containing raw data samples acquired by the DAS acquisition system.

Attributes

Name	Type	Notes
Dimensions	DasDimensions	An array of <i>two</i> elements describing the ordering of the raw data array. The fastest running index is stored in the second element. For the DAS measurement instrument, the ordering is typically {‘time’, ‘locus’} indicating that the locus is the fastest running index, but in some cases the order may be reversed.

Associations

Association	Notes
1 From: DasRawData.RawDataArray To: AbstractNumericArray <i>Association</i>	

1.15 DasSpectra

Type: Group **Stereotype:** «XSDcomplexType»

Detail: Created: 4/6/2015 Last modified: 11/30/2016

Notes: This object contains the attributes of spectra processed data. This includes the spectra data unit, location of the spectra data along the fiber optical path, information about times, (optional) filter related parameters, and UUIDs of the original raw from which the spectra file was processed and/or the UUID of the FBE files that were processed from the spectra files. Note that the actual spectrum data samples and times arrays are not present in the XML files but only in the HDF5 files because of their size. The XML files only contain references to locate the corresponding HDF files containing the actual spectrum samples and times.

Attributes

Name	Type	Notes
FbeReference	UuidString	A universally unique identifier (UUID) of an instance of DAS FBE data.
FilterType	String64	A string describing the type of filter applied by the vendor. Important frequency type filter classes are: frequency response filters (low-pass, high-pass, band-pass, notch filters) and butterworth, chebyshev and bessel filters. The filter type and characteristics applied to the acquired or processed data is important information for end-user applications.
NumberOfLocs	NonNegativeLong	The total number of 'locs' (acoustic sample points) acquired by the measurement instrument in a single 'scan' of the fiber.
OutputDataRate	FrequencyMeasure	The rate at which the spectra data is provided for all 'locs' (spatial samples). This is typically equal to the interrogation rate/pulse rate of the DAS measurement system or an integer fraction thereof. Note this attribute is mandatory for FBE and spectrum data. For raw data this attribute is optional.
RawReference	UuidString	Unique identifier for the HDF5 file containing the raw data.
SpatialSamplingInterval	LengthMeasure	The separation between two consecutive 'spatial sample' points on the fiber at which the signal is measured. It should not be confused with 'spatial resolution'. If this data element is present in the DasSpectrum object, then it overwrites the SpatialSamplingInterval value described in DasAcquisition.
SpatialSamplingIntervalUnit	String64	Only required in an HDF5 file to record the unit of measure of the sampling interval of the spectra.
SpectraData	DasSpectraData	A DAS array object containing the spectra DAS data.
SpectraDataTime	DasTimeArray	A DAS array object containing the sample times corresponding to a single 'scan' of the fiber. In a single 'scan', the DAS measurement system acquires raw data samples for all the locs specified by StartLocusIndex and NumberOfLocs. The 'scan' frequency is equal to the DAS acquisition pulse

Name	Type	Notes
		rate.
SpectraDataUnit	String64	Data unit for the spectra data.
SpectraDescription	String2000	Description of the spectra data.
SpectraIndex	NonNegativeLong	The nth count of this Spectra instance in the acquisition. Recommended if there is more than 1 Spectra instance in this acquisition. This index corresponds to the Spectra array number in the H5 file.
StartLocusIndex	NonNegativeLong	The first 'locus' acquired by the interrogator unit, where 'Locus Index 0' is the acoustic sample point at the connector of the measurement instrument.
TransformSize	NonNegativeLong	The number of samples used in the TransformType.
TransformType	String64	A string describing the type of mathematical transformation applied by the vendor. Typically this is some type of discrete fast Fourier transform (often abbreviated as DFT, DFFT or FFT).
uuid	UuidString	A universally unique identifier (UUID) for an instance of spectra DAS data.
WindowFunction	String64	A string describing the window function applied by the vendor. Examples are "Hamming" or "Hanning".
WindowOverlap	NonNegativeLong	The number of sample overlaps between consecutive filter windows applied.
WindowSize	NonNegativeLong	The number of samples in the filter window applied.

Associations

Association	Notes
0..1 From: DasSpectra.Custom To: DasCustom <i>Association</i>	
0..* From: DasProcessed.Spectra To: DasSpectra <i>Association</i>	

1.16 DasSpectraData

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 5/28/2015 Last modified: 11/3/2016

Notes: Three-dimensional array (loci, time, transform) containing spectrum data samples. Spectrum data is processed data obtained by applying a mathematical transformation function to the DAS raw data acquired by the acquisition system. The array is 3D and contains *TransformSize* points for each locus and time for which the data is provided. For example, many service providers will provide Fourier transformed versions of the raw data to customers, but other transformation functions are also allowed.

Attributes

Name	Type	Notes
Dimensions	DasDimensions	An array of three elements describing the ordering of the raw data array. The fastest running index is stored in the last element. For example {'time', 'locus', 'frequency'} indicates that the frequency is the fastest running index. Note that vendors may deliver data with different orderings.
EndFrequency	FrequencyMeasure	End frequency in a DAS spectra data set. This value is typically set to the maximum frequency present in the spectra data set.
StartFrequency	FrequencyMeasure	Start frequency in a DAS spectra data set. This value typically is set to the minimum frequency present in the spectra data set.

Associations

Association	Notes
1 From: DasSpectraData.SpectraDataArray To: AbstractNumericArray Association	

1.17 DasTimeArray

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 5/22/2015 Last modified: 11/3/2016

Notes: The Times arrays contain the 'scan' or 'trace' times at which the raw, FBE and spectrum arrays were acquired or processed:

- For raw data, these are the times for which all loci in the 'scanned' fiber section were interrogated by a single pulse of the DAS measurement system.
- For the processed data, these are the times of the first sample in the time window used in the frequency filter or transformation function to calculate the FBE or spectrum data.

Attributes

Name	Type	Notes
EndTime	TimeStamp	The timestamp in human readable, ISO 8601 format of the last recorded sample in the acquisition. Note that this is the <i>end time of the acquisition</i> if a raw data set is stored in multiple HDF files. The end time of the sub-record stored in an individual HDF file is stored in <i>PartEndTime</i> .
StartTime	TimeStamp	The timestamp in human readable, ISO 8601 format of the last recorded sample in the acquisition. Note that this is the <i>start time of the acquisition</i> if a raw dataset is stored in multiple HDF files. The end time of the sub-record stored in an individual HDF file is stored in <i>PartStartTime</i> .

Associations

Association	Notes
1 From: DasTimeArray.TimeArray To: IntegerExternalArray <i>Association</i>	

1.18 FacilityKind

Type: Enumeration *Stereotype:* «enumeration»

Detail: Created: 11/8/2016 Last modified: 12/5/2016

Notes: Specifies the types of facility kinds.

Attributes

Name	Type	Notes
generic		The calibration affects the acquisition which runs neither inside a well or a pipeline.
pipeline		The calibration affects the acquisition which runs inside a pipeline.
well		The calibration affects the acquisition which runs inside a well.

Associations

Association	Notes
From: FacilityKind. To: TypeEnum <i>Generalization</i>	
From: DasCalibration. To: FacilityKind <i>Dependency</i>	

2 DtsInstalledSystem

Package: xsd_schemas

Notes: Schema for the distributed temperature survey (DTS) installed system.

2.1 DtsCalibration

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/11/2016

Notes: Calibration parameters vary from vendor to vendor, depending on the calibration method being used. This is a general type that allows a calibration date, business associate, and many name/value pairs.

Attributes

Name	Type	Notes
CalibratedBy	String64	The business associate that performed the calibration.
CalibrationProtocol	String64	This may be a standard protocol or a software application.
DTimCalibration	date	The date of the calibration.
Parameter	CalibrationParameter	Attribute name is the name of the parameter. Optional attribute uom is the unit of measure of the parameter. The value of the element is the value of the parameter. Note that a string value may appear as a parameter.
Remark	String2000	Any remarks that may be useful regarding the calibration information.
uid	String64	A unique identifier (UID) of an instance of DtsCalibration.

Associations

Association	Notes
0..* From: DtsCalibration. To: ExtensionNameValue <i>Association</i>	
From: DtsCalibration. To: CalibrationParameter <i>Dependency</i>	
0..* From: DtsInstrumentBox.InstrumentCalibration To: DtsCalibration <i>Association</i>	
0..* From: DtsInstalledSystem.DtsCalibration To: DtsCalibration <i>Association</i>	

2.2 DtsInstalledSystem

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/2/2016

Notes: The group of elements corresponding to a DTS installed system.

Attributes

Name	Type	Notes
Comment	String2000	Comment about this installed system.
DateMax	dateTime	The maximum date index contained within the object. The minimum and maximum indexes are server query parameters and are populated with valid values in a "get" result.
DateMin	dateTime	The minimum date index contained within the object. The minimum and maximum indexes are server query parameters and are populated with valid values in a "get" result. That is, all measurements for a well in the specified period defined by the min/max.
InstrumentBoxReference	DtsInstrumentBox	A reference to the instrument box data object used in this installed system.
OpticalBudget	double	Total light budget available for the installation. This is generally measured in decibels, and indicates the total power loss for two-way travel of the light in the installed fiber.
OpticalPathLength	LengthMeasure	The length of the fiber installed in the wellbore.
OpticalPathReference	FiberOpticalPath	A reference to the optical path data object that is used in this installed system.

Associations

Association	Notes
0..* From: DtsInstalledSystem.DtsCalibration To: DtsCalibration <i>Association</i>	
From: DtsInstalledSystem. To: AbstractObject <i>Generalization</i>	
0..1 From: DtsInstalledSystem. To: FacilityIdentifier <i>Association</i>	

3 DtsInstrumentBox

Package: xsd_schemas

Notes: Schemas for distributed temperature survey (DTS) instrument box.

3.1 AbstractDtsEquipment

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/30/2016

Notes: The abstract class of equipment in the optical path from which all components in the optical path inherit.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the equipment (e.g., optical fiber).
Manufacturer	String64	The manufacturer for this item of equipment.
ManufacturingDate	date	Date when the equipment (e.g., instrument box) was manufactured.
Name	String64	The DTS instrument equipment name.
SoftwareVersion	String64	Latest known version of the software/firmware that is running in the equipment
SupplierModelNumber	String64	The model number (alphanumeric) that is used by the supplier to reference the type of fiber that is supplied to the user.
SupplyDate	date	The date on which this fiber segment was supplied.
Type	String64	The type of equipment. This might include the model type.

Associations

Association	Notes
0..1 From: AbstractDtsEquipment.Supplier To: BusinessAssociate <i>Association</i>	
From: FiberCommon. To: AbstractDtsEquipment <i>Generalization</i>	
From: Instrument. To: AbstractDtsEquipment <i>Generalization</i>	

3.2 DtsInstrumentBox

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/2/2016

Notes: The group of elements corresponding to a DTS instrument box.

Attributes

Name	Type	Notes
InternalOvenLocationFar	LengthMeasure	Far distance of the oven from the beginning of the fiber.
InternalOvenLocationNear	LengthMeasure	Near distance of the oven from the beginning of the fiber.
Parameter	IndexedObject	Additional parameters to define the instrument box as a piece of equipment. These should not be parameters to define the installation or use of the box in the wellbore or other system. Only use this element if an appropriate parameter is not available as an element or in the calibration operation.
ReferenceCoilTemperature	ThermodynamicTemperatureMeasure	The temperature of the oven.
SerialNumber	String64	An identification tag for the instrument box. A serial number is a type of identification tag; however, some tags contain many pieces of information. This structure only identifies the tag and does not describe the contents.
StartupTime	TimeMeasure	The duration of time from the initial powering on of the instrument until the first temperature measurement is permitted.
WarmupTime	TimeMeasure	The duration of time starting from the initiation of the first temperature measurement until the unit complies with the stated values of the main measurement specifications.

Associations

Association	Notes
0..* From: DtsInstrumentBox.InstrumentCalibration To: DtsCalibration <i>Association</i>	
From: DtsInstrumentBox. To: AbstractObject <i>Generalization</i>	
0..1 From: DtsInstrumentBox.DtsPatchCord To: DtsPatchCord <i>Association</i>	
1 From: DtsInstrumentBox.Instrument To: Instrument <i>Association</i>	
0..1 From: DtsInstrumentBox. To: FacilityIdentifier <i>Association</i>	
0..* From: DtsInstrumentBox. To: ExtensionNameValue	

Association	Notes
Association	

3.3 DtsPatchCord

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/3/2016

Notes: Information regarding the patch cord used to connect the instrument box to the start of the optical fiber path.

Attributes

Name	Type	Notes
Description	String2000	A textual description of the patch cord.
FiberLength	LengthMeasure	Optical distance between the instrument and the end of the patch cord that will be attached to the rest of the optical path from which a measurement will be taken.

Associations

Association	Notes
0..1 From: DtsInstrumentBox.DtsPatchCord To: DtsPatchCord Association	

3.4 Instrument

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/3/2016

Notes: The general class of an instrument, including vendor information, in the installed system.

Associations

Association		Notes
0..1	From: Instrument.InstrumentVendor To: BusinessAssociate <i>Association</i>	
	From: Instrument. To: AbstractDtsEquipment <i>Generalization</i>	
1	From: DtsInstrumentBox.Instrument To: Instrument <i>Association</i>	
	From: FiberOTDRInstrumentBox. To: Instrument <i>Generalization</i>	

4 DtsMeasurement

Package: xsd_schemas

Notes: Schema for the measurements taken during a DTS.

4.1 DtsInterpretationData

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Header data for a particular collection of interpretation data.

Attributes

Name	Type	Notes
BadFlag	boolean	Indicates whether or not the interpretation log contains bad data. This flag allows you to keep bad data (so at least you know that something was generated/acquired) and filter it out when doing relevant data operations.
ChannelSetReference	DataObjectReference	<p>Pointer to a ChannelSet containing the comma-delimited list of mnemonics and units, and channel data representing the interpretation data.</p> <p>BUSINESS RULE: The mnemonics and the units must follow a strict order. The mnemonic list must be in this order: facilityDistance, adjustedTemperature</p> <p>The unit list must be one of the following:</p> <ul style="list-style-type: none"> m,degC ft,degF
Comment	String2000	A descriptive remark about the interpretation log.
CreationStartTime	date	Time when the interpretation log data was generated.
FacilityMapping	String64	A reference to the facilityMapping to which this InterpretationData relates. The facility mapping relates a length of fiber to a corresponding length of a facility (probably a wellbore or pipeline). The facilityMapping also contains the datum from which the InterpretedData is indexed.
IndexMnemonic	String64	The mnemonic of the channel in the InterpretedData that represents the index to the data (expected to be a length along the facility (e.g., wellbore, pipeline) being measured.
InterpretationProcessingType	InterpretationProcessingType	Indicates what type of post-processing technique was used to generate this interpretation log. Enum list. The meaning is that this process was applied to the InterpretedData referenced by the parentInterpretationID.

Name	Type	Notes
measurementReference	String64	Mandatory element indicating that the referenced MeasuredTraceSet object is the raw trace data from which this InterpretedData is derived. This is needed so that any InterpretedData can be related to the raw measurement from which it is derived.
parentInterpretationReference	String64	Optional element indicating that the referenced InterpretedData object is the parent from which this InterpretedData is derived. Example, this instance may be derived from a parent by the data having been temperature-shifted to match an external data source. The element InterpretationProcessingType is provided to record which type of operation was performed on the parent data to obtain this instance of data.
PointCount	nonNegativeInteger	The number of rows in this interpreted data object. Each row or "point" represents a measurement along the fiber.
SamplingInterval	LengthMeasure	The difference in fiber distance between consecutive temperature sample points in a single temperature trace.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
From: DtsInterpretationData. To: InterpretationProcessingType <i>Dependency</i>	
From: DtsInterpretationLogSet.InterpretationData To: DtsInterpretationData <i>Association</i>	

4.2 DtsInterpretationLogSet

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/11/2016

Notes: Container of interpreted data which also specifies by reference the measured data on which the interpretation is based.

Attributes

Name	Type	Notes
PreferredInterpretationReference	String64	For a set of dtsInterpretedData logs that are generated from the same measurement (each log having gone through a different post-processing type, for example), if there is one log that is 'preferred' for additional business decisions (while the other ones were merely what-if scenarios), then this preferred log in the collection of child dtsInterpretedData can be flagged by referencing its UID with this element.

Associations

Association	Notes
1..* From: DtsInterpretationLogSet.InterpretationData To: DtsInterpretationData <i>Association</i>	
0..1 From: DtsMeasurement.InterpretationLog To: DtsInterpretationLogSet <i>Association</i>	

4.3 DtsMeasurement

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/10/2016

Notes: The group of elements corresponding to a DTS measurement.

Attributes

Name	Type	Notes
BadSetFlag	boolean	Set to 'true' when a measurement is included but is known to be bad (i.e., all the values are null). Use this flag in situations when you want to keep track of the fact that a measurement was generated/received, however the measurement was bad.
EmptySetFlag	boolean	Set to 'true' when the measurement set is empty (only the header is provided). Use this flag for situations when the instrument box attempts to get a reading, but nothing is generated (fiber is disconnected, for example).
InstalledSystemReference	DtsInstalledSystem	Reference to the installed system used to take the measurement (combination of instrument box and optical path).
MeasurementConfiguration	OpticalPathConfiguration	Enum. The configuration of the optical path. This may be varied from measurement to measurement, independent of the fiber path network.
MeasurementTags	String64	This supports user-defined "tags" (in the form of text strings) to be attached to the measurement. Example: to indicate other operations under way at the time (e.g., start of injection).
TimeEnd	dateTime	Time when the installed system finished taking the measurement.
TimeSinceInstrumentStartup	TimeMeasure	Length of time that the instrument box has been up and running since its last power up.
TimeStart	dateTime	Time when the installed system began taking the measurement.

Associations

Association	Notes
0..* From: DtsMeasurement.DiagnosticParameters To: ExtensionNameValue <i>Association</i>	
From: DtsMeasurement. To: AbstractObject <i>Generalization</i>	
0..* From: DtsMeasurement.MeasurementTrace To: DtsMeasurementTrace <i>Association</i>	
1 From: DtsMeasurement. To: FacilityIdentifier <i>Association</i>	
From: DtsMeasurement. To: OpticalPathConfiguration	

Association		Notes
	<i>Dependency</i>	
0..1	From: DtsMeasurement.InterpretationLog To: DtsInterpretationLogSet <i>Association</i>	

4.4 DtsMeasurementTrace

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Header data for raw (measured) traces collections.

Attributes

Name	Type	Notes
ChannelSetReference	DataObjectReference	<p>Pointer to a ChannelSet containing the comma-delimited list of mnemonics and units, and channel data representing the measurement trace.</p> <p>BUSINESS RULE: The mnemonics and the units must follow a strict order. The mnemonic list must be in this order: fiberDistance, antistokes, stokes, reverseAntiStokes, reverseStokes, rayleigh1, rayleigh2, brillouinfrequency, loss, lossRatio, cumulativeExcessLoss, frequencyQualityMeasure, measurementUncertainty, brillouinAmplitude, opticalPathTemperature, uncalibratedTemperature1, uncalibratedTemperature2</p> <p>The unit list must be one of the following:</p> <ul style="list-style-type: none"> m, mW, mW, mW, mW, mW, mW, GHz, dB/Km, dB/Km, dB, dimensionless, degC, mW, degC, DegC, degC <p>ft, mW, mW, mW, mW,mW, mW, GHz, dB/Km, dB/Km,dB, dimensionless, degF, mW, degF, degF, degF</p>
Comment	String2000	A descriptive remark about the measured trace set.
FrequencyRayleigh1	FrequencyMeasure	Frequency reference for Rayleigh 1 measurement.
FrequencyRayleigh2	FrequencyMeasure	Frequency reference for Rayleigh 2 measurement.
IndexMnemonic	String64	The mnemonic of the channel in the MeasuredTraceSet that represents the index to the data (expected to be a length along the facility (e.g., wellbore, pipeline) being measured.
parentMeasurementReference	String64	Where this dtsMeasuredTraceSet was derived from a parent dtsMeasuredTraceSet (having been recalibrated for example), the parent dtsMeasuredTraceSet can be indicated by referencing its UID with this element.
PointCount	nonNegativeInteger	The number of rows in this interpreted data object. Each row or "point" represents a measurement along the fiber.
SamplingInterval	LengthMeasure	The difference in fiber distance between consecutive temperature sample points in a single

Name	Type	Notes
		temperature trace.
TraceProcessingType	TraceProcessingType	Denotes whether the trace was stored as acquired by the measurement device or recalibrated in any way.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
From: DtsMeasurementTrace. To: TraceProcessingType <i>Dependency</i>	
0..* From: DtsMeasurement.MeasurementTrace To: DtsMeasurementTrace <i>Association</i>	

4.5 InterpretationProcessingType

Type: Enumeration *Stereotype:*

Detail: Created: 7/1/2013 Last modified: 12/5/2016

Notes: Specifies the types of mnemonics.

Attributes

Name	Type	Notes
averaged		averaged
denormalized		denormalized
depth-corrected		depth-corrected
manufacturer-generated		manufacturer-generated
temperature-shifted		temperature-shifted
user-custom		user-custom

Associations

Association	Notes
From: InterpretationProcessingType. To: TypeEnum <i>Generalization</i>	
From: DtsInterpretationData. To: InterpretationProcessingType <i>Dependency</i>	

4.6 OpticalPathConfiguration

Type: Enumeration *Stereotype:*

Detail: Created: 7/8/2013 Last modified: 12/5/2016

Notes: Specifies the types of configuration of an optical path.

Attributes

Name	Type	Notes
accurate single-ended/dual laser		accurate single-ended/dual laser
differential loss calibrated		differential loss calibrated
double-ended		double-ended
single-ended		single-ended

Associations

Association	Notes
From: OpticalPathConfiguration. To: TypeEnum <i>Generalization</i>	
From: DtsMeasurement. To: OpticalPathConfiguration <i>Dependency</i>	

4.7 TraceProcessingType

Type: Enumeration *Stereotype:*

Detail: Created: 7/1/2013 Last modified: 12/5/2016

Notes: Specifies the types of facility that can be mapped to for a given length of fiber measurement.

Attributes

Name	Type	Notes
as acquired		as acquired
recalibrated		recalibrated

Associations

Association	Notes
From: TraceProcessingType. To: TypeEnum <i>Generalization</i>	
From: DtsMeasurementTrace. To: TraceProcessingType <i>Dependency</i>	

5 FiberOpticalPath

Package: xsd_schemas

Notes: Schema for defining a fiber optical path.

5.1 AbstractAttenuationMeasure

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Abstract class of attenuation measure.

Associations

Association		Notes
	From: Frequency. To: AbstractAttenuationMeasure <i>Generalization</i>	
	From: WaveLength. To: AbstractAttenuationMeasure <i>Generalization</i>	
1..1	From: FiberOneWayAttenuation.AttenuationMeasure To: AbstractAttenuationMeasure <i>Association</i>	

5.2 AbstractCable

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The abstract class of class.

Associations

Association		Notes
	From: InterventionConveyance. To: AbstractCable <i>Generalization</i>	
	From: PermanentCable. To: AbstractCable <i>Generalization</i>	
1..1	From: FiberConveyance.Cable To: AbstractCable <i>Association</i>	
	From: FiberControlLine. To: AbstractCable <i>Generalization</i>	

5.3 AbstractFiberFacility

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The abstract base type of FiberFacility.

Associations

Association		Notes
	From: FiberFacilityPipeline. To: AbstractFiberFacility <i>Generalization</i>	
	From: FiberFacilityWell. To: AbstractFiberFacility <i>Generalization</i>	
	From: FiberFacilityGeneric. To: AbstractFiberFacility <i>Generalization</i>	
1..1	From: FiberFacilityMappingPart.FiberFacility To: AbstractFiberFacility <i>Association</i>	

5.4 CableType

Type: Enumeration *Stereotype:*

Detail: Created: 6/27/2013 Last modified: 12/5/2016

Notes: Specifies the types of cable.

Attributes

Name	Type	Notes
electrical-fiber-cable		electrical-fiber-cable
multi-fiber-cable		multi-fiber-cable
single-fiber-cable		single-fiber-cable

Associations

Association	Notes
From: CableType. To: TypeEnum <i>Generalization</i>	
From: FiberOpticalPathSegment. To: CableType <i>Dependency</i>	

5.5 ControlLineEncapsulationSize

Type: Enumeration *Stereotype:*

Detail: Created: 7/8/2013 Last modified: 12/5/2016

Notes: Specifies the control line encapsulation sizes.

Attributes

Name	Type	Notes
11x11	TypeEnum	11x11
23x11	TypeEnum	23x11

Associations

Association	Notes
From: ControlLineEncapsulationSize. To: TypeEnum <i>Generalization</i>	
From: FiberControlLine. To: ControlLineEncapsulationSize <i>Dependency</i>	

5.6 ControlLineEncapsulationType

Type: Enumeration *Stereotype:*

Detail: Created: 7/8/2013 Last modified: 12/5/2016

Notes: Specifies the control line encapsulation types.

Attributes

Name	Type	Notes
round		round
square		square

Associations

Association	Notes
From: ControlLineEncapsulationType. To: TypeEnum <i>Generalization</i>	
From: FiberControlLine. To: ControlLineEncapsulationType <i>Dependency</i>	

5.7 ControlLineMaterial

Type: Enumeration *Stereotype:*

Detail: Created: 7/8/2013 Last modified: 12/5/2016

Notes: Specifies the types of control line material.

Attributes

Name	Type	Notes
inc 825		inc 825
ss 316		ss 316

Associations

Association	Notes
From: ControlLineMaterial. To: TypeEnum <i>Generalization</i>	
From: FiberControlLine. To: ControlLineMaterial <i>Dependency</i>	

5.8 ControlLineSize

Type: Enumeration *Stereotype:*

Detail: Created: 7/8/2013 Last modified: 12/5/2016

Notes: Specifies the control line sizes.

Attributes

Name	Type	Notes
diameter 0.25 in weight 0.028 lb/ft		diameter 0.25 in weight 0.028 lb/ft
diameter 0.25 in weight 0.035 lb/ft		diameter 0.25 in weight 0.035 lb/ft
diameter 0.375 in weight 0.048 lb/ft		diameter 0.375 in weight 0.048 lb/ft

Associations

Association	Notes
From: ControlLineSize. To: TypeEnum <i>Generalization</i>	
From: FiberControlLine. To: ControlLineSize <i>Dependency</i>	

5.9 FiberCommon

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/11/2016

Notes: A specialization of the equipment class containing information on reflectance, loss and reason for decommissioning, from which all equipment in the optical path inherits.

Attributes

Name	Type	Notes
Loss	DimensionlessMeasure	The fraction of incident light that is lost by a fiber path component. Measured in dB.
ReasonForDecommissioning	String2000	Any remarks that help understand why the optical fiber is no longer in use.
Reflectance	DimensionlessMeasure	The fraction of incident light that is reflected by a fiber path component. Measured in dB.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
From: FiberCommon. To: AbstractDtsEquipment <i>Generalization</i>	
From: FiberSplice. To: FiberCommon <i>Generalization</i>	
From: FiberTurnaround. To: FiberCommon <i>Generalization</i>	
From: FiberConnection. To: FiberCommon <i>Generalization</i>	
From: FiberTerminator. To: FiberCommon <i>Generalization</i>	
From: FiberOpticalPathSegment. To: FiberCommon <i>Generalization</i>	

5.10 FiberConnection

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/3/2016

Notes: A connection component within the optical path.

Attributes

Name	Type	Notes
ConnectorType	FiberConnectorTypes	Specifies whether this is a dry mate or wet mate.
EndType	FiberEndType	Describes whether the fiber end is angle polished or flat polished.

Associations

Association	Notes
From: FiberConnection. To: FiberEndType <i>Dependency</i>	
From: FiberConnection. To: FiberCommon <i>Generalization</i>	
From: FiberConnection. To: FiberConnectorTypes <i>Dependency</i>	
From: FiberOpticalPathInventory.Connection To: FiberConnection <i>Association</i>	

5.11 FiberConnectorTypes

Type: Enumeration *Stereotype:*

Detail: Created: 6/27/2013 Last modified: 12/5/2016

Notes: Specifies the types of fiber connector.

Attributes

Name	Type	Notes
dry mate		dry mate
wet mate		wet mate

Associations

Association	Notes
From: FiberConnectorTypes. To: TypeEnum <i>Generalization</i>	
From: FiberConnection. To: FiberConnectorTypes <i>Dependency</i>	

5.12 FiberControlLine

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Information regarding the control line into which a fiber cable may be pumped to measure a facility.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the fiber control line.
downholeControlLineReference	String64	A reference to the control line string in a completion data object that represents this control line containing a fiber.
EncapsulationSize	ControlLineEncapsulationSize	Enum of the size of encapsulation of a fiber within a control line.
EncapsulationType	ControlLineEncapsulationType	Enum of square or round encapsulation for a control line. A fiber may be installed inside the control line.
Material	ControlLineMaterial	Enum of the common materials from which a control line may be made. A fiber may be installed inside the control line.
Size	ControlLineSize	Enum of the common sizes of control line. The enum list gives diameters and weight per length values. A fiber may be installed inside the control line.

Associations

Association	Notes
From: FiberControlLine. To: ControlLineEncapsulationSize <i>Dependency</i>	
From: FiberControlLine. To: ControlLineSize <i>Dependency</i>	
From: FiberControlLine. To: ControlLineEncapsulationType <i>Dependency</i>	
From: FiberControlLine.PumpActivity To: FiberPumpActivity <i>Association</i>	
From: FiberControlLine. To: ControlLineMaterial <i>Dependency</i>	
From: FiberControlLine. To: AbstractCable <i>Generalization</i>	

5.13 FiberConveyance

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The means by which this fiber segment is conveyed into the well. Choices: permanent, intervention, or control line conveyance method.

Associations

Association		Notes
1..1	From: FiberConveyance.Cable To: AbstractCable <i>Association</i>	
0..1	From: FiberOpticalPathSegment.FiberConveyance To: FiberConveyance <i>Association</i>	

5.14 FiberEndType

Type: Enumeration *Stereotype:*

Detail: Created: 6/27/2013 Last modified: 12/5/2016

Notes: Specifies the types of fiber end.

Attributes

Name	Type	Notes
angle polished		angle polished
flat polished		flat polished

Associations

Association	Notes
From: FiberEndType. To: TypeEnum <i>Generalization</i>	
From: FiberConnection. To: FiberEndType <i>Dependency</i>	

5.15 FiberFacilityGeneric

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 11/8/2016 Last modified: 12/5/2016

Notes: If a facility mapping is not explicitly to a well or pipeline, use this element to show what optical path distances map to lengths in a generic facility.

Attributes

Name	Type	Notes
FacilityKind	String64	A comment to describe this facility.
FacilityName	String64	The name or description of the facility.

Associations

Association	Notes
From: FiberFacilityGeneric. To: AbstractFiberFacility <i>Generalization</i>	

5.16 FiberFacilityMapping

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Relates lengths of fiber to corresponding lengths of facilities (probably wellbores or pipelines).
The facilityMapping also contains the datum from which the InterpretedData is indexed.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the facility mapping.
TimeEnd	dateTime	Date when the mapping between the facility and the optical path is no longer valid.
TimeStart	dateTime	Date when the mapping between the facility and the optical path becomes effective.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
1..* From: FiberFacilityMapping.FiberFacilityMappingPart To: FiberFacilityMappingPart <i>Association</i>	
0..* From: FiberOpticalPath.FacilityMapping To: FiberFacilityMapping <i>Association</i>	

5.17 FiberFacilityMappingPart

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/11/2016

Notes: Relates distances measured along the optical path to specific lengths along facilities (wellbores or pipelines).

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the facility mapping.
FacilityLengthEnd	LengthMeasure	Distance between the facility datum and the distance where the mapping with the optical path ends.
FacilityLengthStart	LengthMeasure	Distance between the facility datum and the distance where the mapping with the optical path takes place.
OpticalPathDistanceEnd	LengthMeasure	Distance between the beginning of the optical path to the distance where the mapping with the facility ends.
OpticalPathDistanceStart	LengthMeasure	Distance between the beginning of the optical path to the distance where the mapping with the facility takes place.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
1..1 From: FiberFacilityMappingPart.FiberFacility To: AbstractFiberFacility <i>Association</i>	
1..* From: FiberFacilityMapping.FiberFacilityMappingPart To: FiberFacilityMappingPart <i>Association</i>	

5.18 FiberFacilityPipeline

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: If facility mapping is to a pipeline, this element shows what optical path distances map to pipeline lengths.

Attributes

Name	Type	Notes
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented installation.
DatumPortReference	String64	A description of which "port" (i.e., connection/end or defined point on a pipeline) the facilityLength is indexed from.
Installation	FacilityIdentifierStruct	The name of the facility that is represented by this facilityMapping.
Kind	String64	The kind of facility mapped to the optical path. Expected to be a pipeline, but this element can be used to show other facilities being mapped to fiber length in future.
Name	NameStruct	The name of this facilityMapping instance.

Associations

Association	Notes
From: FiberFacilityPipeline. To: AbstractFiberFacility <i>Generalization</i>	

5.19 FiberFacilityWell

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: If facility mapping is to a wellbore, this element shows what optical path distances map to wellbore measured depths.

Attributes

Name	Type	Notes
Name	String64	The name of this facilityMapping instance.
WellDatum	WellboreDatumReference	A reference to the wellDatum from which the facilityLength (i.e., in this case, depth of a wellbore being mapped) is measured from.

Associations

Association	Notes
1 From: FiberFacilityWell.WellboreReference To: DataObjectReference <i>Association</i>	
From: FiberFacilityWell. To: AbstractFiberFacility <i>Generalization</i>	

5.20 FiberOneWayAttenuation

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The power loss for one-way travel of a beam of light, usually measured in decibels per unit length. It is necessary to include both the value (and its unit) and the wavelength at which this attenuation was measured.

Attributes

Name	Type	Notes
uid	UuidString	Unique identifier of this object.
Value	LogarithmicPowerRatioPerLengthMeasure	The value of the one-way loss per unit of length. The usual UOM is decibels per kilometer (dB/km) although this might vary depending on the calibration method used.

Associations

Association	Notes
1..1 From: FiberOneWayAttenuation.AttenuationMeasure To: AbstractAttenuationMeasure <i>Association</i>	
0..* From: FiberOpticalPathSegment.OneWayAttenuation To: FiberOneWayAttenuation <i>Association</i>	

5.21 FiberOpticalPath

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The optical fiber path used for distributed property surveys, e.g. temperature (DTS) or acoustics (DAS). Comprises a number of items of equipment, such as fiber segments and connectors of various types.

Associations

Association	Notes
0..* From: FiberOpticalPath.OpticalPathNetwork To: FiberOpticalPathNetwork <i>Association</i>	
0..* From: FiberOpticalPath.FacilityMapping To: FiberFacilityMapping <i>Association</i>	
0..1 From: FiberOpticalPath. To: FacilityIdentifier <i>Association</i>	
1..1 From: FiberOpticalPath.Inventory To: FiberOpticalPathInventory <i>Association</i>	
0..1 From: FiberOpticalPath.InstallingVendor To: BusinessAssociate <i>Association</i>	
From: FiberOpticalPath. To: AbstractObject <i>Generalization</i>	
0..* From: FiberOpticalPath.Defect To: FiberPathDefect <i>Association</i>	
0..* From: FiberOpticalPath.Otdr To: FiberOTDR <i>Association</i>	

5.22 FiberOpticalPathInventory

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The list of equipment used in the optical path. Equipment may be used in the optical path for different periods of time, so this inventory contains all items of equipment that are used at some period of time.

Associations

Association	Notes
0..* From: FiberOpticalPathInventory.Turnaround To: FiberTurnaround <i>Association</i>	
0..* From: FiberOpticalPathInventory.Splice To: FiberSplice <i>Association</i>	
0..* From: FiberOpticalPathInventory.Connection To: FiberConnection <i>Association</i>	
1..* From: FiberOpticalPathInventory.Segment To: FiberOpticalPathSegment <i>Association</i>	
1..1 From: FiberOpticalPathInventory.Terminator To: FiberTerminator <i>Association</i>	
1..1 From: FiberOpticalPath.Inventory To: FiberOpticalPathInventory <i>Association</i>	

5.23 FiberOpticalPathNetwork

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/8/2013 Last modified: 11/11/2016

Notes: The sequence of connected items of equipment along the optical path. Represented by a flow network.

Attributes

Name	Type	Notes
Comment	String2000	Comment.
ContextFacility	FacilityIdentifierStruct	Context facility.
DTimeEnd	dateTime	DTimeEnd.
DTimMax	EndpointQualifiedDateTim e	DTimMax.
DTimMin	EndpointQualifiedDateTim e	DTimMin.
DTimStart	dateTime	DTimStart.
ExistenceTime	EndpointQualifiedDateTim e	ExistenceTime.
Installation	FacilityIdentifierStruct	Installation.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
0..* From: FiberOpticalPathNetwork.ExternalConnect To: ProductFlowExternalReference <i>Association</i>	
1..* From: FiberOpticalPathNetwork.Network To: ProductFlowNetwork <i>Association</i>	
0..* From: FiberOpticalPath.OpticalPathNetwork To: FiberOpticalPathNetwork <i>Association</i>	

5.24 FiberOpticalPathSegment

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: A single segment of the optical fiber used for distributed temperature surveys. Multiple such segments may be connected by other types of components including connectors, splices and fiber turnarounds.

Attributes

Name	Type	Notes
CableType	CableType	Enum. The type of cable used in this segment. Example: single-fiber-cable.
CladdedDiameter	LengthMeasure	The diameter of the core plus the cladding, generally measured in microns (um).
Coating	String64	The type of coating on the fiber.
CoreDiameter	LengthMeasure	The inner diameter of the core, generally measured in microns (um).
CoreType	String64	Property of the fiber core.
FiberLength	LengthMeasure	The length of fiber in this optical path section.
Jacket	String64	The type of jacket covering the fiber.
Mode	FiberMode	The mode of fiber. Enum. Values are single- or multi- mode fiber, or other/unknown.
OutsideDiameter	LengthMeasure	The diameter of the cable containing the fiber, including all its sheathing layers.
OverStuffing	LengthMeasure	For this fiber segment, the amount of "overstuffing", i.e., the excess length of fiber that was installed compared to the length of the facility that is to be surveyed. Example: if 110 m of fiber were to be installed to measure 100 m length of pipeline, the overstuffing would be 10 m. Overstuffing can be allowed for in the facilityMapping section. The overstuffing is assumed to be linear distributed along the facility being measured.
Parameter	IndexedObject	Additional parameters to define the fiber as a material.
SpoolLength	LengthMeasure	The length of the fiber on the spool when purchased.
SpoolNumberTag	String64	The spool number of the particular spool from which this fiber segment was taken. The spool number may contain alphanumeric characters.

Associations

Association	Notes
From: FiberOpticalPathSegment. To: FiberMode <i>Dependency</i>	
0..* From: FiberOpticalPathSegment.OneWayAttenuation To: FiberOneWayAttenuation <i>Association</i>	
From: FiberOpticalPathSegment.FiberConveyance	

Association	Notes
0..1 To: FiberConveyance <i>Association</i>	
From: FiberOpticalPathSegment. To: CableType <i>Dependency</i>	
From: FiberOpticalPathSegment. To: FiberCommon <i>Generalization</i>	
From: FiberOpticalPathSegment. To: IndexedObject <i>Dependency</i>	
0..* From: FiberOpticalPathSegment.RefractiveIndex To: FiberRefractiveIndex <i>Association</i>	
1..* From: FiberOpticalPathInventory.Segment To: FiberOpticalPathSegment <i>Association</i>	

5.25 FiberOTDR

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Records the result arrays along with context information for an optical time domain reflectometry (OTDR) survey. The arrays define the relative scattered power from the Rayleigh scattering vs. distance along the fiber. The actual data values are recorded in an OTDR file and/or image file, which are referenced in sub-elements.

Attributes

Name	Type	Notes
DataInOTDRFile	String64	A reference to the external file used to record the OTDR data. Note this file will not be in an Energistics format but likely in a special OTDR format.
Direction	OTDRDirection	Enum. The direction of the OTDR survey. "Forward" means "in the same direction as the positive direction along the optical path".
DTimRun	dateTime	The dateTime of the run.
Name	String64	The name of this object.
OpticalPathDistanceEnd	LengthMeasure	The point measured along the optical path at which this OTDR survey ends.
OpticalPathDistanceStart	LengthMeasure	The point measured along the optical path at which this OTDR survey starts.
OTDRImageFile	String64	A reference to the well log used to record the table of data.
ReasonForRun	OTDRReason	The reason the OTDR test was run. Reasons include: <ul style="list-style-type: none"> pre-installation, which is before the installation of the fiber post-installation, which is used to validate a successful fiber installation DTS run, a quality check of the fiber before a DTS run Other
uid	String64	Unique identifier of this object.
Wavelength	LengthMeasure	The wavelength at which this OTDR survey was carried out.

Associations

Association	Notes
0..1 From: FiberOTDR.MeasurementContact To: BusinessAssociate <i>Association</i>	
From: FiberOTDR. To: OTDRDirection <i>Dependency</i>	
From: FiberOTDR. To: OTDRReason	

Association	Notes
<i>Dependency</i>	
0..* From: FiberOTDR.ExtensionNameValue To: ExtensionNameValue <i>Association</i>	
0..1 From: FiberOTDR. To: FiberOTDRInstrumentBox <i>Association</i>	
0..* From: FiberOpticalPath.Otdr To: FiberOTDR <i>Association</i>	

5.26 FiberOTDRInstrumentBox

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/17/2013 Last modified: 12/5/2016

Notes: Information about an OTDR instrument box taht is used to perform OTDR surveys on the optical path.

Associations

Association		Notes
	From: FiberOTDRInstrumentBox. To: Instrument <i>Generalization</i>	
0..1	From: FiberOTDR. To: FiberOTDRInstrumentBox <i>Association</i>	

5.27 FiberPathDefect

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: A zone of the fiber that has defective optical properties (e.g., darkening).

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the defect found on this location.
defectID	String64	The unique identifier of this object.
DefectType	PathDefectTypes	Enum. The type of defect on the optical path.
OpticalPathDistanceEnd	LengthMeasure	Ending point of the detected defect as distance in the optical path from the lightbox. if the defect is found at a specific location rather than a segment, then it can have the same value as the opticalPathDistanceStart.
OpticalPathDistanceStart	LengthMeasure	Starting point of the detected defect as distance in the optical path from the lightbox.
TimeEnd	dateTime	Date when the defect was no longer detected (or was corrected).
TimeStart	dateTime	Date when the defect was detected.

Associations

Association	Notes
From: FiberPathDefect. To: PathDefectTypes <i>Dependency</i>	
0..* From: FiberOpticalPath.Defect To: FiberPathDefect <i>Association</i>	

5.28 FiberPumpActivity

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/11/2016

Notes: The activity of pumping the fiber downhole into a control line (small diameter tube).

Attributes

Name	Type	Notes
CableMeterCalibrationDate	date	The date the cable meter was calibrated.
CableMeterSerialNumber	String64	The serial number of the cable meter.
CableMeterType	String64	The type of cable meter.
Comment	String2000	Comment about the pump activity.
ControlLineFluid	String64	The type of fluid used in the control line.
EngineerName	String64	The person in charge of the pumping activity.
ExcessFiberRecovered	LengthMeasure	The length of the excess fiber that was removed.
FiberEndSeal	String64	The type of end seal on the fiber.
InstalledFiber	String64	The name of the InstalledFiberInstance that this activity relates to.
Name	String64	A name that can be used to reference the pumping activity. In general, a pumping activity does not have a natural name, so this element is often not used.
PumpDirection	String64	The direction of the pumping.
PumpFluidType	String64	The type of fluid used in the pump.
PumpingDate	date	The date of the pumping activity.
ServiceCompany	String64	The company that performed the pumping activity.
uid	String64	Unique identifier of this object.

Associations

Association	Notes
0..* From: FiberPumpActivity.ExtensionNameValue To: ExtensionNameValue <i>Association</i>	
0..* From: FiberControlLine.PumpActivity To: FiberPumpActivity <i>Association</i>	

5.29 FiberRefractiveIndex

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: The refractive index of a material depends on the frequency (or wavelength) of the light. Hence, it is necessary to include both the value (a unitless number) and the frequency (or wavelength) it was measured at. The frequency will be a quantity type with a frequency unit such as Hz.

Attributes

Name	Type	Notes
Frequency	FrequencyMeasure	The frequency (and UOM) for which the refractive index is measured.
uid	String64	Unique identifier of this object.
Value	LogarithmicPowerRatioPerLengthMeasure	The value of the refractive index.
Wavelength	LengthMeasure	The wavelength (and UOM) for which the refractive index is measured. The reported wavelength should be the wavelength of the light in a vacuum.

Associations

Association	Notes
0..* From: FiberOpticalPathSegment.RefractiveIndex To: FiberRefractiveIndex <i>Association</i>	

5.30 FiberSplice

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/3/2016

Notes: A splice component within the optical path.

Attributes

Name	Type	Notes
BendAngle	PlaneAngleUom	The measurement of the bend on the splice.
FiberSpliceType	FiberSpliceTypes	Enum. The type of splice.
PressureRating	PressureMeasure	The pressure rating for which the splice is expected to withstand.
ProtectorType	String64	A useful description of the type of protector used in the splice.
SpliceEquipmentUsedReference	String64	A useful description of the equipment used to create the splice.
StrippingType	String64	A useful description of the stripping type that was conducted.

Associations

Association	Notes
From: FiberSplice. To: FiberSpliceTypes <i>Dependency</i>	
From: FiberSplice. To: FiberCommon <i>Generalization</i>	
From: FiberOpticalPathInventory.Splice To: FiberSplice <i>Association</i>	

5.31 FiberSpliceTypes

Type: Enumeration *Stereotype:*

Detail: Created: 12/3/2013 Last modified: 12/5/2016

Notes: Specifies the type of fiber splice.

Attributes

Name	Type	Notes
cable splice		
h splice		
user-custom		

Associations

Association	Notes
From: FiberSpliceTypes. To: TypeEnum <i>Generalization</i>	
From: FiberSplice. To: FiberSpliceTypes <i>Dependency</i>	

5.32 FiberTerminator

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/3/2016

Notes: The terminator of the optical path. This may be a component (in the case of a single ended fiber installation), or it may be a connection back into the instrument box in the case of a double ended fiber installation.

Attributes

Name	Type	Notes
TerminationType	TerminationType	Information about the termination used for the fiber.

Associations

Association	Notes
From: FiberTerminator. To: FiberCommon <i>Generalization</i>	
From: FiberTerminator. To: TerminationType <i>Dependency</i>	
1..1 From: FiberOpticalPathInventory.Terminator To: FiberTerminator <i>Association</i>	

5.33 FiberTurnaround

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/3/2016

Notes: A turnaround component within the optical path.

Associations

Association		Notes
	From: FiberTurnaround. To: FiberCommon <i>Generalization</i>	
0..*	From: FiberOpticalPathInventory.Turnaround To: FiberTurnaround <i>Association</i>	

5.34 Frequency

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/9/2014 Last modified: 12/5/2016

Notes: Frequency.

Attributes

Name	Type	Notes
Frequency	FrequencyMeasure	Frequency.

Associations

Association	Notes
From: Frequency. To: AbstractAttenuationMeasure <i>Generalization</i>	

5.35 InterventionConveyance

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 11/30/2016

Notes: Information on type of intervention conveyance used by the optical path.

Attributes

Name	Type	Notes
Comment	String2000	Comment about the intervention conveyance.
InterventionConveyanceType	InterventionConveyanceType	The type from the enumeration list of InterventionConveyanceType.

Associations

Association	Notes
From: InterventionConveyance. To: AbstractCable <i>Generalization</i>	
From: InterventionConveyance. To: InterventionConveyanceType <i>Dependency</i>	

5.36 InterventionConveyanceType

Type: Enumeration *Stereotype:*

Detail: Created: 6/27/2013 Last modified: 12/5/2016

Notes: Specifies the types of intervention conveyance.

Attributes

Name	Type	Notes
coiled tubing		
rod		
slickline		
wireline		

Associations

Association	Notes
From: InterventionConveyance. To: InterventionConveyanceType <i>Dependency</i>	

5.37 OTDRDirection

Type: Enumeration *Stereotype:*

Detail: Created: 7/8/2013 Last modified: 12/5/2016

Notes: Specifies the OTDR directions.

Attributes

Name	Type	Notes
backward		backward
forward		forward

Associations

Association	Notes
From: OTDRDirection. To: TypeEnum <i>Generalization</i>	
From: FiberOTDR. To: OTDRDirection <i>Dependency</i>	

5.38 OTDRReason

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Specifies the reasons an OTDR test was run within a distributed temperature survey (DTS).

Attributes

Name	Type	Notes
dts		dts
other		other
post-installation		post-installation
pre-installation		pre-installation
run		run

Associations

Association	Notes
From: OTDRReason. To: TypeEnum <i>Generalization</i>	
From: FiberOTDR. To: OTDRReason <i>Dependency</i>	

5.39 PathDefectTypes

Type: Enumeration *Stereotype:*

Detail: Created: 7/1/2013 Last modified: 12/5/2016

Notes: Specifies the types of fiber zone that can be reported on.

Attributes

Name	Type	Notes
darkened fiber		darkened fiber
other		other

Associations

Association	Notes
From: PathDefectTypes. To: TypeEnum <i>Generalization</i>	
From: FiberPathDefect. To: PathDefectTypes <i>Dependency</i>	

5.40 PermanentCable

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/5/2016

Notes: Information on the type of permanent conveyance used by the optical path.

Attributes

Name	Type	Notes
Comment	String2000	Comment about the intervention conveyance.
PermanentCableInstallationType	PermanentCableInstallationType	Enum. For permanent conveyance option, the type of conveyance. Example: clamped to tubular.

Associations

Association	Notes
From: PermanentCable. To: AbstractCable <i>Generalization</i>	
From: PermanentCable. To: PermanentCableInstallationType <i>Dependency</i>	

5.41 PermanentCableInstallationType

Type: Enumeration *Stereotype:*

Detail: Created: 6/27/2013 Last modified: 12/5/2016

Notes: Specifies the types of permanent cable installations.

Attributes

Name	Type	Notes
buried parallel to tubular		
clamped to tubular		
wrapped around tubular		

Associations

Association	Notes
From: PermanentCableInstallationType. To: TypeEnum <i>Generalization</i>	
From: PermanentCable. To: PermanentCableInstallationType <i>Dependency</i>	

5.42 TerminationType

Type: Enumeration *Stereotype:*

Detail: Created: 7/4/2013 Last modified: 12/5/2016

Notes: Specifies the types of fiber terminations.

Attributes

Name	Type	Notes
looped back to instrument box		
termination at cable		

Associations

Association	Notes
From: TerminationType. To: TypeEnum <i>Generalization</i>	
From: FiberTerminator. To: TerminationType <i>Dependency</i>	

5.43 WaveLength

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/9/2014 Last modified: 12/5/2016

Notes: Wave length.

Attributes

Name	Type	Notes
WaveLength	LengthMeasure	Wave length.

Associations

Association	Notes
From: WaveLength. To: AbstractAttenuationMeasure <i>Generalization</i>	

6 FluidAnalysis

Package: xsd_schemas

Notes: Product flow model information that supports the WITSML standard.

6.1 AbstractGasProducedRatioVolume

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The abstract class of Gas Produced Ratio Volume.

Associations

Association	Notes
From: CumulativeGasProducedRatioStd. To: AbstractGasProducedRatioVolume <i>Generalization</i>	
From: CumulativeGasProducedVol. To: AbstractGasProducedRatioVolume <i>Generalization</i>	

6.2 AbstractLiquidDropoutPercVolume

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Provide either the liquid volume, or the liquid dropout percent, which is the liquid volume divided by the total volume.

Associations

Association	Notes
From: LiquidDropoutFraction. To: AbstractLiquidDropoutPercVolume <i>Generalization</i>	
From: LiquidVolume. To: AbstractLiquidDropoutPercVolume <i>Generalization</i>	

6.3 AbstractOilVolShrinkage

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The abstract class of oil volume shrinkage.

Associations

Association	Notes
From: OilShrinkageFactor. To: AbstractOilVolShrinkage <i>Generalization</i>	
From: OilVolume. To: AbstractOilVolShrinkage <i>Generalization</i>	

6.4 AtmosphericFlashTestAndCompositionalAnalysis

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The flash test and compositional analysis.

Attributes

Name	Type	Notes
AtmosphericPressure	PressureMeasure	The atmospheric pressure at the time of this analysis.
AtmosphericTemperature	ThermodynamicTemperatureMeasure	The atmospheric temperature at the time of this analysis.
AvgMolecularWeight	MolecularWeightMeasure	The average molecular weight of the sample for this test.
Date	date	The date when this test was performed.
DensityAtSamplePressureandTemperature	MassPerVolumeMeasure	The density of the sample at the pressure and temperature conditions of this test.
FlashGOR	VolumePerVolumeMeasure	The gas-oil ratio of the flash in this analysis.
FlashToPressure	AbstractPressureValue	The pressure to which the sample is flashed in this analysis.
FlashToTemperature	ThermodynamicTemperatureMeasure	The temperature to which the sample is flashed in this analysis.
OilFormationVolumeFactor	VolumePerVolumeMeasure	The formation volume factor for the oil (liquid) phase at the conditions of this test--volume at test conditions/volume at standard conditions.
Remark	String2000	Remarks and comments about this data item.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: AtmosphericFlashTestAndCompositionalAnalysis. To: FlashedGas <i>Association</i>	
0..1 From: AtmosphericFlashTestAndCompositionalAnalysis. To: OverallComposition <i>Association</i>	
0..1 From: AtmosphericFlashTestAndCompositionalAnalysis. To: FlashedLiquid <i>Association</i>	
From: HydrocarbonAnalysis. To: AtmosphericFlashTestAndCompositionalAnalysis <i>Dependency</i>	

6.5 CompressibilityKind

Type: Enumeration *Stereotype:*

Detail: Created: 11/11/2016 Last modified: 12/5/2016

Notes: Specifies the kinds of compressibility.

Attributes

Name	Type	Notes
average		The average measure.
point		A specific point measure.

Associations

Association	Notes
From: OilCompressibility. To: CompressibilityKind <i>Dependency</i>	

6.6 ConstantCompositionExpansionTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 11/29/2016

Notes: The CCE test

Attributes

Name	Type	Notes
ConstantCompositionExpansionTestStep	ConstantCompositionExpansionTestStep	Measured relative volume ratio = measured volume/volume at Psat.
LiquidFractionReference	FluidVolumeReference	Volume reference for the measured liquid fraction in a constant composition expansion test. Referenced to liquid volume at saturation pressure (generally).
RelativeVolumeReference	FluidVolumeReference	Volume reference for the relative volume ratio in a constant composition expansion test. Referenced to liquid volume at saturation pressure (generally).
Remark	String2000	Expected to be a yes or no value to indicate if differential liberation/vaporization data are corrected to separator conditions/flash data or not.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
TestNumber	NonNegativeLong	A number for this test for purposes of e.g., tracking lab sequence.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ConstantCompositionExpansionTest. To: ConstantCompositionExpansionTestStep <i>Dependency</i>	
From: HydrocarbonAnalysis. To: ConstantCompositionExpansionTest <i>Dependency</i>	

6.7 ConstantCompositionExpansionTestStep

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The CCE test steps.

Attributes

Name	Type	Notes
FluidCondition	FluidAnalysisStepCondition	The fluid condition at this test step. Enum, see fluid analysis step condition.
GasCompressibility	ReciprocalPressureMeasure	The gas compressibility at this test step.
GasDensity	MassPerVolumeMeasure	A flag to indicate if differential liberation/vaporization data are corrected to separator conditions/flash data or not.
GasViscosity	DynamicViscosityMeasure	The viscosity of the gas phase at this test step.
GasZFactor	double	The gas Z factor value at this test step.
LiquidComposition	LiquidComposition	The liquid composition at this test step.
LiquidFraction	RelativeVolumeRatio	The fraction of liquid by volume for this test step.
OilCompressibility	OilCompressibility	The oil compressibility at this test step.
OilDensity	MassPerVolumeMeasure	The density of the oil phase at this test step.
OilViscosity	DynamicViscosityMeasure	The viscosity of the oil phase at this test step.
OverallComposition	OverallComposition	The overall composition at this test step.
PhasesPresent	PhasePresent	The phases present at this test step (oil, water, gas etc.). Enum, see phases present.
RelativeVolumeRatio	RelativeVolumeRatio	Measured relative volume ratio = measured volume/volume at Psat.
Remark	String2000	Remarks and comments about this data item.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
TotalVolume	VolumeMeasure	The total volume of the expanded mixture at this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VaporComposition	VaporComposition	The vapor composition at this test step.
YFunction	double	The Y function at this test step. See Standing, M.B.: Volumetric And Phase Behavior Of Oil Field Hydrocarbon Systems, Eighth Edition, SPE Richardson, Texas (1977).

Associations

Association	Notes
From: ConstantCompositionExpansionTest. To: ConstantCompositionExpansionTestStep <i>Dependency</i>	

6.8 ConstantVolumeDepletionTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The CVT test.

Attributes

Name	Type	Notes
CumulativeGasProducedReferenceStd	VolumeMeasure	The volume is corrected to standard conditions of temperature and pressure.
Remark	String2000	Remarks and comments about this data item.
TestNumber	NonNegativeLong	A number for this test for purposes of, e.g., tracking lab sequence.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ConstantVolumeDepletionTest.LiquidDropoutReference 0..* To: FluidVolumeReference <i>Association</i>	
From: ConstantVolumeDepletionTest.SaturationPressure 0..1 To: SaturationPressure <i>Association</i>	
From: ConstantVolumeDepletionTest.CvdTestStep 0..* To: FluidCvdTestStep <i>Association</i>	
From: HydrocarbonAnalysis. To: ConstantVolumeDepletionTest <i>Dependency</i>	

6.9 CumulativeGasProducedRatioStd

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/5/2016

Notes: The standard condition of cumulative gas produced ratio.

Attributes

Name	Type	Notes
CumulativeGasProducedRatioStd	VolumePerVolumeMeasure	The standard condition of cumulative gas produced ratio.

Associations

Association	Notes
From: CumulativeGasProducedRatioStd. To: AbstractGasProducedRatioVolume <i>Generalization</i>	

6.10 CumulativeGasProducedVol

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/5/2016

Notes: The cumulative gas produced volume.

Attributes

Name	Type	Notes
CumulativeGasProducedVolume	VolumeMeasure	The cumulative gas oil produced ratio at standard conditions.

Associations

Association	Notes
From: CumulativeGasProducedVol. To: AbstractGasProducedRatioVolume <i>Generalization</i>	

6.11 DifferentialLiberationTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The differential liberation test.

Attributes

Name	Type	Notes
CorrectionMethod	String64	A flag to indicate if differential liberation/vaporization data are corrected to separator conditions/flash data or not.
Remark	String2000	Remarks and comments about this data item.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
SeparatorConditions	SeparatorConditions	Reference to a separator test element that contains the separator conditions (stages) that apply to this test.
TestNumber	NonNegativeLong	A number for this test for purposes of, e.g., tracking lab sequence.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: DifferentialLiberationTest.ShrinkageReference To: FluidVolumeReference <i>Association</i>	
0..* From: DifferentialLiberationTest.DITestStep To: FluidDifferentialLiberationTestStep <i>Association</i>	
From: HydrocarbonAnalysis. To: DifferentialLiberationTest <i>Dependency</i>	

6.12 FlashedGas

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 12/18/2014 Last modified: 12/5/2016

Notes: Flashed gas.

Attributes

Name	Type	Notes
GasGravity	double	The gas gravity of the flashed gas in this atmospheric flash test.
GasHeatingValue	EnergyMeasure	The gas molecular weight of the flashed gas in this atmospheric flash test.
GasMolecularWeight	MolecularWeightMeasure	The gas Z factor value at this test step.
GasZFactor	double	The gas heating value of the flashed gas in this atmospheric flash test.
VaporComposition	VaporComposition	The vapor composition of the flashed gas in this atmospheric flash test.

Associations

Association	Notes
0..1 From: AtmosphericFlashTestAndCompositionalAnalysis. To: FlashedGas <i>Association</i>	

6.13 FlashedLiquid

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 1/21/2015 Last modified: 12/5/2016

Notes: Flashed liquid.

Attributes

Name	Type	Notes
LiquidComposition	LiquidComposition	The oil API gravity of the flashed liquid in this atmospheric flash test.
OilAPIGravity	APIGravityMeasure	The oil molecular weight of the flashed liquid in this atmospheric flash test.
OilMolecularWeight	MolecularWeightMeasure	The liquid composition of the flashed liquid in this atmospheric flash test.

Associations

Association	Notes
0..1 From: AtmosphericFlashTestAndCompositionalAnalysis. To: FlashedLiquid <i>Association</i>	

6.14 FluidAnalysis

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Fluid analysis.

Attributes

Name	Type	Notes
AnalysisDescription	String2000	The description about the analysis.
AnalysisPurpose	String2000	The purpose of this analysis.
AnalysisQuality	SampleQuality	Enum for the quality of this analysis. See sample quality.
AnalysisSite	String2000	The location site of the analysis.
LabContact	String64	The name of the analyst or user who is responsible for the results.
Remark	String2000	Remarks and comments about this data item.
RequestDate	date	The date the analysis was requested.
StandardConditions	AbstractTemperaturePressure	The standard temperature and pressure used for the representation of this fluid analysis.

Associations

Association	Notes
0..* 1 From: FluidAnalysis.FluidSampleReference To: FluidSample <i>Association</i>	
0..* From: FluidAnalysis. To: FluidAnalysisReport <i>Association</i>	
From: FluidAnalysis. To: AbstractObject <i>Generalization</i>	
0..* From: FluidAnalysis. To: SampleContaminant <i>Association</i>	
From: WaterAnalysis. To: FluidAnalysis <i>Generalization</i>	
From: FluidCharacterizationSource.Identify specific analysis tests To: FluidAnalysis <i>Dependency</i>	
From: HydrocarbonAnalysis. To: FluidAnalysis <i>Generalization</i>	
From: FluidCharacterizationSource.FluidAnalysisReference 0..1 To: FluidAnalysis <i>Association</i>	

6.15 FluidAnalysisReport

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Fluid analysis report.

Attributes

Name	Type	Notes
AnalysisLaboratory	String64	The laboratory that provided this fluid analysis report.
Author	String64	The author of this fluid analysis report.
ReportDate	date	The date of this report.
ReportDocumentReference	DataObjectReference	A reference to the report document, which will use the Energistics Attachment Object.
ReportIdentifier	String64	The identifier of this fluid analysis report.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: FluidAnalysisReport.ReportLocation To: ReportLocation <i>Association</i>	
0..* From: FluidAnalysis. To: FluidAnalysisReport <i>Association</i>	

6.16 FluidAnalysisStepCondition

Type: Enumeration *Stereotype:* «Enumeration»

Detail: Created: 8/12/2014 Last modified: 12/5/2016

Notes: Specifies the conditions of a fluid analysis step.

Attributes

Name	Type	Notes
current reservoir conditions		The fluid analysis step is at current reservoir conditions.
initial reservoir conditions		The fluid analysis step is at initial reservoir conditions.
initial saturation conditions		The fluid analysis step is at initial saturation conditions.
stock tank conditions		The fluid analysis step is at stock tank conditions.

6.17 FluidContaminant

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Specifies the kinds of contaminating fluid present in a fluid sample.

Attributes

Name	Type	Notes
cement fluids		The fluid contaminant is cement fluids.
completion fluid		The fluid contaminant is completion fluid.
drilling mud		The fluid contaminant is drilling mud.
extraneous gas		The fluid contaminant is extraneous gas.
extraneous oil		The fluid contaminant is extraneous oil.
extraneous water		The fluid contaminant is extraneous water.
formation water		The fluid contaminant is formation water.
treatment chemicals		The fluid contaminant is treatment chemicals.
solid		The fluid contaminant is solid.
unknown		The fluid contaminant is unknown.

Associations

Association	Notes
From: FluidContaminant. To: TypeEnum <i>Generalization</i>	
From: SampleContaminant. To: FluidContaminant <i>Dependency</i>	

6.18 FluidCvdTestStep

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The CVD test steps.

Attributes

Name	Type	Notes
CumulativeFluidProducedFraction	AmountOfSubstancePerAmountOfSubstanceMeasure	The cumulative fluid produced (molar) fraction at this test step.
FluidCondition	FluidAnalysisStepCondition	The fluid condition at this test step. Enum, see fluid analysis step condition.
GasFormationVolumeFactor	VolumePerVolumeMeasure	The gas formation volume factor at this test step.
GasGravity	double	The gas gravity at this test step.
GasMolecularWeight	MolecularWeightMeasure	The molecular weight of the gas phase at this test step.
GasViscosity	DynamicViscosityMeasure	The viscosity of the gas phase at this test step.
GasZFactor	double	The gas Z factor value at this test step.
LiquidComposition	LiquidComposition	The liquid composition at this test step.
LiquidFraction	RelativeVolumeRatio	The fraction of liquid by volume for this test step.
OilDensity	MassPerVolumeMeasure	The density of the oil phase at this test step.
OilViscosity	DynamicViscosityMeasure	The viscosity of the oil phase at this test step.
OverallComposition	OverallComposition	The overall composition at this test step.
Phase2ZFactor	double	The standard $Z = PV/RT$, but here for a two-phase Z-factor, use total molar volume for both phases.
PhasesPresent	PhasePresent	The phases present at this test step.
Remark	String2000	Remarks and comments about this data item.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VaporComposition	VaporComposition	The vapor composition at this test step.

Associations

Association	Notes
0..* From: ConstantVolumeDepletionTest.CvdTestStep To: FluidCvdTestStep Association	

6.19 FluidDifferentialLiberationTestStep

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The DLT test steps.

Attributes

Name	Type	Notes
CumulativeStockTankGOR	VolumePerVolumeMeasure	The cumulative stock tank GOR at this test step.
FluidCondition	FluidAnalysisStepCondition	The fluid condition at this test step. Enum, see fluid analysis step condition.
GasDensity	MassPerVolumeMeasure	The density of gas at this test step.
GasFormationVolumeFactor	VolumePerVolumeMeasure	The gas formation volume factor at this test step.
GasGravity	double	The gas gravity at this test step.
GasMolecularWeight	MolecularWeightMeasure	The molecular weight of the gas phase at this test step.
GasViscosity	DynamicViscosityMeasure	The viscosity of the gas phase at this test step.
GasZFactor	double	The gas Z factor value at this test step.
LiquidComposition	LiquidComposition	The liquid composition at this test step.
OilCompressibility	OilCompressibility	The oil compressibility at this test step.
OilDensity	MassPerVolumeMeasure	The density of the oil phase at this test step.
OilFormationVolumeFactor	VolumePerVolumeMeasure	The formation volume factor for the oil (liquid) phase at the conditions of this test--volume at test conditions/volume at standard conditions.
OilFormationVolumeFactorCorrected	VolumePerVolumeMeasure	The oil formation volume factor (corrected) at this test step.
OilViscosity	DynamicViscosityMeasure	The viscosity of the oil phase at this test step.
OverallComposition	OverallComposition	The overall composition at this test step.
PhasesPresent	PhasePresent	The phases present at this test step.
Remark	String2000	Remarks and comments about this data item.
ResidualAPIGravity	APIGravityMeasure	The residual API gravity at this test step.
SolutionGORCorrect	VolumePerVolumeMeasure	The solution GOR (corrected) at this test step.
SolutionGORMeasured	VolumePerVolumeMeasure	The solution GOR measured at this test step.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
StepTemperature	ThermodynamicTemperatureMeasure	The temperature for this test step.
TotalFormationVolumeFactor	VolumePerVolumeMeasure	The total formation volume factor at this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

VaporComposition	VaporComposition	The vapor composition at this test step.
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Associations

Association		Notes
0..*	From: DifferentialLiberationTest.DITestStep To: FluidDifferentialLiberationTestStep <i>Association</i>	

6.20 FluidSeparatorTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 11/29/2016

Notes: FluidSeparator Test

Attributes

Name	Type	Notes
OverallGasGravity	double	The overall gas gravity for this test.
Remark	String2000	Remarks and comments about this data item.
ReservoirTemperature	ThermodynamicTemperatureMeasure	The reservoir temperature for this test.
SaturatedOilDensity	MassPerVolumeMeasure	The saturated oil density for this test.
SaturatedOilFormationVolumeFactor	VolumePerVolumeMeasure	The saturated oil formation volume factor for this test.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
SeparatorTestGOR	VolumePerVolumeMeasure	The separator test GOR for this test.
TestNumber	NonNegativeLong	A number for this test for purposes of, e.g., tracking lab sequence.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: FluidSeparatorTest.SeparatorTestStep To: FluidSeparatorTestStep <i>Association</i>	
0..1 From: FluidSeparatorTest.ShrinkageReference To: FluidVolumeReference <i>Association</i>	
From: HydrocarbonAnalysis. To: FluidSeparatorTest <i>Dependency</i>	

6.21 FluidSeparatorTestStep

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Fluid separator test step.

Attributes

Name	Type	Notes
BubblePointPressure	PressureMeasure	The bubble point pressure for this test step.
FluidCondition	FluidAnalysisStepCondition	The fluid condition at this test step. Enum, see fluid analysis step condition.
GasDensity	MassPerVolumeMeasure	The density of gas at this test step.
GasGravity	double	The gas gravity at this test step.
GasMolecularWeight	MolecularWeightMeasure	The molecular weight of the gas phase at this test step.
GasViscosity	DynamicViscosityMeasure	The viscosity of the gas phase at this test step.
GasVolume	VolumeMeasure	The gas volume for this test step.
GasZFactor	double	The gas Z factor value at this test step.
LiquidComposition	LiquidComposition	The liquid composition for this test step.
OilDensity	MassPerVolumeMeasure	The density of the oil phase at this test step.
OilFormationVolumeFactorCorrected	VolumePerVolumeMeasure	The oil formation volume factor (corrected) for this test step.
OilFormationVolumeFactorStd	VolumePerVolumeMeasure	The oil formation volume factor at standard conditions for this test step.
OilShrinkageFactor	VolumePerVolumeMeasure	The oil shrinkage factor for this test step.
OilSpecificGravity	DimensionlessMeasure	The oil specific gravity for this test step.
OilViscosity	DynamicViscosityMeasure	The viscosity of the oil phase at this test step.
OverallComposition	OverallComposition	The overall composition for this test step.
PhasesPresent	PhasePresent	The phases present for this test step. Enum, see phases present.
Remark	String2000	Remarks and comments about this data item.
ResidualAPIGravity	APIGravityMeasure	The residual API gravity for this test step.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
StageSeparatorGORCorrected	VolumePerVolumeMeasure	The stage separator GOR (corrected) for this test step.
StageSeparatorGORStd	VolumePerVolumeMeasure	The stage separator GOR at standard conditions for this test step.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
StepTemperature	ThermodynamicTemperatureMeasure	The temperature for this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level

Name	Type	Notes
		object.
VaporComposition	VaporComposition	The vapor composition for this test step.

Associations

Association	Notes
0..* From: FluidSeparatorTest.SeparatorTestStep To: FluidSeparatorTestStep <i>Association</i>	

6.22 FluidVolumeReference

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The reference uid to the fluid volume

Attributes

Name	Type	Notes
Kind	VolumeReferenceKind	The kind of fluid volume references. Enum, see volume reference kind.
ReferenceVolume	VolumeMeasure	The reference volume for this analysis.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: FluidVolumeReference. To: VolumeReferenceKind <i>Dependency</i>	
From: ConstantVolumeDepletionTest.LiquidDropoutReference 0..* To: FluidVolumeReference <i>Association</i>	
From: DifferentialLiberationTest.ShrinkageReference 0..1 To: FluidVolumeReference <i>Association</i>	
From: FluidSeparatorTest.ShrinkageReference 0..1 To: FluidVolumeReference <i>Association</i>	

6.23 HydrocarbonAnalysis

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Hydrocarbon fluid analysis.

Attributes

Name	Type	Notes
AtmosphericFlashTestAndCompositionalAnalysis	AtmosphericFlashTestAndCompositionalAnalysis	An atmospheric flash test and compositional analysis test within this fluid analysis.
ConstantCompositionExpansionTest	ConstantCompositionExpansionTest	A constant composition expansion test within this fluid analysis.
ConstantVolumeDepletionTest	ConstantVolumeDepletionTest	A constant volume depletion test within this fluid analysis.
DifferentialLiberationTest	DifferentialLiberationTest	A differential liberation test within this fluid analysis.
FluidComponentCatalog	FluidComponentCatalog	The fluid component catalog for this fluid analysis.
InterfacialTensionTest	InterfacialTensionTest	An interfacial tension test within this fluid analysis.
MultipleContactMiscibilityTest	MultipleContactMiscibilityTest	A multiple contact miscibility test within this fluid analysis.
SampleIntegrityAndPreparation	SampleIntegrityAndPreparation	The sample integrity and preparation procedure for this fluid analysis.
SaturationTest	SaturationTest	A saturation test within this fluid analysis.
SeparatorTest	FluidSeparatorTest	A separator test within this fluid analysis.
SlimTubeTest	SlimTubeTest	A slim tube test within this fluid analysis.
STOAnalysis	STOAnalysis	An stock tank oil analysis within this fluid analysis.
SwellingTest	SwellingTest	A swelling test within this fluid analysis.
TransportTest	OtherMeasurementTest	A transport test within this fluid analysis.
VaporLiquidEquilibriumTest	VaporLiquidEquilibriumTest	A vapor liquid equilibrium test within this fluid analysis.

Associations

Association	Notes
From: HydrocarbonAnalysis. To: ConstantCompositionExpansionTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: SlimTubeTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: FluidAnalysis <i>Generalization</i>	
From: HydrocarbonAnalysis. To: DifferentialLiberationTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: VaporLiquidEquilibriumTest <i>Dependency</i>	
From: HydrocarbonAnalysis.	

Association	Notes
To: MultipleContactMiscibilityTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: AtmosphericFlashTestAndCompositionalAnalysis <i>Dependency</i>	
From: HydrocarbonAnalysis. To: FluidSeparatorTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: InterfacialTensionTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: OtherMeasurementTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: SwellingTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: STOAnalysis <i>Dependency</i>	
From: HydrocarbonAnalysis. To: ConstantVolumeDepletionTest <i>Dependency</i>	
From: HydrocarbonAnalysis. To: SaturationTest <i>Dependency</i>	

6.24 InjectedGas

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/9/2015 Last modified: 12/5/2016

Notes: The injected gas volume.

Attributes

Name	Type	Notes
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VaporComposition	VaporComposition	The composition of injected gas (vapor) for this test.

Associations

Association	Notes
From: VaporLiquidEquilibriumTest. To: InjectedGas <i>Dependency</i>	

6.25 InterfacialTensionTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 5/27/2015 Last modified: 12/5/2016

Notes: The interfacial tension test.

Attributes

Name	Type	Notes
nonWettingPhase	ThermodynamicPhase	The non-wetting phase for this interfacial tension test.
Remark	String2000	Remarks and comments about this data item.
Surfactant	AbstractFluidComponent	The surfactant for this interfacial tension test.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WettingPhase	ThermodynamicPhase	The wetting phase for this interfacial tension test.

Associations

Association	Notes
From: InterfacialTensionTest. To: InterfacialTensionTestStep <i>Association</i>	
From: HydrocarbonAnalysis. To: InterfacialTensionTest <i>Dependency</i>	

6.26 InterfacialTensionTestStep

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/27/2015 Last modified: 12/5/2016

Notes: The interfacial tension test step.

Attributes

Name	Type	Notes
InterfacialTension	ForcePerLengthMeasure	The interfacial tension for this test step.
Remark	String2000	Remarks and comments about this data item.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
StepTemperature	ThermodynamicTemperatureMeasure	The temperature for this test step.
SurfactantConcentration	MassPerMassMeasure	The surfactant concentration for this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WettingPhaseSaturation	DimensionlessMeasure	The wetting phase saturation for this test step.

Associations

Association	Notes
0..* From: InterfacialTensionTest. To: InterfacialTensionTestStep <i>Association</i>	

6.27 LiquidDropoutFraction

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/5/2016

Notes: The fraction of liquid by volume.

Attributes

Name	Type	Notes
LiquidDropoutPercent	VolumePerVolumeMeasure	The fraction of liquid by volume for this test step.

Associations

Association	Notes
From: LiquidDropoutFraction. To: AbstractLiquidDropoutPercVolume <i>Generalization</i>	

6.28 LiquidVolume

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/5/2016

Notes: The amount of liquid by volume.

Attributes

Name	Type	Notes
LiquidVolume	VolumeMeasure	The amount of liquid by volume for this test step.

Associations

Association	Notes
From: LiquidVolume. To: AbstractLiquidDropoutPercVolume <i>Generalization</i>	

6.29 MassBalance

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The balance sheet of mass.

Attributes

Name	Type	Notes
MassBalanceFraction	MassPerMassMeasure	The mass balance fraction for this slim tube test volume step.
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
0..1 From: MassBalance.MassOut To: MassOut Association	
0..1 From: MassBalance.MassIn To: MassIn Association	
0..1 From: SlimTubeTestVolumeStep.MassBalance To: MassBalance Association	

6.30 MassIn

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The mass of fluid in the connecting lines.

Attributes

Name	Type	Notes
MassFluidConnectingLines	MassMeasure	The mass of fluid in the connecting lines for this slim tube test volume step mass balance.
MassFluidSlimtube	MassMeasure	The mass of fluid in the slim tube for this slim tube test volume step mass balance.
MassInjectedGasSolvent	MassMeasure	The mass of injected gas solvent for this slim tube test volume step mass balance.
TotalMassIn	MassMeasure	The total mass in for this slim tube test volume step mass balance.

Associations

Association	Notes
0..1 From: MassBalance.MassIn To: MassIn Association	

6.31 MassOut

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The mass out for this slim tube.

Attributes

Name	Type	Notes
MassEffluentStockTankOil	MassMeasure	The mass of effluent stock tank oil for this slim tube test volume step mass balance.
MassProducedEffluentGas	MassMeasure	The mass of produced effluent gas for this slim tube test volume step mass balance.
MassProducedEffluentGasFlow Down	MassMeasure	The mass of produced effluent gas flow down for this slim tube test volume step mass balance.
MassResidualOil	MassMeasure	The mass of residual oil for this slim tube test volume step mass balance.
TotalMassOut	MassMeasure	The total mass out for this slim tube test volume step mass balance.

Associations

Association	Notes
0..1 From: MassBalance.MassOut To: MassOut Association	

6.32 MultipleContactMiscibilityTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Multiple contact miscibility test.

Attributes

Name	Type	Notes
GasSolventCompositionReference	String64	The reference to the composition of the gas solvent that is a fluid composition.
MixRatio	DimensionlessMeasure	The mix ratio for the multiple contact miscibility test.
TestNumber	NonNegativeLong	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: HydrocarbonAnalysis. To: MultipleContactMiscibilityTest <i>Dependency</i>	

6.33 OilCompressibility

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/9/2015 Last modified: 12/5/2016

Notes: Oil compressibility.

Attributes

Name	Type	Notes
kind	CompressibilityKind	The kind of measurement for oil compressibility.

Associations

Association	Notes
From: OilCompressibility. To: CompressibilityKind <i>Dependency</i>	
From: OilCompressibility. To: ReciprocalPressureMeasure <i>Generalization</i>	

6.34 OilShrinkageFactor

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/5/2016

Notes: Oil shrinkage factor.

Attributes

Name	Type	Notes
OilShrinkageFactor	VolumePerVolumeMeasure	The oil shrinkage factor.

Associations

Association	Notes
From: OilShrinkageFactor. To: AbstractOilVolShrinkage <i>Generalization</i>	

6.35 OilVolume

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/5/2016

Notes: Oil volume.

Attributes

Name	Type	Notes
OilVolume	VolumeMeasure	The volume of oil.

Associations

Association	Notes
From: OilVolume. To: AbstractOilVolShrinkage <i>Generalization</i>	

6.36 OtherMeasurementTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/27/2015 Last modified: 12/5/2016

Notes: Other measurement test.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: OtherMeasurementTest. To: OtherMeasurementTestStep <i>Association</i>	
0..1 From: OtherMeasurementTest. To: FluidCharacterizationTableFormatSet <i>Association</i>	
0..1 From: OtherMeasurementTest. To: FluidCharacterizationTable <i>Association</i>	
From: HydrocarbonAnalysis. To: OtherMeasurementTest <i>Dependency</i>	

6.37 OtherMeasurementTestStep

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/1/2015 Last modified: 12/5/2016

Notes: Other measurement test step.

Attributes

Name	Type	Notes
FluidCondition	FluidAnalysisStepCondition	The fluid condition at this test step. Enum, see fluid analysis step condition.
GasGravity	double	The gas gravity at this test step.
GasMassDensity	MassPerVolumeMeasure	The gas density at this test step.
GasViscosity	DynamicViscosityMeasure	The viscosity of the gas phase at this test step.
GasZFactor	double	The gas Z factor value at this test step.
OilMassDensity	MassPerVolumeMeasure	The oil mass density for this test step.
OilViscosity	DynamicViscosityMeasure	The viscosity of the oil phase at this test step.
Remark	String2000	Remarks and comments about this data item.
Rsw	double	The rsw for this test step.
Salinity	MassPerMassMeasure	The salinity for this test step.
Shear	double	The shear for this test step.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
StepTemperature	ThermodynamicTemperatureMeasure	The temperature for this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WaterContent	String64	The water content for this test step.
WaterViscosity	DynamicViscosityMeasure	The water viscosity for this test step.

Associations

Association	Notes
0..* From: OtherMeasurementTest. To: OtherMeasurementTestStep <i>Association</i>	

6.38 PhaseDensity

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Phase density.

Attributes

Name	Type	Notes
Density	MassPerVolumeMeasure	The phase density.
Pressure	PressureMeasure	The pressure corresponding to this phase density.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: VaporLiquidEquilibriumTest. To: PhaseDensity <i>Dependency</i>	

6.39 PhaseViscosity

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Phase viscosity.

Attributes

Name	Type	Notes
Pressure	PressureMeasure	The pressure corresponding to this phase viscosity.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Viscosity	DynamicViscosityMeasure	The phase viscosity.

Associations

Association	Notes
From: VaporLiquidEquilibriumTest. To: PhaseViscosity <i>Dependency</i>	

6.40 ProducedGasProperties

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: The properties of produced gas.

Attributes

Name	Type	Notes
ProducedGasGravity	DimensionlessMeasure	The produced gas gravity of this produced gas.
VaporComposition	VaporComposition	The vapor composition of this produced gas.

Associations

Association	Notes
From: SlimTubeTestVolumeStep.ProducedGasProperties 0..1 To: ProducedGasProperties <i>Association</i>	

6.41 ProducedOilProperties

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Properties of produced oil.

Attributes

Name	Type	Notes
AsphalteneContent	MassPerMassMeasure	The asphaltene content of this produced oil.
STOApiGravity	APIGravityMeasure	The stock tank oil API gravity of this produced oil.
STODensity	MassPerVolumeMeasure	The stock tank oil density of this produced oil.
STOMW	MolecularWeightMeasure	The stock tank oil molecular weight of this produced oil.
STOWaterContent	VolumePerVolumeMeasure	The stock tank oil water content of this produced oil.

Associations

Association	Notes
0..1 From: SlimTubeTestVolumeStep.ProducedOilProperties To: ProducedOilProperties <i>Association</i>	

6.42 RefInjectedGasAdded

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/9/2015 Last modified: 12/5/2016

Notes: Reference to injected gas added.

Attributes

Name	Type	Notes
injectionGasReference	String64	Reference to the injection gas composition.

Associations

Association	Notes
From: RefInjectedGasAdded. To: AmountOfSubstancePerAmountOfSubstanceMeasure <i>Generalization</i>	

6.43 RelativeVolumeRatio

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/8/2015 Last modified: 12/5/2016

Notes: Reference to the fluid volume ratio.

Attributes

Name	Type	Notes
fluidVolumeReference	String64	Reference to a fluid volume.

Associations

Association	Notes
From: RelativeVolumeRatio. To: VolumePerVolumeMeasure <i>Generalization</i>	

6.44 ReportLocation

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Report location. Information about a network location (e.g., URL) where the report is stored.

Attributes

Name	Type	Notes
Location	String64	The location of the report, e.g., a path or URL.
LocationDate	date	The date when this report was stored in this location.
LocationType	String64	The type of location in which the report is to be located.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: FluidAnalysisReport.ReportLocation To: ReportLocation Association	

6.45 SampleContaminant

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Sample contaminant information.

Attributes

Name	Type	Notes
ContaminantComposition	LiquidComposition	The composition of contaminant in the fluid sample.
ContaminantKind	FluidContaminant	The kind of contaminant.
Density	MassPerVolumeMeasure	The density of contaminant in the fluid sample.
Description	String2000	Description of the contaminant.
MolecularWeight	MolecularWeightMeasure	The molecular weight of contaminant in the fluid sample.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VolumeFractionLiveSample	VolumePerVolumeMeasure	The volume fraction of contaminant in the fluid sample.
VolumeFractionStockTank	VolumePerVolumeMeasure	The contaminant volume percent in stock tank oil.
WeightFractionLiveSample	MassPerMassMeasure	The weight fraction of contaminant in the fluid sample.
WeightFractionStockTank	MassPerMassMeasure	The contaminant weight percent in stock tank oil.

Associations

Association	Notes
From: SampleContaminant. To: FluidContaminant <i>Dependency</i>	
From: SampleContaminant.SampleOfContaminantReference 0..1 To: FluidSample <i>Association</i>	
From: FluidAnalysis. 0..* To: SampleContaminant <i>Association</i>	

6.46 SampleIntegrityAndPreparation

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Sample integrity And preparation information.

Attributes

Name	Type	Notes
BasicSedimentAndWater	VolumePerVolumeMeasure	The basic sediment and water of the sample when prepared for analysis.
FreeWaterVolume	VolumeMeasure	The free water volume of the sample when prepared for analysis.
InitialVolume	VolumeMeasure	The initial volume of the sample when prepared for analysis.
OpeningDate	date	The date when this fluid sample was opened.
OpeningPressure	AbstractPressureValue	The opening pressure of the sample when prepared for analysis.
OpeningRemark	String2000	Remarks and comments about the opening of the sample.
OpeningTemperature	ThermodynamicTemperatureMeasure	The opening temperature of the sample when prepared for analysis.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
SaturationTemperature	SaturationTemperature	The saturation temperature of the sample when prepared for analysis.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WaterContentInHydrocarbon	MassPerMassMeasure	The water content in hydrocarbon of the sample when prepared for analysis.

Associations

Association	Notes
0..* From: SampleIntegrityAndPreparation. To: SampleRestoration <i>Association</i>	
0..1 From: WaterAnalysis. To: SampleIntegrityAndPreparation <i>Association</i>	

6.47 SampleQuality

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Specifies the values for the quality of data.

Attributes

Name	Type	Notes
invalid		The sample quality is invalid.
unknown		The sample quality is unknown.
valid		The sample quality is valid.

Associations

Association	Notes
From: SampleQuality. To: TypeEnum <i>Generalization</i>	

6.48 SampleRestoration

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 12/2/2014 Last modified: 12/5/2016

Notes: Sample restoration.

Attributes

Name	Type	Notes
Date	date	The date when this test was performed.
MixingMechanism	String64	The mixing mechanism when the sample is restored in preparation for analysis.
Remark	String2000	Remarks and comments about this data item.
RestorationDuration	TimeMeasure	The restoration duration when the sample is restored in preparation for analysis.
RestorationPressure	AbstractPressureValue	The restoration pressure when the sample is restored in preparation for analysis.
RestorationTemperature	ThermodynamicTemperatureMeasure	The restoration temperature when the sample is restored in preparation for analysis.

Associations

Association	Notes
0..* From: SampleIntegrityAndPreparation. To: SampleRestoration <i>Association</i>	

6.49 Sara

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: SARA analysis results. SARA stands for saturates, asphaltenes, resins and aromatics.

Attributes

Name	Type	Notes
AromaticsWeightFraction	MassPerMassMeasure	The aromatics weight fraction in the sample.
AsphaltenesWeightFraction	MassPerMassMeasure	The asphaltenes weight fraction in the sample.
NapthenesWeightFraction	MassPerMassMeasure	The napthenes weight fraction in the sample.
ParaffinsWeightFraction	MassPerMassMeasure	The paraffins weight fraction in the sample.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: STOFlashedLiquid. To: Sara Association	

6.50 SaturationPressure

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Saturation pressure.

Attributes

Name	Type	Notes
kind	SaturationPointKind	The kind of saturation point whose pressure is being measured. Enum. See saturationpointkind.

Associations

Association	Notes
From: SaturationPressure. To: PressureMeasureExt <i>Generalization</i>	
0..1 From: ConstantVolumeDepletionTest.SaturationPressure To: SaturationPressure <i>Association</i>	

6.51 SaturationTemperature

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/8/2015 Last modified: 12/5/2016

Notes: Saturation temperature.

Attributes

Name	Type	Notes
kind	SaturationPointKind	The kind of saturation point whose temperature is being measured. Enum. See saturationpointkind.

Associations

Association	Notes
From: SaturationTemperature. To: ThermodynamicTemperatureMeasure <i>Generalization</i>	

6.52 SaturationTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Saturation test.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
TestNumber	NonNegativeLong	A number for this test for purposes of, e.g., tracking lab sequence.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: HydrocarbonAnalysis. To: SaturationTest <i>Dependency</i>	

6.53 SeparatorConditions

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/9/2015 Last modified: 12/5/2016

Notes: Separator conditions.

Attributes

Name	Type	Notes
separatorTestReference	String64	Reference to a separator test element, which contains the separator conditions (stages) which apply to this test.

6.54 SlimTubeSpecification

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Specifications of the slim tube used during a slim-tube test.

For definition of a slim tube and slim-tube test, see http://www.glossary.oilfield.slb.com/Terms/s/slim-tube_test.aspx

Attributes

Name	Type	Notes
CrossSectionArea	AreaMeasure	The cross section area of the slim tube.
InjectedGas	InjectedGas	Reference to the gas injected into the slim tube.
InnerDiameter	LengthMeasure	The inner diameter of the slim tube.
Length	LengthMeasure	The length of the slim tube.
OuterDiameter	LengthMeasure	The outer diameter of the slim tube.
PackingMaterial	String64	The packing material used in the slim tube.
Permeability	PermeabilityRockMeasure	The permeability of the slim tube.
PoreVolume	VolumeMeasure	The pore volume of the slim tube.
Porosity	VolumePerVolumeMeasure	The porosity of the slim tube.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: SlimTubeTest.SlimTubeSpecification To: SlimTubeSpecification Association	

6.55 SlimTubeTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Attributes of a slim-tube test.

For definition of a slim-tube test, see http://www.glossary.oilfield.slb.com/Terms/s/slim-tube_test.aspx

Attributes

Name	Type	Notes
PumpTemperature	ThermodynamicTemperatureMeasure	The pump temperature during the slim-tube test.
Remark	String2000	Remarks and comments about this data item.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: SlimTubeTest.SlimTubeSpecification To: SlimTubeSpecification <i>Association</i>	
0..* From: SlimTubeTest.SlimTubeTestPressureStep To: SlimTubeTestStep <i>Association</i>	
From: HydrocarbonAnalysis. To: SlimTubeTest <i>Dependency</i>	

6.56 SlimTubeTestStep

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Slim-tube test step.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
StepAveragePressure	PressureMeasure	The average pressure for this slim-tube test step.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: SlimTubeTestStep.SlimTubeTestVolumeStep To: SlimTubeTestVolumeStep <i>Association</i>	
0..* From: SlimTubeTest.SlimTubeTestPressureStep To: SlimTubeTestStep <i>Association</i>	

6.57 SlimTubeTestVolumeStep

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Slim-tube test volume step.

Attributes

Name	Type	Notes
CumulativeOilProductionPercO OIP	VolumePerVolumeMeasure	The cumulative oil production as a fraction of the original oil in place of the slim-tube test volume step.
CumulativeOilProductionSTO	VolumeMeasure	The cumulative oil production of stock tank oil for the slim-tube test volume step.
CumulativeProducedGOR	VolumePerVolumeMeasure	The cumulative oil production GOR for the slim-tube test volume step.
DarcyVelocity	LengthPerTimeMeasure	The Darcy velocity of the slim-tube test volume step.
DifferentialPressure	PressureMeasure	The differential pressure of the slim-tube test volume step.
IncrementalProducedGOR	VolumePerVolumeMeasure	The incremental produced GOR of the slim-tube test volume step.
InjectedPoreVolumeFraction	VolumePerVolumeMeasure	The injected pore volume fraction of the slim-tube test volume step.
InjectionVolumeAtPumpTemperature	VolumeMeasure	The injection volume at pump temperature of the slim-tube test volume step.
InjectionVolumeAtTestTemperature	VolumeMeasure	The injection volume at test temperature of the slim-tube test volume step.
Remark	String2000	Remarks and comments about this data item.
RunTime	String64	The run time of the slim-tube test volume step.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: SlimTubeTestVolumeStep.MassBalance To: MassBalance <i>Association</i>	
0..1 From: SlimTubeTestVolumeStep.ProducedGasProperties To: ProducedGasProperties <i>Association</i>	
0..1 From: SlimTubeTestVolumeStep.ProducedOilProperties To: ProducedOilProperties <i>Association</i>	
0..* From: SlimTubeTestStep.SlimTubeTestVolumeStep To: SlimTubeTestVolumeStep <i>Association</i>	

6.58 STOAnalysis

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 1/21/2015 Last modified: 12/5/2016

Notes: Stock tank oil analysis.

Attributes

Name	Type	Notes
Date	date	The date when this test was performed.
FlashFromPressure	PressureMeasure	The pressure from which the sample was flashed for the stock tank oil analysis.
FlashFromTemperature	ThermodynamicTemperatureMeasure	The temperature from which the sample was flashed for the stock tank oil analysis.
FluidCondition	FluidAnalysisStepCondition	The fluid condition at this test step. Enum, see fluid analysis step condition.
LiquidComposition	LiquidComposition	The liquid composition for the stock tank oil analysis.
MolecularWeight	MolecularWeightMeasure	The molecular weight for the stock tank oil analysis.
OverallComposition	OverallComposition	The overall composition for the stock tank oil analysis.
PhasesPresent	PhasePresent	The phases present for the stock tank oil analysis.
Remark	String2000	Remarks and comments about this data item.
VaporComposition	VaporComposition	The vapor composition for the stock tank oil analysis.

Associations

Association	Notes
0..1 From: STOAnalysis. To: STOFlashedLiquid <i>Association</i>	
From: HydrocarbonAnalysis. To: STOAnalysis <i>Dependency</i>	

6.59 STOFlashedLiquid

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 12/18/2014 Last modified: 12/5/2016

Notes: Stock tank oil flashed liquid properties and composition.

Attributes

Name	Type	Notes
AsphalteneContent	MassPerMassMeasure	The asphaltene content of the liquid phase of the stock tank analysis.
ASTMFlashPoint	ThermodynamicTemperatureMeasure	The ASTM flash point of the liquid phase of the stock tank analysis.
CloudPoint	ThermodynamicTemperatureMeasure	The cloud point of the liquid phase of the stock tank analysis.
ElementalSulfur	MassPerMassMeasure	The elemental sulfur content of the liquid phase of the stock tank analysis.
Iron	MassPerMassMeasure	The iron content of the liquid phase of the stock tank analysis.
Lead	MassPerMassMeasure	The lead content of the liquid phase of the stock tank analysis.
Nickel	MassPerMassMeasure	The nickel content of the liquid phase of the stock tank analysis.
Nitrogen	MassPerMassMeasure	The nitrogen content of the liquid phase of the stock tank analysis.
OilAPIGravity	APIGravityMeasure	Oil API gravity.
ParaffinContent	MassPerMassMeasure	The paraffin content of the liquid phase of the stock tank analysis.
PourPoint	ThermodynamicTemperatureMeasure	The pour point of the liquid phase of the stock tank analysis.
ReidVaporPressure	PressureMeasure	The reid vapor pressure of the liquid phase of the stock tank analysis.
TotalAcidNumber	DimensionlessMeasure	The total acid number of the liquid phase of the stock tank analysis.
TotalSulfur	MassPerMassMeasure	The total sulfur content of the liquid phase of the stock tank analysis.
Vanadium	MassPerMassMeasure	The vanadium content of the liquid phase of the stock tank analysis.
ViscosityAtTemperature	ViscosityAtTemperature	The viscosity at test temperature of the liquid phase of the stock tank analysis.
WaterContent	MassPerMassMeasure	The water content of the liquid phase of the stock tank analysis.
WatsonKFactor	DimensionlessMeasure	The Watson K factor of the liquid phase of the stock tank analysis.
WaxAppearanceTemperature	ThermodynamicTemperatureMeasure	The wax appearance temperature of the liquid phase of the stock tank analysis.

Associations

Association	Notes
From: STOFlashedLiquid. To: ViscosityAtTemperature <i>Dependency</i>	

Association		Notes
0..*	From: STOFlashedLiquid. To: Sara <i>Association</i>	
0..1	From: STOAnalysis. To: STOFlashedLiquid <i>Association</i>	

6.60 SwellingTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Swelling test.

Attributes

Name	Type	Notes
InjectedGas	InjectedGas	Reference to the gas injected during the swelling test.
Remark	String2000	Remarks and comments about this data item.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: SwellingTest.SwellingTestStep To: SwellingTestStep <i>Association</i>	
From: HydrocarbonAnalysis. To: SwellingTest <i>Dependency</i>	

6.61 SwellingTestStep

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 11/29/2016

Notes: Swelling test step

Attributes

Name	Type	Notes
ConstantCompositionExpansionTest	String64	A reference to a constant composition expansion test associated with this swelling test.
CumulativeGasAdded	RefInjectedGasAdded	The cumulative gas added for this swelling test step.
DensityAtSaturationPoint	MassPerVolumeMeasure	The density at saturation point for this swelling test step.
Gor	VolumePerVolumeMeasure	The gas-oil ratio for this swelling test step.
IncrementalGasAdded	RefInjectedGasAdded	The incremental gas added for this swelling test step.
Remark	String2000	Remarks and comments about this data item.
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure measured in this test.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
SwellingFactor	VolumePerVolumeMeasure	The swelling factor for this swelling test step.
SwollenVolume	RelativeVolumeRatio	The swollen volume for this swelling test step, relative to a reference volume.
TransportPropertyTestReference	String64	A reference to a transport property test associated with this swelling test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: SwellingTest.SwellingTestStep To: SwellingTestStep Association	

6.62 ThermodynamicPhase

Type: Enumeration *Stereotype:*

Detail: Created: 5/27/2015 Last modified: 12/5/2016

Notes: Specifies the thermodynamic phases.

Attributes

Name	Type	Notes
aqueous		A water-rich liquid phase.
oleic		An oil-rich liquid phase.
vapor		A gaseous phase at the conditions present.
total hydrocarbon		A phase comprised of the total hydrocarbons (e.g., above the critical pressure for a gas condensate).

Associations

Association	Notes
From: ThermodynamicPhase. To: TypeEnum <i>Generalization</i>	
0..1 From: FluidCharacterizationTableConstant.Phase To: ThermodynamicPhase <i>Association</i>	
0..1 From: FluidCharacterizationTableColumn.Phase To: ThermodynamicPhase <i>Association</i>	

6.63 VaporLiquidEquilibriumTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Properties and results for a vapor-liquid equilibrium (VLE) test.

Attributes

Name	Type	Notes
AtmosphericFlashTestReference	String64	Reference to the atmospheric flash test for this VLE test.
CumulativeGasAdded	RefInjectedGasAdded	Reference to the cumulative gas added for this VLE test.
GasSolventAdded	VolumePerVolumeMeasure	The gas solvent added for this VLE test.
InjectedGasAdded	InjectedGas	Reference to the injected gas added for this VLE test.
LiquidComposition	LiquidComposition	The liquid composition for this VLE test.
LiquidPhaseDensity	PhaseDensity	The liquid phase density for this VLE test.
LiquidPhaseVolume	VolumePerVolumeMeasure	The liquid phase volume for this VLE test.
LiquidTransportTestReference	String64	A reference to a liquid transport property test associated with this VLE test.
MixtureGasSolventMoleFraction	AmountOfSubstancePerAmountOfSubstanceMeasure	The mixture gas solvent mole fraction for this VLE test.
MixtureGOR	VolumePerVolumeMeasure	The mixture gas-oil ratio for this VLE test.
MixturePsatTestTemperature	ThermodynamicTemperatureMeasure	The mixture saturation pressure test temperature for this VLE test.
MixtureRelativeVolumeRelativeToPsat	VolumePerVolumeMeasure	The mixture relative volume relative to volume a saturation pressure for this VLE test.
MixtureVolume	VolumeMeasure	The mixture volume for this VLE test.
Remark	String2000	Remarks and comments about this data item.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
TestPressure	PressureMeasure	The pressure of this test.
TestTemperature	ThermodynamicTemperatureMeasure	The temperature of this test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VaporComposition	FluidComponent	The vapor composition for this VLE test.
VaporPhaseDensity	PhaseDensity	The vapor phase density for this VLE test.
VaporPhaseViscosity	PhaseViscosity	The vapor phase viscosity for this VLE test.
VaporPhaseVolume	VolumePerVolumeMeasure	The vapor phase volume for this VLE test.
VaporTransportTestReference	String64	A reference to a vapor transport property test associated with this VLE test.

Associations

Association	Notes
From: VaporLiquidEquilibriumTest. To: PhaseViscosity <i>Dependency</i>	
From: VaporLiquidEquilibriumTest. To: PhaseDensity <i>Dependency</i>	
From: VaporLiquidEquilibriumTest. To: InjectedGas <i>Dependency</i>	
From: HydrocarbonAnalysis. To: VaporLiquidEquilibriumTest <i>Dependency</i>	

6.64 ViscosityAtTemperature

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 11/4/2014 Last modified: 12/5/2016

Notes: Viscosity measurement at a specific temperature.

Attributes

Name	Type	Notes
Viscosity	DynamicViscosityMeasure	Viscosity measurement at the associated temperature.
ViscosityTemperature	ThermodynamicTemperatureMeasure	Temperature at which the viscosity was measured.

Associations

Association	Notes
From: STOFlashedLiquid. To: ViscosityAtTemperature <i>Dependency</i>	

6.65 VolumeReferenceKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Specifies the conditions at which the volume was measured.

Attributes

Name	Type	Notes
initial reservoir		The reference volume is measured at initial reservoir conditions.
saturation-calculated		The reference volume is measured at saturation-calculated conditions.
saturation-measured		The reference volume is measured at saturation-measured conditions.
separator stage 1		The reference volume is measured at separator stage 1 conditions.
separator stage 10		The reference volume is measured at separator stage 10 conditions.
separator stage 2		The reference volume is measured at separator stage 2 conditions.
separator stage 3		The reference volume is measured at separator stage 3 conditions.
separator stage 4		The reference volume is measured at separator stage 4 conditions.
separator stage 5		The reference volume is at measured separator stage 5 conditions.
separator stage 6		The reference volume is measured at separator stage 6 conditions.
separator stage 7		The reference volume is measured at separator stage 7 conditions.
separator stage 8		The reference volume is measured at separator stage 8 conditions.
separator stage 9		The reference volume is measured at separator stage 9 conditions.
stock tank		The reference volume is measured at stock tank conditions.
unknown		The reference volume was measured at unknown conditions.

Associations

Association	Notes
From: VolumeReferenceKind. To: TypeEnum <i>Generalization</i>	
From: FluidVolumeReference. To: VolumeReferenceKind <i>Dependency</i>	

6.66 WaterAnalysis

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Water analysis.

Associations

Association	Notes
From: WaterAnalysis. To: FluidAnalysis <i>Generalization</i>	
0..* From: WaterAnalysis. To: WaterAnalysisTest <i>Association</i>	
0..1 From: WaterAnalysis. To: SampleIntegrityAndPreparation <i>Association</i>	
0..* From: WaterAnalysis. To: WaterSampleComponent <i>Association</i>	

6.67 WaterAnalysisTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 1/8/2015 Last modified: 12/5/2016

Notes: Water analysis test.

Attributes

Name	Type	Notes
LiquidGravity	double	The liquid gravity for the water analysis test.
PH	double	The ph for the water analysis test.
Remark	String2000	Remarks and comments about this data item.
Resistivity	ElectricalResistivityMeasure	The resistivity for the water analysis test.
Salinity	MassPerMassMeasure	The salinity for the water analysis test.
TestNumber	NonNegativeLong	An integer number to identify this test in a sequence of tests.
TotalDissolvedSolids	MassPerMassMeasure	The total dissolved solids for the water analysis test.
TotalHardness	MassPerMassMeasure	The total water hardness for the water analysis test.
TotalSuspendedSolids	MassPerMassMeasure	The total suspended solids for the water analysis test.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: WaterAnalysisTest. To: WaterAnalysisTestStep <i>Association</i>	
0..* From: WaterAnalysis. To: WaterAnalysisTest <i>Association</i>	

6.68 WaterAnalysisTestStep

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Water analysis test step.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
SolutionGasWaterRatio	VolumePerVolumeMeasure	The solution gas-water ratio for the water analysis test step.
StepNumber	NonNegativeLong	The step number is the index of a (P,T) step in the overall test.
StepPressure	PressureMeasure	The pressure for this test step.
StepTemperature	ThermodynamicTemperatureMeasure	The temperature for this test step.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WaterDensity	MassPerVolumeMeasure	The water density for the water analysis test step.
WaterDensityChangeWithPressure	MassPerVolumePerPressureMeasureExt	The water density change with pressure for the water analysis test step.
WaterDensityChangeWithTemperature	MassPerVolumePerTemperatureMeasureExt	The water density change with temperature for the water analysis test step.
WaterEnthalpy	MolarEnergyMeasure	The water enthalpy for the water analysis test step.
WaterEntropy	EnergyLengthPerTimeAreaTemperatureMeasure	The water entropy for the water analysis test step.
WaterFormationVolumeFactor	VolumePerVolumeMeasure	The water formation volume factor for the water analysis test step.
WaterHeatCapacity	EnergyMeasure	The water heat capacity for the water analysis test step.
WaterIsothermalCompressibility	ReciprocalPressureMeasure	The water isothermal compressibility for the water analysis test step.
WaterSpecificHeat	EnergyPerVolumeMeasure	The water specific heat for the water analysis test step.
WaterSpecificVolume	VolumePerMassMeasure	The water specific volume for the water analysis test step.
WaterThermalConductivity	ElectricConductivityMeasure	The water thermal conductivity for the water analysis test step.
WaterThermalExpansion	VolumetricThermalExpansionMeasure	The water thermal expansion for the water analysis test step.
WaterViscosity	DynamicViscosityMeasure	The water viscosity for the water analysis test step.
WaterViscousCompressibility	ReciprocalPressureMeasure	The water viscous compressibility for the water analysis test step.

Associations

Association	Notes
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Association	Notes
From: WaterAnalysisTest. To: WaterAnalysisTestStep <i>Association</i>	

6.69 WaterSampleComponent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/5/2016

Notes: Water sample component.

Attributes

Name	Type	Notes
EquivalentConcentration	MassPerMassMeasure	The equivalent concentration of the water sample component.
Ion	String64	The ion of the water sample component.
MassConcentration	MassPerMassMeasure	The mass concentration of the water sample component.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WaterAnalysis. To: WaterSampleComponent <i>Association</i>	

7 FluidCharacterization

Package: xsd_schemas

Notes: The fluid characterization data object describes the characteristics and properties of a fluid sample or fluid system under the conditions expected in a historical or future state.

7.1 AbstractCompositionalEoSModel

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/13/2016 Last modified: 12/5/2016

Notes: Abstract class of compositional EoS model.

Associations

Association	Notes
From: AbstractCompositionalEoSModel . To: AbstractCompositionalModel <i>Generalization</i>	
From: PengRobinson78_EOS. To: AbstractCompositionalEoSModel <i>Generalization</i>	
From: PengRobinson76_EOS. To: AbstractCompositionalEoSModel <i>Generalization</i>	
From: Srk_EOS. To: AbstractCompositionalEoSModel <i>Generalization</i>	

7.2 AbstractCompositionalModel

Type: Class *Stereotype:* «XSDComplexType»

Detail: Created: 5/10/2016 Last modified: 12/5/2016

Notes: Abstract class of compositional model.

Attributes

Name	Type	Notes
MixingRule	MixingRule	The mixing rule which was applied in the compositional model. Enum. See mixing rule.

Associations

Association	Notes
From: AbstractCompositionalModel. To: MixingRule <i>Dependency</i>	
0..1 From: AbstractCompositionalModel. To: BinaryInteractionCoefficientSet <i>Association</i>	
From: AbstractCompositionalModel. To: AbstractPvtModel <i>Generalization</i>	
0..1 From: AbstractCompositionalModel. To: ComponentPropertySet <i>Association</i>	
From: CompositionalThermalModel. To: AbstractCompositionalModel <i>Generalization</i>	
From: AbstractCompositionalViscosityModel . To: AbstractCompositionalModel <i>Generalization</i>	
From: AbstractCompositionalEoSModel . To: AbstractCompositionalModel <i>Generalization</i>	

7.3 AbstractCompositionalViscosityModel

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/13/2016 Last modified: 12/5/2016

Notes: Abstract class of compositional viscosity model.

Attributes

Name	Type	Notes
phase	ThermodynamicPhase	The phase the compositional viscosity model applies to.

Associations

Association	Notes
From: AbstractCompositionalViscosityModel . To: AbstractCompositionalModel <i>Generalization</i>	
From: CSPedersen84. To: AbstractCompositionalViscosityModel <i>Generalization</i>	
From: Lohrenz-Bray-ClarkCorrelation. To: AbstractCompositionalViscosityModel <i>Generalization</i>	
From: CSPedersen87. To: AbstractCompositionalViscosityModel <i>Generalization</i>	
From: FrictionTheory. To: AbstractCompositionalViscosityModel <i>Generalization</i>	

7.4 AbstractCorrelationGasViscosityModel

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 3/16/2016 Last modified: 12/5/2016

Notes: Abstract class of correlation gas viscosity model.

Attributes

Name	Type	Notes
GasViscosity	DynamicViscosityMeasure	The gas viscosity output from the gas viscosity model.
ReservoirTemperature	ThermodynamicTemperatureMeasure	The reservoir temperature for the gas viscosity model.

Associations

Association	Notes
From: AbstractCorrelationGasViscosityModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	
0..1 From: CarrDempsey.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	
0..1 From: Lucas.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	
0..1 From: LeeGonzalez.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	
0..1 From: LondonoArcherBlasinggame.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	

7.5 AbstractCorrelationModel

Type: Class *Stereotype:* «XSDComplexType»

Detail: Created: 5/10/2016 Last modified: 12/5/2016

Notes: Abstract class of correlation model.

Associations

Association	Notes
From: AbstractCorrelationModel. To: AbstractPvtModel <i>Generalization</i>	
From: CorrelationThermalModel. To: AbstractCorrelationModel <i>Generalization</i>	
From: AbstractCorrelationViscosityModel. To: AbstractCorrelationModel <i>Generalization</i>	

7.6 AbstractCorrelationViscosityBubblePointModel

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 3/16/2016 Last modified: 12/5/2016

Notes: Abstract class of viscosity bubble point model.

Attributes

Name	Type	Notes
BubblePointOilViscosity	DynamicViscosityMeasure	The bubble point viscosity output from the bubble point viscosity model.
DeadOilViscosity	DynamicViscosityMeasure	The dead oil viscosity input for the bubble point viscosity model.
SolutionGasOilRate	DimensionlessMeasure	The solution gas oil ratio for the bubble point viscosity model.

Associations

Association	Notes
From: AbstractCorrelationViscosityBubblePointModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	
From: BergmanSutton-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	
From: DeGhetto-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	
From: Standing-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	
From: DindorukChristman-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	
From: PetroskyFarshad-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	

7.7 AbstractCorrelationViscosityDeadModel

Type: Class *Stereotype:* «XSDComplexType»

Detail: Created: 5/10/2016 Last modified: 12/5/2016

Notes: Abstract class of correlation viscosity dead model.

Attributes

Name	Type	Notes
DeadOilViscosity	DynamicViscosityMeasure	The dead oil viscosity output from the dead oil viscosity model.
ReservoirTemperature	ThermodynamicTemperatureMeasure	The reservoir temperature for the dead oil viscosity model.

Associations

Association	Notes
From: AbstractCorrelationViscosityDeadModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	
From: PetroskyFarshad-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	
From: Standing-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	
From: DeGhetto-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	
From: BerganSutton-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	
From: DindorukChristman-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	

7.8 AbstractCorrelationViscosityModel

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 10/1/2015 Last modified: 12/5/2016

Notes: Abstract class of correlation viscosity model.

Attributes

Name	Type	Notes
MolecularWeight	MolecularWeightMeasure	The molecular weight of the fluid for the viscosity model.

Associations

Association	Notes
From: AbstractCorrelationViscosityModel. To: AbstractCorrelationModel <i>Generalization</i>	
From: AbstractCorrelationViscosityBubblePointModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	
From: AbstractCorrelationViscosityUndersaturatedModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	
From: AbstractCorrelationViscosityDeadModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	
From: AbstractCorrelationGasViscosityModel. To: AbstractCorrelationViscosityModel <i>Generalization</i>	

7.9 AbstractCorrelationViscosityUndersaturatedModel

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 3/16/2016 Last modified: 12/5/2016

Notes: Abstract class of viscosity under-saturated model.

Attributes

Name	Type	Notes
BubblePointOilViscosity	DynamicViscosityMeasure	The bubble point viscosity input for the under saturated viscosity model.
BubblePointPressure	PressureMeasure	The bubble point pressure for the under saturated viscosity model.
Pressure	PressureMeasure	The pressure for the under saturated viscosity model.
UndersaturatedOilViscosity	DynamicViscosityMeasure	The under saturated viscosity output from the under saturated viscosity model.

Associations

Association	Notes
From: AbstractCorrelationViscosityUndersaturatedModel. To: AbstractCorrelationViscosityModel Generalization	
From: BerganAndSutton-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel Generalization	
From: PetroskyFarshad-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel Generalization	
From: Standing-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel Generalization	
From: DeGhetto-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel Generalization	
From: DindorukChristman-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel Generalization	

7.10 AbstractPvtModel

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/1/2015 Last modified: 12/5/2016

Notes: Abstract class of PVT model.

Associations

Association		Notes
0..1	From: AbstractPvtModel. To: CustomPvtModelExtension <i>Association</i>	
0..1	From: AbstractPvtModel. To: PvtModelParameterSet <i>Association</i>	
0..1	From: FluidCharacterizationModel.ModelSpecification To: AbstractPvtModel <i>Association</i>	
	From: AbstractCorrelationModel. To: AbstractPvtModel <i>Generalization</i>	
	From: AbstractCompositionalModel. To: AbstractPvtModel <i>Generalization</i>	

7.11 ApplicationInfo

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 2/3/2015 Last modified: 12/5/2016

Notes: Information about the application.

Attributes

Name	Type	Notes
ApplicationName	String64	The name of the application that is expected to use these fluid characterization data.
version	String64	The version of the application that is expected to use these fluid characterization data.

7.12 BerganAndSutton-Undersaturated

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: Bergan And Sutton-Undersaturated.

Associations

Association	Notes
From: BerganAndSutton-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel <i>Generalization</i>	

7.13 BerganSutton-Dead

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: BerganSutton-Dead.

Attributes

Name	Type	Notes
DeadOilViscosityAt100F	DynamicViscosityMeasure	The dead oil viscosity at 100 f input to the dead oil viscosity model.
DeadOilViscosityAt210F	DynamicViscosityMeasure	The dead oil viscosity at 210 f input to the dead oil viscosity model.

Associations

Association	Notes
From: BerganSutton-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	

7.14 BergmanSutton-BubblePoint

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: BergmanSutton-BubblePoint.

Associations

Association	Notes
From: BergmanSutton-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	

7.15 BinaryInteractionCoefficient

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/9/2014 Last modified: 12/5/2016

Notes: Binary interaction coefficient.

Attributes

Name	Type	Notes
fluidComponent1Reference	String64	Reference to the first fluid component for this binary interaction coefficient.
fluidComponent2Reference	String64	Reference to the second fluid component for this binary interaction coefficient.

Associations

Association	Notes
From: BinaryInteractionCoefficient. To: AbstractMeasure <i>Generalization</i>	
1..* From: BinaryInteractionCoefficientSet. To: BinaryInteractionCoefficient <i>Association</i>	

7.16 BinaryInteractionCoefficientSet

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 1/5/2016 Last modified: 12/5/2016

Notes: Binary interaction coefficient set.

Associations

Association		Notes
1..*	From: BinaryInteractionCoefficientSet. To: BinaryInteractionCoefficient <i>Association</i>	
0..1	From: AbstractCompositionalModel. To: BinaryInteractionCoefficientSet <i>Association</i>	

7.17 CarrDempsey

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/29/2016 Last modified: 12/5/2016

Notes: CarrDempsey.

Attributes

Name	Type	Notes
GasMolarWeight	MolecularWeightMeasure	The molecular weight of the gas as an input to this viscosity correlation.
GasViscosityAt1Atm	DynamicViscosityMeasure	The gas viscosity at 1 atm for the viscosity correlation.
PseudoReducedPressure	PressurePerPressureMeasure	The pseudo reduced pressure for the viscosity correlation.
PseudoReducedTemperature	ThermodynamicTemperaturePerThermodynamicTemperatureMeasure	The pseudo reduced temperature for the viscosity correlation.

Associations

Association	Notes
0..1 From: CarrDempsey.Variables To: AbstractCorrelationGasViscosityModel Generalization	

7.18 ComponentPropertySet

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/10/2016 Last modified: 12/5/2016

Notes: Component property set.

Associations

Association		Notes
1..*	From: ComponentPropertySet. To: FluidComponentProperty <i>Association</i>	
0..1	From: AbstractCompositionalModel. To: ComponentPropertySet <i>Association</i>	

7.19 CompositionalThermalModel

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/1/2016 Last modified: 12/5/2016

Notes: A class that AbstractCompositionalModel can inherit; it is NOT abstract because the concrete model types have not been specified. For now, use the non-abstract thermal model, and use the CustomPvtModelExtension to add anything needed. Later, it will be made abstract and have concrete classes it inherits from, similar to EoS.

Associations

Association	Notes
From: CompositionalThermalModel. To: AbstractCompositionalModel <i>Generalization</i>	

7.20 CorrelationThermalModel

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/1/2016 Last modified: 12/5/2016

Notes: A class that AbstractCompositionalModel can inherit; it is NOT abstract because the concrete model types have not been specified. For now, use the non-abstract thermal model, and use the CustomPvtModelExtension to add anything needed. Later, it will be made abstract and have concrete classes it inherits from, similar to EoS.

Associations

Association	Notes
From: CorrelationThermalModel. To: AbstractCorrelationModel <i>Generalization</i>	

7.21 CSPedersen84

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: CSPedersen84.

Associations

Association	Notes
From: CSPedersen84. To: AbstractCompositionalViscosityModel <i>Generalization</i>	

7.22 CSPedersen87

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: CSPedersen87.

Associations

Association	Notes
From: CSPedersen87. To: AbstractCompositionalViscosityModel <i>Generalization</i>	

7.23 CustomPvtModelExtension

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: Custom PVT model extension.

Attributes

Name	Type	Notes
Description	String2000	A description of the custom model.

Associations

Association	Notes
0..* From: CustomPvtModelExtension. To: CustomPvtModelParameter <i>Association</i>	
0..1 From: AbstractPvtModel. To: CustomPvtModelExtension <i>Association</i>	

7.24 CustomPvtModelParameter

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/2/2016 Last modified: 12/5/2016

Notes: Custom PVT model parameter.

Attributes

Name	Type	Notes
fluidComponentReference	String64	Reference to a fluid component to which this custom model parameter applies.

Associations

Association	Notes
From: CustomPvtModelParameter.CustomParameterValue 1 To: ExtensionNameValue <i>Association</i>	
From: CustomPvtModelExtension. 0..* To: CustomPvtModelParameter <i>Association</i>	

7.25 DeGhetto-BubblePoint

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: DeGhetto-BubblePoint.

Associations

Association	Notes
From: DeGhetto-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	

7.26 DeGhetto-Dead

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: DeGhetto-Dead.

Attributes

Name	Type	Notes
OilAPIAtStockTank	APIGravityMeasure	The oil API at stock tank for the viscosity correlation.

Associations

Association	Notes
From: DeGhetto-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	

7.27 DeGhetto-Undersaturated

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: DeGhetto-Undersaturated.

Attributes

Name	Type	Notes
ReservoirTemperature	ThermodynamicTemperatureMeasure	The reservoir temperature for the viscosity correlation.
SolutionGasOilRatio	VolumePerVolumeMeasure	The solution gas-oil ratio for the viscosity correlation.

Associations

Association	Notes
From: DeGhetto-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel <i>Generalization</i>	

7.28 DindorukChristman-BubblePoint

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: DindorukChristman-BubblePoint.

Associations

Association	Notes
From: DindorukChristman-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	

7.29 DindorukChristman-Dead

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: DindorukChristman-Dead.

Attributes

Name	Type	Notes
OilGravityAtStockTank	APIGravityMeasure	The oil gravity at stock tank for the viscosity correlation.

Associations

Association	Notes
From: DindorukChristman-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	

7.30 DindorukChristman-Undersaturated

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: DindorukChristman-Undersaturated.

Attributes

Name	Type	Notes
ReservoirTemperature	ThermodynamicTemperatureMeasure	The reservoir temperature for the viscosity correlation.
SolutionGasOilRatio	VolumePerVolumeMeasure	The solution gas-oil ratio for the viscosity correlation.

Associations

Association	Notes
From: DindorukChristman-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel <i>Generalization</i>	

7.31 FluidCharacterization

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Fluid characterization.

Attributes

Name	Type	Notes
ApplicationSource	ApplicationInfo	The software used to generate the fluid characterization.
ApplicationTarget	ApplicationInfo	The software which is the consumer of the fluid characterization.
FluidCharacterizationModel	FluidCharacterizationModel	The model used to generate the fluid characterization.
FluidCharacterizationSource	FluidCharacterizationSource	Reference to the fluid analysis tests which were the source data for this fluid characterization.
FluidCharacterizationTableFormatSet	FluidCharacterizationTableFormatSet	The collection of fluid characterization table formats.
FluidComponentCatalog	FluidComponentCatalog	The fluid component catalog for this fluid characterization.
FluidSystemCharacterizationType	String64	The kind of fluid characterization.
IntendedUsage	String64	The intended usage of the fluid characterization.
Remark	String2000	Remarks and comments about this data item.
RockFluidUnitFeatureReference	DataObjectReference	Reference to a rock fluid unit feature (a RESQML feature).
StandardConditions	AbstractTemperaturePressure	The standard temperature and pressure used for the representation of this fluid characterization.

Associations

Association	Notes
From: FluidCharacterization. To: FluidCharacterizationSource <i>Dependency</i>	
From: FluidCharacterization. To: FluidCharacterizationTableFormatSet <i>Dependency</i>	
0..1 From: FluidCharacterization.FluidSystem To: FluidSystem <i>Association</i>	
From: FluidCharacterization. To: FluidCharacterizationModel <i>Dependency</i>	
From: FluidCharacterization. To: AbstractObject <i>Generalization</i>	

7.32 FluidCharacterizationModel

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Fluid characterization model.

Attributes

Name	Type	Notes
Name	String64	The name of the fluid analysis result.
ReferencePressure	AbstractPressureValue	The reference pressure for this fluid characterization.
ReferenceStockTankPressure	AbstractPressureValue	The reference stock tank pressure for this fluid characterization.
ReferenceStockTankTemperature	ThermodynamicTemperatureMeasure	The reference stock tank temperature for this fluid characterization.
ReferenceTemperature	ThermodynamicTemperatureMeasure	The reference temperature for this fluid characterization.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: FluidCharacterizationModel.ModelSpecification To: AbstractPvtModel <i>Association</i>	
0..* From: FluidCharacterizationModel. To: ReferenceSeparatorStage <i>Association</i>	
0..* From: FluidCharacterizationModel. To: FluidCharacterizationTable <i>Association</i>	
From: FluidCharacterization. To: FluidCharacterizationModel <i>Dependency</i>	

7.33 FluidCharacterizationSource

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 8/25/2014 Last modified: 12/5/2016

Notes: Fluid characterization source.

Attributes

Name	Type	Notes
FluidAnalysisTestReference	String64	A reference to a fluid analysis test which was used as source data for this fluid characterization.

Associations

Association	Notes
From: FluidCharacterizationSource.Identify specific analysis tests To: FluidAnalysis <i>Dependency</i>	
From: FluidCharacterizationSource.FluidAnalysisReference 0..1 To: FluidAnalysis <i>Association</i>	
From: FluidCharacterization. To: FluidCharacterizationSource <i>Dependency</i>	

7.34 FluidCharacterizationTable

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 8/25/2014 Last modified: 12/5/2016

Notes: Fluid characterization table.

Attributes

Name	Type	Notes
name	String64	The name of this table.
Remark	String2000	Remarks and comments about this data item.
TableConstant	FluidCharacterizationTableConstant	A constant associated with this fluid characterization table.
tableFormat	String64	The uid reference of the table format for this table.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: FluidCharacterizationTable. To: FluidCharacterizationTableConstant <i>Dependency</i>	
From: FluidCharacterizationTable.TableRow To: FluidCharacterizationTableRow <i>Association</i>	
From: FluidCharacterizationModel. To: FluidCharacterizationTable <i>Association</i>	
From: OtherMeasurementTest. To: FluidCharacterizationTable <i>Association</i>	

7.35 FluidCharacterizationTableColumn

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 8/25/2014 Last modified: 12/5/2016

Notes: Column of a table.

Attributes

Name	Type	Notes
fluidComponentReference	String64	The reference to a fluid component for this column in this fluid characterization table.
name	String64	The name for this column in this fluid characterization table.
Property	OutputFluidPropertyExt	The property that this column contains. Enum. See output fluid property ext.
sequence	NonNegativeLong	Index number for this column for consumption by an external system.
uom	String64	The UOM for this column in this fluid characterization table.

Associations

Association	Notes
From: FluidCharacterizationTableColumn.KeywordAlias To: ObjectAlias <i>Association</i>	
From: FluidCharacterizationTableColumn.Phase To: ThermodynamicPhase <i>Association</i>	
From: FluidCharacterizationTableFormat.TableColumn To: FluidCharacterizationTableColumn <i>Association</i>	

7.36 FluidCharacterizationTableConstant

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 8/25/2014 Last modified: 12/5/2016

Notes: The constant definition used in the table.

Attributes

Name	Type	Notes
fluidComponentReference	String64	Reference to the fluid component to which this value relates.
name	String64	User-defined name for this attribute.
Property	OutputFluidPropertyExt	The property that this table constant contains. Enum. See output fluid property ext.
uom	String64	The UOM for this constant for this fluid characterization table.
value	decimal	The value for this table constant.

Associations

Association	Notes
0..1 From: FluidCharacterizationTableConstant.Phase To: ThermodynamicPhase <i>Association</i>	
0..* From: FluidCharacterizationTableConstant.KeywordAlias To: ObjectAlias <i>Association</i>	
From: FluidCharacterizationTable. To: FluidCharacterizationTableConstant <i>Dependency</i>	

7.37 FluidCharacterizationTableFormat

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 8/26/2014 Last modified: 12/5/2016

Notes: Fluid characterization table format.

Attributes

Name	Type	Notes
Delimiter	TableDelimiter	The delimiter for this fluid characterization table format.
NullValue	String64	The null value for this fluid characterization table format.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
1..* From: FluidCharacterizationTableFormat.TableColumn To: FluidCharacterizationTableColumn <i>Association</i>	
From: FluidCharacterizationTableFormat. To: TableDelimiter <i>Dependency</i>	
1..* From: FluidCharacterizationTableFormatSet. To: FluidCharacterizationTableFormat <i>Association</i>	

7.38 FluidCharacterizationTableFormatSet

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/6/2014 Last modified: 12/5/2016

Notes: A set of table format definitions.

Associations

Association		Notes
1..*	From: FluidCharacterizationTableFormatSet. To: FluidCharacterizationTableFormat <i>Association</i>	
0..1	From: OtherMeasurementTest. To: FluidCharacterizationTableFormatSet <i>Association</i>	
	From: FluidCharacterization. To: FluidCharacterizationTableFormatSet <i>Dependency</i>	

7.39 FluidCharacterizationTableRow

Type: Class *Stereotype:* «XSDcomplextypes»

Detail: Created: 10/13/2014 Last modified: 12/5/2016

Notes: The row of a table.

Attributes

Name	Type	Notes
kind	saturationKind	This type characteristic describes the row of data as either saturated or under-saturated at the conditions defined for the row.
row	String64	The string containing the contents of a row in the table.

Associations

Association	Notes
From: FluidCharacterizationTableRow. To: String2000 <i>Generalization</i>	
From: FluidCharacterizationTable.TableRow To: FluidCharacterizationTableRow <i>Association</i>	

7.40 FluidComponentProperty

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 10/9/2014 Last modified: 12/5/2016

Notes: The properties of a fluid component.

Attributes

Name	Type	Notes
AcentricFactor	decimal	The acentric factor for this fluid component.
CompactVolume	VolumeMeasure	The compact volume for this fluid component.
CriticalPressure	PressureMeasure	The critical pressure for this fluid component.
CriticalTemperature	ThermodynamicTemperatureMeasure	The critical temperature for this fluid component.
CriticalViscosity	DynamicViscosityMeasure	The critical viscosity for this fluid component.
CriticalVolume	MolarVolumeMeasure	The critical volume for this fluid component.
fluidComponentReference	String64	The reference to the fluid component to which these properties apply.
MassDensity	MassPerVolumeMeasure	The mass density for this fluid component.
OmegaA	double	The omega A for this fluid component.
OmegaB	double	The omega B for this fluid component.
Parachor	double	The parachor for this fluid component.
PartialMolarDensity	MassPerVolumeMeasure	The partial molar density for this fluid component.
PartialMolarVolume	MolarVolumeMeasure	The partial molar volume for this fluid component.
ReferenceDensityZJ	MassPerVolumeMeasure	The reference density for this fluid component.
ReferenceGravityZJ	APIGravityMeasure	The reference gravity for this fluid component.
ReferenceTemperatureZJ	ThermodynamicTemperatureMeasure	The reference temperature for this fluid component.
Remark	String2000	Remarks and comments about this data item.
ViscousCompressibility	ReciprocalPressureMeasure	The viscous compressibility for this fluid component.
VolumeShiftParameter	decimal	The volume shift parameter for this fluid component.

Associations

Association	Notes
1..* From: ComponentPropertySet. To: FluidComponentProperty <i>Association</i>	

7.41 FrictionTheory

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/23/2016 Last modified: 12/5/2016

Notes: Friction theory.

Associations

Association	Notes
0..* From: FrictionTheory. To: PrsvParameter <i>Association</i>	
From: FrictionTheory. To: AbstractCompositionalViscosityModel <i>Generalization</i>	

7.42 LeeGonzalez

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/29/2016 Last modified: 12/5/2016

Notes: LeeGonzalez.

Attributes

Name	Type	Notes
GasDensity	MassPerVolumeMeasure	The gas density at the conditions for this viscosity correlation to be used.
GasMolarWeight	MolecularWeightMeasure	The molecular weight of the gas as an input to this viscosity correlation.

Associations

Association	Notes
0..1 From: LeeGonzalez.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	

7.43 Lohrenz-Bray-ClarkCorrelation

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: Lohrenz-Bray-ClarkCorrelation.

Associations

Association	Notes
From: Lohrenz-Bray-ClarkCorrelation. To: AbstractCompositionalViscosityModel <i>Generalization</i>	

7.44 LondonoArcherBlasinggame

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/29/2016 Last modified: 12/5/2016

Notes: LondonoArcherBlasinggame.

Attributes

Name	Type	Notes
GasDensity	MassPerVolumeMeasure	The gas density at the conditions for this viscosity correlation to be used.
GasViscosityAt1Atm	DynamicViscosityMeasure	The gas viscosity at 1 atm for the viscosity correlation.

Associations

Association	Notes
0..1 From: LondonoArcherBlasinggame.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	
From: LondonoArcherBlasinggame.GasViscosityCoefficient1Atm 0..* To: PvtModelParameter <i>Association</i>	

7.45 Lucas

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/29/2016 Last modified: 12/5/2016

Notes: Lucas.

Attributes

Name	Type	Notes
GasMolarWeight	MolecularWeightMeasure	The molecular weight of the gas as an input to this viscosity correlation.
GasViscosityAt1Atm	DynamicViscosityMeasure	The gas viscosity at 1 atm for the viscosity correlation.
PseudoCriticalPressure	PressureMeasure	The pseudo critical pressure for the viscosity correlation.
PseudoCriticalTemperature	ThermodynamicTemperatureMeasure	The pseudo critical temperature for the viscosity correlation.
PseudoReducedPressure	PressurePerPressureMeasure	The pseudo reduced pressure for the viscosity correlation.
PseudoReducedTemperature	ThermodynamicTemperaturePerThermodynamicTemperatureMeasure	The pseudo reduced temperature for the viscosity correlation.

Associations

Association	Notes
0..1 From: Lucas.Variables To: AbstractCorrelationGasViscosityModel <i>Generalization</i>	

7.46 MixingRule

Type: Enumeration *Stereotype:*

Detail: Created: 5/13/2016 Last modified: 12/5/2016

Notes: Specifies the kinds of mixing rules.

Attributes

Name	Type	Notes
asymmetric		The mixing rule kind is asymmetric.
classical		The mixing rule kind is classical.

Associations

Association	Notes
From: MixingRule. To: TypeEnum <i>Generalization</i>	
From: AbstractCompositionalModel. To: MixingRule <i>Dependency</i>	

7.47 OutputFluidProperty

Type: Enumeration *Stereotype:*

Detail: Created: 6/29/2016 Last modified: 12/5/2016

Notes: Specifies the output fluid properties.

Attributes

Name	Type	Notes
Compressibility		Compressibility (expected to be defined for a phase). UoM: 1/pressure.
Density		Density (expected to be defined for a phase). UoM: mass/volume.
Derivative of Density w.r.t Pressure		Derivative of density w.r.t pressure (expected to be defined for a phase). UoM: density/pressure.
Derivative of Density w.r.t Temperature		Derivative of density w.r.t temperature (expected to be defined for a phase). UoM: density/temperature.
Enthalpy		Enthalpy (expected to be defined for a phase). UoM: energy/mass.
Entropy		Entropy (expected to be defined for a phase). UoM: energy/temperature.
Expansion Factor		Expansion factor - volume expanded/volume in reservoir (expected to be defined for a phase). UoM: volume/volume.
Formation Volume Factor		Formation volume factor - volume in reservoir/volume expanded (expected to be defined for a phase). UoM: volume/volume.
Gas-Oil Interfacial Tension		Gas-oil interfacial tension. UoM: force/length.
Gas-Water Interfacial Tension		Gas-water interfacial tension. UoM: force/length.
Index		Index number (which will be the index of a row in the table). UoM: integer.
K value		The ratio of vapor concentration to liquid concentration at equilibrium (expected to be defined for a phase). UoM: dimensionless.
Misc Bank Critical Solvent Saturation		The critical solvent saturation of a miscible bank . UoM: volume/volume.
Misc Bank Phase Density		The density of a phase within a miscible bank (expected to be defined for a phase). UoM: density.
Misc Bank Phase Viscosity		The viscosity of a phase within a miscible bank (expected to be defined for a phase). UoM: viscosity.
Miscibility Parameter (Alpha)		The critical solvent saturation of a miscible bank.
Mixing Parameter Oil-Gas		Mixing parameter for oil and gas.
Oil-Gas Ratio		The oil-gas ratio in a vapour-liquid system. UoM: volume/volume.
Oil-Water Interfacial Tension		Oil-water interfacial tension.
Parachor		Parachor is the quantity defined according to the formula: $P = \gamma^{1/4} M / D$. Where $\gamma^{1/4}$ is the fourth root of surface tension.
Pressure		Pressure. UoM: pressure.
P-T Cross Term		This is a specific parameter unique to CMG

Name	Type	Notes
		software.
Saturation Pressure		The saturation pressure of a mixture. UoM: pressure.
Solution GOR		The gas-oil ratio in a liquid-vapour system. UoM: volume/volume.
Solvent Density		The density of a solvent phase. UoM: density.
Specific Heat		The amount of heat per unit mass required to raise the temperature by one unit temperature (expected to be defined for a phase). UoM: energy/mass/temperature.
Temperature		Temperature. UoM: temperature.
Thermal Conductivity		Thermal conductivity (expected to be defined for a phase). UoM: power/length.temperature.
Viscosity		Viscosity (expected to be defined for a phase). UoM: viscosity.
Viscosity Compressibility		Slope of viscosity change with pressure in a semi-log plot (1/psi) (expected to be defined for a phase). UoM: viscosity/pressure.
Water vapor mass fraction in gas phase		The mass fraction of water in a gas phase. UoM: mass/mass.
Z Factor		The compressibility factor (z).

Associations

Association	Notes
From: OutputFluidProperty. To: TypeEnum <i>Generalization</i>	
From: OutputFluidPropertyExt. To: OutputFluidProperty <i>Generalization</i>	

7.48 OutputFluidPropertyExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 6/30/2016 Last modified: 12/5/2016

Notes: Output fluid property extension.

Associations

Association	Notes
From: OutputFluidPropertyExt. To: OutputFluidProperty <i>Generalization</i>	
From: OutputFluidPropertyExt. To: EnumExtensionPattern <i>Generalization</i>	

7.49 PengRobinson76_EOS

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/13/2016 Last modified: 12/5/2016

Notes: PengRobinson76_EOS.

Associations

Association	Notes
From: PengRobinson76_EOS. To: AbstractCompositionalEoSModel <i>Generalization</i>	

7.50 PengRobinson78_EOS

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/13/2016 Last modified: 12/5/2016

Notes: PengRobinson78_EOS.

Associations

Association	Notes
From: PengRobinson78_EOS. To: AbstractCompositionalEoSModel <i>Generalization</i>	

7.51 PetroskyFarshad-BubblePoint

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: PetroskyFarshad-BubblePoint.

Associations

Association	Notes
From: PetroskyFarshad-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	

7.52 PetroskyFarshad-Dead

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: PetroskyFarshad-Dead.

Attributes

Name	Type	Notes
OilGravityAtStockTank	APIGravityMeasure	The oil gravity at stock tank conditions for this viscosity correlation.

Associations

Association	Notes
From: PetroskyFarshad-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	

7.53 PetroskyFarshad-Undersaturated

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: PetroskyFarshad-Undersaturated.

Associations

Association	Notes
From: PetroskyFarshad-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel <i>Generalization</i>	

7.54 PrsvParameter

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/6/2016 Last modified: 12/5/2016

Notes: PRSV parameter.

Attributes

Name	Type	Notes
a1	double	The parameter a1.
a2	double	The parameter a2.
b1	double	The parameter b1.
b2	double	The parameter b2.
c2	double	The parameter c2.
fluidComponentReference	String64	The fluid component to which this PRSV parameter set applies.

Associations

Association	Notes
0..* From: FrictionTheory. To: PrsvParameter Association	

7.55 PvtModelParameter

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/5/2016

Notes: PVT model parameter.

Attributes

Name	Type	Notes
kind	PvtModelParameterKindExt	The kind of model parameter. Extensible enum. See PVT model parameter kind ext.
name	String64	The user-defined name of a parameter, which can be added to any model.

Associations

Association	Notes
From: PvtModelParameter. To: AbstractMeasure <i>Generalization</i>	
From: LondonoArcherBlasinggame.GasViscosityCoefficient1Atm 0..* To: PvtModelParameter <i>Association</i>	
From: PvtModelParameterSet.Coefficient 1..* To: PvtModelParameter <i>Association</i>	

7.56 PvtModelParameterKind

Type: Enumeration *Stereotype:*

Detail: Created: 9/18/2015 Last modified: 12/5/2016

Notes: Specifies the kinds of PVT model parameters.

Attributes

Name	Type	Notes
b0		The value represents the parameter b0.
b1		The value represents the parameter b1.
b2		The value represents the parameter b2.
c1		The value represents the parameter c1.
c2		The value represents the parameter c2.
d1		The value represents the parameter d1.
d2		The value represents the parameter d2.
e1		The value represents the parameter e1.
e2		The value represents the parameter e2.
f1		The value represents the parameter f1.
f2		The value represents the parameter f2.
g1		The value represents the parameter g1.
g2		The value represents the parameter g2.
h1		The value represents the parameter h1.
h2		The value represents the parameter h2.
a0		The value represents the parameter a0.
a1		The value represents the parameter a1.
a2		The value represents the parameter a2.
a3		The value represents the parameter a3.
a4		The value represents the parameter a4.
a5		The value represents the parameter a5.
a6		The value represents the parameter a6.
a7		The value represents the parameter a7.
a8		The value represents the parameter a8.
a9		The value represents the parameter a9.
a10		The value represents the parameter a10.
c0		The value represents the parameter c0.
d0		The value represents the parameter d0.
e0		The value represents the parameter e0.
f0		The value represents the parameter f0.
g0		The value represents the parameter g0.
h0		The value represents the parameter h0.

Associations

Association	Notes
From: PvtModelParameterKind. To: TypeEnum <i>Generalization</i>	
From: PvtModelParameterKindExt. To: PvtModelParameterKind <i>Generalization</i>	

7.57 PvtModelParameterKindExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 2/25/2016 Last modified: 12/5/2016

Notes: PVT model parameter enumeration extension.

Associations

Association	Notes
From: PvtModelParameterKindExt. To: PvtModelParameterKind <i>Generalization</i>	
From: PvtModelParameterKindExt. To: EnumExtensionPattern <i>Generalization</i>	

7.58 PvtModelParameterSet

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/5/2016

Notes: A collection of parameters.

Associations

Association		Notes
1..*	From: PvtModelParameterSet.Coefficient To: PvtModelParameter <i>Association</i>	
0..1	From: AbstractPvtModel. To: PvtModelParameterSet <i>Association</i>	

7.59 ReferenceSeparatorStage

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/29/2016 Last modified: 12/5/2016

Notes: Reference to the separator stage.

Attributes

Name	Type	Notes
SeparatorNumber	NonNegativeLong	The separator number for a separator stage used to define the separation train, which is used as the basis of this fluid characterization.
SeparatorPressure	AbstractPressureValue	The separator pressure for a separator stage used to define the separation train, which is used as the basis of this fluid characterization.
SeparatorTemperature	ThermodynamicTemperatureMeasureExt	The separator temperature for a separator stage used to define the separation train, which is used as the basis of this fluid characterization.

Associations

Association	Notes
0..* From: FluidCharacterizationModel. To: ReferenceSeparatorStage <i>Association</i>	

7.60 saturationKind

Type: Enumeration *Stereotype:*

Detail: Created: 9/18/2015 Last modified: 12/5/2016

Notes: Specifies the kinds of saturation.

Attributes

Name	Type	Notes
saturated		The fluid is saturated.
undersaturated		The fluid is under-saturated.

Associations

Association	Notes
From: saturationKind. To: TypeEnum <i>Generalization</i>	

7.61 Srk_EOS

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 5/13/2016 Last modified: 12/5/2016

Notes: Srk_EOS.

Associations

Association	Notes
From: Srk_EOS. To: AbstractCompositionalEoSModel <i>Generalization</i>	

7.62 Standing-BubblePoint

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: Standing-BubblePoint.

Associations

Association	Notes
From: Standing-BubblePoint. To: AbstractCorrelationViscosityBubblePointModel <i>Generalization</i>	

7.63 Standing-Dead

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/16/2016 Last modified: 12/5/2016

Notes: Standing-Dead.

Attributes

Name	Type	Notes
OilGravityAtStockTank	APIGravityMeasure	The oil gravity at stock tank for the viscosity model.

Associations

Association	Notes
From: Standing-Dead. To: AbstractCorrelationViscosityDeadModel <i>Generalization</i>	

7.64 Standing-Undersaturated

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 3/15/2016 Last modified: 12/5/2016

Notes: Standing-Undersaturated.

Attributes

Name	Type	Notes
ReservoirTemperature	ThermodynamicTemperatureMeasure	The reservoir temperature for the viscosity model.
SolutionGasOilRatio	VolumePerVolumeMeasure	The solution gas oil ratio for the viscosity model.

Associations

Association	Notes
From: Standing-Undersaturated. To: AbstractCorrelationViscosityUndersaturatedModel <i>Generalization</i>	

7.65 TableDelimiter

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/9/2014 Last modified: 12/5/2016

Notes: Delimiter definition for a table.

Attributes

Name	Type	Notes
asciiCharacters	String64	The ascii character which represents a column delimiter in each row of a table using this table format.

Associations

Association	Notes
From: FluidCharacterizationTableFormat. To: TableDelimiter <i>Dependency</i>	

8 FluidSample

Package: xsd_schemas

Notes: This set of objects contains properties and attributes of a fluid sample. Initially in a sampling project, each fluid sample represents a small amount of fluid extracted from a parent fluid system, as described by the FluidSampleAcquisition within the FluidSampleAcquisitionJob.

8.1 FluidSample

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: The fluid sample.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
Representative	boolean	Boolean to state whether the sample is representative or not.
RockFluidUnitFeatureReference	DataObjectReference	Reference to a RockFluidUnitFeature (a RESQML feature).
SampleDisposition	String64	The sample disposition, if any.
SampleKind	FluidSampleKind	The kind of sample. Enum. See fluid sample kind.

Associations

Association	Notes
0..* From: FluidSample. To: FluidSampleChainofCustodyEvent <i>Association</i>	
0..1 From: FluidSample. To: SampleRecombinationRequirement <i>Association</i>	
0..1 From: FluidSample. To: FluidSampleAcquisitionJobSource <i>Association</i>	
From: FluidSample. To: AbstractObject <i>Generalization</i>	
0..* From: FluidSample.FluidSystemReference 0..1 To: FluidSystem <i>Association</i>	
From: FluidSample. To: FluidSampleKind <i>Dependency</i>	
0..* From: FluidSample. To: FluidSampleComposition <i>Association</i>	
From: FluidSample.OriginalSampleContainerReference	

Association		Notes
0..1	To: FluidSampleContainer <i>Association</i>	
0..* 1	From: FluidAnalysis.FluidSampleReference To: FluidSample <i>Association</i>	
0..1	From: FluidSampleComposition. To: FluidSample <i>Association</i>	
1 1	From: FluidSampleAcquisition.FluidSampleReference To: FluidSample <i>Association</i>	
SampleContaminant.SampleOfContaminantReference 0..1	From: To: FluidSample <i>Association</i>	
0..1	From: WftSampleAcquisition.SampleReference To: FluidSample <i>Association</i>	

8.2 FluidSampleAcquisitionJobSource

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/17/2016 Last modified: 11/3/2016

Notes:

Attributes

Name	Type	Notes
FluidSampleAcquisitionReference	String64	Reference to the fluid sample acquisition (by uid) within a fluid sample acquisition job (which is referred to as a top-level object) which acquired this fluid sample.

Associations

Association	Notes
From: FluidSampleAcquisitionJobSource.FluidSampleAcquisitionJobReference To: FluidSampleAcquisitionJob <i>Association</i>	
0..1 From: FluidSample. To: FluidSampleAcquisitionJobSource <i>Association</i>	

8.3 FluidSampleChainofCustodyEvent

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Fluid sample custody history event.

Attributes

Name	Type	Notes
ContainerLocation	String64	The container location for this chain of custody event.
Custodian	String64	The custodian for this chain of custody event.
CustodyAction	SampleAction	The action for this chain of custody event. Enum. See sample action.
CustodyDate	date	The date for this chain of custody event.
LostVolume	VolumeMeasure	The lost volume of sample for this chain of custody event.
RemainingVolume	VolumeMeasure	The remaining volume of sample for this chain of custody event.
Remark	String2000	Remarks and comments about this data item.
SampleIntegrity	SampleQuality	The sample integrity for this chain of custody event. Enum. See sample quality.
TransferPressure	AbstractPressureValue	The transfer pressure for this chain of custody event.
TransferTemperature	ThermodynamicTemperatureMeasure	The transfer temperature for this chain of custody event.
TransferVolume	VolumeMeasure	The transfer volume for this chain of custody event.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: FluidSampleChainofCustodyEvent.CurrentContainer To: FluidSampleContainer <i>Association</i>	
0..1 From: FluidSampleChainofCustodyEvent.PrevContainer To: FluidSampleContainer <i>Association</i>	
0..* From: FluidSample. To: FluidSampleChainofCustodyEvent <i>Association</i>	

8.4 FluidSampleComposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Fluid sample points to a mixture from other samples.

Attributes

Name	Type	Notes
MassFraction	MassPerMassMeasure	The mass fraction of this parent sample within this combined sample.
MoleFraction	AmountOfSubstancePerAmountOfSubstanceMeasure	The mole fraction of this parent sample within this combined sample.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VolumeFraction	VolumePerVolumeMeasure	The volume fraction of this parent sample within this combined sample.

Associations

Association	Notes
0..1 From: FluidSampleComposition. To: FluidSample <i>Association</i>	
0..* From: FluidSample. To: FluidSampleComposition <i>Association</i>	

8.5 FluidSampleKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Species the kinds of fluid sample by reference to how it was obtained.

Attributes

Name	Type	Notes
synthetic		The fluid sample has originated from synthetic creation.
separator water		The fluid sample has originated from separator water.
separator oil		The fluid sample has originated from separator oil.
separator gas		The fluid sample has originated from separator gas.
downhole cased		The fluid sample has originated from downhole cased hole sampling.
downhole open		The fluid sample has originated from downhole openhole sampling.
recombined		The fluid sample has originated from recombined samples.
wellhead		The fluid sample has originated from wellhead sampling.
commingled		The fluid sample has originated from commingled flow.

Associations

Association	Notes
From: FluidSample. To: FluidSampleKind <i>Dependency</i>	

8.6 SampleAction

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Specifies the actions that may be performed to a fluid sample.

Attributes

Name	Type	Notes
custodyTransfer		The action on the sample for this event was custody transfer to new custodian.
destroyed		The action on the sample for this event was destruction.
sampleTransfer		The action on the sample for this event was sample transfer.
stored		The action on the sample for this event was movement to storage.
subSample Dead		The action on the sample for this event was sub-sampling under dead conditions.
subSample Live		The action on the sample for this event was sub-sampling under live conditions.

Associations

Association	Notes
From: SampleAction. To: TypeEnum <i>Generalization</i>	

8.7 SampleRecombinationRequirement

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 12/2/2014 Last modified: 12/5/2016

Notes: A sample recombination.

Attributes

Name	Type	Notes
LiquidComposition	LiquidComposition	The fluid sampling recombination started with this liquid composition.
LiquidSample	DataObjectReference	Reference to the liquid sample used in this sample recombination.
OverallComposition	OverallComposition	The aim of the fluid sampling recombination was this overall composition.
RecombinationGOR	VolumePerVolumeMeasure	The recombination gas-oil ratio for this sample recombination.
RecombinationPressure	AbstractPressureValue	The recombination pressure for this sample recombination.
RecombinationSaturationPressure	SaturationPressure	The recombination saturation pressure for this sample recombination.
RecombinationTemperature	ThermodynamicTemperatureMeasure	The recombination temperature for this sample recombination.
Remark	String2000	Remarks and comments about this data item.
VaporComposition	VaporComposition	The fluid sampling recombination started with this vapor composition.
VaporSample	DataObjectReference	Reference to the vapor sample used in this sample recombination.

Associations

Association	Notes
0..1 From: FluidSample. To: SampleRecombinationRequirement <i>Association</i>	

9 FluidSampleAcquisitionJob

Package: xsd_schemas

Notes: The fluid sample acquisition job data object is used to describe the method, equipment, time, place and operating conditions for each fluid sample acquired. The sample acquisition job represents the operation to collect one or more fluid samples. Fluid sample acquisition elements repeat, one per sample acquired, within one job.

Fluid sample acquisitions can be made in five types of locations: surface facilities, separators, wellheads, downhole, or directly from the formation by wireline formation tester. Each type of location is defined with specific characteristics so that the important measurements for each type are captured, such as measured depth for downhole samples and the operating conditions for separator samples.

9.1 DownholeSampleAcquisition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Additional information required for a sample acquired down hole.

Attributes

Name	Type	Notes
BaseMD	LengthMeasure	The base MD for the interval where this downhole sample was taken.
SamplingRun	NonNegativeLong	The sampling run number for this downhole sample acquisition.
ToolKind	String64	The kind of tool used to acquire the downhole sample.
TopMD	LengthMeasure	The top MD for the interval where this downhole sample was taken.
WellboreCompletionReference	DataObjectReference	A reference to the wellbore completion (WITSML data object) where this sample was taken.
WellboreReference	DataObjectReference	A reference to the wellbore (a WITSML data object) where this downhole sample was taken.

Associations

Association	Notes
0..1 From: DownholeSampleAcquisition. To: ProductionWellTest <i>Association</i>	
From: DownholeSampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	

9.2 FacilitySampleAcquisition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Additional information required for a sample taken from a facility.

Attributes

Name	Type	Notes
FacilityPressure	AbstractPressureValue	The facility pressure for this facility sample acquisition.
FacilityTemperature	ThermodynamicTemperatureMeasure	The facility temperature when this sample was taken.
SamplingPoint	String64	A reference to the flow port in the facility where this sample was taken.

Associations

Association	Notes
0..1 From: FacilitySampleAcquisition.Facility To: ReportingEntity <i>Association</i>	
From: FacilitySampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	

9.3 FluidSampleAcquisition

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 1/19/2015 Last modified: 12/6/2016

Notes: Information common to any fluid sample taken. Additional details can be captured in related data object depending on the where the sample was taken, for example: downhole, separator, wellhead, of the formation using a wireline formation tester (WFT).

If the tool used to capture samples has multiple containers, each container has a separate instance of fluid sample acquisition.

Attributes

Name	Type	Notes
AcquisitionGOR	VolumePerVolumeMeasure	The acquisition gas-oil ratio for this fluid sample acquisition.
AcquisitionPressure	AbstractPressureValue	The acquisition pressure when this sample was taken.
AcquisitionTemperature	ThermodynamicTemperatureMeasure	The acquisition temperature when this sample was taken.
AcquisitionVolume	VolumeMeasure	The acquisition volume when this sample was taken.
Date	dateTime	The date when the sample was taken.
FormationPressure	PressureMeasure	The formation pressure when this sample was taken.
FormationTemperature	ThermodynamicTemperatureMeasure	The formation temperature when this sample was taken.
Remark	String2000	Remarks and comments about this data item.
ServiceCompany	BusinessAssociate	The service company who took the fluid sample.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
1 From: FluidSampleAcquisition.FluidSampleContainerReference 1 To: FluidSampleContainer <i>Association</i>	
1 From: FluidSampleAcquisition.FluidSampleReference 1 To: FluidSample <i>Association</i>	
From: SeparatorSampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	
From: WellheadSampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	
1 From: FluidSampleAcquisitionJob. 0..* To: FluidSampleAcquisition	

Association	Notes
<i>Association</i>	
From: DownholeSampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	
From: FacilitySampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	
From: WftSampleAcquisitionJob. To: FluidSampleAcquisition <i>Generalization</i>	

9.4 FluidSampleAcquisitionJob

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Information about the job that results in acquiring a fluid sample.

Attributes

Name	Type	Notes
EstimatedStartDate	date	The date when fluid acquisition started.
FieldNoteReference	DataObjectReference	The reference uid of an attached object that stores the field note.
Operation	String64	A reference to an operation described in another data object, which contains the details of the acquisition.

Associations

Association	Notes
0..* From: FluidSampleAcquisitionJob.FluidSystemReference 1 To: FluidSystem <i>Association</i>	
From: FluidSampleAcquisitionJob. To: AbstractObject <i>Generalization</i>	
1 From: FluidSampleAcquisitionJob. 0..* To: FluidSampleAcquisition <i>Association</i>	
From: FluidSampleAcquisitionJobSource.FluidSampleAcquisitionJobReference To: FluidSampleAcquisitionJob <i>Association</i>	
0..1 From: WftResultReference.SampleAcquisition To: FluidSampleAcquisitionJob <i>Association</i>	

9.5 SeparatorSampleAcquisition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Additional information required from a fluid sample taken from a separator.

Attributes

Name	Type	Notes
CorrectedGasRate	VolumePerTimeMeasure	The corrected gas rate for this separator sample acquisition.
CorrectedOilRate	VolumePerTimeMeasure	The corrected oil rate for this separator sample acquisition.
CorrectedWaterRate	VolumePerTimeMeasure	The corrected water rate for this separator sample acquisition.
MeasuredGasRate	VolumePerTimeMeasure	The measured gas rate for this separator sample acquisition.
MeasuredOilRate	VolumePerTimeMeasure	The measured oil rate for this separator sample acquisition.
MeasuredWaterRate	VolumePerTimeMeasure	The measured water rate for this separator sample acquisition.
SamplingPoint	String64	A reference to the flow port in the facility where this sample was taken.
Separator	String64	A reference to the separator where this sample was taken.
SeparatorPressure	AbstractPressureValue	The separator pressure when this sample was taken.
SeparatorTemperature	ThermodynamicTemperatureMeasure	The separator temperature when this sample was taken.
WellCompletionReference	DataObjectReference	A reference to a well completion (WITSML data object) where this sample was taken.

Associations

Association	Notes
From: SeparatorSampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	
0..1 From: SeparatorSampleAcquisition. To: ProductionWellTest <i>Association</i>	

9.6 WellheadSampleAcquisition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Additional information required for a fluid sample taken from a wellhead.

Attributes

Name	Type	Notes
SamplingPoint	String64	A reference to the flow port in the facility where this sample was taken.
WellCompletionReference	DataObjectReference	A reference to the well completion (WITSML data object) where this sample was taken.
WellheadPressure	AbstractPressureValue	The wellhead pressure when the sample was taken.
WellheadTemperature	ThermodynamicTemperatureMeasure	The wellhead temperature when the sample was taken.
WellReference	DataObjectReference	A reference to the well (WITSML data object) where this sample was taken.

Associations

Association	Notes
From: WellheadSampleAcquisition. To: FluidSampleAcquisition <i>Generalization</i>	
0..1 From: WellheadSampleAcquisition. To: ProductionWellTest <i>Association</i>	

9.7 WftSampleAcquisitionJob

Type: Class *Stereotype:* «XSDcomplexType»

Detail: *Created:* 6/13/2014 *Last modified:* 12/5/2016

Notes: Information about the job to take a sample directly from the formation using a wireline formation tester (WFT).

Attributes

Name	Type	Notes
WftSampleAcquisition	String64	Reference to the WFT sample within the WFT station from where this sample was obtained.
WftStation	String64	Reference to the WFT station within the top-level WFT run data object where this sample was obtained.

Associations

Association	Notes
From: WftSampleAcquisitionJob. To: WftRun <i>Association</i>	
From: WftSampleAcquisitionJob. To: FluidSampleAcquisition <i>Generalization</i>	

10 FluidSampleContainer

Package: xsd_schemas

Notes: Information about the fluid container used to capture a fluid sample.

10.1 FluidSampleContainer

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Information about the fluid container used to capture a fluid sample.

Attributes

Name	Type	Notes
BottleID	String64	The reference ID of a bottle or a chamber.
Capacity	VolumeMeasure	The volume of a bottle or chamber.
Kind	String64	The kind of this fluid sample container.
LastInspectionDate	date	The date when this fluid sample container was last inspected.
Make	String64	The make of this fluid sample container.
Metallurgy	String64	The metallurgy of this fluid sample container.
Model	String64	The model of this fluid sample container.
Owner	String64	The owner of this fluid sample container.
PressureRating	PressureMeasure	The pressure rating of this fluid sample container.
Remark	String2000	Remarks and comments about this data item.
SerialNumber	String64	The serial number of this fluid sample container.
TemperatureRating	ThermodynamicTemperatureMeasure	The temperature rating of this fluid sample container.
TransportCertificateReference	DataObjectReference	The reference uid of an attached object which stores the transport certificate.

Associations

Association	Notes
From: FluidSampleContainer. To: AbstractObject <i>Generalization</i>	
1 From: FluidSampleAcquisition.FluidSampleContainerReference 1 To: FluidSampleContainer <i>Association</i>	
From: FluidSampleChainofCustodyEvent.CurrentContainer To: FluidSampleContainer <i>Association</i>	
0..1 From: FluidSampleChainofCustodyEvent.PrevContainer To: FluidSampleContainer	

Association		Notes
<i>Association</i>		
0..1	From: FluidSample.OriginalSampleContainerReference To: FluidSampleContainer <i>Association</i>	

11 FluidSystem

Package: xsd_schemas

Notes: Used to designate each distinct subsurface accumulation of economically significant fluids. This data object primarily serves to identify the source of one or more fluid samples and provides a connection to the geologic environment that contains it. Characteristics of the fluid system include the type of system (e.g., black oil, dry gas, etc.), the fluid phases present, and its lifecycle status (e.g., undeveloped, producing, etc.).

11.1 FluidSystem

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/5/2016

Notes: Used to designate each distinct subsurface accumulation of economically significant fluids. This data object primarily serves to identify the source of one or more fluid samples and provides a connection to the geologic environment that contains it. Characteristics of the fluid system include the type of system (e.g., black oil, dry gas, etc.), the fluid phases present, and its lifecycle status (e.g., undeveloped, producing, etc.).

Attributes

Name	Type	Notes
PhasesPresent	PhasePresent	The phases present for this fluid system. Enum. See phase present.
Remark	String2000	Remarks and comments about this data item.
ReservoirFluidKind	ReservoirFluidKind	The kind of reservoir fluid for this fluid system. Enum. See reservoir fluid kind.
ReservoirLifeCycleState	ReservoirLifeCycleState	The reservoir life cycle state for this fluid system. Enum. See reservoir life cycle state.
RockFluidUnitFeatureReference	DataObjectReference	Reference to a RockFluidUnitFeature (a RESQML data object).
SaturationPressure	SaturationPressure	The saturation (or bubble point) pressure for the fluid system.
SolutionGOR	VolumePerVolumeMeasure	The solution gas-oil ratio for this fluid system.
StandardConditions	AbstractTemperaturePressure	The standard temperature and pressure used for the representation of this fluid system.

Associations

Association	Notes
0..1 From: FluidSystem. To: FormationWater <i>Association</i>	
From: FluidSystem. To: AbstractObject <i>Generalization</i>	
0..1 From: FluidSystem. To: NaturalGas <i>Association</i>	

Association	Notes
0..1 From: FluidSystem. To: StockTankOil <i>Association</i>	
0..* From: FluidSampleAcquisitionJob.FluidSystemReference 1 To: FluidSystem <i>Association</i>	
0..* From: FluidSample.FluidSystemReference 0..1 To: FluidSystem <i>Association</i>	
0..1 From: FluidCharacterization.FluidSystem To: FluidSystem <i>Association</i>	

11.2 PhasePresent

Type: Enumeration *Stereotype:* «Enumeration»

Detail: Created: 11/14/2014 Last modified: 12/5/2016

Notes: Specifies the values for phase present. It can be water, gas or oil; each combination of any two phases; or all three phases.

Attributes

Name	Type	Notes
gas and oil and water		All three phases--gas and oil and water--are present.
water		The phase present is water.
gas		The phase present is gas.
oil		The phase present is oil.
oil and gas		The phases present are oil and gas.
oil and water		The phases present are oil and water.
gas and water		The phases present are gas and water.

Associations

Association	Notes
From: PhasePresent. To: TypeEnum <i>Generalization</i>	

11.3 ReservoirLifeCycleState

Type: Enumeration *Stereotype:* «Enumeration»

Detail: Created: 11/14/2014 Last modified: 12/5/2016

Notes: Specifies the states of the reservoir lifecycle.

Attributes

Name	Type	Notes
abandoned		
primary production		
prospect		
tertiary production		
undeveloped		
secondary recovery		

Associations

Association	Notes
From: ReservoirLifeCycleState. To: TypeEnum <i>Generalization</i>	

12 ProdmlCommon

Package: xsd_schemas

Notes: Common data objects and elements shared across PRODML.

12.1 AbstractDateTimeClass

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/5/2016

Notes: A reporting period that is different from the overall report period. For example, a particular day within a monthly report. This period must conform to the kind of interval. If one value from a pair are given, then both values must be given.

Attributes

Name	Type	Notes
Date	date	Date.
DTime	TimeStamp	DTime.
Month	CalendarMonth	Month.

Associations

Association	Notes
From: StartEndTime. To: AbstractDateTimeClass <i>Generalization</i>	
From: StartEndDate. To: AbstractDateTimeClass <i>Generalization</i>	
0..1 From: ProductVolumePeriod.DateTime To: AbstractDateTimeClass <i>Association</i>	
0..1 From: ProductVolume.DateTime To: AbstractDateTimeClass <i>Association</i>	
0..1 From: ProductionOperation.DateTime To: AbstractDateTimeClass <i>Association</i>	

12.2 AbstractFluidComponent

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 5/19/2015 Last modified: 12/6/2016

Notes: The Abstract base type of FluidComponent.

Attributes

Name	Type	Notes
MassFraction	MassPerMassMeasure	The fluid mass fraction.
MoleFraction	AmountOfSubstancePerAmountOfSubstanceMeasure	The fluid mole fraction.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: PseudoFluidComponent. To: AbstractFluidComponent <i>Generalization</i>	
From: FormationWater. To: AbstractFluidComponent <i>Generalization</i>	
From: PlusFluidComponent. To: AbstractFluidComponent <i>Generalization</i>	
From: NaturalGas. To: AbstractFluidComponent <i>Generalization</i>	
From: PureFluidComponent. To: AbstractFluidComponent <i>Generalization</i>	
From: StockTankOil. To: AbstractFluidComponent <i>Generalization</i>	

12.3 AddressKindEnum

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the kinds of company addresses.

Attributes

Name	Type	Notes
both	TypeEnum	
mailing	TypeEnum	
physical	TypeEnum	physical

Associations

Association	Notes
From: AddressKindEnum. To: TypeEnum <i>Generalization</i>	
From: GeneralAddress. To: AddressKindEnum <i>Dependency</i>	

12.4 AddressQualifier

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies qualifiers that can be used for addresses or phone numbers.

Attributes

Name	Type	Notes
permanent		permanent
personal		personal
work		

Associations

Association	Notes
From: AddressQualifier. To: TypeEnum <i>Generalization</i>	
From: EmailQualifierStruct. To: AddressQualifier <i>Dependency</i>	

12.5 BusinessAssociate

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Describes any company, person, group, consultant, etc., which is associated within a context (e.g., a well). The information contained in this module is: (1) contact information, such as address, phone numbers, email, (2) alternate name, or aliases, and (3) associations, such as the business associate that this one is associated with, or a contact who is associated with this business associate.

Attributes

Name	Type	Notes
Address	GeneralAddress	The business address.
Alias	NameStruct	An alternate name of a business associate. It is generally associated with a naming system. An alias is not necessarily unique within the naming system.
AssociatedWith	String64	A pointer to another business associate that this business associate is associated with. The most common situation is that of an employee being associated with a company. But it may also be, for example, a work group associated with a university.
Contact	String64	A pointer to a business associate (generally a person) who serves as a contact for this business associate.
Email	EmailQualifierStruct	The email address may be home, office, or permanent. More than one may be given.
Name	String64	Name of the business associate.
PersonnelCount	nonNegativeInteger	The count of personnel in a group.
PhoneNumber	PhoneNumberStruct	Various types of phone numbers may be given. They may be office or home, they may be a number for a cell phone, or for a fax, etc. Attributes of PhoneNumber declare the type of phone number that is being given.
Role	NameStruct	The role of the business associate within the context. For example, "driller" or "operator", "lead agency - CEQA compliance" "regulatory contact", "safety contact". A business associate generally has one role but the role may be called different things in different naming systems.

Associations

Association	Notes
From: BusinessAssociate. To: GeneralAddress <i>Dependency</i>	
0..1 From: BusinessAssociate. To: PersonName <i>Association</i>	
From: FiberOTDR.MeasurementContact	

Association	Notes
0..1 To: BusinessAssociate <i>Association</i>	
0..1 From: ProductionOperation.Operator To: BusinessAssociate <i>Association</i>	
0..1 From: Report.Approver To: BusinessAssociate <i>Association</i>	
0..1 From: FiberOpticalPath.InstallingVendor To: BusinessAssociate <i>Association</i>	
0..1 From: Instrument.InstrumentVendor To: BusinessAssociate <i>Association</i>	
0..1 From: FacilityIdentifier.Operator To: BusinessAssociate <i>Association</i>	
0..1 From: Report.Operator To: BusinessAssociate <i>Association</i>	
0..1 From: Report.IssuedBy To: BusinessAssociate <i>Association</i>	
0..1 From: AbstractSimpleProductVolume.Operator To: BusinessAssociate <i>Association</i>	
0..1 From: ProductionOperation.Approver To: BusinessAssociate <i>Association</i>	
0..1 From: ProductionOperation.IssuedBy To: BusinessAssociate <i>Association</i>	
0..1 From: AbstractDtsEquipment.Supplier To: BusinessAssociate <i>Association</i>	

12.6 BusinessUnitKind

Type: Enumeration *Stereotype:* «enumeration»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of business units.

Attributes

Name	Type	Notes
businessarea		
company		
field		
license		
platform		
terminal		
unknown		

Associations

Association	Notes
From: BusinessUnitKind. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeBusinessUnit. To: BusinessUnitKind <i>Dependency</i>	

12.7 CalendarMonth

Type: Class *Stereotype:* «XSDsimpleType»

Detail: Created: 6/13/2014 Last modified: 11/3/2016

Notes: A month of a year (CCYY-MM). A time zone is not allowed. This type is meant to capture original invariant values. It is not intended to be used in "time math" where knowledge of the time zone is needed.

12.8 CalendarYear

Type: Class *Stereotype:* «XSDsimpleType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A calendar year (CCYY) in the gregorian calendar. This type is meant to capture original invariant values. It is not intended to be used in "time math" where knowledge of the time zone is needed.

12.9 CalibrationParameter

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Parameters are given by name/ value pairs, with optional UOM. The parameter name and UOM are attributes, and the value is the value of the element.

Attributes

Name	Type	Notes
name	String64	The name of the parameter.
uom	UomEnum	The unit of measure of the parameter value.

Associations

Association	Notes
From: DtsCalibration. To: CalibrationParameter <i>Dependency</i>	

12.10 DatedComment

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 4/17/2014 Last modified: 12/6/2016

Notes: A general time-stamped comment structure.

Attributes

Name	Type	Notes
EndTime	dateTime	The date and time where the comment is no longer valid.
Remark	String2000	Remarks and comments about this data item.
Role	String64	The role of the person providing the comment. This is the role of the person within the context of comment.
StartTime	dateTime	The date and time where the comment begins to be valid.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Who	String64	The name of the person providing the comment.

Associations

Association	Notes
From: ProductionOperationCargoShipOperation.Comment 0..* To: DatedComment Association	
From: ProductionOperationSafety.Comment 0..* To: DatedComment Association	
From: ProductionOperationMarineOperation.StandbyVesselComment 0..* To: DatedComment Association	
From: ProductionOperationWaterCleaningQuality.Comment 0..* To: DatedComment Association	
From: ProductVolumeFacility.Comment 0..* To: DatedComment Association	
From: ProductVolumeFacility.DowntimeReason 0..* To: DatedComment Association	
From: ProductionOperationShutdown.Activity 0..* To: DatedComment Association	
From: ProductionOperationMarineOperation.BasketMovement 0..* To: DatedComment	

Association	Notes
<i>Association</i>	
0..* From: ProductionOperationMarineOperation.Activity To: DatedComment <i>Association</i>	
From: ProductionOperationMarineOperation.SupplyShipComment 0..* To: DatedComment <i>Association</i>	

12.11 EmailQualifierStruct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/16/2016

Notes: An email address with an attribute, used to "qualify" an email as personal, work, or permanent.

Attributes

Name	Type	Notes
qualifier	AddressQualifier	

Associations

Association	Notes
From: EmailQualifierStruct. To: AddressQualifier <i>Dependency</i>	

12.12 EndpointQualifiedDate

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A date value used for min/max query parameters related to "growing objects". The meaning of the endpoint of an interval can be modified by the endpoint attribute.

Attributes

Name	Type	Notes
endpoint	EndpointQualifier	The default is "inclusive".

Associations

Association	Notes
From: EndpointQualifiedDate. To: EndpointQualifier <i>Dependency</i>	

12.13 EndpointQualifiedDateTime

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A timestamp value used for min/max query parameters related to "growing objects". The meaning of the endpoint of an interval can be modified by the endpoint attribute.

Attributes

Name	Type	Notes
endpoint	EndpointQualifier	The default is "inclusive".

Associations

Association	Notes
From: EndpointQualifiedDateTime. To: EndpointQualifier <i>Dependency</i>	

12.14 EndpointQualifier

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies values for the endpoint for min/max query parameters on "growing objects".

Attributes

Name	Type	Notes
exclusive		The value is excluded.
extensive		The endpoint of the range may be extended to the first encountered value if an exact value match is not found. That is, if a node index value does not match the specified range value then the next smaller value (on minimum end) or larger value (on maximum end) in the index series should be used as the endpoint. Basically, this concept is designed to support interpolation across an undefined point.
inclusive		The value is included.
overlap extensive		The endpoint of the range may be extended to the first encountered value if the interval is overlapped with the index interval. That is, if a node index value does not match the specified range value then the next smaller value (on minimum end) or larger value (on maximum end) in the index series should be used as the endpoint. This concept is designed to select ALL nodes whose index interval overlap with the query range.

Associations

Association	Notes
From: EndpointQualifier. To: TypeEnum <i>Generalization</i>	
From: EndpointQualifiedDate. To: EndpointQualifier <i>Dependency</i>	
From: EndpointQualifiedDateTime. To: EndpointQualifier <i>Dependency</i>	

12.15 EndpointQualifierInterval

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the meaning of the endpoint for a simple interval.

Attributes

Name	Type	Notes
exclusive		The value is excluded.
inclusive		The value is included.
unknown		The value is unknown.

Associations

Association	Notes
From: EndpointQualifierInterval. To: TypeEnum <i>Generalization</i>	
From: EndpointQuantity. To: EndpointQualifierInterval <i>Dependency</i>	

12.16 FacilityIdentifier

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/29/2014 Last modified: 12/6/2016

Notes: Contains details about the facility being surveyed, such as name, geographical data, etc.

Attributes

Name	Type	Notes
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented installation.
Installation	FacilityIdentifierStruct	The name of the facility that is represented by this facility mapping.
Kind	String64	Type of facility where the fiber is deployed.
Name	NameStruct	Name of the facility.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: FacilityIdentifier.GeographicContext To: GeographicContext <i>Association</i>	
0..1 From: FacilityIdentifier.BusinessUnit To: ProductVolumeBusinessUnit <i>Association</i>	
0..1 From: FacilityIdentifier.Operator To: BusinessAssociate <i>Association</i>	
0..1 From: FiberOpticalPath. To: FacilityIdentifier <i>Association</i>	
0..1 From: DtsInstalledSystem. To: FacilityIdentifier <i>Association</i>	
0..1 From: DtsInstrumentBox. To: FacilityIdentifier <i>Association</i>	
1 From: DtsMeasurement. To: FacilityIdentifier <i>Association</i>	

12.17 FacilityIdentifierStruct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/30/2016

Notes: Identifies a facility.

Attributes

Name	Type	Notes
kind	ReportingFacility	The kind of facility.
namingSystem	String64	The naming system within which the name is unique. For example, API or NPD.
siteKind	String64	A custom sub-categorization of facility kind. This attribute is free-form text and allows implementers to provide a more specific or specialized description of the facility kind.
uidRef	String64	The referencing uid.

Associations

Association	Notes
From: ProductFlowExternalReference.ConnectedInstallation 0..1 To: FacilityIdentifierStruct <i>Association</i>	

12.18 FacilityParameter

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the kinds of facility parameters.

Attributes

Name	Type	Notes
absorbed dose class		The amount of energy absorbed per mass.
acceleration linear class		Acceleration linear class.
activity (of radioactivity) class		A measure of the radiation being emitted.
alarm absolute pressure		Absolute minimum pressure of the flow stream before the system gives an alarm. Equivalent to element absoluteMinPres in the ProductVolume data schema.
amount of substance class		Molar amount of a substance.
angle per length		Angle per length.
angle per time		The angular velocity. The rate of change of an angle.
angle per volume		Angle per volume.
angular acceleration class		Angular acceleration class.
annulus inner diameter		Annulus inner diameter.
annulus outer diameter		Annulus outer diameter.
area class		Area class.
area per area		A dimensionless quantity where the basis of the ratio is area.
area per volume		Area per volume.
atmospheric pressure		The average atmospheric pressure during the reporting period. Equivalent to element atmosphere in the ProductVolume data schema.
attenuation class		A logarithmic, fractional change of some measure, generally power or amplitude, over a standard range. This is generally used for frequency attenuation over an octave.
attenuation per length		Attenuation per length.
available		Indicates the availability of the facility. This should be implemented as a string value. A value of "true" indicates that it is available for use. That is, it may be currently shut-down but it can be restarted. A value of "false" indicates that the facility is not available to be used. That is, it cannot be restarted at this time.
available room		Defines the unoccupied volume of a tank. Zero indicates that the tank is full.
block valve status		Indicates the status of a block valve. This should be implemented as a string value. A value of "open" indicates that it is open. A value of "closed" indicates that it is closed.

Name	Type	Notes
capacitance class		Capacitance class.
categorical		The abstract supertype of all enumerated string properties.
cathodic protection output current		Rectifier DC output current.
cathodic protection output voltage		Rectifier DC output voltage.
charge density class		Charge density class.
chemical potential class		Chemical potential class.
choke position		A coded value describing the position of the choke (open, close, traveling).
choke setting		A fraction value (percentage) of the choke opening.
code		A property whose values are constrained to specific string values
compressibility class		Compressibility class.
concentration of B class		Concentration of B class.
conductivity class		Conductivity class.
continuous		Continuous.
cross section absorption class		Cross section absorption class.
current density class		Current density class.
darcy flow coefficient class		Darcy flow coefficient class.
data transmission speed class		Data transmission speed class.
delta temperature class		Delta temperature class.
density		Density.
density class		Density class.
density flow rate		Density flow rate.
density standard		Density standard.
dewpoint temperature		Dewpoint temperature.
differential pressure		Differential pressure.
differential temperature		differential temperature
diffusion coefficient class		diffusion coefficient class
digital storage class		digital storage class
dimensionless class		dimensionless class
discrete		discrete
dose equivalent class		dose equivalent class
dose equivalent rate class		dose equivalent rate class
dynamic viscosity class		dynamic viscosity class
electric charge class		electric charge class
electric conductance class		electric conductance class
electric current class		electric current class
electric dipole moment class		electric dipole moment class

Name	Type	Notes
electric field strength class		electric field strength class
electric polarization class		electric polarization class
electric potential class		electric potential class
electrical resistivity class		electrical resistivity class
electrochemical equivalent class		electrochemical equivalent class
electromagnetic moment class		electromagnetic moment class
energy length per area		energy length per area
energy length per time area temperature		energy length per time area temperature
energy per area		energy per area
energy per length		energy per length
equivalent per mass		equivalent per mass
equivalent per volume		equivalent per volume
exposure (radioactivity) class		exposure (radioactivity) class
facility uptime		facility uptime
flow rate		flow rate
flow rate standard		flow rate standard
force area class		force area class
force class		force class
force length per length		force length per length
force per force		force per force
force per length		force per length
force per volume		force per volume
frequency class		frequency class
frequency interval class		frequency interval class
gamma ray API unit class		gamma ray API unit class
gas liquid ratio		gas liquid ratio
gas oil ratio		gas oil ratio
gross calorific value standard		gross calorific value standard
heat capacity class		heat capacity class
heat flow rate class		heat flow rate class
heat transfer coefficient class		heat transfer coefficient class
illuminance class		illuminance class
internal control valve status		internal control valve status
irradiance class		irradiance class
isothermal compressibility class		isothermal compressibility class
kinematic viscosity class		kinematic viscosity class
length class		length class

Name	Type	Notes
length per length		length per length
length per temperature		length per temperature
length per volume		length per volume
level of power intensity class		level of power intensity class
light exposure class		light exposure class
linear thermal expansion class		linear thermal expansion class
luminance class		luminance class
luminous efficacy class		luminous efficacy class
luminous flux class		luminous flux class
luminous intensity class		luminous intensity class
magnetic dipole moment class		magnetic dipole moment class
magnetic field strength class		magnetic field strength class
magnetic flux class		magnetic flux class
magnetic induction class		magnetic induction class
magnetic permeability class		magnetic permeability class
magnetic vector potential class		magnetic vector potential class
mass		mass
mass attenuation coefficient class		mass attenuation coefficient class
mass class		mass class
mass concentration		mass concentration
mass concentration class		mass concentration class
mass flow rate class		mass flow rate class
mass length class		mass length class
mass per energy		mass per energy
mass per length		mass per length
mass per time per area		mass per time per area
mass per time per length		mass per time per length
mass per volume per length		mass per volume per length
measured depth		measured depth
mobility class		mobility class
modulus of compression class		modulus of compression class
molar concentration		molar concentration
molar fraction		molar fraction
molar heat capacity class		molar heat capacity class
molar volume class		molar volume class
mole per area		mole per area
mole per time		mole per time
mole per time per area		mole per time per area

Name	Type	Notes
molecular weight		molecular weight
moment of force class		moment of force class
moment of inertia class		moment of inertia class
moment of section class		moment of section class
momentum class		momentum class
motor current		motor current
motor current leakage		motor current leakage
motor speed		motor speed
motor temperature		motor temperature
motor vibration		motor vibration
motor voltage		motor voltage
neutron API unit class		neutron API unit class
nonDarcy flow coefficient class		nonDarcy flow coefficient class
opening size		opening size
operations per time		operations per time
parachor class		parachor class
per area		per area
per electric potential		per electric potential
per force		per force
per length		per length
per mass		per mass
per volume		per volume
permeability length class		permeability length class
permeability rock class		permeability rock class
permeance class		permeance class
permittivity class		permittivity class
pH class		pH class
plane angle class		plane angle class
potential difference per power drop		potential difference per power drop
power class		power class
power per volume		power per volume
pressure		pressure
pressure class		pressure class
pressure per time		pressure per time
pressure squared class		pressure squared class
pressure squared per force time per area		pressure squared per force time per area
pressure time per volume		pressure time per volume

Name	Type	Notes
productivity index class		productivity index class
pump count online		pump count online
pump status		pump status
quantity		quantity
quantity of light class		quantity of light class
radiance class		radiance class
radiant intensity class		radiant intensity class
reciprocating speed		reciprocating speed
rectifier structure potential		rectifier structure potential
reid vapor pressure		reid vapor pressure
relative opening size		relative opening size
relative power class		relative power class
relative tank level		relative tank level
relative time class		relative time class
relative valve opening		relative valve opening
reluctance class		reluctance class
resistance class		resistance class
resistivity per length		resistivity per length
root property		root property
scheduled downtime		scheduled downtime
second moment of area class		second moment of area class
shutdown order		shutdown order
shutin pressure		shutin pressure
shutin temperature		shutin temperature
solid angle class		solid angle class
specific activity (of radioactivity)		specific activity (of radioactivity)
specific energy class		specific energy class
specific gravity		specific gravity
specific heat capacity class		specific heat capacity class
specific productivity index class		specific productivity index class
specific volume class		specific volume class
sub surface safety valve status		sub surface safety valve status
surface density class		surface density class
surface safety valve status		surface safety valve status
tank fluid level		tank fluid level
tank product standard volume		tank product standard volume
tank product volume		tank product volume
temperature		temperature

Name	Type	Notes
temperature per length		temperature per length
temperature per time		temperature per time
thermal conductance class		thermal conductance class
thermal conductivity class		thermal conductivity class
thermal diffusivity class		thermal diffusivity class
thermal insulance class		thermal insulance class
thermal resistance class		thermal resistance class
thermodynamic temperature class		thermodynamic temperature class
time class		time class
time per length		time per length
time per volume		time per volume
true vapor pressure		true vapor pressure
unit productivity index class		unit productivity index class
unitless		unitless
unknown		unknown
valve opening		valve opening
valve status		valve status
velocity class		velocity class
volume		volume
volume class		volume class
volume concentration		volume concentration
volume flow rate class		volume flow rate class
volume length per time		volume length per time
volume per area		volume per area
volume per length		volume per length
volume per time per area		volume per time per area
volume per time per length		volume per time per length
volume per time per time		volume per time per time
volume per time per volume		volume per time per volume
volume per volume		volume per volume
volume standard		volume standard
volumetric efficiency		volumetric efficiency
volumetric heat transfer coefficient		volumetric heat transfer coefficient
volumetric thermal expansion class		volumetric thermal expansion class
well operating status		well operating status
well operation type		well operation type
wobbe index		wobbe index

Name	Type	Notes
work		work
work class		work class

Associations

Association	Notes
From: FacilityParameter. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeParameterSet. To: FacilityParameter <i>Dependency</i>	

12.19 FiberMode

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the modes of a distributed temperature survey (DTS) fiber.

Attributes

Name	Type	Notes
multimode		
other		
singlemode		

Associations

Association	Notes
From: FiberMode. To: TypeEnum <i>Generalization</i>	
From: FiberOpticalPathSegment. To: FiberMode <i>Dependency</i>	

12.20 FlowQualifier

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies qualifiers for the type of flow.

Attributes

Name	Type	Notes
allocated		
budget		
constraint		
derived		
difference		
estimate		
forecast		
mass adjusted		
measured		
metered		
metered - fiscal		
nominated		
potential		
processed		
quota		
recommended		
simulated		
target		
tariff basis		
value adjusted		

Associations

Association	Notes
From: FlowQualifier. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeParameterSet. To: FlowQualifier <i>Dependency</i>	

12.21 FlowSubQualifier

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies specializations of a flow qualifier.

Attributes

Name	Type	Notes
decline curve		
difference		
fiscal		
fixed		
maximum		
minimum		
raw		
recalibrated		
standard		

Associations

Association	Notes
From: FlowSubQualifier. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeParameterSet. To: FlowSubQualifier <i>Dependency</i>	

12.22 FluidComponent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/6/2016

Notes: Fluid component.

Attributes

Name	Type	Notes
fluidComponentReference	String64	Fluid component reference.
KValue	AmountOfSubstancePerAmountOfSubstanceMeasure	K value.
MassFraction	MassPerMassMeasure	The mass fraction for the fluid component.
MoleFraction	AmountOfSubstancePerAmountOfSubstanceMeasure	The mole fraction for the fluid component.

Associations

Association	Notes
From: FluidComponent. To: FluidComponentCatalog <i>Dependency</i>	
0..* From: OverallComposition. To: FluidComponent <i>Association</i>	
0..* From: VaporComposition.VaporComponent To: FluidComponent <i>Association</i>	
0..* From: LiquidComposition.LiquidComponent To: FluidComponent <i>Association</i>	

12.23 FluidComponentCatalog

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 12/10/2014 Last modified: 12/6/2016

Notes: Fluid component catalog.

Attributes

Name	Type	Notes
FormationWater	FormationWater	Formation water.
NaturalGas	NaturalGas	Natural gas.
PlusFluidComponent	PlusFluidComponent	Plus-fluid component.
PseudoFluidComponent	PseudoFluidComponent	Pseudo-fluid component.
PureFluidComponent	PureFluidComponent	Pure fluid component.
StockTankOil	StockTankOil	Stock tank oil.

Associations

Association	Notes
From: ProductRate. To: FluidComponentCatalog <i>Dependency</i>	
0..1 From: AbstractSimpleProductVolume. To: FluidComponentCatalog <i>Association</i>	
From: ServiceFluid. To: FluidComponentCatalog <i>Dependency</i>	
From: FluidComponent. To: FluidComponentCatalog <i>Dependency</i>	
From: ProductFluid. To: FluidComponentCatalog <i>Dependency</i>	

12.24 FormationWater

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/6/2014 Last modified: 12/6/2016

Notes: The water in the formation.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
Salinity	MassPerMassMeasure	Salinity level.
SpecificGravity	double	Specific gravity.

Associations

Association	Notes
From: FormationWater. To: AbstractFluidComponent <i>Generalization</i>	
0..1 From: FluidSystem. To: FormationWater <i>Association</i>	

12.25 GeneralAddress

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/16/2016

Notes: An general address structure. This form is appropriate for most countries.

Attributes

Name	Type	Notes
City	String64	The city for the business associate's address.
Country	String64	The country may be included. Although this is optional, it is probably required for most uses.
County	String64	The county, if applicable or necessary.
kind	AddressKindEnum	The type of address: mailing, physical, or both. See AddressKindEnum.
Name	String64	The name line of an address. If missing, use the name of the business associate.
PostalCode	String64	A postal code, if appropriate for the country. In the USA, this would be the five or nine digit zip code.
Province	String64	Province.
State	String64	State.
Street	String64	A generic term for the middle lines of an address. They may be a street address, PO box, suite number, or any lines that come between the "name" and "city" lines. This may be repeated for up to four, ordered lines.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: GeneralAddress. To: AddressKindEnum <i>Dependency</i>	
From: BusinessAssociate. To: GeneralAddress <i>Dependency</i>	

12.26 GeneralMeasureType

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: General measure type.

Attributes

Name	Type	Notes
uom	UomEnum	The unit of measure.

Associations

Association	Notes
From: ProductFlowExpectedUnitProperty. To: GeneralMeasureType <i>Dependency</i>	

12.27 GeneralQualifiedMeasure

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A measure which may have a quality status. The measure class (e.g., length) must be defined within the context of the usage of this type (e.g., in another element). This should not be used if the measure class will always be the same thing. If the 'status' attribute is absent and the value is not "NaN", the data value can be assumed to be good with no restrictions.

Attributes

Name	Type	Notes
componentReference	String64	The kind of the value component. For example, "X" in a tuple of X and Y.
status	ValueStatus	An indicator of the quality of the value.
uom	UomEnum	The unit of measure for the value. This value must conform to the values allowed by the measure class.

Associations

Association	Notes
From: GeneralQualifiedMeasure. To: AbstractMeasureDataType <i>Generalization</i>	
From: GeneralQualifiedMeasure. To: ValueStatus <i>Dependency</i>	

12.28 GeographicContext

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes: A geographic context of a report.

Attributes

Name	Type	Notes
Comment	String2000	A general comment that further explains the offshore location.
Country	String64	The name of the country.
County	String64	The name of county.
Field	NameStruct	The name of the field within whose context the report exists.
State	String64	The state or province within the country.

Associations

Association	Notes
0..1 From: GeographicContext. To: OffshoreLocation <i>Association</i>	
0..1 From: FacilityIdentifier.GeographicContext To: GeographicContext <i>Association</i>	
0..1 From: Report. To: GeographicContext <i>Association</i>	
0..1 From: ProductionOperation.GeographicContext To: GeographicContext <i>Association</i>	

12.29 GeologyFeature

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: Geology features found in the location of the borehole string.

Attributes

Name	Type	Notes
GeologyType	GeologyType	Aquifer or reservoir.
MdBottom	MeasuredDepthCoord	Measured depth at the base of the interval.
MdTop	MeasuredDepthCoord	Measured depth at the top of the interval.
Name	String64	Name of the feature.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: GeologyFeature.TvdTop To: WellVerticalDepthCoord <i>Association</i>	
0..1 From: GeologyFeature.TvdBottom To: WellVerticalDepthCoord <i>Association</i>	
From: GeologyFeature. To: GeologyType <i>Dependency</i>	

12.30 GeologyType

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of geology: water and reservoir.

Attributes

Name	Type	Notes
aquifer	AbstractTypeEnum	aquifer
reservoir	AbstractTypeEnum	reservoir

Associations

Association	Notes
From: GeologyFeature. To: GeologyType <i>Dependency</i>	

12.31 IndexedObject

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Indexed object.

Attributes

Name	Type	Notes
description	String2000	Description.
index	NonNegativeLong	Index.
name	String64	Name.
uom	uomString	Unit of measure.

Associations

Association	Notes
From: FiberOpticalPathSegment. To: IndexedObject <i>Dependency</i>	

12.32 IntegerQualifiedCount

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: An integer which may have a quality status. If the 'status' attribute is absent and the value is not "NaN", the data value can be assumed to be good with no restrictions.

Attributes

Name	Type	Notes
status	ValueStatus	An indicator of the quality of the value.

Associations

Association	Notes
From: IntegerQualifiedCount. To: AbstractMeasureDataType <i>Generalization</i>	

12.33 KeywordValueStruct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A value for the specified keyword. That is, a keyword-value pair. The allowed length of the value is constrained by the keyword.

Attributes

Name	Type	Notes
keyword	TimeSeriesKeyword	The keyword within which the value is unique. The concept of a keyword is very close to the concept of a classification system.

Associations

Association	Notes
From: KeywordValueStruct. To: AbstractString <i>Generalization</i>	
From: KeywordValueStruct. To: TimeSeriesKeyword <i>Dependency</i>	

12.34 KindQualifiedString

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A kind which may have a quality status. If the 'status' attribute is absent and the value is not "NaN", the data value can be assumed to be good with no restrictions.

Attributes

Name	Type	Notes
status	ValueStatus	An indicator of the quality of the value.

Associations

Association	Notes
From: KindQualifiedString. To: AbstractMeasureDataType <i>Generalization</i>	

12.35 LiquidComposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/3/2015 Last modified: 12/6/2016

Notes: The composition of liquid

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
0..* From: LiquidComposition.LiquidComponent To: FluidComponent <i>Association</i>	

12.36 MeasuredDepthCoord

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A measured depth coordinate in a wellbore. Positive moving from the reference datum toward the bottomhole. All coordinates with the same datum (and same UOM) can be considered to be in the same coordinate reference system (CRS) and are thus directly comparable.

Attributes

Name	Type	Notes
uom	VerticalCoordinateUom	The unit of measure of the measured depth coordinate.

Associations

Association	Notes
From: MeasuredDepthCoord. To: AbstractMeasure <i>Generalization</i>	

12.37 MeasureOrQuantity

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A measure with a UOM or a quantity (without a UOM). Use this only where the underlying class of data is captured elsewhere. For example, using a measure class.

Attributes

Name	Type	Notes
uom	UomEnum	The unit of measure for the quantity. This value must conform to the values allowed by a measure class. If the value is a measure, then the UOM must be specified.

Associations

Association	Notes
From: MeasureOrQuantity. To: AbstractMeasure <i>Generalization</i>	

12.38 NameStruct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: The name of something within a naming system.

Attributes

Name	Type	Notes
authority	String64	The authority for the naming system, e.g., a company.

Associations

Association	Notes
From: NameStruct. To: String64 <i>Generalization</i>	
0..* From: ProductFlowUnit.FacilityAlias To: NameStruct <i>Association</i>	

12.39 NaturalGas

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 10/6/2014 Last modified: 12/6/2016

Notes: Natural gas.

Attributes

Name	Type	Notes
GasGravity	double	Gas gravity.
GrossEnergyContentPerUnitMass	EnergyPerMassMeasure	The amount of heat released during the combustion of a specified amount of gas. It is also known as higher heating value (HHV), gross energy, upper heating value, gross calorific value (GCV) or higher calorific Value (HCV). This value takes into account the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is practical.
GrossEnergyContentPerUnitVolume	EnergyPerVolumeMeasure	The amount of heat released during the combustion of a specified amount of gas. It is also known as higher heating value (HHV), gross energy, upper heating value, gross calorific value (GCV) or higher calorific value (HCV). This value takes into account the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is practical.
MolecularWeight	MolecularWeightMeasure	Molecular weight.
NetEnergyContentPerUnitMass	EnergyPerMassMeasure	The amount of heat released during the combustion of a specified amount of gas. It is also known as lower heating value (LHV), net energy, net calorific value (NCV) or lower calorific value (LCV). This value ignores the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is not possible and is ignored.
NetEnergyContentPerUnitVolume	EnergyPerVolumeMeasure	The amount of heat released during the combustion of a specified amount of gas. It is also known as lower heating value (LHV), net energy, net calorific value (NCV) or lower calorific value (LCV). This value ignores the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is not possible and is ignored.
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
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Association		Notes
	From: NaturalGas. To: AbstractFluidComponent <i>Generalization</i>	
0..1	From: FluidSystem. To: NaturalGas <i>Association</i>	

12.40 NonNegativeFraction

Type: Class *Stereotype:* «XSDsimpleType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A floating point value between zero (inclusive) and one (inclusive).

Associations

Association	Notes
From: ProductVolumeProduct. To: NonNegativeFraction <i>Dependency</i>	

12.41 NorthSeaOffshore

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: A type of offshore location that captures the North Sea offshore terminology.

Attributes

Name	Type	Notes
AreaName	String64	An optional, uncontrolled value, which may be used to describe the general area of offshore North Sea in which the point is located.
BlockSuffix	String64	A lower case letter assigned if a block is subdivided.
Quadrant	String64	The number or letter of the quadrant in the North Sea.

Associations

Association	Notes
0..1 From: OffshoreLocation. To: NorthSeaOffshore Association	

12.42 OffshoreLocation

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: A generic type of offshore location. This allows an offshore location to be given by an area name, and up to four block names. A comment is also allowed.

Attributes

Name	Type	Notes
AreaName	String64	A general meaning of area. It may be as general as 'UK North Sea' or 'Viosca Knoll'. The user community must agree on the meaning of this element.
BlockID	String64	A block ID that can more tightly locate the object. The BlockID should be an identifying name or code. The user community for an area must agree on the exact meaning of this element. An aggregate of increasingly specialized block IDs are sometimes necessary to define the location.
Comment	String2000	An general comment that further explains the offshore location.

Associations

Association	Notes
0..1 From: OffshoreLocation. To: NorthSeaOffshore <i>Association</i>	
0..1 From: GeographicContext. To: OffshoreLocation <i>Association</i>	

12.43 OverallComposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/14/2014 Last modified: 12/6/2016

Notes: Overall composition.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
0..* From: OverallComposition. To: FluidComponent <i>Association</i>	
0..1 From: AtmosphericFlashTestAndCompositionalAnalysis. To: OverallComposition <i>Association</i>	
0..1 From: ProductFluid. To: OverallComposition <i>Association</i>	

12.44 PersonName

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The components of a person's name.

Attributes

Name	Type	Notes
First	String64	The person's first name, sometimes called their "given name".
Last	String64	The person's last or family name.
Middle	String64	The person's middle name or initial.
Prefix	String64	A name prefix. Such as, Dr, Ms, Miss, Mr, etc.
Suffix	String64	A name suffix such as Esq, Phd, etc.

Associations

Association	Notes
0..1 From: BusinessAssociate. To: PersonName <i>Association</i>	

12.45 PhoneNumberStruct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A phone number with two attributes, used to "type" and "qualify" a phone number. The type would carry information such as fax, modem, voice, and the qualifier would carry information such as home or office.

Attributes

Name	Type	Notes
extension	String64	The phone number extension.
qualifier	AddressQualifier	Indicates whether the number is personal, business or both.
type	PhoneType	The kind of phone such as voice or fax.

Associations

Association	Notes
From: PhoneNumberStruct. To: PhoneType <i>Dependency</i>	

12.46 PhoneType

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types phone number (e.g., fax, mobile, etc.)

Attributes

Name	Type	Notes
fax		
mobile		
pager		
unknown		
voice		
voice/fax		
voicemail		

Associations

Association	Notes
From: PhoneType. To: TypeEnum <i>Generalization</i>	
From: PhoneNumberStruct. To: PhoneType <i>Dependency</i>	

12.47 PlusComponentEnum

Type: Enumeration *Stereotype:*

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Specifies the types of plus components.

Attributes

Name	Type	Notes
c10+		
c11+		
c12+		
c20+		
c25+		
c30+		
c36+		
c5+		
c6+		
c7+		
c8+		
c9+		

Associations

Association	Notes
From: PlusComponentEnum. To: TypeEnum <i>Generalization</i>	
From: PlusComponentEnumExt. To: PlusComponentEnum <i>Generalization</i>	

12.48 PlusComponentEnumExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Plus component enumeration extension.

Associations

Association	Notes
From: PlusComponentEnumExt. To: EnumExtensionPattern <i>Generalization</i>	
From: PlusComponentEnumExt. To: PlusComponentEnum <i>Generalization</i>	

12.49 PlusFluidComponent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 11/14/2014 Last modified: 12/6/2016

Notes: Plus fluid component.

Attributes

Name	Type	Notes
AvgDensity	MassPerVolumeMeasure	The average density of the fluid.
AvgMolecularWeight	MolecularWeightMeasure	The average molecular weight of the fluid.
Kind	PlusComponentEnumExt	The kind from plus fluid component. See PlusComponentEnum.
Remark	String2000	Remarks and comments about this data item.
SpecificGravity	double	The fluid specific gravity.
StartingBoilingPoint	ThermodynamicTemperatureMeasure	The starting boiling temperature measure.
StartingCarbonNumber	NonNegativeLong	The start/min carbon number.

Associations

Association	Notes
From: PlusFluidComponent. To: AbstractFluidComponent <i>Generalization</i>	

12.50 ProdmlRelativeIdentifier

Type: Class *Stereotype:* «XSDsimpleType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A relative identifier (or URI, Uniform Resource Identifier), It follows the general pattern of *type(id)/type(id)* where (*id*) is optional, as defined in the *Energistics Identifier Specification*, which is available in the zip file when download PRODML.

Associations

Association	Notes
From: ProductVolumeParameterSet. To: ProdmlRelativeIdentifier <i>Dependency</i>	

12.51 ProductFlowExternalReference

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: A reference to an external port in a different product flow model. This value represents a foreign key from one element to another.

Attributes

Name	Type	Notes
ConnectedModelReference	String64	Reference to the connected model.
ConnectedPortReference	String64	Reference to the connected port.
PortReference	String64	Reference to a type of port.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top level object.

Associations

Association	Notes
From: ProductFlowExternalReference.ConnectedInstallation 0..1 To: FacilityIdentifierStruct <i>Association</i>	
From: FiberOpticalPathNetwork.ExternalConnect 0..* To: ProductFlowExternalReference <i>Association</i>	
From: ProductFlowModel.ExternalConnect 0..* To: ProductFlowExternalReference <i>Association</i>	

12.52 ProductFlowNetwork

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The non-contextual content of a product flow network object.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the network.
Name	String64	The name of the product flow network. This must be unique within the context of the overall product flow model.
ParentNetworkReference	String64	A pointer to the network containing the unit that this network represents. That is, the unit must exist in a different network. If a parent network is not specified then the network represents the model. A model should only be represented by one network. The model network represents the overall installation. All other networks represent internal detail and should not be referenced from outside the model. The external ports on the model network represent the external ports to the overall product flow model. A pointer to an external port on the product flow model does not require the name of the model network because it is redundant to knowledge of the model name (i.e., there is a one-to-one correspondence).
PlanName	String64	The name of a network plan. This indicates a planned network. All child network components must all be planned and be part of the same plan. The parent network must either contain the plan (i.e., be an actual) or be part of the same plan. Not specified indicates an actual network.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductFlowNetwork.Plan To: ProductFlowNetworkPlan <i>Association</i>	
1..* From: ProductFlowNetwork.Unit To: ProductFlowUnit <i>Association</i>	
0..* From: ProductFlowNetwork.ChangeLog To: ProductFlowChangeLog <i>Association</i>	
0..* From: ProductFlowNetwork.Port To: ProductFlowExternalPort <i>Association</i>	

Association		Notes
1..*	From: ProductFlowModel.Network To: ProductFlowNetwork <i>Association</i>	
1..*	From: FiberOpticalPathNetwork.Network To: ProductFlowNetwork <i>Association</i>	

12.53 ProductFlowPortType

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of product flow ports.

Attributes

Name	Type	Notes
inlet		
outlet		
unknown		

Associations

Association	Notes
From: ProductFlowPortType. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeFlow. To: ProductFlowPortType <i>Dependency</i>	
From: ProductFlowExternalPort. To: ProductFlowPortType <i>Dependency</i>	

12.54 ProductFluidKind

Type: Enumeration *Stereotype:*

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Specifies the kinds of product in a fluid system.

Attributes

Name	Type	Notes
condensate		
condensate - gross		
condensate - net		
crude - stabilized		
gas - component in oil		
gas - dry		
gas - rich		
gas - wet		
liquefied natural gas		
liquefied petroleum gas		
liquid		
naphtha		
natural gas liquid		
NGL - component in gas		
oil - component in water		
oil - gross		
oil - net		
oil and gas		
petroleum gas liquid		
vapor		
sand		
water - discharge		
water - processed		

Associations

Association	Notes
From: ProductFluidKindExt. To: ProductFluidKind <i>Generalization</i>	

12.55 PseudoComponentEnum

Type: Enumeration *Stereotype:*

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Specifies the kinds of pseudo-components.

Attributes

Name	Type	Notes
c10		c10
c11		
c12		
c13		
c14		
c15		
c16		
c17		
c18		
c19		
c20		
c21		
c22		
c23		
c24		
c25		
c26		
c27		
c28		
c29		
c2-c4+n2		
c30		
c31		
c32		
c33		
c34		
c35		
c4		
c5		
c6		
c7		
c8		

Name	Type	Notes
c9		

Associations

Association	Notes
From: PseudoComponentEnum. To: TypeEnum <i>Generalization</i>	
From: PseudoComponentEnumExt. To: PseudoComponentEnum <i>Generalization</i>	

12.56 PseudoComponentEnumExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Use to create user-defined pseudo-component enumerations.

Associations

Association	Notes
From: PseudoComponentEnumExt. To: EnumExtensionPattern <i>Generalization</i>	
From: PseudoComponentEnumExt. To: PseudoComponentEnum <i>Generalization</i>	

12.57 PseudoFluidComponent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 11/14/2014 Last modified: 12/6/2016

Notes: Pseudo fluid component.

Attributes

Name	Type	Notes
AvgBoilingPoint	ThermodynamicTemperatureMeasure	The average boiling point measure.
AvgDensity	MassPerVolumeMeasure	The average fluid density.
AvgMolecularWeight	MolecularWeightMeasure	Average molecular weight.
EndingBoilingPoint	ThermodynamicTemperatureMeasure	The ending boiling point measure.
EndingCarbonNumber	NonNegativeLong	The ending / largest carbon number.
Kind	PseudoComponentEnumExt	The type from pseudo component enumeration.
Remark	String2000	Remarks and comments about this data item.
SpecificGravity	double	The fluid specific gravity.
StartingBoilingPoint	ThermodynamicTemperatureMeasure	The starting boiling point measure.
StartingCarbonNumber	NonNegativeLong	The starting / smallest carbon number.

Associations

Association	Notes
From: PseudoFluidComponent. To: AbstractFluidComponent <i>Generalization</i>	

12.58 PureComponentEnum

Type: Enumeration *Stereotype:*

Detail: Created: 4/28/2015 Last modified: 12/6/2016

Notes: Specifies the kinds of pure components.

Attributes

Name	Type	Notes
1-2-4-trimethylbenzene		
2-dimethylbutane		
3-dimethylbutane		
ar		
c1		
c2		
c3		
co2		
h2		
h2o		
h2s		
he		
hg		
i-c4		
i-c5		
n2		
n-c10		
n-c4		
n-c5		
n-c6		
n-c7		
n-c8		
n-c9		
neo-c5		
benzene		benzene
2-methylpentane		
3-methylpentane		
2-methylhexane		
3-methylhexane		
2-methylheptane		
3-methylheptane		
cyclohexane		

Name	Type	Notes
ethylbenzene		
ethylcyclohexane		
methylcyclohexane		
methylcyclopentane		
toluene		
m-xylene		
o-xylene		
p-xylene		

Associations

Association	Notes
From: PureComponentEnum. To: TypeEnum <i>Generalization</i>	
From: PureComponentEnumExt. To: PureComponentEnum <i>Generalization</i>	

12.59 PureComponentEnumExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Use to create user-defined pure component enumerations.

Associations

Association	Notes
From: PureComponentEnumExt. To: EnumExtensionPattern <i>Generalization</i>	
From: PureComponentEnumExt. To: PureComponentEnum <i>Generalization</i>	

12.60 PureFluidComponent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 11/14/2014 Last modified: 12/6/2016

Notes: Pure fluid component.

Attributes

Name	Type	Notes
HydrocarbonFlag	boolean	Yes/no flag indicates if hydrocarbon or not.
Kind	PureComponentEnumExt	The type of component.
MolecularWeight	MolecularWeightMeasure	The molecular weight of the pure component.
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
From: PureFluidComponent. To: AbstractFluidComponent <i>Generalization</i>	

12.61 ReportingDurationKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the time periods for a report.

Attributes

Name	Type	Notes
day		
life to date		
month		
month to date		
total cumulative		
week		
year		
year to date		

Associations

Association	Notes
From: ReportingDurationKind. To: TypeEnum <i>Generalization</i>	
From: ProductVolume. To: ReportingDurationKind <i>Dependency</i>	
From: ProductVolumePeriod. To: ReportingDurationKind <i>Dependency</i>	
From: ProductionOperation. To: ReportingDurationKind <i>Dependency</i>	
From: ProductVolumeParameterSet. To: ReportingDurationKind <i>Dependency</i>	

12.62 ReportingEntityKind

Type: Enumeration *Stereotype:*

Detail: Created: 1/8/2016 Last modified: 12/6/2016

Notes: Specifies the kinds of entities (usage of equipment or material) that can be reported on.

Attributes

Name	Type	Notes
business unit		business unit
fpso		fpso
well completion		well completion
wellbore completion		wellbore completion
commercial entity		commercial entity
company		company
contact interval		contact interval
country		country
county		county
facility		facility
field		field
field - part		field - part
flow meter		flow meter
formation		formation
gas plant		gas plant
lease		lease
license		license
pipeline		pipeline
platform		platform
production processing facility		production processing facility
reservoir		reservoir
rock-fluid unit feature		rock-fluid unit feature
state		state
tank		tank
terminal		terminal
well		well
well group		well group
wellbore		wellbore
oil tanker		oil tanker - ship
tanker truck		truck

12.63 ReportingFacility

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the kinds of facilities (usage of equipment or material) that can be reported on.

Attributes

Name	Type	Notes
block valve		block valve
bottomhole		bottomhole
casing		casing
choke		choke
cluster		cluster
commercial entity		commercial entity
company		company
completion		completion
compressor		compressor
controller		controller
controller -- lift		controller -- lift
country		country
county		county
downhole monitoring system		downhole monitoring system
electric submersible pump		electric submersible pump
field		field
field - area		field - area
field - group		field - group
field - part		field - part
flow meter		flow meter
flowline		flowline
formation		formation
gas lift valve mandrel		gas lift valve mandrel
generator		generator
installation		installation
lease		lease
license		license
manifold		manifold
organizational unit		organizational unit
packer		packer
perforated interval		perforated interval
pipeline		pipeline

Name	Type	Notes
plant - processing		plant - processing
platform		platform
pressure meter		pressure meter
processing facility		processing facility
production tubing		production tubing
pump		pump
rectifier		rectifier
regulating valve		regulating valve
remote terminal unit		remote terminal unit
reservoir		reservoir
separator		separator
sleeve valve		sleeve valve
state		state
storage		storage
tank		tank
temperature meter		temperature meter
template		template
terminal		terminal
trap		trap
trunkline		trunkline
tubing head		tubing head
turbine		turbine
unknown		unknown
well		well
well group		well group
wellbore		wellbore
wellhead		wellhead
zone		zone

Associations

Association	Notes
From: ReportingFacility. To: TypeEnum <i>Generalization</i>	

12.64 ReportingFlow

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of flow for volume reports.

Attributes

Name	Type	Notes
consume		consume
consume - black start		consume - black start
consume - compressor		consume - compressor
consume - emitted		consume - emitted
consume - flare		consume - flare
consume - fuel		consume - fuel
consume - HP flare		consume - HP flare
consume - LP flare		consume - LP flare
consume - non compressor		consume - non compressor
consume - venting		consume - venting
disposal		disposal
export		export
export - nominated		export - nominated
export - requested		export - requested
export - shortfall		export - shortfall
gas lift		gas lift
hydrocarbon accounting		hydrocarbon accounting
import		import
injection		injection
inventory		inventory
overboard		overboard
production		production
sale		sale
storage		storage
unknown		unknown

Associations

Association	Notes
From: ReportingFlow. To: TypeEnum <i>Generalization</i>	
From: ProductFlowQualifierExpected. To: ReportingFlow <i>Dependency</i>	

12.65 ReportingProduct

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the kinds of product in a fluid system.

Attributes

Name	Type	Notes
aqueous		aqueous
c10		c10
c10-		c10-
c10+		c10+
c2-		c2-
c2+		c2+
c3-		c3-
c3+		c3+
c4-		c4-
c4+		c4+
c5-		c5-
c5+		c5+
c6-		c6-
c6+		c6+
c7		c7
c7-		c7-
c7+		c7+
c8		c8
c8-		c8-
c8+		c8+
c9		c9
c9-		c9-
c9+		c9+
carbon dioxide gas		carbon dioxide gas
carbon monoxide gas		carbon monoxide gas
chemical		chemical
condensate		condensate
condensate - gross		condensate - gross
condensate - net		condensate - net
crude - stabilized		crude - stabilized
cuttings		cuttings
diesel		diesel

Name	Type	Notes
diethylene glycol		diethylene glycol
dioxygen		dioxygen
electric power		electric power
ethane		ethane
ethane - component		ethane - component
gas		gas
gas - component in oil		gas - component in oil
gas - dry		gas - dry
gas - rich		gas - rich
gas - wet		gas - wet
helium gas		helium gas
heptane		heptane
hydraulic control fluid		hydraulic control fluid
hydrogen gas		hydrogen gas
hydrogen sulfide		hydrogen sulfide
i-butane - component		i-butane - component
isobutane		isobutane
isopentane		isopentane
liquefied natural gas		liquefied natural gas
liquefied petroleum gas		liquefied petroleum gas
liquid		liquid
methane		methane
methane - component		methane - component
methanol		methanol
mixed butane		mixed butane
monoethylene glycol		monoethylene glycol
naphtha		naphtha
natural gas liquid		natural gas liquid
n-butane - component		n-butane - component
neopentane		neopentane
NGL - component in gas		NGL - component in gas
nitrogen gas		nitrogen gas
nitrogen oxide gas		nitrogen oxide gas
normal butane		normal butane
normal pentane		normal pentane
oil		oil
oil - component in water		oil - component in water
oil - gross		oil - gross

Name	Type	Notes
oil - net		oil - net
oil and gas		oil and gas
oleic		oleic
pentane - component		pentane - component
petroleum gas liquid		petroleum gas liquid
propane		propane
propane - component		propane - component
salt		salt
sand - component		sand - component
triethylene glycol		triethylene glycol
unknown		unknown
vapor		vapor
water		water
water - discharge		water - discharge
water - processed		water - processed

Associations

Association	Notes
From: ReportingProduct. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeComponentContent. To: ReportingProduct <i>Dependency</i>	
From: ProductFlowQualifierExpected. To: ReportingProduct <i>Dependency</i>	
From: ProductVolumeParameterSet. To: ReportingProduct <i>Dependency</i>	
From: ProductVolumeProduct. To: ReportingProduct <i>Dependency</i>	
From: ProductVolumeComponentContent. To: ReportingProduct <i>Dependency</i>	

12.66 ReservoirFluidKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the kinds of reservoir hydrocarbon fluid, in broad terms, by their phase behavior.

Attributes

Name	Type	Notes
black oil		black oil
critical or near critical		critical or near critical
dry gas		dry gas
heavy oil		heavy oil
wet gas or condensate		wet gas or condensate
volatile oil		volatile oil
unknown		unknown

Associations

Association	Notes
From: ReservoirFluidKind. To: TypeEnum <i>Generalization</i>	

12.67 SafetyType

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of safety issues for which a count can be defined.

Attributes

Name	Type	Notes
drill or exercise		drill or exercise
fire		fire
first aid		first aid
hazard report card		hazard report card
job observation		job observation
lost time accident		lost time accident
lost time incident		lost time incident
miscellaneous		miscellaneous
near miss		near miss
permit with SJA		permit with SJA
released to air		released to air
released to water		released to water
restricted work		restricted work
safety meeting		safety meeting
sent ashore		sent ashore
severe accident		severe accident
sick on board		sick on board
spill or leak		spill or leak
total permits		total permits
traffic accident		traffic accident
year-to-date incidents		year-to-date incidents

Associations

Association	Notes
From: SafetyType. To: TypeEnum <i>Generalization</i>	
From: SafetyCount. To: SafetyType <i>Dependency</i>	

12.68 SaturationPointKind

Type: Enumeration *Stereotype:*

Detail: Created: 2/3/2015 Last modified: 12/6/2016

Notes: Specifies the kinds of saturation points.

Attributes

Name	Type	Notes
bubble point		bubble point
dew point		dew point
retrograde dew point		retrograde dew point
critical point		critical point

12.69 ServiceFluidKind

Type: Enumeration *Stereotype:*

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Specifies the kinds of product in a fluid system.

Attributes

Name	Type	Notes
alkaline solutions		alkaline solutions
biocide		biocide
carbon dioxide		carbon dioxide
carbon monoxide		carbon monoxide
corrosion inhibitor		corrosion inhibitor
demulsifier		demulsifier
diesel		diesel
diethylene glycol		diethylene glycol
dispersant		dispersant
drag reducing agent		drag reducing agent
emulsifier		emulsifier
flocculant		flocculant
hydraulic control fluid		hydraulic control fluid
isopropanol		isopropanol
lubricant		lubricant
methanol		methanol
monoethylene glycol		monoethylene glycol
oil		oil
other chemical		other chemical
other hydrate inhibitor		other hydrate inhibitor
polymer		polymer
scale inhibitor		scale inhibitor
solvent		solvent
stabilizing agent		stabilizing agent
surfactant		surfactant
thinner		thinner
triethylene glycol		triethylene glycol

Associations

Association	Notes
From: ServiceFluidKindExt. To: ServiceFluidKind <i>Generalization</i>	

12.70 StartEndDate

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The start and end date for a reporting period.

Attributes

Name	Type	Notes
DateEnd	date	The ending date that the period represents.
DateStart	date	The beginning date that the period represents.

Associations

Association	Notes
From: StartEndDate. To: AbstractDateTimeClass <i>Generalization</i>	

12.71 StartEndTime

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Start and end time of a reporting period.

Attributes

Name	Type	Notes
DTimEnd	TimeStamp	The ending date and time that the period represents.
DTimStart	TimeStamp	The beginning date and time that the period represents.

Associations

Association	Notes
From: StartEndTime. To: AbstractDateTimeClass <i>Generalization</i>	

12.72 StockTankOil

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 10/6/2014 Last modified: 12/6/2016

Notes: Stock tank oil (STO).

Attributes

Name	Type	Notes
APIGravity	APIGravityMeasure	API gravity.
GrossEnergyContentPerUnitMass	EnergyPerMassMeasure	The amount of heat released during the combustion of a specified amount of STO. It is also known as higher heating value (HHV), gross energy, upper heating value, gross calorific value (GCV) or higher calorific value (HCV). This value takes into account the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is practical.
GrossEnergyContentPerUnitVolume	EnergyPerVolumeMeasure	The amount of heat released during the combustion of a specified amount of STO. It is also known as higher heating value (HHV), gross energy, upper heating value, gross calorific value (GCV) or higher calorific value (HCV). This value takes into account the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is practical.
MolecularWeight	MolecularWeightMeasure	Molecular weight.
NetEnergyContentPerUnitMass	EnergyPerMassMeasure	The amount of heat released during the combustion of a specified amount of STO. It is also known as lower heating value (LHV), net energy, lower heating value, net calorific value (NCV) or lower calorific value (LCV). This value ignores the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is not possible and is ignored.
NetEnergyContentPerUnitVolume	EnergyPerVolumeMeasure	The amount of heat released during the combustion of a specified amount of STO. It is also known as lower heating value (LHV), net energy, net calorific value (NCV) or lower calorific value (LCV). This value ignores the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is not possible and is ignored.
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
-------------	-------

Association		Notes
	From: StockTankOil. To: AbstractFluidComponent <i>Generalization</i>	
0..1	From: FluidSystem. To: StockTankOil <i>Association</i>	

12.73 TimeSeriesKeyword

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the keywords used for defining keyword-value pairs in a time series.

Attributes

Name	Type	Notes
asset identifier		asset identifier
flow		flow
product		product
qualifier		qualifier
subqualifier		subqualifier
unknown		unknown

Associations

Association	Notes
From: KeywordValueStruct. To: TimeSeriesKeyword <i>Dependency</i>	

12.74 ValueStatus

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the indicators of the quality of a value. This is designed for a SCADA or OPC style of value status.

Attributes

Name	Type	Notes
access denied		access denied
bad		bad
bad calibration		bad calibration
calculation failure		calculation failure
comm failure		comm failure
device failure		device failure
frozen		frozen
not available		not available
overflow		overflow
questionable		questionable
range limit		range limit
sensor failure		sensor failure
substituted		substituted
timeout		timeout

Associations

Association	Notes
From: ValueStatus. To: TypeEnum <i>Generalization</i>	
From: GeneralQualifiedMeasure. To: ValueStatus <i>Dependency</i>	

12.75 VaporComposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/3/2015 Last modified: 12/6/2016

Notes: Vapor composition.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
0..* From: VaporComposition.VaporComponent To: FluidComponent <i>Association</i>	

12.76 VolumeQualifiedMeasure

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/16/2016

Notes: A volume flow rate which may have a quality status. If the 'status' attribute is absent and the value is not "NaN", the data value can be assumed to be good with no restrictions.

Attributes

Name	Type	Notes
status	ValueStatus	An indicator of the quality of the value.

Associations

Association	Notes
From: VolumeQualifiedMeasure. To: VolumeMeasure <i>Generalization</i>	

12.77 WellDirection

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the directions of flow of the fluids in a well facility (generally, injected or produced, or some combination).

Attributes

Name	Type	Notes
huff-n-puff	AbstractTypeEnum	The well facility alternately injects (usually a steam or hot fluid) and produces.
injector	AbstractTypeEnum	The well facility is injecting fluids into the subsurface.
producer	AbstractTypeEnum	The well facility is producing fluids from the subsurface.
uncertain	AbstractTypeEnum	The flow direction of the fluids is variable, but not on a regular basis as is the case with the huff-n-puff flow.

Associations

Association	Notes
From: WellDirection. To: TypeEnum <i>Generalization</i>	
From: WellContext. To: WellDirection <i>Dependency</i>	

12.78 WellElevationCoord

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A vertical (gravity-based) elevation coordinate within the context of a well. Positive moving upward from the reference datum. All coordinates with the same datum (and same UOM) can be considered to be in the same coordinate reference system (CRS) and are thus directly comparable.

Attributes

Name	Type	Notes
uom	VerticalCoordinateUom	The unit of measure of the quantity value. If not given then the default unit of measure of the explicitly or implicitly given datum must be assumed.

Associations

Association	Notes
0..1 From: WellDatum.Elevation To: WellElevationCoord Association	

12.79 WellFluid

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of fluid being produced from or injected into a well facility.

Attributes

Name	Type	Notes
air	AbstractTypeEnum	This is generally an injected fluid.
condensate	AbstractTypeEnum	Liquid hydrocarbons produced with natural gas that are separated from the gas by cooling and various other means. Condensate generally has an API gravity of 50 degrees to 120 degrees and is water white, straw, or bluish in color. It is the liquid recovery from a well classified as a gas well. It is generally dissolved in the gaseous state under reservoir conditions but separates as a liquid either in passing up the hole or at the surface. These hydrocarbons, from associated and non-associated gas well gas, normally are recovered from lease separators or field facilities by mechanical separation.
dry	AbstractTypeEnum	The well facility is classified as a dry well. It has not been nor will it be used to produce or inject any fluids.
gas	AbstractTypeEnum	The well is classified as a gas well, producing or injecting a hydrocarbon gas. The gas is generally methane, but may have a mixture of other gases also.
gas-water	AbstractTypeEnum	The well facility is classified as producing both gas and water. This classification is to be used when the produced stream flow is a mixture of gas and water. When a facility produces gas and water in separate streams, it should be classified twice as gas and as water.
non HC gas	AbstractTypeEnum	The well produces or injects non-hydrocarbon gases. Typical other gases would be helium and carbon dioxide.
non HC gas -- CO2	AbstractTypeEnum	Carbon dioxide gas.
oil	AbstractTypeEnum	The liquid hydrocarbon, generally referred to as crude oil.
oil-gas	AbstractTypeEnum	The well facility is classified as producing both gas and oil. This classification is to be used when the produced stream flow is a mixture of oil and gas. When a facility produces oil and gas in separate streams, it should be classified twice as oil and as gas.
oil-water	AbstractTypeEnum	The well facility is classified as producing both oil and water. This classification is to be used when the produced stream flow is a mixture of oil and water. When a facility produces oil and water in separate streams, it should be classified twice as

Name	Type	Notes
		oil and as water.
steam	AbstractTypeEnum	The gaseous state of water. This is generally an injected fluid, but it is possible that some hydrothermal wells produce steam.
water	AbstractTypeEnum	The well is classified as a water well without distinguishing between brine or fresh water.
water -- brine	AbstractTypeEnum	The well facility is classified as producing or injecting salt water.
water -- fresh water	AbstractTypeEnum	The well facility is classified as producing fresh water that is capable of use for drinking or crop irrigation.

Associations

Association	Notes
From: WellFluid. To: TypeEnum <i>Generalization</i>	
From: WellContext. To: WellFluid <i>Dependency</i>	
From: ProductVolumeFacility. To: WellFluid <i>Dependency</i>	

12.80 WellVerticalDepthCoord

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A vertical (gravity-based) depth coordinate within the context of a well. Positive moving downward from the reference datum. All coordinates with the same datum (and same UOM) can be considered to be in the same coordinate reference system (CRS) and are thus directly comparable.

Attributes

Name	Type	Notes
uom	VerticalCoordinateUom	The unit of measure of the quantity value.

Associations

Association	Notes
0..1 From: GeologyFeature.TvdTop To: WellVerticalDepthCoord <i>Association</i>	
0..1 From: GeologyFeature.TvdBottom To: WellVerticalDepthCoord <i>Association</i>	

13 ProductFlowModel

Package: xsd_schemas

Notes: Can be used to define a directed graph of flow connections. The basic building block is a Unit which can be used to define the flow behavior of any facility (where the term facility represents any use of equipment to perform a function) such as a separator, a wellhead, a valve, a flow line. It utilizes a general hierarchy of:

Model (collection of networks)

Network (collection of connected units)

Unit (black box with ports)

Port (allows flow in or out)

Node (allows ports to connect)

For more information, see the *PRODML Product Volume, Network Model & Time Series Usage Guide*.

13.1 ConnectedNode

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Flow Connected Node Schema.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark associated with this connection, possibly including a reason for termination.
DTimEnd	dateTime	The date and time that the connection was terminated.
DTimStart	dateTime	The date and time that the connection was activated.
Node	String64	Defines the node to which this port is connected. Only two ports should be actively connected to the same node at the same point in time. That is, a port should only be connected to one other port. There are no semantics for the node except common connection. All ports that are connected to a node with the same name are inherently connected to each other. The name of the node is only required to be unique within the context of the current Product Flow Network (that is, not the overall model). All ports must be connected to a node and whether or not any other port is connected to the same node depends on the requirements of the network. Any node that is internally connected to only one node is presumably a candidate to be connected to an external node. The behavior of ports connected at a common node is as follows: a) There is no pressure drop across the node. All ports connected to the node have the same pressure. That is, there is an assumption of steady

Name	Type	Notes
		state fluid flow. b) Conservation of mass exists across the node. The mass into the node via all connected ports equals the mass out of the node via all connected ports. c) The flow direction of a port connected to the node may be transient. That is, flow direction may change toward any port if the relative internal pressure of the Product Flow Units change and a new steady state is achieved.
PlanName	String64	The name of a network plan. This indicates a planned connection. The connected port must be part of the same plan or be an actual. Not specified indicates an actual connection.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductFlowPort.ConnectedNode To: ConnectedNode <i>Association</i>	

13.2 ExpectedFlowQualifier

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/28/2014 Last modified: 11/3/2016

Notes:

Associations

Association		Notes
0..1	From: ProductFlowExpectedUnitProperty. To: ExpectedFlowQualifier <i>Association</i>	
	From: ProductFlowQualifierExpected. To: ExpectedFlowQualifier <i>Generalization</i>	
	From: Qualifier. To: ExpectedFlowQualifier <i>Generalization</i>	

13.3 ProductFlowChangeLog

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Documents the point in time where changes were made.

Attributes

Name	Type	Notes
DTim	dateTime	The timestamp associated with the change. All changes must use this timestamp.
Name	String64	A name assigned to the change.
Reason	String2000	A textual reason for the change.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductFlowNetwork.ChangeLog To: ProductFlowChangeLog <i>Association</i>	
0..* From: ProductFlowNetworkPlan.ChangeLog To: ProductFlowChangeLog <i>Association</i>	

13.4 ProductFlowExpectedUnitProperty

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Defines expected properties of a facility represented by a unit.

Attributes

Name	Type	Notes
ChildFacilityIdentifier	ProdmlRelativeIdentifier	The PRODML Relative Identifier (or URI) of a child of the parent facility. The identifier path is presumed to begin with the identity of the parent facility. This identifies a sub-facility which is identified within the context of the parent facilityParent2/facilityParent1/name identification hierarchy. The property is only expected to be defined for this child and not for the parent. For more information about URIs, see the <i>Energistics Identifier Specification</i> , which is available in the zip file when download PRODML.
Comment	String2000	A descriptive remark associated with this property.
Deadband	GeneralMeasureType	Difference between two consecutive readings, which must exceed deadband value to be accepted.
MaximumFrequency	TimeMeasure	The maximum time difference from the last sent event before the next event is sent.
Property	FacilityParameter	The expected kind of facility property. Each property is documented to have values of a particular type.
TagAlias	NameStruct	An alternative name for the sensor that measures the property.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: ProductFlowExpectedUnitProperty. To: ExpectedFlowQualifier <i>Association</i>	
From: ProductFlowExpectedUnitProperty. To: GeneralMeasureType <i>Dependency</i>	
From: ProductFlowExpectedUnitProperty.ExpectedFlowProduct 0..* To: ProductFlowQualifierExpected <i>Association</i>	
0..* From: ProductFlowPort.ExpectedFlowProperty To: ProductFlowExpectedUnitProperty <i>Association</i>	
0..* From: ProductFlowUnit.ExpectedProperty To: ProductFlowExpectedUnitProperty	

Association	Notes
<i>Association</i>	

13.5 ProductFlowExternalPort

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Flow Network External Port Schema.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the port.
ConnectedNode	String64	Defines the internal node to which this external port is connected. All ports (whether internal or external) that are connected to a node with the same name are connected to each other. Node names are unique to each network. The purpose of the external port is to provide input to or output from the internal network except when the port is an "exposed" port. The purpose of an exposed port is to allow the properties of the port to be seen external to the network. For an exposed port, the connection points to the associated port.
Direction	ProductFlowPortType	Defines whether this port is an inlet or outlet. Note that this is a nominal intended direction.
Exposed	boolean	True ("true" or "1") indicates that the port is an exposed internal port and cannot be used in a connection external to the network. False ("false" or "0") or not given indicates a normal port.
Name	String64	The name of the external port within the context of the current product flow network.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductFlowExternalPort. To: ProductFlowPortType <i>Dependency</i>	
0..* From: ProductFlowNetwork.Port To: ProductFlowExternalPort <i>Association</i>	

13.6 ProductFlowModel

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/5/2016

Notes: The non-contextual content of a product flow model data object.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark about the model.
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented installation.
DTimEnd	dateTime	The date and time of the termination of validity for this model.
DTimMax	EndpointQualifiedDateTim e	The maximum time index contained within the report. The minimum and maximum indexes are server query parameters and will be populated with valid values in a "get" result.
DTimMin	EndpointQualifiedDateTim e	The minimum time index contained within the report. The minimum and maximum indexes are server query parameters and will be populated with valid values in a "get" result.
DTimStart	dateTime	The date and time of the start of validity for this model.
ExistenceTime	EndpointQualifiedDateTim e	The time for which "currently existing" data is desired from the network. All connections (and related data) existing at this time (i.e., start and end bracket this value) will be returned if requested. The existence time is a server query parameter.
Installation	FacilityIdentifierStruct	The name of the facility that is represented by this model. The name can be qualified by a naming system. This also defines the kind of facility.

Associations

Association	Notes
1..* From: ProductFlowModel.Network To: ProductFlowNetwork <i>Association</i>	
From: ProductFlowModel. To: AbstractObject <i>Generalization</i>	
0..* From: ProductFlowModel.ExternalConnect To: ProductFlowExternalReference <i>Association</i>	
0..1 From: ProductVolume.ProductFlowModel To: ProductFlowModel <i>Association</i>	

13.7 ProductFlowNetworkPlan

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: A plan to extend an actual network.

Attributes

Name	Type	Notes
DTimStart	dateTime	The date and time of the start of the plan. This point coincides with the end of the actual configuration. The configuration of the actual at this point in time represents the configuration of the plan at this starting point. All changes to this plan must be in the future from this point in time.
Name	String64	The name assigned to the plan.
Purpose	String2000	A textual description of the purpose of the plan.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductFlowNetworkPlan.ChangeLog To: ProductFlowChangeLog <i>Association</i>	
0..* From: ProductFlowNetwork.Plan To: ProductFlowNetworkPlan <i>Association</i>	

13.8 ProductFlowPort

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Flow Port Schema.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark associated with this port.
Direction	ProductFlowPortType	Defines whether this port is an inlet or outlet. This is a nominal intended direction.
Exposed	boolean	True ("true" or "1") indicates that the port is an exposed internal port and cannot be used in a connection external to the unit. False ("false" or "0") or not given indicates a normal port.
Facility	FacilityIdentifierStruct	The name of the facility represented by this ProductFlowPort The name can be qualified by a naming system. The facility name is assumed to be unique within the context of the facility represented by the unit. This also defines the kind of facility.
FacilityAlias	NameStruct	An alternative name of a facility. This is generally unique within a naming system. The above contextually unique name should also be listed as an alias.
Name	String64	The name of the port within the context of the product flow unit.
PlanName	String64	The name of a network plan. This indicates a planned port. All child network components must all be planned and be part of the same plan. The parent unit must be part of the same plan or be an actual. Not specified indicates an actual port.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
1..* From: ProductFlowPort.ConnectedNode To: ConnectedNode <i>Association</i>	
0..* From: ProductFlowPort.ExpectedFlowProperty To: ProductFlowExpectedUnitProperty <i>Association</i>	
0..* From: ProductFlowPort.ExpectedFlowProduct To: ProductFlowQualifierExpected <i>Association</i>	
0..* From: ProductFlowUnit.Port To: ProductFlowPort <i>Association</i>	

13.9 ProductFlowQualifierExpected

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Defines an expected combination of kinds.

Attributes

Name	Type	Notes
Flow	ReportingFlow	The expected kind of flow.
Product	ReportingProduct	The expected kind of product within the flow.
Qualifier	FlowQualifier	The expected kind of qualifier of the flow.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductFlowQualifierExpected. To: ReportingProduct <i>Dependency</i>	
From: ProductFlowQualifierExpected. To: ExpectedFlowQualifier <i>Generalization</i>	
From: ProductFlowQualifierExpected. To: ReportingFlow <i>Dependency</i>	
From: ProductFlowExpectedUnitProperty.ExpectedFlowProduct 0..* To: ProductFlowQualifierExpected <i>Association</i>	
From: ProductFlowPort.ExpectedFlowProduct 0..* To: ProductFlowQualifierExpected <i>Association</i>	

13.10 ProductFlowUnit

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Flow Unit Schema.

Attributes

Name	Type	Notes
Comment	String2000	A descriptive remark associated with this unit.
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented facility.
Facility	FacilityIdentifierStruct	The name of the facility for which this Product Flow Unit describes fluid flow connection behavior. The name can be qualified by a naming system. This also defines the kind of facility.
FacilityParent1	FacilityIdentifierStruct	For facilities whose name is unique within the context of another facility, the name of the parent facility this named facility. The name can be qualified by a naming system. This also defines the kind of facility.
FacilityParent2	FacilityIdentifierStruct	For facilities whose name is unique within the context of another facility, the name of the parent facility of facilityParent1. The name can be qualified by a naming system. This also defines the kind of facility.
InternalNetworkReference	String64	A pointer to the network representing the internal behavior of this unit. The names of the external ports on the internal network must match the names of the ports on this unit. That is they are logically the same ports.
Name	String64	The name of the ProductFlowUnit within the context of the ProductFlowNetwork.
PlanName	String64	The name of a network plan. This indicates a planned unit. All child network components must all be planned and be part of the same plan. The parent network must either contain the plan (i.e., be an actual) or be part of the same plan. Not specified indicates an actual unit.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductFlowUnit.Port To: ProductFlowPort <i>Association</i>	
0..* From: ProductFlowUnit.ExpectedProperty To: ProductFlowExpectedUnitProperty <i>Association</i>	
From: ProductFlowUnit.FacilityAlias	

Association		Notes
0..*	To: NameStruct <i>Association</i>	
0..1	From: ProductFlowUnit.RelativeCoordinate To: RelativeCoordinate <i>Association</i>	
1..*	From: ProductFlowNetwork.Unit To: ProductFlowUnit <i>Association</i>	

13.11 Qualifier

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/10/2016

Notes:

Attributes

Name	Type	Notes
Qualifier	FlowQualifier	The expected kind of qualifier of the property. This element should only be specified for properties that do not represent the fluid stream (e.g., a valve status).

Associations

Association	Notes
From: Qualifier. To: ExpectedFlowQualifier <i>Generalization</i>	

13.12 RelativeCoordinate

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/5/2016

Notes:

Attributes

Name	Type	Notes
X	LengthPerLengthMeasure	Defines the relative from-left-to-right location on a display screen. The display origin (0,0) is the upper left-hand corner of the display as viewed by the user.
Y	LengthPerLengthMeasure	Defines the relative from-top-to-bottom location on a display screen. The display origin (0,0) is the upper left-hand corner of the display as viewed by the user.
Z	LengthPerLengthMeasure	Defines the relative from-front-to-back location in a 3D system. The unrotated display origin (0,0) is the upper left-hand corner of the display as viewed by the user. The "3D picture" may be rotated on the 2D display.

Associations

Association	Notes
0..1 From: ProductFlowUnit.RelativeCoordinate To: RelativeCoordinate <i>Association</i>	

14 ProductVolume

Package: xsd_schemas

Notes: The Product Volume data object can be used to report production flows or other parameters. For example, it can be used to report the daily allocated volume of oil production for a well or group of wells. It could also be used to report other characteristics (pressure, temperature, flow rate, concentrations, etc.) associated with a specific wellhead. It utilizes a general hierarchy of:

Product Volume

Facility (wellhead, separator, flow line, choke, completion ...)

Parameter Set (block valve status, reciprocating speed, available room ...)

Parameter

Flow (production, injection, export, import, gas lift ...)

Product (oil, water, gas, CO2, oil-gas, cuttings ...)

Period (instant, day, month, year ...)

Temperature

Pressure

Flow rate

For more information, see the *PRODML Product Volume, Network Model & Time Series Usage Guide*.

14.1 AbstractMeasureDataType

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The abstract base type of measure data.

Associations

Association	Notes
From: StringData. To: AbstractMeasureDataType <i>Generalization</i>	
From: IntegerQualifiedCount. To: AbstractMeasureDataType <i>Generalization</i>	
From: ProductVolumeParameterValue.MeasureDataType 1..* To: AbstractMeasureDataType <i>Association</i>	
From: IntegerData. To: AbstractMeasureDataType <i>Generalization</i>	
From: KindQualifiedString. To: AbstractMeasureDataType <i>Generalization</i>	
From: GeneralQualifiedMeasure. To: AbstractMeasureDataType <i>Generalization</i>	
From: CurveData. To: AbstractMeasureDataType <i>Generalization</i>	

14.2 AbstractRefProductFlow

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: A reference to a flow within the current product volume report. This represents a foreign key from one element to another.

Associations

Association		Notes
0..1	From: ProductVolumeProduct.SourceFlow To: AbstractRefProductFlow <i>Association</i>	
	From: ReferenceFlow. To: AbstractRefProductFlow <i>Generalization</i>	
	From: Parentfacility. To: AbstractRefProductFlow <i>Generalization</i>	

14.3 AbstractRelatedFacilityObject

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/31/2014 Last modified: 12/6/2016

Notes: The abstract base type of related facility.

Associations

Association	Notes
From: FacilityParent. To: AbstractRelatedFacilityObject <i>Generalization</i>	
From: ProductVolumeRelatedFacility.RelatedFacilityObject 0..1 To: AbstractRelatedFacilityObject <i>Association</i>	
From: FacilityParent. To: AbstractRelatedFacilityObject <i>Aggregation</i>	
From: FacilityUnitPort. To: AbstractRelatedFacilityObject <i>Generalization</i>	

14.4 BalanceDestinationType

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of destinations.

Attributes

Name	Type	Notes
harbor		Defines the name of the destination harbor.
terminal		Defines the name of the destination terminal.
unknown		Unknown.

Associations

Association	Notes
From: BalanceDestinationType. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeDestination. To: BalanceDestinationType <i>Dependency</i>	

14.5 BalanceEventKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of events related to a product balance.

Attributes

Name	Type	Notes
bill of lading		For a cargo, the date of the bill of lading for the cargo involved.
transaction date		For a transaction (e.g. gas sales transaction), the date for the transaction involved.
unknown		Unknown.

Associations

Association	Notes
From: BalanceEventKind. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeBalanceEvent. To: BalanceEventKind <i>Dependency</i>	

14.6 BalanceFlowPart

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the kinds of subdivisions of a flow related to the stock balance.

Attributes

Name	Type	Notes
adjusted closing		Volume that remains after the operation of transfer.
closing balance		A volume that is the total volume on stock at the end of a time period.
closing storage inventory		A closing storage balance that is adjusted according to imbalance at end of period.
completed lifting		A volume that is the total volume of a hydrocarbon product that is exported from a stock within a given time period.
gain/loss		A volume that is a lack of proper proportion or relation between the corresponding input and lifting transactions.
input to storage		A volume that is the total volume of additions to a stock within a given time period.
lifted		A volume that is transferred ("lifted").
lifting entitlement		A volume that is the contracted volume which can be transferred.
lifting entitlement remaining		A volume that is the contracted volume which is not transferred but which remains available for subsequent transfer.
linepack		A gas volume that is the quantity of gas which the operator responsible for gas transportation decides must be provided by the gas producing fields in order to make deliveries as requested by gas shippers and provide operating tolerances.
opening balance		A volume that is the total volume on stock at the beginning of a time period.
opflex		A gas volume that is the unused and available quantity of gas within a gas transportation system and/or at one or many gas producing fields that is accessible by the operator responsible for gas transportation for the purposes of alleviating field curtailment.
partial lifting		A volume that is the volume of a hydrocarbon product lifting up to a (not completed) determined point in time.
pipeline lifting		A volume that is the volume of a hydrocarbon product lifting transferred by pipeline.
production - mass adjustment		A part of a mass adjustment process of a given production volume.
production -- value adjustment		A value that is adjusted due to a change in the value of a product.
production imbalance		A gas volume that is the difference between gas volume entering and exiting a shipper's nomination portfolio. This will take into account all differences

Name	Type	Notes
		whatever the time or reason it occurs.
swap		A swap of a volume in between different parties (often used in crude sales),e.g. "I have this volume with this quality and value and you can give me this higher volume for it with a lower quality."
tanker lifting		A volume that is the volume of a hydrocarbon product lifting transferred by tanker.
transaction		Typically used within the cargo shipper operations and in this context: is a change in ownership as executed between shippers of the cargo.
transfer		A volume that is the volume of a hydrocarbon product which changes custody in the operation.
unknown		Unknown.

Associations

Association	Notes
From: BalanceFlowPart. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeBalanceSet. To: BalanceFlowPart <i>Dependency</i>	

14.7 CalculationMethod

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the calculation methods available for "filling in" values in an indexed set.

Attributes

Name	Type	Notes
none		No calculations are performed to create data where none exists at index points within an existing set of data.
step wise constant		The value is held constant until the next index point.
unknown		Unknown.

Associations

Association	Notes
From: CalculationMethod. To: TypeEnum <i>Generalization</i>	
From: ProductVolume. To: CalculationMethod <i>Dependency</i>	

14.8 CommonPropertiesProductVolume

Type: Class **Stereotype:** «XSDcomplextypes»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Properties that are common to multiple structures in the product volume schema.

Attributes

Name	Type	Notes
AbsoluteMinPres	PressureMeasure	Absolute minimum pressure before the system will give an alarm.
Atmosphere	PressureMeasure	The average atmospheric pressure during the reporting period.
Bsw	VolumePerVolumeMeasure	Basic sediment and water is measured from a liquid sample of the production stream. It includes free water, sediment and emulsion and is measured as a volume percentage of the production stream.
BswPrevious	VolumePerVolumeMeasure	The basic sediment and water as measured on the previous reporting period (e.g., day).
BswStabilizedCrude	VolumePerVolumeMeasure	Basic sediment and water content in stabilized crude.
Concentration	VolumePerVolumeMeasure	The concentration of the product as a volume percentage of the product stream.
DensityFlowRate	MassPerTimeMeasure	The mass basis flow rate of the product. This is used for things like a sand component.
DensityStabilizedCrude	MassPerVolumeMeasure	The density of stabilized crude.
Efficiency	VolumePerVolumeMeasure	The actual volume divided by the potential volume.
GasLiquidRatio	VolumePerVolumeMeasure	The volumetric ratio of gas to liquid for all products in the whole flow.
Gor	VolumePerVolumeMeasure	Gas oil ratio. The ratio between the total produced gas volume and the total produced oil volume including oil and gas volumes used on the installation.
GorMTD	VolumePerVolumeMeasure	Gas oil ratio month to date. The gas oil ratio from the beginning of the month to the end of the reporting period.
GrossCalorificValueStd	EnergyPerVolumeMeasure	The amount of heat that would be released by the complete combustion in air of a specific quantity of product at standard temperature and pressure.
HcDewpoint	ThermodynamicTemperatureMeasure	The temperature at which the heavier hydrocarbons come out of solution.
Mass	MassMeasure	The mass of the product.
MoleAmt	AmountOfSubstanceMeasure	The molar amount.
MolecularWeight	MolecularWeightMeasure	The molecular weight of the product.
MolePercent	AmountOfSubstancePerAmountOfSubstanceMeasure	The mole fraction of the product.
Pres	PressureMeasure	Pressure of the port. Specifying the pressure here (as opposed to in Period) implies that the pressure

Name	Type	Notes
		is constant for all periods of the flow.
Rvp	PressureMeasure	Reid vapor pressure of the product. The absolute vapor pressure of volatile crude oil and volatile petroleum liquids, except liquefied petroleum gases, as determined in accordance with American Society for Testing and Materials under the designation ASTM D323-56.
RvpStabilizedCrude	PressureMeasure	Reid vapor pressure of stabilized crude.
Sg	DimensionlessMeasure	The specific gravity of the product.
Temp	ThermodynamicTemperatureMeasure	Temperature of the port. Specifying the temperature here (as opposed to in Period) implies that the temperature is constant for all periods of the flow.
Tvp	PressureMeasure	True vapor pressure of the product. The equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with standard methods.
WaterConcMass	MassPerMassMeasure	Water concentration mass basis. The ratio of water produced compared to the mass of total liquids produced.
WaterConcVol	VolumePerVolumeMeasure	Water concentration volume basis. The ratio of water produced compared to the mass of total liquids produced.
WaterDewpoint	ThermodynamicTemperatureMeasure	The temperature at which the first water comes out of solution.
WeightPercent	MassPerMassMeasure	The weight fraction of the product.
WobbelIndex	IsothermalCompressibilityMeasure	Indicator value of the interchangeability of fuel gases.
Work	EnergyMeasure	The electrical energy represented by the product.

Associations

Association	Notes
0..* From: CommonPropertiesProductVolume. To: DensityValue <i>Association</i>	
0..* From: CommonPropertiesProductVolume.VolumeValue To: VolumeValue <i>Association</i>	
0..* From: CommonPropertiesProductVolume.PortDiff To: ProductVolumePortDifference <i>Association</i>	
From: CommonPropertiesProductVolume.FlowRateValue 0..* To: FlowRateValue <i>Association</i>	
0..1 From: ProductVolumeComponentContent.Properties To: CommonPropertiesProductVolume <i>Association</i>	
0..1 From: ProductVolumePeriod.Properties To: CommonPropertiesProductVolume <i>Association</i>	
From: ProductVolumeProduct.Properties	

Association		Notes
0..1	To: CommonPropertiesProductVolume <i>Association</i>	
0..1	From: ProductVolumeFlow.Properties To: CommonPropertiesProductVolume <i>Association</i>	

14.9 CurveData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The data of a curve.

Attributes

Name	Type	Notes
Index	PositiveLong	The value of an independent (index) variable in a row of the curve table. The units of measure are specified in the curve definition. The first value corresponds to order=1 for columns where isIndex is true. The second to order=2. And so on. The number of index and data values must match the number of columns in the table.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Value	double	The value of a dependent (data) variable in a row of the curve table. The units of measure are specified in the curve definition. The first value corresponds to order=1 for columns where isIndex is false. The second to order=2. And so on. The number of index and data values must match the number of columns in the table.

Associations

Association	Notes
From: CurveData. To: AbstractMeasureDataType <i>Generalization</i>	

14.10 CurveDefinition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/29/2016

Notes: The definition of a curve.

Attributes

Name	Type	Notes
IsIndex	boolean	True (equal "1" or "true") indicates that this is an independent variable in this curve. At least one column should be flagged as independent.
MeasureClass	MeasureClass	The measure class of the variable. This defines which units of measure are valid for the value.
Order	NonNegativeLong	The order of the value in the index or data tuple. If isIndex is true, this is the order of the (independent) index element. If isIndex is false, this is the order of the (dependent) value element.
Parameter	String64	The name of the variable in this curve.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Unit	UomEnum	The unit of measure of the variable. The unit of measure must match a unit allowed by the measure class.

Associations

Association	Notes
From: ProductVolumeParameterSet.CurveDefinition To: CurveDefinition <i>Association</i>	

14.11 FacilityParent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Facility parent.

Attributes

Name	Type	Notes
FacilityParent1	FacilityIdentifierStruct	For facilities whose name is unique within the context of another facility, the name of the parent facility. The name can be qualified by a naming system. This also defines the kind of facility.
FacilityParent2	FacilityIdentifierStruct	For facilities whose name is unique within the context of another facility, the name of the parent facility of parent1. The name can be qualified by a naming system. This also defines the kind of facility.
Name	FacilityIdentifierStruct	The name of the facility. The name can be qualified by a naming system. This can also define the kind of facility.

Associations

Association	Notes
From: FacilityParent. To: AbstractRelatedFacilityObject <i>Generalization</i>	
From: FacilityParent. To: AbstractRelatedFacilityObject <i>Aggregation</i>	

14.12 FacilityUnitPort

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Facility unit port.

Attributes

Name	Type	Notes
NetworkReference	String64	The product flow network representing the facility. This is only required if the network is not the same as the primary network that represents the Product Flow Model. This must be unique within the context of the product flow model represented by this report.
PortReference	String64	The product flow port associated with the product flow unit.
UnitReference	String64	The product flow unit representing the facility.

Associations

Association	Notes
From: FacilityUnitPort. To: AbstractRelatedFacilityObject <i>Generalization</i>	

14.13 FluidComponentBasis

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies, in a mixture such as an oil or gas, either a single chemical component, a group of isomeric chemicals, or a fraction.

Attributes

Name	Type	Notes
1		1
1-dimethylcyclopentane		1-dimethylcyclopentane
2		2
2 dimethylbenzene		2 dimethylbenzene
2 dimethylpropane		2 dimethylpropane
2-dimethylbutane		2-dimethylbutane
2-dimethylcyclopentane		2-dimethylcyclopentane
2-dimethylhexane		2-dimethylhexane
2-dimethylpentane		2-dimethylpentane
2-methylbutane		2-methylbutane
2-methylhexane		2-methylhexane
2-methylpentane		2-methylpentane
2-methylpropane		2-methylpropane
3		3
3 dimethylbenzene		3 dimethylbenzene
3-dimethylbutane		3-dimethylbutane
3-dimethylcyclopentane		3-dimethylcyclopentane
3-dimethylpentane		3-dimethylpentane
3-ethylpentane		3-ethylpentane
3-methylhexane		3-methylhexane
3-methylpentane		3-methylpentane
3-trimethylbutane		3-trimethylbutane
3-trimethylpentane		3-trimethylpentane
4-dimethylbenzene		4-dimethylbenzene
4-dimethylhexane		4-dimethylhexane
4-Dimethylpentane		4-Dimethylpentane
4-trimethylbenzene		4-trimethylbenzene
5-dimethylhexane		5-dimethylhexane
argon		argon
benzene		benzene
butane		butane

Name	Type	Notes
c11 fraction		c11 fraction
c12 fraction		c12 fraction
c13 fraction		c13 fraction
c14 fraction		c14 fraction
c15 fraction		c15 fraction
c16 fraction		c16 fraction
c17 fraction		c17 fraction
c18 fraction		c18 fraction
c19 fraction		c19 fraction
c20 fraction		c20 fraction
c21 fraction		c21 fraction
c22 fraction		c22 fraction
c23 fraction		c23 fraction
c24 fraction		c24 fraction
c25 fraction		c25 fraction
c26 fraction		c26 fraction
c27 fraction		c27 fraction
c28 fraction		c28 fraction
c29 fraction		c29 fraction
c30 fraction		c30 fraction
c31 fraction		c31 fraction
c32 fraction		c32 fraction
c33 fraction		c33 fraction
c34 fraction		c34 fraction
c35 fraction		c35 fraction
c36 fraction		c36 fraction
c37 fraction		c37 fraction
c38 fraction		c38 fraction
c39 fraction		c39 fraction
c40 fraction		c40 fraction
c41 fraction		c41 fraction
c42 fraction		c42 fraction
c43 fraction		c43 fraction
c44 fraction		c44 fraction
c45 fraction		c45 fraction
c46 fraction		c46 fraction
c47 fraction		c47 fraction
c48 fraction		c48 fraction

Name	Type	Notes
c49 fraction		c49 fraction
carbon dioxide		carbon dioxide
cis-1		cis-1
cyclohexane		cyclohexane
cyclopentane		cyclopentane
decane		decane
ethane		ethane
ethylbenzene		ethylbenzene
ethylcyclopentane		ethylcyclopentane
heptane		heptane
hexane		hexane
hexane		hexane
hydrogen		hydrogen
hydrogen sulfide		hydrogen sulfide
methane		methane
methylbenzene		methylbenzene
methylcyclohexane		methylcyclohexane
methylcyclopentane		methylcyclopentane
nitrogen		nitrogen
nonane		nonane
octane		octane
oxygen		oxygen
pentane		pentane
propane		propane
trans-1		trans-1
unknown		unknown
water		water

Associations

Association	Notes
From: FluidComponentBasis. To: TypeEnum <i>Generalization</i>	

14.14 IntegerData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/20/2016 Last modified: 12/6/2016

Notes: Integer data.

Attributes

Name	Type	Notes
IntegerValue	IntegerQualifiedCount	The value of a dependent (data) variable in a row of the curve table. The units of measure are specified in the curve definition. The first value corresponds to order=1 for columns where isIndex is false. The second to order=2. And so on. The number of index and data values must match the number of columns in the table.

Associations

Association	Notes
From: IntegerData. To: AbstractMeasureDataType <i>Generalization</i>	

14.15 OwnershipBusinessAcct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes:

Associations

Association	Notes
From: ProductVolumeBusinessSubUnit. To: OwnershipBusinessAcct <i>Association</i>	

14.16 Parentfacility

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/6/2016

Notes: Parent facility.

Attributes

Name	Type	Notes
ParentfacilityReference	String64	A reference to a flow within the current product volume report. This represents a foreign key from one element to another.

Associations

Association	Notes
From: Parentfacility. To: AbstractRefProductFlow <i>Generalization</i>	

14.17 ProductVolume

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The non-contextual content of a product volume object.

Attributes

Name	Type	Notes
ApprovalDate	date	The date that the report was approved.
Approver	BusinessAssociate	The person or company that approved the report. This may contain the role of the person or company within the context of the report.
CalculationMethod	CalculationMethod	The calculation method for "filling in" values in an indexed set. If not given, the default is that no calculations are performed to create data where none exists within an existing set. This is not to be construed as to prevent concepts such as simulation and forecasting from being applied in order to create a new set. This is a server query parameter.
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented installation.
DTimCurrent	dateTime	The definition of the "current time" index for this report. The current time index is a server query parameter which requests the selection of a single node from a recurring "period" set (e.g., the data related to one point in a time series). For the purposes of this parameter, a "period" without any time data should be assumed to have the time associated with the overall report.
DTimMax	EndpointQualifiedDateTim e	The maximum time index contained within the report. For the purposes of this parameter, a "period" or "facility parameter" without any time data should be assumed to have the time associated with the overall report. The minimum and maximum indexes are server query parameters and will be populated with valid values in a "get" result.
DTimMin	EndpointQualifiedDateTim e	The minimum time index contained within the report. For the purposes of this parameter, a "period" or "facility parameter" without any time data should be assumed to have the time associated with the overall report. The minimum and maximum indexes are server query parameters and will be populated with valid values in a "get" result.
GeographicContext	GeographicContext	The geographic context of the report.
Installation	FacilityIdentifierStruct	The name of the facility which is represented by this report. The name can be qualified by a naming system. This also defines the kind of facility.
IssueDate	date	The date that the report was issued.

Name	Type	Notes
IssuedBy	BusinessAssociate	The person or company that issued the report. This may contain the role of the person or company within the context of the report.
Kind	String64	The type of report.
Operator	BusinessAssociate	The operator of the facilities in the report.
PeriodKind	ReportingDurationKind	The type of period that is being reported. This value must be consistent with the reporting start and end values.
StandardTempPres	ReferenceCondition	Defines the default standard temperature and pressure to which all volumes, densities and flow rates in this report have been corrected. The default may be locally overridden for an individual value. If not specified, then the conditions must be presumed to be ambient conditions (i.e., uncorrected) unless otherwise specified at a local level.
Title	NameStruct	The title of the report if different from the name of the report.

Associations

Association	Notes
1..* From: ProductVolume.Facility To: ProductVolumeFacility <i>Association</i>	
From: ProductVolume. To: ReportingDurationKind <i>Dependency</i>	
From: ProductVolume. To: CalculationMethod <i>Dependency</i>	
0..1 From: ProductVolume.ProductFlowModel To: ProductFlowModel <i>Association</i>	
0..* From: ProductVolume.BusinessUnit To: ProductVolumeBusinessUnit <i>Association</i>	
0..1 From: ProductVolume.DateTime To: AbstractDateTimeClass <i>Association</i>	
From: ProductVolume. To: AbstractObject <i>Generalization</i>	

14.18 ProductVolumeAlert

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Alert Schema.

Attributes

Name	Type	Notes
Description	String2000	A textual description of the alert.
Level	String64	The level of the alert.
Target	String2000	An XPATH to the target value within the message containing this XPATH value.
Type	String64	The type of alert. For example "off specification".

Associations

Association	Notes
0..1 From: ProductVolumePeriod.Alert To: ProductVolumeAlert <i>Association</i>	
0..1 From: ProductVolumeParameterValue.Alert To: ProductVolumeAlert <i>Association</i>	

14.19 ProductVolumeBalanceDetail

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 4/17/2014 Last modified: 12/6/2016

Notes: Product Volume Balance Detail Schema.

Attributes

Name	Type	Notes
AccountNumber	String64	An account identifier for the balance.
Owner	String64	A pointer to the business unit which owns the product.
SampleAnalysisResult	String64	A pointer to a fluid sample analysis result object that is relevant to the balance. This sample may have been acquired previous to or after this period and is used for determining the allocated characteristics.
Share	VolumePerVolumeMeasure	The owner's share of the product.
SourceUnit	String64	Points to the business unit from which the product originated.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductVolumeBalanceDetail.ComponentContent To: ProductVolumeComponentContent <i>Association</i>	
0..* From: ProductVolumeBalanceDetail.Event To: ProductVolumeBalanceEvent <i>Association</i>	
0..* From: ProductVolumeBalanceDetail. To: VolumeValue <i>Association</i>	
0..* From: ProductVolumeBalanceSet.BalanceDetail To: ProductVolumeBalanceDetail <i>Association</i>	

14.20 ProductVolumeBalanceEvent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/29/2016

Notes: Captures information about an event related to a product balance.

Attributes

Name	Type	Notes
Date	date	The date of the event.
Kind	BalanceEventKind	The kind of event.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductVolumeBalanceEvent. To: BalanceEventKind <i>Dependency</i>	
0..* From: ProductVolumeBalanceDetail.Event To: ProductVolumeBalanceEvent <i>Association</i>	

14.21 ProductVolumeBalanceSet

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 4/17/2014 Last modified: 12/6/2016

Notes: Product Flow Balance Set Schema.

Attributes

Name	Type	Notes
CargoBatchNumber	nonNegativeInteger	A cargo batch number. Used if the vessel needs to temporarily disconnect for some reason (e.g., weather).
CargoNumber	String64	A cargo identifier for the product.
Kind	BalanceFlowPart	Defines the aspect being described.
Shipper	String64	The name of the shipper
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: ProductVolumeBalanceSet.Destination To: ProductVolumeDestination <i>Association</i>	
0..* From: ProductVolumeBalanceSet.BalanceDetail To: ProductVolumeBalanceDetail <i>Association</i>	
From: ProductVolumeBalanceSet. To: BalanceFlowPart <i>Dependency</i>	
0..* From: ProductVolumePeriod.BalanceSet To: ProductVolumeBalanceSet <i>Association</i>	

14.22 ProductVolumeBusinessSubUnit

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product volume schema for defining ownership shares of business units.

Attributes

Name	Type	Notes
Kind	String64	Points to business unit which is part of another business unit.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductVolumeBusinessSubUnit. To: OwnershipBusinessAcct <i>Association</i>	
0..* From: ProductVolumeBusinessUnit.SubUnit To: ProductVolumeBusinessSubUnit <i>Association</i>	

14.23 ProductVolumeBusinessUnit

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product volume schema for defining business units.

Attributes

Name	Type	Notes
Description	String2000	A textual description of the business unit.
Kind	BusinessUnitKind	The type of business unit.
Name	String64	The human contextual name of the business unit.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductVolumeBusinessUnit. To: BusinessUnitKind <i>Dependency</i>	
0..* From: ProductVolumeBusinessUnit.SubUnit To: ProductVolumeBusinessSubUnit <i>Association</i>	
0..1 From: FacilityIdentifier.BusinessUnit To: ProductVolumeBusinessUnit <i>Association</i>	
0..* From: ProductVolume.BusinessUnit To: ProductVolumeBusinessUnit <i>Association</i>	

14.24 ProductVolumeComponentContent

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Volume Component Content Schema.

Attributes

Name	Type	Notes
Kind	ReportingProduct	The type of product whose relative content is being described. This should be a specific component (e.g., water) rather than a phase (e.g., aqueous).
ReferenceKind	ReportingProduct	The type of product to which the product is being compared. If not given then the product is being compared against the overall flow stream.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: ProductVolumeComponentContent.Properties To: CommonPropertiesProductVolume <i>Association</i>	
From: ProductVolumeComponentContent. To: ReportingProduct <i>Dependency</i>	
From: ProductVolumeComponentContent. To: ReportingProduct <i>Dependency</i>	
0..* From: ProductVolumeBalanceDetail.ComponentContent To: ProductVolumeComponentContent <i>Association</i>	
0..* From: ProductVolumeProduct.ComponentContent To: ProductVolumeComponentContent <i>Association</i>	
0..* From: ProductVolumePeriod.ComponentContent To: ProductVolumeComponentContent <i>Association</i>	

14.25 ProductVolumeDestination

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 4/17/2014 Last modified: 12/6/2016

Notes: Product Flow Sales Destination Schema.

Attributes

Name	Type	Notes
Country	String64	The country of the destination.
Name	String64	The name of the destination.
Type	BalanceDestinationType	The type of destination.

Associations

Association	Notes
From: ProductVolumeDestination. To: BalanceDestinationType <i>Dependency</i>	
0..1 From: ProductVolumeBalanceSet.Destination To: ProductVolumeDestination <i>Association</i>	

14.26 ProductVolumeFacility

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Report Facility Schema.

Attributes

Name	Type	Notes
Capacity	VolumeMeasure	The storage capacity of the facility (e.g., a tank).
FacilityAlias	NameStruct	An alternative name of a facility. This is generally unique within a naming system. The above contextually unique name (that is, within the context of a parent) should also be listed as an alias.
FacilityParent	FacilityIdentifierStruct	Facility parent.
FacilityParent2	FacilityIdentifierStruct	Facility parent2.
FluidWell	WellFluid	POSC well fluid. The type of fluid being produced from or injected into a well facility.
Name	FacilityIdentifierStruct	The name of the facility. The name can be qualified by a naming system. This also defines the kind of facility.
NetWork	String64	Network.
OperatingMethod	WellOperationMethod	The lift method being used to operate the well.
OperationTime	TimeMeasure	The amount of time that the facility was active during the reporting period.
StatusWell	WellStatus	Status of the well.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Unit	String64	Unit.
WellInjecting	boolean	True (or 1) indicates that the well is injecting. False (or 0) or not given indicates that the well is not injecting. This only applies if the facility is a well or wellbore.
WellProducing	boolean	True (or 1) indicates that the well is producing. False (or 0) or not given indicates that the well is not producing. This only applies if the facility is a well or wellbore.

Associations

Association	Notes
From: ProductVolumeFacility.Flow To: ProductVolumeFlow <i>Association</i>	
From: ProductVolumeFacility. To: WellFluid <i>Dependency</i>	
From: ProductVolumeFacility.Comment	

Association	Notes
0..* To: DatedComment <i>Association</i>	
0..* From: ProductVolumeFacility.DowntimeReason To: DatedComment <i>Association</i>	
0..* From: ProductVolumeFacility.ParameterSet To: ProductVolumeParameterSet <i>Association</i>	
From: ProductVolumeFacility. To: WellOperationMethod <i>Dependency</i>	
1..* From: ProductVolume.Facility To: ProductVolumeFacility <i>Association</i>	

14.27 ProductVolumeParameterSet

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Volume Facility Parameter Set Schema.

Attributes

Name	Type	Notes
ChildFacilityIdentifier	ProdmlRelativeIdentifier	The PRODML Relative Identifier (or URI) of a child of the parent facility. The identifier path is presumed to begin with the identity of the parent facility. This identifies a sub-facility which is identified within the context of the parent facilityParent2/facilityParent1/name identification hierarchy. The property is only expected to be defined for this child and not for the parent. For more information about URIs, see the <i>Energistics Identifier Specification</i> , which is available in the zip file when download PRODML.
Comment	String2000	A comment about the parameter.
CoordinateReferenceSystem	String64	The pointer to the coordinate reference system (CRS). This is needed for coordinates such as measured depth to specify the reference datum.
MeasureClass	MeasureClass	If the value is a measure (value with unit of measure), this defines the measurement class of the value. The units of measure for the value must conform to the list allowed by the measurement class in the unit dictionary file. Mutually exclusive with curveDefinition.
Name	FacilityParameter	The name of the facility parameter. This should reflect the business semantics of all values in the set and not the underlying kind. For example, specify "diameter" rather than "length" or "distance".
PeriodKind	ReportingDurationKind	The type of period that is being reported.
Port	String64	The port to which this parameter is assigned. This must be a port on the unit representing the parent facility of this parameter. If not specified then the parameter represents the unit.
Product	ReportingProduct	The type of product that is being reported. This would be useful for something like specifying a tank product volume or level.
Qualifier	FlowQualifier	Qualifies the type of parameter that is being reported.
SubQualifier	FlowSubQualifier	Defines a specialization of the qualifier value. This should only be given if a qualifier is given.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Version	dateTime	A timestamp representing the version of this data. A parameter set with a more recent timestamp will

Name	Type	Notes
		represent the "current" version.
VersionSource	String64	Identifies the source of the version. This will commonly be the name of the software which created the version.

Associations

Association	Notes
From: ProductVolumeParameterSet. To: ReportingProduct <i>Dependency</i>	
From: ProductVolumeParameterSet. To: ReportingDurationKind <i>Dependency</i>	
From: ProductVolumeParameterSet. To: ProdmlRelativeIdentifier <i>Dependency</i>	
From: ProductVolumeParameterSet. To: FlowSubQualifier <i>Dependency</i>	
0..* From: ProductVolumeParameterSet.CurveDefinition To: CurveDefinition <i>Association</i>	
1..* From: ProductVolumeParameterSet.Parameter To: ProductVolumeParameterValue <i>Association</i>	
From: ProductVolumeParameterSet. To: FacilityParameter <i>Dependency</i>	
From: ProductVolumeParameterSet. To: FlowQualifier <i>Dependency</i>	
0..* From: ProductVolumeFacility.ParameterSet To: ProductVolumeParameterSet <i>Association</i>	

14.28 ProductVolumeParameterValue

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Parameter Value Schema.

Attributes

Name	Type	Notes
DTim	dateTime	The date and time at which the parameter applies. If no time is specified then the value is static.
DTimEnd	dateTime	The date and time at which the parameter no longer applies. The "active" time interval is inclusive of this point. If dTimEnd is given then dTim shall also be given.
Port	String64	A port related to the parameter. If a port is given then the corresponding unit usually must be given. For example, an "offset along network" parameter must specify a port from which the offset was measured.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Unit	String64	A unit related to the parameter. For example, an "offset along network" parameter must specify a port (on a unit) from which the offset was measured.

Associations

Association	Notes
From: ProductVolumeParameterValue.MeasureDataType 1..* To: AbstractMeasureDataType Association	
From: ProductVolumeParameterValue.Alert 0..1 To: ProductVolumeAlert Association	
From: ProductVolumeParameterSet.Parameter 1..* To: ProductVolumeParameterValue Association	

14.29 ProductVolumePeriod

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Volume Period Schema.

Attributes

Name	Type	Notes
Comment	DatedComment	A time-stamped remark about the amounts.
Kind	ReportingDurationKind	The type of period that is being reported. If not specified and a time is not given then the period is defined by the reporting period.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductVolumePeriod. To: ReportingDurationKind <i>Dependency</i>	
0..1 From: ProductVolumePeriod.Properties To: CommonPropertiesProductVolume <i>Association</i>	
0..* From: ProductVolumePeriod.ComponentContent To: ProductVolumeComponentContent <i>Association</i>	
0..1 From: ProductVolumePeriod.Alert To: ProductVolumeAlert <i>Association</i>	
0..* From: ProductVolumePeriod.BalanceSet To: ProductVolumeBalanceSet <i>Association</i>	
0..1 From: ProductVolumePeriod.DateTime To: AbstractDateTimeClass <i>Association</i>	
1..* From: ProductVolumeProduct.Period To: ProductVolumePeriod <i>Association</i>	

14.30 ProductVolumePortDifference

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Product Volume port differential characteristics.

Attributes

Name	Type	Notes
ChokeRelative	LengthPerLengthMeasure	The relative size of the choke restriction. This characterizes the overall unit with respect to the flow restriction between the ports. The restriction might be implemented using a valve or an actual choke.
ChokeSize	LengthMeasure	The size of the choke. This characterizes the overall unit with respect to the flow restriction between the ports. The restriction might be implemented using a valve or an actual choke.
PortReference	String64	A port on the other end of an internal connection. This should always be specified if a product flow network is being referenced by this report. If this is not specified then there is an assumption that there is only one other port for the unit. For example, if this end of the connection represents an inlet port then the implied other end is the outlet port for the unit.
PresDiff	PressureMeasure	The differential pressure between the ports.
TempDiff	ThermodynamicTemperatureMeasure	The differential temperature between the ports.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: CommonPropertiesProductVolume.PortDiff To: ProductVolumePortDifference <i>Association</i>	

14.31 ProductVolumeProduct

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 4/17/2014 Last modified: 12/6/2016

Notes: Product Volume Product Schema.

Attributes

Name	Type	Notes
Kind	ReportingProduct	The type of product that is being reported.
MassFraction	MassPerMassMeasure	The weight fraction of the product.
MoleFraction	AmountOfSubstancePerAmountOfSubstanceMeasure	The mole fraction of the product.
Name	NameStruct	The name of product that is being reported. This is reserved for generic kinds like chemical.
SplitFactor	NonNegativeFraction	This factor describes the fraction of fluid in the source flow that is allocated to this product stream. The volumes reported here are derived from the source flow based on this split factor. This should be an allocation flow.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: ProductVolumeProduct.SourceFlow To: AbstractRefProductFlow <i>Association</i>	
1..* From: ProductVolumeProduct.Period To: ProductVolumePeriod <i>Association</i>	
0..* From: ProductVolumeProduct.ComponentContent To: ProductVolumeComponentContent <i>Association</i>	
From: ProductVolumeProduct. To: ReportingProduct <i>Dependency</i>	
0..1 From: ProductVolumeProduct.Properties To: CommonPropertiesProductVolume <i>Association</i>	
From: ProductVolumeProduct. To: NonNegativeFraction <i>Dependency</i>	
0..* From: ProductVolumeFlow.Product To: ProductVolumeProduct <i>Association</i>	

14.32 ProductVolumeRelatedFacility

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: A second facility related to this flow. For a production flow, this would represent a role of 'produced for'. For an import flow, this would represent a role of 'import from'. For an export flow, this would represent a role of 'export to'.

Attributes

Name	Type	Notes
Kind	ReportingFacility	A kind of facility where the specific name is not relevant.

Associations

Association	Notes
From: ProductVolumeRelatedFacility.RelatedFacilityObject 0..1 To: AbstractRelatedFacilityObject <i>Association</i>	
From: ProductVolumeFlow.RelatedFacility 0..1 To: ProductVolumeRelatedFacility <i>Association</i>	

14.33 ReferenceFlow

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/6/2016

Notes: Reference flow.

Attributes

Name	Type	Notes
FlowReference	String64	A pointer to the flow within the facility.

Associations

Association	Notes
From: ReferenceFlow. To: AbstractRefProductFlow <i>Generalization</i>	

14.34 StringData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/20/2016 Last modified: 12/6/2016

Notes: String data.

Attributes

Name	Type	Notes
StringValue	KindQualifiedString	The value of a dependent (data) variable in a row of the curve table. The units of measure are specified in the curve definition. The first value corresponds to order=1 for columns where isIndex is false. The second to order=2. And so on. The number of index and data values must match the number of columns in the table.

Associations

Association	Notes
From: StringData. To: AbstractMeasureDataType <i>Generalization</i>	

14.35 WellOperationMethod

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the lift methods for producing a well.

Attributes

Name	Type	Notes
continuous gas lift		continuous gas lift
electric submersible pump lift		electric submersible pump lift
foam lift		foam lift
hydraulic pump lift		hydraulic pump lift
intermittent gas lift		intermittent gas lift
jet pump lift		jet pump lift
natural flow		natural flow
plunger gas lift		plunger gas lift
progressive cavity pump lift		progressive cavity pump lift
sucker rod pump lift		sucker rod pump lift
unknown		unknown

Associations

Association	Notes
From: WellOperationMethod. To: TypeEnum <i>Generalization</i>	
From: ProductVolumeFacility. To: WellOperationMethod <i>Dependency</i>	

15 ProductionOperation

Package: xsd_schemas

Notes: The Production Operation data object is a further companion to the product volume object. It enables the exchange of production operation data along the lines of a "morning report" for production operations. The volumes would be expected to be transferred using product volume.

Production operation has an offshore operation orientation, reflecting its origins in the Norwegian Continental Shelf reporting requirements.

For more information, see the *PRODML Technical Usage Guide*.

15.1 BeaufortScaleIntegerCode

Type: Class **Stereotype:** «XSDsimpleType»

Detail: Created: 9/15/2014 Last modified: 11/29/2016

Notes: An estimate wind strength based on the Beaufort Wind Scale. Values range from 0 (calm) to 12 (hurricane).

Associations

Association	Notes
From: ProductionOperationWeather. To: BeaufortScaleIntegerCode <i>Dependency</i>	

15.2 CrewCount

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A one-based count of personnel on a type of crew.

Attributes

Name	Type	Notes
type	CrewType	The type of crew for which a count is being defined.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: CrewCount. To: NonNegativeLong <i>Generalization</i>	
From: CrewCount. To: CrewType <i>Dependency</i>	
0..* From: ProductionOperationInstallationReport. To: CrewCount <i>Association</i>	

15.3 CrewType

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of production operations personnel grouping.

Attributes

Name	Type	Notes
catering crew		A count that is the number of persons from the catering contractor spending the night at the installation.
contractor crew		A count that is the number of persons from other than operator spending the night at the installation.
day visitors		A count that is the number of persons visiting the installation but not spending the night at the installation.
drilling contract crew		A count that is the number of persons from the drilling contractor spending the night at the installation.
other crew		A count that is the number of persons from an unknown source, normally not working on the installation but spending the night there.
own crew		A count that is the number of persons from the operator, normally working on the installation and spending the night there.
own other crew		A count that is the number of persons from the operator, normally not working on the installation but spending the night there.
personnel on board		A count of the total personnel on board.

Associations

Association	Notes
From: CrewCount. To: CrewType <i>Dependency</i>	

15.4 LostVolumeAndReason

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/16/2016

Notes: A volume corrected to standard temperature and pressure.

Attributes

Name	Type	Notes
reasonLost	ReasonLost	Defines why the volume was lost.

Associations

Association	Notes
From: LostVolumeAndReason. To: ReasonLost <i>Dependency</i>	
From: LostVolumeAndReason. To: VolumeMeasure <i>Generalization</i>	
From: ProductionOperationLostProduction.VolumeAndReason 0..* To: LostVolumeAndReason <i>Association</i>	

15.5 OperationKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the types of production operations for which general comments can be defined.

Attributes

Name	Type	Notes
air traffic		air traffic
construction		construction
deviations		deviations
maintenance		maintenance
other		other
power station failure		power station failure
production		production
well		well

Associations

Association	Notes
From: OperationKind. To: TypeEnum <i>Generalization</i>	
From: ProductionOperationOperationalComment. To: OperationKind <i>Dependency</i>	

15.6 ProductionOperation

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: The non-contextual content of a Production Operation object.

Attributes

Name	Type	Notes
ApprovalDate	date	The date that the report was approved.
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented installation.
Installation	FacilityIdentifierStruct	The name of the facility which is represented by this report. The name can be qualified by a naming system. This also defines the kind of facility.
IssueDate	date	The date that the report was issued.
Kind	String64	The type of report.
PeriodKind	ReportingDurationKind	The type of period that is being reported. This value must be consistent with the reporting start and end values.
Title	NameStruct	The title of the report, if different from the name of the report.

Associations

Association	Notes
From: ProductionOperation. To: ReportingDurationKind <i>Dependency</i>	
From: ProductionOperation. To: AbstractObject <i>Generalization</i>	
0..1 From: ProductionOperation.Operator To: BusinessAssociate <i>Association</i>	
0..1 From: ProductionOperation.GeographicContext To: GeographicContext <i>Association</i>	
0..* From: ProductionOperation.InstallationReport To: ProductionOperationInstallationReport <i>Association</i>	
0..1 From: ProductionOperation.Approver To: BusinessAssociate <i>Association</i>	
0..1 From: ProductionOperation.IssuedBy To: BusinessAssociate <i>Association</i>	
0..1 From: ProductionOperation.DateTime To: AbstractDateTimeClass <i>Association</i>	

15.7 ProductionOperationActivity

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Production Activity Schema.

Associations

Association	Notes
From: ProductionOperationActivity.WaterCleaningQuality 0..* To: ProductionOperationWaterCleaningQuality <i>Association</i>	
From: ProductionOperationActivity.OperationalComment 0..* To: ProductionOperationOperationalComment <i>Association</i>	
From: ProductionOperationActivity.MarineOperation 0..* To: ProductionOperationMarineOperation <i>Association</i>	
From: ProductionOperationActivity.Shutdown 0..* To: ProductionOperationShutdown <i>Association</i>	
From: ProductionOperationActivity.LostProduction 0..1 To: ProductionOperationLostProduction <i>Association</i>	
From: ProductionOperationActivity.LostInjection 0..1 To: ProductionOperationLostProduction <i>Association</i>	
From: ProductionOperationActivity.CargoShipOperation 0..* To: ProductionOperationCargoShipOperation <i>Association</i>	
From: ProductionOperationActivity.Alarm 0..* To: ProductionOperationAlarm <i>Association</i>	
From: ProductionOperationInstallationReport.ProductionActivity 0..1 To: ProductionOperationActivity <i>Association</i>	

15.8 ProductionOperationAlarm

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: A structure to record information about a single alarm.

Attributes

Name	Type	Notes
Area	String64	The area where the alarm sounded.
Comment	String2000	A general comment about the alarm.
DTim	dateTime	The date and time when the alarms sounded.
Reason	String2000	The reason the alarm sounded.
Type	String64	The type of alarm that sounded.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductionOperationActivity.Alarm To: ProductionOperationAlarm Association	

15.9 ProductionOperationCargoShipOperation

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Information about an operation involving a cargo ship.

Attributes

Name	Type	Notes
Bsw	VolumePerVolumeMeasure	Basic sediment and water is measured from a liquid sample the production stream. It includes free water, sediment and emulsion and is measured as a volume percentage of the liquid.
Captain	String64	Name of the captain of the vessel.
Cargo	String2000	Description of cargo on the vessel.
CargoBatchNumber	nonNegativeInteger	The cargo batch number. Used if the vessel needs to temporarily disconnect for some reason (e.g., weather).
CargoNumber	String64	The cargo identifier.
Density	MassPerVolumeMeasure	Density of the liquid loaded to the tanker.
DensityStdTempPres	MassPerVolumeMeasure	Density of the liquid loaded to the tanker. This density has been corrected to standard conditions of temperature and pressure.
DTimEnd	dateTime	The date and time that the vessel left.
DTimStart	dateTime	The date and time that the vessel arrived.
OilGrossStdTempPres	VolumeMeasure	Gross oil loaded to the ship during the report period. Gross oil includes BS and W. This volume has been corrected to standard conditions of temperature and pressure.
OilGrossTotalStdTempPres	VolumeMeasure	Gross oil loaded to the ship in total during the operation. Gross oil includes BS and W. This volume has been corrected to standard conditions of temperature and pressure.
OilNetMonthToDateStdTempPres	VolumeMeasure	Net oil loaded to the ship from the beginning of the month to the end of the reporting period. Net oil excludes BS and W, fuel, spills, and leaks. This volume has been corrected to standard conditions of temperature and pressure.
OilNetStdTempPres	VolumeMeasure	Net oil loaded to the ship during the report period. Net oil excludes BS and W, fuel, spills, and leaks. This volume has been corrected to standard conditions of temperature and pressure.
Rvp	PressureMeasure	Reid vapor pressure of the liquid.
Salt	MassPerVolumeMeasure	Salt content. The product formed by neutralization of an acid and a base. The term is more specifically applied to sodium chloride.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VesselName	String64	Name of the cargo vessel.

Associations

Association	Notes
From: ProductionOperationCargoShipOperation.Comment 0..* To: DatedComment <i>Association</i>	
From: ProductionOperationActivity.CargoShipOperation 0..* To: ProductionOperationCargoShipOperation <i>Association</i>	

15.10 ProductionOperationHSE

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Operational Health, Safety and Environment Schema.

Attributes

Name	Type	Notes
AlarmCount	nonNegativeInteger	The number of system alarms that have occurred.
IncidentCount	nonNegativeInteger	The number of incidents or accidents and injuries that were reported.
MedicalTreatmentCount	nonNegativeInteger	The number of medical treatments that have occurred.
SafetyDescription	String2000	A textual description of safety considerations.
SafetyIntroCount	nonNegativeInteger	The number of personnel safety introductions that have occurred.
SinceDefinedSituation	TimeMeasure	The amount of time since the most recent defined hazard and accident situation (Norwegian DFU).
SinceLostTime	TimeMeasure	The amount of time since the most recent lost-time accident.
SincePreventionExercise	TimeMeasure	The amount of time since the most recent accident-prevention exercise.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductionOperationHSE.Safety To: ProductionOperationSafety <i>Association</i>	
0..* From: ProductionOperationHSE.Weather To: ProductionOperationWeather <i>Association</i>	
From: ProductionOperationInstallationReport.OperationalHSE 0..* To: ProductionOperationHSE <i>Association</i>	

15.11 ProductionOperationInstallationReport

Type: Class *Stereotype*: «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Installation Report Schema.

Attributes

Name	Type	Notes
BedsAvailable	nonNegativeInteger	Total count of beds available on the installation.
Installation	FacilityIdentifierStruct	The installation represented by this report.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Work	TimeMeasure	The total cumulative amount of time worked during the reporting period. Commonly specified in units of hours. Note that a day unit translates to 24 hours worked.
WorkMonthToDate	TimeMeasure	The total cumulative amount of time worked from the beginning of the month to the end of reporting period. Commonly specified in units of hours. Note that a day unit translates to 24 hours worked.
WorkYearToDate	TimeMeasure	The total cumulative amount of time worked from the beginning of the year to the end of reporting period. Commonly specified in units of hours. Note that a day unit translates to 24 hours worked.

Associations

Association	Notes
From: ProductionOperationInstallationReport.ProductionActivity 0..1 To: ProductionOperationActivity <i>Association</i>	
From: ProductionOperationInstallationReport.OperationalHSE 0..* To: ProductionOperationHSE <i>Association</i>	
From: ProductionOperationInstallationReport. 0..* To: CrewCount <i>Association</i>	
From: ProductionOperation.InstallationReport 0..* To: ProductionOperationInstallationReport <i>Association</i>	

15.12 ProductionOperationLostProduction

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Lost Production Schema.

Associations

Association	Notes
From: ProductionOperationLostProduction.ThirdPartyProcessing 0..* To: ProductionOperationThirdPartyProcessing <i>Association</i>	
From: ProductionOperationLostProduction.VolumeAndReason 0..* To: LostVolumeAndReason <i>Association</i>	
From: ProductionOperationActivity.LostProduction 0..1 To: ProductionOperationLostProduction <i>Association</i>	
From: ProductionOperationActivity.LostInjection 0..1 To: ProductionOperationLostProduction <i>Association</i>	

15.13 ProductionOperationMarineOperation

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Information about a marine operation.

Attributes

Name	Type	Notes
DTimEnd	dateTime	The ending date and time that the comment represents.
DTimStart	dateTime	The beginning date and time that the comment represents.
GeneralComment	String2000	A general comment on marine activity in the area.
StandbyVessel	String64	Name of the standby vessel for the installation.
SupplyShip	String64	Name of the supply vessel for the installation.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductionOperationMarineOperation.StandbyVesselComment 0..* To: DatedComment <i>Association</i>	
From: ProductionOperationMarineOperation.BasketMovement 0..* To: DatedComment <i>Association</i>	
From: ProductionOperationMarineOperation.Activity 0..* To: DatedComment <i>Association</i>	
From: ProductionOperationMarineOperation.SupplyShipComment 0..* To: DatedComment <i>Association</i>	
From: ProductionOperationActivity.MarineOperation 0..* To: ProductionOperationMarineOperation <i>Association</i>	

15.14 ProductionOperationOperationalComment

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Operational Comments Schema.

Attributes

Name	Type	Notes
Comment	String2000	A comment about the operation and/or the activities within the operation.
DTimEnd	dateTime	The ending date and time that the comment represents.
DTimStart	dateTime	The beginning date and time that the comment represents.
Type	OperationKind	The kind of operation.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductionOperationOperationalComment. To: OperationKind <i>Dependency</i>	
From: ProductionOperationActivity.OperationalComment 0..* To: ProductionOperationOperationalComment <i>Association</i>	

15.15 ProductionOperationSafety

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Safety Information Schema.

Attributes

Name	Type	Notes
MeantimeIncident	TimeMeasure	The mean time between safety incidents.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: ProductionOperationSafety.Comment To: DatedComment <i>Association</i>	
0..* From: ProductionOperationSafety. To: SafetyCount <i>Association</i>	
0..* From: ProductionOperationHSE.Safety To: ProductionOperationSafety <i>Association</i>	

15.16 ProductionOperationShutdown

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Information about a shutdown event.

Attributes

Name	Type	Notes
Description	String2000	A general description of the shutdown with reason and other relevant information.
DTimEnd	dateTime	The time the shutdown ended.
DTimStart	dateTime	The time the shutdown started.
Installation	FacilityIdentifierStruct	The name of the installation which was shut down. The name can be qualified by a naming system. This also defines the kind of facility.
LossGasStdTempPres	VolumeMeasure	Estimated loss of gas deliveries because of the shutdown. This volume has been corrected to standard conditions of temperature and pressure.
LossOilStdTempPres	VolumeMeasure	Estimated loss of oil deliveries because of the shutdown. This volume has been corrected to standard conditions of temperature and pressure.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VolumetricDownTime	TimeMeasure	Downtime when the installation is unable to produce 100% of its capability.

Associations

Association	Notes
0..* From: ProductionOperationShutdown.Activity To: DatedComment <i>Association</i>	
0..* From: ProductionOperationActivity.Shutdown To: ProductionOperationShutdown <i>Association</i>	

15.17 ProductionOperationThirdPartyProcessing

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Production losses due to third-party processing.

Attributes

Name	Type	Notes
GasStdTempPres	VolumeMeasure	The estimated amount of gas lost. This volume has been corrected to standard conditions of temperature and pressure
Installation	FacilityIdentifierStruct	The name of the installation which performed the processing. The name can be qualified by a naming system. This also defines the kind of facility.
OilStdTempPres	VolumeMeasure	The estimated amount of oil lost. This volume has been corrected to standard conditions of temperature and pressure
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: ProductionOperationLostProduction.ThirdPartyProcessing 0..* To: ProductionOperationThirdPartyProcessing <i>Association</i>	

15.18 ProductionOperationWaterCleaningQuality

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Information about the contaminants in water, and the general water quality. The values are measured from a sample, which is described below. Values measured from other samples should be given in different instances of the type.

Attributes

Name	Type	Notes
Ammonium	MassPerVolumeMeasure	The amount of ammonium found in the water sample.
AmountOfOil	MassMeasure	Total measured oil in the water after the water cleaning process, but before it is discharged from the installation
CoulterCounter	MassPerMassMeasure	A measure of the number of particles in water as measured by a coulter counter.
Glycol	MassPerVolumeMeasure	The amount of glycol found in the water sample.
OilInWaterProduced	MassPerMassMeasure	Total measured oil in the water after the water cleaning process, but before it is discharged from the installation.
Oxygen	MassPerMassMeasure	Total measured oxygen in the water after the water cleaning process, but before it is discharged from the installation.
Phenol	MassPerVolumeMeasure	The amount of phenol found in the water sample.
PhValue	DimensionlessMeasure	The pH value of the treated water. The pH value is best given as a value, with no unit of measure, since there are no variations from the pH.
ResidualChloride	MassPerMassMeasure	Total measured residual chlorides in the water after the water cleaning process, but before it is discharged from the installation.
SamplePoint	String64	An identifier of the point from which the sample was taken. This is an uncontrolled string value, which should be as descriptive as possible.
TotalOrganicCarbon	MassPerMassMeasure	The amount of total organic carbon found in the water. The water is under high temperature and the carbon left is measured.
Turbidity	DimensionlessMeasure	A measure of the cloudiness of water caused by suspended particles.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WaterTemperature	ThermodynamicTemperatureMeasure	The temperature of the water before it is discharged.

Associations

Association	Notes
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Association	Notes
From: ProductionOperationWaterCleaningQuality.Comment 0..* To: DatedComment <i>Association</i>	
From: ProductionOperationActivity.WaterCleaningQuality 0..* To: ProductionOperationWaterCleaningQuality <i>Association</i>	

15.19 ProductionOperationWeather

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/6/2016

Notes: Operations Weather Schema.

Attributes

Name	Type	Notes
Agency	String64	Name of company that supplied the data.
AmtPrecip	LengthMeasure	Amount of precipitation.
AziCurrentSea	PlaneAngleMeasure	Azimuth of current.
AziWave	PlaneAngleMeasure	The direction from which the waves are coming, measured from true north.
AziWind	PlaneAngleMeasure	The direction from which the wind is blowing, measured from true north.
BarometricPressure	PressureMeasure	Atmospheric pressure.
BeaufortScaleNumber	BeaufortScaleIntegerCode	The Beaufort wind scale is a system used to estimate and report wind speeds when no measuring apparatus is available. It was invented in the early 19th Century by Admiral Sir Francis Beaufort of the British Navy as a way to interpret winds from conditions.
CeilingCloud	LengthMeasure	Height of cloud cover.
Comments	String2000	Comments and remarks.
CoverCloud	String64	Description of cloud cover.
CurrentSea	AngularVelocityMeasure	Current speed.
DTim	dateTime	Date and time the information is related to.
HtWave	LengthMeasure	Average height of the waves.
MaxWave	LengthMeasure	The maximum wave height.
PeriodWave	TimeMeasure	The elapsed time between the passing of two wave tops.
SignificantWave	LengthMeasure	An average of the higher 1/3 of the wave heights passing during a sample period (typically 20 to 30 minutes).
Tempsea	ThermodynamicTemperatureMeasure	Sea temperature.
TempSurface	ThermodynamicTemperatureMeasure	Average temperature above ground for the period. Temperature of the atmosphere.
TempSurfaceMn	ThermodynamicTemperatureMeasure	Minimum temperature above ground. Temperature of the atmosphere.
TempSurfaceMx	ThermodynamicTemperatureMeasure	Maximum temperature above ground.
TempWindChill	ThermodynamicTemperatureMeasure	A measure of the combined chilling effect of wind and low temperature on living things, also named chill factor, e.g., according to US Weather Service table, an air temperature of 30 degF with a 10 mph wind corresponds to a wind chill of 22 degF.
TypePrecip	String64	Type of precipitation.

Name	Type	Notes
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VelWind	AngularVelocityMeasure	Wind speed.
Visibility	LengthMeasure	Horizontal visibility.

Associations

Association	Notes
From: ProductionOperationWeather. To: BeaufortScaleIntegerCode <i>Dependency</i>	
0..* From: ProductionOperationHSE.Weather To: ProductionOperationWeather <i>Association</i>	

15.20 ReasonLost

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the reasons for lost production.

Attributes

Name	Type	Notes
3rd party processing		3rd party processing
daily total loss of prod		daily total loss of prod
extended maint turnaround		extended maint turnaround
extended maint turnaround export		extended maint turnaround export
hse		hse
marked gas		marked gas
marked oil		marked oil
modification project		modification project
operation mistakes		operation mistakes
other		other
planned maint turnaround		planned maint turnaround
preventive maint topside		preventive maint topside
process and operation problem		process and operation problem
production		production
regulatory reference		regulatory reference
reservoir		reservoir
strike/lock-out		strike/lock-out
testing and logging		testing and logging
topside equipment failure-maint		topside equipment failure-maint
unavailable tanker storage		unavailable tanker storage
unknown		unknown
weather problem		weather problem
well equipment failure-maint		well equipment failure-maint
well planned operations		well planned operations
well preventive maint		well preventive maint
well problems		well problems

Associations

Association	Notes
From: ReasonLost. To: TypeEnum <i>Generalization</i>	

Association	Notes
From: LostVolumeAndReason. To: ReasonLost <i>Dependency</i>	

15.21 SafetyCount

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: A zero-based count of a type of safety item.

Attributes

Name	Type	Notes
period	ReportingDurationKind	The type of period being reported by this count.
type	SafetyType	The type of safety issue for which a count is being defined.

Associations

Association	Notes
From: SafetyCount. To: SafetyType <i>Dependency</i>	
From: SafetyCount. To: PositiveLong <i>Generalization</i>	
0..* From: ProductionOperationSafety. To: SafetyCount <i>Association</i>	

16 Report

Package: xsd_schemas
Notes: Report schema.

16.1 Report

Type: Class *Stereotype:* «XSDcomplexType»
Detail: Created: 7/2/2014 Last modified: 12/6/2016
Notes: Report.

Attributes

Name	Type	Notes
ApprovalDate	date	The date that the report was approved.
Comment	String2000	A textual comment about the report.
ContextFacility	FacilityIdentifierStruct	The name and type of a facility whose context is relevant to the represented installation.
Date	date	The date that the report represents (i.e., not a year or month). Only one of date, month or year should be specified.
DateEnd	date	The ending date that the report represents, if it represents an interval.
Installation	FacilityIdentifierStruct	The name of the facility which is represented by this report. The name can be qualified by a naming system. This also defines the kind of facility.
IssueDate	date	The date that the report was issued.
Kind	String64	The type of report. This should define and constrain the expected content of the report.
Month	CalendarMonth	The month that the report represents (i.e., not a year, date or date range). Only one of date, month or year should be specified.
ReportStatus	ReportVersionStatus	The current document version status.
ReportVersion	String64	The current report version.
Year	CalendarYear	The year that the report represents (i.e., not a month, date or date range). Only one of date, month or year should be specified.

Associations

Association	Notes
0..1 From: Report. To: GeographicContext <i>Association</i>	
0..1 From: Report.Approver To: BusinessAssociate <i>Association</i>	
From: Report. To: AbstractObject	

Association		Notes
	<i>Generalization</i>	
0..1	From: Report.Operator To: BusinessAssociate <i>Association</i>	
	From: Report. To: ReportVersionStatus <i>Dependency</i>	
0..1	From: Report.IssuedBy To: BusinessAssociate <i>Association</i>	

16.2 ReportVersionStatus

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/6/2016

Notes: Specifies the statuses of a version of a report.

Attributes

Name	Type	Notes
final		Final, the report is approved.
preliminary		Preliminary, the report has not yet been approved.

Associations

Association	Notes
From: ReportVersionStatus. To: TypeEnum <i>Generalization</i>	
From: Report. To: ReportVersionStatus <i>Dependency</i>	

17 ReportingEntityModel

Package: xsd_schemas

Notes: Reporting entity model schema for simply product volume reporting.

A reporting entity refers to a physical, organizational or geographic “thing” that production data is reported against. For example: wells, fields, leases, business units, countries or states are reporting entities.

At its basic level, the reporting entity data object is simply a “placeholder” object, which all other simple product volume data objects reference. That is, the object identifies the name or ID of the entity against which production data is being reported, but not much other information about it.

Optionally, you can provide other additional data for a reporting entity, using one or both of these methods:

- Define hierarchies to give appropriate context. For example, a hierarchy might be: business unit, fields within a BU, wells within a field, and wellbores within a well.
- Reference a physical data object. For example, a reporting entity that is a well or wellbore can reference a fully defined well or wellbore in WITSML.

For more information about reporting entities, see the *PRODML Technical Usage Guide*.

17.1 ReportingEntity

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 12/1/2014 Last modified: 12/6/2016

Notes: Reporting Entity: The top-level entity in hierarchy structure.

Attributes

Name	Type	Notes
Kind	ReportingEntityKind	The type of reporting entity.
TargetFacilityReference	DataObjectReference	Reference to the target facility.

Associations

Association	Notes
0..* From: ReportingEntity.Alias To: ObjectAlias <i>Association</i>	
From: ReportingEntity. To: AbstractObject <i>Generalization</i>	
1 From: TerminalLifting.LoadingTerminalReference To: ReportingEntity <i>Association</i>	
From: WellProductionParameters.ReportingEntityReference 0..1 To: ReportingEntity <i>Association</i>	
0..1 From: TerminalLifting.DestinationTerminalReference To: ReportingEntity	

Association	Notes
<i>Association</i>	
From: ReportingEntityVolumes.ReportingEntityReference 1 To: ReportingEntity <i>Association</i>	
From: ReportingHierarchyNode.ReportingEntityReference 0..1 To: ReportingEntity <i>Association</i>	
From: Transfer.DestinationFacilityReference 1 To: ReportingEntity <i>Association</i>	
From: TerminalLifting.TankerReference 1 To: ReportingEntity <i>Association</i>	
From: FacilitySampleAcquisition.Facility 0..1 To: ReportingEntity <i>Association</i>	
From: Transfer.SourceFacilityReference 1 To: ReportingEntity <i>Association</i>	
From: ProductionWellTest.ReportingEntity 0..1 To: ReportingEntity <i>Association</i>	

17.2 ReportingHierarchy

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 12/1/2014 Last modified: 12/6/2016

Notes: The hierarchy structure that elements refer to in the asset registry.

Associations

Association		Notes
1..*	From: ReportingHierarchy.ReportingNode To: ReportingHierarchyNode <i>Association</i>	
	From: ReportingHierarchy. To: AbstractObject <i>Generalization</i>	

17.3 ReportingHierarchyNode

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 12/1/2014 Last modified: 12/6/2016

Notes: Association that contains the parent and child of this node.

Attributes

Name	Type	Notes
id	String64	The identification of node.
name	String64	The entity name.

Associations

Association	Notes
From: ReportingHierarchyNode.ReportingEntityReference 0..1 To: ReportingEntity <i>Association</i>	
From: ReportingHierarchyNode.ChildNode 0..* To: ReportingHierarchyNode <i>Association</i>	
From: ReportingHierarchy.ReportingNode 1..* To: ReportingHierarchyNode <i>Association</i>	
From: ReportingHierarchyNode.ChildNode 0..* To: ReportingHierarchyNode <i>Association</i>	

18 SimpleProductVolume

Package: xsd_schemas

Notes: Simple Product Volume Schema.

For more information, see the *PRODML Technical Usage Guide*.

18.1 AbstractDisposition

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: The Abstract base type of disposition.

Attributes

Name	Type	Notes
ProductDispositionCode	AuthorityQualifiedName	A unique disposition code associated within a given naming system. This may be a code specified by a regulatory agency.
QuantityMethod	QuantityMethod	Quantity method.
Remark	String2000	A descriptive remark relating to this disposition.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: AbstractDisposition.DispositionQuantity To: AbstractProductQuantity <i>Association</i>	
From: ProductDisposition. To: AbstractDisposition <i>Generalization</i>	
0..* From: ReportingEntityVolumes.Disposition To: AbstractDisposition <i>Association</i>	
From: TerminalLiftingDisposition. To: AbstractDisposition <i>Generalization</i>	
From: TransferDisposition. To: AbstractDisposition <i>Generalization</i>	

18.2 AbstractProductQuantity

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: The Abstract base type of product quantity

Attributes

Name	Type	Notes
Mass	MassMeasure	The amount of product as a mass measure.
Moles	AmountOfSubstanceMeasure	Moles.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Volume	VolumeMeasure	The amount of product as a volume measure.

Associations

Association	Notes
0..* From: ReportingEntityVolumes.OpeningInventory To: AbstractProductQuantity <i>Association</i>	
From: ServiceFluid. To: AbstractProductQuantity <i>Generalization</i>	
0..* From: AbstractDisposition.DispositionQuantity To: AbstractProductQuantity <i>Association</i>	
0..* From: Injection.InjectionQuantity To: AbstractProductQuantity <i>Association</i>	
From: ProductFluid. To: AbstractProductQuantity <i>Generalization</i>	
0..* From: Production.ProductionQuantity To: AbstractProductQuantity <i>Association</i>	
0..* From: ReportingEntityVolumes.ClosingInventory To: AbstractProductQuantity <i>Association</i>	
0..* From: DeferredProduction.DeferredProductQuantity To: AbstractProductQuantity <i>Association</i>	

18.3 AbstractSimpleProductVolume

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: The parent abstract class for any object that will be included in a regulatory report. Those objects must inherit from this abstract object.

Attributes

Name	Type	Notes
ApprovalDate	date	The date on which the report was approved.
GeographicContext	GeographicContext	Geographic context for reporting entities.
StandardConditions	AbstractTemperaturePressure	The condition-dependant measurements (e.g., volumes) in this transfer are taken to be measured at standard conditions. The element is mandatory in all the SPVR objects. A choice is available – either to supply the temperature and pressure for all the volumes that follow, or to choose from a list of standards organizations' reference conditions. Note that the enum list of standard conditions is extensible, allowing for local measurement condition standards to be used

Associations

Association	Notes
From: AbstractSimpleProductVolume. To: AbstractObject <i>Generalization</i>	
0..1 From: AbstractSimpleProductVolume. To: FluidComponentCatalog <i>Association</i>	
0..1 From: AbstractSimpleProductVolume.Operator To: BusinessAssociate <i>Association</i>	
From: TerminalLifting. To: AbstractSimpleProductVolume <i>Generalization</i>	
From: WellProductionParameters. To: AbstractSimpleProductVolume <i>Generalization</i>	
From: Transfer. To: AbstractSimpleProductVolume <i>Generalization</i>	
From: ProductionWellTest. To: AbstractSimpleProductVolume <i>Generalization</i>	
From: AssetProductionVolumes. To: AbstractSimpleProductVolume <i>Generalization</i>	

18.4 AssetProductionVolumes

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Contains *all* volume data for *all* reporting entities (e.g., area, field, wells, etc.). Although named “volumes” in line with industry usage, different quantities may be reported, such as volume, mass, and energy content.

Attributes

Name	Type	Notes
EndDate	dateTime	The end date of report period.
NominalPeriod	ReportingDurationKind	Nominal period.
StartDate	dateTime	The start date of the reporting period.

Associations

Association	Notes
0..* From: AssetProductionVolumes. To: ReportingEntityVolumes <i>Association</i>	
From: AssetProductionVolumes. To: AbstractSimpleProductVolume <i>Generalization</i>	

18.5 DeferredProduction

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/20/2015 Last modified: 12/6/2016

Notes: The production volume deferred for the reporting period.

Attributes

Name	Type	Notes
EstimationMethod	EstimationMethod	The method used to estimate deferred production. See enum EstimationMethod.
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
0..* From: DeferredProduction.DeferredProductQuantity To: AbstractProductQuantity <i>Association</i>	
0..* From: DeferredProductionEvent. To: DeferredProduction <i>Association</i>	

18.6 DeferredProductionEvent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Information about the event or incident that caused production to be deferred.

Attributes

Name	Type	Notes
DowntimeReasonCode	DowntimeReasonCode	The reason code for the downtime event.
Duration	TimeMeasure	The duration of the event.
EndDate	dateTime	The end date of the event.
StartDate	dateTime	The start date of the event.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: DeferredProductionEvent. To: DeferredProduction <i>Association</i>	
From: DeferredProductionEvent. To: DowntimeReasonCode <i>Dependency</i>	
0..* From: ReportingEntityVolumes. To: DeferredProductionEvent <i>Association</i>	

18.7 DispositionKind

Type: Enumeration *Stereotype:*

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Specifies the set of categories used to account for how crude oil and petroleum products are transferred, distributed, or removed from the supply stream (e.g., stock change, crude oil losses, exports, sales, etc.).

Attributes

Name	Type	Notes
flared		Burned in a flare.
sold		Sold and transported to a buyer by pipeline.
used on-site		Used for entity operations.
fuel		Consumed by processing equipment.
vented		Released into the atmosphere.
disposal		Disposed of.
gas lift		Injected into a producing well for artificial lift.
lost or stolen		Lost or stolen.
other		Physically removed from the entity location.

18.8 DowntimeReasonCode

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Codes to categorize the reason for downtime. These codes are company specific so they are not part of PRODML. Company's can use this schema to specify their downtime codes.

Attributes

Name	Type	Notes
authority	String64	The authority (usually a company) that defines the codes.
code	String64	The code value.
Name	String64	Name or explanation of the code specified in the code attribute.

Associations

Association	Notes
0..1 From: DowntimeReasonCode.Parent To: DowntimeReasonCode <i>Association</i>	
0..1 From: DowntimeReasonCode.Parent To: DowntimeReasonCode <i>Association</i>	
From: DeferredProductionEvent. To: DowntimeReasonCode <i>Dependency</i>	

18.9 EstimationMethod

Type: Enumeration *Stereotype:*

Detail: Created: 10/20/2015 Last modified: 12/6/2016

Notes: Specifies the methods for estimating deferred production.

Attributes

Name	Type	Notes
analytics model		analytics model
decline curve		decline curve
expert recommendation		recommendation text
flowing material balance		flowing material balance
from last allocated volume		from last allocated volume
numerical reservoir simulation		numerical reservoir simulation
production profile		production profile
rate transient analysis		rate transient analysis
ratio analysis		ration analysis
reservoir model		reservoir model
well model		well model

18.10 Injection

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Volume injected per reporting entity.

Attributes

Name	Type	Notes
QuantityMethod	QuantityMethod	The method in which the quantity/volume was determined. See enum QuantityMethod.
Remark	String2000	A descriptive remark relating to any significant events.

Associations

Association	Notes
0..* From: Injection.InjectionQuantity To: AbstractProductQuantity <i>Association</i>	
0..* From: ReportingEntityVolumes. To: Injection <i>Association</i>	

18.11 ProductDisposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 1/8/2016 Last modified: 12/6/2016

Notes: Volumes that "left" the reporting entity by one of the disposition methods defined in Kind (e.g., flaring, sold, used on site, etc.)

Attributes

Name	Type	Notes
Kind	DispositionKind	The method of disposition. See enum DispositionKind.

Associations

Association	Notes
From: ProductDisposition. To: AbstractDisposition <i>Generalization</i>	

18.12 ProductFluid

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 10/2/2015 Last modified: 12/6/2016

Notes: Contains the physical properties of the product fluid. Every volume has a product fluid reference.

Attributes

Name	Type	Notes
GrossEnergyContent	EnergyMeasure	The amount of heat released during the combustion of the reported amount of this product. This value takes into account the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is practical.
NetEnergyContent	EnergyMeasure	The amount of heat released during the combustion of the reported amount of this product. This value ignores the latent heat of vaporization of water in the combustion products, and is useful in calculating heating values for fuels where condensation of the reaction products is not possible and is ignored.
ProductFluidKind	ProductFluidKindExt	A simple enumeration to provide information about the product that the production quantity represents.
productFluidReference	String64	String UID that points to the productFluid in the fluidComponentSet.

Associations

Association	Notes
From: ProductFluid. To: AbstractProductQuantity <i>Generalization</i>	
0..1 From: ProductFluid. To: OverallComposition <i>Association</i>	
From: ProductFluid. To: FluidComponentCatalog <i>Dependency</i>	
0..* From: Transfer.ProductTransferQuantity To: ProductFluid <i>Association</i>	
0..* From: TerminalLifting.ProductQuantity To: ProductFluid <i>Association</i>	

18.13 ProductFluidKindExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 10/2/2015 Last modified: 12/7/2016

Notes: Use to add user-defined enumerations for ProductFluidKind.

Associations

Association	Notes
From: ProductFluidKindExt. To: ProductFluidKind <i>Generalization</i>	
From: ProductFluidKindExt. To: EnumExtensionPattern <i>Generalization</i>	

18.14 Production

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Product volume that is produce from a reporting entity.

Attributes

Name	Type	Notes
QuantityMethod	QuantityMethod	The method in which the quantity/volume was determined. See enum QuantityMethod.
Remark	String2000	Remarks and comments about this data item.

Associations

Association	Notes
0..* From: Production.ProductionQuantity To: AbstractProductQuantity <i>Association</i>	
0..* From: ReportingEntityVolumes. To: Production <i>Association</i>	

18.15 ProductionWellPeriod

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 11/3/2016

Notes: Period during which the well choke did not vary.

Attributes

Name	Type	Notes
Duration	TimeMeasure	The duration at the given choke setting.
Remark	String2000	A descriptive remark relating to any significant events during this period.
StartTime	dateTime	The start time at a given choke setting.
WellStatus	WellStatus	The status of the well.

Associations

Association	Notes
0..1 From: ProductionWellPeriod. To: WellFlowingCondition <i>Association</i>	
0..* From: ProductionWellPeriod. To: ProductRate <i>Association</i>	
0..* From: WellProductionParameters.ProductionPeriod To: ProductionWellPeriod <i>Association</i>	

18.16 ProductionWellTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Production well test data is designed to be transferred upon an event happening (the well test being conducted) or on demand, rather than periodically as for asset production volumes. For this reason, it is standalone object.

Attributes

Name	Type	Notes
Validate	boolean	Validate.
WellTestMethod	String64	Description or name of the method used to conduct the well test.

Associations

Association	Notes
1 From: ProductionWellTest. To: TestCondition <i>Association</i>	
From: ProductionWellTest. To: AbstractSimpleProductVolume <i>Generalization</i>	
0..1 From: ProductionWellTest.ReportingEntity To: ReportingEntity <i>Association</i>	
0..1 From: SeparatorSampleAcquisition. To: ProductionWellTest <i>Association</i>	
0..1 From: DownholeSampleAcquisition. To: ProductionWellTest <i>Association</i>	
0..1 From: WellheadSampleAcquisition. To: ProductionWellTest <i>Association</i>	

18.17 ProductRate

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: The production rate of the product.

Attributes

Name	Type	Notes
MassFlowRate	MassPerTimeMeasure	Mass flow rate.
ProductFluidKind	ProductFluidKindExt	Information about the product that the product quantity represents. See enum ProductFluidKind (in the ProdmlCommon package).
ProductFluidReference	String64	String UID pointer to the productFluid in the fluidComponentSet.
Remark	String2000	Remarks and comments about this data item.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
VolumeFlowRate	VolumePerTimeMeasure	Volume flow rate.

Associations

Association	Notes
From: ProductRate. To: FluidComponentCatalog <i>Dependency</i>	
0..* From: ProductionWellPeriod. To: ProductRate <i>Association</i>	
0..* From: TestCondition. To: ProductRate <i>Association</i>	

18.18 QuantityMethod

Type: Enumeration *Stereotype:*

Detail: Created: 9/18/2015 Last modified: 12/6/2016

Notes: Specifies the available methods for deriving a quantity or volume.

Attributes

Name	Type	Notes
allocated		allocated
allowed		allowed
estimated		estimated
target		target
measured		measured
budget		budget
constraint		constraint
forecast		forecast

18.19 ReportingEntityVolumes

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 2/19/2016 Last modified: 12/6/2016

Notes: Contains all the volumes for a single reporting entity. It contains a reference back to the reporting entity using its UUID for reference.

Attributes

Name	Type	Notes
Duration	TimeMeasure	the duration of volume produced at facility
StartDate	dateTime	The starting date of the month.

Associations

Association	Notes
0..* From: ReportingEntityVolumes.OpeningInventory To: AbstractProductQuantity <i>Association</i>	
ReportingEntityVolumes.ReportingEntityReference 1 From: To: ReportingEntity <i>Association</i>	
0..* From: ReportingEntityVolumes. To: Production <i>Association</i>	
0..* From: ReportingEntityVolumes.Disposition To: AbstractDisposition <i>Association</i>	
0..* From: ReportingEntityVolumes. To: DeferredProductionEvent <i>Association</i>	
0..* From: ReportingEntityVolumes.ClosingInventory To: AbstractProductQuantity <i>Association</i>	
0..* From: ReportingEntityVolumes. To: Injection <i>Association</i>	
0..* From: AssetProductionVolumes. To: ReportingEntityVolumes <i>Association</i>	

18.20 ServiceFluid

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/2/2015 Last modified: 12/7/2016

Notes: Service fluid (e.g., biocides, lubricants, etc.) being reported on.

Attributes

Name	Type	Notes
ServiceFluidKind	ServiceFluidKindExt	Indicates the kind of service fluid. See enum ServiceFluidKind (in ProdmlCommon).
serviceFluidReference	String64	String ID that points to a service fluid in the FluidComponentSet.

Associations

Association	Notes
From: ServiceFluid. To: AbstractProductQuantity <i>Generalization</i>	
From: ServiceFluid. To: FluidComponentCatalog <i>Dependency</i>	
0..* From: TestCondition. To: ServiceFluid <i>Association</i>	

18.21 ServiceFluidKindExt

Type: Class *Stereotype:* «XSDunion»

Detail: Created: 10/2/2015 Last modified: 12/7/2016

Notes: Use to add user-defined extensions to service fluid kind.

Associations

Association	Notes
From: ServiceFluidKindExt. To: EnumExtensionPattern <i>Generalization</i>	
From: ServiceFluidKindExt. To: ServiceFluidKind <i>Generalization</i>	

18.22 TerminalLifting

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/7/2016

Notes: Summarizes product import to or export from an asset by ship.

Attributes

Name	Type	Notes
CertificateNumber	String64	The certificate number for the document that defines the lifting onto the tanker.
EndTime	dateTime	The date and time when the lifting ended.
StartTime	dateTime	The date and time when the lifting began.

Associations

Association	Notes
1 From: TerminalLifting.LoadingTerminalReference To: ReportingEntity <i>Association</i>	
0..1 From: TerminalLifting.DestinationTerminalReference To: ReportingEntity <i>Association</i>	
0..* From: TerminalLifting.ProductQuantity To: ProductFluid <i>Association</i>	
1 From: TerminalLifting.TankerReference To: ReportingEntity <i>Association</i>	
From: TerminalLifting. To: AbstractSimpleProductVolume <i>Generalization</i>	
0..1 From: TerminalLiftingDisposition.TerminalLifting To: TerminalLifting <i>Association</i>	

18.23 TerminalLiftingDisposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 1/8/2016 Last modified: 12/7/2016

Notes: Use to report terminal lifting as dispositions within the periodic asset production volumes reporting.

The components of petroleum disposition are stock change, crude oil losses, refinery inputs, exports, and products supplied for domestic consumption
(https://www.eia.gov/dnav/pet/TblDefs/pet_sum_crdsnd_tbldef2.asp)

Associations

Association		Notes
	From: TerminalLiftingDisposition. To: AbstractDisposition <i>Generalization</i>	
0..1	From: TerminalLiftingDisposition.TerminalLifting To: TerminalLifting <i>Association</i>	

18.24 TestCondition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/7/2016

Notes: Test conditions for a production well test.

Attributes

Name	Type	Notes
Remark	String2000	Remarks and comments about this data item.
StartTime	dateTime	The date and time when the test began.
TestDuration	TimeMeasure	The duration of the test.

Associations

Association	Notes
0..1 From: TestCondition.Parameters To: WellFlowingCondition Association	
0..* From: TestCondition. To: ServiceFluid Association	
0..* From: TestCondition. To: ProductRate Association	
1 From: ProductionWellTest. To: TestCondition Association	

18.25 Transfer

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/7/2016

Notes: Information about products transferred across asset group boundaries or leaving the jurisdiction of an operator. This may include pipeline exports, output to refineries, etc.

Attributes

Name	Type	Notes
EndTime	dateTime	Date and time when the transfer ended.
StartTime	dateTime	The date and time when the transfer began.
TransferKind	TransferKind	Specifies the kind of transfer. See enum TransferKind.

Associations

Association	Notes
0..* From: Transfer.ProductTransferQuantity To: ProductFluid <i>Association</i>	
1 From: Transfer.DestinationFacilityReference To: ReportingEntity <i>Association</i>	
From: Transfer. To: AbstractSimpleProductVolume <i>Generalization</i>	
1 From: Transfer.SourceFacilityReference To: ReportingEntity <i>Association</i>	
0..1 From: TransferDisposition.Transfer To: Transfer <i>Association</i>	

18.26 TransferDisposition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 1/8/2016 Last modified: 12/7/2016

Notes: Use to report a transfer as dispositions within the periodic asset production volumes reporting. The components of petroleum disposition are stock change, crude oil losses, refinery inputs, exports, and products supplied for domestic consumption
(https://www.eia.gov/dnav/pet/TblDefs/pet_sum_crdsnd_tbldef2.asp)

Associations

Association		Notes
0..1	From: TransferDisposition.Transfer To: Transfer <i>Association</i>	
	From: TransferDisposition. To: AbstractDisposition <i>Generalization</i>	

18.27 TransferKind

Type: Enumeration *Stereotype:*

Detail: Created: 9/18/2015 Last modified: 12/7/2016

Notes: Specifies if the transfer is input or output.

Attributes

Name	Type	Notes
input		Transfer into an asset.
output		Transfer out of an asset.

18.28 WellFlowingCondition

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/7/2016

Notes: Describes key conditions of the flowing well during a production well test.

Attributes

Name	Type	Notes
BottomHoleFlowingPressure	PressureMeasure	The pressure at the bottom of the hole.
BottomHoleFlowingTemperature	ThermodynamicTemperatureMeasure	The temperature at the bottom of the hole when the well is flowing.
BottomHoleGaugeDepthMD	LengthMeasure	The measure depth of the bottomhole gauge.
BottomHoleShutInPressure	PressureMeasure	The shut-in pressure of at the bottom of the hole.
BottomHoleStaticPressure	PressureMeasure	The static pressure of the bottom of the hole.
CasingHeadPressure	AbstractPressureValue	The pressure at the casing head.
ChokeOrificeSize	LengthMeasure	The choke diameter.
FlowingPressure	AbstractPressureValue	The flowing pressure.
TubingHeadFlowingPressure	AbstractPressureValue	The pressure at the tubing head.
TubingHeadFlowingTemperature	ThermodynamicTemperatureMeasure	The temperature at the tubing head when the well is flowing.
TubingHeadShutInPressure	AbstractPressureValue	The pressure at the tubing head when the well is shut in.

Associations

Association	Notes
0..1 From: ProductionWellPeriod. To: WellFlowingCondition <i>Association</i>	
0..1 From: TestCondition.Parameters To: WellFlowingCondition <i>Association</i>	

18.29 WellProductionParameters

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/18/2015 Last modified: 12/7/2016

Notes: Captures well production parameters associated with a well reporting entity.

Attributes

Name	Type	Notes
EndDate	date	The ending date of the reporting period.
NominalPeriod	ReportingDurationKind	Name or identifier for the reporting period to which the well production parameters apply.
StartDate	date	The starting date of the reporting period.

Associations

Association	Notes
From: WellProductionParameters.ReportingEntityReference 0..1 To: ReportingEntity <i>Association</i>	
From: WellProductionParameters.ProductionPeriod 0..* To: ProductionWellPeriod <i>Association</i>	
From: WellProductionParameters. To: AbstractSimpleProductVolume <i>Generalization</i>	

19 TimeSeriesData

Package: xsd_schemas

Notes: Intended for use in transferring time series of data, e.g. from a historian. Describes a context-free, time-based series of measurement data for the purpose of targeted exchanges between consumers and providers of data services. It is intended for use in support of smart fields or high-frequency historian type interactions, not reporting. It provides a "flat" view of the data and uses a set of keyword-value pairs to define the business identity of the series, as described in the following generalized hierarchy.

For more information, see the *PRODML Technical Usage Guide* and *PRODML Product Volume, Network Model & Time Series Usage Guide* (which are included in the zip file download of the PRODML standard).

19.1 AbstractValue

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 10/31/2014 Last modified: 12/7/2016

Notes: The abstract base type of value.

Associations

Association	Notes
From: TimeSeriesData.DataValue To: AbstractValue <i>Association</i> 0..*	
From: StringValue. To: AbstractValue <i>Generalization</i>	
From: DoubleValue. To: AbstractValue <i>Generalization</i>	

19.2 DoubleValue

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/31/2014 Last modified: 11/3/2016

Notes: A single double value in the time series.

Attributes

Name	Type	Notes
DoubleValue	TimeSeriesDoubleSample	A single double value in the time series.

Associations

Association	Notes
From: DoubleValue. To: AbstractValue <i>Generalization</i>	

19.3 StringValue

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/31/2014 Last modified: 11/3/2016

Notes: A single string value in the time series.

Attributes

Name	Type	Notes
StringValue	TimeSeriesStringSample	A single string value in the time series.

Associations

Association	Notes
From: StringValue. To: AbstractValue <i>Generalization</i>	

19.4 TimeSeriesData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Defines the time series data being transferred.

Attributes

Name	Type	Notes
Comment	String2000	A comment about the time series.
Key	KeywordValueStruct	A keyword value pair which characterizes the underlying nature of this value. The key value may provide part of the unique identity of an instance of a concept or it may characterize the underlying concept. The key value is defined within the specified keyword-naming system. This is essentially a classification of the data in the specified system (keyword).
MeasureClass	MeasureClass	Defines the type of measure that the time series represents. If this is specified then unit must be specified. This may be redundant to some information in the keys, but it is important for allowing an application to understand the nature of a measure value, even if it does not understand all of the underlying nature.
Unit	UomEnum	If the time series is a measure, then this specifies the unit of measure. The unit acronym must be chosen from the list that is valid for the measure class. If this is specified, then the measure class must be specified.

Associations

Association	Notes
From: TimeSeriesData. To: AbstractObject <i>Generalization</i>	
From: TimeSeriesData.DataValue To: AbstractValue <i>Association</i>	

19.5 TimeSeriesDoubleSample

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/16/2016

Notes: A single double value in a time series.

Attributes

Name	Type	Notes
dTim	dateTime	The date and time at which the value applies. If no time is specified then the value is static and only one sample can be defined. Either dTim or value or both must be specified. If the status attribute is absent and the value is not "NaN", the data value can be assumed to be good with no restrictions.
status	ValueStatus	An indicator of the quality of the value.

Associations

Association	Notes
From: TimeSeriesDoubleSample. To: AbstractMeasure <i>Generalization</i>	

19.6 TimeSeriesStringSample

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/3/2016

Notes: A single string value in a time series.

Attributes

Name	Type	Notes
dTim	dateTime	The date and time at which the value applies. If no time is specified then the value is static and only one sample can be defined. Either dTim or value or both must be specified. If the status attribute is absent and the value is not "NaN", the data value can be assumed to be good with no restrictions.

Associations

Association	Notes
From: TimeSeriesStringSample. To: AbstractString <i>Generalization</i>	

20 TimeSeriesStatistic

Package: xsd_schemas

Notes: A companion to the [Time Series Data](#) object. It has the same elements as time series data including the *keyword* concept, to identify a time series of data. However, it has elements to define the minimum and maximum time values, between which the data statistics apply. This is followed by a set of statistical data applying to the time series data, to the elements listed in [TimeSeriesStatistic](#) below. For more information, see the *PRODML Technical Usage Guide* and *PRODML Product Volume, Network Model & Time Series Usage Guide* (which are included in the zip file download of the PRODML standard).

20.1 EndpointDateTime

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A value used for the endpoint of a date-time interval. The meaning of the endpoint of an interval must be defined by the endpoint attribute.

Attributes

Name	Type	Notes
endpoint	EndpointQualifierInterval	Defines the semantics (inclusive or exclusive) of the endpoint within the context of the interval.

Associations

Association	Notes
1 From: TimeSeriesStatistic.DTimMin To: EndpointDateTime <i>Association</i>	
1 From: TimeSeriesStatistic.DTimMax To: EndpointDateTime <i>Association</i>	

20.2 EndpointQuantity

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 6/13/2014 Last modified: 11/29/2016

Notes: A value used for the endpoint of an interval. If the value represents a measure then the unit must be specified elsewhere. The meaning of the endpoint of an interval must be defined by the endpoint attribute.

Attributes

Name	Type	Notes
endpoint	EndpointQualifierInterval	Defines the semantics (inclusive or exclusive) of the endpoint within the context of the interval.

Associations

Association	Notes
From: EndpointQuantity. To: AbstractMeasure <i>Generalization</i>	
From: EndpointQuantity. To: EndpointQualifierInterval <i>Dependency</i>	

20.3 TimeSeriesStatistic

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Time series statistics data.

Attributes

Name	Type	Notes
Comment	String2000	A comment about the time series.
Key	KeywordValueStruct	A keyword value pair which characterizes the underlying nature of this value. The key value may provide part of the unique identity of an instance of a concept or it may characterize the underlying concept. The key value will be defined within the specified keyword naming system. This is essentially a classification of the data in the specified system (keyword).
Maximum	DimensionlessMeasure	The maximum value within the time range of dTimMin to dTimMax. Element "unit" defines the unit of measure of this value.
Mean	DimensionlessMeasure	The arithmetic mean (sum divided by count) of all values within the time range of dTimMin to dTimMax. Element "unit" defines the unit of measure of this value.
MeasureClass	MeasureClass	Defines the type of measure that the time series represents. If this is specified then unit must be specified. This may be redundant to some information in the keys but it is important for allowing an application to understand the nature of a measure value even if it does not understand all of the underlying nature.
Median	DimensionlessMeasure	The median value of all values within the time range of dTimMin to dTimMax. Element "unit" defines the unit of measure of this value.
Minimum	DimensionlessMeasure	The minimum value within the time range of dTimMin to dTimMax. Element "unit" defines the unit of measure of this value.
StandardDeviation	DimensionlessMeasure	The standard deviation of all values within the time range of dTimMin to dTimMax. Element "unit" defines the unit of measure of this value.
Sum	DimensionlessMeasure	The sum of all values within the time range of dTimMin to dTimMax. Element "unit" defines the unit of measure of this value.
Unit	UomEnum	If the time series is a measure then this specifies the unit of measure. The unit acronym must be chosen from the list that is valid for the measure class. If this is specified then the measure class must be specified.

Associations

Association	Notes
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Association		Notes
1	From: TimeSeriesStatistic.DTimMin To: EndpointDateTime <i>Association</i>	
0..1	From: TimeSeriesStatistic.TimeAtThreshold To: TimeSeriesThreshold <i>Association</i>	
	From: TimeSeriesStatistic. To: AbstractObject <i>Generalization</i>	
1	From: TimeSeriesStatistic.DTimMax To: EndpointDateTime <i>Association</i>	

20.4 TimeSeriesThreshold

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes: Defines a value threshold window and the cumulative time duration that the data was within that window.

Attributes

Name	Type	Notes
Duration	TimeMeasure	The sum of the time intervals over the range of dTimMin to dTimMax during which the values were within the specified threshold range.
ThresholdMaximum	EndpointQuantity	The upper bound of the threshold for testing whether values are within a specific range. Element "unit" defines the unit of measure of this value. At least one of minimumValue and maximumValue must be specified. The thresholdMaximum must be greater than thresholdMinimum. If thresholdMaximum is not specified then the maximum shall be assumed to be plus infinity.
ThresholdMinimum	EndpointQuantity	The lower bound of the threshold for testing whether values are within a specific range. The element "unit" defines the unit of measure of this value. At least one of minimumValue and maximumValue must be specified. The thresholdMinimum must be less than thresholdMaximum. If thresholdMinimum is not specified then the minimum shall be assumed to be minus infinity.

Associations

Association	Notes
From: TimeSeriesStatistic.TimeAtThreshold To: TimeSeriesThreshold <i>Association</i>	

21 WellTest

Package: xsd_schemas

Notes: A standalone object for exchanging well tests of certain types. It is a companion object to the [Product Volume](#) object. It has a set of identifying elements and common elements, and then one of three types of well test:

- Production test
- Injection test
- Fluid level test

The production and injection tests support inclusion of volumes produced, or flow rates during the test. The term well test refers here just to steady state conditions testing.

This data object does not support pressure transient well testing., except in the wireline formation testing context in the [WftRun](#) data object.

21.1 AbstractDatum

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: The abstract base type of datum.

Associations

Association	Notes
From: WellDatum. To: AbstractDatum <i>Association</i>	
From: DatumName. To: AbstractDatum <i>Generalization</i>	
From: DatumCRS. To: AbstractDatum <i>Generalization</i>	

21.2 AbstractLocation

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: The abstract base type of location.

Associations

Association		Notes
	From: WestingSouthing. To: AbstractLocation <i>Generalization</i>	
	From: LatitudeLongitude. To: AbstractLocation <i>Generalization</i>	
	From: LocalXY. To: AbstractLocation <i>Generalization</i>	
	From: ProjectXY. To: AbstractLocation <i>Generalization</i>	
	From: EastingNorthing. To: AbstractLocation <i>Generalization</i>	
0..1	From: Location. To: AbstractLocation <i>Association</i>	

21.3 AbstractWellTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/25/2014 Last modified: 12/7/2016

Notes: The abstract base type of well test.

Attributes

Name	Type	Notes
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WellTestFluidLevelTest. To: AbstractWellTest <i>Generalization</i>	
From: WellTestInjectionTestData. To: AbstractWellTest <i>Generalization</i>	
1 From: WellTest.WellTestData To: AbstractWellTest <i>Association</i>	
From: WellTestProductionTestData. To: AbstractWellTest <i>Generalization</i>	

21.4 DatumCRS

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/7/2016

Notes: DatumCRS.

Attributes

Name	Type	Notes
DatumCRS	String64	A reference to the coordinateReferenceSystem object representing the vertical reference datum (i.e., this wellDatum). This should only be specified if the above 'code' represents some variation of sea level.

Associations

Association	Notes
From: DatumCRS. To: AbstractDatum <i>Generalization</i>	

21.5 DatumName

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 10/10/2014 Last modified: 12/7/2016

Notes: DatumName.

Associations

Association		Notes
	From: DatumName. To: AbstractDatum <i>Generalization</i>	
0..1	From: DatumName.DatumName To: WellKnownNameStruct <i>Association</i>	

21.6 EastingNorthing

Type: Class *Stereotype:* «XSDsequence»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: EastingNorthing.

Attributes

Name	Type	Notes
Easting	LengthMeasure	The projected coordinate with east being positive. This is the most common type of projected coordinates. UTM coordinates are expressed in Easting and Northing.
Northing	LengthMeasure	The projected coordinate with north being positive. This is the most common type of projected coordinates. UTM coordinates are expressed in Easting and Northing.

Associations

Association	Notes
From: EastingNorthing. To: AbstractLocation <i>Generalization</i>	

21.7 InjectionFluid

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the types of fluids which are injected into a well.

Attributes

Name	Type	Notes
air		air
brine		brine
co2		co2
condensate		condensate
dry		dry
fresh water		fresh water
gas		gas
gas-water		gas-water
non HC gas		non HC gas
oil		oil
oil-gas		oil-gas
oil-water		oil-water
other		other
steam		steam
water		water

Associations

Association	Notes
From: InjectionFluid. To: TypeEnum <i>Generalization</i>	
From: WellTestInjectionTestData. To: InjectionFluid <i>Dependency</i>	

21.8 LatitudeLongitude

Type: Class *Stereotype:* «XSDsequence»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: LatitudeLongitude.

Attributes

Name	Type	Notes
Latitude	PlaneAngleMeasure	The latitude with north being positive.
Longitude	PlaneAngleMeasure	The longitude with east being positive.

Associations

Association	Notes
From: LatitudeLongitude. To: AbstractLocation <i>Generalization</i>	

21.9 LocalXY

Type: Class *Stereotype:* «XSDsequence»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: LocalXY.

Attributes

Name	Type	Notes
LocalX	LengthMeasure	The local (engineering) X coordinate. The CRS defines the orientation of the axis.
LocalY	LengthMeasure	The local (engineering) Y coordinate. The CRS defines the orientation of the axis.

Associations

Association	Notes
From: LocalXY. To: AbstractLocation <i>Generalization</i>	

21.10 Location

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Location Component Schema. This is a location that is expressed in terms of 2D coordinates. In order that the location be understood, the coordinate reference system (CRS) must be known. The survey location is given by a pair of tagged values. The pairs may be: (1) latitude/longitude, (2) easting/northing, (3) westing/southing, (4) projectedX/projectedY, or (5) localX/localY. The appropriate pair must be chosen for the data.

Attributes

Name	Type	Notes
Description	String2000	A comment, generally given to help the reader interpret the coordinates if the CRS and the chosen pair do not make them clear.
ExtensionNameValue	ExtensionNameValue	Extensions to the schema based on a name-value construct.
Original	boolean	Flag indicating (if "true" or "1") that this pair of values was the original data given for the location. If the pair of values was calculated from an original pair of values, this flag should be "false" (or "0"), or not present.
WellCRS	String64	A pointer to the wellCRS that defines the CRS for the coordinates. While optional, it is strongly recommended that this be specified.

Associations

Association	Notes
0..1 From: Location. To: AbstractLocation <i>Association</i>	
0..1 From: WellDatum.HorizontalLocation To: Location <i>Association</i>	

21.11 ProjectXY

Type: Class *Stereotype:* «XSDsequence»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: ProjectXY.

Attributes

Name	Type	Notes
ProjectedX	LengthMeasure	The projected X coordinate with the positive direction unknown. ProjectedX and ProjectedY are used when it is not known what the meaning of the coordinates is. If the meaning is known, the Easting/Northing or Westing/Southing should be used. Use of this pair implies a lack of knowledge on the part of the sender.
ProjectedY	LengthMeasure	The projected Y coordinate with the positive direction unknown. ProjectedX and ProjectedY are used when it is not known what the meaning of the coordinates is. If the meaning is known, the Easting/Northing or Westing/Southing should be used. Use of this pair implies a lack of knowledge on the part of the sender.

Associations

Association	Notes
From: ProjectXY. To: AbstractLocation <i>Generalization</i>	

21.12 TestReason

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the reasons for running a well test.

Attributes

Name	Type	Notes
initial		initial
other		other
periodic		periodic
revision		revision

Associations

Association	Notes
From: TestReason. To: TypeEnum <i>Generalization</i>	
From: WellTest. To: TestReason <i>Dependency</i>	

21.13 ValidationOperation

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the well test validation operations.

Attributes

Name	Type	Notes
acquisition validation		acquisition validation
allocation validation		allocation validation
external quality assurance		external quality assurance
site validation		site validation
unknown		unknown
validation result		validation result
well model validation		well model validation

Associations

Association	Notes
From: ValidationOperation. To: TypeEnum <i>Generalization</i>	
From: WellTestValidationOperation. To: ValidationOperation <i>Dependency</i>	

21.14 ValidationResult

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies well test validation results.

Attributes

Name	Type	Notes
failed		failed
passed		passed
passed with changes		passed with changes
unknown		unknown

Associations

Association	Notes
From: ValidationResult. To: TypeEnum <i>Generalization</i>	
From: WellTestValidationOperation. To: ValidationResult <i>Dependency</i>	

21.15 ValidationState

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies overall states of well test validation operations.

Attributes

Name	Type	Notes
unvalidated		unvalidated
validated		validated
validating		validating

Associations

Association	Notes
From: ValidationState. To: TypeEnum <i>Generalization</i>	
From: WellTest. To: ValidationState <i>Dependency</i>	

21.16 WellContext

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes: Within the context of a WITSML Server, this data should duplicate the equivalent information in the well object.

Attributes

Name	Type	Notes
DirectionWell	WellDirection	POSC well direction. The direction of flow of the fluids in a well facility (generally, injected or produced, or some combination).
Field	NameStruct	Name of the field in which the well is located.
FluidWell	WellFluid	POSC well fluid. The type of fluid being produced from or injected into a well facility.
WellAlias	NameStruct	An alias name associated with the well. If the well name is associated with a naming system then it should be included in this list.

Associations

Association	Notes
0..* From: WellContext. To: WellDatum <i>Association</i>	
From: WellContext. To: WellFluid <i>Dependency</i>	
From: WellContext. To: WellDirection <i>Dependency</i>	

21.17 WellDatum

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Defines the vertical datums associated with elevation, vertical depth and measured depth coordinates within the context of a well.

Attributes

Name	Type	Notes
Code	WellboreDatumReference	The code value that represents the type of reference datum. This may represent a point on a device (e.g., kelly bushing) or it may represent a vertical reference datum (e.g., mean sea level).
DefaultElevation	boolean	True indicates that this is the default reference datum for elevation coordinates. False or not given indicates that this is not the default reference datum. Elevation coordinates that do not specify a datum reference should be assumed to be measured relative to the default reference datum. Only one reference datum may be designated as the default elevation datum for each well. Values are "true" (or "1") and "false" (or "0").
DefaultMeasuredDepth	boolean	True indicates that this is the default reference datum for measured depth coordinates. False or not given indicates that this is not the default reference datum. Measured depth coordinates that do not specify a datum reference should be assumed to be measured relative to this default reference datum. Only one reference datum may be designated as the default measured depth datum for each well. Values are "true" (or "1") and "false" (or "0").
DefaultVerticalDepth	boolean	True indicates that this is the default reference datum for vertical depth coordinates. False or not given indicates that this is not the default reference datum. Vertical depth coordinates that do not specify a datum reference should be assumed to be measured relative to the default reference datum. Only one reference datum may be designated as the default vertical depth datum for each well. Values are "true" (or "1") and "false" (or "0").
Kind	String64	Since various activities may use different points as measurement datums, it is useful to characterize the point based on its usage. A well reference datum may have more than one such characterization. For example, it may be the datum used by the driller and logger for measuring their depths. Example usage values would be 'permanent', 'driller', 'logger' 'WRP' (well reference point) and 'SRP' (site reference point).
MeasuredDepth	MeasuredDepthCoord	The measured depth coordinate of this reference datum as measured from another datum. The

Name	Type	Notes
		measured depth datum should either be the same as the elevation datum or it should be relatable to the elevation datum through other datums. Positive moving toward the bottomhole from the measured depth datum. This should be given when a local reference is "downhole", such as a kickoff point or ocean bottom template, and the borehole may not be vertical. If a Depth is given then an Elevation should also be given.
Name	String64	The human understandable contextual name of the reference datum.
Remark	String2000	A contextual description of the well reference datum.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: WellDatum.Elevation To: WellElevationCoord <i>Association</i>	
From: WellDatum. To: AbstractDatum <i>Association</i>	
0..1 From: WellDatum.Wellbore To: DataObjectReference <i>Association</i>	
0..1 From: WellDatum.Rig To: DataObjectReference <i>Association</i>	
0..1 From: WellDatum.HorizontalLocation To: Location <i>Association</i>	
0..* From: WellContext. To: WellDatum <i>Association</i>	

21.18 WellKnownNameStruct

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 9/15/2014 Last modified: 11/29/2016

Notes: The name of something within a mandatory naming system with an optional code.

Attributes

Name	Type	Notes
authority	String64	The naming system within the name is unique.
code	String64	A unique (short) code associated with the name.

Associations

Association	Notes
0..1 From: DatumName.DatumName To: WellKnownNameStruct <i>Association</i>	

21.19 WellTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Data about the well test.

Attributes

Name	Type	Notes
DTimCurrent	dateTime	The definition of the "current time" index for this object. The current time index is a server query parameter which requests the selection of a single node from a recurring set (e.g., the data related to one point in a time series). That is, the "most recent" (at or before the specified time) wellTest for a well.
DTimMax	EndpointQualifiedDateTim e	The maximum time index contained within the object. The minimum and maximum indexes are server query parameters and will be populated with valid values in a "get" result.
DTimMin	EndpointQualifiedDateTim e	The minimum time index contained within the object. The minimum and maximum indexes are server query parameters and will be populated with valid values in a "get" result. That is, all wellTest for a well in the specified period defined by the min/max.
LastValidTest	dateTime	The date-time of the last valid well test.
PreviousTestDate	dateTime	The date-time of the previous well test.
ProductFlowModelReference	String64	The Product Flow Model that represents the above product flow unit.
ProductFlowPortReference	String64	A port on a product flow unit that is represented by this test.
ProductFlowUnitReference	String64	The product flow unit represented by the port. This is defined in the Product Flow Model .
StandardTempPres	TemperaturePressure	Defines the standard temperature and pressure to which all standard volumes in this report have been corrected. This applies to all elements whose name is suffixed by StdTempPres.
TestDate	dateTime	The date-time of the well test.
TestReason	TestReason	The reason for the well test: initial, periodic, revision. See enum TestReason.
TestType	String64	The type of well production test.
ValidationState	ValidationState	The overall state of the test with respect to validation operations.

Associations

Association	Notes
From: WellTest. To: ValidationState <i>Dependency</i>	

Association		Notes
0..1	From: WellTest.WellReference To: DataObjectReference <i>Association</i>	
1	From: WellTest.WellTestData To: AbstractWellTest <i>Association</i>	
	From: WellTest. To: AbstractObject <i>Generalization</i>	
0..*	From: WellTest.ValidationOperation To: WellTestValidationOperation <i>Association</i>	
	From: WellTest. To: TestReason <i>Dependency</i>	

21.20 WellTestBottomholeData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/10/2016

Notes: Well test data gathered at the bottomhole.

Attributes

Name	Type	Notes
BottomholeMD	MeasuredDepthCoord	The measured depth of the bottomhole.
BottomholePOverZ	PressureMeasure	The P/Z value at the bottomhole. This is P/Z, pressure over gas compressibility factor (z), at the bottomhole of the well. Note that the UOM is units of pressure, because Z is dimensionless.
BottomholePres	PressureMeasure	The pressure at the bottomhole of the well.
BottomholeTemp	ThermodynamicTemperatureMeasure	The temperature at the bottomhole of the well.
WellboreReference	DataObjectReference	Defines the wellbore (sidetrack) represented by the measured depth. This must be given when the well has multiple wellbores and the measured depth value is deeper than the first kickoff point. It is recommended that it always be given.

Associations

Association	Notes
0..1 From: WellTestProductionTestData.BottomholeData To: WellTestBottomholeData <i>Association</i>	

21.21 WellTestCumulative

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes: The cumulative amounts of the fluids at the time of the well test. The fluids are oil, gas, and water.

Attributes

Name	Type	Notes
CumulativeGas	VolumeMeasure	The cumulative amount of gas.
CumulativeOil	VolumeMeasure	The cumulative amount of oil.
CumulativeWater	VolumeMeasure	The cumulative amount of water.

Associations

Association	Notes
0..1 From: WellTestInjectionTestData.WellTestCumulative To: WellTestCumulative <i>Association</i>	
0..1 From: WellTestProductionTestData.WellTestCumulative To: WellTestCumulative <i>Association</i>	

21.22 WellTestElectricSubmersiblePumpData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information about an electric submersible pump (ESP).

Attributes

Name	Type	Notes
ElectricCurrent	ElectricCurrentMeasure	The average electric current of the ESP during the test. The presumption is that only one pump per well is operational during each test.
Frequency	FrequencyMeasure	The average frequency of the ESP during the test. The presumption is that only one pump per well is operational during each test.

Associations

Association	Notes
0..1 From: WellTestProductionTestData.EspData To: WellTestElectricSubmersiblePumpData <i>Association</i>	

21.23 WellTestFluidLevelTest

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information about fluid levels achieved/observed during a test.

Attributes

Name	Type	Notes
BaseUsableWater	LengthMeasure	The lowest usable water depth as measured from the surface. See TxRRC H-15.
FluidLevel	LengthMeasure	The fluid level achieved in the well. The value is given as length units from the top of the well.
TestedBy	String64	The business associate that conducted the test. This is generally a person.

Associations

Association	Notes
From: WellTestFluidLevelTest. To: AbstractWellTest <i>Generalization</i>	

21.24 WellTestFluidRate

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information about fluid rate during a well test.

Attributes

Name	Type	Notes
FluidRate	VolumePerTimeMeasure	The fluid flow rate.
FluidRateStdTempPres	VolumePerTimeMeasure	The fluid flow rate that has been corrected to standard temperature and pressure.
GasClass	String64	Class for natural gas. This is not valid for oil or water.

Associations

Association	Notes
0..1 From: WellTestProductionTestResults.WaterRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestResults.OilRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestResults.CondensateRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestResults.GasRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestWellheadData.GasLiftRate To: WellTestFluidRate <i>Association</i>	

21.25 WellTestInjectionTestData

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information related to fluid injection during a well test.

Attributes

Name	Type	Notes
ChokeOrificeSize	LengthMeasure	The size of the opening in the flow choke at the wellhead.
InjectedFluid	InjectionFluid	The fluid that is being injected.
MaximumAnnularPressure	AbstractPressureValue	The maximum pressure measured at the annulus.
MinimumAnnularPressure	AbstractPressureValue	The minimum pressure measured at the annulus.
TestDuration	TimeMeasure	The time length (with UOM) of the well test.
WellheadFlowingPressure	AbstractPressureValue	The flowing pressure measured at the wellhead during the test.
WellheadMaximumPressure	AbstractPressureValue	The maximum pressure measured at the wellhead during the well test.

Associations

Association	Notes
0..1 From: WellTestInjectionTestData.TestInterval To: WellTestInterval <i>Association</i>	
0..1 From: WellTestInjectionTestData.WellTestCumulative To: WellTestCumulative <i>Association</i>	
From: WellTestInjectionTestData. To: AbstractWellTest <i>Generalization</i>	
From: WellTestInjectionTestData. To: InjectionFluid <i>Dependency</i>	

21.26 WellTestInterval

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information about the interval in the wellbore where the well test was conducted.

Attributes

Name	Type	Notes
MdBase	MeasuredDepthCoord	The measured depth to the bottom of the interval.
MdTop	MeasuredDepthCoord	The measured depth to the top of the interval.
TestedFormation	String64	The formation that was tested.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
ValvePosition	LengthPerLengthMeasure	The relative opening of the downhole control valve for the tested zone. This is for surface controllable valves.
WellboreReference	DataObjectReference	Defines the wellbore (sidetrack) represented by the measured depth. This must be given when the well has multiple wellbores and the measured depth value is deeper than the first kickoff point. It is recommended that it always be given.

Associations

Association	Notes
0..1 From: WellTestInjectionTestData.TestInterval To: WellTestInterval <i>Association</i>	
0..* From: WellTestProductionTestData.TestInterval To: WellTestInterval <i>Association</i>	

21.27 WellTestPointData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Well test data gathered at a point in the wellbore.

Attributes

Name	Type	Notes
Bottomhole	boolean	A value of true (1 or "true") indicates that the point is at the bottomhole. A value of false (0 or "false") or not given indicates otherwise.
Md	MeasuredDepthCoord	The measured depth of the point being tested.
POverZ	PressureMeasure	The P/Z value at the point. This is P/Z, pressure over gas compressibility factor (z). Note that the UOM is units of pressure., because Z is dimensionless.
Pres	PressureMeasure	The pressure at the point.
Static	boolean	A value of true (1 or "true") indicates a static (non-flowing) pressure. A value of false (0 or "false") or not given indicates otherwise. The pressure may be measured (e.g., shut-in well) or calculated.
Temp	ThermodynamicTemperatureMeasure	The temperature at the point.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
WellboreReference	DataObjectReference	Defines the wellbore (sidetrack) represented by the measured depth. This must be given when the well has multiple wellbores and the measured depth value is deeper than the first kickoff point. It is recommended that it always be given.

Associations

Association	Notes
From: WellTestProductionTestData.PointData To: WellTestPointData <i>Association</i>	

21.28 WellTestProductionTestData

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information about a production well test.

Attributes

Name	Type	Notes
OperatingMethod	String64	The method being used to operate the well. Examples are 'flowing', 'pumping', 'gas lifted'.
TestDuration	TimeMeasure	The length of time (with UOM) of the well test.

Associations

Association	Notes
From: WellTestProductionTestData.ProductionTestResults 0..1 To: WellTestProductionTestResults <i>Association</i>	
From: WellTestProductionTestData.SeparatorData 0..1 To: WellTestSeparatorData <i>Association</i>	
From: WellTestProductionTestData.TestInterval 0..* To: WellTestInterval <i>Association</i>	
From: WellTestProductionTestData.PointData 0..* To: WellTestPointData <i>Association</i>	
From: WellTestProductionTestData.EspData 0..1 To: WellTestElectricSubmersiblePumpData <i>Association</i>	
From: WellTestProductionTestData.WellTestCumulative 0..1 To: WellTestCumulative <i>Association</i>	
From: WellTestProductionTestData.WellheadData 0..1 To: WellTestWellheadData <i>Association</i>	
From: WellTestProductionTestData. To: AbstractWellTest <i>Generalization</i>	
From: WellTestProductionTestData.BottomholeData 0..1 To: WellTestBottomholeData <i>Association</i>	

21.29 WellTestProductionTestResults

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes: Oil, gas, and water volumes and rates measured during the well test. The volumes allow either actual volumes or standard (corrected) volumes. The densities are also recorded with the volumes.

Attributes

Name	Type	Notes
AllocatedSplit	boolean	True ("true" or "1") indicates that the split factors are allocated as opposed to measured. False ("false" or "0") or not given indicates otherwise.
BasicSedimentAndWater	VolumePerVolumeMeasure	This is the measured of impurities present in crude oil as it comes from the well. BSandW content is commonly used as a measure for treating performance of hydrocarbon liquids
CondensateSplitFactor	VolumePerVolumeMeasure	The split factor for condensate relative to the overall volume of the test.
CondensateYield	VolumePerVolumeMeasure	This is the condensate yield, which describes the amount of condensate per unit of natural gas produced
Density	MassPerVolumeMeasure	The density of the fluid mixture.
FluidVelocity	AngularVelocityMeasure	The velocity of the overall fluid mixture.
GasOilRatio	VolumePerVolumeMeasure	The ratio of the volume of gas and the volume of oil that was produced.
GasPotential	VolumePerTimeMeasure	This is the potential of the well to produce natural gas. This represents the flow rate that could be achieved under maximum drawdown.
GasSplitFactor	VolumePerVolumeMeasure	The split factor for gas relative to the overall volume of the test.
OilPotential	VolumePerTimeMeasure	This is the potential of the well to produce crude oil. This represents the flow rate that could be achieved under maximum drawdown.
OilSplitFactor	VolumePerVolumeMeasure	The split factor for oil relative to the overall volume of the test.
ProductivityIndex	VolumePerTimePerPressureMeasure	Productivity index (PI) is an expression which defines the pressure drop in the reservoir to produce a unit of oil per day. That is, the energy to produce a unit of oil. The value was defined at ambient temperature and pressure.
ProductivityIndexStdTempPres	VolumePerTimePerPressureMeasure	Productivity index (PI) is an expression which defines the pressure drop in the reservoir to produce a unit of oil per day. That is, the energy to produce a unit of oil. The value has been converted to the declared conditions of standard temperature and pressure.
SandVolume	VolumeMeasure	The volume of sand that was produced.
WaterCut	VolumePerVolumeMeasure	The ratio of water produced compared to the volume of total liquids produced.

Name	Type	Notes
WaterSplitFactor	VolumePerVolumeMeasure	The split factor for water relative to the overall volume of the test.

Associations

Association	Notes
0..1 From: WellTestProductionTestResults.WaterRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestResults.CondensateVolume To: WellTestTestVolume <i>Association</i>	
0..1 From: WellTestProductionTestResults.OilRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestResults.WaterVolume To: WellTestTestVolume <i>Association</i>	
0..1 From: WellTestProductionTestResults.CondensateRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestResults.GasVolume To: WellTestTestVolume <i>Association</i>	
0..1 From: WellTestProductionTestResults.OilVolume To: WellTestTestVolume <i>Association</i>	
0..1 From: WellTestProductionTestResults.GasRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestProductionTestData.ProductionTestResults To: WellTestProductionTestResults <i>Association</i>	

21.30 WellTestSeparatorData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Well test data gathered at the separator.

Attributes

Name	Type	Notes
SeparatorPressure	AbstractPressureValue	The pressure measured at the separator during the well test.
SeparatorTemperature	ThermodynamicTemperatureMeasure	The temperature measured at the separator during the well test.

Associations

Association	Notes
0..1 From: WellTestProductionTestData.SeparatorData To: WellTestSeparatorData <i>Association</i>	

21.31 WellTestTestVolume

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/3/2016

Notes: The following sequence of four elements can be used for reporting of most production fluids.

Attributes

Name	Type	Notes
Density	MassPerVolumeMeasure	The density of the fluid, uncorrected.
DensityStdTempPres	MassPerVolumeMeasure	The density of the fluid, corrected to standard conditions of temperature and pressure.
GasClass	String64	Class for natural gas. This is not valid for oil or water.
Volume	VolumeMeasure	The volume, uncorrected. This volume is generally reported at reservoir conditions.
VolumeStdTempPres	VolumeMeasure	The volume is the fluid, corrected to standard conditions of temperature and pressure.

Associations

Association	Notes
From: WellTestProductionTestResults.CondensateVolume 0..1 To: WellTestTestVolume <i>Association</i>	
From: WellTestProductionTestResults.WaterVolume 0..1 To: WellTestTestVolume <i>Association</i>	
From: WellTestProductionTestResults.GasVolume 0..1 To: WellTestTestVolume <i>Association</i>	
From: WellTestProductionTestResults.OilVolume 0..1 To: WellTestTestVolume <i>Association</i>	
From: WellTestWellheadData.GasLiftVolume 0..1 To: WellTestTestVolume <i>Association</i>	

21.32 WellTestValidationOperation

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: The validation operation of a well test.

Attributes

Name	Type	Notes
Date	date	The date of the validation operation.
Kind	ValidationOperation	The kind of validation operation. See enum ValidationOperation.
Method	String64	The method used for the validation operation..
Remark	String2000	A comment about the operation.
Result	ValidationResult	The result of the validation operation. See enum ValidationResult.
Tool	String64	The tool used for the validation operation.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WellTestValidationOperation. To: ValidationOperation <i>Dependency</i>	
From: WellTestValidationOperation. To: ValidationResult <i>Dependency</i>	
From: WellTest.ValidationOperation To: WellTestValidationOperation <i>Association</i>	

21.33 WellTestWellheadData

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Basic measurements at the wellhead, during the well test.

Attributes

Name	Type	Notes
ChokeOrificeSize	LengthMeasure	The size of the choke opening at the wellhead.
FlowingPressure	AbstractPressureValue	The flowing pressure measured at the wellhead during the well test.
FlowLinePressure	AbstractPressureValue	The pressure measured at the flow line connected to the wellhead during this well test.
GasLiftchokeOrificeSize	LengthMeasure	The size of the gas lift choke opening.
GasLiftPres	AbstractPressureValue	The pressure of the lift gas at the wellhead.
GasLiftTemp	ThermodynamicTemperatureMeasure	The temperature of the lift gas at the wellhead.
ShutInPressure	AbstractPressureValue	The shut-in pressure measured at the wellhead during the well test.
Temperature	ThermodynamicTemperatureMeasure	The temperature measured at the wellhead during the well test.

Associations

Association	Notes
0..1 From: WellTestWellheadData.GasLiftRate To: WellTestFluidRate <i>Association</i>	
0..1 From: WellTestWellheadData.GasLiftVolume To: WellTestTestVolume <i>Association</i>	
0..1 From: WellTestProductionTestData.WellheadData To: WellTestWellheadData <i>Association</i>	

21.34 WestingSouthing

Type: Class *Stereotype:* «XSDsequence»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: WestingSouthing.

Attributes

Name	Type	Notes
Southing	LengthMeasure	The projected coordinate with south being positive. The positive directions are reversed from the usual Easting and Northing values. These values are generally located in the southern hemisphere, most notably in South Africa and Australia.
Westing	LengthMeasure	The projected coordinate with west being positive. The positive directions are reversed from the usual Easting and Northing values. These values are generally located in the southern hemisphere, most notably in South Africa and Australia.

Associations

Association	Notes
From: WestingSouthing. To: AbstractLocation <i>Generalization</i>	

22 WftRun

Package: xsd_schemas

Notes: Wireline formation tester run Schema.

22.1 WftCurveSection

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/30/2016

Notes: Points to an interval on a curve in a log (or wellLog).

Attributes

Name	Type	Notes
ChannelReference	DataObjectReference	A pointer to a specific channel that contains the curve.
DTimEnd	dateTime	The date and time of the end of the relevant interval. If not specified then the end of the curve is assumed.
DTimStart	dateTime	The date and time of the start of the relevant interval. If not specified then the beginning of the curve is assumed.
Mnemonic	String64	The curve mnemonic name.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WftTestData.CurveSection To: WftCurveSection <i>Association</i>	

22.2 WftEvent

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Captures information about an event that occurred.

Attributes

Name	Type	Notes
DTim	dateTime	Date and time of the start of the event.
Duration	TimeMeasure	The time duration of the event.
Kind	WftEventKind	The kind of event. See enum WftEventKind.
Remark	String2000	A comment about the event.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WftEvent. To: WftEventKind <i>Dependency</i>	
0..* From: WftStation.Event To: WftEvent <i>Association</i>	

22.3 WftEventKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the kinds of events that occur while operating a wireline formation tester (WFT) in a wellbore.

Attributes

Name	Type	Notes
tool retract		When the tool is being lowered into or raised out the of the hole the tool is in a retracted position. After a measurement is taken, the tool is retracted.
tool set		When the tool reaches the location (depth) in the wellbore where a measurement is to be taken, the tool must be hydraulically set to take the measurement.
unknown		unknown

Associations

Association	Notes
From: WftEventKind. To: TypeEnum <i>Generalization</i>	
From: WftEvent. To: WftEventKind <i>Dependency</i>	

22.4 WftFlowingIntervalKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the kinds of connection between the WFT tool and the formation via a section of wellbore. Because WFTs can have probes or pairs of packers, which have different geometries (respectively a point connection or a section of wellbore like a welltest), it is necessary to state which kind if flowing for this station.

Attributes

Name	Type	Notes
packed interval		packed interval
probe		probe
unknown		unknown

Associations

Association	Notes
From: WftFlowingIntervalKind. To: TypeEnum <i>Generalization</i>	
From: WftStation. To: WftFlowingIntervalKind <i>Dependency</i>	

22.5 WftInOutParameter

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Defines a parameter which may have been used for input or output depending on the parent node.

Attributes

Name	Type	Notes
MeasureClass	MeasureClass	The kind of the measure. For example, "length". If the value requires a unit of measure, this must be specified.
Name	String64	The name of the parameter.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.
Value	MeasureOrQuantity	The value of the parameter. If the value represents a measure, then the UOM attribute and the corresponding measureClass must be specified.

Associations

Association	Notes
0..* From: WftTestData.Parameter To: WftInOutParameter <i>Association</i>	
0..* From: WftTestResult.InputParameter To: WftInOutParameter <i>Association</i>	
0..* From: WftTestResult.OutputParameter To: WftInOutParameter <i>Association</i>	

22.6 WftResultReference

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Defines a set of pointers which collectively identify a particular outputParameter beginning at a point in the hierarchy. The combination of pointers needed depends on the starting point.

Attributes

Name	Type	Notes
OutputParameterReference	String64	A pointer to the desired outputParameter.
ResultReference	String64	A pointer to the desired result containing the outputParameter.
StationReference	String64	A pointer to the station node containing the specified nodes.
Test	String64	A pointer to the test node containing the specified nodes.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..1 From: WftResultReference.SampleAcquisition To: FluidSampleAcquisitionJob <i>Association</i>	
0..* From: WftTestResult.InputResultReference To: WftResultReference <i>Association</i>	

22.7 WftRun

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 12/7/2016

Notes: Information about a WFT run.

Attributes

Name	Type	Notes
DTimEnd	dateTime	The date and time when the data collection completed.
DTimStart	dateTime	The date and time when the data collection started.
MaxIndex	MeasuredDepthCoord	The maximum station depth within this WFT. This is an API "structural-range" query parameter for growing objects.
MinIndex	MeasuredDepthCoord	The minimum station depth within this WFT run. This is an API "structural-range" query parameter for growing objects.
ObjectGrowing	boolean	The growing state of the object. This value is only relevant within the context of a server. This is an API server parameter related to a WITSML "growing" object (e.g., trajectory, logs, mud logs).
ServiceCompany	String64	Name of contractor who provided the service.
TieInLogReference	DataObjectReference	References a log containing a WFT tie-in (e.g. gamma ray) log vs. depth data.

Associations

Association	Notes
0..1 From: WftRun.WellboreReference To: DataObjectReference <i>Association</i>	
From: WftRun. To: AbstractObject <i>Generalization</i>	
0..* From: WftRun.Station To: WftStation <i>Association</i>	
0..* From: WftRun.Result To: WftTestResult <i>Association</i>	
From: WftSampleAcquisitionJob. To: WftRun <i>Association</i>	

22.8 WftSampleAcquisition

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Information about a single formation tester sample acquisition.

Attributes

Name	Type	Notes
CushionPressure	AbstractPressureValue	The pressure that was used to charge the sample container.
DTimEnd	dateTime	Sampling end time.
DTimStart	dateTime	Sampling start time.
FieldComment	String2000	Comments created by the field engineers collecting the sample.
GrossFluidKind	String64	The expected kind of the sample, typically oil, water or gas.
InterpretationComment	String2000	Comments created by the engineers analyzing the sample.
Kind	String64	The kind of sample acquisition.
SampleCarrierSlotName	String64	An name for the slot in the sample carrier where the sample was acquired.
SampleContainer	DataObjectReference	A reference to a Fluid Sample Container object (optional) which can be used as part of the PVT functionality of PRODML to track this sample and its container through the lab analysis process.
SampleContainerConfiguration	String64	A description of the kind of sample container used, for example, whether the container is pressurized with nitrogen or not.
SampleContainerName	String64	An name for the sample bottle that was used for this acquisition.
SampleName	String64	A name assigned to the sample acquired.
Test	String64	A reference to a test (uid) under the current station.
ToolSectionName	String64	An name for the formation tester tool section that acquired the sample.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
0..* From: WftSampleAcquisition.TestData To: WftTestData <i>Association</i>	
0..* From: WftSampleAcquisition.Result To: WftTestResult <i>Association</i>	
0..1 From: WftSampleAcquisition.SampleReference To: FluidSample <i>Association</i>	

Association		Notes
0..*	From: WftStation.SampleAcquisition To: WftSampleAcquisition <i>Association</i>	

22.9 WftStation

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Information about a single station in a wireline formation tester run.

Attributes

Name	Type	Notes
Description	String2000	A description of the station.
DiaProbe	LengthMeasure	The diameter of the probe used; only valid if flowingIntervalKind is equal to "probe".
DTimEnd	dateTime	The date and time when the data collection completed for this station.
DTimStart	dateTime	The date and time when the data collection started for this station.
FlowingIntervalKind	WftFlowingIntervalKind	The type of flowing interval. See enum WftFlowingIntervalKind.
LogReference	DataObjectReference	A reference a log containing WFT time-series data at this station (may be superset of all the test log references at this station).
MdBottom	MeasuredDepthCoord	<ul style="list-style-type: none"> If flowingIntervalKind = packed interval, then the bottom depth of the station. <p>If flowingIntervalKind = probe, then the depth of the probe.</p>
MdTop	MeasuredDepthCoord	<ul style="list-style-type: none"> If flowingIntervalKind = packed interval, then the top depth of the station. <p>If flowingIntervalKind = probe, then the depth of the probe.</p>
Station	String64	References a station containing the flowing interval in cases where this station is an observation station.
StationKind	WftStationKind	The type of the station (such as, conventional, observation).
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WftStation. To: WftStationKind <i>Dependency</i>	
From: WftStation.Result To: WftTestResult <i>Association</i>	
From: WftStation.Test	

Association	Notes
0..* To: WftTest <i>Association</i>	
0..* From: WftStation.SampleAcquisition To: WftSampleAcquisition <i>Association</i>	
0..* From: WftStation.Event To: WftEvent <i>Association</i>	
From: WftStation. To: WftFlowingIntervalKind <i>Dependency</i>	
0..* From: WftRun.Station To: WftStation <i>Association</i>	

22.10 WftStationKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the kinds of station.

Attributes

Name	Type	Notes
conventional		The flow is occurring and being measured.
observation		There is no flow; you are observing the effect of pressure at this station of flow that is occurring at a different station.
unknown		unknown

Associations

Association	Notes
From: WftStationKind. To: TypeEnum <i>Generalization</i>	
From: WftStation. To: WftStationKind <i>Dependency</i>	

22.11 WftTest

Type: Class *Stereotype:* «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: Information about a single formation tester test.

Attributes

Name	Type	Notes
DTimEnd	dateTime	The date and time when the data collection ended for this test.
DTimStart	dateTime	The date and time when the data collection started for this test.
TestKind	WftTestKind	Describes whether the test is associated with a pressure buildup or a drawdown. See enum WftTestKind.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WftTest.Result To: WftTestResult <i>Association</i>	
From: WftTest. To: WftTestKind <i>Dependency</i>	
From: WftStation.Test To: WftTest <i>Association</i>	

22.12 WftTestData

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: A reference to a set of formation tester data that was recorded.

Attributes

Name	Type	Notes
Role	WftTestDataRole	The role of the test data. The role applies either to a curve or to a point parameter. See enum WftTestRoleData.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WftTestData. To: WftTestDataRole <i>Dependency</i>	
From: WftTestData.CurveSection To: WftCurveSection <i>Association</i>	
From: WftTestData.Parameter To: WftInOutParameter <i>Association</i>	
From: WftSampleAcquisition.TestData To: WftTestData <i>Association</i>	
From: WftTestResult.TestData To: WftTestData <i>Association</i>	

22.13 WftTestDataRole

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the role of test data being described.

Attributes

Name	Type	Notes
flow history		flow history
pressure stream		pressure stream
unknown		unknown

Associations

Association	Notes
From: WftTestDataRole. To: TypeEnum <i>Generalization</i>	
From: WftTestData. To: WftTestDataRole <i>Dependency</i>	

22.14 WftTestKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the kinds of WFT tests at a given time, at a given station.

Attributes

Name	Type	Notes
buildup		buildup
drawdown		drawdown
unknown		unknown

Associations

Association	Notes
From: WftTestKind. To: TypeEnum <i>Generalization</i>	
From: WftTest. To: WftTestKind <i>Dependency</i>	

22.15 WftTestResult

Type: Class **Stereotype:** «XSDcomplexType»

Detail: Created: 7/2/2014 Last modified: 11/11/2016

Notes: A single result derived from analysis of formation tester data.

Attributes

Name	Type	Notes
Kind	WftTestResultKind	The kind of result represents a combination of test kind and analysis method applied. See enum WftTestKindResult.
MdBottom	MeasuredDepthCoord	The bottom of the interval to which this result applies.
MdTop	MeasuredDepthCoord	The top of the interval to which this result applies.
Method	String64	The name of a proprietary, method which generally represents a specialization of a result kind.
uid	String64	A unique identifier for this data element. It is not globally unique (not a uuid) and only need be unique within the context of the parent top-level object.

Associations

Association	Notes
From: WftTestResult. To: WftTestResultKind <i>Dependency</i>	
0..* From: WftTestResult.InputResultReference To: WftResultReference <i>Association</i>	
0..* From: WftTestResult.TestData To: WftTestData <i>Association</i>	
0..* From: WftTestResult.InputParameter To: WftInOutParameter <i>Association</i>	
0..* From: WftTestResult.OutputParameter To: WftInOutParameter <i>Association</i>	
0..* From: WftStation.Result To: WftTestResult <i>Association</i>	
0..* From: WftSampleAcquisition.Result To: WftTestResult <i>Association</i>	
0..* From: WftTest.Result To: WftTestResult <i>Association</i>	
0..* From: WftRun.Result To: WftTestResult <i>Association</i>	

22.16 WftTestResultKind

Type: Enumeration *Stereotype:*

Detail: Created: 6/13/2014 Last modified: 12/7/2016

Notes: Specifies the kinds of test results.

Attributes

Name	Type	Notes
buildup result		buildup result
drawdown result		drawdown result
unknown		unknown

Associations

Association	Notes
From: WftTestResultKind. To: TypeEnum <i>Generalization</i>	
From: WftTestResult. To: WftTestResultKind <i>Dependency</i>	