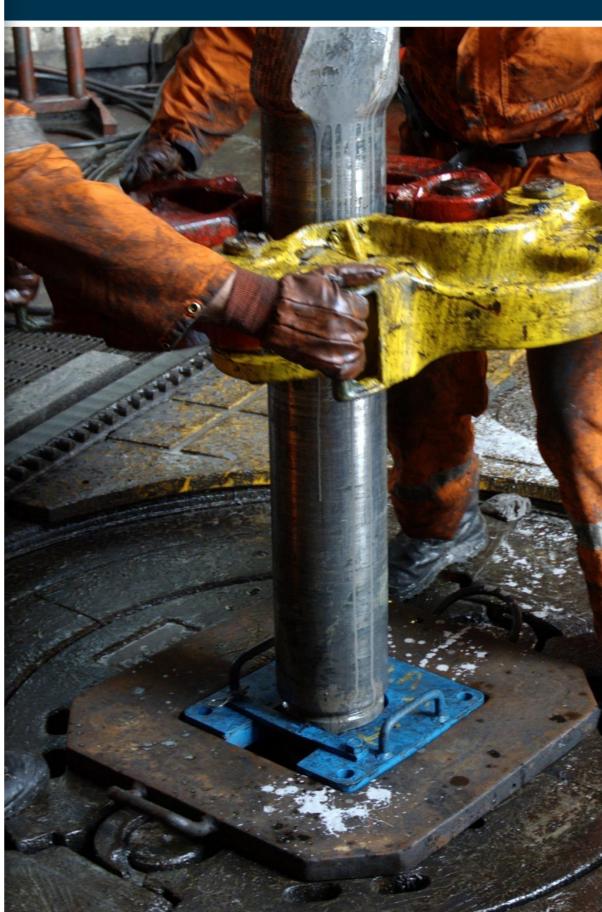


# PPDM 3.9: Data Model Use by Well Life Cycle Phase

The PPDM Association is a not-for-profit society for data managers.

The PPDM Data Model is a relational model specification used by the Oil and Gas industry as the function for effective management and stewardship of data related to Upstream Exploration and Production.

PPDM 3.9 was built by industry subject matter experts who have worked cooperatively over 24 years to develop an open data specification that is practical and useful for companies of all sizes.



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# PPDM 3.9: Wells Implementation by Life Cycle Phase

**ABOUT THIS DOCUMENT:** This document is intended to help users of PPDM 3.9 understand which subject areas are most likely to be needed by a well related data model implementation at various stages of a well's life cycle. It was created by a small group of PPDM Subject Matter Experts to assist with planning PPDM implementations that are focussed on Well related data.

**PRIMARY FOCUS:** The Well Life Cycle is the main focus of this document, and it should be used with that perspective in mind. PPDM 3.9 contains many other subject areas; similar excercises could be conducted to example other life cycles in this way. If you are interested in a different life cycle, please contact the PPDM Association.

**SOURCES:** The Business Modules are derived from the PPDM 3.9 Roadmaps document. Use the PPDM 3.9 Roadmaps to identify the tables in each Business Module.

**SUMMARY:** The Summary section contains a high level summary of lists the Business modules down the left side, and high level phases (Planning, Drilling, Completing, Producing and Disposing) are shown along the top row. has a YES if it used in that PHASE.(should be added to) of the purpose of each Business Module in that phase.

**PHASES:** The Phase five sections provide a brief (starting point) description of the purpose of each Business Module in that phase.

Summary

**Planning** 

Drilling

Completing

**Producing** 

Disposing

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DISCLAIMER: These are examples and not intended to provide definitive or complete lists of tables and modules that should be used at each functional phase of operations. While this information may provide a helpful starting point, every implementation team must consider the needs and scope of their work and create results that are fit for purpose.

Wells: Business Mo	dule Si	ummary			
MODULE / SUB MODULE	PL	it DRI	LL COMP	LETE PROT	Juck Disposk
Spatial					
Spatial Locations	YES	YES	YES	YES	YES
Spatial Parcels	YES				YES
Support Modules					
Areas					
Entitlements					
Finances	YES	YES	YES	YES	YES
Rate Schedules					
Source Document Bibliography					
Additives					
Coordinate Systems					
Business Associates					
Projects					
Work Orders					
Units of Measure					
Volume Conversions					
Data Management	YES	YES	YES	YES	YES
Equipment					
Real Equipment		YES	YES	YES	YES
Catalogue Equipment	YES				
Equipment Specs	YES				
Equipment Maintenance				YES	YES
Products / Substances	YES	YES	YES	YES	YES

14/-11						
Wells						
	Well General Information	YES				
	Well Agreements	YES				
	Well Activity Summaries		YES	YES	YES	YES
	Well Status	YES	YES	YES	YES	YES
	Well Locations	YES	YES			
	Well Licenses	YES	YES			
	Well Cores		YES			
	Well Directional Surveys		YES			
	Well Interpretations		YES			
	Well Test		YES		YES	YES
	Well Operations		YES	YES	YES	
	Well Pressures		YES		YES	YES
	Well Logs		YES			
Produ	uction Reporting	YES			YES	YES
		120			120	120
Seisn		120	-		. 20	120
		YES			120	120
	mic				120	120
	<b>nic</b> Description	YES				120
	mic  Description  Acquisition	YES YES				120
	Description Acquisition Licenses	YES YES YES			YES	
	Description Acquisition Licenses Locations	YES YES YES YES				
	Description Acquisition Licenses Locations Interpretation	YES YES YES YES YES				
Seisn	Description Acquisition Licenses Locations Interpretation Processing	YES YES YES YES YES YES				
Seisn	Description Acquisition Licenses Locations Interpretation Processing Transactions	YES YES YES YES YES YES	YES	YES	YES	YES
Seisn Prode Supp	Description Acquisition Licenses Locations Interpretation Processing Transactions uction Entities	YES YES YES YES YES YES YES	YES	YES	YES	
Seisn Prode Supp	Description Acquisition Licenses Locations Interpretation Processing Transactions uction Entities igraphy	YES YES YES YES YES YES YES	YES		YES	

Facilities	YES			YES	YES
Contracts	YES			YES	
Management Procedures					
Contract Details					
Contract Provisions					
Partnerships	YES			YES	
Restrictions	YES				
Instruments	YES				
Land Rights					
General Land Information	YES	YES		YES	
Land Status		YES		YES	
Land Right Authorizations	YES				
Land Relationships				YES	
Land Acquisition	YES				
<b>Applications and Approvals</b>					
Applications	YES				YES
Consultations	YES				
Consents	YES				
Notification	YES	YES	YES	YES	YES
Contests	YES				
Obligations	YES				
Health Safey & Environment		YES	YES	YES	YES
Reserves Reporting	YES				
Reporting Hierarchies	YES			YES	
Classification Systems					
Sample Analysis		YES	YES	YES	
Information & Product Mana	<b>C</b> YES	YES	YES	YES	YES

Sample Management		YES	YES	YES	
Paleontology	YES				

Fossils

Wells: Planning Phase			
MODULE / SUB MODULE	DETAILS		
Spatial			
Spatial Locations	Locations for well both bottom hole and surface are identified		
Spatial Parcels	Land Rights for Sub-Surface for opportunities. Need surface access prior to site construction		
Support Modules			
Areas			
Entitlements			
Finances	Intial setup for Cost Centre, AFE creation and approval, Budget information		
Rate Schedules			
Source Document Bibliography			
Additives			
Coordinate Systems			
Business Associates			
Projects			
Work Orders			
Units of Measure			
Volume Conversions			
Data Management	Data is created and stored in various source applications, and key information shared with other stakeholders. Master data store may be created at this point.		
Equipment			
Real Equipment			
Catalogue Equipment	Will use to decide which equipment for the the well - drilling, completion and producing		
Equipment Specs	Will use to decide which equipment for the the well - drilling, completion and producing		
Equipment Maintenance			

Products / Substances	Planned products understood; regulatory applications may require this information
Wells	
Well General Information	Starting point for well as it is planned
Well Agreements	Any agreements completed prior to site construction
Well Activity Summaries	
Well Status	Well is proposed, may have a location
Well Locations	Possible location, planned location
Well Licenses	Received at end of Planning Phase
Well Cores	
Well Directional Surveys	
Well Interpretations	
Well Test	
Well Operations	
Well Pressures	
Well Logs	
Production Reporting	Production from similar or nearby wells is examined.
Seismic	Seismic may be in inventory or purchased or shot. Seismic is used in the evaluation of the opportunity
Description	
Acquisition	
Licenses	
Locations	
Interpretation	
Processing	
Transactions	
Production Entities	
Support Facilities	Existing facilities such as roads, powerlines, camps are part of the planning process.
Stratigraphy	Used in evaluation of the opportunity

Lithology	Used in evaluation of the opportunity
Facilities	May be reviewed to see if production or transportation facilities are in place or need to be built
Contracts	Any contracts complete prior to site construction. Also used for the partnership information on the sub-surface rights as part of the Land
Management Procedures	
Contract Details	
Contract Provisions	
Partnerships	Used for partnership information for costs and approvals
Restrictions	May need to change location due to restriction prior to applying for license
Instruments	Any legal instruments that may affect getting approval
Land Rights	
General Land Information	Need to check is sub-surface rights are valid for the opporunity. May need to acquire the sub-surface rights. Will need surface access
Land Status	
Land Right Authorizations	Ensure that necessary access rights have been obtained, along with consents from regulatory or local groups.
Land Relationships	
Land Acquisition	Ensure that the necessary land rights (surface and mineral) are in place.
<b>Applications and Approvals</b>	
Applications	Any applications - such as environmental, crossings, jurisdictional etc
Consultations	Recording of any consultations done as part of getting approval - public, regulatory, owners
Consents	If an special consents are required, they should be recorded
Notification	Any notifications are recorded as part of the Planning to necessary participants, regulatory etc
Contests	Legal contests if part of the Planning
Obligations	Tracking of any Obligations negotiated or required for the opportunity to proceed
Health Safey & Environment	
Reserves Reporting	Recording of initial reserve estimates as part of the evaluation of the opportunity
Reporting Hierarchies	Estimate contribution of planned well(s) to each segment of the approprite hierarchies.
Classification Systems	
Sample Analysis	

Information & Product Manage	Any documents or objects created as part of this phase should be stored
Sample Management	
Paleontology	Used during exploration and opportunity identification.

Fossils

Wells: Drilling Phase	
MODULE / SUB MODULE	DETAILS
Spatial	
Spatial Locations	Surface location of the drill site, desired bottom hole location, actual bottom hole location
Spatial Parcels	
Support Modules	
Areas	
Entitlements	
Finances	Tracking of AFE's and updates to financial accounting
Rate Schedules	
Source Document Bibliography	
Additives	
Coordinate Systems	
Business Associates	
Projects	
Work Orders	
Units of Measure	
Volume Conversions	
Data Management	Data is created and stored in various source applications, and key information shared with other stakeholders. Master data store may be created at this point.
Equipment	
Real Equipment	Equipment used during drilling (will not stay with the well), casing
Catalogue Equipment	
Equipment Specs	
Equipment Maintenance	

Products / Substances	Products and substances may be observed and recorded during drilling, even if only trace or small amounts. Water management.
Wells	
Well General Information	Update of spud, kb, tmd, rig release and other standard information
Well Agreements	
Well Activity Summaries	Tracking of drilling activities by sets
Well Status	Status reporting - regulatory, internal and partners
Well Locations	Surface location of the drill site, desired bottom hole location, actual bottom hole location
Well Licenses	License or permit information as received from regualtory
Well Cores	Core analysis results to be used in evaluation if done during drilling
Well Directional Surveys	Capture of the directional surveys - may need to be submitted to regulatory
Well Interpretations	Any interpretations done as part of the evaluation to go forward to completion
Well Test	Any Drill Stem Tests results to be used in evaluation if done during drilling
Well Operations	Tracking of drillling activities
Well Pressures	Any Pressure Test results to be used in evalutaion if done during drilling
Well Logs	Any Well Logs run, both mandatory and for evaluation purposes
Draduation Departing	

# **Production Reporting**

#### Seismic

Description

Acquisition

Licenses

Locations

Interpretation

Processing

Transactions

<b>Production Entities</b>	
Support Facilities	Use of roads, rigs and other support facilities tracked and related expenses managed.
Stratigraphy	

Lithology	Litholody is tracked through core and cuttings analysis
Facilities	
Contracts	
Management Procedures	
Contract Details	
Contract Provisions	
Partnerships	
Restrictions	
Instruments	
Land Rights	
General Land Information	Any surface requirements, sub-surface requirements, or dilling issues
Land Status	
Land Right Authorizations	
Land Relationships	
Land Acquisition	
Applications and Approvals	
Applications	
Consultations	
Consents	
Notification	Notifications may be required to regulatory, owners and partners
Contests	
Obligations	
Health Safey & Environment	Any drilling incidents and how they were resolved
Reserves Reporting	
Reporting Hierarchies	
Classification Systems	
Sample Analysis	Analysis of any samples taken during the drilling process

Information & Product Manage	Any documents or objects created as part of this phase should be stored
Sample Management	Management of any samples taken during the drilling process
Paleontology	

Fossils

Wells: Completing P	Phase
vvens. Completing i	nase
MODULE / SUB MODULE	DETAILS
Spatial	
Spatial Locations	Surface location of the drill site, actual bottom hole location
Spatial Parcels	
Support Modules	
Areas	
Entitlements	
Finances	Tracking of AFE's and updates to financial accounting
Rate Schedules Source Document Bibliography Additives	
Coordinate Systems	
Business Associates	
Projects	
Work Orders	
Units of Measure	
Volume Conversions	
Data Management	Data is created and stored in various source applications, and key information shared with other stakeholders. Master data store may be created at this point.
Equipment	
Real Equipment	Any special equipment used as part of completion process, any production equipment to be installed
Catalogue Equipment	
Equipment Specs	

**Equipment Maintenance** 

Products / Substances	Hydrocarbons and substances used during the completion, including frac jobs, are captured.
Wells	
Well General Information	Update of anyd standard information
Well Agreements	
Well Activity Summaries	Tracking of activities for the completion process
Well Status	Status reporting - regulatory, internal and partners
Well Locations	
Well Licenses	
Well Cores	
Well Directional Surveys	
Well Interpretations	
Well Test	
Well Operations	Tracking of operations for the completion procss
Well Pressures	
Well Logs	

# **Production Reporting**

#### Seismic

Description

Acquisition

Licenses

Locations

Interpretation

Processing

Transactions

<b>Production Entities</b>	
Support Facilities	Rigs, roads, power lines, water sources and more may be captured
Stratigraphy	Completions pay close attention to the intersection between the well bore and the reservoir, seeking to optimize the contact between the

#### Lithology

#### **Facilities**

#### **Contracts**

Management Procedures

**Contract Details** 

**Contract Provisions** 

#### **Partnerships**

#### Restrictions

#### **Instruments**

#### Land Rights

General Land Information

Land Status

Land Right Authorizations

Land Relationships

Land Acquisition

## **Applications and Approvals**

**Applications** 

Consultations

Consents

Notification Notifications may be required to regulatory, owners and partners

Contests

#### **Obligations**

Health Safey & Environment Any completing incidents and how they were resolved

#### **Reserves Reporting**

#### **Reporting Hierarchies**

#### **Classification Systems**

Sample Analysis of any samples taken during the completing process

Information & Product Manag	Any documents or objects created as part of this phase should be stored
Sample Management	Management of any samples taken during the completing process
Paleontology	

Fossils

Wells: Producing Phase	
MODULE / SUB MODULE	DETAILS
Spatial	
Spatial Locations	Surface location of the drill site, actual bottom hole location
Spatial Parcels	
Support Modules	
Areas	
Entitlements	
Finances	Tracking of revenue and operating costs, review to budget
Rate Schedules	
Source Document Bibliography	
Additives	
Coordinate Systems	
Business Associates	
Projects	
Work Orders	
Units of Measure	
Volume Conversions	
Data Management	Data is created and stored in various source applications, and key information shared with other stakeholders. Master data store may
Equipment	
Real Equipment	Any production equipment
Catalogue Equipment	
Equipment Specs	
Equipment Maintenance	Recording of regular maintenance on production equipment or any failres  Products are tracked and analyzed for volume, composition and
Products / Substances	distribution.

Wells	
Well General Information	
Well Agreements	
Well Activity Summaries	
Well Status	Status reporting - regulatory, internal and partners
Well Locations	
Well Licenses	
Well Cores	
Well Directional Surveys	
Well Interpretations	
Well Test	Recording of any standard tests requried by regulatory, Production tests done as part of allocaton process
Well Operations	Operational information done as part of the production process
Well Pressures	Recording of any standard tests requried by regulatory
Well Logs	
Production Reporting	Production volumes, allocations, dispositions, forecasts and more are tracked.
Seismic	
Description	
Acquisition	
Licenses	
Licenses Locations	
	Micro seismic may be used to track the depletion of a reservoir.
Locations	Micro seismic may be used to track the depletion of a reservoir.
Locations Interpretation	Micro seismic may be used to track the depletion of a reservoir.
Locations Interpretation Processing	Tracking of production volumes at the entity level (Well, Wellbore,
Locations Interpretation Processing Transactions	Tracking of production volumes at the entity level (Well, Wellbore, Wellbore Completion, Production String, Facility  Facilities used to maintain the well, gathering stations, pipelines,
Locations Interpretation Processing Transactions  Production Entities	Tracking of production volumes at the entity level (Well, Wellbore, Wellbore Completion, Production String, Facility

Facilities	Any facilities such as storage, transport, tanks, gathering centres
Contracts	Contracts are used to ensure that partner rights and obligations are met.
Management Procedures	Management procedures are used to control operational and financial detils.
Contract Details	
Contract Provisions	
Partnerships	Need partnership information for cost and revenue distribution
Restrictions	
Instruments	
Land Rights	
General Land Information	Review against Land
Land Status	Once producing, lease may be held until not producing
Land Right Authorizations	
Land Relationships	Throughout the producing stage, land rights must be monitored to ensure that obligations to hold the land are addressed.
Land Acquisition	
Applications and Approvals	
Applications	
Consultations	
Consents	
Notification	Notifications may be required to regulatory, owners and partners
Contests	
Obligations	
Health Safey & Environment	Any incidents that occurred during production
Reserves Reporting	
Reporting Hierarchies	Volumes are allocated and aggregated for corporate reporting, strategic planning and operational management.
Classification Systems	
Sample Analysis	Analysis of any samples taken during the completing process
Information & Product Manage	Any documents or objects created as part of this phase should be stored

Sample Management	Management of any samples taken during the completing process
Paleontology	

Fossils

Wells: Disposing Phase	
MODULE / SUB MODULE	DETAILS
Spatial	
Spatial Locations	Surface location of the drill site, actual bottom hole location
Spatial Parcels	Reclamation of the land around the well site and access roads
Support Modules	
Areas	
Entitlements	
Finances	Tracking of AFE's and updates to financial accounting and eventual close of well
Rate Schedules	
Source Document Bibliography	
Additives	
Coordinate Systems	
Business Associates	
Projects	
Work Orders	
Units of Measure	
Volume Conversions	
Data Management	Data is created and stored in various source applications, and key information shared with other stakeholders. Master data store may be created at this point.
Equipment	
Real Equipment	Equipment used in suspension or abandonment processes
Catalogue Equipment	
Equipment Specs	
Equipment Maintenance	Removal of production equipment, any suspension or abandonment inspections

Products / Substances	Details are included in final reclamation documentation, or A&D packages.
Wells	
Well General Information	
Well Agreements	
Well Activity Summaries	
Well Status	Status reporting - regulatory, internal and partners
Well Locations	
Well Licenses	
Well Cores	
Well Directional Surveys	
Well Interpretations	
Well Test	Any tests required due to suspension or abandonment
Well Operations	
Well Pressures	Any tests required due to suspension or abandonment
Well Logs	
Production Reporting	Volumes will be included in A&D documentation, but generally not needed if a well is to be abandoned.
Seismic	
Description	
Acquisition	
Licenses	
Locations	
Interpretation	
Processing	
Transactions	
Production Entities	
Support Facilities	Details about rights to nearby infrastructure may be carried into A&D information
Stratigraphy	

	<u>-</u> , , , , , , , , , , , , , , , , , , ,
Lithology	
Facilities	Any faclilities that are affected by the disposing of the well
Contracts	
Management Procedures	
Contract Details	
Contract Provisions	
Partnerships	
Restrictions	
Instruments	
Land Rights	
General Land Information	
Land Status	
Land Right Authorizations	
Land Relationships	
Land Acquisition	
Applications and Approvals	
Applications	Application and approval for reclamation or plug/abandon must be obtained.
Consultations	
Consents	
Notification	Notifications may be required to regulatory, owners and partners
Contests	
Obligations	
Health Safey & Environment	Any incidents during suspension or abandonment
Reserves Reporting	
Reporting Hierarchies	
Classification Systems	

Sample Analysis

Information & Product Manage	Any documents or objects created as part of this phase should be stored
	30.00

# **Sample Management**

### **Paleontology**

Fossils