PPDM Association

Applications, Consents and Licenses

Reference Guide

Last updated for PPDM 3.7

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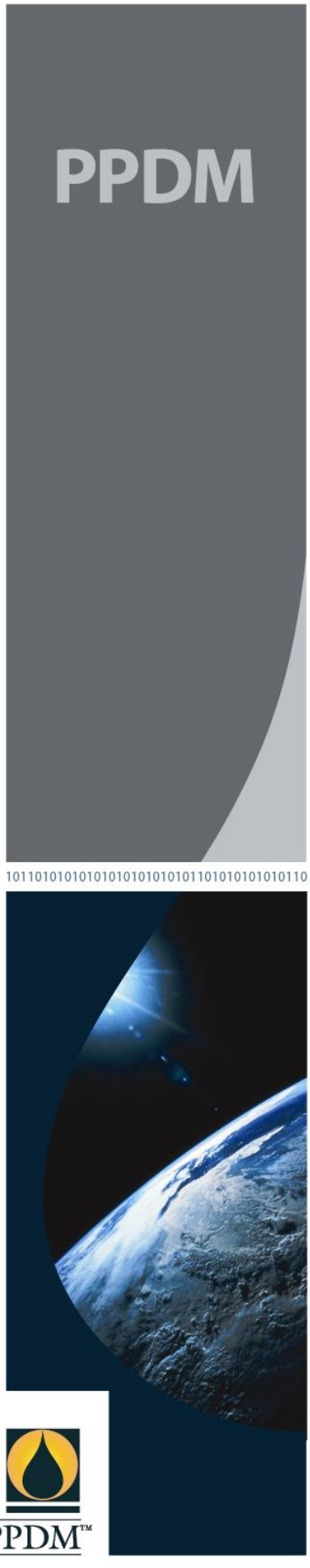

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About This Document

This reference guide has been prepared to help managers, analysts, database administrators, programmers, data managers, and users understand how to use the Applications, Licences and Consents Data Modules in PPDM 3.7. Readers at many levels, from managerial to technical implementers will benefit from reading various sections of this document. General, high-level business information is contained at the beginning of the document, with each section becoming progressively more technical and detailed.

Sometimes the terms we use in this and other PPDM documents need to be defined. We provide definitions in a separate Glossary, which you can obtain from PPDM.

Modules Covered

The modules described in this document support a continuum of business processes that are most easily described in relation to each other. For this reason, we have elected to create a single reference guide for the following modules:

- **Applications** – submissions that request permission or consent to undertake an activity.
- **Licences** – four types of licenses, Business Associate, Facility, Seismic and Well
- **Consents** – permissions for activities
- **Consultations** – business processes related to the discussions and negotiations necessary to process applications, consents and licenses.
- **Notifications** – Notifications about processes, meetings etc that are submitted as part of a contract or license management process.
- **Rate Schedules** – schedules of costs that are payable for services.

Sections

This reference guide contains the following sections:

- Introduction

  Provides an executive overview of the PPDM Model as it pertains to Seismic.

- Business Process Overview

Summarizes Seismic and provides examples of related business processes.

- Integration

  Discusses how seismic is integrated with the other PPDM Business Modules and provides information about related references guides.

- Model Overview

  Includes the entity relationship diagram and discusses the use of Seismic Module tables in the Data Model.

- Tables and Columns – Seismic

  Identifies the data model tables for the Seismic Module, how they should be used, what they contain, and recommends how they should be used. This section should be used in conjunction with the PPDM Table Report available for download from the PPDM Web Site (www.ppdm.org).

- Implementation Considerations

  Discusses issues related to implementing the PPDM model, architectural methodologies used in design, or special considerations for implementation that are not related to a specific table.

- Frequently Asked Questions

  Addresses technical and business questions about the Seismic Module.

- Appendix A – Sample Queries

  Provides example queries with the appropriate SQL scripts that illustrate uses of the model based on the Business Requirements Document.

- Appendix B – Changes to the Model

  Identifies the changes in the Seismic Module from the latest version to the newest release version of the PPDM model.

Introduction

Day to day business operations in the Energy sector are highly interactive, requiring constant interaction, discussion and negotiation between stakeholders. Permissions must be requested and granted before operations may commence, either from partners or from regulatory or jurisdictional agencies. Partner relationships must be proactively managed to ensure that all contractual conditions and obligations are handled in an appropriate and timely fashion. Relationships with regulatory agencies and local organizations are necessary to ensure that operations conform to local and federal requirements, legislation and regulations.

Good communication, accurate records and effective work practices are necessary to support these operations. This means that workflows, records and business objects such as wells or seismic data must be tightly integrated. At each step in a workflow, questions about who is doing what, what steps are required next, where documents that pertain to a particular function can be found and how various business processes affect other processes must be answerable.

Several PPDM modules have been designed to support these operations; used in conjunction with other modules, they are intended to provide support for ongoing operations in a transactional system. The modules explained in this guide will commonly be used with nearly every other module in PPDM 3.7.

Business Process Overview

Applications

Applications are submitted whenever a business associate wishes to undergo an operation for which approval is required. Applications are made by an operator to partners in order to obtain consent to spend money or perform some work. Usually, the situations that require (or don't require) consent from partners are outlined in a contract.

Companies that want to conduct work in an area governed by one or more regulatory agencies also make applications before work may begin. In this case, the company will submit an application that describes the work to be done, includes one or more fees and shows how regulatory requirements have been (or are being) addressed. In some cases, a company may need to submit applications to more than one agency or group.

Applications are usually accompanied by a variety of supporting material such as reports, maps and photos. It is important for both the applicant and the reviewing agency to keep track of these attachments and what has been done with them. The Records Management module in PPDM was designed to keep track of this information.

Work flows and processes exist in energy companies and in regulatory agencies; it is useful to keep track of the status of an application as it is created and processed so that you know what has been done and what still needs to be done. The Projects module in PPDM was designed to help users do this.

Consultations and Negotiations

Consultations don't only happen during the application process; they may occur at any point in the life cycle of any project. You can use this module any time you wish; all you need to do is make sure that the consultation details are associated with the appropriate project or business objects.

Contractual consultations usually only occur among partners, although other interested parties may be involved from time to time. Nevertheless, for the purpose of this discussion, we will use the example of a consultation that happens during the evaluation of an application for the purpose of granting a licence.

Once the application has been submitted, a process of consultation and negotiation may be required in order to decide what conditions will apply to permission and provide more details about how the work is to be done. These consultations may be conducted with local communities, recreational groups, agricultural groups, environmental groups or local business people.

Almost any kind of forum may be used for a consultation – whether you do business by mail, email, phone, teleconference or in person is up to you. PPDM

will track information about what discussions were held, who participated, what issues were raised and how they were resolved.

Once the consultation process is complete and all issues have been addressed, you will be ready to write a contract or obtain a consent or license, depending on what you were after. If you are creating a contractual relationship, see the Contracts Reference guide for more information. This module will continue with the process of obtaining permissions and consents.

Consents

The consents module provides a lightweight method to track the consents that are granted by a community association, recreational agency. In order to obtain a licence from a regulatory agency, you may need to obtain consents from many organizations and associations.

Conditions may be attached to consent; these can range from simple requests (close the gates behind you) to complex (environmental assessments or lengthy reclamation activities). Do not be mislead by the less formal nature of consents; adherence to the conditions of the consent may be just as binding as those attached to the regulatory licence.

Business associates involved with obtaining the consent can be tracked, along with the role they played in the process (signatory, negotiator). Consents should be associated with any business object that it relates to; this may include projects (to track your internal work flows), wells, land rights, seismic, facilities and so on.

Licences

Licences are granted by regulatory agencies as authorization to conduct work. Various terms are used to identify these authorizations. Typical examples include licence and permit. The type of authorization that is granted will be governed by the regulatory regime in which you will be operating.

Some agencies provide a single licence to cover all the activities related to drilling, completing and producing a well. Other agencies use separate licencing processes at various stages of the life cycle, and may provide amendments to licences over time. If you intend to implement this module, be aware that you may need to accommodate more than one regulatory regime in your system.

Conditions and obligations that are incurred through the granted licence should be noted; both the operator and the grantor will be interested in ensuring that these conditions are met as defined in the licence. The licence module works in conjunction with other PPDM modules to keep track of this information.

There are four types of licences in PPDM 3.7. Each module contains similar components, but has been tuned to the type of licence typically granted for that business object. Well licences pertain to wells and all activities and operations

related to them. Facility licences pertain to any kind of production facility such as a battery, pipeline or processing facility. Seismic licences relate to the acquisition of seismic information.

Business Associate licences provide a more generic method of granting licences for activities not related to seismic, wells or facilities. These licences may be granted for conducting aerial surveys, ground geochemical studies, environmental assessments and so on.

Notifications

Notifications are sent to business associates to inform them about certain events. Contractual notifications are sent out to advise partners that something has happened with respect to the operations governed by the contract. Generally, the contract will spell out what operations can be handled with a notification and which will require consultations or votes.

During the process of obtaining consents and licences, you may keep track of notifications about meetings that are sent to associations and organizations. This information provides important verification about the process used to manage the consultations and may be necessary as evidence in the case of litigation or other legal conflict.

The Records Management module will help you keep track of the chain of custody of a document or other product and where receipts for registered mail have been stored, so you can find them if you need them.

Rate Schedules

Companies, organization, agencies and individuals lay out rate schedules to define what payment will be required for services rendered. Rates may be fixed, periodic or variable. Fixed rates may be set by a regulatory agency, such as a filing fee. Periodic fees may be set for hourly, weekly, monthly compensation for a service.

Variable rates are more complicated as they often depend on a condition. For example, a road use fee may depend on whether the well serviced by the road is on production or not. Associate the appropriate rate schedule with applications, consents, licences etc as needed.

Model Overview

Integration

Integration is the key to managing the PPDM and its components properly. Information critical to managing seismic data throughout its life cycle is managed in many support and business modules in PPDM version 3.7:

Support Modules

AFE: Application for Expenditure or Cost Center. Capture information about the cost centers or AFE's used through the life cycle.

Areas: business, regional or project areas associated with data

Business Associates: track detailed information about partners, service providers and other people, companies and regulatory agencies that you do business with.

Entitlements: information about the rights that you have to any type of data and what you are able to do with it.

PPDM Units of Measure: capture the default stored unit of measure for any measured value in the database.

Work Order: captures requests for work to be completed with some summary information about what was done and the data affected by the work order.

Business Modules

BA Interest Sets: describe partnership information for the ownership of data and assets.

Contracts: contracts formed to manage relationships between business associates

Geodetic and spatial: use this module to reference any positional information to geodetic or cartographic information.

Land Rights: capture mineral or surface land rights.

Stratigraphy: make use of subsurface stratigraphic definitions that can be shared among all modules.

Obligations: especially useful to ensure that surface access requirements or conditions are met.

Projects: track work projects, such as for field acquisition, interpretation, or processing.

- Records Management: track the physical location of digital and hard copy products, circulation, retention, etc.
- Restriction: capture details about environmentally sensitive areas where access is limited.

- Support facility: describe facilities used to support business operations..
- Wells: describe well data.

Contact PPDM to inquire about the status and availability of reference guides for these modules.

Data Diagrams

The diagram on this page is the legend for the tables discussed later in this document. Note that some or all of these elements may be present in data diagrams provided by the Association. Some elements are removed from final products to reduce file size:

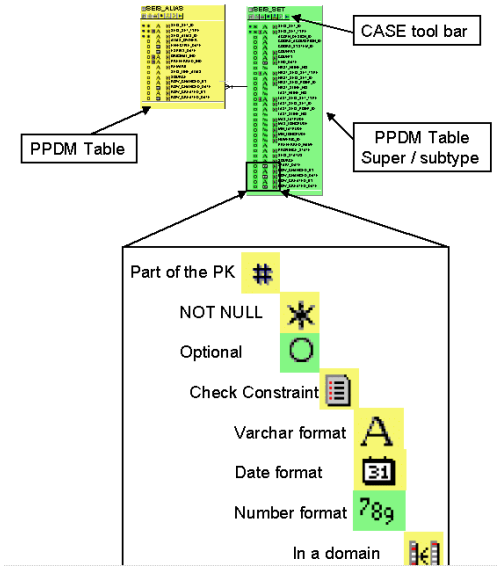

Figure 1: *This illustration shows the functions of each icon used in the data diagrams provided with PPDM version 3.7.*

The data diagrams for the Module are not provided in this reference guide because of their very large file size. Data diagrams can be obtained from the PPDM Association as part of the final model documentation or as a set of PowerPoint diagrams. The PowerPoint diagrams will provide the best resolution for printed quality.

Tables and Columns

The following tables exist in the Applications, Consents, Licences, Consultations, Rate Schedules and Notifications modules of PPDM version 3.7. Each table is described in the following section; you can jump to a table description by clicking on the hyperlinked table name below. Note that for detailed content descriptions for each table, you should refer to the PPDM version 3.7 table documentation.

Applications

APPLICATION

This table captures a summary about the application, including who submitted it, to whom it was submitted, when the application was submitted and the decision. If the application is a resubmission, you can track that using the RESUBMISSION_IND column.

Whether you are submitting the application or reviewing it, you can use the SUBMISSION_COMPLETE_IND to check the application once all the necessary components have been assembled. More detail about the process of creating or reviewing the application can be tracked in the PROJECT module or other modules described in this guide.

Back to the list of table names

APPLIC_AREA

Many different types of area can be affected by operations, so when you submit an application you may want to keep track of any environmental, cultural, regulatory or agricultural areas that are or may have an impact on operations.

Back to the list of table names

APPLIC_ATTACH

Attachments to the application, such as reports, photos, maps and so on can be tracked in this table. If these are items that are managed and stored in your records management system, use the foreign key relationship in RM_INFO_ITEM_CONTENT to track it.

Back to the list of table names

APPLIC_BA

Use this table to keep track of the business associates involved in the application (other than who submitted the application and who it was submitted to) and the roles they played.

Back to the list of table names

APPLIC_DESC

This table is structured so that you can keep track of specific details about the application. Any type of description can be tracked, including dates (such as projected start date of the work), monetary amounts (such as fees paid), numeric values (such as the projected final drilled depth of a well) or textual descriptions. The type of information you keep track of will vary according to the type of application.

Back to the list of table names

Business Associate Licences

BA_LICENSE

A business associate licence may be created to support activities that are not directly related to wells, facilities or seismic. This table tracks details such as the

licensee, licensor, date granted, primary and secondary term of the licence and the licence number.

In some cases, a new licence (or amendment) may be granted. In this case, you may choose to revise the original licence, or create a new licence and associate that with the original using the foreign key to another licence.

Back to the list of table names

BA_LICENSE_AREA

Use this table to track any area that the licence affects. These could be organizational areas, environmental areas, cultural areas etc. Note that the licence may affect areas that are outside the area granted by the licence; wind, water, traffic and other factors may also create an important relationship.

Back to the list of table names

BA_LICENSE_COND

Conditions that are part of the licence granted may be tracked in this table. In some cases, these conditions may be the same as or similar to details created in the application. They may also be different. You can track details about dates (when operations must start or end), monetary values (the total expected cost of the work), numeric values (the number of approved camp sites) or text based. Text based conditions may be selected from a reference table (codes) or unvalidated text.

Back to the list of table names

BA_LICENSE_COND_CODE

This table supports the licence condition table by tracking the appropriate codes for specific conditions. This table is subordinate to the BA LICENSE COND TYPE table; this ensures that the codes provided are specific to a type of condition.

Back to the list of table names

BA_LICENSE_COND_TYPE

Use this table to track the types of conditions that are applied to a licence. Each type of condition will typically be associated with one type of value. For example, a condition “Start Date” should be associated with a date. A condition regarding the number of campsites would be a number. Conditions about the type of report due may be selected from a reference table (BA LICENSE COND CODE). Still other conditions may be best entered as simple text values.

Back to the list of table names

BA_LICENSE_STATUS

Licences are subject to a variety of different status types such as the actual status of the licence (approved, expired, extension requested). You can also track the regulatory status, financial status, operational status etc. This table allows you to keep a historical record of all statuses for the licence over time.

Back to the list of table names

BA_LICENSE_TYPE

Use this table to track the type of licence (or amendment) being granted. Each type of licence will be specific to the business associate who will be responsible for granting the licence.

Back to the list of table names

Consents

CONSENT

Consents are granted by non-regulatory agencies, such as environmental groups, community associations, recreational clubs, trappers, farmers and so on. In order to obtain a licence you may need to obtain one or many consents from local organizations first. Track high level information about consents in this table, such as the type of consent, the method used to obtain it (mail, negotiation etc.) and the date it was granted.

Back to the list of table names

CONSENT_BA

This table tracks the business associates or stakeholders who are involved in the consent. You can either use the validated foreign key reference to BUSINESS_ASSOCIATE or the unvalidated name column.

Back to the list of table names

CONSENT_COMPONENT

Use this table to keep track of relationships between the consent and all the applications, consultations, licenses, land rights, facilities, wells, seismic etc that are important. If this table is missing relationships to needed business objects, you can extend the table using the PPDM Architectural Principles document, available from the PPDM web site.

Back to the list of table names

CONSENT_COND

This simple table allows you to keep track of the conditions that are attached to a consent. These conditions may be quite simple, such as a request to close all gates or to reseed disturbed grass. In other cases, they may be more complex, such as a requirement to employ individuals from the group in question. Projects can be set up to help you manage detailed conditions.

Back to the list of table names

CONSENT_REMARK

Any type of remark may be entered into this table, together with information about who made the remark and the date it was made.

Back to the list of table names

Consultation and Negotiation

CONSULT

CONSULT is the header table for the Consultations and Negotiation module. Use this table to track information about the type of consultation, start and end dates and the reason for the consultation. Some consultations must be repeated on a regular, scheduled basis; use PERIOD TYPE to track this. If more complex scheduling and planning information is needed, the Projects module should be used.

Back to the list of table names

CONSULT_BA

All of the business associates involved in the consultation may be noted here, together with the role they played. In the case where a business associate participates in order to represent another business associate (such as the representative for an environmental group), use the REPRESENTED_BA_DI column.

Back to the list of table names

CONSULT_COMPONENT

Use this table to associate the consultations with any and all of the applications, consents, licences, and other business objects that have a relationship to the consultation. Each row in the table should be used for only one relationship.

Back to the list of table names

CONSULT_DISC

Use this table to identify the discussions that occurred during the consultation. These discussions may span a number of days. Specific details about the consultation are found in the subordinate tables CONSULT_DISC_BA and CONSULT_DISC_ISSUE.

Back to the list of table names

CONSULT_DISC_BA

Lists the business associates involved in a discussion.

Back to the list of table names

CONSULT_DISC_ISSUE

Lists the issues that were raised during a discussion.

Back to the list of table names

CONSULT_ISSUE

Describes issues that came up during the consultation and how they were resolved.

Back to the list of table names

CONSULT_XREF

Captures relationships between consultations, as in the case where the results of one consultation may have an impact on another consultation.

Back to the list of table names

Facility Licences

FACILITY_LICENSE

A facility licence is created to support activities directly related to regulatory approval to plan, build, operate or decommission a facility. This table tracks details such as the licensee, licensor, date granted, primary and secondary term of the licence and the licence number. Other details specific to facility licences are explicitly placed in this table. If other licence details are needed, you can extend this table (and provide feedback to PPDM) or you can use the condition tables in this module.

In some cases, a new licence (or amendment, such as an amendment allowing the operator to flare for a period of time) may be granted. In this case, you may

choose to revise the original licence, or create a new licence and associate that with the original using the foreign key to another licence.

Back to the list of table names

FACILITY_LIC_AREA

Areas that are affected by the licence may be tracked in this table. Note that the facility may not actually be physically located in the area affected, but may affect it through water movement, wind or other factors.

Back to the list of table names

FACILITY_LIC_COND

This table was designed to handle any type of condition that may apply to the license. Conditions may be described as dates (the date operations must be complete by), numbers (the number of waste sites allowed), validated or unvalidated text (the type of waste dump allowed).

Back to the list of table names

FACILITY_LIC_STATUS

Use this table to keep track of the status of the facility licence (pending, approved, expired) over time.

Back to the list of table names

FACILITY_LIC_TYPE

This table tracks the various types of facility licences that may be granted. Some agencies grant licences that support construction, operation and decommissioning of facilities, while others grant licences in a granular fashion (one for construction, one for commissioning, one for flaring etc). Licences may be actual licences or amendments to licences.

Back to the list of table names

Seismic Licences

SEIS_LICENSE

A seismic licence is created to support activities directly related to regulatory approval to plan or conduct a seismic survey (this may or may not include other associated geophysical operations such as magentics). This table tracks details such as the licensee, licensor, date granted, primary and secondary term of the licence and the licence number. Other details specific to licences are explicitly placed in this table. If other licence details are needed, you can extend this table

(and provide feedback to PPDM) or you can use the condition tables in this module.

In some cases, a new licence (or amendment, such as an amendment allowing the operator to acquire additional seismic or change operations slightly) may be granted. In this case, you may choose to revise the original licence, or create a new licence and associate that with the original using the foreign key to another licence.

Back to the list of table names

SEIS_LICENSE_AREA

Areas that are affected by the licence may be tracked in this table. Note that the seismic operations may not actually be physically located in the area affected, but may affect it through water movement, wind or other factors.

Back to the list of table names

SEIS_LICENSE_COND

This table was designed to handle any type of condition that may apply to the license. Conditions may be described as dates (the date operations must be complete by), numbers (the number of waste sites allowed), validated or unvalidated text (the type of waste dump allowed).

Back to the list of table names

SEIS_LICENSE_STATUS

You can track the status of the licence over time in this table.

Back to the list of table names

SEIS_LICENSE_TYPE

This table tracks the various types of licences that may be granted. Some agencies grant licences that support single types of geophysical acquisition, while others may grant a separate licence for each type of technical data to be acquired. Licences may be actual licences or amendments to licences.

Back to the list of table names

Well Licences

WELL_LICENSE

A well licence is created to support activities directly related to regulatory approval to plan, build, operate or decommission a well. This table tracks details such as the licensee, licensor, date granted, primary and secondary term of the

licence and the licence number. Other details specific to facility licences are explicitly placed in this table. If other licence details are needed, you can extend this table (and provide feedback to PPDM) or you can use the condition tables in this module.

In some cases, a new licence (or amendment, such as an amendment allowing the operator to flare for a period of time) may be granted. In this case, you may choose to revise the original licence, or create a new licence and associate that with the original using the foreign key to another licence.

Back to the list of table names

WELL_LICENSE_AREA

Areas that are affected by the licence may be tracked in this table. Note that the well operations may not actually be physically located in the area affected, but may affect it through water movement, wind or other factors.

Back to the list of table names

WELL_LICENSE_COND

This table was designed to handle any type of condition that may apply to the license. Conditions may be described as dates (the date operations must be complete by), numbers (the number of waste sites allowed), validated or unvalidated text (the type of waste dump allowed).

Back to the list of table names

WELL_LICENSE_STATUS

Track the status of the well licence in this table as it changes over time.

Back to the list of table names

WELL_PERMIT_TYPE

This table tracks the various types of well licences that may be granted. Some agencies grant licences that support construction, operation and decommissioning of wells, while others grant licences in a granular fashion (one for construction, one for commissioning, one for flaring etc). Licences may be actual licences or amendments to licences.

Back to the list of table names

Notifications

NOTIFICATION

Notifications track the distribution and receipt of notices about operations, meetings and so on. Track the notification in this table. You can associate the notification with consents, consultations, licences, contracts and land rights in the respective %_COMPONENT tables. For a list of the foreign key relationships, refer to the populated meta model in PPDM 3.7.

Back to the list of table names

NOTIF_BA

This table lists all the business associates who sent or receive a notification and indicates whether this has been sent or received. If notifications are sent by registered letter (or other traceable method), you can log the receipts into the records management module and track the provenance of the document.

Back to the list of table names

Rate Schedules

RATE_AREA

Use this table to track all the areas that are affected by the rate schedule. This area may be any geopolitical area or other area as needed. The actual boundaries of the area are described in the spatial module.

Back to the list of table names

RATE_SCHEDULE

Rate schedules may be set by any organization to indicate how services are to be compensated. This header table tracks the rate schedule type and name, the business associate who is the owner of the rate schedule and the dates that it is in effect.

Back to the list of table names

RATE_SCHEDULE_XREF

Use this table to track the relationships between rate schedules, such as the relationship between an older version and the new version of a rate schedule.

Back to the list of table names

RATE_SCHED_DETAIL

This table outlines the fee structure in the rate schedule. Fees may be fixed, periodic, calculated by a formula or dependent on a condition (such as whether the well that is supported by a service road is on production).

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Implementation Considerations

Constraints in PPDM

It is essential that anyone who is considering using PPDM version 3.7 review the Constraints Reference Guide first. Improper use or population of constrained columns in PPDM can compromise the quality of your data and the reliability of your queries. This document may be obtained from the PPDM Association or downloaded from the PPDM web site at www.ppdm.org.

Check Constraints

PPDM Version 3.7 makes use of check constraints in rare cases where the values that may be input for a column are known at design time and will not change over time. Two types of uses are observed in PPDM 3.7.

- Where the column name is %_IND, the column is an indicator field, and the values may only be Y, N, or null.
- Super-sub type implementations use check constraints to enforce the integrity of the super-sub type relationship. Currently these relationships are in use for Seismic, Business Associates, Records Management, Support Facilities, Production Entities and Land Rights.

  Let's use Seismic Sets as an example. This structure consists of a parent table (SEIS_SET) and several sub-type tables (SEIS_3D, SEIS_ACQTN_SURVEY, SEIS_INTERP_SET, SEIS_LINE, SEIS_PROC_SET, SEIS_SEGMENT, SEIS_SET_PLAN and SEIS_WELL). Each of the tables has a two-part primary key: SEIS_SET_ID and SEIS_SET_TYPE.

  SEIS_SET_ID is assigned by the user and can have any value as long as it is unique for that type of seismic set. SEIS_SET_TYPE was designed to maintain the integrity of the super-sub type structure and can only have the values assigned to it by check constraints; these values are the table names of the eight valid sub-types. In SEIS_SET, the SEIS_SET _TYPE can have any of the table names, but in each of the sub-types, it can only have the name of the table it is owned by.

Currencies in PPDM

Costs in PPDM may originate in any valid Unit of Measure (UOM), such as USD, $CDN, YEN, etc. However, to ensure that queries for retrieval and reporting are efficient, it is desirable to convert all original currencies to a standard unit of measure for storage in the database. PPDM supports the requirement to restore the original value in the following way:

- Convert all stored currencies to a single currency type, such as US dollars.

- CURRENCY_OUOM stores the currency in which the funds were initially received. When the stored currency is multiplied by the CURRENCY_CONVERSION, the value of the transaction in the original currency is obtained.

- CURRENCY_CONVERSION stores the rate applied to convert the currency to its original monetary UOM from the stored UOM. This value is valid for this row in this table at the time of conversion only. When this value is multiplied by the stored currency value, the original value of the transaction in the original currency is restored.

Units of Measure

Relational databases, powerful as they are, are not good at certain types of query and retrieval. Any query that requires the database to retrieve all the rows in a large table and perform some calculations on the data before returning results to a user is likely to perform very poorly. This assumes, of course, that the person constructing the query is aware that a calculation is necessary when writing the query. Data management strategies for such tables recommend that requirements for on-line conversions such as this be eliminated if at all possible. The PPDM strategy for handling units of measure falls into this category.

Every column in the data model that references a Unit of Measure (such as a depth, temperature, length etc.) should be stored using a single, common unit of measure. For example, in one PPDM instance, all the total well depths should be stores as meters or as feet. Storing some depths as meters and the rest as feet creates problems for the data base and adds confusion to the user (who may not be aware that the numbers in the depth column are not all meters).

The original unit of measure (the unit in which the data was originally received) can be stored in the data table. For example, the WELL table captures FINAL_TD and FINAL_TD_OUOM. These columns capture the value of the final total depth of the well and the units that the depth was originally captured in.

The ***stored unit of measure*** is captured in the PPDM meta model, PPDM_COLUMN. This table captures the default unit of measure for a column and the name of the column where the original unit of measure is stored. The following illustration provides an example:

WELL

UWI	DRILL_TD	DRILL_TD_OUOM
SMITH12F	1250	FEET
JONES44	1560	METERS
12345	1400	FEET

PPDM_COLUMN

TABLE_ NAME	COLUMN_ NAME	UOM_ COLUMN	OUOM_ COLUMN	DEFAULT _OUM_ SYMBOL
WELL	UWI			
WELL	DRILL_TD		DRILL_TD_OUOM	M
WELL	DRILL_TD_OUOM			
WELL_CEMENT	CEMENT_AMOUNT	CEMENT_AMOUNT_UOM	CEMENT_AMOUNT_OUOM	

Figure 2: *The method for storing and tracking units of measure is illustrated here.*

Note that in the example, the Drilling TD is stored in meters, but was originally received as feet.

In some cases, it is not possible to ensure that all the rows in a column are stored as a single unit of measure – this is common in cases where the unit of measure is dependent on some other factor. For example, substance measurements may depend on the substance being measured; gases are stored as MCF, liquids as BBL etc. In these cases, the unit of measure is stored directly in the business table.

PPDM GUID

The Global Unique Identifier (GUID) has been added to every table in PPDM. Applications that are designed to take advantage of this column should implement the DDL set PPDM37.GUID. This procedure will alter the PPDM_GUID column to be NOT NULL and to add a Unique Index to each column.

Audit Columns

Each table contains five columns: SOURCE, ROW_CHANGED_BY, ROW_CHANGED_DATE, ROW_CREATED_BY, and ROW_CHANGED_DATE. These columns satisfy a data-auditing requirement to identify the user and date of database transactions.

Use the “CREATED” columns when you are inserting new data rows and the “CHANGED” columns when you are updating a data row. The ROW_CHANGED / CREATED_BY columns are usually populated using the system login id in use. ROW_CHANGED / CREATED_DATE is usually set to the system date of the insert or update operation.

To populate the SOURCE column, specify where you obtained the data. If you receive the data from Vendor A, and Vendor A received the data from Regulatory B, you should set the SOURCE to Vendor A. In some cases (such as for interpreted picks), data is created by an application. In this case, the source may be set to identify the application that created the data.

Identifying Rows Of Data That Are Active

Maintaining information about how a business object has changed over time is an important business requirement for all these modules. To support this, mechanisms for allowing versioning have been added to many tables.

Every table in PPDM version 3.7 contains a column called ACTIVE_IND. The values for this column may be one of Y, N, or null. When more than one row of data (such as a spatial description or a status) has been created for a business object, use the ACTIVE_IND to indicate which row is currently active (note that in some cases, more than one row may be active simultaneously).

This provides implementers with two benefits. First, when populating EFFECTIVE_DATE and EXPIRY_DATE it will not be necessary to populate EXPIRY_DATE with a false future date to indicate that the row of data has not expired yet. Second, queries can explicitly search only for rows that are active.

If this column is used for queries, as recommended (such as “find me the currently active status for this land right”), you should implement procedures to ensure that this column is always populated as either Y or N and maintained appropriately. If the column is left blank (NULL), the query will not be consistent or reliable.

For example, you could default the value to N if the expiry date is filled in and has already happened. Make it Y if the expiry date is empty *or* if the expiry date contains a future date.

Modifying PPDM 3.7

Subsetting PPDM

The PPDM data model is designed to allow users to implement portions that support their business without needing to manage modules that are not required. Good data management practices are also supported; this means that data redundancy is reduced in the Model whenever possible.

All information about Seismic will be found in the seismic module; information about contracts is stored in the Contracts module, details about objects that are retained for long term use are stored in the Records Management module and so on. Depending on your business requirements, you can implement all or some of the modules.

PPDM version 3.7 is released with a dataset that is populated with information grouping tables into modules (PPDM_TABLE_GROUP). You can use this information to create a subset DDL if you wish.

In general, it is usually simplest to install the entire PPDM data model and simply restrict usage to the portions that are useful to you. Additional tables can be implemented as your business requirements expand, or as your data and processes are able to support capture in a data model. Architectural guidelines for subsetting PPDM are contained in the PPDM Architectural Principles Document. This document can be obtained from the PPDM Association or downloaded from the PPDM web site at www.ppdm.org.

Expanding PPDM

As a consequence of the PPDM Design process, which actively solicits and incorporates business requirements from Industry, many users find that the model is quite complete. However, individual implementations may find that additional columns are needed, or that some denormalization will help their performance.

The Association provides documentation about how to expand the data model to accommodate your specific requirements. This document can be obtained from the PPDM Association or downloaded from the PPDM web site at www.ppdm.org. Tables or columns that have been added should be so marked in PPDM_TABLE.EXTENSION_IND, PPDM_COLUMN.EXTENSION_IND or PPDM_CONSTRAINT.EXTENSION_IND.

Feedback to PPDM

Much of the growth of the PPDM model can be attributed to Industry feedback. All implementers are requested and encouraged to provide feedback to the Association about changes they have made for implementation. Feedback can be submitted to changes@ppdm.org.

Frequently Asked Questions (FAQ)

Applications

I must submit fees with my application. Where do I track these fees, how they were paid and the AFE number that the cost was charged to?

The fees are set out in the RATES module for each business associate. For an application, you can track whether or not the fees were paid in APPLICATION.FEES_PAID_IND and FEES_DESC. This is fairly simplistic, however. If you want to get into who paid the fees, check numbers and other detail, you would use the OBLIGATIONS module. Connections to the AFE that was used for funding would be handled in the FINANCE module.

Consents and Licences

What is the difference between consent and licences?

While a licence grants you the right to actually conduct work, a consent may represent an individual approval necessary before the license can be granted. Often, many consents may need to be acquired and shown to the grantor before the final licence can be granted.

Usually, a licence is granted by a regulatory agency, while consents are given by clubs, associations, groups and communities.

Why are there different modules for the four types of licenses?

PPDM tries to model data explicitly whenever possible. Explicit data models are easier to implement, use and understand. When PPDM was designed, the team discovered that the specific attributes of each type of licence were different. Elements that were common to most licences of each type have been modeled explicitly (in the LICENSE table) and capability to expand on these attributes supported with a set of vertical tables.

My license specifies how I must handle my camps and waste dumps. Where does this information go?

Use the LICENSE_COND tables to keep track of this and other information specific to your license.

I am required to submit weekly operational reports in order to conform with the conditions for my license. How do I track whether I have submitted the licence?

Information about reporting requirements would be included as a condition of the license. You can track information about how often the report should be submitted, when it is due and whether that condition has been fulfilled or not. For more detailed tracking of these conditions you can use the Projects module or the obligations module. Obligations module should be used where the condition specifies payments on a periodic basis. The Projects module should be used for task specific requirements.

Rate Schedules

How do I know what fees I should include with my application for a seismic licence in Alberta?

All rate schedules that may affect you can be managed in the RATES module. This module keeps track of whose schedule it is and when and where it should be used.

Notifications

I need to track all the meeting notices that were sent out to the community association, and who received them and then correlate that information to who actually attended the meetings.

The notifications themselves can be tracked in the Notifications module, along with who sent or received the notification. If you want to know where the receipt for the notification is, or look at the notification itself, you can use the Records Management module.

Appendix A: Sample Queries

These sample queries have been developed using a subset of the requirements defined in the Business Requirements Document. Note that there are many ways to address the questions posed here, but we have tried to provide useful examples that illustrate the use of the data model. The PPDM Association does not provide any guarantee that these queries will satisfy your business requirements; they are for illustration only.

- **Spatial or GIS queries:** Spatial queries are not thoroughly addressed in this section of the reference guide; how you deal with these queries depends on the spatial engine you are using. In many cases, we have avoided using spatial queries because the number of query lines needed obscures the rest of the query and makes it more difficult to read. Sometimes, we have provided a connection to a NAMED AREA, rather than a lat/long box.

- **Versioning over time:** Many aspects of the oil and gas business have a strong time component. Users require information about how a business object was configured in the past, what it looks like now, and what it is expected to look like in the future (i.e., if a project is not active now, when was it in the past). If your queries need to address the situation as it is now, use the ACTIVE_IND you will find in many versioned tables. Using this flag helps ensure that you do not return data that is out of date.

- **Units of Measure:** Several examples have been provided to show how units of measure should be queried in PPDM. As these queries are nearly always handled the same way, this guide does not show the method every time it is needed; the authors felt that this would create confusion and obscure the main intent of the query.

Applications

Which licences were granted as a result of my application 1025?

```
SELECT
    'BA LICENSE' LICENSE_TYPE,BALIC.LICENSE_ID LICENSE_ID
FROM
    APPLICATION APP,BA_LICENSE BALIC
WHERE
    APP.APPLICATION_ID=BALIC.APPLICATION_ID
    AND APP.APPLICATION_ID = '1025'
UNION
SELECT
    'FACILITY LICENSE',FACL.LICENSE_ID
FROM
    APPLICATION APP,FACILITY_LICENSE FACL
WHERE
     APP.APPLICATION_ID=FACL.APPLICATION_ID
     AND APP.APPLICATION_ID = '1025'
UNION
SELECT
    'SEISMIC LICENSE',SLIC.LICENSE_ID
```

```
FROM
    APPLICATION APP,SEIS_LICENSE SLIC
WHERE
    APP.APPLICATION_ID=SLIC.APPLICATION_ID
    AND APP.APPLICATION_ID = '1025'
UNION
SELECT
    'WELL LICENSE',WLIC.LICENSE_ID
FROM
    APPLICATION APP,WELL_LICENSE WLIC
WHERE
    APP.APPLICATION_ID=WLIC.APPLICATION_ID
    AND APP.APPLICATION_ID = '1025'
```

Consents and Licences

What is the current operating status of Seismic licence 555?

```
SELECT
    LICENSE_STATUS
FROM
    SEIS_LICENSE_STATUS
WHERE
    SYSDATE > EFFECTIVE_DATE AND EXPIRY_DATE IS NULL
    AND LICENSE_STATUS_TYPE = 'OPERATING'
```

When I submitted my application, I indicate the date I plan to commence operations. Is that date different from the required start date for any of my licenses?

```
SELECT
   'BA LICENSE' LICENSE_TYPE,BALIC.LICENSE_ID LICENSE_ID,
   APP.EFFECTIVE_DATE PLANNED_START_DATE,
   BALIC.EFFECTIVE_DATE REQUIRED_START_DATE
FROM
   APPLICATION APP,BA_LICENSE BALIC
WHERE
   APP.APPLICATION_ID=BALIC.APPLICATION_ID
   AND APP.EFFECTIVE_DATE > BALIC.EFFECTIVE_DATE
UNION
SELECT
   'FACILITY LICENSE',FACL.LICENSE_ID,
   APP.EFFECTIVE_DATE PLANNED_START_DATE,
   FACL.EFFECTIVE_DATE REQUIRED_START_DATE
FROM
   APPLICATION APP,FACILITY_LICENSE FACL
WHERE
   APP.APPLICATION_ID=FACL.APPLICATION_ID
   AND APP.EFFECTIVE_DATE > FACL.EFFECTIVE_DATE
UNION
SELECT
   'SEISMIC LICENSE',SLIC.LICENSE_ID,
   APP.EFFECTIVE_DATE PLANNED_START_DATE,
   SLIC.EFFECTIVE_DATE REQUIRED_START_DATE
FROM
   APPLICATION APP,SEIS_LICENSE SLIC
WHERE
   APP.APPLICATION_ID=SLIC.APPLICATION_ID
   AND APP.EFFECTIVE_DATE > SLIC.EFFECTIVE_DATE
UNION
SELECT
   'WELL LICENSE',WLIC.LICENSE_ID,
   APP.EFFECTIVE_DATE PLANNED_START_DATE,
   WLIC.EFFECTIVE_DATE REQUIRED_START_DATE
```

```
FROM
   APPLICATION APP,WELL_LICENSE WLIC
WHERE
   APP.APPLICATION_ID=WLIC.APPLICATION_ID
   AND APP.EFFECTIVE_DATE > WLIC.EFFECTIVE_DATE
```

What conditions have been attached to seismic licence 555?

```
SELECT
    SEIS_SET_ID,SEIS_SET_TYPE,CONDITION_ID,CONDITION_CODE,
    CONDITION_TYPE,CONDITION_DESC,DUE_DATE,
    CONDITION_VALUE,CONDITION_VALUE_UOM
FROM
    SEIS_LICENSE_COND
WHERE
    LICENSE_ID = '555'
```

Notifications

To whom did I sent out meeting notices for the May consultation with the ABC community regarding seismic licence 555?

```
SELECT
    NOTB.BUSINESS_ASSOCIATE, NOTB.RECEIVED_IND,NOTB.RECEIVED_DATE,
    NOTB.SERVED_IND,NOTB.SERVED_DATE
FROM
    NOTIFICATION NOTI,NOTIF_BA NOTB,OBLIGATION_COMPONENT OBCOM,SEIS_LICENSE SLIC
WHERE
    NOTI.NOTIFICATION_ID=NOTB.NOTIFICATION_ID
    AND NOTI.NOTIFICATION_ID=OBCOM.NOTIFICATION_ID
    AND OBCOM.SEIS_SET_ID=SLIC.SEIS_SET_ID
    AND OBCOM.SEIS_SET_TYPE=SLIC.SEIS_SET_TYPE
    AND OBCOM.SEIS_LICENSE_ID=SLIC.LICENSE_ID
    AND SLIC.LICENSE_ID = '555'
```

Where is the receipt for the registered letter I sent to Douglas Adams about the Facility consultation held in May 2001?

```
SELECT
    NOTB.RECEIVED_IND,NOTB.RECEIVED_DATE,NOTB.SERVED_IND,NOTB.SERVED_DATE
FROM
    NOTIFICATION NOTI,NOTIF_BA NOTB,CONSULT_COMPONENT CONCOM
WHERE
    NOTI.NOTIFICATION_ID=NOTB.NOTIFICATION_ID
    AND NOTI.NOTIFICATION_ID=CONCOM.NOTIFICATION_ID
    AND NOTB.SERVED_DATE BETWEEN '01-MAY-2001' AND '31-MAY-2001'
    AND NOTB.BUSINESS_ASSOCIATE = 'DOUGLAS ADAMS'
    AND CONCOM.COMPONENT_TYPE = 'FACILITY'
```

Rate Schedules

What is the filing fee for drilling applications in the Yukon?

```
SELECT
    PROVINCE_STATE,RATE_SCHEDULE_TYPE,RATE_TYPE,RATE_COST,RATE_COST_UOM
FROM
    RATE_SCHEDULE RATE,RATE_SCHED_DETAIL RATESD
WHERE
    RATE.RATE_SCHEDULE_ID = RATESD.RATE_SCHEDULE_ID
        AND COUNTRY = 'CANADA' AND PROVINCE_STATE = 'YUKON'
        AND RATE_SCHEDULE_TYPE = 'DRILLING APP' AND RATE_TYPE = 'FILING FEE'
```

Appendix B: Changes to the Model

The PPDM Association has made a concerted effort to reduce the impact of new model development on members who are using other versions of PPDM. However, any new development is accompanied by some changes. Arriving at a model that is sufficiently detailed to meet the business needs of every member and yet flexible or abstract enough to be shielded from corporate or regulatory variations is complex, but achievable. Every attempt is made to ensure the model complies with, but is relatively independent of, specific jurisdictional requirements, changes in government policy, regulations or structure that may at times invalidate portions of the model. Internal re-engineering of business processes in industry companies may affect business requirements, which drive the data model. Rapid technological changes may also affect the model structure.

This section identifies all applicable changes from the latest version to the newest release version, to help members implement the latest version of the PPDM model.

Changes Between Versions 3.6 and 3.7

The Rates Module was expanded from a simple reference table R_PAY_RATE_TYPE in PPDM 3.6

The Notifications Module was expanded in scope from the tables R_CONT_NOTIFICATION and LR_CONT_NOTIF_BA.

The Applications Module was expanded in scope from the tables LR_CONT_APPLICATION, LR_CONT_APPLIC_ATTACH and LR_CONT_APPLIC_BA in PPDM 3.6.