PPDM Association
Land Mineral Rights Reference Guide

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…the business driven standard

Table Of Contents

About This Document

This reference guide has been prepared to help managers, analysts, DBAs, programmers, data managers, and users understand how the Data Model is intended to be used. Readers at many levels, from managerial to technical implementers will benefit from reading 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.

This reference guide contains the following sections:

- Introduction

  Provides an executive overview of the PPDM Model as it pertains to Land Mineral Rights.

- Business Process Overview

  Summarizes Land Mineral Rights and provides examples of related business processes.

- Integration

  Discusses how Land Mineral Rights 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 Land Mineral Rights Module tables in the Data Model.

- Tables and Columns – Land Mineral Rights

  Identifies the data model tables for the Land Mineral Rights Module, what they contain, and how they should be used. This section is intended to 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 Land Mineral Rights Module.

- Appendix A – Sample Queries

    Provides example queries with the appropriate SQL scripts that should assist in the query process when testing the accuracy of data stored in the module.

- Appendix B – Changes to the Model

    Identifies the changes in the Land Mineral Rights Module from the latest version to the newest release version of the PPDM model.

Introduction

The control and management of the ongoing land business functions within an organization necessitates the storage of vital information. Information is an asset; a data model is essential for managing this asset. The PPDM Version 3.5 Land Mineral Rights Module is a detailed database module designed to allow the capture of business objects as they pertain to land mineral rights. The data structure of the Land Mineral Rights Module is broken down into sub-modules that cover:

- General Land Information

  Authority for expenditures for the acquisition of land rights, internal lease number referencing, Business Associates net and gross acreage, cross-referencing relationships between different types of land rights.

- Land Spatial

  Surface and subsurface descriptions of land parcels, relationships between spatial descriptors, formations to which rights have been granted, subsurface rights that have been granted, spatial land legal descriptions, polygon and legal descriptions of land parcels (Carter, Congress, DLS, FPS, North Sea, NTS, Offshore, Ohio, Public Land Block, Texas), and related remarks.

- Land Termination

  Lists and verifies fulfillment of all obligations and requirements related to a land right.

- Land Right Well

  Well information associated with land mineral rights, including well identifiers, producing string, and substances.

- Land Right Sub-types

  Registered interests in land rights according to the Certificate of Title, occupation contracts for use of property by tenants, legal agreements between Business Associates for completion of business (e.g., drilling, maintenance of surface or mineral rights, granted rights, etc.), unit lands and tract factors, granted rights for occupation or use of land parcels, portions of valid land agreements for specific purposes (e.g., creation of new consortium, etc.).

- Land Acquisition

  Tracks acquisition of a land right through land sales, negotiation, or purchase with associated broker expenses, fee schedules.

- Land Partners

  Business Associates and interest set components.

- Contracts and Instruments

  Contracts, contract cross-referencing, and instruments.

- Land Maintenance

  Land mineral rights status, remarks, applications, notifications, and contested land rights.

- Land Right and Producing Objects

  Fields, pools, units, and facilities.

Other Business Modules within PPDM Version 3.5 are used to capture specific detailed information that is required by the Land Mineral Right. These modules are:

- Restrictions Module

  Property use restriction information, such as types, classifications, remarks, and activities.

- Obligations Module

  General obligation information, such as substances, types, calculations, cross-references, obligation deductions, and obligations payments.

- Interest Set Module

  Interest sets and cross-references.

- Support Modules

  - Business Associates

    Agreement participant's organization, addresses, contact information, service, cross-references.

  - Named Areas

    Land area names and descriptions.

  - Units of Measure

    Months, years, barrels, cubic meters, feet, meters, etc., and conversions.

  - Source Documents

    Captures information about reference material, boiler plate documents, and templates or bibliographical sources.

  - Project

    Grouping by Business Associate, Business Associates roles, AFEs, cross-references, relationships.

- Well Module

  General information such as miscellaneous well data, well status, well licences, well right, well interest, well locations, legal locations, well production information.

Land Mineral Rights are used by the various modules to address all data related to title ownership and subsequent issuance of agreements that grant access to a "bundle" of mineral rights for a specific period of time.

Business Process Overview

Purpose

The Land Mineral Rights Module is part of the PPDM Land Model that is designed to provide and manage information related to the administration and management of the land assets and rights obtained by an Oil and Gas company, individual, or government body through purchase, lease or agreement.

Description

The Land Mineral Rights Module addresses all data related to title ownership and subsequent issuance of agreements that grant access to a "bundle" of mineral rights for a specified period of time. A bundle of rights may include one or many substances in one or many zones, and may be constrained by specific exclusions of a substance or zone.

Mineral rights are typically described geographically by describing the surface locations and zonal definition to which the mineral rights are referenced. Possession of a mineral right may not imply that the holder also has any surface or access rights.

Mineral titles are encumbered by proof of ownership in land demonstrated by various documents. Agreements may be in the form of mineral lease agreements or concessions. Another may be through a financial institution, such as a mortgage. Ownership in land may be registered through a government agency such as a land titles office In general terms, an encumbrance is a way of describing an interest in land, and is supported by a legal document or agreements.

Adherence to financial, operational, and reporting requirements are administered according to terms and conditions of an agreement or legislated governmental acts, regulations, and/or policies.

Key Business Processes

Four key business processes encompass the life cycle activities of Land Mineral Rights.

Mineral Land Right Life Cycle
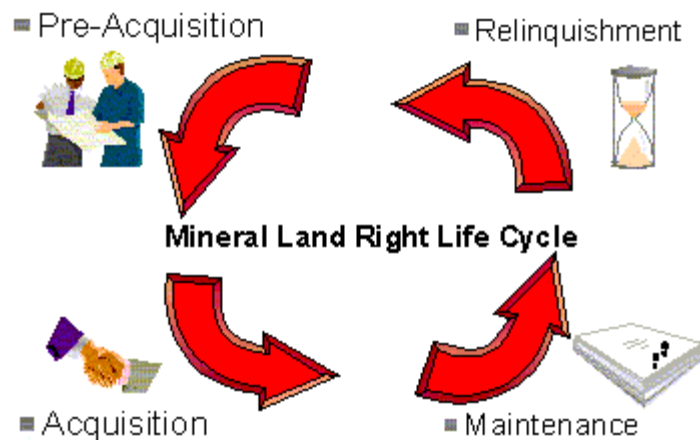
The key business processes for each life cycle are detailed below.

Pre-Acquisition

Pre-acquisition activities primarily involve the strategic planning and research that facilitates the decision to acquire an interest in granted rights by way of various types of land rights (lease, license, concession, etc.). Various business functions are part of this phase.

This phase requires an accurate and timely evaluation of many aspects of the desired granted right. In the evaluation process, data is compiled, interpreted, analyzed, and summarized. Examination of the common characteristics of similar land mineral rights is completed to determine the relative value, occurrence, or similarities. Land mineral rights may be related geographically, geologically, structurally, economically, environmentally, agriculturally, or politically. Other factors considered are land right value, risk, accessibility, regulations, availability of market or construction materials, exploitation potential, or historical similarities. Values, such as operating, transportation and marketing expenses, projected production volumes, and other measurements will be used in calculations when applying economic formulas.

The next key requirement is the determination of land ownership and what type of Business Associate the owner is (an individual, a company, a consortium, or a governmental body). A decision to proceed with the acquisition of a land right interest might then be initiated upon the completion of further economic evaluation and risk assessment.

Restrictions also must be identified and considered during the pre-acquisition phase. Physical, environmental, geographic, geological, economic, or political constraints may affect a Business Associate's decision to proceed with acquisition of land mineral rights. Restrictions may be imposed by regulatory bodies or by nature, and may prevent or affect operations and consequently impose a high degree of risk or economic burden. An example of a very high-risk restriction could exist if the land mineral right lies within an extremely

environmentally sensitive area that is under application to be classified as a world reserve.

Taking all the information gathered and compiled above, a Business Associate would run its economics, and the result of these calculations will then be combined with the predicted costs associated with the land mineral rights. A final decision should be made at this time to make the decision to proceed to the acquisition phase.

Acquisition

The acquisition of the land mineral right involves the preparation of a submission or request to secure the ownership, right, or interest through a variety of methods. If a land right is unleased and owned by a regulatory body, the submission of a posting request in the form such as a lease or license for an upcoming competitive public bidding process may be required. A direct negotiation with the relevant regulatory body or government may be necessary in the case of a land right such as a concession.

Land rights (leases, licenses, concessions, permits, etc.) are often issued in "standard" form agreements from a regulatory body or in an agreed upon form between Business Associates in the case of agreements issued by individuals or companies. These agreements have common elements such as: term (specified period of time), terms and conditions, geographical description of the location, subsurface description of substances and formations, lessor, lessee, address for service, payment instructions, associated fees (rental amounts, royalty rates, bonus consideration amounts, relevant taxes), restrictions (environmental, surface, political), and effective date.

Restrictions are also stipulated within the lease agreements and usually remain with the lease during its term.

Land mineral rights can also be obtained through meeting terms and conditions of a negotiated contract. A Business Associate can purchase or earn the right to land mineral rights through a contract such as a purchase and sale agreement or a farmin or pooling agreement. Transfer of ownership must occur from one Business Associate to another by way of an assignment or transfer that may or may not require registration with a regulatory body.

Maintenance

Maintenance business processes result from complying with the terms and conditions of the land right agreement (lease, license, concession, permit, etc.). Compliance is accomplished by meeting all financial obligations quickly and by performing all required duties.

An example of a financial obligation on a lease agreement would be to satisfy the delay rental. It may be a requirement that the payors split this payment among partners based on their share of ownership.

An example of a duty on a land mineral right would be to serve notification to the lessor when a transfer of ownership has occurred. Additional notices regarding the change of Business Associate responsible for the operation and maintenance of the lease may also be required.

In some cases, a commitment to perform some work may be a condition of the land right. This condition may be expressed as a requirement to drill a certain number of wells, shoot a defined number of seismic lines, or to spend a minimum amount of money on exploration activities. In each of these cases, the ability to be able to indicate precisely what seismic was acquired, which wells were drilled, or how many dollars spent in relation to the obligation is necessary.

Continuations or extensions beyond the primary term depend on the type of agreement or regulation requirements for a jurisdiction and could require preparation and submission of forms, reports, or correspondence to validate the request. Supporting data may also be required, such as the name of a well drilled with associated tests and production rates or geological/geophysical data that substantiates the existence of undeveloped reserves capable of production.

Tracking of changes in ownership or partner interests (interest sets) over time including the past, present, and what it might be in the future are an important part of agreement maintenance. This data is required to ensure that revenue and expenses are allocated accurately and notices are served to the proper individuals or partners.

Cost forecasts and revenue projections provide managers with critical information about how to manage a portfolio of land rights. Reports or maps that summarize what land is held, how much money has been spent already, or how much should be allocated for the next fiscal year comprise key components of the information needed by managers.

Relinquishment

Relinquishment comprises the information related to the research, planning, and execution stages of relinquishing granted rights through natural expiry or early surrender of the land rights. Natural expiry occurs when the primary term of an agreement has expired, and exploration and production efforts have been unsuccessful. A change in strategic plans can cause a Business Associate to cease their focus and concentration on exploration and development in a specified area of interest. This decision could initiate a quit claim, early surrender, or divestiture/trade of the land right.

Certain notifications are required to completely dispose of an interest in land and subsequently relinquish a land right. As an example, a notification to the lessor of an expiring lease agreement would be provided to indicate that a producing well had not been drilled during the primary term and that all registered encumbrances (caveats) would be withdrawn.

The preparation of release documentation is imperative to ensure that the ownership, right, or interest in the agreement from one Business Associate to another occurs. Some examples of release documentation for land mineral rights

may include assignments, transfer documents, division orders, quit claim agreements, and withdraw and discharge of caveats.

All terms of a lease agreement must be complied with prior to its relinquishment. If these terms have not been complied with, a Business Associate may retain unknown liabilities.

A land mineral right can only be relinquished when the Business Associates have met all the required obligations, commitments, and regulations. They must use the proper method of disposition to be considered free and clear of any possible liabilities or future interests.

The PPDM Land Mineral Rights module and associated sub-modules (see Integration) provides oil and gas companies, governmental agencies, and data providers with a method and a data structure to manage and store vital information throughout the life cycle of a land mineral right.

Integration

Integration is an integral part of managing land mineral rights. Special considerations must be made in order to ensure that the components of the model work together correctly. For example, the LAND RIGHT table integrates contracts with the rest of the model. The Land Mineral Rights Module must be integrated with the following modules in the PPDM data model:

- Support Modules

    - Business Associates

    - Named Areas

    - Units of Measure

    - Project

    - Source Documents

    - Geodetics

    - Meta Model

- Interest Set Module

- Well Module

- Contracts Module

- Obligations Module

- Restrictions Module

- Stratigraphy Module

- Producing Entities Module

- Production Reporting Module

Please contact PPDM to inquire about the availability and status of reference guide documentation for these modules.

Model Overview

## Entity Relationship Diagrams

Diagrams on the following pages use the following color conventions for entities and table projections:

➢ **White boxes**: This entity represents a table that existed in a previous version of PPDM. Changes or additions may have been made to the table definitions. White boxes that contain yellow boxes or that are contained by yellow boxes are not projected as tables in PPDM version 3.5.

➢ **Green boxes**: This entity represents a table that is new for PPDM version 3.5.

➢ **Yellow boxes**: This entity represents a table in a super_sub type set (entities that are contained in other entities) that is projected. The white box that either is within the yellow box, or that contains the yellow box is not projected as a table in PPDM version 3.5.

➢ **Red boxes**: These represent tables from a previous version of PPDM that were deleted in version 3.5.

➢ **Pink boxes**: These represent tables that are under discussion by the work groups and may change significantly or disappear.
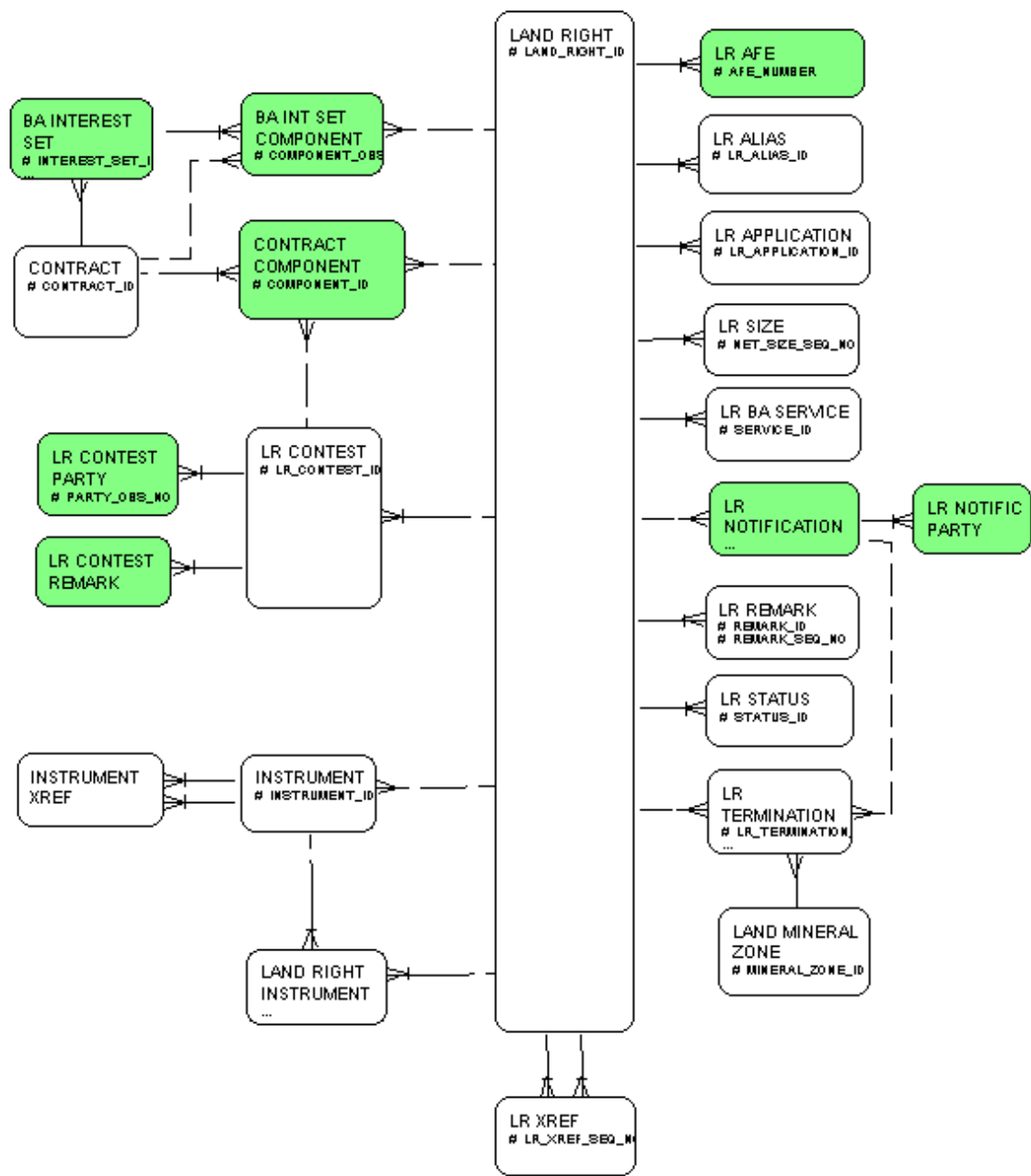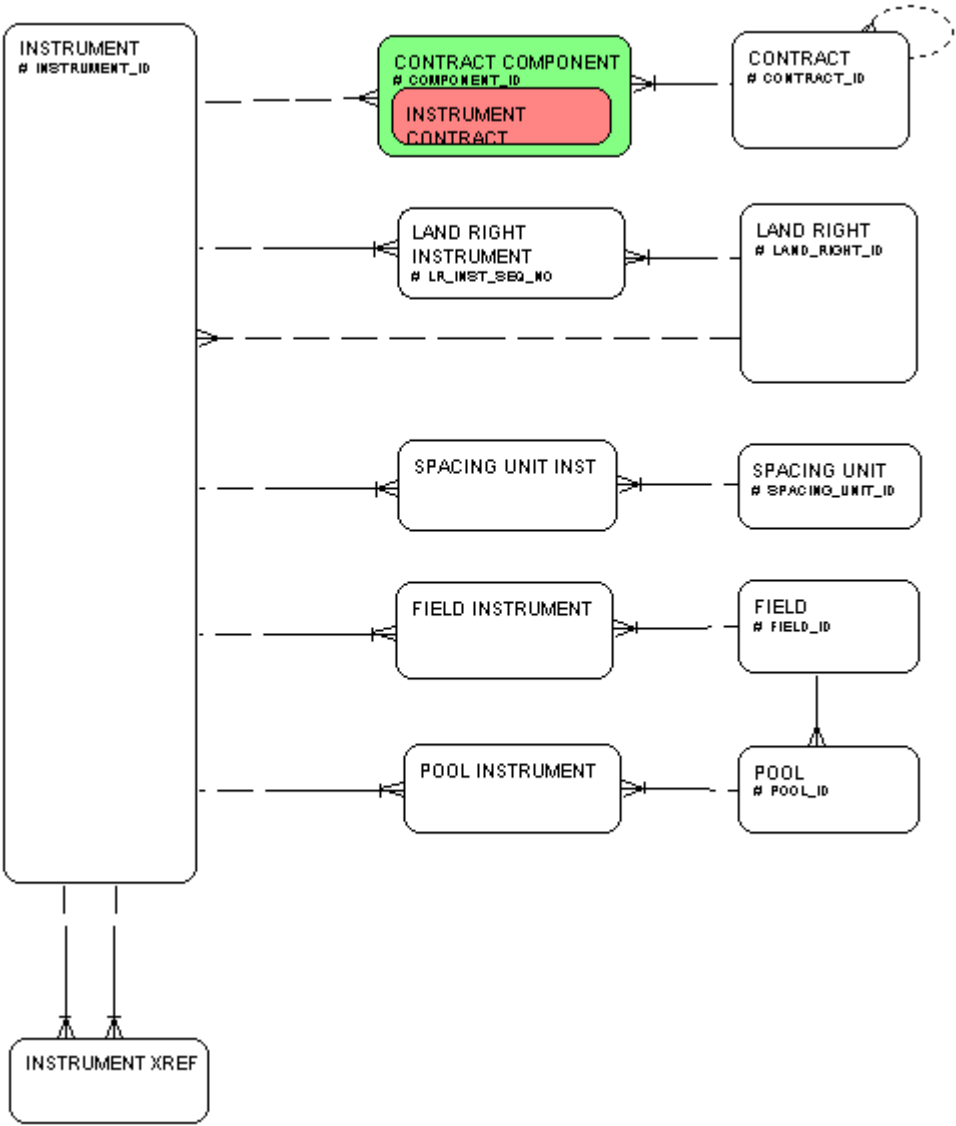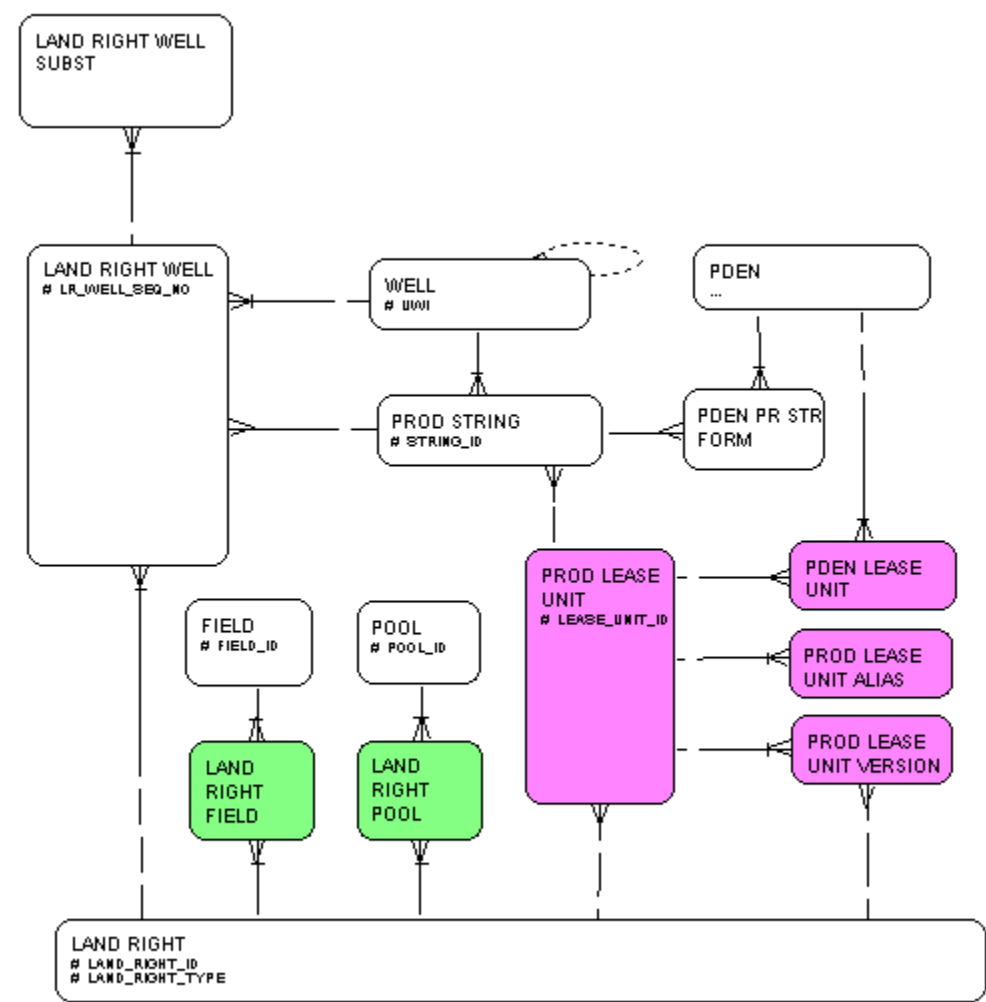
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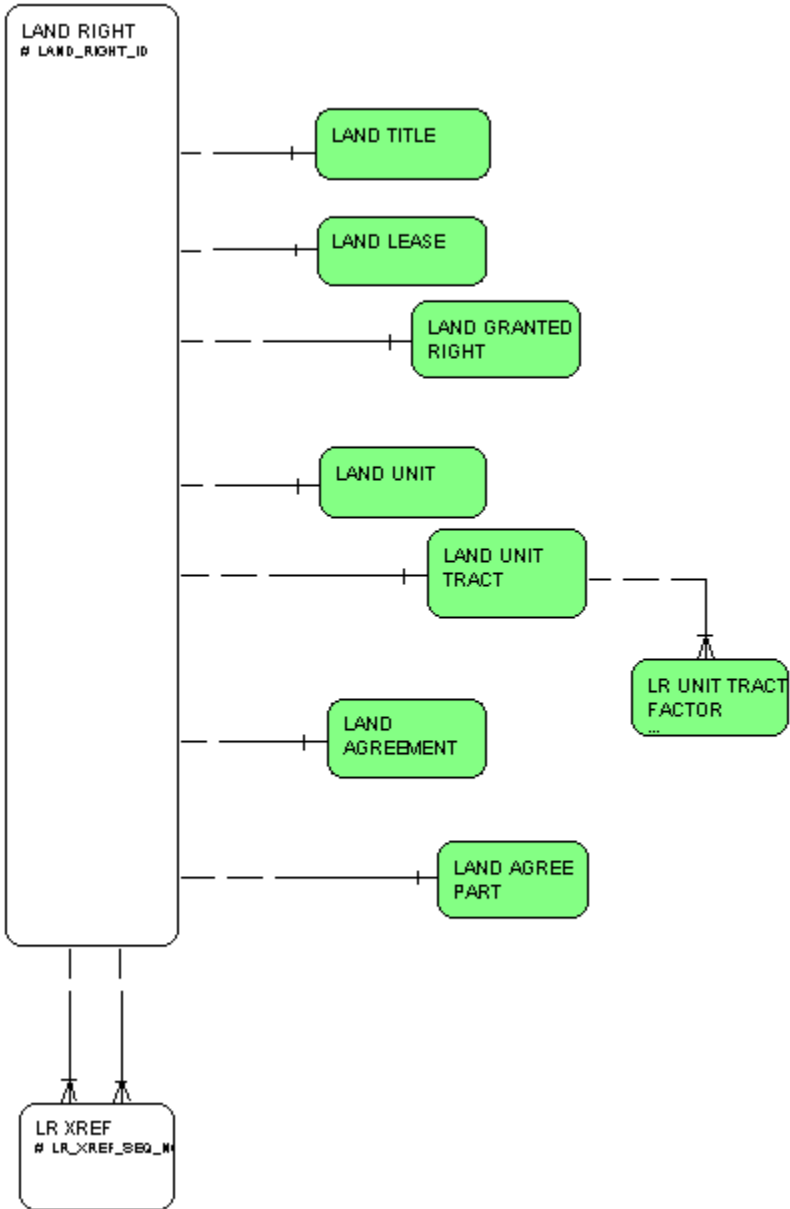
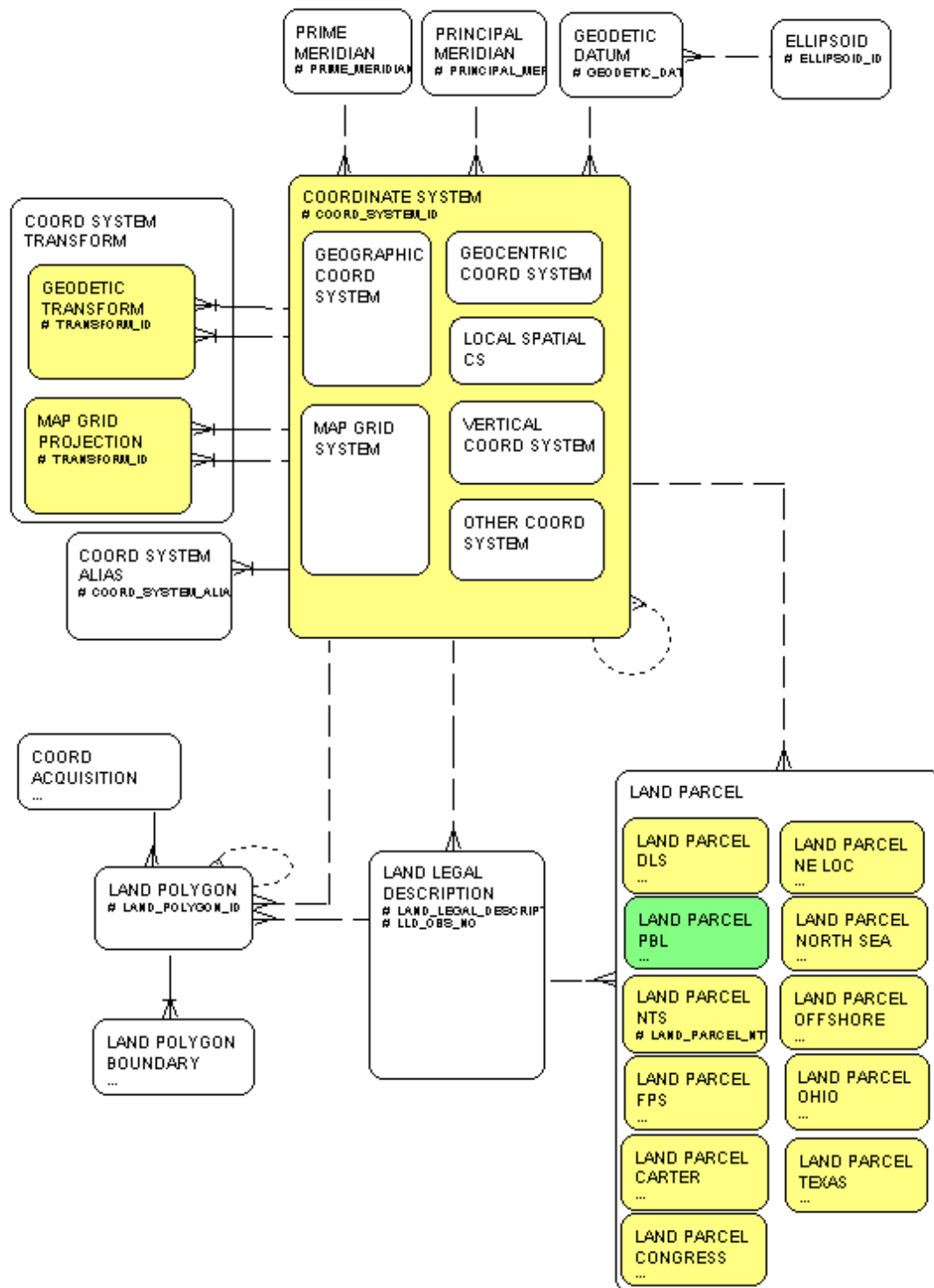Land Acquisition
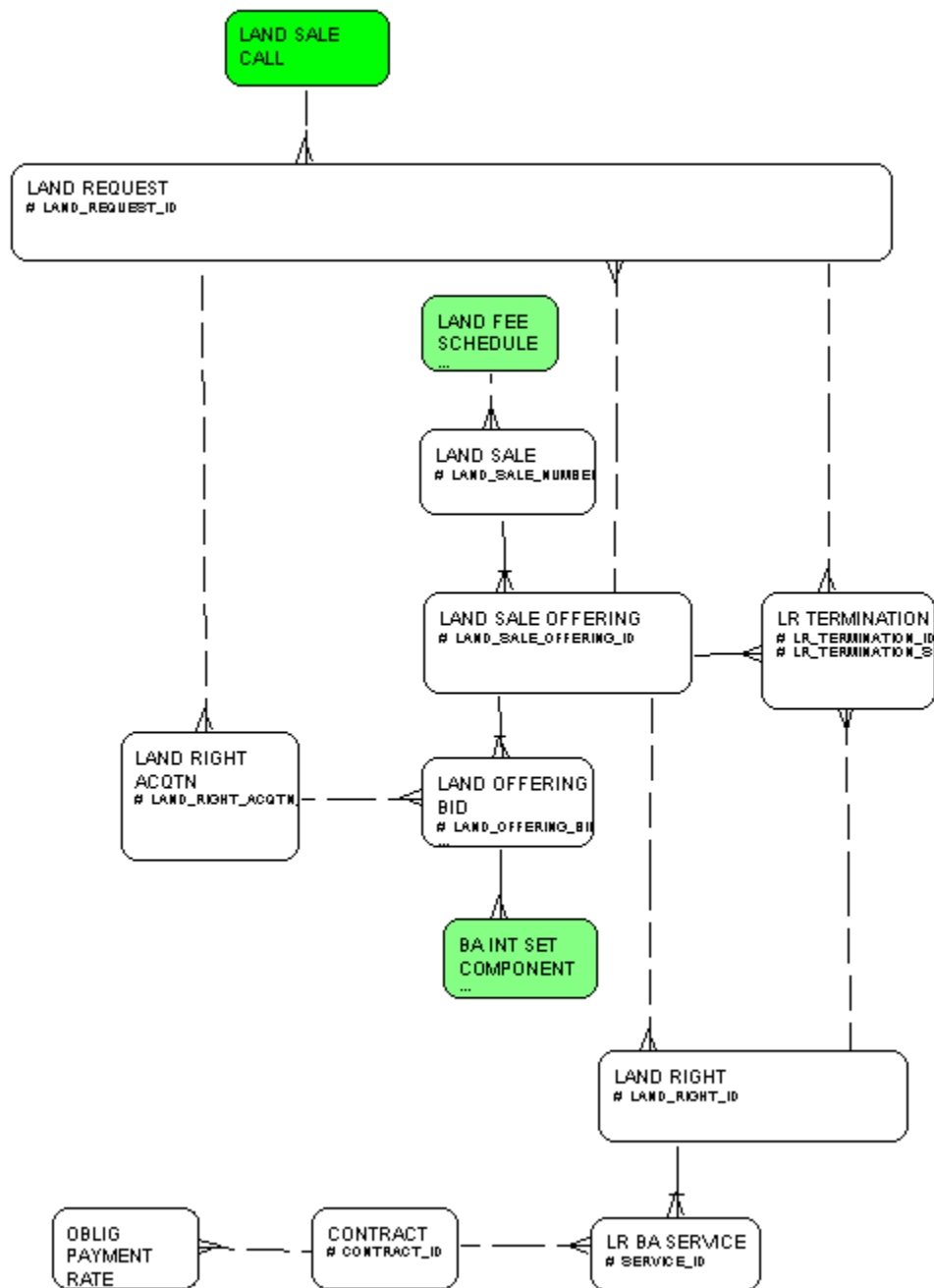
Land Maintenance

Contracts and Instruments

Land Right Well and Land Right & Producing Objects

Land Spatial

Land Geodetic

Discussion

Preface

Often, users find differences in terminology confusing: the work groups have often found that once terminology issues are resolved, each business process that is described is remarkably common all over the world. There are hundreds of different ways to label all the business processes covered by the model; it has not been possible to provide table and column names using a single common set of terms.

If you are having trouble finding what you are looking for, refer to the Business Requirements Documents (glossary), the table and column definitions, the Land Work group, or consult the technical resources at PPDM.

General

The LAND_RIGHT table is used to capture information about the rights you have to land, regardless of how you obtained it. Version 3.5 describes seven general ways companies obtain the rights to land:

- LAND_TITLE: This subtype describes a right to land held by ownership.

- LAND_LEASE: This subtype describes a right to land obtained by leasing, licensing, renting, concessions, permits, or otherwise obtaining rights to land over a specific term in return for an agreement to fulfill a specified set of obligations (such as an annual rental, or agreement to perform work).

- LAND_GRANTED_RIGHT: This subtype describes a portion of a LAND_LEASE that needs to be segmented from the whole for any reason.

- LAND_AGREEMENT: This subtype describes a land right obtained by forming a legal, contractual agreement with the parties that hold either the title or the lease to a land right.

- LAND_AGREE_PART: This subtype describes a portion of a LAND_AGREEMENT that needs to be segmented from the whole for any reason.

- LAND_UNIT: This subtype is used to represent a land right held through a unitization agreement.

- LAND_UNIT_TRACT: This subtype is used to describe the individual tracts that are contributed to the LAND_UNIT by each participant (or group of participants). The rate of return for each tract is captured by substance in the LR_UNIT_TRACT_FACTOR table.

Relationships between the various types of land rights are captured in the LR_XREF table. You can use this table to define the chain of title, relationships between LAND_LEASE and LAND_GRANTED_RIGHT, etc. Maintaining these relationships well is fundamentally important to the integrity of your database, so it is a good idea to devote considerable time and attention to the values you assign to LR_XREF_TYPE.

Acquisition

PPDM version 3.5 supports acquisition through two basic methods: bidding and negotiation. Contracts are the product of a negotiated deal; these are described in more detail in the Contracts Reference Guide. Bids on parcels that are offered for public acquisition are illustrated in the ER Diagram titled Land Acquisition.

The LAND_SALE table tracks details about each occurrence of the bidding process. Each such land sale may be comprised of one or more offerings (LAND_SALE_OFFERING). Companies are invited to bid on one or more of these offerings (LAND_OFFERING_BID). Sometimes there are relationships between bids (bids may be grouped or contingent on the success of another bid). Note that there is considerable variability between the specific bidding processes used by jurisdictions—use only the parts of this model that are relevant to the processes you are capturing.

Acquisition costs are summarized in LAND_RIGHT_ACQTN. This table is not intended to replace an accounting system, but to provide summary information for quick query.

Maintenance

Land pictures change over time; a fundamental requirement for this model has been to provide the ability to support historical information, details about the present, and predictions about the future. This is supported through chronological versioning in many PPDM Land tables. Rows that are currently active are usually flagged by setting the ACTIVE_IND in that table to Y. Rows that are expected to become active in the future may have an EFFECTIVE_DATE set to the date when the data is to become valid (could be in the future). Rows that are no longer active should have the ACTIVE_IND set to N, and the EXPIRY_DATE will normally be filled in.

The LAND_RIGHT table and its subtypes support much of the most important information about the rights. Use GRANTED_RIGHT_TYPE to capture the specific category of land right you are dealing with, using terminology that is familiar to you (lease, license, permit, concession).

Cost and financial information is summarized in LR_AFE. Alternate names, file numbers, reference identifiers, and so forth are captured in the LR_ALIAS table. For query consistency, we recommend that the preferred name and numbers be denormalized into LAND_RIGHT, so that they are in both tables. This allows a simpler query path.

Applications and notifications are captured in LR_APPLICATION and LR_NOTIFICATION; current and historical statuses in LR_STATUS. General remarks can be captured using LR_REMARK.

When it is time to terminate or relinquish a land right, LR_TERMINATION can be used to create a list of things you have to do and capture when each has been completed. This table can be associated with obligations or notifications when they are required. This table also allows you to terminate all or part of a land

right; use LAND_LEGAL_DESCRIPTION to capture the lands that have been terminated. A new version of the LLD for the land right can be used to describe the new holdings.

Land Rights and Producing Objects

Spatial queries that determine which wells are physically located on or near a land right provide important information about the proximity of wells to existing or planned land rights. However, a well that is located within the spatial boundaries of a land right may not actually be contributing to that land right (except in cases where land rights cover all zones and substances from surface to basement).

For this reason, explicit relationships between wells and producing objects are supported in PPDM. Relationships between land rights and wells, well strings or completions can all be captured explicitly in PPDM version 3.5. Similarly, the model supports direct relationships between land rights and fields, pools and production lease units.

Spatial Descriptions

LAND_LEGAL_DESCRIPTION (LLD) is used as a focal point for providing spatial descriptions for land rights, AMIs, AOIs, fields, pools, statuses, land sales, and more. Once you have associated a business object with an LLD, you can describe its location on the surface and the subsurface:

- LAND_POLYGON and LAND_POLYGON_BOUNDARY are used to define polygons for plotting or spatial searches.

- LLD_SPATIAL_DESCRIPTION is used to capture textual information about the location.

- The LAND_XXX_PARCEL series of tables can be used to enumerate the legal parcels that a land right occupies. More than one land right can occupy the same surface lands; in this case the mineral zone(s) and substance(s) are used to distinguish the land holdings.

- LAND_MINERAL_ZONE is used to capture the Stratigraphic Units (zones or formations) that are included. This table is only relevant for those business objects that include subsurface definitions.

- LR_SUBSTANCE is used to capture the substances in each formation or zone included (or excluded) from the land right.

Tables and Columns: Land Mineral Rights

BA_INT_SET_COMPONENT

This table serves as a multi-node many-to-many breakout table allowing production, seismic, land rights, wells, facilities, etc., to be associated with an interest set. An interest set defines a set of interests for a specified asset(s) based on criteria determined by the contract. See the Business Associates and BA Interest Set Reference Guide for more information.

When populating this table, be careful to populate either all columns in a constraint or none of them. Populating only some of the columns will prevent the constraint from firing and may allow corrupted data to enter your system undetected.

CONTRACT

A contract is a binding agreement between two or more parties for the express purpose of sharing risk with associated revenue and expenses in an exploitation or exploration undertaking or the joint building of an oil and gas production facility. An agreement for exploration or exploitation, which have been granted by the mineral rights owner, is always associated to substance(s) and zone(s).

LAND_RIGHTs that are LAND_AGREMENT or LAND_AGREE_PART may be associated with a contract.

CONTRACT_COMPONENT

This table may be used to associate a contract with a land right, seismic lines, projects, wells, etc. This association is especially of value in the case where the Land Right is obtained through agreement with partners (LAND_AGREEMENT or LAND_AGREE_PART).

When populating this table, be careful to populate either all columns in a constraint or none of them. Populating only some of the columns will prevent the constraint from firing and may allow corrupted data to enter your system undetected.

INSTRUMENT

An instrument is a legal document registered on the Mineral Title indicating an interest in the lands; e.g., mortgages, assignments, caveat, lien, Certificate of Title, etc. Most LAND_RIGHTS and CONTRACTS are backed up by at least one INSTRUMENT.

INSTRUMENT_XREF

This table allows relationships between instruments to be captured. For example, a Certificate of Title may have a lien on it.

LAND_AGREEMENT

A legal agreement between business associates for the rights to surface or mineral rights, granted rights, etc. Land Agreement is a valid type of Land Right. Every row in the LAND_AGREEMENT table should be supported by a corresponding row in LAND_RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_AGREEMENT table, the LAND_RIGHT_TYPE column may only be LAND_AGREEMENT.

LAND_AGREE_PART

This is a portion of a valid land agreement that has been created for a specific purpose, such as creation of a new partnership (interest set), etc. Every row in the LAND_AGREE_PART table should be supported by a corresponding row in LAND_RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables. Every LAND_AGREE_PART should be an identifiable part of a LAND_AGREEMENT.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_AGREE_PART table, the LAND_RIGHT_TYPE column may only be LAND_AGREE_PART.

LAND_FEE_SCHEDULE

This is a schedule for land acquisition payments as set up by a jurisdictional or regulatory agency. Fee schedules are often used to administer the rates for rentals.

LAND_GRANTED_RIGHT

This refers to rights granted to a party for occupation or use of a parcel of land and is usually associated with a portion of a lease, based on some user-based criteria for segmentation. Rights may be for surface, mineral rights, or both.

Every row in the LAND_GRANTED_RIGHT table should be supported by a corresponding row in LAND_ RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables. Every LAND_GRANTED_RIGHT should be an identifiable part of a LAND_LEASE.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_GRANTED_RIGHT table, the LAND_RIGHT_TYPE column may only be LAND_GRANTED_RIGHT.

LAND_LEASE

The land lease is the agreement between landlord (lessor) and tenant (lessee) for the occupation or use of part or whole of the landlord's property by the tenant for a specified purpose and time, in return for a specified consideration (rental). The lease may relate to rights to the surface or minerals contained below the surface, or both. Every row in the LAND_LEASE table should be supported by a corresponding row in LAND_RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_LEASE table, the LAND_RIGHT_TYPE column may only be LAND_ LEASE.

LAND_LEGAL_DESCRIPTION

The land legal description is the surface and subsurface description of a parcel of land. The surface description may be stated in terms of a legal survey system, textual description, or polygon. The mineral (subsurface) description describes the minerals (substances) and subsurface definition (zones/formations) to which rights are granted. Changes to a Land legal description may be captured by generating a new version of the land legal description (add 1 to LLD_OBS_NO and create a new row in the table). This versioning provides important functionality to describe changes in holdings over time.

Each row in the Land Legal Description represents a bundle of rights that contains COMMON definitions of the subsurface holdings and mineral rights. The diagram below illustrates an instance where differences in the subsurface or substances require the creation of three LLDs.
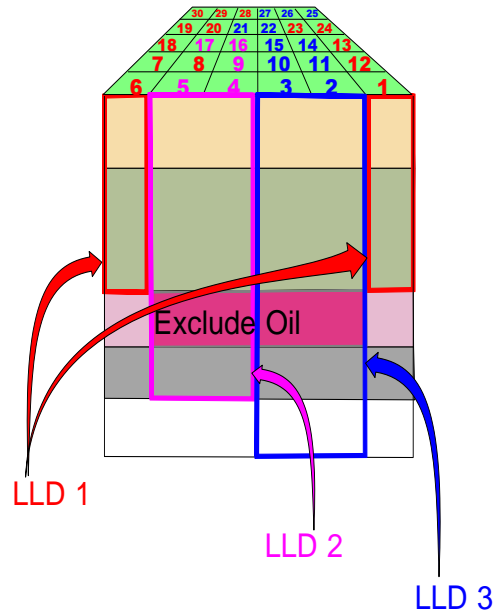
LAND_LEGAL_DESC_XREF

This allows relationships between the spatial descriptors for various PPDM objects to be described. For example, it could be used to indicate a spatial relationship between land rights and fields or spacing units. This table does not need to be used to capture relationships between different versions of a land legal description; this can be obtained through versioning on the LAND_LEGAL_DESCRIPTION table.

Generally, capturing spatial relationships using relational technology provides the user with poor performance and possibly with questionable results. We provide this table as an alternative to users who do not have access to a good GIS engine or application. However, it should be noted that a spatial relationship between business objects does not necessarily imply that there is a real business relationship between them. For example, a well may be physically located on a parcel of land, but be producing from a quite different parcel of land. In this case, explicit relationships between business objects provide the only true representation of how they are related in business terms.

LAND_MINERAL_ZONE

This table captures the subsurface rights granted to the holder of the mineral contract. These rights include an interval defined by either a formation top/base or depth top/base as well as substance rights. In some cases, the zone has been

defined in terms of a particular well using a specific method (dual induction log or stratigraphic analysis).

LAND_OFFERING_BID

This entity is used when bids placed on land offerings are complex. In some cases, bids may be contingent on success of other bids. Sliding bids/offers may be applied, or group bids may be offered. This entity allows tracking of the structure of a complex bid. A requirement to use this table is based on your companies operating methods; not all jurisdictions use land sales or bidding rounds.

LAND_PARCEL_CARTER

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_CONGRESS

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_DLS

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_DLS_ROAD

The DLS survey system defines townships and ranges that are approximately 1 mile square. Road allowances are 66 or 99 foot allotments between townships in a pattern defined by the class of DLS system.

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_FPS

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_LOT

This is used for the irregular divisions of land found in certain survey systems, such as Congressional. These parcels may be fully described in this table and polygonal outlines defined using LAND_POLYGON. This table is valid for Congressional, Ohio, and Texas parcels only.

LAND_PARCEL_NE_LOC

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_NORTH_SEA

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_NTS

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the

membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_OFFSHORE

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_OHIO

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_PBL

This table is used for enumeration of the parcels included in the Land Legal Description, as defined in terms of the Public Land Block system of Alberta, Canada.

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_PARCEL_REMARK

Remarks about the land parcel may be stored here. Included may be metes and bounds descriptions, description of the portion of the land parcel covered by the contract, etc.

LAND_PARCEL_TEXAS

The LAND_PARCEL_XXX tables may be used to enumerate the lands contained in a land right using the legal description used in that area. PPDM currently defines 12 survey systems; more are added as requested by the

membership. Each row in the parcel table represents a single unit at the smallest level of division relevant to that survey system. You can indicate whether each parcel is held in full, in part or not at all.

LAND_POLYGON

A polygon describes the outline of a land-related surface parcel. Polygons may describe outlines of AOI contracts, land titles, land parcel lots, surface restrictions, and others.

EXCLUSION_IND can be used to indicate a polygon that is an area of exclusion (such as a donut hole) in a polygon. If you have contained a polygon in another, use CONTAINED_LAND_POLYGON to indicate which this one contains.

ACQUISITION_ID can be used to indicate how a polygon was captured; this is useful if you have a polygon digitized for plotting at 1:50,000 and another for plotting at 1:1,000,000.

DIRECTION_OF_TRAVEL is used to indicate whether the points in the polygon contain an area of inclusion or exclusion.

LAND_POLYGON_BOUNDARY

This table contains the points that outline the perimeter of a polygon. The points are sequenced spatially in either a clockwise or counterclockwise direction, as specified in the LAND_POLYGON.

LAND_REQUEST

This table is used to track requests by a business associate to a lessor to have a particular parcel or holding posted for public sale of the granted rights. A requirement to use this table is based on your companies operating methods; not all jurisdictions use land sales or bidding rounds. This table may be used by regulatory bodies or operating agencies.

LAND_RIGHT

This table describes the right to land, either the surface or the mineral rights. Land rights may be owned outright (Certificate of Title) or leased through a contract. Contracts may be either primary (made directly with the lessor) or secondary (made with other lessees). Relationships between land rights, including Chain of Title, are found in LR_XREF.

The LAND_RIGHT table has been projected as a super-sub type set of tables; this means that LAND_RIGHT has 1:1 associations with LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, and LAND_UNIT_TRACT. Each of

these eight tables has a two-part Primary Key—LAND_RIGHT_ID and LAND_RIGHT_TYPE.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_TITLE table, the LAND_RIGHT_TYPE column may only be LAND_TITLE.

- In the LAND_LEASE table, the LAND_RIGHT_TYPE column may only be LAND_ LEASE.

- In the LAND_GRANTED_RIGHT table, the LAND_RIGHT_TYPE column may only be LAND_GRANTED_RIGHT.

- In the LAND_AGREEMENT table, the LAND_RIGHT_TYPE column may only be LAND_AGREEMENT.

- In the LAND_AGREE_PART table, the LAND_RIGHT_TYPE column may only be LAND_AGREE_PART.

- In the LAND_UNIT table, the LAND_RIGHT_TYPE column may only be LAND_UNIT.

- In the LAND_UNIT_TRACT table, the LAND_RIGHT_TYPE column may only be LAND_UNIT_TRACT.

RENTAL_ALLOCATION_IND can be set to Y to indicate the level of the LAND RIGHT at which you are tracking the rental allocations. You should set this to Y for a LAND LEASE or its subordinate LAND_GRANTED_RIGHTS, but not for both.

REPORT_ACREAGE_IND should be set to Y at the level you want to track total acreage held. Ensure that you have the flag set so that reports generated will not add the same acres on a land holding up more than once.

The GRANTED_RIGHT_TYPE column is used to describe the type of land right you have in the terminology that you are accustomed to using (lease, permit, drilling license, pooling agreement, etc.).

LAND_RIGHT_ACQTN

This table describes the overall cost of acquisition of a land right (land sale, negotiation, and purchase).

LAND_RIGHT_FACILITY

This is used to track the relationship of a facility (such as a pipeline, battery, or processing facility) to a Land Right. It should be noted that a spatial relationship between business objects does not necessarily imply that there is a real business relationship between them. For example, a well may be physically located on a

parcel of land, but be producing from a quite different parcel of land. In this case, explicit relationships between business objects provide the only true representation of how they are related in business terms.

LAND_RIGHT_FIELD

This table describes a direct relationship specifying the fields associated with a land right (e.g., Bellshill, Ricinos). It should be noted that a spatial relationship between business objects does not necessarily imply that there is a real business relationship between them. For example, a well may be physically located on a parcel of land, but be producing from a quite different parcel of land. In this case, explicit relationships between business objects provide the only true representation of how they are related in business terms.

LAND_RIGHT_POOL

This cross-reference table allows relationships between pools and the land rights they are associated with. It should be noted that a spatial relationship between business objects does not necessarily imply that there is a real business relationship between them. For example, a well may be physically located on a parcel of land, but be producing from a quite different parcel of land. In this case, explicit relationships between business objects provide the only true representation of how they are related in business terms.

LAND_RIGHT_WELL

This table tracks which wells are located on or producing from specific land rights. PROD_STRING may be used to reference specific production strings, if necessary. PROD_STRING_FORMATION may be used when it is desirable to associate the Land Right with a specific completion interval in the well.

It should be noted that a spatial relationship between business objects does not necessarily imply that there is a real business relationship between them. For example, a well may be physically located on a parcel of land, but be producing from a quite different parcel of land. In this case, explicit relationships between business objects provide the only true representation of how they are related in business terms.

LAND_RIGHT_WELL_SUBST

This describes the percent production spacing unit for a particular substance that is occupied by the well (or production string or completion) on the land right. PSU values for oil and gas are captured in LAND_RIGHT_WELL; all other substances are captured here.

LAND_SALE

This table tracks a public offering of lands offered for lease by the titleholder, often a regulatory body. Government lessors usually offer leases through land sales so that resources can be developed. A land sale may be composed of one or many land parcels. A requirement to use this table is based on your companies operating methods; not all jurisdictions use land sales or bidding rounds.

LAND_SALE_OFFERING

This describes a parcel of land offered in a public land sale. Many such offerings may be included in a single land sale. A requirement to use this table is based on your company's operating methods; not all jurisdictions use land sales or bidding rounds.

LAND_TITLE

This table describes the registered interest in land wholly owned by the person(s) named on the Certificate of Title. Land titles may refer to surface, mineral rights, or both. Every row in the LAND TITLE table should be supported by a corresponding row in LAND RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_TITLE table, the LAND_RIGHT_TYPE column may only be LAND_TITLE.

LAND_UNIT

This table tracks the area incorporated to consolidate numerous tracts to operate them as a single unit for allocating revenues, costs, and expenses. This represents a combination of land rights, usually contiguous, involving potential or producing mineral properties, for the purpose of efficient or economic operation. Every row in the LAND_UNIT table should be supported by a corresponding row in LAND_RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_UNIT table, the LAND_RIGHT_TYPE column may only be LAND_UNIT.

LAND_UNIT_TRACT

A land right that has been assigned to a LAND_UNIT, and that has been assigned a relative value for the unit contract, is called a tract factor and is usually an area of common ownership with respect to interest in minerals. Every row in the LAND UNIT TRACT table should be supported by a corresponding row in LAND RIGHT. The LAND_RIGHT_ID and the LAND_RIGHT_TYPE should match in both tables. Each LAND_UNIT_TRACT should contribute to a LAND_UNIT.

- In the LAND_RIGHT table, the LAND_RIGHT_TYPE column must be one of LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT, or LAND_UNIT_TRACT.

- In the LAND_UNIT_TRACT table, the LAND_RIGHT_TYPE column may only be LAND_UNIT_TRACT.

LAND_ZONE_DEFINITION

This describes the well, method, and product (type of log) used to define a formation (stratigraphic unit) to which rights have been granted. It is usually defined by a regulatory body or agency.

LLD_SPATIAL_DESC

This table describes the spatial extent of the land right, both on the surface and at the mineral zone. Usually textual in nature, this information may be very lengthy and detailed. GIS or SQL searches and functions cannot easily be performed on this information, but it is provided for reporting and archival purposes.

LR_AFE

This table describes the authority for expenditure obtained for the acquisition of the land right. This table is not intended to replace an accounting system, but only to provide some basic summary information about the AFE, such as the budgeted costs, the actual costs, and a connection to a financial system.

LR_ALIAS

This table records an alternate name or file number by which the land right may be known. This may be an identifier used by a project, by a partner or service provider, or by a regulatory agency.

LR_APPLICATION

This table tracks an application to the lessor, usually for extensions or continuations to the primary term of the contract. You can track the decision on the application, any attachments associated with the application, whether the application was an original submission or a re-submission, who it was sent to, and when it was approved (or not).

LR_BA_SERVICE

This table tracks the representation of the service provided for a land right by a business associate, such as mineral title search, brokerage service, etc. Payment of fees for these services is handled in the Obligation module. This table should not be used to capture information about partners; this function is provided by the Interest Set Module.

LR_CONTEST

This table describes the representation of information about contested land rights. Contests may be internal (within a country) or external (between countries). Summary information about the cause and resolution of each contest may be tracked. In support of the business requirements, land contests are associated only with land rights—they cannot be described as a separate entity.

LR_CONTEST_PARTY

This table tracks the parties (business associates) who are involved with the land right contest. Parties may be litigators, defendants, plaintiffs, contractors or consultants, companies, etc.

LR_CONTEST_REMARK

This table tracks narrative remarks about the land right contest. Use the SEQ_NO column to order remarks that require more than one row in the table. REMARK_TYPE can be used to capture the type of remark (narrative, recommendation, etc.)

LR_INST_XREF

This table tracks the cross-reference between a land right and the relevant instrument. In the case where there are many instruments for a land right, each instrument may reference more than one land right. This occurs in the USA for CASE restrictions.

LR_NOTIFICATION

Notifications are letters providing information to partners, associates, regulatory bodies, land owners, or other Business Associates. Often, notifications are required to fulfill the terms of an obligation. This table is used in conjunction with its subordinate table, LR NOTIFICATION_PARTY, which indicates who sent or received the notifications.

LR_NOTIFICATION_PARTY

This table may be used to identify all parties who send or receive notifications. It tracks when each notification was sent or received by each party.

LR_REMARK

This table may be used to record narrative remarks about a land restriction as it is applied to a land right.

LR_SIZE

This is the representation of the relative amount of land held by a particular partner. In fact, the partner may own a percentage of the whole land, but for reporting purposes this percentage is often represented as the number of acres held. For example, if a partner owns 50% of 160 acres (the gross acreage), his net acreage is reported as 80 acres.

When you are constructing a report of the total acres held in an area, it is important to check the REPORT_ACREAGE_IND in the LAND_RIGHT table to ensure that the acreage should be reported for that land right. It is common practice to subdivide land rights in various ways in response to creation of new partnerships, etc. If you report the acreage for both the original land right and the subdivisions, you will obtain a false result.

LR_STATUS

This table describes the status of the land right. Status may include terminated, expired, active, etc. A land right may have more than one status over time; this table is designed to allow this data to be versioned.

LR_SUBSTANCE

This table describes substances (and their related zone) specifically included in the land right (INCLUDED_IND). For query efficiency, you can also list substances excluded from the land right (EXCLUDED_IND). For example, rights may be Petroleum and Natural Gas from surface to basement, except for gas in Zone A.

LR_TERMINATION

This table is used to track when it is necessary to terminate a land right, a portion of a land right, a portion of a land right, a land request, or a land sale offering. It will contain a list of the actions that must be completed to properly terminate the holding or offer. Some types of requirements create OBLIGATIONS that must be fulfilled.

LR_UNIT_TRACT_FACTOR

This table tracks the tract factor for a land unit tract. This factor indicates the relative percentage of production for the unit that is allocated to the tract for a particular substance. If a tract is producing more than one substance, there may be a different tract factor for each substance.

LR_XREF

This cross-reference represents the relationship between different types of land rights. For example, the contracts that pertain to specific mineral contracts or secondary contracts associated with the primary contract may be tracked.

This table is used to track the Chain of Title and the relationship of original land rights with their subdivisions. Take care in generating values for LR_XREF_TYPE: if the values in this column are corrupt, it will be difficult to reconstruct the chain of title. We recommend that you consider creating VIEW definitions on this table, partitioning by LR_XREF_TYPE.

OBLIGATION

An obligation is a condition or commitment on a contract that must be fulfilled by a Business Associate. There are many types of obligations, and the fulfillment of an obligation may require a change to the contract, e.g., offset obligation, work commitment, etc. Obligations may be financial (such as rental payments) or non-financial (such as drilling, reporting, etc.). For details about obligations, refer to the Obligations Reference Guide.

OBLIG_COMPONENT

This table associates an obligation with a land right or contract. When populating this table, be careful to populate either all columns in a constraint or none of them. Populating only some of the columns will prevent the constraint from firing, and may allow corrupted data to enter your system undetected.

Implementation Considerations

Constraints in PPDM

It is essential that anyone who is considering using PPDM version 3.5 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.

Check Constraints

PPDM Version 3.5 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 3.5.

➢ 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 PDEN and LAND_RIGHT.

Let's use LAND_RIGHT as an example. This structure consists of a parent table (LAND_RIGHT) and seven sub-type tables (LAND_TITLE, LAND_LEASE, LAND_GRANTED_RIGHT, LAND_AGREEMENT, LAND_AGREE_PART, LAND_UNIT and LAND_UNIT_TRACT). Each of the eight tables has a two-part primary key: LAND_RIGHT_ID and LAND_RIGHT_TYPE.

LAND_RIGHT_ID is assigned by the user and can have any value as long as it is unique for that LAND_RIGHT_TYPE. LAND_RIGHT_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 seven valid sub-types. In LAND_RIGHT, the LAND_RIGHT_TYPE can have any of the seven 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.

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. For the SOURCE column, specify where you obtained the data from. 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.

ACTIVE_IND

Most tables in the Land, Contracts, Interest Sets, Restrictions and Obligations modules contain a column called ACTIVE_IND. The values for this column may be one of Y, N, or null. 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.

When more than one row has been created for a business object, use the ACTIVE_IND to indicate the row that is currently active. 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 (called NULL), the query will not be consistent or reliable.

One way to populate this column would be to 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.

Frequently Asked Questions (FAQ)

> *How do I create a lease that has been divided into two parts (splits or tract), each with different partners?*

Leases and parts of leases (Granted Rights) are both valid types of LAND_RIGHT in PPDM version 3.5. PPDM uses the term "Granted Right" when partnerships are made that relate to a portion of a lease.

For each row you create in the LAND RIGHT table, you should also create a row for the appropriate sub-type table. Create a row in the LAND LEASE table (LAND RIGHT TYPE = LAND LEASE) and rows in the LAND GRANTED RIGHT (LAND RIGHT TYPE = LAND GRANTED RIGHT) table to correspond to each of the LAND RIGHTS you created.

First, create a row in LAND_RIGHT for the lease, using LAND_LEASE as the LAND_RIGHT_TYPE. Also, add a row to LAND_LEASE.

Then, create a row in LAND_RIGHT for each of the two portions of the lease you made. The LAND_RIGHT_TYPE must be LAND_GRANTED_RIGHT. Add rows to LAND_GRANTED_RIGHT as needed.

Use the LR_XREF table to associate the lease with the granted rights. (Tip: Manage the values in LR_XREF_TYPE carefully to ensure you will be able to retrieve the data correctly).

The tables in the Interest Set Module are used to capture information about each partnership that you have made.

Each of the three rows in LAND_RIGHT can be associated with the appropriate Interest Set using the BA_INT_SET_COMPONENT table.

> *If I acquire a lease, and later divide my lease to create different partnerships for portions of the lease, how do I ensure I have the information to charge my partners for their share of the rental fee?*

1. Each occurrence of lease and portion of a lease you are interested in is represented by a row in the LAND_RIGHT table. Add rows to LAND_RIGHT for the lease and the portions of the lease you need to keep track of.

   Tip: Tracking this information will be easier if you make sure that the sum of all the portions of the lease equals the entire lease.

2. For each row in the LAND_RIGHT table, instantiate the LAND_RIGHT_TYPE as either LAND LEASE (the entire lease) or LAND_GRANTED_RIGHT (portion of the lease).

3. For each row you create in the LAND RIGHT table, also create a row for the appropriate sub-type table. Create a row in the LAND_LEASE table (LAND RIGHT_TYPE = LAND_LEASE) and rows in the LAND_GRANTED_RIGHT (LAND_RIGHT_TYPE = LAND_GRANTED_RIGHT) table to correspond to each of the LAND RIGHTS you created.

4. Use LR_XREF to relate each LAND_GRANTED_RIGHT to the correct LAND_LEASE.

5. Create an Interest Set by populating BA_INTEREST_SET and BA_INT_SET_PARTNER tables to indicate all partners and their rental interest. Associate the LAND_RIGHTS to the BA_INTEREST_SET using BA_INT_SET_COMPONENT.

6. Add a row to the OBLIGATION table for the LAND LEASE describing the gross rental payment (say $1000.00). Use the LAND RIGHT.RENTAL_ALLOCATION IND (as N) to indicate that this row is a high-level placeholder for a rental allocation that is tracked at a more detailed level (GRANTED_RIGHT). You do not strictly need this row unless queries demand tracking the total rental obligation for the lease.

7. Add rows to the OBLIGATION table for each LAND_GRANTED_RIGHT to which you need to track the rental payment split. The portion of the total rental that is to be assigned to that granted right is based on the agreements you made when you formed the granted right. Make sure that the total for the rental among all the granted right obligations is equal to the gross rental payment you have for the LEASE. (In the example, you might divide the gross rental of $1000 as $500 for GR1, $300 for GR2, and $200 for GR3.) Set the LAND RIGHT. RENTAL_ALLOCATION_IND to Y to indicate that the rentals are tracked at this level.

8. Populate the OBLIGATION_PAYMENT table to indicate when the GRANTED RIGHT obligations have been paid. Since you are not tracking the LEASE obligation, it is not necessary (and would be confusing) to populate this table for the LEASE as well.

9. If you need to indicate that you will bill your partners for their share of the rental, you can use the BA_INT_SET_PARTNER table to determine what the rental interest for each partner is. Create rows in the OBLIGATION and OBLIG_PAYMENT tables to indicate that they have paid their share back to you. Use the OBLIGATION_TYPE and PAYMENT_IND to indicate that these rows are for money received.

How do I associate a title with the leases on it?

1. Start by creating a row in LAND_RIGHT for the title. LAND_RIGHT_TYPE must be LAND_TITLE. Also create a row in LAND_TITLE.

2. Next, create rows in LAND_RIGHT for all the leases. LAND_RIGHT_TYPE must be LAND_LEASE. Also create a row in LAND_LEASE.

3. Finally, associate the row that is the LAND_TITLE with the relevant LAND_LEASE rows using the table LR_XREF.

Where do I capture information about various instruments (such as caveats or liens) on my title?

Caveats and liens are called INSTRUMENTS in PPDM version 3.5 and are captured in the INSTRUMENT table. You can associate the instrument with land rights (such as titles) using the LAND_RIGHT_INSTRUMENT table.

How do I define the lands covered by my agreement?

1. Create a row in the LAND-RIGHT table and the appropriate sub-type table.

2. Create the necessary row or rows in the LAND_LEGAL_DESCRIPTION table. The LAND_LEGAL_DESCRIPTION (LLD) table is used to group spatial definitions where the zones and substances covered are the same. If your LA contains 10 sections that cover oil and gas from surface to basement, that is one LLD. If your LA also contains 3 sections that exclude gas from zone A, then that is a new LLD. Both are related to the LAND_RIGHT.

3. Use any or all of the three ways to describe the surface description of the LLD, as you need.

   LAND_POLYGON and LAND_POLYGON_BOUNDARY handle polygonal outlines, including areas of inclusion and exclusion.

   The textual description is stored in LLD_SPATIAL_DESC.

   An enumeration of legal survey divisions, such as sections or LSDs is stored in the LAND_PARCEL_XXX series of tables.

   The zone and substance information is contained in LAND_MINERAL_ZONE.

How should I indicate what substances are covered by the agreement?

LAND_MINERAL_ZONE and LR_SUBSTANCE are used to track very explicitly what substances are included in the agreement. For query purposes, it may also be useful to list that some substances are explicitly *not* included in the agreement (for the query "find me all the lands where I do not have rights to gas in this area"). In this case, you can use the INCLUDED_IND and the EXCLUDED_IND to explicitly state what is and is not included.

How should I track a DOI?

The INTEREST_SET module allows you to create an interest set and associate it with whatever land rights, wells, seismic, projects, etc., are relevant. Create a row in the BA_INTEREST_SET to capture the interest set and define the partners with their roles and interests in BA_INT_SET_PARTNER.

Each interest set is valid for a single type of interest (such as working interest). The interest set also identifies the role that each partner carries (such as address for service or operator). If the interests or roles change, a new version of the interest set must be generated.

Associate the BA_INTEREST_SET with the objects the DOI is valid for—wells, facilities, land rights, etc., via BA_INT_SET_COMPONENT.

How do I track my royalties?

A royalty is a kind of OBLIGATION and should be tracked using that module.

How do I generate a report of the acreage held by my company?

The LR SIZE table may be used to track the size of any LAND_RIGHT. The size held by your own company or another company may be tracked.

- GROSS SIZE is based on working interest.

- Business rule is that the acreage for all parts of a LAND_RIGHT must add to the total for the entire land right. This means that if you add a LAND_GRANTED_RIGHT for a LAND LEASE, the total acreage for all

the LAND_GRANTED_RIGHT rows must equal the acreage for the LAND_LEASE.

- The LAND RIGHT table contains a REPORT_ACREAGE_IND. Set this flag to indicate the level at which you need to report acreage and ensure it is only turned on at that level. For example, if you have created a LAND_LEASE and divided it into several LAND_GRANTED_RIGHTS, you should set the REPORT_ACREAGE_IND to Y either for the LAND_LEASE or for the GRANTED_RIGHTS, but not for both.

How do I track the credit rating of my partners, or companies that I do business with?

PPDM allows you to track credit information about a BUSINESS_ASSOCIATE.

The Business Associate module allows you to track the credit rating for any BUSINESS_ASSOCIATE. Credit ratings for a company are usually obtained from a qualified research organization, such as Dunn and Bradstreet.

How do I track the agreements that my partners and I created to administer this land right?

A LAND_RIGHT obtained through a legal contract with another party is called a LAND_AGREEMENT. If you later divide those land rights up into smaller components, they are called LAND_AGREE_PART.

- Create rows in the LAND_RIGHT table and the appropriate sub-types to capture information about the land right you have obtained.

- Populate the CONTRACT module to capture information about the contract itself, including details about the administration of the contract.

- Use the CONTRACT_COMPONENT table to associate the land rights with the contract.

How do I track different kinds of notifications that I send to my partners?

Once you have created the LAND_RIGHT, you can add a row to the LR_NOTIFICATION table for every notification you send out or receive. You can indicate the type of notification, when you made it, and capture other details about it as needed.

If the notification is for a LAND_RIGHT, set the LAND_RIGHT_IND to Y. If it is for a contract, turn on the CONTACT_IND.

You should also populate the FK for the LAND_RIGHT or CONTRACT the notification is for.

Use the table LR_NOTIFICATION_PARTY to indicate who you have sent notifications to, when they were sent, and when received.

How do I capture the total cost of acquisition for a land right?

The LR_ACQTN_COST table is used to capture a summary of all the acquisition costs. You can capture these costs at many levels, if you wish, simply by associating the costs with LAND_RIGHTS of different types (LAND_LEASE, LAND_UNIT, LAND_UNIT_TRACT, etc.).

Appendix A: Sample Queries

These sample queries have been developed based on a subset of the requirements defined and captured 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.

Overall, there are a few fundamental issues related to queries that are relevant to nearly every Business Area:

➢ **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.

What facilities are in this geographic area? What types of facility are they?

```
select      F.FACILITY_NAME, F.FACILITY_TYPE
  from      FACILITY F, LAND_LEGAL_DESCRIPTION LLD, AREA A
 where      F.FACILITY_ID  =  LLD.FACILITY_ID
   and      F.FACILITY_TYPE  =  LLD.FACILITY_TYPE
   and      (((AREA_MIN_LATITUDE BETWEEN FIRST_LATITUDE AND
             SECOND_LATITUDE)
   and      (AREA_MIN_LONGITUDE BETWEEN SECOND_LONGITUDE AND
             FIRST_LONGITUDE))
    or      ((AREA_MAX_LATITUDE BETWEEN FIRST_LATITUDE AND
             SECOND_LATITUDE)
   and      (AREA_MAX_LONGITUDE BETWEEN SECOND_LONGITUDE AND
             FIRST_LONGITUDE)))
```

```
select      F.FACILITY_NAME, F.FACILITY_TYPE,
            BISP.BUSINESS_ASSOCIATE, BISC.ACTIVE_IND,
            BISP.INTEREST_SET_ROLE, BISP.EFFECTIVE_DATE,
            BISP.EXPIRY_DATE, BISP.GROSS_PERCENT_INTEREST,
            BISP.NET_PERCENT_INTEREST
  from      FACILITY F, BA_INTEREST_SET BIS, BA_INT_SET_COMPONENT
            BISC,
            BA_INT_SET_PARTNER BISP
 where      F.FACILITY_ID  =  BISC.FACILITY_ID
   and      F.FACILITY_TYPE  =  BISC.FACILITY_TYPE
   and      BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and      BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and      BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and      BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and      UPPER(BIS.ACTIVE_IND)  =  'Y'
```

Comments: If you wish, you can add other criteria to discriminate between facilities, such as area, dates, substances handled, etc.

What is the capacity and capability of this facility?

```
select      F.FACILITY_NAME, F.FACILITY_TYPE, FS.SUBSTANCE_ID,
            FS.AVERAGE_VOLUME,
            FS.MAX_VOLUME, FS.SUBSTANCE_INCLUDED_IND "CAN
            PROCESS",
            FS.SUBSTANCE_EXCLUDED_IND "CANNOT PROCESS"
  from      FACILITY F, FACILTY_SUBSTANCE FS
 where      FS.FACILITY_TYPE  =  F.FACILITY_TYPE
   and      FS.FACILITY_ID  =  F.FACILITY_ID
   and      UPPER(F.ACTIVE_IND)  =   'Y'
```

What is the total number of parcels available on a specific sale date in Alberta?

```
select      COUNT(LSO.LAND_SALE_OFFERING_ID)
  from      LAND_SALE LS, LAND_SALE_OFFERING LSO
 where      LS.SALE_DATE  =   '29-FEB-1996'
   and       LS.JURISDICTION  =   'ALBERTA'
   and      LSO.LAND_SALE_NUMBER  =  LS.LAND_SALE_NUMBER
   and      LSO.JURISDICTION  =  LS.JURISDICTION
```

How many of the parcels in the Feb 29, 1996, land sale are leases?

```
select      COUNT(LSO.LAND_SALE_OFFERING_ID)
  from      LAND_SALE LS, LAND_SALE_OFFERING LSO
 where      LSO.LAND_SALE_NUMBER  =  LS.LAND_SALE_NUMBER
   and      LSO.JURISDICTION  =  LS.JURISDICTION
   and      LS.SALE_DATE   =   '29-FEB-1996'
   and      LSO.JURISDICTION   =    'ALBERTA'
   and      LSO.LAND_OFFRING_TYPE   =    'LEASE'
```

How many of hectares of land does a company own rights to?

```
select      SUM(LS.GROSS_SIZE)
  from      LR_SIZE LS, LAND_RIGHT LR
 where      LR.LAND_RIGHT_ID  =  LS.LAND_RIGHT_ID
   and      LR.LAND_RIGHT_TYPE  =  LS.LAND_RIGHT_TYPE
   and      UPPER(LR.REPORT_ACREAGE_IND)    =    'Y'
   and      LS.BUSINESS_ASSOCIATE   =    'ESSO'
   and      UPPER(LS.SIZE_TYPE)   =    'GROSS'
   and      UPPER(LR.ACTIVE_IND)   =    'Y'
```

Comments: This does not take into account the different percentages of land that a company owns. So this number might be misleading. It also assumes that the BUSINESS_ASSOCIATE column in LR_SIZE is correctly populated. A link to the BA_INT_SET_PARTNER table could also be used to obtain BUSINESS_ASSOCIATE data.

When will my leases expire?

```
select      LR.LAND_RIGHT_ID, LR.LAND_RIGHT_TYPE, LR.EXPIRY_DATE
  from      LAND_RIGHT LR
 where      LAND_RIGHT_TYPE   =   'LAND_LEASE'
   and      UPPER(LR.ACTIVE_IND)   =   'Y'
```

How many active land agreements are there in a specific area?

```
select      COUNT(LR.LAND_RIGHT_ID) ACTIVE_LEASES
  from      LAND_RIGHT LR, AREA A
 where      LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and      LR.ACTIVE_IND   =   'Y'
```

```
and      A.PREFERRED_NAME    =    'MOOSE MOUNTAIN'
```

How many active oil sands records are there in a specific area?

```
select     COUNT(LR.LAND_RIGHT_ID) ACTIVE_OIL_SAND_LEASES
  from     LAND_RIGHT LR, AREA A
 where     LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and     LR.ACTIVE_IND    =    'Y'
   and     A.PREFERRED_NAME    =    'MOOSE MOUNTAIN'
   and     LR.GRANTED_RIGHT_TYPE   =   'OIL SAND LEASE'
```

Which company(s) are service companies for my oil sand lease agreements and what services do they provide?

```
select     DISTINCT LBS.BUSINESS_ASSOCIATE, BA_SERVICE_TYPE
  from     LR_BA_SERVICE LBS, LAND_RIGHT LR, AREA A
 where     LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and     LR.LAND_RIGHT_ID   =  LBS.LAND_RIGHT_ID
   and     LR.LAND_RIGHT_TYPE  =  LBS.LAND_RIGHT_TYPE
   and     LR.ACTIVE_IND    =    'Y'
   and     A.PREFERRED_NAME    =    'MOOSE MOUNTAIN'
   and     LR.GRANTED_RIGHT_TYPE   =   'OIL SAND LEASE'
```

> Comments: Since a company can provide the same service to more than one agreement, the use of DISTINCT is necessary.

Which UWIs are related to each of my oil sands leases?

```
select     LR.LAND_RIGHT_ID, LR.LAND_RIGHT_TYPE, LRW.UWI
  from     LAND_RIGHT LR, AREA A, LAND_RIGHT_WELL LRW
 where     LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and     LRW.LAND_RIGHT_ID   =  LR.LAND_RIGHT_ID
   and     LRW.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     LR.ACTIVE_IND    =    'Y'
   and     PREFERRED_NAME    =    'MOOSE MOUNTAIN'
   and     LR.GRANTED_RIGHT_TYPE   =   'OIL SAND LEASE'
```

> Comments: Direct association with wells via LAND RIGHT WELL is necessary in areas where rights on a given portion of the surface does not necessarily imply ownership of the minerals from surface to basement. In areas where rights are given from surface to basement, a simple GIS query may be sufficient.

For my partnership agreements (working interest sets only) in an area, what roles does each participating company play?

```
select     BISP.BUSINESS_ASSOCIATE, BISP.INTEREST_SET_ROLE
  from     LAND_RIGHT LR, AREA A, BA_INT_SET_COMPONENT BISC,
           BA_INT_SET_PARTNER BISP, BA_INTEREST_SET BIS
 where     LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and     BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and     BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     LR.ACTIVE_IND  =  'Y'
   and     A.PREFERRED_NAME  =  'MOOSE MOUNTAIN'
   and     BIS.INTEREST_SET_TYPE  =  'WI'
group by   BISP.BUSINESS_ASSOCIATE, BISP.INTEREST_SET_ROLE
```

> Comments: Theoretically, each interest set could carry a different set of roles. From a practical perspective, operational roles are generally defined in the working interest set. However, a Royalty interest set may be used to define which partner is responsible for managing the royalty payments, etc.

What companies were involved in lands that expired in the last 6, 12, 18 months in the Moose Mountain area?

```
select     BISP.BUSINESS_ASSOCIATE, LR.LAND_RIGHT_ID,
           LR.LAND_RIGHT_TYPE,
           LR.INACTIVATION_DATE, LR.EXPIRY_DATE
  from     LAND_RIGHT LR, AREA A, BA_INT_SET_COMPONENT BISC,
           BA_INTEREST_SET BIS, BA_INT_SET_PARTNER BISP
 where     LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and     BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and     BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     UPPER(LR.ACTIVE_IND)  =  'N'
   and     A.PREFERRED_NAME  =  'MOOSE MOUNTAIN'
   and     (LR.INACTIVATION_DATE > ADD_MONTHS(SYSDATE, -6)
    or     LR.EXPIRY_DATE > ADD_MONTHS(SYSDATE, -6) )
```

> Comments: To change this query to 12 or 18 months, just CHANGE the -6 to -12 or -18. This number represents the number of months to go back from the date that the query is run from. We used a named area for the search, but you could use a geographic area, if you preferred.

What land rights (zones and substances) have been obtained in an area in the last 6, 12, 18 months? What type of granted rights have I obtained?

```
select      BISP.BUSINESS_ASSOCIATE, LR.LAND_RIGHT_ID,
            LR.LAND_RIGHT_TYPE,
            LR.ACQTN_DATE, LR.GRANTED_RIGHT_TYPE,
            LMZ.MINERAL_ZONE_ID,
            LS.SUBSTANCE_ID
  from      LAND_RIGHT LR, AREA A, BA_INT_SET_COMPONENT BISC,
            LAND_LEGAL_DESCRIPTION LLD,
            LAND_MINERAL_ZONE LMZ, BA_INTEREST_SET BIS,
            BA_INT_SET_PARTNER BISP, LR_SUBSTANCE LS
 where      LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and      LLD.LAND_LEGAL_DESCRIPTION_ID  =
            LMZ.LAND_LEGAL_DESCRIPTION_ID
   and      LLD.LLD_OBS_NO  =  LMZ.LLD_OBS_NO
   and      LS.LAND_LEGAL_DESCRIPTION_ID  =
            LMZ.LAND_LEGAL_DESCRIPTION_ID
   and      LS.LLD_OBS_NO  =  LMZ.LLD_OBS_NO
   and      BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and      BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and      BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and      BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and      BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and      BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and      LLD.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and      LLD.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and      UPPER(LR.ACTIVE_IND)  =  'Y'
   and      LR.ACQTN_DATE  >  ADD_MONTHS(SYSDATE, -6)
   and      A.PREFERRED_NAME  =  'MOOSE MOUNTAIN'
```

Comments: To change this query to 12 or 18 months, just CHANGE the -6 to -12 or -18. This number represents the number of months to go back from the date that the query is run from.

In an area, list the size of the active land holdings, by company.

```
select      BISP.BUSINESS_ASSOCIATE, LR.LAND_RIGHT_TYPE,
            BIS.INTEREST_SET_TYPE,
            LR.LAND_RIGHT_ID, LR.GROSS_SIZE
  from      LAND_RIGHT LR, AREA A, BA_INT_SET_COMPONENT BISC,
            BA_INT_SET_PARTNER BISP, BA_INTEREST_SET BIS
 where      LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
   and      BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and      BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
```

```
   and      BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and      BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and      BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and      BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and      UPPER(LR.ACTIVE_IND)   =   'Y'
   and      A.PREFERRED_NAME   =   'MOOSE MOUNTAIN'
order by   BISP.BUSINESS_ASSOCIATE, LR.LAND_RIGHT_TYPE,
           BIS.INTEREST_SET_TYPE
```

What companies have currently invested in facilities in an area and when did they invest in it?

```
select    DISTINCT BISP.BUSINESS_ASSOCIATE, BIS.EFFECTIVE_DATE
  from    FACILITY F, BA_INT_SET_COMPONENT BISC, AREA A,
          BA_INTEREST_SET BIS,
          BA_INT_SET_PARTNER BISP, LAND_LEGAL_DESCRIPTION LLD
 where    F.FACILITY_ID  =  BISC.FACILITY_ID
   and    F.FACILITY_TYPE  =  BISC.FACILITY_TYPE
   and    BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and    BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and    BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and    BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and    F.FACILITY_ID  =  LLD.FACILITY_ID
   and    F.FACILITY_TYPE  =  LLD.FACILITY_TYPE
   and    UPPER(BIS.ACTIVE_IND)   =   'Y'
   and    ((AREA_MIN_LATITUDE BETWEEN FIRST_LATITUDE AND
          SECOND_LATITUDE)
   and    (AREA_MIN_LONGITUDE BETWEEN SECOND_LONGITUDE AND
          FIRST_LONGITUDE))
    or    ((AREA_MAX_LATITUDE BETWEEN FIRST_LATITUDE AND
          SECOND_LATITUDE)
   and    (AREA_MAX_LONGITUDE BETWEEN SECOND_LONGITUDE AND
          FIRST_LONGITUDE)))
```

What rights does Esso own in the Moose Mountain area? What stratigraphic units and substances do they have rights to?

```
select    BIS.INTEREST_SET_TYPE, LMZ.MINERAL_ZONE_ID,
          LS.SUBSTANCE_ID
  from    LAND_RIGHT LR, AREA A, LAND_LEGAL_DESCRIPTION LLD,
          BA_INTEREST_SET BIS, LR_SUBSTANCE LS,
          LAND_MINERAL_ZONE LMZ, BA_INT_SET_COMPONENT BISC,
          BA_INT_SET_PARTNER BISP
```

```
where      LR.LAND_RIGHT_AREA_ID  =  A.AREA_ID
  and      LLD.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
  and      LLD.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
  and      LLD.LAND_LEGAL_DESCRIPTION_ID  =
           LMZ.LAND_LEGAL_DESCRIPTION_ID
  and      LLD.LLD_OBS_NO  =  LMZ.LLD_OBS_NO
  and      BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
  and      BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
  and      BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
  and      BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
  and      BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
  and      BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
  and      LMZ.LAND_LEGAL_DESCRIPTION_ID  =
           LS.LAND_LEGAL_DESCRIPTION_ID
  and      LMZ.LLD_OBS_NO  =  LS.LLD_OBS_NO
  and      LMZ.MINERAL_ZONE_ID  =  LS.MINERAL_ZONE_ID
  and      LR.LAND_RIGHT_CATEGORY  =  'MINERAL'
  and      UPPER(LR.ACTIVE_IND)  =  'Y'
  and      A.PREFERRED_NAME  =  'MOOSE MOUNTAIN'
  and      BISP.BUSINESS_ASSOCIATE  =  'ESSO'
  and      UPPER(LS.INCLUDED_IND)  =  'Y'
```

Who has an interest in an area of land (DLS township 25, range 20, section 12, W4M) today?

```
select     BISP.BUSINESS_ASSOCIATE, BISP.EFFECTIVE_DATE,
           BISP.EXPIRY_DATE
  from     LAND_PARCEL_DLS LPD, LAND_LEGAL_DESCRIPTION LLD,
           BA_INT_SET_COMPONENT BISC, BA_INT_SET_PARTNER BISP,
           BA_INTEREST_SET BIS
 where     BISC.LAND_RIGHT_ID  =  LLD.LAND_RIGHT_ID
   and     BISC.LAND_RIGHT_TYPE  =  LLD.LAND_RIGHT_TYPE
   and     BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     LPD.LAND_LEGAL_DESCRIPTION_ID  =
           LLD.LAND_LEGAL_DESCRIPTION_ID
   and     LPD.LLD_OBS_NO  =  LLD.LLD_OBS_NO
   and     LPD.DLS_MERIDIAN  =  4
   and     LPD.DLS_TOWNSHIP  =  25
   and     LPD.DLS_RANGE  =  20
   and     LPD.DLS_SECTION  =  12
   and     LLD.DLS_IND  =  'Y'
   and     BISP.ACTIVE_IND  =  'Y'
```

Comments: This query can be readily modified to accommodate any of the land parcel systems defined in PPDM.

Show the history of ownership for an area of land (DLS township 25, range 20, section 12, W4M).

```
select     BISP.INTEREST_SET_ID, BISP.INTEREST_SET_SEQ_NO,
           BIS.INTEREST_SET_TYPE,
           BISP.BUSINESS_ASSOCIATE, BISP.ACTIVE_IND,
           BISP.EFFECTIVE_DATE, BISP.INACTIVE_DATE,
           BISP.EXPIRY_DATE, BISP.REMARK
  from     LAND_PARCEL_DLS LPD, LAND_LEGAL_DESCRIPTION LLD,
           BA_INT_SET_COMPONENT BISC, BA_INT_SET_PARTNER BISP,
           BA_INTEREST_SET BIS
 where     BISC.LAND_RIGHT_ID  =  LLD.LAND_RIGHT_ID
   and     BISC.LAND_RIGHT_TYPE  =  LLD.LAND_RIGHT_TYPE
   and     LPD.LAND_LEGAL_DESCRIPTION_ID  =
           LLD.LAND_LEGAL_DESCRIPTION_ID
   and     LPD.LLD_OBS_NO  =  LLD.LLD_OBS_NO
   and     BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     LPD.DLS_MERIDIAN  =   4
   and     LPD.DLS_TOWNSHIP  =   25
   and     LPD.DLS_RANGE  =   20
   and     LPD.DLS_SECTION  =   12
   and     LLD.DLS_IND  =   'Y'
group by   BISP.INTEREST_SET_ID, BISP.INTEREST_SET_SEQ_NO,
           BIS.INTEREST_SET_TYPE,
           BISP.BUSINESS_ASSOCIATE, BISP.ACTIVE_IND,
           BISP.EFFECTIVE_DATE,
           BISP.INACTIVE_DATE, BISP.EXPIRY_DATE, BISP.REMARK
order by   BISP.INTEREST_SET_ID, BISP.INTEREST_SET_SEQ_NO,
           BIS.INTEREST_SET_TYPE
```

What are the current types of interest that Esso has?

```
select     DISTINCT BIS.INTEREST_SET_TYPE
  from     BA_INTEREST_SET BIS, BA_INT_SET_PARTNER BISP
 where     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     BISP.BUSINESS_ASSOCIATE  =   'ESSO'
   and     UPPER(BIS.ACTIVE_IND)  =   'Y'
```

What were the original lands covered by a land lease?

```
select     LPD.DLS_MERIDIAN, LPD.DLS_TOWNSHIP, LPD.DLS_RANGE,
           LPD.DLS_SECTION,
           LPD.DLS_QUARTER_SECTION,
           LPD.DLS_QUARTER_SECTION_QUARTER
  from     LAND_PARCEL_DLS LPD, LAND_LEGAL_DESCRIPTION LLD, L
           AND_RIGHT LR
 where     LR.LAND_RIGHT_ID  =  LLD.LAND_RIGHT_ID
   and     LR.LAND_RIGHT_TYPE  =  LLD.LAND_RIGHT_TYPE
   and     LPD.LAND_LEGAL_DESCRIPTION_ID  =
           LLD.LAND_LEGAL_DESCRIPTION_ID
   and     LPD.LLD_OBS_NO  =  LLD.LLD_OBS_NO
   and     LR.LAND_RIGHT_ID  =   UPPER(&INPUT)
   and     LR.LAND_RIGHT_TYPE   =   'LAND_LEASE'
   and     LLD.DLS_IND   =   'Y'
   and     LLD.LLD_OBS_NO   =   1
```

> Comments: This query only deals with the DLS survey system. It can be altered
> to work with NTS, CONGRESS, OHIO systems, etc.

Are there any liens on this land or these lands (DLS Township 25, range 20, section 12, W4M)?

```
select     LR.LAND_RIGHT_ID, I.JURISDICTION, I.RECORDED_DATE,
           I.REGISTRATION_DATE,
           I.LAND_INSTRUMENT_TYPE, I.REGISTRATION_NUM
  from     INSTRUMENT I, LAND_RIGHT LR, LAND_PARCEL_DLS LPD,
           LAND_LEGAL_DESCRIPTION LLD
 where     I.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     I.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     LR.LAND_RIGHT_ID  =  LLD.LAND_RIGHT_ID
   and     LR.LAND_RIGHT_TYPE  =  LLD.LAND_RIGHT_TYPE
   and     LPD.LAND_LEGAL_DESCRIPTION_ID  =
           LLD.LAND_LEGAL_DESCRIPTION_ID
   and     LPD.LLD_OBS_NO  =  LLD.LLD_OBS_NO
   and     LPD.DLS_MERIDIAN   =   4
   and     LPD.DLS_TOWNSHIP   =   25
   and     LPD.DLS_RANGE   =   20
   and     LPD.DLS_SECTION   =   12
   and     UPPER(LLD.DLS_IND)   =   'Y'
   and     I.LAND_INSTRUMENT_TYPE   =   'LIEN'
   and     UPPER(LR.ACTIVE_IND)   =   'Y'
```

```
select     BISP.INTEREST_SET_ID, BISP.INTEREST_SET_SEQ_NO,
           BIS.INTEREST_SET_TYPE,
           BISP.BUSINESS_ASSOCIATE, BISP.ACTIVE_IND,
           BISP.EFFECTIVE_DATE,
           BISP.EXPIRY_DATE,
           BISP.GROSS_PERCENT_INTEREST, BISP.NET_PERCENT_INTEREST
  from     LAND_RIGHT LR, BA_INT_SET_COMPONENT BISC,
           BA_INTEREST_SET BIS,
           BA_INT_SET_PARTNER BISP
 where     BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and     BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     LR.LAND_RIGHT_ID  =  '129986'
order by   BISP.INTEREST_SET_ID, BISP.INTEREST_SET_SEQ_NO
```

List the land and percentage that a BA owns in an area that was acquired after Jan 1, 1998, and is active now?

```
select     LLD.LAND_RIGHT_ID, BISP.BUSINESS_ASSOCIATE,
           BIS.INTEREST_SET_TYPE,
           GROSS_PERCENT_INTEREST
  from     AREA A, LAND_LEGAL_DESCRIPTION LLD,
           BA_INT_SET_COMPONENT BISC,
           BA_INTEREST_SET BIS, BA_INT_SET_PARTNER BISP
 where     LLD.LAND_RIGHT_ID  =  BISC.LAND_RIGHT_ID
   and     LLD.LAND_RIGHT_TYPE  =  BISC.LAND_RIGHT_TYPE
   and     (((AREA_MIN_LATITUDE BETWEEN FIRST_LATITUDE AND
           SECOND_LATITUDE)
   and     (AREA_MIN_LONGITUDE BETWEEN SECOND_LONGITUDE AND
           FIRST_LONGITUDE))
   or      ((AREA_MAX_LATITUDE BETWEEN FIRST_LATITUDE AND
           SECOND_LATITUDE)
   and     (AREA_MAX_LONGITUDE BETWEEN SECOND_LONGITUDE AND
           FIRST_LONGITUDE)))
   and     BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and     BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     A.AREA_ID  =  'MOOSE MOUNTAIN'
   and     BISP.BUSINESS_ASSOCIATE  =  'ANH4'
```

```
and        (BISP.EFFECTIVE_DATE > '01-JAN-98'
and        BISP.EXPIRY_DATE < SYSDATE)
and        UPPER(BISP.ACTIVE_IND)   =   'Y'
```

Comments: This query can be altered by changing the AREA_ID and/or the
BUSINESS_ASSOCIATE and/or the DATE selected.

Has anyone been in breach with you relative to any land rights? Which land rights have been affected?

```
select     BISP.BUSINESS_ASSOCIATE, LR.LAND_RIGHT_ID
  from     BA_INT_SET_COMPONENT BISC, BA_INTEREST_SET BIS,
           LAND_RIGHT LR,
           BA_INT_SET_PARTNER BISP
 where     LR.LAND_RIGHT_ID  =  BISC.LAND_RIGHT_ID
   and     LR.LAND_RIGHT_TYPE  =  BISC.LAND_RIGHT_TYPE
   and     BISC.INTEREST_SET_ID  =  BIS.INTEREST_SET_ID
   and     BISC.INTEREST_SET_SEQ_NO  =  BIS.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     UPPER(BISP.BREACH_IND)   =   'Y'
```

Who is operator of this lease (AB0793)?

```
select     BISP.BUSINESS_ASSOCIATE
  from     LAND_RIGHT LR, BA_INT_SET_COMPONENT BISC,
           BA_INT_SET_PARTNER BISP,
           BA_INTEREST_SET BIS
 where     BISC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     BISC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     BISP.INTEREST_SET_ROLE  =   'OPERATOR'
   and     LR.LAND_RIGHT_ID   =   'AB0793'
   and     UPPER(BISP.ACTIVE_IND)   =   'Y'
```

```
select     LR.LAND_RIGHT_ID, I.JURISDICTION, I.RECORDED_DATE,
           I.REGISTRATION_DATE
  from     INSTRUMENT I, LAND_RIGHT LR
 where     I.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     I.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     I.LAND_INSTRUMENT_TYPE   =   'LIEN'
```

What obligations will I incur for this LAND GRANTED RIGHT?

```
select     LR.LAND_RIGHT_ID, LR.LAND_RIGHT_TYPE,
           O.LAND_OBLIG_TYPE,
           O.LAND_OBLIG_CATEGORY, O.FULFILLED_IND,
           O.FULFILLED_DATE,
           O.FULFILLED_REMARK
  from     LAND_RIGHT LR, OBLIGATION_COMPONENT OC, OBLIGATION O
 where     OC.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     OC.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     O.OBLIGATION_ID  =  OC.OBLIGATION_ID
   and     O.OBLIGATION_SEQ_NO  =  OC.OBLIGATION_SEQ_NO
   and     LR.LAND_RIGHT_TYPE   =   'LAND GRANTED RIGHT'
```

Comments: A land granted right is a portion of a lease, segmented for some business purpose such as formation of a partnership.

Show me cross-references between my contracts and leases.

```
select     C.CONTRACT_NAME, LR.LAND_RIGHT_ID, LR.ACQTN_DATE,
           CC.EFFECTIVE_DATE,
           CC.EXPIRY_DATE
  from     CONTRACT C, CONTRACT_COMPONENT CC, LAND_RIGHT LR
 where     C.CONTRACT_ID  =  CC.CONTRACT_ID
   and     LR.LAND_RIGHT_ID  =  CC.LAND_RIGHT_ID
```

Comments: If the LAND_RIGHT_ID is used as a natural identifier and no data about the lease is needed, then the link to the LAND_RIGHT table is not needed.

What land rights did the litigation relate to?

```
select      LAND_RIGHT_ID, LAND_RIGHT_TYPE, LR_CONTEST_TYPE,
            START_DATE, END_DATE,
            REASON
  from      LR_CONTEST
```

Comments: Since the Primary Key for LAND_RIGHT is a natural key, we do
not have to link to the LAND_RIGHT table.

*How have my litigation issues been resolved in the past? What land
rights were they related to, and what type of litigation was involved?*

```
select      LAND_RIGHT_ID, LAND_RIGHT_TYPE,
            CONTEST_RESOLUTION_METHOD,
            RESOLUTION_REMARK
  from      LR_CONTEST
```

*What litigation resolutions have been employed in the past for the
track precedence land right?*

```
select      LAND_RIGHT_ID, LAND_RIGHT_TYPE, LR_CONTEST_ID,
            CONTEST_RESOLUTION_METHOD
  from      LR_CONTEST
 where      LAND_RIGHT_ID   =    '9107'
```

*When did this litigation occur, and what land rights was it related to?
Who was involved in it, and what roles did they play? Are there any
remarks associated with it?*

```
select      LC.LAND_RIGHT_ID, LC.LAND_RIGHT_TYPE,
            LC.LR_CONTEST_ID,
            LCP.BUSINESS_ASSOCIATE,
            LCP.EFFECTIVE_DATE, LCP.EXPIRY_DATE, LCP.PARTY_ROLE,
            LCR.MADE_BY,
            LCR.REMARK, LCR.REMARK_DATE
  from      LR_CONTEST LC, LR_CONTEST_PARTY LCP, LR_CONTEST_REMARK
            LCR
```

```
where      LC.LAND_RIGHT_ID  =  LCP.LAND_RIGHT_ID
   and     LC.LAND_RIGHT_TYPE  =  LCP.LAND_RIGHT_TYPE
   and     LC.LR_CONTEST_ID  =  LCP.LR_CONTEST_ID
   and     LC.LAND_RIGHT_ID  =  LCR.LAND_RIGHT_ID
   and     LC.LAND_RIGHT_TYPE  =  LCR.LAND_RIGHT_TYPE
   and     LC.LR_CONTEST_ID  =  LCR.LR_CONTEST_ID
   and     LC.LAND_RIGHT_ID   =   '9107'
```

Who are my contacts for this land unit? What role is played by each contact?

```
select     LU.LAND_RIGHT_ID, LU.LAND_RIGHT_TYPE,
           BISP.BUSINESS_ASSOCIATE,
           BIPC.CONTACT_BA_ID, BIPC.CONTACT_ROLE
from       LAND_UNIT LU, BA_INT_SET_COMPONENT BISC,
           BA_INT_SET_PARTNER
           BISP, BA_INT_PARTNER_CONT BIPC, BA_INTEREST_SET BIS
where      LU.LAND_RIGHT_ID  =  BISC.LAND_RIGHT_ID
   and     LU.LAND_RIGHT_TYPE  =  BISC.LAND_RIGHT_TYPE
   and     BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and     BISP.INTEREST_SET_ID  =  BIPC.INTEREST_SET_ID
   and     BISP.INTEREST_SET_SEQ_NO  =  BIPC.INTEREST_SET_SEQ_NO
   and     UPPER(BIPC.ACTIVE_IND)   =   'Y'
   and     LU.LAND_RIGHT_ID  =  '2049875'
```

Who are my partners, and what is their interest in the land right (ID = 2049875) (gross and net)?

```
select     LU.LAND_RIGHT_ID, LU.LAND_RIGHT_TYPE,
           BIS.INTEREST_SET_TYPE,
           BISP.BUSINESS_ASSOCIATE, BISP.GROSS_PERCENT_INTEREST,
           BISP.NET_PERCENT_INTEREST
  from     LAND_UNIT LU, BA_INT_SET_COMPONENT BISC,
           BA_INT_SET_PARTNER BISP,
           BA_INTEREST_SET BIS
 where     LU.LAND_RIGHT_ID  =  BISC.LAND_RIGHT_ID
   and     LU.LAND_RIGHT_TYPE  =  BISC.LAND_RIGHT_TYPE
   and     BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and     BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and     BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
```

```
and       BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
and       LU.LAND_RIGHT_ID  =  '2049875'
and       UPPER(BIS.ACTIVE_IND)   =   'Y'
```

Where have my legal agreements been registered or filed in the USA?

```
select    I.JURISDICTION, LR.LAND_RIGHT_ID, I.COUNTRY,
          I.PROVINCE_STATE, I.COUNTY,
          I.REGISTRATION_NUM, I.REGISTRATION_DATE, I.BOOK_NAME,
          I.PAGE_NUMBER
  from    LAND_RIGHT LR, INSTRUMENT I
 where    LR.LAND_RIGHT_ID  =  I.LAND_RIGHT_ID
   and    LR.LAND_RIGHT_TYPE  =  I.LAND_RIGHT_TYPE
```

Have I added a caveat on this title?

```
select    I.JURISDICTION, LR.LAND_RIGHT_ID, I.COUNTRY,
          I.PROVINCE_STATE, I.COUNTY,
          I.REGISTRATION_NUM, I.REGISTRATION_DATE, I.BOOK_NAME,
          I.PAGE_NUMBER
  from    LAND_RIGHT LR, INSTRUMENT I
 where    LR.LAND_RIGHT_ID  =  I.LAND_RIGHT_ID
   and    LR.LAND_RIGHT_TYPE  =  I.LAND_RIGHT_TYPE
   and    I.LAND_INSTRUMENT_TYPE   =   'CAVEAT'
```

What is the geographic area covered by the lease (SK014824)?

```
select    LL.LAND_RIGHT_ID, LPB.POINT_SEQ_NO, LPB.LATITUDE,
          LPB.LONGITUDE
  from    LAND_LEASE LL, LAND_LEGAL_DESCRIPTION LLD,
          LAND_POLYGON LP,
          LAND_POLYGON_BOUNDARY LPB
 where    LL.LAND_RIGHT_ID  =  LLD.LAND_RIGHT_ID
   and    LL.LAND_RIGHT_TYPE  =  LLD.LAND_RIGHT_TYPE
   and    LLD.LAND_LEGAL_DESCRIPTION_ID  =
          LP.LAND_LEGAL_DESCRIPTION_ID
   and    LLD.LLD_OBS_NO  =  LP.LLD_OBS_NO
   and    LP.LAND_POLYGON_ID  =  LPB.LAND_POLYGON_ID
```

```
and       LL.LAND_RIGHT_ID   =   'SK014824'
```

Comments: We have chosen to report the latitude and longitude points of the polygons here. Alternatively, you could report legal parcel definitions or the spatial description in text form.

What obligations are in the land right? (ID= BC5109823) What is the type of obligation, critical dates, frequency of occurrence, description?

```
select    LR.LAND_RIGHT_ID, OC.OBLIGATION_ID,
          OC.OBLIGATION_SEQ_NO,
          O.CALCULATION_METHOD, O.CRITICAL_DATE,
          O.EFFECTIVE_DATE,
          O.OBLIGATION_FREQUENCY,
          O.EXPIRY_DATE, O.LAND_OBLIG_TYPE, O.DESCRIPTION
  from    LAND_RIGHT LR, OBLIGATION_COMPONENT OC, OBLIGATION O
 where    LR.LAND_RIGHT_ID   =  OC.LAND_RIGHT_ID
   and    LR.LAND_RIGHT_TYPE   =  OC.LAND_RIGHT_TYPE
   and    OC.OBLIGATION_ID   =  O.OBLIGATION_ID
   and    OC.OBLIGATION_SEQ_NO  =  O.OBLIGATION_SEQ_NO
   and    LR.LAND_RIGHT_ID    =   'BC5109823'
```

Comments: This is a pretty open-ended question—we have provided some details, but others may be of interest to you.

What units/leases are operated by this consortium?

```
select    LR.LAND_RIGHT_ID, LR.LAND_RIGHT_TYPE
  from    BA_INT_SET_COMPONENT BISC, LAND_RIGHT LR,
          BA_INT_SET_PARTNER BISP
 where    LR.LAND_RIGHT_ID   =  BISC.LAND_RIGHT_ID
   and    LR.LAND_RIGHT_TYPE   =  BISC.LAND_RIGHT_TYPE
   and    BISC.INTEREST_SET_SEQ_NO   =  BISP.INTEREST_SET_SEQ_NO
   and    BISC.INTEREST_SET_ID   =  BISP.INTEREST_SET_ID
   and    BISP.BUSINESS_ASSOCIATE   =   'EAST COAST'
   and    BISP.INTEREST_SET_ROLE   =   'OPERATOR'
   and    UPPER(BISC.ACTIVE_IND)    =    'Y'
```

Comments: This is why BUSINESS_ASSOCIATE is in BA_INT_SET_COMPONENT.

What is the working interest of each partner in the consortium?

```
select      C.CONTRACT_NAME, BISP.BUSINESS_ASSOCIATE,
            BIS.INTEREST_SET_TYPE,
            BISP.NET_PERCENT_INTEREST, BISP.GROSS_PERCENT_INTEREST
  from      BA_INT_SET_COMPONENT BISC, CONTRACT C,
            BA_INT_SET_PARTNER BISP,
            BA_INTEREST_SET BIS
 where      C.CONTRACT_ID  =  BISC.CONTRACT_ID
   and      BIS.INTEREST_SET_ID  =  BISC.INTEREST_SET_ID
   and      BIS.INTEREST_SET_SEQ_NO  =  BISC.INTEREST_SET_SEQ_NO
   and      BIS.INTEREST_SET_ID  =  BISP.INTEREST_SET_ID
   and      BIS.INTEREST_SET_SEQ_NO  =  BISP.INTEREST_SET_SEQ_NO
   and      UPPER(BISC.ACTIVE_IND)   =   'Y'
   and      UPPER(BIS.ACTIVE_IND)   =    'Y'
   and      BISC.BUSINESS_ASSOCIATE   =   'EAST COAST'
order by    C.CONTRACT_ID
```

Comments: This is why BUSINESS_ASSOCIATE is in
BA_INT_SET_COMPONENT.

How much of this tract/unit is held by the crown (ID = 512741)?

```
select      PERCENT_CROWN
  from      LAND_UNIT_TRACT
 where      LAND_RIGHT_ID  =   '512741'
```

How much of the PNG production for the unit is allocated to this tract?

```
select      TRACT_FACTOR
  from      LAND_UNIT_TRACT LUT, LR_UNIT_TRACT_FACTOR LUTF,
            LAND_UNIT LU
 where      LUT.LAND_RIGHT_ID  =  LUTF.LAND_RIGHT_ID
   and      LUT.LAND_RIGHT_TYPE  =  LUTF.LAND_RIGHT_TYPE
   and      LU.LAND_RIGHT_ID  =  LUT.LAND_RIGHT_ID
   and      LU.LAND_RIGHT_ID  =  LUT.LAND_RIGHT_ID
   and      LU.LAND_UNIT_NAME   =   'NORTHWEST OIL'
   and      LUTF.SUBSTANCE_ID   =   'PNG'
   and      LUTF.ACTIVE_IND   =   'Y'
```

```
select      UWI, GAS_PERCENT_PSU, OIL_PERCENT_PSU,
            SPACING_COMPLETE_IND
from        LAND_RIGHT_WELL
where       LAND_RIGHT_ID  =  '512741'
```

What obligations are due in the next three months?

```
select      LAND_RIGHT_ID, LAND_OBLIG_CATEGORY, LAND_OBLIG_TYPE,
            O.EFFECTIVE_DATE
  from      OBLIGATION O, OBLIGATION_COMPONENT OC
 where      O.OBLIGATION_ID  =  OC.OBLIGATION_ID
   and      O.OBLIGATION_SEQ_NO  =  OC.OBLIGATION_SEQ_NO
   and      O.EFFECTIVE_DATE BETWEEN SYSDATE AND
            ADD_MONTHS(SYSDATE, 3)
   and      O.FULFILLED_IND  =   'N'
   and      O.ACTIVE_IND  =   'Y'
```

List all liens on each land right that haven't been discharged.

```
select      LR.LAND_RIGHT_ID, I.JURISDICTION,  I.RECORDED_DATE,
            I.REGISTRATION_DATE
  from      INSTRUMENT I, LAND_RIGHT LR
 where      I.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and      I.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and      I.LAND_INSTRUMENT_TYPE  =   'LIEN'
   and      DISCHARGE_DATE IS NULL
   and      DISCHARGE_NUM IS NULL
```

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 which is sufficiently detailed to meet the business needs of every member and yet flexible or abstract enough to be shielded from the 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 time invalidate portions of the model. Internal re-engineering business process in industry companies may impact business requirements, which drive the data model. Rapid technological changes may also affect the model structure.

This section is to identify all applicable changes from the latest version to the newest release version to assist the members in an ease of transition to implement the latest version of the PPDM model.

Changes Between Versions 3.4 and 3.5

The Business Requirements that provided the impetus for model growth were documented by the work groups (Land) during the Business requirements gathering phase of development. The Business Requirements Document is available to members of the association.

For a detailed enumeration of changes, additions and deletions refer to the Data Mapping document, provided with the PPDM 3.5 release documentation.

- Subtypes for seven kinds of land rights were added, and a new component added to the primary key to support enforcement of the structure.

- FEE_SCHEDULE was added

- LR_NOTIFICATION was removed from OBLIGATION to resolve work group concerns, and added as a new table.

- Additional details were added to the CONTESTS module.

- Explicit relationships were created between LAND_LEGAL_DESCRIPTION and FIELDS and POOLS.

- Two new types of land parcel were added (PBL = public land block, ROAD ALLOWANCES = DLS road allowances).