The PODS Association’s Next Generation initiative is focused on a complete re-design and modernization of the PODS Pipeline Data Model. The re-design of the PODS Pipeline Data Model is driven by PODS Association Strategy and reflects nearly 20 years of PODS Pipeline Data Model implementation experience and lessons learned. PODS 7.0 is designed to be the System of Record for pipeline centerlines and pressurized containment assets for the safe transport of product, allowing pipeline operators to:

- Achieve greater agility to build and extend the data model.
- Respond to new business requirements.
- Integrate through standard data models and consistent application interfaces.
- Share data within and between organizations using well defined data exchange standards, supporting performance for management and multi-tasking.

- Track and manage pipeline route and infrastructure, large volumes of inspection and data history.

The methodology and approach to how this model was developed was to push the envelope of data modeling and advance the state-of-the-art through the creation of a Next Generation Data Model that is open for deployment in any Geographic Information System (GIS). This model supports management of data for gathering, transmission, and distribution systems.

PODS 7.0 is designed to be the System of Record for pipeline centerlines and pressurized containment assets for the safe transport of product.

**WHAT IS IN YOUR DATA PIPELINE?**

### Constructing the Pipeline Open Data Standard (PODS) Next Generation Data Model

#### Design

- **Simplication of the model**: review, revise, dump rather than split entities.
- **Efficiency**: simplification of entity and entity naming.
- **Modularity**: remove need for base referencing as the sole method for locating features.
- **Framework**: for documentation including edit workflows (review, re-run, re-route).
- **Logical grouping of tables**: hierarchy, location model, documents, activities, metadata, assets, metadata, condition (discovered), operations (assigned or calculated).
- **Modules**: modules are added to the model to meet new service and to support business requirements.
- **Metamodels**: metamodels are added to base model as needed and to support business requirements.
- **Metadata tables**: tables (similar to RDBMS system tables) drive the content of the model and the relationships in this model.
- **Business rules and Unit-Measure are embedded in the model.**
- **Domain (code-lookup): (1) model-specific (immutable), (2) region-specific (mutable), (3) dependent on regulations or environmental policy (special timeframe or reference to an authority or gathering/transportation/organization), or (4) free form.

#### Multiple Location Methods

**And Systems**

- **All tables in-model, except for metadata, support geometry fields for locating features, hierarchy, and properties.**
- **Model supports linear referencing for locating features (measure, KP or station) – Inline Inspection, Closed Interval Survey, as-built chainage.**
- **Supports XYZ for locating features (GPS coordinates, survey).**
- **Supports topological facility networks.**
- **Open for deployment in any Geographic Information System (GIS).**
- **Thus supports management of data for gathering, transmission and distribution systems.**

#### One Logical Model

**Physical Models**

Instead of managing each relational database management system (RDBMS) scheme for Oracle, MS SQL Server, PostgreSQL, PODS manages the conceptual model as a MS Visio, using the logical model using Geographic Markup Language (GML) for Exchange System (ES). The model is implemented in many points: CAla models including spatial geometry support for SDE, Binary (ERIS), ISO, GEOMATYX (Oracle), SG (SQL Server, Oracle, PostSQL) and ESRI Shapefile datasets (File, Enterprise). The methodology and approach to how this model was developed was to push the envelope of data modeling and advance the state-of-the-art through the creation of a Next Generation Data Model that is open for deployment in any Geographic Information System (GIS). This model supports management of data for gathering, transmission, and distribution systems.

### Data Exchange Specification

A key component to the PODS 7.0 model is the inclusion of a Data Exchange Specification (DES) to facilitate data relationships between databases, software systems, third-party service providers and pipeline operators. The DES also enables system integration via well-defined and harmonized application program interfaces. The DES is intended standard data and schema exchange between PODS databases across the pipeline industry. The DES will be implemented using ISO/TS 19136:2007 Geographic Information - Geography Markup Language (GML).

### Standards Based


### Why is this Important?

- **Understanding the location of pressurized pipeline assets is critical for determining the risk of a pipeline.**
- **Pipeline safety and consequence are inherently geographic.**
- **Having an accurate location of a pipeline centerline allows determination of what the likelihood and consequence of an incident might be.**
- **Having a geographic system of record of pressurized assets for integration of geographic and relatively located data sources (such as standards and key personnel) facilitates the development of a geographic perspective of events affecting the safety of a pipeline system.**