Pipeline Open Database Standard

Physical Data Model

Draft - Model is subject to change

LEGEND

- Core Tables
- Network/Hierarchy Tables
- Coordinate Tables
- Event Report Tables
- Physical Attributes
- Compliance Tables
- Inspection Tables
- Spatial Data Tables
- Crossing Tables
- Operations Tables
- Facility Tables
- Appurtenance Tables

Special thanks to the following organizations for contributing to this data model (listed in alphabetical order):

CEPA
Dynegy, Inc.
Gas Technology Institute
Kinder Morgan, Inc.
TransCanada PipeLines Ltd.
Williams Gas Pipelines

Advanced Data Design, Inc.
Bass-Trigon Software, Inc.
Dynamic Risk Assessment Systems, Inc.
Eagle Information Mapping, Inc.
ESRI, Inc.
GeoFields, Inc.
New Century Software, Inc.

Physical Data Model
Project: Pipeline Open Data Standard
Model: : PODS
Author: PODS Association | Version 2 | 7/16/2001

Core Tables

COMPANY_CL
COMPANY_ID	<pk>	SMALLINT	not null
NAME		VARCHAR2(50)	not null
ACTIVE_INDICATOR_LF		CHAR(1)	not null

COMPANY_PK

LINE_TYPE
TYPE_CL	<pk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	not null
ACTIVE_INDICATOR_LF		CHAR(1)	not null

LINE_TYPE_PK

OPERATING_STATUS
STATUS	<pk>	CHAR(1)	not null
DESCRIPTION		VARCHAR2(50)	not null
ACTIVE_INDICATOR_LF		CHAR(1)	not null

LINE_STATUS_PK

LINE_OWNER
COMPANY_ID	<pk,fk>	SMALLINT	not null
LINE_ID	<pk,fk>	SMALLINT	not null
PARENT_OWNERSHIP		NUMBER(7,4)	not null
TYPE_OWNERSHIP		CHAR(1)	not null

LINE_OWNER_PK

LINE
LINE_ID	<pk>	SMALLINT	not null
DESIGNATOR		CHAR(10)	not null
DESCRIPTION		VARCHAR2(50)	not null
LINE_TYPE	<fk>	CHAR(3)	not null
PRODUCT_TYPE	<fk>	CHAR(3)	null
STATUS	<fk>	CHAR(1)	null

LINE_PK
LINE_FK1

ROUTE
ROUTE_ID	<pk>	NUMBER(16)	not null
LINE_ID	<fk>	SMALLINT	not null
EVENT_ID		NUMBER(16)	not null
NAME		VARCHAR2(50)	null
SEQUENCE		NUMBER(3)	null
TYPE_CL	<fk>	CHAR(1)	null
STATUS	<fk>	CHAR(1)	null

ROUTE_PK

Centerline

GPS_POINT
GPS_POINT_ID	<pk>	NUMBER(16)	not null
EVENT_ID		NUMBER(16)	null
FEATURE_NAME		VARCHAR2(50)	null
FEATURE_DESC		VARCHAR2(255)	null
DESCRIPTION		VARCHAR2(255)	null
EASTING		FLOAT	not null
NORTHING		FLOAT	not null
ELEVATION		FLOAT	null
DATE_COLLECTED		DATE	null
CORRECTION_METHOD		VARCHAR2(16)	null
STANDARD_DEV		FLOAT	null
COORDINATE_SOURCE_ID	<fk>	NUMBER(16)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(254)	null

GPS_POINT_PK

MONUMENT
MONUMENT_ID	<pk>	NUMBER(16)	not null
EVENT_ID	<fk>	NUMBER(16)	null
TYPE	<fk>	VARCHAR2(16)	null
DESCRIPTION		VARCHAR2(255)	null
EASTING		FLOAT	not null
NORTHING		FLOAT	not null
ELEVATION		FLOAT	null
COORDINATE_SOURCE_ID	<fk>	NUMBER(16)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

MONUMENT_PK

COORDINATE_SOURCE
COORDINATE_SOURCE_ID	<pk>	NUMBER(16)	not null
SOURCE_NAME		CHAR(30)	not null
SOURCE_TYPE		CHAR(10)	null
CREATE_DATE		DATE	null
METHOD		CHAR(10)	null
OPERATOR		CHAR(10)	null
ACCURACY		CHAR(10)	null
COORDINATE_SYS_ID	<fk>	VARCHAR2(40)	null
COMMENTS		VARCHAR2(255)	null

COORDINATE_SYS
COORDINATE_SYS_ID	<pk>	VARCHAR2(40)	not null
COORDINATE_SYS_S		VARCHAR2(19)	null
DESCRIPTION		VARCHAR2(2000)	null
ENTITY_TYPE_NAME		VARCHAR2(40)	not null
GEODETIC_DATUM_ID		VARCHAR2(80)	null
PRIME_MERIDIAN_ID		VARCHAR2(40)	null
R_AXIS_ORINT_KIND		VARCHAR2(40)	null
R_CORD_SYS_CSTR_NAME		VARCHAR2(40)	not null
R_DISPLAY_ORINT		VARCHAR2(40)	null
R_MAP_PROJ_KIND		VARCHAR2(40)	null
R_NAMING_SYSTEM_KIND		VARCHAR2(40)	null
SOURCE		NUMBER(16)	null
SOURCE_REFERENCE		VARCHAR2(19)	null
STATUS		CHAR(1)	null
VERSION		VARCHAR2(40)	null
VERTEX_S		VARCHAR2(19)	null
VERTEX_T		VARCHAR2(16)	null

UNIT_OF_MEASURE
CODE	<pk>	VARCHAR2(20)	not null
MEASURE_UNIT		VARCHAR2(40)	null
DESCRIPTION		VARCHAR2(255)	null

UNIT_OF_MEASURE_PK

SOURCE
CODE	<pk>	NUMBER(16)	not null
NAME		VARCHAR2(40)	not null
DESCRIPTION		VARCHAR2(255)	null
COMPANY_ID	<fk>	SMALLINT	null
ACTIVE_INDICATOR_LF		CHAR(1)	not null

SOURCE_PK

COORDINATE
COORDINATE_ID	<pk>	NUMBER(16)	not null
COORDINATE_SOURCE_ID	<fk>	NUMBER(16)	null
LOCATION_ID	<fk>	NUMBER(16)	not null
X_COORD		FLOAT	not null
Y_COORD		FLOAT	not null
Z_COORD		FLOAT	null
CONTROL_INDICATOR_LF		CHAR(1)	not null

COORDINATE_PK
LOCATION_INDEX

CENTERLINE_GEO_X_REF
COORDINATE_ID	<pk,fk>	NUMBER(16)	not null
CENTERLINE_GEO_ID	<pk,fk>	NUMBER(16)	not null

COORD_LOCATION_REF_X_REF_PK

CENTERLINE_GEOMETRY
CENTERLINE_GEO_ID	<pk>	NUMBER(16)	not null
SOURCE_NAME		CHAR(30)	not null
PURPOSE		CHAR(10)	null
CREATE_DATE		DATE	null
COMMENTS		VARCHAR2(255)	null

CENTERLINE_GEOMETRY_PK

TRANSFORM
TRANSFORM_ID	<pk>	NUMBER(16)	not null
DESCRIPTION		VARCHAR2(50)	null

TRANFORM_PK

MEASURE_TRANSFORM
MEAS_TRANS_ID	<pk>	NUMBER(16)	not null
SERIES_ID	<fk>	NUMBER(16)	not null
TRANSFORM_BEGIN_STATION		NUMBER(16)	null
TRANSFORM_END_STATION		NUMBER(16)	null
ALT_MEASURE_PREFIX		VARCHAR2(16)	null
SCALE_FACTOR		NUMBER(16)	null
OFFSET		NUMBER(16)	null
TRANSFORM_ID	<fk>	NUMBER(16)	null

MEASURE_TRANFORM_PK

LOCATION
LOCATION_ID	<pk>	NUMBER(16)	not null

PK_LOCATION

SERIES
SERIES_ID	<pk>	NUMBER(16)	not null
DESCRIPTION		VARCHAR2(254)	null
LINE_ID		SMALLINT	not null
SERIES		INTEGER	not null
STATION_BEGIN		NUMBER(10,1)	not null
STATION_END		NUMBER(10,1)	not null
ASCENDING		INTEGER	null
ROUTE_ID	<fk>	NUMBER(16)	null
PARENT_SERIES	<fk>	NUMBER(16)	null
CREATE_DATE		DATE	null
PODS_USER		VARCHAR2(20)	null
VALIDITY		CHAR(1)	null
EFF_FROM_DATE		DATE	null
EFF_TO_DATE		DATE	null

STATION_RUN_PK
STATION_RUN_FK2
STATION_RUN_RECK
STATION_LINE_SERIES

STATION_POINT
STATION_ID	<pk>	NUMBER(16)	not null
STATION		NUMBER(10,1)	not null
SERIES_ID	<fk>	NUMBER(16)	not null
LOCATION_ID	<fk>	NUMBER(16)	not null
MEASURE		NUMBER(12,1)	not null
DATUM		CHAR(3)	null

STATION_MEASURE
STATION_POINT_PK
STATION_POINT_FK1
STATION_POINT_FK2

FEATURE_TABLE
FEATURE_TABLE_ID	<pk>	CHAR(4)	not null
TABLE_NAME		VARCHAR2(30)	not null
DESCRIPTION		VARCHAR2(254)	null
SORT_ORDER		SMALLINT	null
FEATURE_TYPE		CHAR(3)	null
POINT_LINE		CHAR(1)	null

EVENT_RANGE
EVENT_ID	<pk>	NUMBER(16)	not null
TABLE_NAME		VARCHAR2(30)	null
EVENT_OFFSET		NUMBER(16)	null
EVENT_OFFSET_ANGLE		NUMBER(16)	null
STATION_ID_BEGIN	<fk>	NUMBER(16)	not null
STATION_ID_END	<fk>	NUMBER(16)	not null
FEATURE_ID	<fk>	CHAR(4)	null
PARENT_EVENT_ID	<fk>	NUMBER(16)	null
LENGTH		NUMBER(16)	null
VALIDITY		CHAR(1)	null
PODS_USER		VARCHAR2(20)	null
CREATE_DATE		DATE	null
EFF_FROM_DATE		DATE	null
EFF_TO_DATE		DATE	null

EVENT_RANGE_PK
EVENT_RANGE_FK1
EVENT_RANGE_RECK

EVENT_CROSS_REF
EVENT_ID	<pk,fk>	NUMBER(16)	not null
EVENT_REPORT_ID	<pk,fk>	NUMBER(16)	not null
STATUS		VARCHAR2(10)	null

EVENT_HISTORY_PK2
EVENT_HISTORY_FK1
EVENT_HISTORY_FK2

EVENT_REPORT
EVENT_REPORT_ID	<pk>	NUMBER(16)	not null
NAME		VARCHAR2(20)	null
REPORT_DATE		DATE	null
TYPE	<fk>	VARCHAR2(16)	null
REMARK		VARCHAR2(240)	null
UMBRELLA_REPORT_ID	<fk>	NUMBER(16)	null
STATUS		VARCHAR2(10)	null

EVENT_REPORT_PK
UMBRELLA_REPORT_FK

EVENT_COMMENT
EVENT_COMMENT_ID	<pk>	NUMBER(16)	not null
EVENT_REPORT_ID	<fk>	NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null
STATUS		VARCHAR2(10)	null

EVENT_COMMENT_PK
SYS_C0011902_PK2

EXT_DOC
EXT_DOC_ID	<pk>	NUMBER(16)	not null
FILEPATH		VARCHAR2(80)	null
FILENAME		VARCHAR2(18)	null
EVENT_REPORT_ID	<fk>	NUMBER(16)	null

EXT_DOC_PK
EXT_DOC_FK

Crossings

RIGHT_OF_WAY
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
PARCEL_NUMBER		VARCHAR2(16)	null
OWNER_NAME		VARCHAR2(50)	null
PROPERTY_WIDTH		NUMBER(10)	null
EASEMENT_WIDTH		NUMBER(10)	null
ADDRESS		NUMBER(10)	null
STATUS		CHAR(1)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

RIGHT_OF_WAY_PK

ROUTING_NOTE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	null
FIELD_BOOK_NUMBER		CHAR(16)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

ROUTING_NOTE_PK
ROUTING_NOTE_FK2

SHEET_NOTE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	null
FIELD_BOOK_NUMBER		CHAR(16)	null
CODE		CHAR(3)	null
SCALED		CHAR(1)	null
DIRECTION		CHAR(1)	null
WIDTH		NUMBER(4)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

SHEET_NOTE_PK
SHEET_NOTE_FK1
SHEET_NOTE_FK2

CROSSING_NOTE_TYPE
TYPE_CL	<pk>	CHAR(3)	not null
GROUP_NAME		VARCHAR2(30)	null
DESCRIPTION		VARCHAR2(50)	null
NOTE_FORMAT		VARCHAR2(30)	null
SORT_KEY		SMALLINT	null
TABLE_TYPE_CODE		SMALLINT	null
SYMBOL1		VARCHAR2(10)	null
SYMBOL2		VARCHAR2(10)	null
CELL_NAME		VARCHAR2(10)	null
BLOCK_NAME		VARCHAR2(10)	null
ACTIVE_INDICATOR_LF		CHAR(1)	null

CROSSING_NOTE_TYPE_PK

WATERWAY
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	null
PROTECTED		CHAR(1)	null
INTERSECTION_ANGLE		NUMBER(3)	null
SCALED		CHAR(1)	null
DIRECTION		CHAR(1)	null
FIELD_BOOK_NUMBER		CHAR(16)	null
WIDTH		NUMBER(4)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

WATERWAY_PK
WATERWAY_FK2

ROAD
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	null
SURFACE_CL	<fk>	VARCHAR2(16)	null
INTERSECTION_ANGLE		NUMBER(3)	null
FIELD_BOOK_NUMBER		CHAR(16)	null
SCALED		CHAR(1)	null
DIRECTION		CHAR(1)	null
WIDTH		NUMBER(4)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

ROAD_PK
ROAD_FK2

RAILROAD
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	null
OPERATOR_CL	<fk>	VARCHAR2(16)	null
INTERSECTION_ANGLE		NUMBER(3)	null
FIELD_BOOK_NUMBER		CHAR(16)	null
SCALED		CHAR(1)	null
DIRECTION		CHAR(1)	null
WIDTH		NUMBER(4)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

RAILROAD_PK
RAILROAD_FK2

FOREIGN_LINE_CROSSING
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	CHAR(3)	not null
DESCRIPTION		VARCHAR2(50)	null
OWNER_CL	<fk>	VARCHAR2(16)	null
CROSS_ORDER_CODE		CHAR(1)	null
LINE_CLEARANCE		NUMBER(4,1)	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
FOREIGN_DIAMETER		NUMBER(5,3)	null
CROSSING_DATE		DATE	null
INTERSECTION_ANGLE		NUMBER(3)	null
FIELD_BOOK_NUMBER		CHAR(16)	null
SCALED		CHAR(1)	null
DIRECTION		CHAR(1)	null
WIDTH		NUMBER(4)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

FOREIGN_LINE_CROSSING_PK
FOREIGN_LINE_CROSSING_FK2
FOREIGN_LINE_CROSSING_FK3
FOREIGN_LINE_CROSSING_FK5

Regulatory Compliance

DOT_CLASS
EVENT_ID	<pk,fk>	NUMBER(16)	not null
CLASS_RATING_CL	<fk>	VARCHAR2(16)	not null
DOT_CLASS_DESIGN		VARCHAR2(16)	null
DOT_CLASS_METHOD_CL	<fk>	VARCHAR2(16)	null
DETERMINATION_DATE		DATE	null
INDICATE_CROR		CHAR(1)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

DOT_CLASS

MAOP_RATING
EVENT_ID	<pk,fk>	NUMBER(16)	not null
MAOP_RATING		NUMBER(5)	null
MOP		INTEGER	null
DETERMINATION_METHOD_CL	<fk>	VARCHAR2(16)	not null
DETERMINATION_DATE		DATE	null
VERIFIED_BY		VARCHAR2(32)	null
ESTABLISHED_BY		VARCHAR2(255)	null
LIMITING_FACTORS		VARCHAR2(255)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

MAOP_PK
MAOP_FK1

GF_PRESSURE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
PRESSURE_RATING		INTEGER	not null
HIGH_PRESSURE_DATE		DATE	null
DETERMINATION_DATE		DATE	null
VERIFIED_BY		VARCHAR2(32)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

GF_PRESSURE_PK

TEST_PRESSURE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TEST_TYPE	<fk>	VARCHAR2(16)	not null
TEST_DATE		DATE	null
TEST_MEDIUM		CHAR(1)	null
TEST_PRESSURE		INTEGER	not null
DURATION_HOURS		NUMBER(3)	null
TEST_STATION		NUMBER(10,1)	null
TEST_STATION_ELEV		NUMBER(5)	null
MAX_ELEVATION		NUMBER(5)	null
MIN_ELEVATION		NUMBER(5)	null
TEST_DISTANCE		NUMBER(9,1)	null
MIN_PRESSURE		NUMBER(16)	null
MAX_PRESSURE		NUMBER(16)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null
REPORT_NUMBER		VARCHAR2(15)	null

TEST_PRESSURE_PK

LEAK_HISTORY
EVENT_ID	<pk,fk>	NUMBER(16)	not null
LEAK_REPORT_DATE		DATE	null
PRODUCT_CL	<fk>	CHAR(3)	null
VOLUME_LOST		NUMBER(16)	null
PRIMARY_CAUSE_CL	<fk>	VARCHAR2(16)	not null
REPAIR_TYPE_CL	<fk>	VARCHAR2(16)	not null
REPAIR_DATE		DATE	null
REPAIR_COST		DECIMAL(8,2)	null
LOST_PRODUCT_COST		DECIMAL(8,2)	null
REMEDIATION_COST		DECIMAL(8,2)	null
BUSINESS_INTERRUPTION_COST		DECIMAL(8,2)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

LEAK_HISTORY_PK

CASING
EVENT_ID	<pk,fk>	NUMBER(16)	not null
CROSSING_TYPE_CL	<fk>	VARCHAR2(16)	not null
DATE_INSTALLED		DATE	null
INSULATOR_TYPE_CL	<fk>	VARCHAR2(16)	null
SEAL_TYPE_CL	<fk>	VARCHAR2(16)	null
VENTED_INDICATOR_LF		CHAR(1)	null
QUANTITY_OF_VENTS		NUMBER(8)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
MILL_LOCATION_CL	<fk>	VARCHAR2(16)	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
PIPE_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
SMYS	<fk>	INTEGER	null
NOMINAL_DIAMETER	<fk>	NUMBER(6,4)	not null
NOMINAL_WALL_THICKNESS	<fk>	NUMBER(6,4)	not null
LENGTH		DOUBLE PRECISION	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

CASING_PK

EXTERNAL_COATING
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
PRODUCT_NAME		VARCHAR2(32)	null
APPLICATOR_CL	<fk>	VARCHAR2(16)	null
WHERE_COATING_APPLIED_CL	<fk>	VARCHAR2(16)	not null
DATE_APPLIED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

EXTERNAL_COATING_PK

INTERNAL_COATING
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
PRODUCT_NAME		VARCHAR2(32)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

INTERNAL_COATING_PK

VALVE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
VALVE_IDENTIFIER		VARCHAR2(16)	not null
NAME		VARCHAR2(32)	null
NOMINAL_INLET_DIAMETER	<fk>	NUMBER(6,4)	null
NOMINAL_OUTLET_DIAMETER	<fk>	NUMBER(6,4)	null
TYPE_CL	<fk>	VARCHAR2(16)	not null
SERIAL_NUMBER		VARCHAR2(32)	null
MODEL_NUMBER		VARCHAR2(32)	null
PURCHASE_ORDER_NUMBER		VARCHAR2(16)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
VALVE_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
MILL_TEST_PRESSURE		INTEGER	null
NOMINAL_PRESSURE_RATING		INTEGER	null
NOMINAL_PRESSURE_RATING_INLET		INTEGER	null
NOMINAL_PRESSURE_RATING_OUTLET		INTEGER	null
DATE_INSTALLED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

VALVE_PK

VALVE_OPERATOR
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
SERIAL_NUMBER		VARCHAR2(32)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

RIVER_WEIGHT
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
QUANTITY		NUMBER(6)	null
WEIGHT_EACH		NUMBER(6,2)	null
SPACING_DISTANCE		NUMBER(8,2)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

RIVER_WEIGHT_PK

LAUNCHER_RECEIVER
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
NAME		VARCHAR2(50)	null
BARREL_DIAMETER		NUMBER(5,3)	not null
BARREL_LENGTH		NUMBER(5,3)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

LAUNCHER_RECEIVER_PK

Pipeline Facility

PIPE_SEGMENT
EVENT_ID	<pk,fk>	NUMBER(16)	not null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
PURCHASE_ORDER_NUMBER		VARCHAR2(16)	null
MILL_LOCATION_CL	<fk>	VARCHAR2(16)	null
MILL_TEST_PRESSURE		INTEGER	null
PIPE_SPEC_CL	<fk>	VARCHAR2(16)	null
PIPE_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
SMYS	<fk>	INTEGER	null
NOMINAL_DIAMETER	<fk>	NUMBER(6,4)	not null
NOMINAL_WALL_THICKNESS	<fk>	NUMBER(6,4)	not null
LONGITUDINAL_SEAM_CL	<fk>	VARCHAR2(16)	null
BEGIN_ATTACHED_FABRICATION_LF		CHAR(1)	null
END_ATTACHED_FABRICATION_LF		CHAR(1)	null
PART_OF_FABRICATION_LF		CHAR(1)	null
DATE_INSTALLED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

PIPE_SEGMENT_PK

SLEEVE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
OUTSIDE_DIAMETER		NUMBER(6,4)	null
NOMINAL_WALL_THICKNESS		NUMBER(6,4)	null
PART_OF_FABRICATION_LF		CHAR(1)	null
ATTACHED_FAB		NUMBER(10)	null
SLEEVE_SPEC_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
SLEEVE_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
MILL_TEST_PRESSURE		INTEGER	null
NOMINAL_PRESSURE_RATING		INTEGER	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

SLEEVE_PK

CLOSURE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
NOMINAL_DIAMETER		NUMBER(6,4)	null
NOMINAL_WALL_THICKNESS		NUMBER(6,4)	null
ATTACHED_TO_FABRICATION_LF		CHAR(1)	null
PART_OF_FABRICATION_LF		CHAR(1)	null
CLOSURE_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
NOMINAL_PRESSURE_RATING		INTEGER	null
MILL_TEST_PRESSURE		INTEGER	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

CLOSURE_PK

ELBOW
EVENT_ID	<pk,fk>	NUMBER(16)	not null
NOMINAL_DIAMETER		NUMBER(6,4)	null
NOMINAL_WALL_THICKNESS		NUMBER(6,4)	null
ANGLE		NUMBER(5)	null
RADIUS		NUMBER(5)	null
ATTACHED_TO_FABRICATION_LF		CHAR(1)	null
PART_OF_FABRICATION_LF		CHAR(1)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
ELBOW_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
NOMINAL_PRESSURE_RATING		INTEGER	null
MILL_TEST_PRESSURE		INTEGER	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

ELBOW_PK

PIPE_BEND
EVENT_ID	<pk,fk>	NUMBER(16)	not null
BEND_TYPE_CL	<fk>	VARCHAR2(16)	not null
BEND_TECHNIQUE_CL	<fk>	VARCHAR2(16)	null
BEND_RADIUS		NUMBER(5,1)	null
HORIZ_ANGLE		NUMBER(5,3)	null
VERT_ANGLE		NUMBER(5,3)	null
FABRICATOR_NAME_CL	<fk>	VARCHAR2(16)	null
FABRICATION_LOCATION_CL	<fk>	VARCHAR2(16)	null
FABRICATION_DATE		DATE	null
INSTALL_DATE		DATE	null
FABRICATION_FLAG		CHAR(1)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

PIPE_BEND_PK

FLANGE
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
NOMINAL_DIAMETER		NUMBER(6,4)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
FLANGE_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
NOMINAL_PRESSURE_RATING		INTEGER	null
MILL_TEST_PRESSURE		INTEGER	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

FLANGE_PK

REDUCER
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
NOMINAL_DIAMETER_INLET		NUMBER(6,4)	null
NOMINAL_DIAMETER_OUTLET		NUMBER(6,4)	null
NOMINAL_WALL_THICKNESS_INLET		NUMBER(6,4)	null
NOMINAL_WALL_THICKNESS_OUTLET		NUMBER(6,4)	null
REDUCER_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
NOMINAL_PRESSURE_RATING		INTEGER	null
MILL_TEST_PRESSURE		INTEGER	null
MATERIAL_CL	<fk>	VARCHAR2(16)	null
DATE_MANUFACTURED		DATE	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

REDUCER_PK

METER
EVENT_ID	<pk,fk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
METER_NUMBER		VARCHAR2(32)	null
SERIAL_NUMBER		VARCHAR2(32)	null
MANUFACTURER_CL	<fk>	VARCHAR2(16)	null
METER_SPECIFICATION_CL	<fk>	VARCHAR2(16)	null
NOMINAL_PRESSURE_RATING		INTEGER	null
MILL_TEST_PRESSURE		INTEGER	null
DATE_MANUFACTURED		DATE	null
VANES_LF		CHAR(1)	null
SOURCE		NUMBER(16)	null
COMMENTS		VARCHAR2(255)	null

METER_PK

STRUCTURE
STRUCTURE_ID	<pk>	NUMBER(16)	not null
TYPE_CL	<fk>	VARCHAR2(16)	not null
DESCRIPTION		VARCHAR2(254)	null
FAMILY_UNITS		NUMBER(5)	null
INCLUSION_DATE		DATE	null
EXCLUSION_DATE		DATE	null
SOURCE		N