# Table of Contents

1. **Contacts** .................................................................................................................................................. 3  
   1.1. State Pipeline Mapping System ........................................................................................................... 3  
   1.2. National Pipeline Mapping System ..................................................................................................... 3  

2. **Internet Addresses** ................................................................................................................................ 3  

3. **List of Acronyms** ....................................................................................................................................... 4  

4. **Introduction** ............................................................................................................................................ 5  

5. **Naming Conventions** .............................................................................................................................. 5  

6. **Submission Standards** ............................................................................................................................ 6  
   6.1. Attribute .................................................................................................................................................. 6  
   6.2. Geospatial Data ....................................................................................................................................... 6  
   6.3. Accuracy ................................................................................................................................................ 7  
   6.4. Electronic Submissions .......................................................................................................................... 7  
   6.5. Quality Procedures ............................................................................................................................... 8  

7. **Pipeline Feature Class Attribute Data** .................................................................................................... 8  

8. **Start and End Point Feature Attribute Data** ............................................................................................ 9  

9. **Event Attribute Tables for Age, Category, Commodity and Diameter** ...................................................... 10  
   9.1. Age Event Attribute Table .................................................................................................................... 10  
   9.2. Category Event Attribute Table .......................................................................................................... 11  
   9.3. Commodity Event Attribute Table ...................................................................................................... 12  
   9.4. Diameter Event Attribute Table .......................................................................................................... 14  

10. **Breakout Tank Submissions** .................................................................................................................. 14  
    10.1. Types of OSFM Breakout Tank Submissions ...................................................................................... 15  
    10.2. Breakout Tank Submission Form ...................................................................................................... 15  
    10.3. Submitting via ESRI Format ............................................................................................................. 15  

11. **Examples, Scenarios & Attribute Information** ...................................................................................... 19  
    11.1. Line, Point and Event Attribute Information ..................................................................................... 19  

12. **OPERATOR SUBMISSION CHECKLIST** ............................................................................................... 22
1. Contacts

If you have any questions regarding this document, or the requirements described here, please contact the representative listed below at CALFIRE - Office of the State Fire Marshal, Pipeline Safety Division.

1.1. State Pipeline Mapping System

Lisa Dowdy – GIS Analyst
CALFIRE - Office of the State Fire Marshal
Pipeline Safety Division
2180 Harvard St #200
Sacramento, CA  95815
Tel: (916) 263-6303
lisa.dowdy@fire.ca.gov

Kate Gladstein – GIS Analyst
CALFIRE - Office of the State Fire Marshal
Pipeline Safety Division
2180 Harvard St #200
Sacramento, CA  95815
Tel: (916) 263-6305
kate.gladstein@fire.ca.gov

1.2. National Pipeline Mapping System

Amy Nelson – GIS Manager
U.S. Department of Transportation
400 7th Street, S.W.
Washington, D.C. 20590
Tel: (202) 493-0591
Fax: (202) 366-4566
amy.nelson@dot.gov

2. Internet Addresses

National Pipeline Mapping System  www.npms.phmsa.dot.gov
CA Department of Forestry  www.fire.ca.gov
Office of the State Fire Marshal  http://osfm.fire.ca.gov
3. List of Acronyms

AA..............................Anhydrous Ammonia
ABD............................Abandoned
AIR..............................Air
BDB.............................Biodiesel Blend
CO2..............................Carbon Dioxide
CRD.............................Crude Oil
EPL.............................Abandoned Pipeline
ETH.............................Fuel Grade Ethanol
GAS..............................Natural Gas
GIS.............................Geographic Information System
HVL.............................Highly Volatile Liquid
JTF.............................Jet Fuel
LPG.............................Liquefied Petroleum Gas
MUD.............................Drilling Mud
NGL.............................Natural Gas Liquids
NGS.............................Natural Gasoline
NLS.............................Non Rural Low Stress
NOJ.............................Non Jurisdictional
NPMS..........................National Pipeline Mapping System
NTG.............................Nitrogen
OFP.............................Offshore Pipeline/State Waters
OOS.............................Out of Service
OSFM..........................Office of the State Fire Marshal
PPS.............................Pipeline, Pipeline Segment or Pipeline System
REF.............................Refined Products (non HVL)
RGL.............................Rural Gathering Line
RLS.............................Rural Low Stress
UGL.............................Urban Gathering Line
USGS..........................United States Geological Survey
WTR.............................Water
4. Introduction

The CALFIRE - Office of the State Fire Marshal (OSFM) State Pipeline Mapping System is a Geographic Information System (GIS), housed in the Pipeline Safety Division. Created by State AB 592, the OSFM Pipeline Mapping System’s intent is to map all OSFM jurisdictional pipelines.

The State Pipeline Mapping System contains the location and selected attributes of hazardous liquid pipelines and breakout tanks. The State submission standards have a positional accuracy goal of ±100 feet and require event attribute tables for AGE, DIAMETER, CATEGORY and COMMODITY. Breakout tank submissions are discussed in Section 7.

5. Naming Conventions

For each operator submission, the operator will submit one File Geodatabase containing all the required feature classes and associated tables. The operator is required to submit their File Geodatabase in a zip file. Please use the follow naming conventions below for your File Geodatabase, feature classes AND associated event attribute tables:

Geodatabase Name:

- `{OperatorName}_{Year}`
- `{OperatorName}` should have no spaces or special characters
- `{Year}` should be the year the data is being submitted for

Feature Class Names:

- `{OperatorName}_Pipelines`
- `{OperatorName}_Points`

Event Attribute Table Names:

- `{OperatorName}_Age`
- `{OperatorName}_Category`
- `{OperatorName}_Commodity`
- `{OperatorName}_Diameter`

Example – Event Attribute Tables
6. Submission Standards

6.1. Attribute

Operators are required to provide descriptive information about the pipelines when submitting data to the OSFM State Pipeline Mapping System. The attribute data is essential information about the pipeline, and it is significantly different from the spatial data. There is, however, a unique relationship between the attribute data and the spatial data. In a feature class, each record in the attribute table defines one spatial feature, and vice versa. Therefore, there must be an equal number of records in the attribute table as there are linear features or points features in the spatial component. The State standard reflects portions of the national standard, except for the additional required attributes of AGE, CATEGORY, COMMODITY and DIAMETER.

Attribute data must be submitted within a FILE GEODATABASE. One FILE GEODATABASE shall include all the following:

- Pipeline feature class
- Pipeline Start/End Point feature class
- Age event attribute table
- Category event attribute table
- Commodity event attribute table
- Diameter event attribute table

In all cases, operators should be careful to follow the field name, field type, and field length standards listed in Tables 1-7.

6.2. Geospatial Data

Geospatial data represents pipeline systems (linear) and start/end data (point) elements. Pipeline and point data must be submitted in a FILE GEODATABASE. Please contact the OSFM, Pipeline Safety Division if you are unable to meet this standard. All submissions should meet the ±100-foot accuracy standard. Each pipeline must be represented by a linear feature. Polygon features will not be accepted. Due to the Age, Diameter, Category and Commodity requirement, direction of the line will mark direction of the pipeline flow. In the case of multiple flow pipelines, the direction of the line should point in the primary flow direction.

The following discusses various requirements and formats that operators should meet when submitting digital geospatial data.

1. Use NAD 1983 California (Teale) Albers (US FEET). In all cases, clearly state the datum, coordinate system/projection, and measurement units on the accompanying metadata form.
2. Provide spatially accurate data. The state pipeline mapping system strives for minimum accuracy of ±100 feet. The spatial accuracy of the digital submission should be clearly stated on the accompanying metadata form.

3. Always submit pipeline systems (lines), start/end (points) and associated attribute tables in your FILE GEODATABASE.

4. Review data for quality. Common problems include: start/end points not snapped to pipelines, overshoots and undershoots at pipeline intersections, gaps in lines, stray points and lines that do not represent a pipeline or start/end point, duplicate points and lines.

6.3. Accuracy

Accuracy standards will be enforced for both spatial and attribute data. If any attribute data deviates from the required standards, OSFM Staff will first try to correct the deviation. If the only solution will require significant data changing, the submission will not be accepted. Data deemed unacceptable will be returned to operators for correction and subsequent resubmission. Attribute data quality must be ensured and will go through a rigorous quality control process.

Spatial data accuracy will meet or exceed United State Geologic Survey spatial data standards for 1:24,000 scale topographic quadrangle maps. USGS 1:24000 scale standard meets the OSFM required positional accuracy goal of ±100 feet.

6.4. Electronic Submissions

Electronic submissions must be an acceptable media format, free from virus, and meet the standards set forth below:

Format
   All files must be submitted in an electronic file format and within a file geodatabase. The file geodatabase must be zipped and submitted via email to: Lisa Dowdy lisa.dowdy@fire.ca.gov

Projection
   All file geodatabases and attribute tables must be in the following projection: NAD 1983 California (Teale) Albers (US FEET)

Linkage
   Each spatial feature must be linked clearly to an individual attribute record, with a complete set of required attributes.” (See Sections 3 & 4)

Metadata
   Metadata submissions must be made with each data submission. Use the Office of the State Fire Marshal, Pipeline Safety Division’s, Standard Metadata Template. https://osfm.fire.ca.gov/divisions/pipeline-safety-and-cupa/geographic-information-systems/
6.5. Quality Procedures

After the OSFM receives and inputs all data, we will perform several in-house quality control procedures to ensure completeness and correctness in both spatial and attribute characteristics. Spatial accuracy will be ensured through a rigorous registration process. Attribute completeness will be ensured by checking each entered record for properly entered values.

7. Pipeline Feature Class Attribute Data

Operators are required to provide descriptive information about the pipelines when submitting data to the OSFM’s State Pipeline Mapping System. The attribute data is essential information about the pipeline such as operator name, CSFM LID, system name and length (in feet). To simplify the submission, the required attribute data has been kept to a minimum. Operators are required to create a table using the fields shown in Table 1 (pipeline features) and Table 2 (start/end points) in this document.

Each pipeline submitted must be accompanied by a corresponding record(s) and attribute database table. Pipeline features must be in the following coordinate system: NAD 1983 CALIFORNIA (TEALE) ALBERS (US FEET).

Create a Pipeline Feature Attribute Table as seen below in Table 1 (OperatorName_Pipelines)

TABLE 1

Pipeline Line Feature Class Attribute Table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Type</th>
<th>Field Length</th>
<th>Short Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Required Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLINE_ID</td>
<td>String</td>
<td>4</td>
<td>Pipeline ID</td>
<td>Assigned by the State Fire Marshal. This is a unique numeric identifier for a specific pipeline</td>
<td>Character</td>
<td>Yes</td>
</tr>
<tr>
<td>OPER_NM</td>
<td>String</td>
<td>40</td>
<td>Operator Name</td>
<td>The company name that physically operates the pipeline system.</td>
<td>Character</td>
<td>Yes</td>
</tr>
<tr>
<td>SYS_NM</td>
<td>String</td>
<td>40</td>
<td>System Name</td>
<td>Assigned by the operator. The operator's name for a functional grouping of pipelines.</td>
<td>Character</td>
<td>Yes</td>
</tr>
<tr>
<td>FROM_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Start Measure Value (Feet)</td>
<td>The start measure value for where the specific pipeline or pipeline segment begins.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>TO_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>End Measure Value (Feet)</td>
<td>The end measure value for where the specific pipeline or pipeline segment ends.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
</tbody>
</table>
8. Start and End Point Feature Attribute Data

Point features represent the start and end point of each line feature. Start and end points MUST BE placed exactly on the end of the pipeline; there cannot be any gaps between the pipeline and start/end points.

Create a Start and End Point Attribute Table as seen below in Table 2 (%OperatorName%_Points)

**Points must be placed exactly on each end of the pipeline; there should be only one Start point and one End point per pipeline ID**

TABLE 2

Pipeline Point Feature Class Attribute Table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Type</th>
<th>Field Length</th>
<th>Short Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Required Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLINE_ID</td>
<td>String</td>
<td>4</td>
<td>Pipeline ID</td>
<td>Assigned by the State Fire Marshal. This is a unique numeric identifier for a specific pipeline</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>TYPE</td>
<td>String</td>
<td>5</td>
<td>Point Type</td>
<td>The point type defining if the point is a start or end point. There should only be one start point and one end point for each line id. Do not include points for where there are gaps or multiple pipeline segments.</td>
<td>START; END</td>
<td>Yes</td>
</tr>
<tr>
<td>MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Measure Value (Feet)</td>
<td>The measure value for where the specific start or end point fall on the specific pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
</tbody>
</table>

TABLE 2 - EXAMPLE

<table>
<thead>
<tr>
<th>OBJECTID</th>
<th>SHAPE</th>
<th>PLINE_ID</th>
<th>TYPE</th>
<th>MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Point</td>
<td>0000</td>
<td>START</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Point</td>
<td>0000</td>
<td>END</td>
<td>26140</td>
</tr>
<tr>
<td>3</td>
<td>Point</td>
<td>9999</td>
<td>START</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Point</td>
<td>9999</td>
<td>END</td>
<td>12584</td>
</tr>
</tbody>
</table>
9. Event Attribute Tables for Age, Category, Commodity and Diameter

Pipeline Age is required pursuant to California Government Code, Section 51010.5 and State standards require Category and Diameter. An event attribute table must be submitted for each required type (Age, Category, Commodity and Diameter). Each Event Attribute Table must include a FROM MEASURE and TO MEASURE record for each pipeline. The maximum TO MEASURE record for the pipeline must match the LENGTH field of the Pipeline Feature Attribute Table so that each PLINE ID has an event feature record for the entire line and not just a portion of it. There should be no skips in measure values from minimum FROM MEASURE to maximum TO MEASURE for a pipeline. Values should be continuous from 0 to the length of the line.

9.1. Age Event Attribute Table

Create an Age Event Attribute Table as seen below in Table 3 (OperatorName.Age)

**All event attribute tables must have a FROM_MEASURE and TO_MEASURE field that is in Feet. Maximum TO_MEASURE record for the pipeline must match the LENGTH field of the Pipeline Feature Attribute Table. There should be no skips in measure values from minimum FROM_MEASURE to maximum TO_MEASURE for a pipeline.
TABLE 3

Age Event Attribute Table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Type</th>
<th>Field Length</th>
<th>Short Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Required Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLINE_ID</td>
<td>String</td>
<td>4</td>
<td>Pipeline ID</td>
<td>Assigned by the State Fire Marshal. This is a unique numeric identifier for a specific pipeline</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>AGE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Age (Year)</td>
<td>Year the section of pipeline was built or replaced</td>
<td>Character</td>
<td>Yes</td>
</tr>
<tr>
<td>AGE_STATUS</td>
<td>String</td>
<td>1</td>
<td>Age Status Code</td>
<td>The status code for the section of the pipeline. (B)uilt, (R)eplaced</td>
<td>B; R</td>
<td>Yes</td>
</tr>
<tr>
<td>FROM_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Start Measure Value (Feet)</td>
<td>The start measure value for where the specific age event begins along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>TO_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>End Measure Value (Feet)</td>
<td>The end measure value for where the specific age event ends along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
</tbody>
</table>

TABLE 3 EXAMPLE - AGE EVENT ATTRIBUTE TABLE

<table>
<thead>
<tr>
<th>OBJECTID *</th>
<th>PLINE_ID</th>
<th>AGE</th>
<th>AGE_STATUS</th>
<th>FROM_MEASURE</th>
<th>TO_MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0000</td>
<td>1991</td>
<td>R</td>
<td>0</td>
<td>11057</td>
</tr>
<tr>
<td>2</td>
<td>0000</td>
<td>1958</td>
<td>B</td>
<td>11057</td>
<td>26140</td>
</tr>
</tbody>
</table>

9.2. Category Event Attribute Table

Create a Category Event Attribute Table as seen below in Table 4 (OperatorName_Category)

** All event attribute tables must have a FROM_MEASURE and TO_MEASURE field that is in Feet. Maximum TO_MEASURE record for the pipeline must match the LENGTH field of the Pipeline Feature Attribute Table. There should be no skips in measure values from minimum FROM_MEASURE to maximum TO_MEASURE for a pipeline.
### TABLE 4

**Category Event Attribute Table**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Type</th>
<th>Field Length</th>
<th>Short Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Required Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLINE_ID</td>
<td>String</td>
<td>4</td>
<td>Pipeline ID</td>
<td>Assigned by the State Fire Marshal. This is a unique numeric identifier for a specific pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>CATEGORY – in Priority Order</td>
<td>String</td>
<td>3</td>
<td>Pipeline category</td>
<td>Abbreviation of pipeline category in priority order. RGL=Rural Gathering Line; RLS=Rural Low Stress; OFP=Offshore Pipeline/State Waters; OOS=Out-of-Services (Idle, Purged of Hazardous Liquid); UGL=Urban Gathering Line; NLS=Non Rural Low Stress; PPS=Pipeline, Pipeline Segment or Pipeline System, ABD=Abandoned, NOJ=Non Jurisdictional</td>
<td>RGL; RLS; OFP; OOS; UGL; NLS; PPS; ABD; NOJ</td>
<td>Yes</td>
</tr>
<tr>
<td>FROM_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Start Measure Value (Feet)</td>
<td>The start measure value for where the specific category event begins along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>TO_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>End Measure Value (Feet)</td>
<td>The end measure value for where the specific category event ends along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**TABLE 4 EXAMPLE – CATEGORY EVENT ATTRIBUTE TABLE**

<table>
<thead>
<tr>
<th>OBJECTID</th>
<th>PLINE_ID</th>
<th>CATEGORY</th>
<th>FROM_MEASURE</th>
<th>TO_MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0000</td>
<td>PPS</td>
<td>0</td>
<td>21375</td>
</tr>
<tr>
<td>2</td>
<td>0000</td>
<td>OOS</td>
<td>21375</td>
<td>26140</td>
</tr>
</tbody>
</table>

#### 9.3. Commodity Event Attribute Table

Create a Commodity Event Attribute Table as seen below in **Table 5 (OperatorName_Combomity)**

** All event attribute tables must have a FROM_MEASURE and TO_MEASURE field that is in Feet. Maximum TO_MEASURE record for the pipeline must match the LENGTH field of the Pipeline Feature Attribute Table. There should be no skips in measure values from minimum FROM_MEASURE to maximum TO_MEASURE for a pipeline.  **NOTE:**
Pipelines shipping multiple refined products should have a **REF** commodity code.

**TABLE 5**

Commodity Event Attribute Table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Type</th>
<th>Field Length</th>
<th>Short Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Required Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLINE_ID</td>
<td>String</td>
<td>4</td>
<td>CSFM Line ID</td>
<td>California State Fire Marshal’s unique identifier for the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>COMMODITY</td>
<td>String</td>
<td>3</td>
<td>Commodity Category</td>
<td>Abbreviation for the primary commodity carried by the pipeline system. CRD=Crude Oil; REF=Refined Products (non-HVL); JTF=Jet Fuel (only); NGS=Natural Gasoline; LPG=Liquified Petroleum Gas; NGL=Natural Gas Liquids; CO2=Carbon Dioxide; AA=Anhydrous Ammonia; HVL=Highly Volatile Liquid, Butane or Propane; ETH=Fuel Grade Ethanol; BDB=Biodiesel Blend; EPL=Abandoned Pipelines that Previously Transported a Liquid; WTR=Water; NTG=Nitrogen; MUD=Drilling Mud; GAS=Natural Gas; AIR=Air</td>
<td>CRD; REF; JTF; NGS; LPG; NGL; CO2; AA; HVL; ETH; BDB; EPL; WTR; NTG; MUD; GAS; AIR</td>
<td>Yes</td>
</tr>
<tr>
<td>FROM_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Start Measure Value (Feet)</td>
<td>The start measure value (feet) for where the specific commodity event change begins along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>TO_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>End Measure Value (Feet)</td>
<td>The end measure value (feet) for where the specific commodity event change ends along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**TABLE 5 EXAMPLE – COMMODITY EVENT ATTRIBUTE TABLE**
9.4. Diameter Event Attribute Table

Create a Diameter Event Attribute Table as seen below in Table 6 (\{OperatorName\}_Diameter)

** All event attribute tables must have a FROM_MEASURE and TO_MEASURE field that is in Feet. Maximum TO_MEASURE record for the pipeline must match the LENGTH field of the Pipeline Feature Attribute Table. There should be no skips in measure values from minimum FROM_MEASURE to maximum TO_MEASURE for a pipeline.

### TABLE 6

Diameter Event Attribute Table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Type</th>
<th>Field Length</th>
<th>Short Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Required Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLINE_ID</td>
<td>String</td>
<td>4</td>
<td>CSFM Line ID</td>
<td>California State Fire Marshal's unique identifier for the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>DIAMETER</td>
<td>Double</td>
<td>5</td>
<td>Diameter</td>
<td>Nominal diameter of the pipeline segment, in inches (three decimal places if applicable, #.#.#)</td>
<td>Real Number</td>
<td>Yes</td>
</tr>
<tr>
<td>FROM_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>Start Measure Value (Feet)</td>
<td>The start measure value (feet) for where the specific commodity event change begins along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
<tr>
<td>TO_MEASURE</td>
<td>Long Integer</td>
<td>N/A</td>
<td>End Measure Value (Feet)</td>
<td>The end measure value (feet) for where the specific commodity event change ends along the pipeline.</td>
<td>Positive Integer</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### TABLE 6 EXAMPLE – DIAMETER EVENT ATTRIBUTE TABLE

<table>
<thead>
<tr>
<th>PLINE_ID</th>
<th>DIAMETER</th>
<th>FROM_MEASURE</th>
<th>TO_MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>8</td>
<td>0</td>
<td>3897</td>
</tr>
<tr>
<td>0000</td>
<td>6</td>
<td>3897</td>
<td>11057</td>
</tr>
<tr>
<td>0000</td>
<td>10.75</td>
<td>11057</td>
<td>26140</td>
</tr>
</tbody>
</table>

10. Breakout Tank Submissions

The OSFM State Pipeline Mapping System accepts data submissions for breakout tanks under OSFM jurisdiction. OSFM accepts breakout tank data in the following formats:

- ESRI Shapefile

To complete the submission, operators are required to provide geospatial and attribute
information for each individual tank they operate and answer all question on the Breakout Tank Submission form. **Table 7** show the attribute table for breakout tank data.

### 10.1. Types of OSFM Breakout Tank Submissions

Operators must classify breakout tank submissions as one of the following types. The type of submission must be identified on the Breakout Tank Metadata accompanying the submission.

**INI – Initial Submissions** to the OSFM contain data submitted for the first time for a given operator. If an operator has previously submitted data, then you cannot make an Initial Submission again. The revision code (SUB_TYPE) of all tanks should be set to “A” for addition.

**FRP – Full Replacement Submission** should be made whenever it is necessary to apply changes to your data. A full replacement must include all operator data because it will replace all previously submitted data. The revision codes (SUB_TYPE) for tanks are “M” for modification or “A” for addition.

**RMV – Removal of Submission** should only be made when all the data for an operator needs to be removed. Either the breakout tanks were sold and are no longer operated by the company or the breakout tanks are no longer in use and were dismantled. If either one of these situations describes all the breakout tanks for an operator, you can make a Removal request. For a Removal request, please complete the Breakout Tank Submission form. Under Question 1 of the Breakout Tank Submission form include an explanation of why all the data for the operator should be removed, including the effective date for the change. If the breakout tanks were sold, include the transaction date, company name, and phone number where staff can reach the new operator.

If either of these scenarios describes only **some** of the breakout tanks you must make a Full Replacement Submission submitting only the active breakout tanks operated by the company.

### 10.2. Breakout Tank Submission Form

All breakout tank submissions must be accompanied by a Breakout Tank Submission form. This form is included with the Office of the State Fire Marshal, Pipeline Safety Division’s, Standard Metadata Template. [https://osfm.fire.ca.gov/media/10022/metadata-information.pdf](https://osfm.fire.ca.gov/media/10022/metadata-information.pdf). This form is meant to provide OSFM staff with key information for processing your breakout tank submission, and allow you to communicate any additional information.

### 10.3. Submitting via ESRI Format

Operators are required to submit their data in an ESRI Shapefile or file geodatabase format and should follow the procedure below.

- Create a shapefile/geodatabase named “BOT_<COBILLCODE>_<IU>,” where <COBILLCODE> is your three-digit billing ID with OSFM and <IU> is the inspection unit under which the breakout tanks fall.

- Add the attribute fields identified in Table 7.


• Ensure that the values you enter conform to the “Acceptable Values” column in Table 7.

• Create one record (row) in the attribute table for each tank

• Create one point per breakout tank and ensure that the (fieldname) field contains exactly the same name for each tank in a given tank farm

• Ensure that the mandatory fields identified in the “Required Field” column in Table 7 are populated with data

• Use NAD 1983 California (Teale) Albers (US FEET)

• Longitude and Latitude should be in the following format: decimal degrees with five decimal places (example, -118.22222, 38.44224)

• Zip the shapefile/geodatabase and send it with the Breakout Tank Metadata form to OSFM staff via email to PipelineNotification@fire.ca.gov.
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Length</th>
<th>Description</th>
<th>Full Description</th>
<th>Acceptable Values</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPID</td>
<td>I</td>
<td>5</td>
<td>PHMSA OPS ID</td>
<td>Unique tracking number assigned by PHMSA to the company that physically operates</td>
<td>Positive integer</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>the breakout tank farm. If you do not know your firm’s OPID, check with your</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DOT/Regulator Compliance department or the NPMS website.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C_BILL_NU</td>
<td>I</td>
<td>3</td>
<td>OSFM Operator Billing ID</td>
<td>Unique tracking number assigned by OSFM to the operator that physically operates</td>
<td>Positive integer</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>the breakout tank farm.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMPANY</td>
<td>C</td>
<td>50</td>
<td>Company</td>
<td>Name of the company that physically operates the tank or tank farm.</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>TANK_NAME</td>
<td>C</td>
<td>50</td>
<td>Tank Name</td>
<td>Assigned by operator. The operator’s name for a functional grouping of tanks</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(e.g. tank farm, tank hotel, etc.). The operator’s Facility ID (FAC0000) for a</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>tank/tanks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TANK_ID</td>
<td>C</td>
<td>4</td>
<td>Tank ID</td>
<td>Assigned by OSFM. This is an identifier for a specific tank</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>INSPI_UNIT</td>
<td>C</td>
<td>5</td>
<td>OSFM assigned number</td>
<td>Assigned by OSFM. The inspection unit number assigned to a company (i.e. 0320B)</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>FAC_ID</td>
<td>C</td>
<td>7</td>
<td>OSFM assigned Facility ID</td>
<td>Assigned by OSFM. The operator’s Facility ID (FAC0000) for a tank/tanks</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>COMMODITY</td>
<td>C</td>
<td>50</td>
<td>Abbreviation code for Primary commodity stored in tank</td>
<td>CRD=Crude Oil; REF=Refined Products (non-HVL); JTF=Jet Fuel (only); NGS=</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Natural Gas; LPG=Liquefied Petroleum Gas; NGL=Natural Gas Liquids; CO2=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carbon Dioxide; AA=Anhydrous Ammonia; HVL=Highly Volatile Liquid, Butane or</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Propane; ETH=Fuel Grade Ethanol; BDB=Biodiesel Blend; AIR=Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMODITY2</td>
<td>C</td>
<td>50</td>
<td>Abbreviation code for Secondary commodity stored in tank</td>
<td>CRD=Crude Oil; REF=Refined Products (non-HVL); JTF=Jet Fuel (only); NGS=</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Natural Gas; LPG=Liquefied Petroleum Gas; NGL=Natural Gas Liquids; CO2=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carbon Dioxide; AA=Anhydrous Ammonia; HVL=Highly Volatile Liquid, Butane or</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Propane; ETH=Fuel Grade Ethanol; BDB=Biodiesel Blend; AIR=Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMODITY3</td>
<td>C</td>
<td>50</td>
<td>Abbreviation code for Tertiary commodity stored in tank</td>
<td>CRD=Crude Oil; REF=Refined Products (non-HVL); JTF=Jet Fuel (only); NGS=</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Natural Gas; LPG=Liquefied Petroleum Gas; NGL=Natural Gas Liquids; CO2=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carbon Dioxide; AA=Anhydrous Ammonia; HVL=Highly Volatile Liquid, Butane or</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Propane; ETH=Fuel Grade Ethanol; BDB=Biodiesel Blend; AIR=Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Name</td>
<td>Type</td>
<td>Length</td>
<td>Description</td>
<td>Full Description</td>
<td>Acceptable Values</td>
<td>Field</td>
</tr>
<tr>
<td>-----------------</td>
<td>------</td>
<td>--------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>-------</td>
</tr>
<tr>
<td>MAX_CAP</td>
<td>D</td>
<td>6</td>
<td>Size of Tank</td>
<td>Nominal size of the tank (bbls)</td>
<td>Positive</td>
<td>Y</td>
</tr>
<tr>
<td>DIAMETER</td>
<td>D</td>
<td>5</td>
<td>Tank Diameter</td>
<td>Diameter of the tank</td>
<td>Positive</td>
<td>Y</td>
</tr>
<tr>
<td>HEIGHT</td>
<td>D</td>
<td>5</td>
<td>Tank Height</td>
<td>Height of the tank</td>
<td>Positive</td>
<td>Y</td>
</tr>
<tr>
<td>TANK_TYPE</td>
<td>C</td>
<td>50</td>
<td>Tank description</td>
<td>Type of Tank: Atmospheric; Welded, Low-pressure; Shop- fabricated; High pressure;</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>ROOF_TYPE</td>
<td>C</td>
<td>1</td>
<td>Roof description</td>
<td>Roof Type: E: External Floater  I: Internal Floater  F: Fixed</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>LINING</td>
<td>C (YES/NO)</td>
<td>3</td>
<td>Lining Present</td>
<td>Does the tank have a lining (YES/NO)</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>CP_TYPE</td>
<td>C</td>
<td>20</td>
<td>Type of CP</td>
<td>Does the tank have CP</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>COMMENT</td>
<td>C</td>
<td>100</td>
<td>Explanation</td>
<td>Explain why there is no CP installed</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>ALARM_TYPE</td>
<td>C (YES/NO)</td>
<td>3</td>
<td>Alarm(s) Used</td>
<td>Type of Alarms installed on Tank: H:High, HH: High High, O: Overfill, OT: Other</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>CONST_TYPE</td>
<td>C</td>
<td>50</td>
<td>Tank construction method</td>
<td>Construction Type: Bolted steel, Welded Steel; Rivets, Other</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>CODEBUILT</td>
<td>C</td>
<td>6</td>
<td>Governing Code</td>
<td>Standard used to build tank</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>INSTAL_DATE</td>
<td>I</td>
<td>4</td>
<td>Construction Year</td>
<td>Four-digit year of facility construction (e.g. &quot;1990&quot;).</td>
<td>Positive</td>
<td>Y</td>
</tr>
<tr>
<td>FABRICATOR</td>
<td>C</td>
<td>25</td>
<td>Company who built tank</td>
<td>Company who originally constructed the tank</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>CONTA_TYPE</td>
<td>C</td>
<td>25</td>
<td>Type of containment used</td>
<td>Containment used around tank: 1: concrete wall, 2: Earthen Berm, 3: Other</td>
<td>Positive Integer</td>
<td>Y</td>
</tr>
<tr>
<td>CONT_CAP</td>
<td>I</td>
<td>6</td>
<td>Max containment capacity</td>
<td>Max capacity of containment method (bbl)</td>
<td>Positive Integer</td>
<td>Y</td>
</tr>
<tr>
<td>OWNER</td>
<td>C</td>
<td>60</td>
<td>Facility Owner</td>
<td>Name of the owner of the tank/tank farm</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>FIRSTNAME</td>
<td>C</td>
<td>50</td>
<td>Contact First Name</td>
<td>First name of the person to contact for information regarding the tank/tank farm</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>LASTNAME</td>
<td>C</td>
<td>50</td>
<td>Contact Last Name</td>
<td>Last name of the person to contact for information regarding the tank/tank farm</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>TITLE</td>
<td>C</td>
<td>30</td>
<td>Contact Title</td>
<td>Contact person's title</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>PHONE</td>
<td>C</td>
<td>10</td>
<td>Phone Number</td>
<td>Primary telephone number for the contact person</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>EMAIL</td>
<td>C</td>
<td>50</td>
<td>Email Address</td>
<td>Contact person’s email address.</td>
<td>Character</td>
<td>Y</td>
</tr>
<tr>
<td>LONGITUDE</td>
<td>D</td>
<td>19, 5</td>
<td>Longitudinal Coordinate</td>
<td>The longitudinal coordinate in decimal degree format (e.g. -###.####)</td>
<td>Negative</td>
<td>Y</td>
</tr>
<tr>
<td>LATITUDE</td>
<td>D</td>
<td>19, 5</td>
<td>Latitudinal Coordinate</td>
<td>The latitudinal coordinate in decimal degree format (e.g. ###.####)</td>
<td>Positive</td>
<td>Y</td>
</tr>
<tr>
<td>SUB_TYPE</td>
<td>C</td>
<td>1</td>
<td>Submission Type</td>
<td>Identifies this tank/tank farm as an A= addition to the OSFM submission M= modification to the existing OSFM, or D= deletion of a previous submission.</td>
<td>Character</td>
<td>Y</td>
</tr>
</tbody>
</table>
11. **Examples, Scenarios & Attribute Information**

11.1. **Line, Point and Event Attribute Information**

**Line Features**
- Can be multiple records for one pipeline id
- We need a FROM_MEASURE and TO_MEASURE field for each record of a pipeline id. For example, if one portion of a pipeline (one record) measure is 0-700 then the second portion (a second record for the same pipeline id) will be a 700-900 measure.

**Point Features**
- For all pipelines, include one start point and one end point (start point at start of the line and end point at the very end of the line).
- Include a MEASURE field that has MEASURE values for both the start point and end point. The start point should be 0 and the end point should reflect the total length of the full pipeline MEASURE value.

**Event Attribute Data**
- For all pipelines, include one event table for each attribute (age, category, commodity, and diameter). See sample table in Scenarios 1-3.

**Possible Scenarios you may Encounter**

**Scenario 1 – Continuous Pipeline of 100 ft**

- One record for pipeline id 0000 (one continuous line)
  - Full line segment would include FROM_MEASURE of 0 and TO_MEASURE of 100

<table>
<thead>
<tr>
<th>OBJECTID</th>
<th>SHAPE</th>
<th>PLINE_ID</th>
<th>OPER_NM</th>
<th>SYS_NM</th>
<th>FROM_MEASURE</th>
<th>TO_MEASURE</th>
<th>SHAPE_Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Polyline</td>
<td>0000</td>
<td>Operator Name</td>
<td>Lne 0000</td>
<td>0</td>
<td>100</td>
<td>100.383653</td>
</tr>
</tbody>
</table>

- Two points – one start and one end point
Scenario 2 – Pipeline of 100 ft with Gap

- Two records for pipeline id 0000 (two line segments with a gap in between)
  - First line segment includes FROM_MEASURE of 0 and TO_MEASURE of 50
  - Second line segment includes FROM_MEASURE of 50 and TO_MEASURE of 100

- Two points – one start and one end point
  - Start point has MEASURE of 0
  - End point has MEASURE of 100

- Sample Event Table (age, category, commodity, diameter)
Scenario 3 – Pipeline with an Offshoot or Lateral

- Two records for line id 0000 (two line segments – 1 and 2)
  - First line segment (1) includes FROM_MEASURE of 0 and TO_MEASURE of 40
  - Second line segment (2) includes FROM_MEASURE of 40 and TO_MEASURE of 120

- Two points – one start and one end point
  - Start point has MEASURE of 0
  - End point has MEASURE of 120

- Sample Event Table (age, category, commodity, diameter)
12. OPERATOR SUBMISSION CHECKLIST

DIGITAL SUBMISSIONS

☐ Does each feature include a complete attribute record as defined in the State standard?
☐ Have the attribute records been uniquely linked to the point or line feature?
☐ Has the digital file been projected to the correct units and datum as stated in the State standard?
☐ Has the submission file been exported and formatted in a File Geodatabase format?
☐ Do the data file names and associated attribute tables meet the naming convention standards?
☐ Are all of the geospatial files included in this submission?
☐ Is there an Age, Category, Commodity, Diameter table with populated records as described in the State guidelines?

ATTRIBUTE DATA

☐ Have all required fields in each feature attribute record been completed?
☐ Does each attribute record have a unique link to its line or point element in the geospatial file?
☐ Has the attribute data been created and formatted per the State standard?
☐ Does each geospatial element have an attribute record?
☐ Are there properly populated Age, Category, Commodity and Diameter event attribute tables as specified in the State standards?
☐ Do all the event attribute tables include correct FROM_MEASURE and TO_MEASURE fields, which include a maximum TO_MEASURE value equal to the LENGTH field of the Pipeline Feature Class Attribute Table?
☐ Are there no skips in measure values from minimum FROM_MEASURE to maximum TO_MEASURE for each pipeline?

BREAKOUT TANK DATA

☐ Have all required fields in the feature attribute record been completed?
☐ Has the attribute data been created and formatted per the State standard?
☐ Use the OSFM, Pipeline Safety Division’s Breakout Tank Submission Form.
☐ Is the contact information current on the OSFM, Pipeline Safety Division’s Standard Metadata Template?
☐ Has a brief description of the Breakout Tank data changes been provided?
☐ Has the Submission Type been marked on the form?

METADATA

☐ Use the OSFM, Pipeline Safety Division’s Standard Metadata Template.
☐ Is the contact information current?
☐ Has the file name of the digital file(s) been entered in the State Standard Metadata Template?
☐ Are all the required sections of the metadata completed?