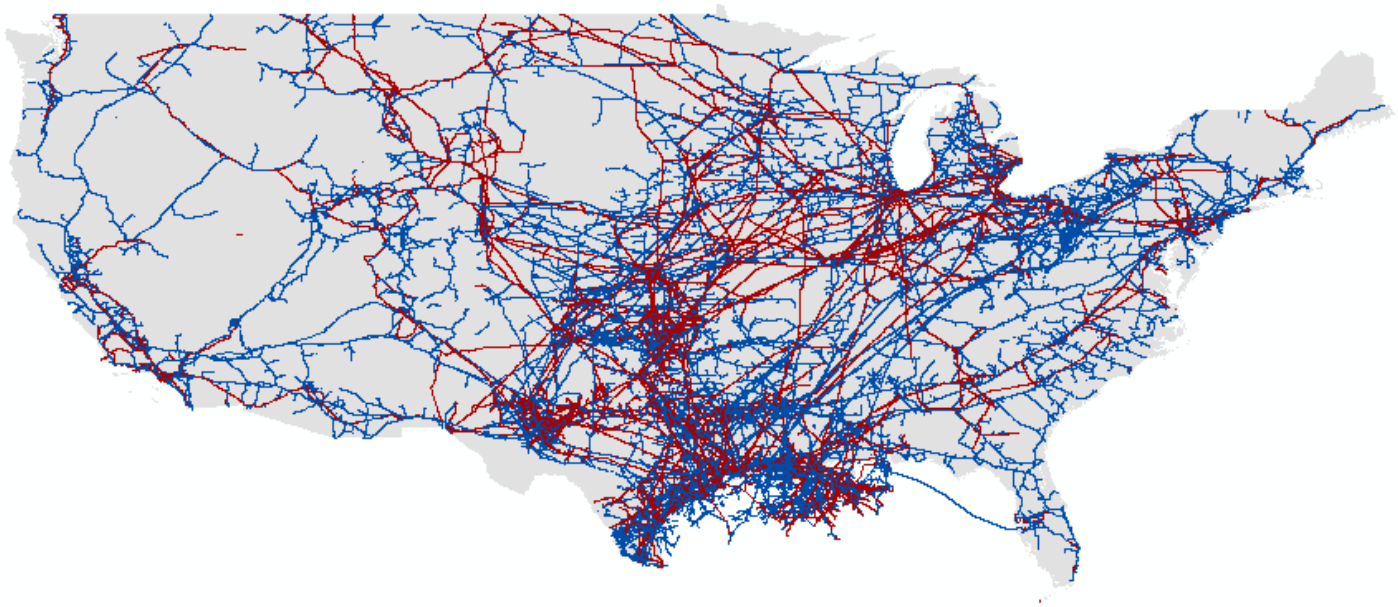
National Pipeline Mapping System

Operator Standards Manual

DRAFT to accompany
Information Collection 2137-0596



www.npms.phmsa.dot.gov

Pipeline and Hazardous
Materials Safety Administration

Revisions to the Standards

1. Section 1.1 was revised to reflect new requirements from Information Collection 2137-0596.
2. The Pipeline Attribute Table (Figure 3-1), and the LNG Plant Attribute Table (Figure 3-3), were revised following the Information Collection 2137-0596.
3. Attribute tables for Additional Pipeline Facilities (Figure 3-2) were added.
4. Section 3.1 was added to reflect the new positional accuracy standard.
5. Section 7 was revised to reflect that breakout tank submission is now mandatory.
6. Appendix C was added to introduce an alternative pipeline data submission format based on linear referencing. Submitting in this format is optional: operators may continue to submit all pipeline data in a single GIS layer (the current procedure).

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List of Acronyms

AA .....Anhydrous Ammonia
AGA .....American Gas Association
API.....American Petroleum Institute
ASCII.....American Standard Code for Information Interchange
BDB.....Biodiesel Blend
BTS.....Bureau of Transportation Statistics, U.S. Department of Transportation
CAD.....Computer-Aided Drafting
CADD.....Computer-Aided Drafting and Design
CO_2 .....Carbon Dioxide
CRD.....Crude Oil
CRW.....Sweet Crude Oil
CRR.....Sour Crude Oil
DLG.....Digital Line Graph
DOE.....Department of Energy
DOS .....Disk Operating System
DRG.....Digital Raster Graphic
DXF .....Drawing Exchange Format
EPG .....Empty Gas
EPL.....Empty Liquid
ETB .....Ethanol Blended Gasoline
ETH .....Fuel Grade Ethanol
FERC.....Federal Energy Regulatory Commission
FGDC .....Federal Geographic Data Committee
FTP site.....File Transfer Protocol site
GIS.....Geographic Information System
GPS.....Global Positioning System
HG .....Hydrogen Gas
HPC .....HVL Petrochemical
HVL.....Highly Volatile Liquid
INGAA .....Interstate Natural Gas Association of America
LNG.....Liquefied Natural Gas
LPG .....Liquefied Petroleum Gas
LUT .....Look-Up Table
MIF.....MapInfo Interchange File
MQAT .....Joint Government-Industry Pipeline Mapping Quality Action Team
NAD 27, 83 .....North American Datum (of 1927 or 1983)
NG .....Natural Gas
NG1 .....Pipeline Quality or Tariff Quality Natural Gas
NG2 .....Wet But Non-Sour Natural Gas
NG3 .....Sour But Non-Wet Natural Gas
NG4 .....Wet, Sour Natural Gas
NGL.....Natural Gas Liquids
NPC .....Non-HVL Petrochemical

NPMS .....National Pipeline Mapping System
OBI .....Other Biofuels
OHV .....Other HVL
OMB.....Office of Management and Budget
OPS.....Office of Pipeline Safety
OTG.....Other Gas
OTR.....Other Refined and/or Non-HVL Petroleum Products
PG.....Propane Gas
PHMSA .....Pipeline and Hazardous Materials Safety Administration
PRD .....Product
RFD .....Refined Fuel Oil, Diesel
RGS .....Refined Non-Ethanol Blended Gasoline
RKJ.....Refined Kerosene, Jet Fuel
ROW.....Right-Of-Way
SEF .....Standard Exchange Format
SG.....Synthetic Gas
SMYS .....Specified Minimum Yield Strength
USDOT.....U.S. Department of Transportation
USGS.....United States Geological Survey
UTM .....Universal Transverse Mercator

Preface

This document was originally prepared by the second Joint Government/Industry Pipeline Mapping Quality Action Team (MQAT II). The team was sponsored by the U.S. Department of Transportation (USDOT) Pipeline and Hazardous Materials Safety Administration (PHMSA), American Petroleum Institute (API), American Gas Association (AGA), and Interstate Natural Gas Association of America (INGAA). Representatives on the team included PHMSA, Bureau of Transportation Statistics (BTS), U.S. Department of Energy (USDOE), U.S. Geological Survey (USGS), Federal Energy Regulatory Commission (FERC), state representatives from California, Louisiana, New York, and Texas, and representatives from the pipeline industry. It has been updated frequently since its original release.

If you have questions regarding this document, please contact one of the following representatives:

PHMSA Contacts

Amy Nelson
GIS Manager
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
East Building, Room E24-462
1200 New Jersey Avenue, S.E.
Washington, DC 20590
Tel: 202-493-0591
Fax: 202-493-2311
amy.nelson@dot.gov

For questions regarding PHMSA Operator ID (OPID) information, contact:

Jamerson Pender
202-366-0218
jamerson.pender@dot.gov

National Repository Contacts

Katie Field
Project Manager
NPMS National Repository
Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, VA 22304

Tel : 703-317-6294
Fax : 703-960-9125
npms-nr@mbakercorp.com

Bellinda Monge
GIS Analyst
NPMS National Repository
Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, VA 22304

Tel : 571-357-6010
Fax : 703-960-9125
npms-nr@mbakercorp.com

Internet Addresses

National Pipeline Mapping System – www.npms.phmsa.dot.gov

Bureau of Transportation Statistics – *http://www.bts.gov*

Federal Energy Regulatory Commission – *http://www.ferc.gov*

Federal Geographic Data Committee – *http://www.fgdc.gov*

Office of Pipeline Safety – *http://ops.dot.gov*

Pipeline and Hazardous Materials Safety Administration – *http://www.phmsa.dot.gov*

U.S. Department of Energy – *http://www.energy.gov*

U.S. Department of Transportation – *http://www.dot.gov*

U.S. Geological Survey – *http://www.usgs.gov*

1. Introduction

The National Pipeline Mapping System is a Geographic Information System (GIS) dataset. The dataset contains the location and selected attributes of hazardous liquid and gas transmission pipelines, liquefied natural gas (LNG) plants, and breakout tank farms operating in the United States, including those pipelines that are offshore. The NPMS also contains pipeline operator contact information that is accessible to the public.

PHMSA works with other governmental agencies and private organizations to add other relevant data layers to the system. These include layers on natural disaster probability areas, high consequence areas, hydrography, and transportation networks. PHMSA uses the system to 1) depict pipelines in relation to populated areas and natural resources, 2) coordinate information with other governmental agencies, 3) provide regulatory oversight, 4) better prepare for a possible pipeline release, 5) work with governmental agencies and private industries in the event of a release.

The NPMS is built and maintained using information supplied by pipeline, LNG Plant, and breakout tank operators. Operators are asked to provide geospatial data about their holdings as well as contact information, and must update their submission every twelve months.

1.1 Regulatory Requirements

The Pipeline Safety Improvement Act of 2002 requires that pipeline operators provide the following information to the Department of Transportation. The Department of Transportation is utilizing the National Pipeline Mapping System National Repository to process all operator submissions.

- Data appropriate for use in the National Pipeline Mapping System (NPMS). A complete data submission includes the geospatial data, attribute data, and metadata for all LNG, hazardous liquid, and natural gas transmission pipeline operation systems operated by a company.
- The name and address of the person with primary operational control to be identified as its operator.
- Public contact information, which is used by members of the public to contact the operator for additional information about pipeline holdings.
- Updates of the above information to reflect changes in pipeline holdings.

Data updates and data accuracy verification are discussed further in section 1.4.

Information Collection 2137-0596 made substantial changes to the required NPMS submissions:

- Required that the pipeline data have a positional accuracy of ±5 feet of its known geographic location.
- Required that newly abandoned pipelines be submitted (see paragraph below for more details on submitting abandoned pipes).
- Required that offshore gas gathering lines be submitted.
- Required that diameter be submitted.
- Added the following required attributes to pipeline submissions: MAOP/MOP, pipe grade, percent operating SMYS, smart piggability, type of leak detection, coating, pipe material, year of original construction, class location, “could affect HCA” segments, onshore/offshore, special permit segments, commodity detail, wall thickness, year of last ILI inspection, year of last direct

assessment, year of original hydrotest, year of last hydrotest, throughput, seam type, installation method if pipe crosses water body greater than 100 feet, and Facility Response Plan number. See Figure 3.1 for details on these required attributes.

- Required that the following be submitted as new data layers: pump and compressor stations, mainline block valves, storage fields, refineries and gas process/treatment plants.
- Added the following required attributes to LNG plant submissions: type of plant, capacity, impoundments, exclusion zones, and year constructed.
- Required that breakout tank location and attributes be submitted, utilizing the attribute list already in place.

Information Collection 2137-0596 requires that all lines abandoned after the effective date be submitted as part of an operator's annual NPMS submission. Additionally, according to 49 CFR 195.59 (a) and 49 CFR 192.727 (g) Abandonment or Deactivation of Facilities: "For each abandoned offshore pipeline facility or each abandoned onshore pipeline facility that crosses over, under or through a commercially navigable waterway, the operator of that facility must file a report upon abandonment of that facility." In addition to the NPMS-required attributes, operators must submit a letter which contains the date of abandonment, diameter, method of abandonment, and certification that, to the best of the operator's knowledge, all of the reasonably available information requested was provided and, to the best of the operator's knowledge, the abandonment was completed in accordance with applicable laws. A template to assist operators in providing this information is available in Appendix B of this document; additionally a MS Word version of the template is available on the Making a Submission page on the NPMS Web site (www.npms.phmsa.dot.gov).

Note: *Once a pipeline is officially abandoned in the NPMS, do not include it in future NPMS submissions. Please contact NPMS staff if you are unsure of which lines are currently abandoned in the NPMS for your company. Since abandoned pipelines are disassociated from your Operator ID, your company's abandoned lines will not appear in your PIMMA account or when you use the NPMS Data Reviewer tool.*

1.2 Development of NPMS and Standards for Data Submission

A Joint Government/Industry Pipeline Mapping Quality Action Team (MQAT II) was formed to work with PHMSA on creating the digital pipeline location and attribute layer of the NPMS. The team was sponsored by PHMSA, American Petroleum Institute (API), American Gas Association (AGA), and Interstate Natural Gas Association of America (INGAA), and included representatives from multiple federal and state governmental agencies, and the natural gas and hazardous liquid pipeline industry.

MQAT II drafted standards and incorporated appropriate recommendations from outside entities, including comments from mapping vendors, pipeline operators, and state agencies outside the MQAT II. The standards underwent two pilot tests. These tests helped to determine the

- ability of pipeline operators to submit data that meet the standards,
- problems they encountered while trying to meet the standards,
- cost and effort required to meet the standards,
- usability of data formats other than those in the standards, and
- ability of the pilot repositories to process the submitted data based on the draft standards.

To the greatest extent possible, MQAT II resolved the problems encountered in both pilot tests in an effort to further minimize the time and effort required to meet the standards. The majority of the operators and repositories that participated in the pilot tests stated that the standards were clear and could be met without an undue burden on their company.

Various state agencies currently request or require that operators submit pipeline and LNG data to them. Some state agencies are using the operators' data to create a digital pipeline and LNG layer for their state. NPMS does not supersede or replace state regulations. Operators must still comply with all applicable state regulations.

1.3 NPMS Structure

The NPMS consists of a National Repository ("Repository"), which serves as the final processing and storage facility for all pipeline data. A number of State Repositories formerly existed, but were dissolved in 2002. All data passes through a final series of quality control checks before the data is made available to users. The Repository temporarily posts the processed data online for operator review and approval before incorporating the geospatial data and attribute data into the Repository. Operators are contacted with usernames and passwords and allowed 2 weeks to review their processed data.

1.4 Data Format, Verification, and Updates

1.4.1 Data Format

The Repository prefers to work with digital data if it is available.

1.4.2 Annual Resubmission Requirement

Operators are required to examine their data every twelve months and determine if any part of their submission (geospatial, attribute, metadata, or public contact information) has changed. If any of these components have changed, the operator must resubmit their data to the NPMS. The NPMS prefers that operators resubmit the entire pipeline system with the exception of previously abandoned lines. Do not resubmit lines already abandoned in the NPMS. If you are unsure of which lines are already in the NPMS as abandoned for your company please contact NPMS Staff at npms-nr@mbakercorp.com. Operator ID numbers and contact information for the submission must be included.

Submissions or emails of verification are due twelve months from the date of your last submission. For example, if a submission was made June 1, 2003, the next update will be due on June 1, 2004. However, if an update is made in the interim, for example, on December 1, 2003, the update deadline is reset and the next update will be due on December 1, 2004. Contact the National Repository if you do not know the date of your last submission.

Beginning on January 1, 2009 PHMSA is requesting that operators submit their NPMS data concurrently with hazardous liquid and gas transmission annual report submissions. Annual reports are due on March 15 each year for gas transmission operators and on June 15 for hazardous liquid operators. PHMSA suggests that beginning on January 1, 2009, gas transmission NPMS submissions be submitted by March 15, 2009, and represent the pipeline operator assets as of December 31, 2008. LNG plant operators would also submit to NPMS by March 15, 2009, representing assets as of December 31, 2008. Hazardous liquid annual reports and NPMS submissions would both be submitted by June 15, 2009, representing assets as of December 31, 2008. For those operators reporting both gas and hazardous liquid transmissions under a

single Operator ID number (internal DOT numbers assigned by PHMSA to the operator for specific assets), a single NPMS submission containing the changes for both the gas and hazardous liquid transmissions is preferably submitted by March 15, 2009. In 2010 and beyond, the annual report and NPMS submission due dates would remain March 15 for gas transmission and LNG plants and June 15 for hazardous liquid pipelines. NPMS submissions would represent physical assets as of December 31 of the previous year. Submitting annual reports and NPMS data at the same time will alleviate the need for pipeline operators to track their last NPMS submission and may decrease the receipt of notices from PHMSA that data has not been submitted.

Operator ID numbers in annual report submissions must match the same assets described in NPMS submissions. Operators will use the same Operator ID number to describe a pipeline or LNG asset in both the annual report and NPMS submission beginning with their 2009 submissions. This does not apply to pipeline operators who have requested and been assigned only one Operator ID number. Synchronizing the Operator ID numbers will alleviate confusion in identifying operator assets and improve PHMSA's ability to accurately describe the pipeline operated by a specific pipeline operator. The ability to accurately identify and track operator physical assets is beneficial to PHMSA, pipeline operators, and all stakeholders who utilize our data, and ultimately helps promote pipeline safety.

The NPMS processing department encourages operators to submit data prior to the suggested deadlines. Submitting early will speed submission processing and provide time for the processing department to notify operators if a submission is incomplete. Submissions for the December 31, 2011, data capture will be accepted starting January 2, 2012.

If operators have no changes since their previous NPMS submission, a No Change Notification may be submitted to the NPMS in lieu of making a data submission. Operators may submit No Change Notifications by sending an email to the NPMS at npms-nr@mbakercorp.com or using the preferred method of the NPMS Data Reviewer tool on the NPMS Web site (https://www.npms.phmsa.dot.gov/DataReview/).

To view the previously submitted NPMS data online, go to the NPMS Web site (https://www.npms.phmsa.dot.gov). Follow the link on the home page marked "Review Your NPMS Data Online" or directly go to the tool via https://www.npms.phmsa.dot.gov/DataReview/. Using the NPMS Data Reviewer tool, pipeline operators can inform the National Repository that their data and public contact information have not changed, or that they plan to resubmit. Operators must update their data or confirm it as accurate every 12 months in order to comply with the Pipeline Safety Improvement Act of 2002. PHMSA prefers that operators review their submissions through this Web tool. However, operators may notify PHMSA that their pipeline data had not changed by sending an email to npms-nr@mbakercorp.com. Please note that if at any time throughout the year the primary and/or technical contact has changed, please notify National Repository staff. The primary and technical contact is used internally by NPMS staff regarding questions about your submission/Operator ID and to notify you of changes concerning the NPMS process.

The NPMS Data Reviewer tool allows an operator to view their geospatial information, attributes, and public contact information by operator ID (OPID) as a whole. The tool does not allow an operator to view any abandoned pipelines; operators who want to verify their abandoned pipelines should contact National

Repository staff at npms-nr@mbakercorp.com or 703-317-6294. The tool does not allow for the data to be edited online; resubmission of data will continue to be handled through the National Repository.

To access the NPMS Data Reviewer tool, pipeline operators need a Pipeline Integrity Management Mapping Application (PIMMA) username and password. If an operator already has a PIMMA username and password, he or she may use it. If an operator has forgotten his or her username or password, he or she should contact National Repository staff at npms-nr@mbakercorp.com or 703-317-6294. To apply for a username and password, go to https://www.npms.phmsa.dot.gov/application.asp?tact=pimma&page=pimma/about_pimma.htm. Be sure to fill out the application marked for pipeline operators. National Repository staff takes approximately 7 to 10 business days to process a username and password request. *Please note that a PIMMA username and password is not needed in order to make an NPMS data submission.*

1.4.3 Public Contact Information

All operators must submit public contact information for their pipeline systems. This contact information is intended to be used by private citizens outside of PHMSA and the pipeline industry. It is not the same as the contact information that is provided in the metadata; that information is for PHMSA and its contractors in case they have questions regarding your company's submission. The public contact information should be submitted to National Repository staff via the online Operator Public Contact Information Form (https://www.npms.phmsa.dot.gov/OperatorPublicContact/OperatorPublicContact.aspx). Please see section 5 for a detailed explanation of the type of information that is required.

1.5 Distribution of NPMS Data

Federal, state, and local governmental agencies and the pipeline industry may access all or portions of the pipeline, LNG, and breakout tank farm layers of the NPMS. Other data layers on high consequence areas, transportation networks, and natural disaster probability areas are being collected from various governmental and private sources, and are available for these users to the extent possible. The data collected for the NPMS is necessary for regulatory oversight and for monitoring pipeline security. In 2007, a Public Viewer was launched. The Public Viewer allows the general public to view maps of and information about transmission pipelines, LNG plants, and breakout tank farms in a user-specified county. Map scale and attributes are limited.

One of the goals of the NPMS is to assist operators in progressing toward a digital mapping environment. Upon request, digital pipeline and LNG Plant data is provided to the contributing operator at no cost. The Repository may charge a fee for other products and services. The data contained in the NPMS are for reference purposes only and are not to be construed as actual survey-quality data or as a replacement for contacting a one-call center.

1.6 About these Standards

These standards were created with input from the pipeline industry, governmental agencies, and the public. They address the submission of digital pipeline and LNG data to support the development of a reasonably accurate NPMS. Operators are responsible for providing data that complies with these standards.

The goal of PHMSA is for the NPMS to support operators who want to develop digital geospatial data. Operators who anticipate having difficulty meeting NPMS standards are encouraged to contact the Repository. The Repository will work with the operator and PHMSA to formulate an acceptable submission.

These standards serve as a guideline for preparing and submitting pipeline and LNG plant location and attribute data for inclusion in the NPMS Repository. The Repository understands that the availability of pipeline company digital data varies among operators and that there is a need to be flexible when working with the pipeline operators. The Repository will review and approve variations of data submissions from this standard on a case-by-case basis.

The following sections discuss in detail the format, content, and quality of pipeline and LNG Plant data that are to be submitted for inclusion into the NPMS. The standards provide guidelines for the submission of digital data. If any operator is unable to meet these guidelines please contact National Repository Staff. Three types of data are required: geospatial data (location information), attribute data (descriptive information), and metadata (data about the data). Contact information for the pipeline operator is also required. See section 5 for more details about contact information.

2. General Requirements (Key Terms and Definitions)

This section establishes general NPMS terms and requirements.

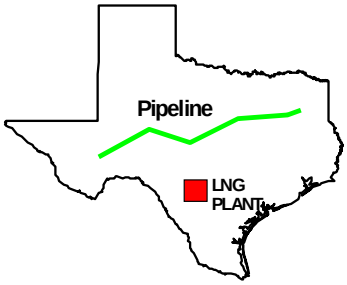
Geospatial Data	Attribute Data	Metadata	Contact Information
Digital data with lines and/or points marking the location of pipelines, LNG Plants, and breakout tanks. 	A computer database containing descriptive information about pipelines or LNG Plants. There is one record in the database for each *pipeline segment*. **Pipeline Attribute Table** Descriptive Field 1 Descriptive Field 2 Descriptive Field … **LNG Attribute Table** Descriptive Field 1 …	Descriptive information about how the geospatial and attribute data were prepared (i.e., data about data). This information includes the data projection, datum, and units.	Information about the person or entity who serves as a contact for the pipeline system. Contains either a person's name and title or the name of an entity. Also contains address, phone, and email information.

Figure 2-1. The types of NPMS data.

The NPMS includes location and selected attributes of hazardous liquid and gas transmission pipelines, liquefied natural gas (LNG) plants, and breakout tank farms. Information on other types of pipelines and facilities need not be submitted at this time. **Pipelines and facilities other than those described below should not be included in your NPMS submission.**

Gas transmission line – A pipeline system, other than a gathering line, that

1. Transports gas from a gathering line or storage facility to a distribution center, storage facility, or large-volume customer that is not downstream from a distribution center. A large-volume customer may receive similar volumes of gas as a distribution center. Factories, power plants, and institutional users of gas are included.
2. Operates at a hoop stress of 20 percent or more of specified minimum yield strength (SMYS) *or*
3. Transports gas within a storage field.

Additional information about PHMSA-regulated gas lines is in CFR §192 (see http://www.gpoaccess.gov/cfr/).

Hazardous liquid **–** Petroleum, petroleum products, carbon dioxide, or anhydrous ammonia.

Hazardous liquid trunklines **–** A hazardous liquid pipeline other than a flow line, gathering line, or in-plant pipeline. More information about PHMSA-regulated liquid lines is in CFR §195 (see http://www.gpoaccess.gov/cfr/).

Regulated rural hazardous liquid gathering lines – Rural onshore hazardous liquid pipelines with all of the following characteristics:

1. A nominal diameter between 6.625 and 8.625 inches.
2. Operates at a maximum operating pressure established under §195.406 that corresponds to a stress level greater than 20 percent of SMYS or, if the stress level is unknown or the pipeline is not constructed with steel pipe, at a pressure of more than 125 pounds per square inch (psi) gauge.
3. Located in or within a quarter mile of an Unusually Sensitive Areas as defined in §195.6. GIS data layers of Unusually Sensitive Areas are available to pipeline operators who are trying to determine whether their liquid lines are jurisdictional. More information is at http://www.npms.phmsa.dot.gov/data/data_usa.htm.

Liquefied natural gas (LNG) – Natural or synthetic gas, having methane as its major constituent, that has been changed to a liquid or semi-solid.

LNG Plant – A component of a facility that is used for liquefying or solidifying natural gas or transferring, storing, or vaporizing liquefied natural gas.

Breakout tank– A tank used to a) relieve surges in a hazardous liquid pipeline system or b) receive and store hazardous liquid transported by a pipeline for re-injection and continued transportation.

Pipeline system – All parts of a natural gas transmission line or hazardous liquid line through which gas or hazardous liquid is transported. By definition, only one firm can operate a pipeline system. Operators should assign unique names to each of their pipeline systems. A pipeline system may have an unlimited number of branches. Each pipeline system must be represented by one or more ***pipeline segments***.

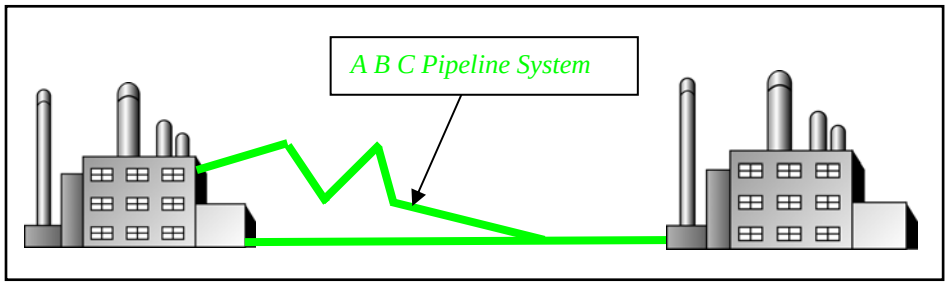


Figure 2-2. Sample of annotated pipeline system.

Pipeline segment – A linear feature representing part or all of a pipeline system. A pipeline segment must have only two ends. No branches are allowed. A pipeline segment may be a straight line or may have any number of vertices. Each pipeline segment must be uniquely identified. The number of pipeline segments should be kept to the minimum needed to represent a pipeline system and its associated attributes. A unique line segment in the computer-aided drafting (CAD) or GIS dataset should represent each pipeline segment.

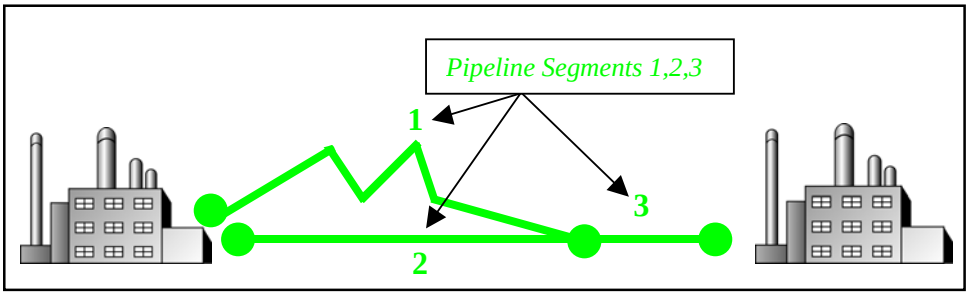


Figure 2-3. A pipeline system consisting of three pipeline segments.

A pipeline system should be broken into multiple pipeline segments for only two reasons:

1. to represent a branch or **intersection** with another pipeline segment, and/or
2. to allow for a change of associated attributes such as diameter.

Pipeline intersection – A point where a physical connection between two pipelines occurs. A commodity from one pipeline can flow into another pipeline(s), either through a branch within a pipeline system or a connection between two pipeline systems. When submitting hard-copy maps, intersections should be marked with a clear, visible dot. When submitting digital geospatial data, line segments in the CAD or GIS data set should be broken at the point of intersection. The intersection will be a common endpoint (node) representing the two pipeline segments.

Pipeline crossing – A point where two or more pipelines cross, but where there is no physical connection between the pipelines. Pipeline segments should **not** be broken at pipeline crossings.

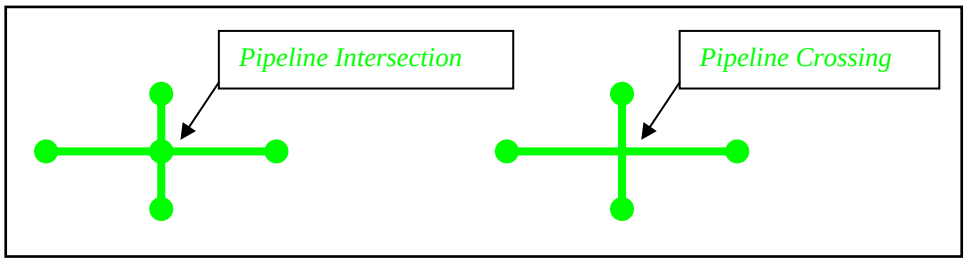


Figure 2-4. Sample annotation of pipeline intersection and pipeline crossing.

Pipeline corridor – A pipeline corridor is a linear area where two or more pipelines (either part of the same or different pipeline systems) are closely grouped in a single right-of-way. Pipeline corridors pose a cartographic challenge. In digital files, multiple lines are required, and each separate representation must be stored in individual layers or files. Pipeline corridors should be clearly annotated, particularly where pipelines join or exit the corridor.

Pipeline status – The status of a pipeline or pipeline segment may be defined by one of the following options:

1. In-service – the pipeline or pipeline segments currently transports natural gas or hazardous liquid.
2. Inactive/Idle – the pipeline or pipeline segment is maintained to a degree that it may, in the future, be potentially brought back into service.
3. Retired – the pipeline or pipeline segment has been taken out of service and is no longer being maintained, but it has not yet been permanently abandoned.
4. Abandoned – the pipeline or pipeline segment has been permanently removed from service.

2.1 NPMS File Naming Conventions

Operators are requested to use the following formula when assigning file names:

Type of File Code + OPID + hyphen + 4-Digit Sequential Number + 3-Digit Alphanumeric Extension

Sample file name: G12345-0001.DWG

Type of File Code (one-character, alpha):

G = Geospatial Data Only

A = Attribute Data Only

B = Both Geospatial and Attribute Data

(Also use "B" when different geospatial and attribute files should have the same name. For example, an export from ESRI's ArcView software might have the following names: B12345-0001.SHP, B12345-0001.SHX, B12345-0001.DBF.)

T = Metadata and Attribute Data created with the *NPMS Metadata/Attribute Builder* software

(Since the operator must submit metadata created with the *NPMS Metadata/Attribute Builder* software, the file type will always be .MDB, for instance T12345-0001.MDB. Please note that the operator is not required to create attribute data via this software. See section 3 of this document for additional details about the software.)

OPID (five digits [maximum], numeric) – This is the identification number assigned by the Pipeline and Hazardous Materials Safety Administration to pipeline and LNG Plant operators, for user-fee purposes. The OPID has five digits or fewer. If you don't know your OPID, go to the "Operator ID search" link on the NPMS Web site.

4-Digit Sequential Number (four-digit, numeric, starting with 0001) – This is used to avoid assigning several files with the same file name.

Extension (three-character default from software package) – Use the default extension for export from the software package (e.g., **.**DWG, **.**SHP, **.**DBF, etc.).

2.2 Types of NPMS Submissions

Operators must classify submissions according to one of the following types. The various types of submissions are intended to facilitate maintenance of the NPMS and minimize the effort required by pipeline operators. The type of submission must be identified in the cover/transmittal letter accompanying the submission.

INT – Initial Submissions to the NPMS contain data for a first time submittal for a given OPID. If data has ever been submitted under your OPID in the past then you cannot make an Initial Submission under that OPID again. The revision codes (REVIS_CD) of all pipeline segments should be set to **"A"** for

addition; **"C"** for addition due to construction; or **"J"** for addition due to mileage which is new to PHMSA jurisdiction[1].

FRP – Full Replacement Submissions should be made whenever it is necessary to apply changes to your data. A full replacement must include all data for your OPID as you want it to appear online after processing because it will replace all previously submitted data. **Abandoned lines should not be included in this resubmission if they were already included in a previous submission. Contact NPMS Staff at npms-nr@mbakercorp.com if you are unsure which abandoned lines your company has previously submitted.* The revision codes (REVIS_CD) for pipeline segments may be "**A**" for addition, ; **"C"** for addition due to construction; **"J"** for addition due to mileage which is new to PHMSA jurisdiction; "**S**" for spatial modification; "**T**" for attribute modification; **"B"** for both spatial and attribute modification; or "**N**" for no change.

RMV – Removal of OPID Submissions – Only make this type of submission when all of the data under your OPID needs to be removed from the NPMS for one of the following three reasons:

1. All pipelines were sold and are no longer operated by your company
2. All pipelines are no longer classified as Gas Transmission (reclassified to gas gathering or distribution)
3. All pipelines were physically removed from the ground (does not include pipelines that are abandoned in place)

If any one of these scenarios describes all of the pipelines under your OPID you can make a Removal of OPID submission. For a Removal of OPID submission, please complete the cover/transmittal letter only (see section 2.3). Under question 2 of the cover/transmittal letter include an explanation of why all of the data under this OPID should be removed from the NPMS, including an effective date for the change. If the pipelines were sold, include the transaction date, company name, contact name, and phone number where NPMS staff can reach the new operator to verify the sale. If any of these scenarios describes only some of the pipelines in the NPMS under your OPID do not use a Removal of OPID submission-your data will be completely removed from the NPMS and your OPID will not be compliant; rather, you must make a Full Replacement Submission.

NC – Notification of No Changes – Only make this type of submission when all of the data under your OPID has remained the same since the last submission. This notification fulfills the yearly NPMS submission requirement. NPMS staff may be notified that there have been no changes via two methods:

1. NPMS Data Reviewer. This is the preferred method of sending your No Changes notification. The tool is accessible via the "Review Your NPMS Data Online" link on the NPMS Web site (www.npms.phmsa.dot.gov) or directly via https://www.npms.phmsa.dot.gov/DataReview/.
2. Email sent to npms-nr@mbakercorp.com. The content of the email should include the OPID, a statement saying that the data has not changed, and either a statement saying that the public contact information has not changed or that the public contact information was updated via the online Operator Public Contact Information Form. Sample email content may include:
    a. "There have been no changes to the NPMS data for OPID 12345 since the last submission. Additionally, there are no changes to the public contact information".

[1] Operators who submit new-to-NPMS mileage without using the designated revision codes (C or J) will find that their new mileage does not appear in their processed submission. In that event, NPMS staff will assist operators in correcting their submission.

b. "There have been no changes to the NPMS data for OPID 12345 since the last submission. The public contact information has changed; the changes were submitted via the Operator Public Contact Information Form".

Please note that the public contact information may be updated at anytime throughout the year. Initial public contact information as well as updated public contact information should be submitted through our online Operator Public Contact Information Form (**https://www.npms.phmsa.dot.gov/OperatorPublicContact/OperatorPublicContact.aspx**). Also, primary and technical contact information may be updated at any time. The primary and technical contacts are used internally by NPMS staff when there are questions concerning your NPMS data or if there are NPMS-related announcements, such as the release of new tools or a change in specifications, which you may be interested in. Primary and technical contact information should be updated via an email sent to **npms-nr@mbakercorp.com**.

2.3 Cover/Transmittal Letter Requirement

All submissions must be accompanied by a cover/transmittal letter. This letter is meant to provide National Repository Staff with key information for processing your submission, and allows you to communicate any additional information that does not fit into the *NPMS Attribute/Metadata Builder* tool. The content of the letter is dependent upon if your submission is for pipeline or LNG plant data. If you are submitting both pipeline and LNG plant data at the same time, please include the cover letter for both types of data. Follow the Making a Submission link at www.npms.phmsa.dot.gov to download the templates for pipeline and LNG plant submissions, or compile a letter including the following items:

Pipeline Data Submissions

1. Contact information for the person National Repository Staff should request to perform the final submission review. If additional persons should receive the review request, list all applicable persons. If there are questions regarding the submission data, National Repository Staff will contact the technical contact identified in the metadata. If a technical contact is not designated, the primary contact in the metadata will be contacted with any questions.
2. A brief description of the pipeline data changes reflected in the submission (e.g., sold, acquired, re-routed, abandoned lines, etc. since the previous submission). If some or all of the pipelines were sold or transferred to another Operator ID, please try to include as much information as possible such as affected systems/subsystems or PLINE_ID values. Be sure to also include the information of who the pipelines were sold or transferred to, if known. If portions of your data have been reclassified from transmission to gathering or distribution since your last submission, please provide a brief description of the impacted systems/subsystems/PLINE_ID values to assist NPMS staff in the comparison of this year's submission to your previously submitted pipeline data.
3. Which of the submission types described below indicates how this submission as a whole should affect the previously submitted data for this Operator ID. You can read more about these submission types in section 2.2:
    - Initial Submission: This is the first submission to the NPMS for this OPID. Pipeline data has never been submitted to the NPMS for this Operator ID.
    - Full Replacement Submission: This submission should replace all data currently in the NPMS for this Operator ID. This submission type can include any type of revision, including additions and modifications, to the existing data.

- Removal of OPID Submission: This submission is to inform the NPMS that all of your pipeline data needs to be removed from the NPMS national layer. Provide an explanation under question 2, including an effective date for any change. If a sale has taken place, include a company name, contact name and phone number for the new company. If all pipelines in this Operator ID have been reclassified to gathering/distribution, please indicate so under question 2.

4. Does this pipeline data reflect conditions in the field as of December 31 of last year?
5. Include the answers for the following questions:
   - Does this specific Operator ID operate only gas, only liquid, or both gas and liquid lines?
   - Does this specific submission contain only gas, only liquid, or both gas and liquid lines?

     (NOTE: It is preferable that operators with both gas and liquid lines make a single NPMS submission with both types included.)
   - Does this specific submission contain any abandoned lines (STATUS_CODE value equals "B")?
   - If the submission does contain abandoned lines, have you confirmed that the abandoned lines in this submission have not been previously submitted to NPMS?

     (NOTE: Never resubmit abandoned lines to the NPMS; even Full Replacement submissions should only include new abandoned lines. Your previously submitted abandoned lines are not visible, when you sign into PIMMA or when you use the NPMS Data Reviewer tool. Please contact NPMS staff at npms-nr@mbakercorp.com with any questions regarding previously submitted abandoned pipelines.)
   - Is your Public Contact Information up-to-date?

     (NOTE: The public contact is different from the primary and technical contacts collected in the metadata; the public contact is associated with your pipeline data on our Web site and is available to all viewers. You can review your public contact information on the NPMS Web site (www.npms.phmsa.dot.gov) by logging into the NPMS Data Reviewer via the "Review Your NPMS Data Online" link. If changes are necessary, or if this is an initial submission, please submit the public contact information via our online Operator Public Contact Information Form which is accessible at https://www.npms.phmsa.dot.gov/OperatorPublicContact/OperatorPublicContact.aspx before sending your NPMS submission.)
   - Does your NPMS submission match your PHMSA Annual Report?

     (NOTE: Your NPMS submission must correspond with your PHMSA Annual Report. Discrepancies between the two in regards to mileage, interstate/intrastate designation or commodities could result in the rejection of your submission.)
6. Include any additional information you would like to convey to NPMS staff.

LNG Plant Data Submissions

1. Contact information for the person National Repository Staff should request to perform the final submission review. If additional persons should receive the review request, list all applicable persons. If there are questions regarding the submission data, National Repository Staff will

contact the technical contact identified in the metadata. If a technical contact is not designated, the primary contact in the metadata will be contacted with any questions.

2. A brief description of the LNG plant changes reflected in the submission (e.g., sold, acquired, re-routed, abandoned lines, etc. since the previous submission). If some or all of the LNG plants were sold or transferred to another Operator ID, please try to include as much information as possible such as LNG_ID values. Be sure to also include the information of who the LNG plants were sold or transferred to, if known.
3. Which of the submission types described below indicates how this submission as a whole should affect the previously submitted data for this OPID. You can read more about these submission types in section 2.2:
   - Initial Submission: This is the first submission to the NPMS for this OPID. LNG plant data has never been submitted to the NPMS for this Operator ID.
   - Full Replacement Submission: This submission should replace all data currently in the NPMS for this OPID. This submission type can include any type of revision, including additions and modifications, to the existing data.
   - Removal of OPID Submission: This submission is to inform the NPMS staff that all of your LNG plant data needs to be removed from the NPMS national layer. Provide an explanation under question 2, including an effective date for any change. If a sale has taken place, include a company name, contact name and phone number for the new company.
4. Does this LNG plant data reflect conditions in the field as of December 31st of last year?
5. Include any additional information you would like to convey to NPMS staff.

3. Attribute Data

Operators are required to provide descriptive information about the pipelines and LNG plants when submitting data to the National Repository. The attribute data is essential information about the pipeline or LNG plant such as its name and commodity transported. To simplify the submission, the required attribute data has been kept to a minimum.

3.1 Positional Accuracy Requirement

Information Collection 2137-0596 requires that NPMS pipeline submissions have a positional accuracy of:

- +/- five feet when a gas transmission line could affect a High Consequence Area **and** is in a Class 3 or Class 4 location; or when a hazardous liquid line could affect a High Consequence Area
- +/- fifty feet for other gas transmission or hazardous liquid lines.

3.2 Required and Optional Attributes

Each pipeline segment or LNG plant submitted must be accompanied by a corresponding record and attribute database table. For information about required and optional attributes, refer to the following figures:

- For pipeline submissions, see Figure 3-1 for the attribute field definitions.
- For LNG submissions, see Figure 3-3 for the attribute field definitions.

3.3 Rules for Attribute Data Input

Note regarding Information Collection 2137-0596: PHMSA is considering collecting pipeline attributes in multiple layers or tables, in order to reduce pipe segmentation. Attributes could be grouped into packages which represent the way the data is organized in an operator's PODS or APDM data model. Please refer to Appendix C. Operators may also continue to submit their pipeline GIS data and attributes in a single layer, as is the current procedure. PHMSA invites comments about this proposal.
When submitting digital attribute information, adhere to the following rules:

1. Use only UPPERCASE when defining field names.
2. Use only UPPERCASE when inputting data into the attribute tables.
3. Omit all punctuation except for periods (.), spaces ( ), backslashes (\), colons (:), commas (,), hyphens (-), and underscores (_). Semicolons (;) should be used only as a delimiter when submitting attribute data in ASCII-delimited text files.
4. Use only NPMS-specified abbreviations.
5. Be consistent. Names and terms should be exactly replicated throughout a submission. For example, if a pipeline system is named Pennsylvania Line (SYS_NM = "PENNSYLVANIA LINE"), the operator should consistently use the full and exact name. The operator should not use alternative names like "Penn Line" or "PA Line" or "Pennsylvania."
6. Use the correct OPID. OPID is an accounting number assigned by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration to firms that operate pipelines and LNG plants. If you do not know your firm's OPID number, check with your firm's accounting department. An Operator ID search tool can be found on the home page of the NPMS Web site.

3.4 Types of Data Revisions

The type of revision must be specified for each pipeline segment. The revision type, which is indicated with a code, describes the changes that have occurred to that segment since the last NPMS submission. It is likely that one code will not describe the entire submission properly; therefore, a combination of codes will be necessary. A thorough explanation of each code is below:

A- Addition to the NPMS. Use this revision code when the segment has not been previously submitted to the NPMS for this OPID. For example, this pipeline segment was purchased from another operator and this is the first time it is being submitted under this OPID. NPMS staff will add this segment to your OPID and remove it from the previous owner.

C- Addition due to construction. Use this revision code when the segment is new construction and therefore has never before been included in the NPMS under any OPID. For example, this pipeline segment is a new lateral laid into the ground in time for this year's submission. NPMS staff will add this segment to your OPID's data in the NPMS. Note that new construction lines which are not marked with the C revision code will be automatically dropped from your submission during processing. In this case, NPMS staff will assist you in correcting your submission.

J- Addition due to mileage which is new to PHMSA jurisdiction. Use this revision code when the segment is new to PHMSA's jurisdiction and therefore was not included in the NPMS under any OPID last year. For example, your company previously operated this pipeline segment as a distribution line, but it has been re-categorized as a gas transmission line in time for this year's submission. This data is new mileage to the NPMS because it was not in your last submission. NPMS staff will add this segment to your OPID. Note that new-to-jurisdiction lines which are not marked with the J revision code will be automatically dropped from your submission during processing. In this case, NPMS staff will assist you in correcting your submission.

S- Spatial modification of the existing NPMS feature. Use this revision code when the pipeline segment data has been spatially modified since the previous submission. For example, new more accurate GPS coordinates have been gathered for this pipeline segment, and as a result its location in the data set has changed slightly. This segment in the submission still represents the same pipeline that was in last year's submission, and there are no attribute changes. NPMS staff will find the equivalent segment from your previous submission and replace it with this segment.

T- Attribute modification of the existing NPMS feature. Use this revision code when the only change to a pipeline segment since the previous submission is an attribute change. For example, this pipeline segment was in service for last year's submission, but for this year's submission the status code has changed to idle to reflect that the line is now empty and there have been no spatial changes to the segment. NPMS staff will find the equivalent segment from your previous submission and replace it with this segment.

B- Both a spatial and attribute modification of the existing NPMS feature. Use this revision code when both an attribute and spatial change have occurred to this pipeline segment since the previous submission. For example, this pipeline segment not only has a more accurate location, but as a result the

Quality Code has changed from G for Good to E for Excellent. NPMS staff will find the equivalent segment from your previous submission and replace it with this segment.

N- No change to the existing NPMS feature. Use this revision code when there have been no changes to the spatial location or to the attributes of this segment since the previous submission. There is no need for NPMS staff to change this segment, but the attributes in the NPMS will reflect that this segment is up to date. It is necessary to include these lines in your Full Replacement submission (refer to section 2.2 for additional details on the types of submissions) even though no changes have occurred. Any segment previously submitted for your OPID that is not included in your current submission will be considered a pipeline segment that requires deletion.

Pipeline System Attribute Table (Figure 3-1)

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Link (Primary key) between the geospatial elements (pipeline segments) and their respective attribute records. Assigned by the operator or the operator's software package (i.e., COVER-ID, MSLINK_ID, etc.). Note the OPER_LINK and the PLINE_ID may be identical. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
OPER_NM	C	40	Operator Name	The company name that physically operates the pipeline system.	Character	Y
SYS_NM	C	40	System Name	Assigned by the operator. The operator's name for a functional grouping of pipelines.	Character	Y
SUBSYS_NM	C	40	Sub System Name	Assigned by the operator. A unique name for a smaller sub-section of a pipeline system. A subset of SYS_NM.	Character	N
PLINE_ID	C	20	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system.	Character	Y
COMMODITY	C	3	Commodity Category	Abbreviation for the primary commodity carried by the pipeline system. CRD=crude oil, PRD=non-HVL product, AA=anhydrous ammonia, LPG=liquefied petroleum gas, NGL=natural gas liquids, OHV=other HVLs, CO2=carbon dioxide, ETH=fuel grade ethanol, EPL=empty liquid, NG=natural gas, PG=propane gas, SG=synthetic gas, HG=hydrogen gas, OTG=other gas, EPG=empty gas. Note that when propane is transported as a liquid, use the LPG commodity abbreviation. The PG abbreviation should only be used when the commodity is in gaseous form. Note that when the pipeline is no longer transporting a commodity and is, therefore, considered to be empty, the use of EPL or EPG should represent the commodity that was previously transported. For instance, a natural gas transmission line that was later filled with water would be coded EPG because a gas commodity was last transported.	CRD, PRD, AA, LPG, NGL, OHV, CO2, ETH, EPL, NG, PG, SG, HG, OTG, EPG	Y
CMDTY_DTL1	C	3	Commodity Detail 1	Abbreviation for the primary commodity's first subcategory detail. If the primary commodity defined in the COMMODITY field is not CRD,	CRW, CRR, RGS, RFD, RKJ, OTR, ETB, BDB, OBI,	Y- if the COMMODITY is CRD, PRD or

				PRD, or NG, this field should be left blank. If the primary commodity in the COMMODITY field is CRD, PRD, or NG and the subcategory is not known or stated, this field should be left blank. The primary commodity CRD has the following subcategories: CRW=sweet crude, CRR=sour crude. The primary commodity PRD has the following subcategories: RGS=refined non-ethanol blended gasoline, RFD=refined fuel oil, diesel, RKJ=refined kerosene, jet fuel, OTR=other refined and/or non-HVL petroleum products, ETB=ethanol blended gasoline, BDB=biodiesel blend,OBI=other biofuels. The primary commodity NG has the following subcategories: NG1=pipeline quality or tariff quality natural gas, NG2=wet but non-sour natural gas, NG3=sour but non-wet natural gas, NG4=wet, sour natural gas.	NG1, NG2, NG3, NG4, <Null>	NG N – If the COMMODITY is not CRD, PRD or NG
CMDTY_DTL2	C	3	Commodity Detail 2	Abbreviation for the primary commodity's second subcategory detail. Refer to the CMDTY_DTL1 field for additional information and valid values.	CRW, CRR, RGS, RFD, RKJ, OTR, ETB, BDB, OBI, NG1, NG2, NG3, NG4, <Null>	N
CMDTY_DTL3	C	3	Commodity Detail 3	Abbreviation for the primary commodity's third subcategory detail. Refer to the CMDTY_DTL1 field for additional information and valid values.	CRW, CRR, RGS, RFD, RKJ, OTR, ETB, BDB, OBI, NG1, NG2, NG3, NG4, <Null>	N
CMDTY_DESC	C	40	Commodity Description	Descriptive information of the commodities carried by the pipeline system. For example, "NATURAL GAS" or "PROPANE."	Character	N
INTERSTATE	C	1	Interstate Designation	(Y)es / (N)o designator to identify if the pipeline system is an interstate pipeline. Y=Interstate, N=Intrastate. (Use PHMSA definition; see glossary).	Y, N	Y
OFFSHORE_GG	C	1	Offshore Gas Gathering	If the gas pipeline is classified as an offshore gas gathering line, it is required to be submitted to the NPMS.	Y, N, <Null>	Y – for offshore gas gathering pipeline segments N – for other gas or liquid pipeline segments
THROUGHPUT	I	4	Average daily throughput	For gas : MMSCFD=million standard cubic feet per day (yearly average) For liquid : MMBBLD= million barrels per day (yearly average)		Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
MATERIAL	I	1	Type of pipe material	Identify whether pipe segment is 1=cast iron,	1,2,3,4,5	Y

				2=plastic, 3=steel, 4=composite, 5=other		
DIAMETER	D	5	Diameter	Nominal diameter of the pipeline segment, in inches (three decimal places, ##.###).	Real Number	Y
WALL_TH	D	4	Wall thickness	Nominal wall thickness of the pipeline segment, in inches (three decimal places, #.###).	Real Number	Y
GRADE	C	15	Predominant pipe grade	Predominant pipe grade or strength: A25, A25P, B, X42, X46, X52, X56, X60, X65, X70, X80, X90, X100, X120, UNKNOWN, PLASTIC PIPE, OTHER	A25, A25P, B, X42, X46, X52, X56, X60, X65, X70, X80, X90, X100, X120, UNKNOWN, PLASTIC PIPE, OTHER	Y
PIPE_JOIN	C	1	Pipe joining method	Indicate whether pipe joining method is W= welded, C= coupled, S= screwed, F= flanged, P= plastic pipe joint, or O= other	W,C,S,F,P,O	Y
SMYS	D	4	Highest percent operating SMYS	Hoop stress caused by highest operating pressure during the year as a percent of Specified Minimum Yield Strength. Report with up to one decimal place. Example: 75.5 percent SMYS= .755.	Real Number	Y
SEAM_TYPE	C	10	Seam Type	SM= Seamless, LERW=Low frequency or direct current electric resistance welded, HERW=High frequency electric resistance welded, DSAW=Double submerged arc weld, SAW=Submerged arc weld, EFW=Electric-fusion weld, FLW=Furnace lap weld, FBW=Furnace butt weld, PLAS=Plastic, OTHER=Other	SM, LERW, HERW, DSAW, SAW, EFW, FLW, FBW, PLAS, OTHER	Y
CNSTR_YR	I	4	Predominant year of original construction	Predominant year of original construction or year installed		Y
STATUS_CD	C	1	Pipeline Status Code	Identifies the current status of the pipeline segment. I=in service, D=idle, B=abandoned, R=retired.	I, D, B, R	Y
ONSHORE	C	1	Onshore/offshore	Whether pipe segment is onshore (Y) or offshore (N) according to operator's records. Must match onshore/offshore designations submitted in operator's Annual Report to PHMSA.	Y, N	Y
LOW_STRESS	C	1	Low Stress	(Y)es / (N)o designator to identify if the hazardous liquid pipeline segment is a low stress pipeline. Field is required for liquid in-service pipelines. If the hazardous liquid pipeline operates at 20% or less of SMYS, the segment is a low stress pipeline. Field should be left blank for gas pipelines or for liquid pipelines which are idle, abandoned, or retired.	Y, N, <Null>	Y – for liquid pipeline segments N – for gas pipeline segments
ILI_ABLE	C	1	Piggable ?	Can commercially available devices (pigs) travel, inspect the entire circumference and wall thickness of the pipe, and record or transmit inspection data in sufficient detail for further evaluation of anomalies? Y=Yes, N=No. This attribute concerns only the mainline, not stations. Non-mainline segments should have [null] for this attribute.	Y,N, [null]	Y
INST_METH	C	10	Installation method if pipe segment crosses	Required only if pipe segment crosses water body which is 100 feet in width or greater.	OC, TT, OTHER, [null]	Y- for segments that cross water

			water body which is 100 feet in width or greater	OC=Open cut, TT=Trenchless technology, OTHER=other method		body which is 100 feet in width or greater N – for all other pipelines
QUALITY_CD	C	1	Positional Accuracy	Operator's estimate of the positional accuracy of the submitted data. A=within 5 feet; B=between 5 and 50 feet; C=greater than 50 feet; D=unknown	A,B,C,D	Y
MAOP	I	5	MAOP (gas) or MOP (liquid)	Maximum (Allowable) Operating Pressure in psig (pounds per square inch gauge). Sample value: 1000		Y
CLASS	I	1	Class location	(Gas) Predominant class location for a gas transmission pipe segment (per §192.5)	1, 2, 3, 4	Y- for gas operators
GAS_HCA	C	1	Gas HCA Segment	(Gas) Pipe segment is in a High Consequence Area (per §192.903)	Y, [null]	Y
PA_AFF	C	1	Segment « could affect » HPA or OPA HCA	(Liquid) Pipe segment is in an area that could affect a Populated High Consequence Area. These areas are also known as Highly Populated Areas or Other Populated Areas.	Y, [null]	Y
ECO_AFF	C	1	Segment « could affect » Ecological HCA	(Liquid) Pipe segment is in an area that could affect an Ecologically Sensitive High Consequence Area (either operator-determined HCA or one of the HCA datasets supplied by PHMSA).	Y, [null]	Y
DW_AFF	C	1	Segment « could affect » Drinking Water HCA	(Liquid) Pipe segment is in an area that could affect a Sole-Source Drinking Water High Consequence Area (either operator-determined HCA or one of the HCA datasets supplied by PHMSA).	Y, [null]	Y
CNW_AFF	C	1	Segment « could affect » Commercially Navigable Waterway HCA	(Liquid) Pipe segment is in an area that could affect a Commercially Navigable Waterway.	Y, [null]	Y
SP_PERMIT	C	1	Segment is part of PHMSA-issued Special Permit	Use this designation for active PHMSA-issued Special Permits only (not expired Special Permits)	Y, [null]	Y - if special permits exist
SP_PERMIT_NO	C	10	Special Permit Number	If segment is operating under a PHMSA-issued Special Permit, note the permit number	Character	Y - if special permits exist
ILI_COR	I	4	Year of last corrosion ILI inspection	Year of last corrosion ILI inspection (use [null] if segment has not had an ILI inspection)		Y
ILI_DENT	I	4	Year of last dent ILI inspection	Year of last dent ILI inspection (use [null] if segment has not had an ILI inspection)		Y
ILI_CRA	I	4	Year of last crack ILI inspection	Year of last crack ILI inspection (use [null] if segment has not had an ILI inspection)		Y
ILI_OTH	I	4	Year of last other ILI inspection	Year of last other ILI inspection (use [null] if segment has not had an ILI inspection)		Y
DA_YR	I	4	Year of last direct assessment	Year of last direct assessment (use [null] if segment has not had a direct assessment)		Y
COATED	I	1	Coated/uncoated pipe	Identify whether pipe segment is effectively 1=Cathodic Protection coated steel, 2=no CP coated steel, 3=CP bare steel, 4=no CP bare steel, 5=plastic	1,2,3,4,5,6	Y
COAT_TYPE	I	2	Type of coating	Identify whether pipe segment is 1=coal tar enamel, 2=fusion bonded epoxy, 3=asphalt, 4=cold applied tape, 5=polyolefin, 6=extruded polyethylene, 7=field applied epoxy, 8=paint, 9=composite, 10=other, 11=no coating	1,2,3,4,5,6,7,8,9, 10, 11	Y
FRP_CONTRL	C	8	FRP Control Number	Facility Response Plan Control Number for applicable liquid pipe segments (n/a for pipe segments which do not have an FRP)	Character	Y - if segment has an FRP

FRP_SEQ	C	4	FRP Sequence Number	Facility Response Plan Sequence Number for applicable liquid pipe segments (n/a for pipe segments which do not have an FRP)	Character	Y - if segment has an FRP
LEAK	C	2	Type of leak detection	Identify whether leak detection is SC=Scada-based, CP=CPM, AE=Aerial patrol only, CO=combination aerial/ ground patrol, IN=Instrumented, GP=Ground patrol for gas operators, IG= Instrument ground patrol IA=Instrumented air patrol	SC, CP, AE, CO, GP, IN, IG, IA	Y
ORG_HYD	I	4	Year of original pressure test	Year of original pressure test (use [null] if segment has not had a hydrostatic test)		Y - if segment had pressure test
ORG_HYD_PR	C	8	Original pressure test pressure	Pressure of original pressure test in psig, with up to one decimal place (use [null] if segment has not had a pressure test)		Y - if segment had pressure test
LAST_HYD	I	4	Year of last pressure test	Year of last pressure test (use [null] if segment has not had a pressure test)		Y - if segment had pressure test
LAST_HYD_PR	C	8	Last pressure test pressure	Pressure of last pressure test in psig, with up to one decimal place (use [null] if segment has not had a pressure test)		Y - if segment had pressure test
NOTES: 1 I – Integer; C – Character; D – Double. 2 Y – Yes; N – No.						

Figure 3-1. Attribute field definitions for pipelines.

Figure 3.2 Additional Pipeline Facilities Attribute Tables

A. Pump or Compressor Stations

Type of layer: Point, representing the centroid of each pump/compressor station's dedicated property location

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
STATION_ID	C	30	Unique identifier for station	Assigned by the operator. This is a unique identifier for the station. Dedicated property location (do we want any other attributes? Signify whether pump or compressor?)	Character	Y
PUMPCOMP	C	1	Pump or compressor station?	Signifies whether record is a pump (P) or compressor (C) station	P,C	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3.2 Additional Pipeline Facilities Attribute Tables

B. Mainline Block Valves

Type of layer: Point, representing the centroid of each mainline block valve

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
VALVE_ID	C	30	Unique identifier for valve	Assigned by the operator. This is a unique identifier for the specific valve.	Character	Y
VALVE_TYPE	C	5	Mainline block valve location and type (point)	Type of valve: BV= Ball valve, GV= Gate, PV=Plug Valve CV=Check Valve OTHER=Other (e.g., butterfly and globe)	BV,GV,PV,CV	Y
OPER_TYPE	C	5	Operation of valve	Type of valve operation: MOV=Manually operated valve, RCV=remotely controlled valve, ASV=Automatic Shutoff valve, CV=Check valve NO= no operator	MOV,RCV,.ASV, CV, NO	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3.2 Additional Pipeline Facilities Attribute Tables

C. Gas Storage Fields

Type of layer: Polygon, representing the boundary of a gas storage field

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
SF_ID	C	30	Unique identifier for storage field	Assigned by the operator. This is a unique identifier for the specific storage field.	Character	Y
STORAGE	C	1	Storage field type	Indicate type of field: B=bottles, U=underground caverns (liquid), A=aboveground holders, I=injection wells (for gas)	B, U, A, I	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3.2 Additional Pipeline Facilities Attribute Tables

D. Refineries

Type of layer: Point, representing the centroid of each active refinery

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
REF_ID	C	30	Unique identifier for storage field	Assigned by the operator. This is a unique identifier for the specific refinery.	Character	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3.2 Additional Pipeline Facilities Attribute Tables

E. Gas Process/Treatment Plants

Type of layer: Point, representing the centroid of each active gas process/treatment plant

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
PLANT_ID	C	30	Unique identifier for plant	Assigned by the operator. This is a unique identifier for the specific plant.	Character	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3-2. Additional Pipeline Facilities Attribute Tables.

Figure 3.3 LNG Plant Attribute Table

Type of layer: Point, representing the centroid of each liquefied natural gas plant

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Link between the geospatial elements (points) and their respective attribute records. Assigned by the operator or the operator's software package (i.e., COVER-ID, MSLINK_ID, etc.). Note the OPER_LINK and the LNG_ID can be identical.	Positive integer	Y
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the LNG Plant. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department.	Positive integer	Y
OPER_NM	C	40	Operator Name	The name of the company that physically operates the facility.	Character	Y
LNG_NM	C	40	LNG Plant Name	Assigned by the operator. The operator's name for the LNG Plant.	Character	Y
LNG_ID	C	20	LNG Plant ID	Assigned by the operator. This is a unique identifier for a specific facility.	Character	Y
STATUS_CD	C	1	LNG Status Code	Identifies the current status of the facility. I=in service, B=abandoned, R=retired.	I, B, R	Y
QUALITY_CD	C	1	Data Quality Code	Operator's estimate of the positional accuracy of the submitted facility data. E=excellent: within 50 feet, V=very good: 50–300 feet, G=good: 301–500 feet, P=poor: 501–1000 feet, U=Unknown.	E, V, G, P, U	Y
REVIS_CD	C	1	Revision Code	Identifies the facility as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
TYPE	C	1	Type of Plant	B=Base load, P=Peak shaving, S=Satellite, M=Mobile/Temporary, O=Other	B,P,S,M,O	Y
CAPACITY	I	6	Total Capacity	Total capacity in bbls		Y
CNSTR_YEAR	I	4	Year Constructed	Year LNG Plant was constructed		Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3-3. Attribute field definitions for LNG plants.

Figure 3.4 Additional LNG Plant Attribute Tables

A. Impoundments

Type of layer: Polygon, representing impoundment (pits built to hold spilled LNG) boundaries.

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
IMPOUND_ID	C	30	Unique identifier for plant	Assigned by the operator. This is a unique identifier for the specific impoundment.	Character	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes.

Figure 3.5 Additional LNG Plant Attribute Tables

A. Exclusion Zones

Type of layer: Polygon, representing exclusion zone boundaries. These should be expressed in closed isopleths, each isopleth representing a specific heat flux value.

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
EZONE_ID	C	30	Unique identifier for plant	Assigned by the operator. This is a unique identifier for the specific impoundment.	Character	Y
HFLUX	D	5	Heat flux	Percentage of the lower flammable limit of the gas (heat flux)		Y

NOTES: 1 I – Integer; C – Character, D - Double
2 Y – Yes.

Understanding Pipeline System and Pipeline Segment Attributes

Some NPMS attributes refer to entire pipeline systems, while other attributes may refer only to a portion of a pipeline system. For example, the INTERSTATE field obviously refers to the pipeline system as a whole, not its individual pipeline segments. Therefore, the INTERSTATE field must contain the same value for every pipeline segment that is included in a pipeline system. On the other hand, a field such as DIAMETER can change during the course of a pipeline system. In such cases, a new pipeline segment with the appropriate value for DIAMETER must be created.

The following fields must contain the same value for every pipeline segment included in a pipeline system:

OPID
OPER_NM
SYS_NM
COMMODITY
CMDTY_DTL1
CMDTY_DTL2
CMDTY_DTL3
CMDTY_DESC
INTERSTATE
OFFSHORE_GG

Fields that **may** contain a different value for each pipeline segment include:

OPER_LINK (must be unique for each segment)
SUBSYS_NM
PLINE_ID
DIAMETER
LOW_STRESS
STATUS_CD
REVIS_CD
MAOP
GRADE
SMYS
PIG
LEAK
COATED
COAT_TYPE
MATERIAL
SEAM_TYPE
CNSTRY_YR
INST_METH
ONSHORE
HCA_AFFECT
SP_PERMIT
SP_PERMIT_NO

ILI
DIR_ASSES
OR_HYDRO
LAST_HYDRO
THROUGHPUT
FRP

3.5 Building the Attribute Data File

Attribute data may be provided in one of the following formats: common GIS export, DBASE (**.**DBF) format, Microsoft Access (**.**MDB), or American Standard Code for Information Interchange (ASCII) text file. In all cases, operators should be careful to follow the field name, field type, and field length standards listed in Figures 3-1 and 3-2.

The Pipeline and Hazardous Materials Safety Administration has developed the *NPMS Metadata/Attribute Builder Version 4.3*. Please note that this replaces version 3.0 of the former metadata and attribute templates. You must use the latest version of the *NPMS Metadata/Attribute Builder* software; the Repository is no longer accepting metadata and attribute submissions made using prior versions. The software operates on Windows personal computers and manages metadata and attribute data entry. The software produces properly formatted Microsoft Access files for NPMS submission.

- **Common GIS export format –** Operators using GIS systems can package attribute data with the associated geospatial data. Acceptable GIS formats are discussed in section 4.1, General Requirements for Digital Geospatial Data. For your convenience, a template ESRI shapefile and personal geodatabase has been developed that contains attributes that meet the NPMS requirements. If you wish you utilize these templates, you may download a zipped file containing the shapefile and geodatabase file from the Making a Submission page on the NPMS Web site (www.npms.phmsa.dot.gov). Please note that the defined projection for these templates is Geographic Latitude Longitude NAD 83 Decimal Degrees; if your data in not in this projection, please re-project as necessary before adding data.
- **DBASE (.DBF) format –** Operators can create a **.**DBF file using one of the commercially available software packages that writes to a **.**DBF file. Options include Access, Fox Pro, Lotus 123, Dbase, and Paradox.
- **Microsoft Access (.MDB)** – Operators can use the *NPMS Metadata/Attribute Builder* to create a properly formatted .MDB file for submission.
- **ASCII format –** The file should be a comma-delimited text file or Excel spreadsheet**.**

3.6 Using *NPMS Metadata/Attribute Builder*

The *NPMS Metadata/Attribute Builder* software is available at no cost. The software can be downloaded from the NPMS Web site and is available on CD. The software simplifies the creation of NPMS attribute data by minimizing repetition and handling all formatting issues. Additionally, the software assists the user in effortlessly creating the required metadata.

Note: *Attribute data that were created with earlier versions of the NPMS Attribute Template software cannot be modified with the new NPMS Metadata/Attribute Builder software. In this scenario, the attribute data must be recreated via the NPMS Metadata/Attribute Builder software. Once the attribute*

data are created with the NPMS Metadata/Attribute Builder software, the data may be modified with the NPMS Metadata/Attribute Builder software.

3.6.1 System Requirements

The system requirements are a 486 processor (or higher) personal computer that uses Microsoft Windows 95, or later. The system should have at least 8 megabytes of RAM and a CD-ROM drive.

3.6.2 Installation Instructions

Before installing any version of NPMS software, close all open programs. Also, if you are running an older copy of the NPMS software and are attempting to install a new version, **uninstall the existing NPMS software** before proceeding with these steps.

From CD-ROM:

1. Insert the CD-ROM.
2. From Windows Explorer, double click on Setup.exe.
3. Follow the on-screen installation instructions.

   Note: *The CD-ROM also contains these standards in Adobe Portable Document Format (.PDF) and Adobe Acrobat Reader, which is required to view or print the document.*

From the Internet:

1. Create a directory anywhere on your system's hard drive called "NPMS_Software."
2. Download the file "NPMS_Builder_v4.3.zip" from the NPMS Web site and copy the file to the NPMS_Software folder created in step 1.
3. From Windows Explorer right click on NPMS_Builder_v4.3.zip and choose to unzip the file to this location (WinZip is available for free download from our Web site if needed). A folder and a number of files will result from the unzipping.
4. Double click on \NPMS_Software\Setup.exe.
5. Follow the on-screen installation instructions. This wizard creates an NPMS_Builder directory at C:\Program Files (unless the user specifies elsewhere) where the program is stored, as well as a link to the program under the Start menu.

3.6.3 Step-by-Step User Instructions

NPMS Metadata /Attribute Builder simplifies the data entry process by collecting only the metadata needed for the submission and by minimizing repetition for pipeline systems and LNG plants. To use the software, follow the instructions below.

1. From the Start/Programs menu, click on NPMS Metadata Attribute Builder to start the program. The NPMS Metadata/Attribute Builder Version 4.0 interface appears on-screen.

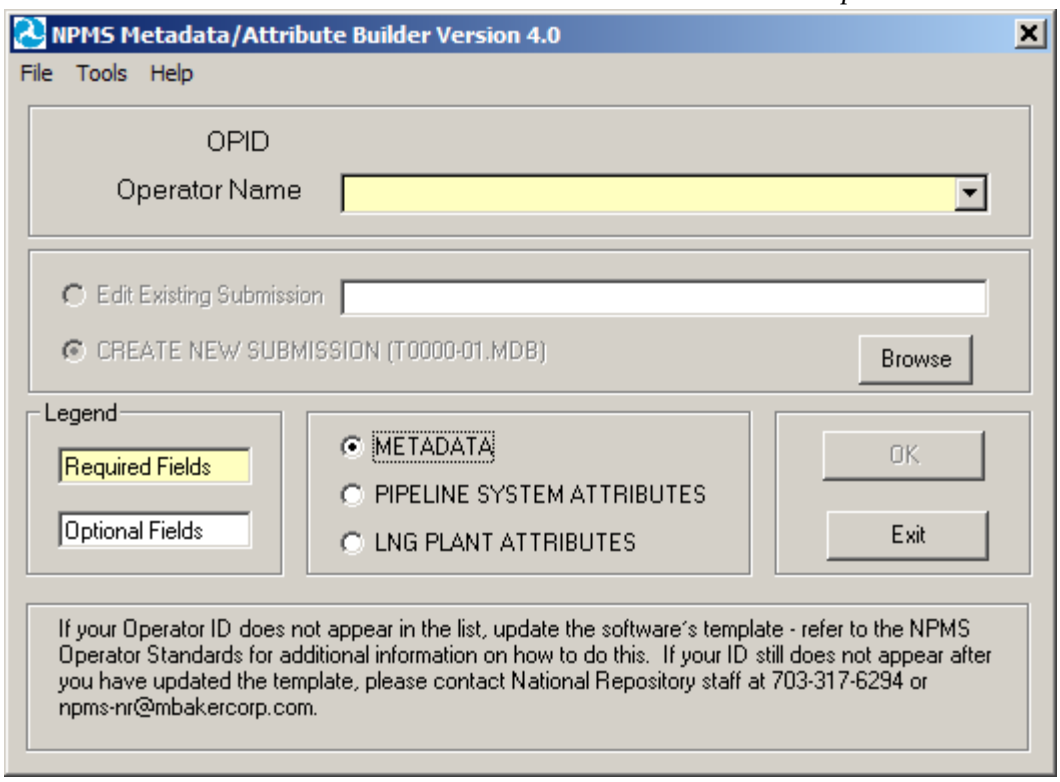


Figure 3-6. *NPMS Metadata/Attribute Builder* initial data entry screen.

2. The initial screen requires the user to select the correct OPID. A list of valid operator names and OPIDs is provided. If you do not know what your OPID is, you may use the Operator ID search function on the NPMS Web site or you may contact the designated PHMSA representative listed in the contact information section at the beginning of this manual. If your operator ID does not appear on the drop-down list of the *NPMS Metadata/Attribute Builder*, please refer to Appendix A of this manual. If you need additional assistance, please contact National Repository Staff for instructions on adding your Operator ID and Name. The initial attribute screen also allows the user to either edit an existing file or to start a new file.

3. If there is existing data for the operator you have selected and the submission is located in the current working directory, the default table for the chosen operator will appear in the "Browse" box. "Edit Existing Submission" will be the default choice. Data fields shown with a yellow background are required; while data fields shown with a white background are optional. Decide if you want to edit an existing file or start a new file. NPMS data is stored in the same directory where the software was installed, usually C:\Program Files\NPMS_Builder.

   Note: *If there is existing data for the operator you have selected and the submission is located in the current working directory, the default table for the chosen operator will appear in the "Browse" box, and "Edit Existing Submission" will be the default choice of action. If you are creating a new submission, select that option and a new table will be created for the operator submission you have chosen.*

4. This screen is the starting point in creating metadata and attributes. From this screen, depending on what data you wish to generate or update, you should select METADATA (for metadata data

entry), PIPELINE SYSTEM ATTRIBUTES (for attribute data entry for pipeline systems), or LNG PLANT ATTRIBUTES (attribute entry for LNG plants) and click the OK button. Depending on the option selected, the screen will advance to the appropriate screen. When you have completed the option you selected, you will be returned to this initial screen after you "Save and Exit". At that point, you may select another option and click OK to be advanced to the screens relevant to that particular option, or you may click Exit to close the software.

5. **Note:** In some cases, users with Windows 7 are unable to view the Metadata file after it has been created using the NPMS Builder Software because of a compatibility setting on the computer. Typically it would be stored here: C:\Program Files\NPMS_Builder. However, in Windows 7, a "Compatibility files" folder, a virtual storage, gets created to hold the Metadata file that cannot be found or accessed while in this location.

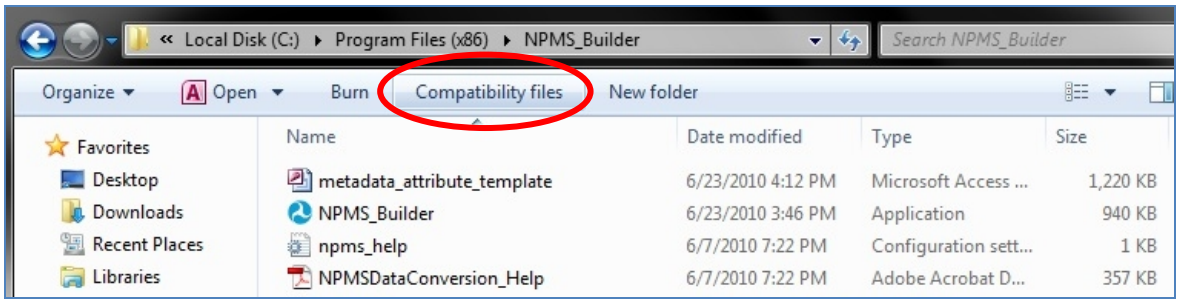


Figure 3-7. ***Example image of the Compatibility files folder on Windows 7.***

If users click on the "Compatibility files" button (seen in the screen shot above), it directs operators to a window (seen in the screenshot below). Here operators can simply **Drag & Drop** or **Copy & Paste** the Metadata file to the folder that it should be saved in. This should allow users to open/access/path to their Metadata file without issues.

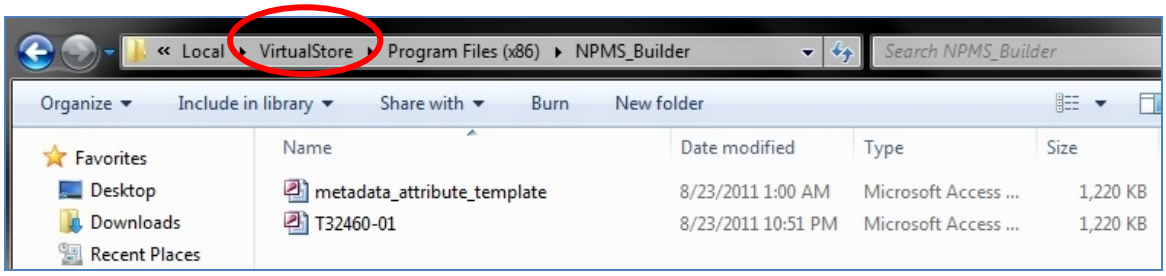


Figure 3-8. ***Example image of the VirtualStore folder on Windows 7.***

If "PIPELINE SYSTEM ATTRIBUTES" was selected on the initial screen,

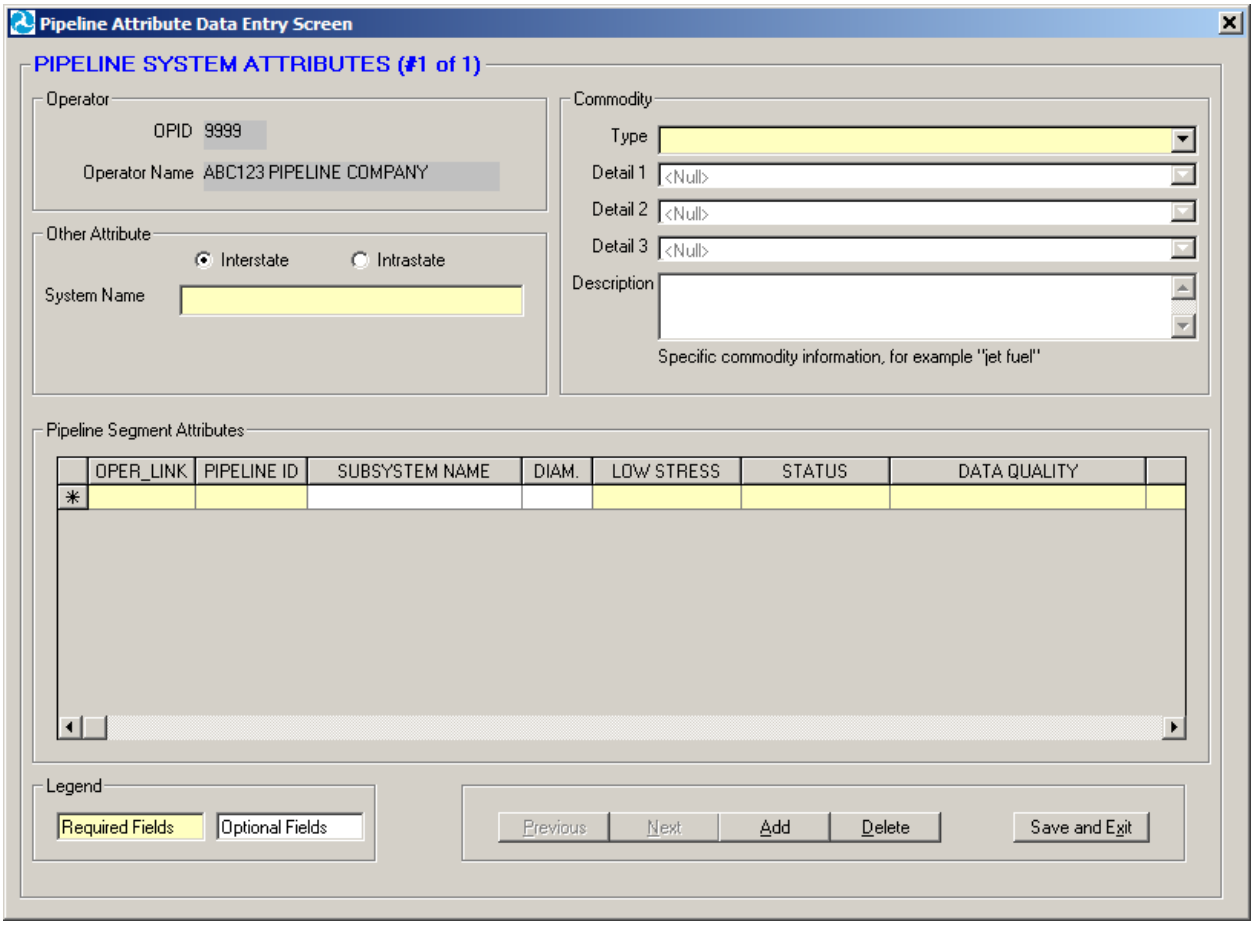


Figure 3-9. Pipeline attributes data entry screen.

1. Complete information for the pipeline system as a whole. The upper section contains information that needs to be completed only once for each pipeline system. This includes the system name, information about the commodities transported by the system, and the system's interstate/intrastate status. The application saves data automatically as it is entered.
2. Complete information for the associated pipeline segments. When all of the required information in the upper portion has been completed, go to the lower portion of the screen to add information about the individual pipeline segments that comprise the pipeline system. Remember, each pipeline system must have at least one pipeline segment. The lower portion allows the operator to record information about items that may change during the course of the pipeline system, such as PIPELINE_ID (PLINE_ID), SUBSYSTEM NAME (SUBSYS_NM), DIAMETER, LOW STRESS, STATUS (STATUS_CD), DATA QUALITY (QUALITY_CD), and REVISION (REVISION_CD). The application saves data automatically as it is entered. It is expected that when information does not change, values will be repeated for each pipeline segment. **However, OPER_LINK cannot be duplicated. Each pipeline segment must have a unique OPER_LINK value.**
3. To delete a record within the Pipeline Segment Attributes section, highlight the row by clicking on the far left side of the grid and press the Delete key on your keyboard.

4. The “Add” button allows you to populate attributes for another pipeline system and its related segments. When you click the button, the form will be cleared of its existing values so that you may start anew for the added pipeline system. For each added pipeline system, you should populate the upper and lower portion of the screen. For ease of use, the upper left corner of the form will indicate which system number you are on and how many systems exist.
5. If, at any time, you wish to cancel your addition, click on the “Cancel” button. You will return to the previous pipeline system, and the addition will not be saved. This button is available only when you first add the system; when you move to a previously created system, you will no longer be able to cancel the system. In this scenario you should use the “Delete” button to remove the pipeline system and all the associated segment attributes listed under that specific system.
6. The “Previous” and “Next” buttons allow forward and backward movement among previously added pipeline systems. For ease of use, the upper left corner of the form will indicate which system number you are on and how many systems exist.
7. Upon completion, click on the “Save and Exit” button. A message will indicate that the file has been saved to a **.**MDB file in the current working directory (likely C:\Program Files\NPMS_Builder). This file will be readable by the *NPMS Metadata/Attribute Builder* software. If the file is ever moved, keep track of where the file has been moved to and be sure to navigate to the **.**MDB file using the “Browse” feature on the initial NPMS attribute screen. As part of the exit process, you have the option to be routed to the NPMS FTP Upload Web site page (via your local internet browser). **This will not automatically load or submit your Metadata file to the NPMS**. From this page, you may upload your .MDB to the FTP server for submission to the NPMS, if ready to do so.

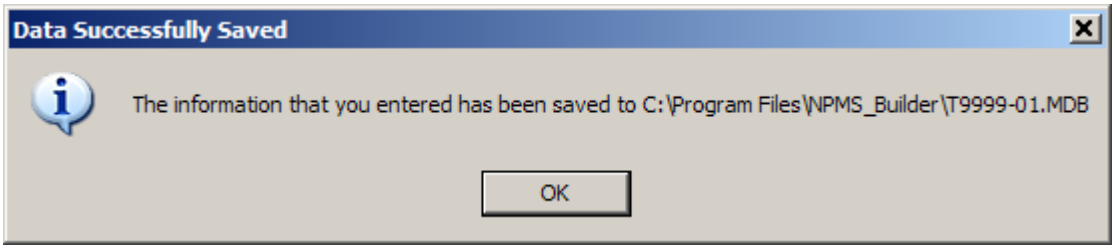


Figure 3-10. Message indicating path and filename of saved file.

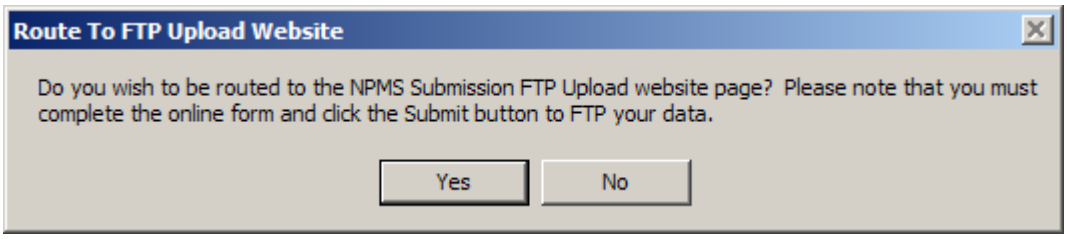


Figure 3-11. Message providing the option to be routed to the FTP Web site page.

If “LNG PLANT ATTRIBUTES” was selected on the initial screen,

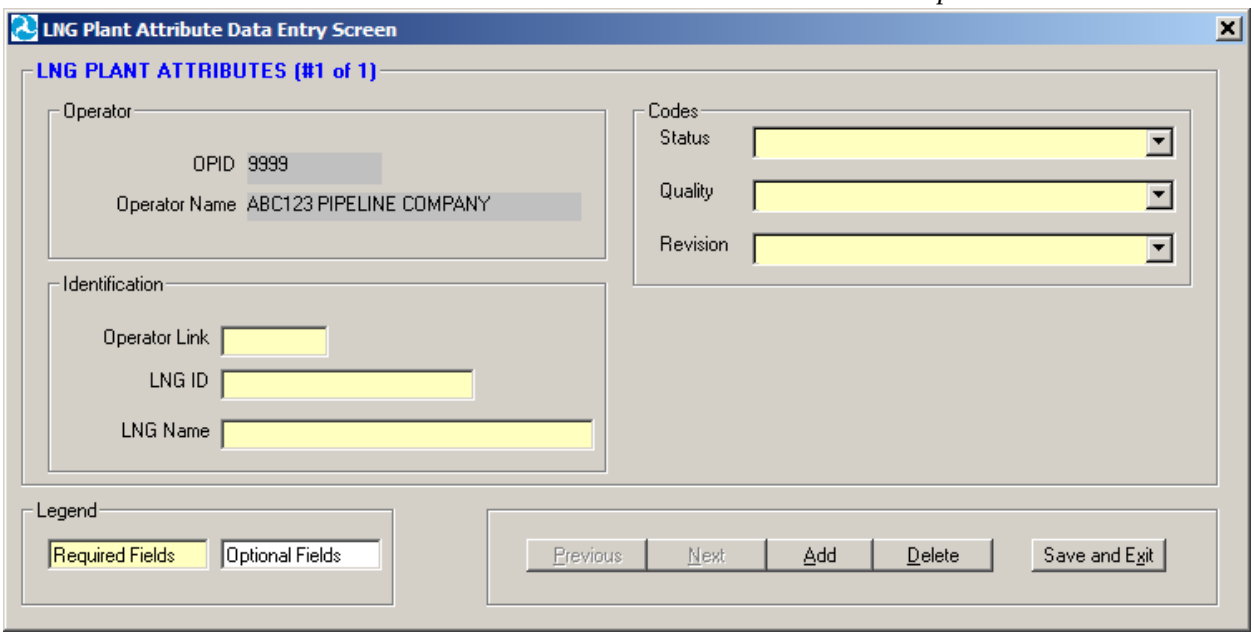


Figure 3-12. LNG Plant attributes data entry.

1. Enter all required data for each LNG plant.
2. Use the “Add” button to add an LNG plant.
3. The “Previous” and “Next” navigation buttons allow forward and backward movement among existing LNG plants.
4. Use the “Cancel” button to cancel an LNG plant addition.
5. Use the “Delete” button to delete an existing LNG plant.
6. Upon completion, click on the “Save and Exit” button. A message will indicate that the file has been saved in the current working directory (likely C:\Program Files\NPMS). This file is readable by the NPMS attribute software. If the file is ever moved, keep track of where the file has been moved to and be sure to navigate to the **.**MDB file using the “Browse” feature on the initial NPMS attribute screen. As part of the exit process, you have the option to be routed to the NPMS FTP Upload Web site page (via your local internet browser). From this page, you can upload your .MDB to the FTP server for submission to the NPMS.

If “METADATA” was selected on the initial screen, refer to section 6 of this manual for additional information.

NPMS Metadata/Attribute Builder uses a Microsoft Access database named “metadata_attribute_template.mdb” as a template for your data population. The template file is included in the software Zip file and is automatically placed in the correct location during the installation process. This template contains all of the data tables and domain-like tables that the *NPMS Metadata/Attribute Builder* software needs to function properly. Over time, the values in the domain-like tables may be updated to better reflect valid values, such as when the operator list is changed. When this occurs, the entire metadata_attribute_template.mdb will be updated; you should replace your existing template with

the updated one. Please see Appendix A of this manual for a detailed description on how to update the template.

4. Geospatial Data

Geospatial data represent pipeline systems (linear), LNG Plant (point), and breakout tank (point) elements. This data must be submitted in digital format; please contact National Repository staff if you are unable to meet this standard. All submissions must meet the positional accuracy standard described in section 3.1.

4.1 General Requirements for Digital Geospatial Data

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

1. Use a real world coordinate system based on North American Datum (NAD) 1983 or NAD 1927. The Repository accepts unprojected data in decimal degrees and data that employ a common projection scheme such as Universal Transverse Mercator (UTM) or State Plane. Projected data may employ either English (feet) or metric (meters) measurement units. In all cases, clearly state the **datum, coordinate system/ projection, and measurement units** in the accompanying metadata.

   Note: *Digital data that does not employ real world coordinates, such as CAD files that employ an origin point of 0,0 in the lower left hand corner of the drawing cannot be accepted by the Repository.*

2. Provide spatially accurate data. NPMS required positional accuracy is described in section 3.1. Base maps or other source materials used to develop digital geospatial data submissions should have a scale between 1:24,000 (1" = 2,000') and 1:1,200 (1" = 100'). The spatial accuracy of the digital submission should be clearly stated in the accompanying metadata.

3. Always submit pipeline systems (lines) and LNG plants (points) in separate files.

4. Submit only qualifying pipeline and LNG plant data. The submitted digital file should contain only pipeline segments representing natural gas transmission lines, hazardous liquid trunklines, and points representing LNG plants. Separate all other data such as gathering lines, spur lines, valves, and base map data such as buildings, roads, property lines, political boundaries, scanned images, etc.

   Note: *Curves should be represented by a pipeline segment with as many vertices/shape points as is required to provide the appropriate cartographic appearance. CAD system arcs should be avoided.*

   Note: *Do not resubmit abandoned pipelines to the NPMS, even when completing a full submission. Please contact NPMS staff if you are unsure of which lines are currently abandoned in the NPMS for your company. Your company's abandoned lines will not show up in your PIMMA account or when you use the Review Your NPMS Data Online tool.*

5. Ensure that the reproduction and submission of any map or data does not violate existing copyright laws.

6. Review data for quality. Common problems include:
   a. overshoots and undershoots at pipeline intersections,
   b. stray points and lines that do not represent a pipeline or LNG plants, often left from deleting non-NPMS data, and/or

c. duplicate points and lines.

7. Use commonly accepted digital media. The Repository accepts CD-ROMs and Internet transmissions. Check the NPMS Web site for details.

4.2 Digital Submission Techniques

The instructions below provide general assistance to operators using some of the more popular GIS and CAD software packages. Some currently available GIS formats are not discussed, but may be acceptable. Operators interested in submitting data in a format not provided for in these instructions should contact the Repository to determine its acceptability.

The instructions may not correspond to the exact version of the software package the operator is using, nor do they reflect any software customizations that may have been made. Operators who encounter problems are encouraged to contact their software vendor for technical support.

4.2.2 ESRI ArcGIS Shapefile Format Data Submissions

Operators may submit data to the NPMS using the shapefile format of ESRI's ArcGIS desktop software. The following describes how shapefiles must be prepared:

1. Isolate the data to be submitted to the NPMS into a single line (pipeline) or point (LNG Plant) layer.
2. Right-click on the layer in the Table of Contents and select the Data > Export Data command to export the data. This will create three files (**.**SHP, **.**SHX, **.**DBF). If using ESRI's ArcMap desktop software, use the "Export to Shapefile" command.
3. Submit all exported files, including the **.**SHP (geospatial data file), the **.**SHX (index file), and the **.**DBF (attribute data file) and the .PRJ (projection file) for each layer to the NPMS.

For your convenience, a template ESRI shapefile has been developed that contains attributes that meet the NPMS requirements. If you wish you utilize these templates, you may download a zipped file containing the shapefile and geodatabase file from the Making a Submission page on the NPMS Web site (www.npms.phmsa.dot.gov). Please note that the defined projection for these templates is Geographic Latitude Longitude NAD 83 Decimal Degrees; if your data is not in this projection, please re-project as necessary before adding data.

4.2.3 ESRI ArcGIS Geodatabase Format Data Submissions

Operators may submit data to the NPMS using the personal geodatabase or file geodatabase format of ESRI's ArcGIS desktop software. The following describes how the personal/file geodatabase must be prepared:

4. In the case of a personal geodatabase, submit the output .mdb file. In the case of a file geodatabase, zip the GDB folder and submit it to the National Repository.

Appendix C describes an alternate linear referencing submission format. For your convenience, an ESRI personal and file geodatabase template has been developed that contains attributes that meet the NPMS requirements. If you wish you utilize these templates, you may download a zipped file containing the templates from the Making a Submission page on the NPMS Web site (www.npms.phmsa.dot.gov).

Please note that the defined projection for these templates is Geographic Latitude Longitude NAD 83 Decimal Degrees; if your data is not in this projection, please re-project as necessary before adding data.

4.2.4 AutoCAD Data Submissions

The NPMS accepts geospatial data in a CAD format using the .dwg, .dgn or .dxf file extensions. Making a CAD submission requires some additional steps and precautions:

1) A coordinate system must be associated with the data and recorded properly in the Metadata. A NAD83 geographic coordinate system is preferred for CAD submissions to the NPMS.

2) The CAD drawing **MUST** be stripped of **ALL** data layers other than the pipelines intended for submission to the NPMS. NPMS staff will not accept any CAD submission with other included data layers, such as roads or other pipeline related facilities. Every line in the drawing will be considered a pipeline. Additionally, the submission should not include any annotation.

3) The *NPMS Metadata/Attribute Builder* tool must be used to submit the attributes.

4) There must be unique information stored in the pipeline Layer Properties for NPMS staff to use when joining the Pipeline Segment Attributes records from your *NPMS Metadata/Attribute Builder* file with the correct pipeline segments from your CAD drawing. When using the *NPMS Metadata/Attribute Builder*, populate the numeric OPER_LINK field for each unique Pipeline Segment Attribute record with the Layer Description for the corresponding pipeline(s). Numeric Layer Descriptions matching the corresponding OPER_LINK values is the preferred method; however this concept can be applied to the PLINE_ID if using text Layer Descriptions. It may be necessary to separate the pipeline segments into multiple layers in the drawing so each layer's description will have the same unique value as its corresponding Pipeline Segment Attributes. Adding the OPER_LINK or PLINE_ID values to the drawing as annotation is not acceptable.

A CAD submission that disregards any of these requirements will not be accepted as a complete NPMS submission.

*An ESRI Geodatabase is the preferred method for NPMS submissions.

4.2.5 Smallworld Data Submissions

Operators may submit geospatial data using Smallworld. The following procedures have been developed to assist operators in submitting this type of data. It is important to note that the data must conform to the datum, projection, scale, and control requirements outlined in these standards.

1. Isolate the data (real world objects) to be submitted to the NPMS.
2. Use the FME (Feature Manipulation Engine), an add-on package available from Smallworld or Safe Software Inc.
3. Submit the Shape file to the NPMS.

4.2.6 Coordinate Digital Data Submissions

This type of submission will include a file containing geospatial coordinate data..

The file formats for linear pipelines and point-based pipeline facilities, LNG plants, and breakout tanks are different. Both file formats are described below, including record layouts.

Geospatial File for Linear Pipeline Digital Data Submissions. To submit digital data for pipelines, the operator has the option of creating one of two types of files: an unformatted comma delimited text/ASCII file or a Microsoft Excel file. In both cases, the file will contain longitude coordinate values, latitude coordinate values, and the OPER_LINK value. Each point contains a single longitude value and a single latitude value. A single pipeline is represented by a starting point, an end point, and any inflection point. The number of points needed to represent the pipeline is determined by the operator. At the minimum two points are needed – the starting point and the end point. However, the operator should be sure to use enough points to accurately portray the pipeline. Longitude and latitude coordinates should be stated in decimal degrees (no projection). A minimum of five decimal places is required. Western Hemisphere longitude should be a negative value. Acceptable values are -180.00000 to 0.00000. Northern Hemisphere latitude should be a positive value. Acceptable values are 0.00000 to 90.00000.

The OPER_LINK value is assigned by the operator and is the link between the geospatial segment and the pipeline attributes. A collection of points which represents a single pipeline segment is assigned to a single OPER_LINK value. For instance, a pipeline segment which as a starting point, one inflection point, and an end point has three sets of coordinates all related to the same OPER_LINK value.

Text/ASCII file format:
The text/ASCII file format will include the unique identifier (OPER_LINK), followed by the longitude value which is followed by the latitude value; each value should be separated by a comma (note that there should be no space following the comma). Additional coordinate pairs will be listed in order of appearance along the line segment until all coordinate pairs are displayed. Each line segment submitted must contain a minimum of two coordinate pairs to represent the beginning and end of a straight line. The text/ASCII file should not include any formatting, including tabs, bold text, or underscoring, as it interferes with processing of the information. The text/ASCII file extension of the output file should be .txt. Refer to Figure 4-1 for an example of text/ASCII format geospatial coordinate file.

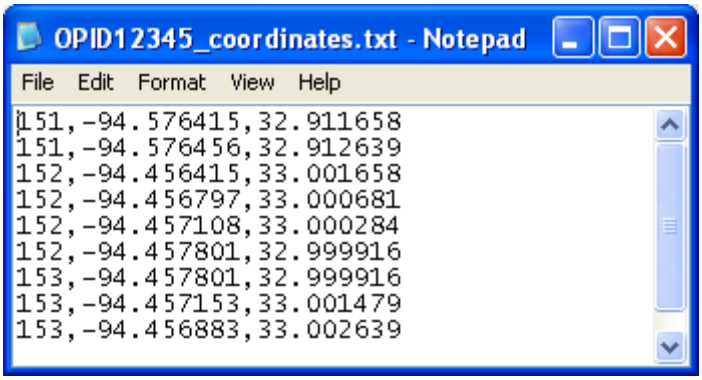


Figure 4-1. Text/ASCII file containing pipeline coordinates.

Microsoft Excel file format:
The Microsoft Excel file format contains a separate record/row for each coordinate pair (longitude and latitude). The file should contain three columns: one column storing the unique identifier (OPER_LINK) value; one column storing the longitude coordinate; and one column storing the latitude coordinate. Coordinate pairs will be listed in order of appearance along the line segment until all coordinate pairs are

displayed. The Excel file extension of the output file should be .xls or xlsx. Refer to Figure 4-2 for an example of an Excel format geospatial coordinate file.

OPID12345_coordinates.xlsx

	A	B	C	D
1	OPER_LINK	LONGITUDE	LATITUDE	
2	151	-94.576415	32.911658	
3	151	-94.576456	32.912639	
4	152	-94.456415	33.001658	
5	152	-94.456797	33.000681	
6	152	-94.457108	33.000284	
7	152	-94.457801	32.999916	
8	153	-94.457801	32.999916	
9	153	-94.457153	33.001479	
10	153	-94.456883	33.002639	
11				

Figure 4-2. Excel file containing pipeline coordinates.

***Geospatial File for Point Digital Data Submissions*.** To submit digital data for pipeline facilities, LNG Plants, or breakout tanks , the operator has the option of creating one of two types of files: an unformatted comma delimited text/ASCII file or a Microsoft Excel file. In both cases, the file will contain the longitude coordinate value(s), the latitude coordinate value(s), and the unique identifier (OPER_LINK) value. Each point contains a single longitude value and a single latitude value. Longitude and latitude coordinates should be stated in decimal degrees (no projection). A minimum of five decimal places is required. Western Hemisphere longitude should be a negative value. Acceptable values are -180.00000 to 0.00000. Northern Hemisphere latitude should be a positive value. Acceptable values are 0.00000 to 90.00000. Each point represents a single LNG Plant. Each point should be recorded on a separate line, the case of the text/ASCII file, or separate row, in the case of the Microsoft Excel file.

The OPER_LINK value is assigned by the operator and is the link between the geospatial point and the pipeline facility/LNG Plant/breakout tank attributes. Each pipeline facility/LNG Plant/breakout tank will have a unique OPER_LINK value.

The location should reflect the approximate geographic center of the pipeline facility/LNG Plant/breakout tank . If the location depicts something other than the approximate center, note this in Question 5 of the cover/transmittal form.

Text/ASCII file format:
In the text/ASCII file, the OPER_LINK value is followed by the longitude value which is followed by the latitude value; each value should be separated by a comma (note that there should be no space following the comma). The text/ASCII file should not include any formatting, including tabs, bold text, or underscoring, as it interferes with processing of the information. The text/ASCII file extension of the output file should be .txt. Refer to Figure 4-3 for an example of a text/ASCII format LNG Plant geospatial coordinate file.

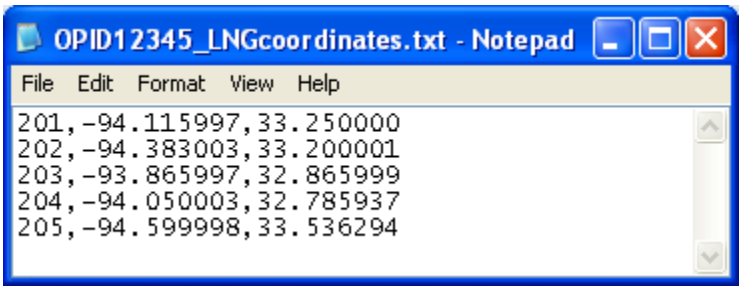
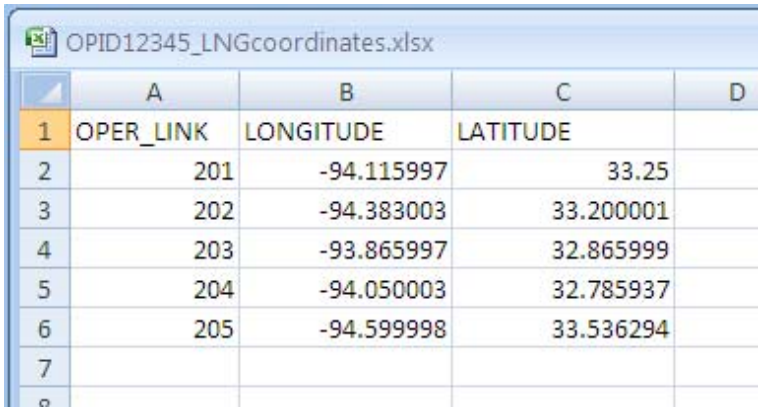


Figure 4-3. Text/ASCII file containing LNG Plant coordinates.

Microsoft Excel file format:
The Microsoft Excel file format will include a separate record/row for each coordinate pair (longitude and latitude). The file should contain three columns: one column storing the unique identifier (OPER_LINK) value; one column storing the longitude coordinate; and one column storing the latitude coordinate. The Excel file extension of the output file should be .xls or xlsx. Refer to Figure 4-4 for an example of an Excel format LNG Plant geospatial coordinate file.



	A	B	C	D
1	OPER_LINK	LONGITUDE	LATITUDE	
2	201	-94.115997	33.25	
3	202	-94.383003	33.200001	
4	203	-93.865997	32.865999	
5	204	-94.050003	32.785937	
6	205	-94.599998	33.536294	
7				

Figure 4-4. Excel file containing LNG Plant coordinates.

5. Public Contact Information

Public Contact information is required for all pipeline submittals. This public contact information is separate from the submission contact information provided in your metadata and on your cover letter. The public contact information will be available to users of the NPMS Web site and web mapping applications. The submission contact information will only be used internally by NPMS staff; the submission contact information will not be distributed to the public.

Each pipeline operator has the choice of picking either an individual (example: “Joe Smith”) or an entity (example: “Public Relations Department”) to be responsible for handling public questions about their pipelines. **Pick one or the other of these options; do not pick both.** The pipeline operator also has the choice of specifying multiple contacts based on geography or operating units within the company. **Note:**

if an operator chooses to have more than one contact, he or she must contact NPMS staff before submitting this information.

Public Contact information is submitted through the NPMS Web site at https://www.npms.phmsa.dot.gov/OperatorPublicContact/OperatorPublicContact.aspx. When entering contact information, you will see the form shown in Figure 5-1.

Operator ID: *

3-ACADIAN GAS PIPELINE SYSTEM

(If your Operator ID is missing from this list, please contact NPMS Staff at npms-nr@mbakercorp.com or 703-317-6294)

Contact Information:

Please enter the first name, last name and title OR the contact entity.

First Name:

Last Name:

Title:

OR Contact Entity:

(For example, "Public Relations Department")

Address 1: *

Address 2:

City: *

State: *

(Please enter the State Abbreviation. For example: VA)

Zip: *

Phone: *

(Do not put spaces or hyphens. For example: 7039608800)

Extension:

Fax:

(Do not put spaces or hyphens. For example: 7039608800)

Email: *

Submit

Figure 5-1. Operator Public Contact Information Form.

Most of the information is self-explanatory. You will need to decide whether you are designating an individual or an entity. If you choose an individual, fill in the individual's first name, last name, and title. If you choose an entity, fill in the "Entity Name" field. When finished, click on the Submit button. If you do not fill in the appropriate fields for your choice, you will receive an error message telling you which field or fields you still need to complete. If your Operator ID is not contained in the list of operators, contact NPMS staff at npms-nr@mbakercorp.com or 703-317-6294.

If you need to edit your contact information in the future, please resubmit the information through this form. Public contact information may be updated at anytime throughout the year. If you would like to designate a unique public contact for various portions of your NPMS data, please contact NPMS staff.

Figure 5-2 shows attribute information for the Operator Public Contact Information Form.

Operator Public Contact Information

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator ID	PHMSA Operator ID.	Positive Integer	Y
FNAME	C	50	First Name	First name of designated contact person, if applicable.	Character	N*
LNAME	C	50	Last Name	Last name of designated contact person, if applicable.	Character	N*
TITLE	C	50	Title	Title of designated contact person, if applicable.	Character	N*
ENTITY	C	50	Position	Entity name, if applicable.	Character	N*
ADDRESS1	C	50	Address 1	Address, first line.	Character	Y
ADDRESS2	C	50	Address 2	Address, second line.	Character	N
CITY	C	50	City	City.	Character	Y
STATE	C	2	State	Two-letter abbreviation for state.	Character	Y
ZIP	I	5	ZIP Code	Five-digit ZIP code.	Integer	Y
PHONE	C	10	Telephone Number	Daytime telephone number of designated contact.	Character	Y
EXT	C	5	Telephone Extension	Telephone extension of designated contact.	Character	N
FAX	C	10	Fax Number	Fax number of designated contact.	Character	N
EMAIL	C	50	Email Address	Email address of designated contact.	Character	Y

NOTES: 1 I – Integer; C – Character.
2 Y – Yes; N – No.
* You must choose either A or B from the following: A) FNAME, LNAME, TITLE or B) ENTITY.

Figure 5-2. Attribute field definitions for the Operator Public Contact Information form.

6. Metadata

Submission of metadata created with the NPMS Metadata/Attribute Builder is an NPMS requirement. Metadata is textual information that describes geospatial data. It describes the content, quality, condition, and other characteristics of data. It provides additional background information such as descriptions and points of contact. Similar pieces of information must also be included in a cover/transmittal letter with your submission (See section 3.2 for cover/transmittal letter requirements).

Metadata must accompany all geospatial data submissions sent to the NPMS. The operator will include information regarding the source and the quality of the data submission. The metadata will assist the Repository and the end user of pipeline and LNG plant data. As a general rule, there should be one metadata file created for each pipeline system.

6.1 Background

Metadata was developed to help "insure an organization's investment in data. As personnel change or time passes, information may be lost and the data may lose their value."[2] Where metadata is not collected, future staff may not trust the data due to its unknown quality. Metadata also provides information necessary for data transfer. It allows the receiver to process, interpret, and incorporate the data properly with another data set.

Executive Order 12906 requires that each federal agency use the Federal Geographic Data Committee (FGDC) Metadata Standard, "Content Standards for Digital Geospatial Metadata," to document digital geospatial data that they produce. The FGDC is an interagency committee that promotes the coordinated use, sharing, and dissemination of geospatial data on a national basis. PHMSA must produce metadata compliant with the FGDC Metadata Standard.

The *FGDC Metadata Standard for Digital Geospatial Metadata* provides a standard format, specifies the requirements for data collection, and establishes a common set of terminology and definitions. The standard is somewhat complex and is composed of mandatory, mandatory if applicable, and optional sections. PHMSA is collecting only mandatory information or information that is critical to clear understanding of the operator submittal.

6.2 Using *NPMS Metadata/Attribute Builder*

To simplify the operator's metadata submission, PHMSA has developed *NPMS Metadata/Attribute Builder* software. The software is available at no cost and can be downloaded from the NPMS Web site. The *NPMS Metadata/Attribute Builder* has been customized for NPMS submissions. Do not use other metadata software. Use of the *NPMS Metadata/Attribute Builder* software to generate the metadata information is required.

Note: *Metadata that was created with earlier versions of the NPMS Metadata Template software cannot be modified with the new NPMS Metadata/Attribute Builder software. In this scenario, the metadata must be recreated via the NPMS Metadata/Attribute Builder software. Once the metadata is created with the NPMS Metadata/Attribute Builder software, it may be modified with the NPMS Metadata/Attribute Builder software.*

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[2] Content Standards for *Digital Geospatial Metadata Workbook*, Version 1.0, March 24, 1995.

6.2.1 System Requirements

The system requirements are a 486 processor (or higher) personal computer that uses Microsoft Windows Windows XP, Windows 7 or Windows 8. The system should have at least 2 GB of RAM.

6.2.2 Installation Instructions

From the Internet:

1. Create a directory anywhere on your system's hard drive called "NPMS_Software."
2. Download the file "NPMS_Builder_v4.3.zip" from the NPMS Web site and copy the file to the NPMS_Software folder created in step 1.
3. From Windows Explorer right click on NPMS_Builder_v4.3.zip and choose to unzip the file to this location (WinZip is available for free download from our Web site if needed). A folder and a number of files will result from the unzipping.
4. Double click on \NPMS_Software\Setup.exe.
5. Follow the on-screen installation instructions. This wizard creates an NPMS_Builder directory at C:\Program Files, as well as a link to the program under the Start menu.

6.2.3 Step-by-Step User Instructions

Use of *NPMS Metadata/Attribute Builder* is mandatory. To use the software, perform the following steps:

1. From the Start/Programs menu, click on NPMS Metadata Attribute Builder to start the program.

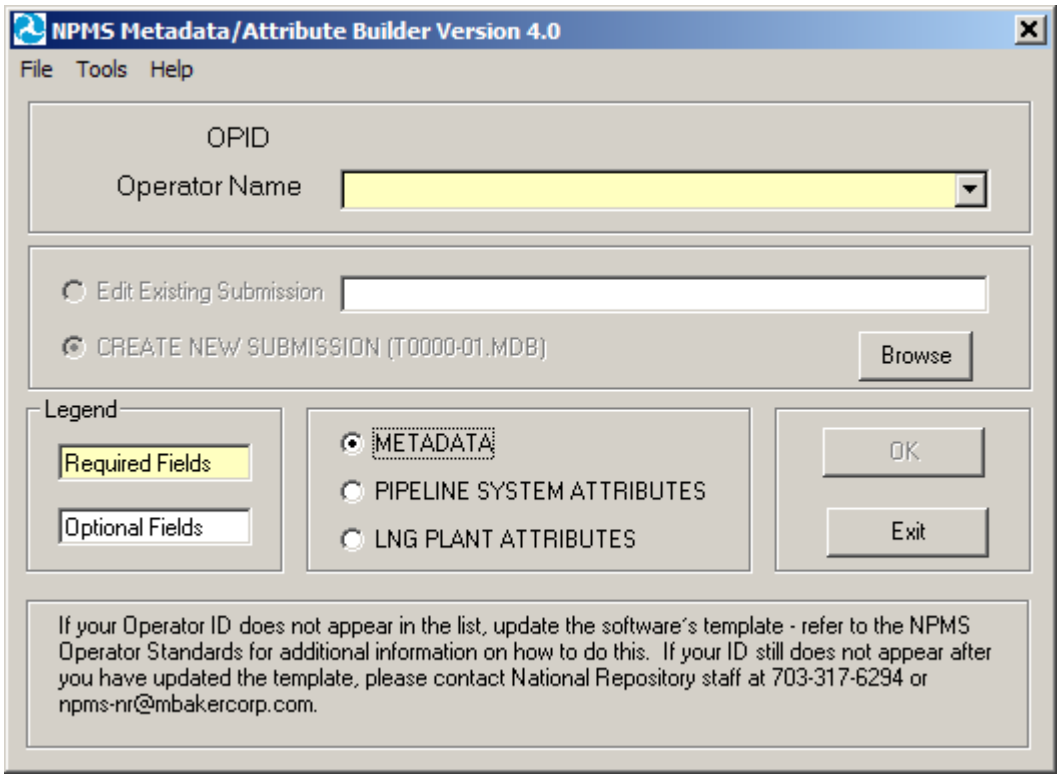

Figure 6-1. *NPMS Metadata/Attribute Builder* initial data entry screen.

2. The initial screen requires the user to select the correct OPID. A list of valid operator names and OPIDs is provided. If your operator ID does not appear on the drop-down list, please refer to Appendix A of this manual. If you need additional assistance, please contact National Repository Staff for instructions on adding your Operator ID and Name. The initial attribute screen also allows the user to either edit an existing file or to start a new file.

3. If there is existing data for the operator you have selected and the submission is located in the current working directory, the default table for the chosen operator will appear in the "Browse" box. "Edit Existing Submission" will be the default choice. Data fields shown with a yellow background are required; while data fields shown with a white background are optional. Decide if you want to edit an existing file or start a new file. NPMS data is stored in the same directory where the software was installed, usually C:\Program Files\NPMS_Builder.

   Note: *If there is existing data for the operator you have selected and the submission is located in the current working directory, the default table for the chosen operator will appear in the "Browse" box, and "Edit Existing Submission" will be the default choice of action. If you are creating a new submission, select that option and a new table will be created for the operator submission you have chosen.*

4. This screen is the starting point in creating metadata and attributes. From this screen, depending on what data you wish to generate or update, you should select METADATA (for metadata data entry), PIPELINE SYSTEM ATTRIBUTES (for attribute data entry for pipeline systems), or LNG PLANT ATTRIBUTES (attribute entry for LNG plants) and click the OK button. Depending on the option selected, the screen will advance to the appropriate screen. When you have completed the option you selected, you will be returned to this initial screen. At that point, you may select another option and click OK to be advanced to the screens relevant to that particular option, or you may click Exit to close the software.

5. **Note:** In some cases, users with Windows 7 are unable to view the Metadata file after it has been created using the NPMS Builder Software because of a compatibility setting on the computer. Typically it would be stored here: C:\Program Files\NPMS_Builder. However, in Windows 7, a "Compatibility files" folder, a virtual storage, gets created to hold the Metadata file that cannot be found or accessed while in this location.

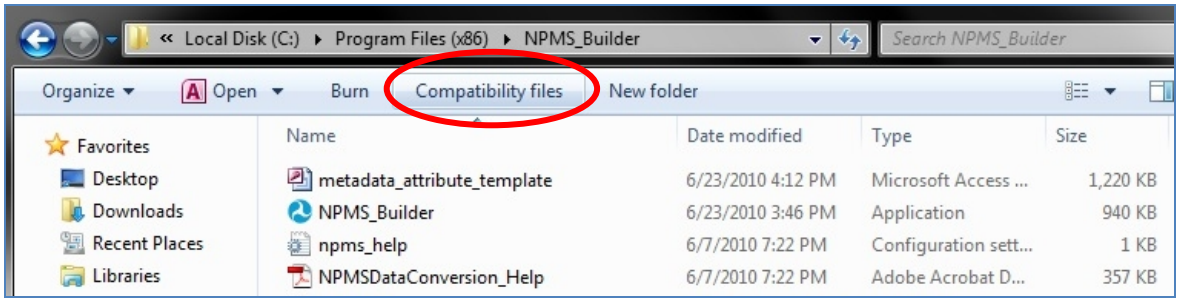

Figure 6-2. ***Example image of the Compatibility files folder on Windows 7.***

If users click on the "Compatibility files" button (refer to Figure), it directs operators to a window (seen in the screenshot below). Here operators can simply **Drag & Drop** or **Copy & Paste** the

Metadata file to the folder that it should be saved in. This should allow users to open/access/path to their Metadata file without issues.

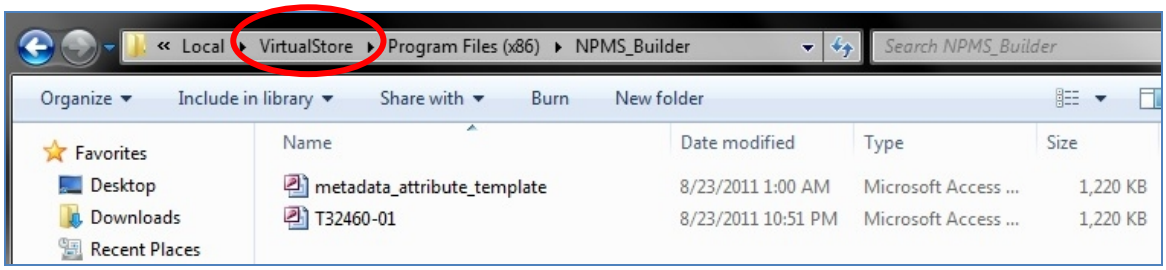

Figure 6-3. ***Example image of the VirtualStore folder on Windows 7.***

If "METADATA" was selected on the initial screen,

1. In Step 1, complete the submission contact information. Submitting operators must provide name, mailing address, phone number, and, if available, e-mail address of the primary contact. The operator my also provide information for the technical contact. The primary contact must be an employee of the operating company. The technical contact may be a technical employee or an outside contractor. If repository technicians have questions about a submission, they will contact the technical representative first, then the primary representative. This information is not for the public; only Repository staff will use these contacts when questions arise during the processing phase. As you click in each cell to enter data, the cell's descriptive text will change from black to red to indicate that it is the active cell. The application saves data automatically as it is entered. Click the "Next" button to advance to the next step in the metadata entry process.

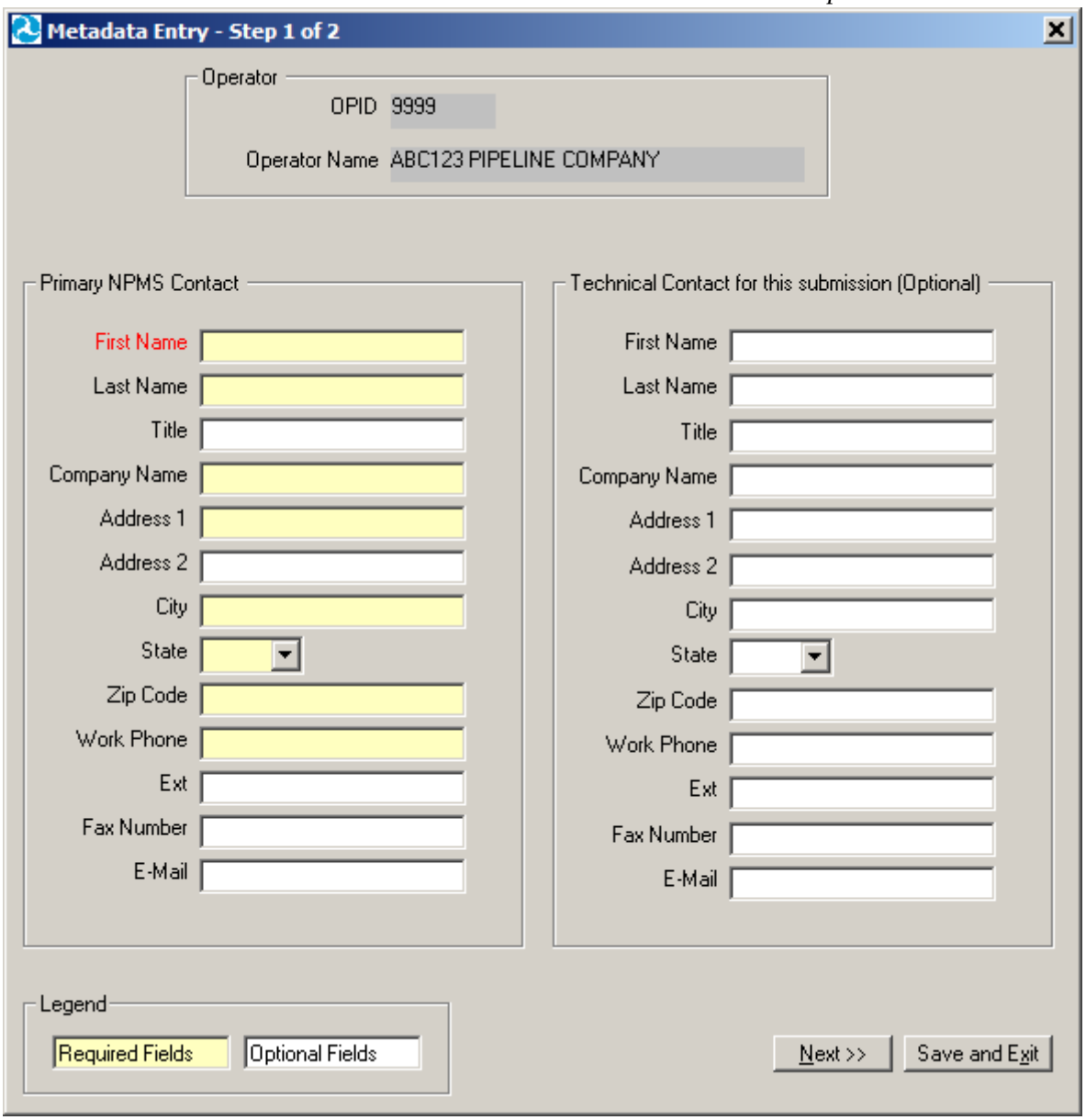

Figure 6-4. Metadata Entry Step 1 of 2 data entry screen.

2. In Step 2, complete the information for the submission's spatial extent and projection/reference system. All submittals must be in real world coordinates. Several lists are provided to assist operators in providing complete and accurate coordinate information. If you cannot find an exact match for your coordinate system, use the space provided by question 5 to include details. If the drop-down lists do not provide a suitable response, you can key in an alternate entry. Note that questions 4b and 4c may be required, depending on the projection you chose for your data. The application saves data automatically as it is entered.

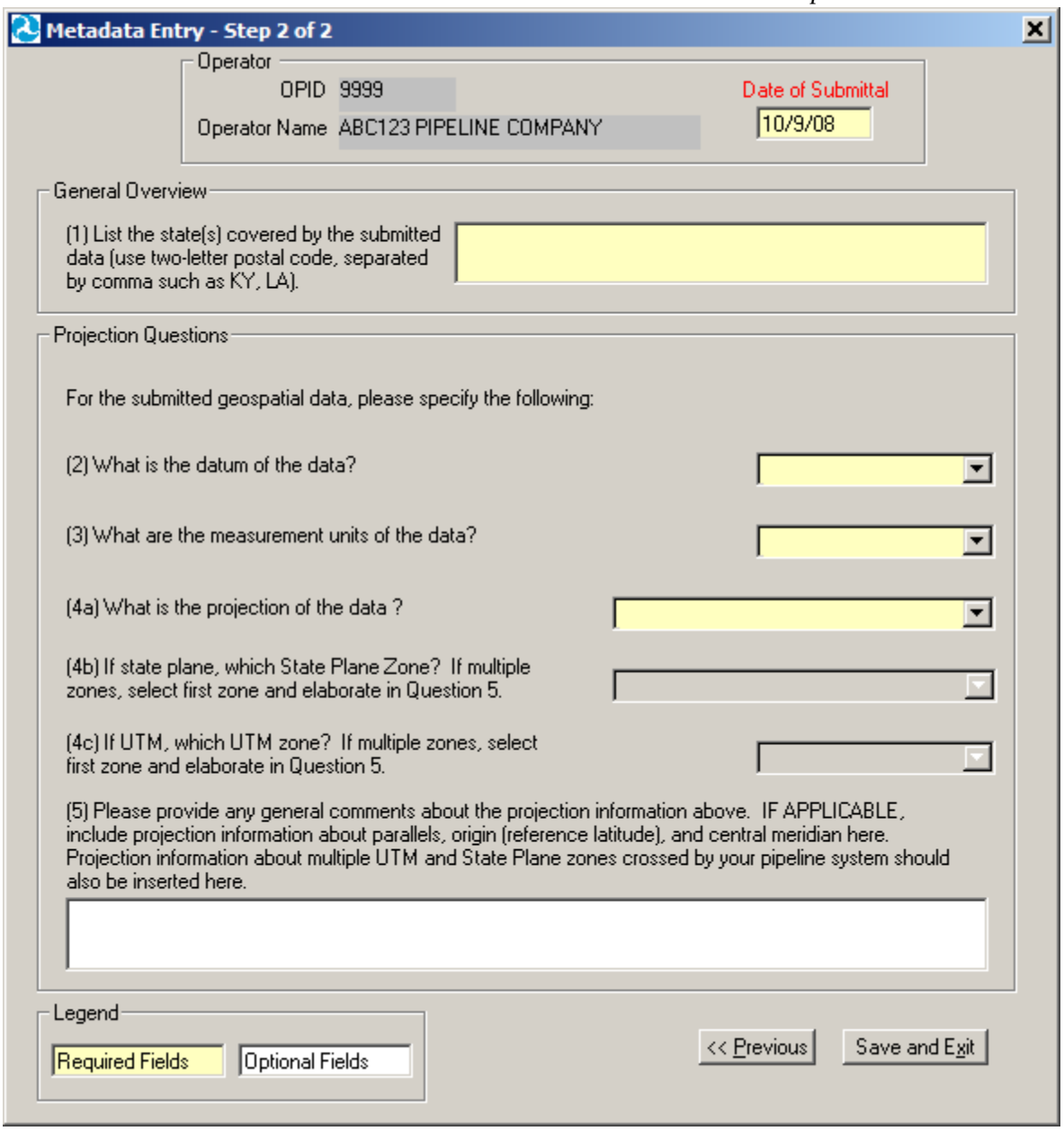

Figure 6-3. Metadata Entry Step 2 of 2 data entry screen.

3. The “Previous” navigation button allows backward movement to Step 1.
4. Upon completion, click on the “Save and Exit” button on either the Step 1 screen or Step 2 screen. A message will indicate that the file has been saved in the current working directory (likely C:\Program Files\NPMS_Builder). This file will be readable by the *NPMS Metadata/Attribute Builder* software. If the file is ever moved, keep track of where the file has been moved to and be sure to navigate to the **.**MDB file using the “Browse” feature on the initial NPMS attribute screen. As part of the exit process, you have the option to be routed to the NPMS FTP Upload Web site page (via your local internet browser). **This will not automatically load or submit your**

Metadata file to the NPMS. From this page, you may upload your .MDB to the FTP server for submission to the NPMS, if ready to do so.

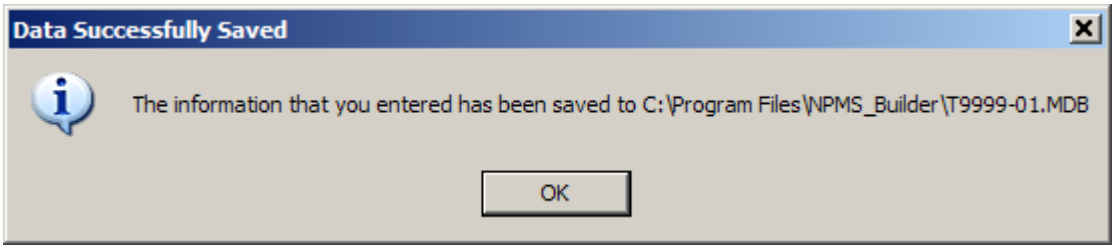

Figure 6-4. Message indicating path and filename of saved file.

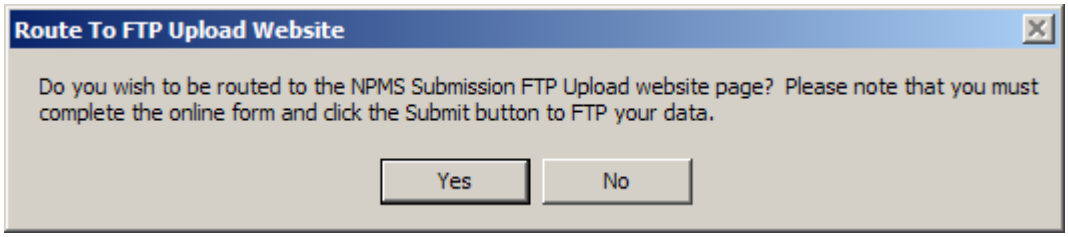

Figure 6-5. Message providing the option to be routed to the FTP Web site page.

If "PIPELINE SYSTEM ATTRIBUTES" or "LNG PLANT ATTRIBUTES" was selected on the initial screen, refer to section 3 of this manual for additional information.

NPMS Metadata/Attribute Builder uses a Microsoft Access database named "metadata_attribute_template.mdb" as a template for your data population. The template file is included in the software Zip file and is automatically placed in the correct location during the installation process. This template contains all of the data tables and domain-like tables that the *NPMS Metadata/Attribute Builder* software needs to function properly. Over time, the values in the domain-like tables may be updated to better reflect valid values, such as when the operator list is changed. When this occurs, the entire metadata_attribute_template.mdb will be updated; you should replace your existing template with the updated one. Please see Appendix A of this manual for a detailed description on how to update the template.

7. Breakout Tank Submissions

Information Collection 2137-0596 made breakout tank submission mandatory. Changes to an operator's tanks should be submitted each year, or the operator should notify NPMS staff there are no changes since the previous year. PHMSA accepts breakout tank data in the following formats:

- ESRI shapefile (see section 7.4 for standards)
- Microsoft Excel spreadsheet (see section 7.5 for standards)

Operators will submit the geographic location and attributes for each tank they operate. Operators will be required to provide answers to all questions in order to complete their submission. Figure 7-1 shows the attribute table for breakout tank data.

7.1 Types of NPMS Breakout Tank Submissions

Operators must classify breakout tank submissions according to one of the following types. The various types of submissions are intended to facilitate maintenance of the NPMS and minimize the effort required by pipeline operators. The type of submission must be identified in the cover/transmittal letter accompanying the submission.

INT – Initial Submissions to the NPMS contain data for a first time submittal for a given OPID. If data has ever been submitted under your OPID in the past then you cannot make an Initial Submission under that OPID again. The revision codes (SUB_TYPE) of all tanks should be set to **"A"** for addition.

FRP – Full Replacement Submissions should be made whenever it is necessary to apply changes to your data. A full replacement must include all data for your OPID as you want it to appear online after processing because it will replace all previously submitted data. The revision codes (SUB_TYP) for tanks may be "**M**" for modification or "A" for addition.

RMV – Removal of OPID Submissions – Only make this type of submission when all of the data under your OPID needs to be removed from the NPMS because the breakout tanks were sold and are no longer operated by your company or the breakout tanks are no longer in use and were dismantled. If either one of these scenarios describes all of the breakout tanks under your OPID you can make a Removal of OPID submission. For a Removal of OPID submission, please complete the cover/transmittal letter only (see section 7.2). Under question 3 of the cover/transmittal letter include an explanation of why all of the data under this OPID should be removed from the NPMS, including an effective date for the change. If the breakout tanks were sold, include the transaction date, company name, contact name, and phone number where NPMS staff can reach the new operator to verify the sale. If either of these scenarios describes only some of the breakout tanks in the NPMS under your OPID do not use a Removal of OPID submission-your data will be completely removed from the NPMS; rather, you must make a Full Replacement Submission.

7.2 Cover/Transmittal Letter Requirement

All breakout submissions must be accompanied by a cover/transmittal letter. This letter is meant to provide National Repository Staff with key information for processing your breakout tank submission, and allows you to communicate any additional information. To download the Breakout Tank

Cover/Transmittal Letter template from the NPMS Web site (www.npms.phmsa.dot.gov), click the Making a Submission link (top of the page), and then click the Breakout Tank Submissions link (left side of the page). You may also compile a letter including the following items:

1. Contact information for the person National Repository Staff should contact with any questions.
2. Which of the submission types described below indicates how this submission as a whole should affect the previously submitted data for this OPID. You can read more about these submission types in section 2.2:
   - Initial Submission: This is the first submission to the NPMS for this OPID. Data has never been submitted to the NPMS for this Operator ID.
   - Full Replacement Submission: This submission should replace all data currently in the NPMS for this OPID
   - Removal of OPID Submission: This submission is to inform the NPMS that all of your breakout tank data needs to be removed from the system. Provide an explanation under question 3, including an effective date for any change. If a sale has taken place, include a company name, contact name and phone number for the new company.
3. A brief description of the changes reflected in the submission.
4. Any additional information or concerns you would like to relate to NPMS staff.

7.3 Submitting via ESRI shapefile

In 2008, the National Repository began accepting breakout tank data in ESRI shapefile format. Operators wishing to submit data via shapefile should follow the procedure below.

- Create a shapefile named "BOT_OPSUB_<YYYYMMDD>", where <YYYYMMDD> is the date of the data submission (e.g., BOT_OPSUB_20080924.shp, BOT_OPSUB_20081130.shp).
- Add the attribute fields identified in the table in Figure 7-1.
- Ensure that the values you enter conform to the "Acceptable Values" column in Figure 7-1.
- Create one record (row) in the attribute table for each tank.
- Create one point per breakout tank and ensure that the FACILNAME 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 Figure 7-1 are populated with data.
- Longitude should be in the following format: decimal degrees with five decimal places, and a negative sign (for example, -77.04327).
- Latitude should be in the following format: decimal degrees with five decimal places (for example, 38.89664).

Zip up the shapefile and send it to the National Repository via the NPMS Submission FTP Upload page accessible from the NPMS Web site. The shapefile submission should include the following files: .shp, .shx, .dbf, and .prj (if the spatial data is projected).

7.4 Submitting via Microsoft Excel

To make a submission using Microsoft Excel, follow the steps below.

- Create an .xls/.xlsx file named “BOT_OPSUB_<YYYYMMDD>”, where <YYYYMMDD> is the date of the data submission (e.g., BOT_OPSUB_20080924.xls, BOT_OPSUB_20081130.xls).
- In the spreadsheet each row represents one tank. Each column should contain one of the Field Names from Figure 7-1.
- Ensure that the values you enter conform to the “Acceptable Values” column in Figure 7-1.
- Ensure that the mandatory fields identified in the “Required Field” column in Figure 7-1 are populated with data.
- Ensure that the FACILNAME column contains exactly the same name for each tank in a given tank farm.
- Longitude should be in the following format: decimal degrees with five decimal places, and a negative sign (for example, -77.04327).
- Latitude should be in the following format: decimal degrees with five decimal places (for example, 38.89664).
- Send the complete .xls/.xlsx file to the National Repository via the NPMS Submission FTP Upload page accessible from the NPMS Web site.

Breakout Tank Attribute Table

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the LNG Plant. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department.	Positive integer	Y
COMPANY	C	60	Company Name	Name of the company that physically operates the tank or tank farm.	Character	Y
FIRSTNAME	C	50	Contact First Name	First name of the person to contact for information regarding the tank or tank farm.	Character	Y
MIDDLENAME	C	50	Contact Middle Name	Middle name or initial of the person to contact for information regarding the tank or tank farm, if applicable.	Character	N
LASTNAME	C	50	Contact Last Name	Last name of the person to contact for information regarding the tank or tank farm.	Character	Y
TITLE	C	30	Contact Title	Contact person's title.	Character	Y
PHONE	C	10	Phone Number	Primary telephone number for the contact person including area code. Please do not include dashes or parentheses.	Character	Y
FAX	C	10	Facsimile Number	Primary fax number for the contact person including area code. Please do not include dashes or parentheses.	Character	Y
EMAIL	C	100	Email Address	Contact person's email address.	Character	Y
STREET	C	100	Street Address	Street address of the contact person.	Character	Y
CITY	C	20	City Name	Name of the city or town.	Character	Y
STATE	C	25	State Name	Standard two-letter postal abbreviation for the state.	Character	Y
ZIP	C	10	ZIP Code	Postal ZIP code (+4 if available).	Character	Y
FRP_CONTRL	C	8	FRP Control Number	Facility Response Plan Control Number for applicable tanks (n/a for tanks which do not have an FRP)		Y if tank has an FRP
FRP_SEQ	C	4	FRP Sequence Number	Facility Response Plan Sequence Number for applicable tanks (n/a for tanks which do not have an FRP)		Y if tank has an FRP
FACILNAME	C	50	Facility Name	Assigned by the operator. The operator's name for a functional grouping of tanks (e.g. tank farm, tank hotel, etc.).	Character	Y
FCITY	C	30	Facility City Name	Name of the city in which the tank/tank farm resides.	Character	Y
FSTATE	C	25	Facility State Name	Standard two-letter postal abbreviation for the name of the state in which the tank/tank farm resides.	Character	Y
OWNER	C	60	Facility Owner	Name of the owner of the tank/tank farm.	Character	Y
TANKIDNO	C	15	Tank ID	Assigned by the operator. This is an identifier for a specific tank within a functional grouping	Character	Y

				of tanks.		

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
CNSTRYR	I	4	Construction Year	Four-digit year of facility construction (e.g. "1990").	Positive Integer	Y
TANKSIZE	I	3	Size of Tank	Nominal size of the tank (bbls x 1000).	Positive Integer	Y
COMMODITY1	C	50	Primary Commodity Code	Abbreviation for the primary commodity stored in the tank. LNG= liquefied natural gas, CRD= crude oil, G= gasoline, K= kerosene, JF= jet fuel, DF= diesel fuel, HO= heating oil, AA= anhydrous ammonia, CO2= carbon dioxide, HVL= highly volatile liquid, OTH= other.	LNG, CRD, G, K, JF, DF, HO, AA, CO2, HVL, OTH	Y
COMMODITY2	C	50	Secondary Commodity Code	Abbreviation for the secondary commodity stored in the tank. LNG= liquefied natural gas, CRD= crude oil, G= gasoline, K= kerosene, JF= jet fuel, DF= diesel fuel, HO= heating oil, AA= anhydrous ammonia, CO2= carbon dioxide, HVL= highly volatile liquid, OTH= other. If the tank does not store a secondary commodity, enter NONE.	LNG, CRD, G, K, JF, DF, HO, AA, CO2, HVL, OTH, NONE	Y
COMMODITY3	C	50	Tertiary Commodity Code	Abbreviation for the tertiary commodity stored in the tank. LNG= liquefied natural gas, CRD= crude oil, G= gasoline, K= kerosene, JF= jet fuel, DF= diesel fuel, HO= heating oil, AA= anhydrous ammonia, CO2= carbon dioxide, HVL= highly volatile liquid, OTH= other. If the tank does not store a tertiary commodity, enter NONE.	LNG, CRD, G, K, JF, DF, HO, AA, CO2, HVL, OTH, NONE	Y
REVIS_CD	C	1	Submission (Revision)Type	Identifies this tank/tank farm as an A= addition to the NPMS, M= modification to the existing NPMS, or D= deletion of a previous submission.	A, M, D	Y

Figure 7-1. Attribute field definitions for breakout tank features.

8. Submitting the Data

Operators should use the following checklist to verify that the data being submitted to the NPMS Repository meets the standards and that all necessary information has been included.

8.1 Operator Submission Checklist

8.1.1 Attribute Data Submissions

✓ 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 a geospatial file?
- ✓ Has the attribute data been created and formatted according to the NPMS standard?
- ✓ Does each geospatial element have an attribute record?

8.1.2 Geospatial Data Submissions

- ✓ Are the linear features continuous without gaps or overshoots?
- ✓ Does each feature have a complete attribute record as defined in the NPMS standard?
- ✓ Has the attribute record been uniquely linked to the point or line feature?
- ✓ Has the submission file been exported and formatted according to the NPMS standard?
- ✓ If the attribute data is in a separate file, has this file been exported according to the NPMS standard?
- ✓ Have the data files being submitted on media been approved by the NPMS?
- ✓ Are the submitted data file names descriptive and unique, following NPMS guidelines?
- ✓ Are all of the geospatial files included in this submission?

8.1.3 Operator Contact Information Submissions

- ✓ Have you chosen either an individual or a general contact name as your contact, but not both?
- ✓ Have you filled in all required sections?

8.1.4 Metadata Submissions

- ✓ Use the *NPMS Metadata/Attribute Builder* software.
- ✓ Is the contact information current?
- ✓ Are the required sections of the metadata completed?

8.2 Packaging and Sending Data

To submit your NPMS submission package to NPMS staff, you may either transmit your files digitally through the NPMS Submission FTP Upload site or mail a copy of your files on CD-ROM/DVD to the National Repository office location.

To transmit your files digitally through the NPMS Submission FTP Upload site, perform the following steps:

1. Zip together your data files. Preferably the zipped data file will contain your Operator ID for easier processing.
2. Navigate to the NPMS Submission FTP Upload site located at http://199.107.71.25/npmsftp/.
3. Browse to the location of your zipped data file and attached it to the site.
4. Enter your email address.
5. Enter your Operator ID and any other information you wish to convey in the Notes section.
6. Click the Submit button.

This method of receiving NPMS submission is greatly preferred. Use caution when sending data files to the npms-nr@mbakercorp.com email address as several file types, including .zip and .mdb, can no longer by accepted as attachments and will be automatically rejected by our system.

To send your data to the National Repository via U.S. Postal Service, perform the following steps:

1. Prepare the required digital files.
2. Copy all digital file(s) including cover letter, geospatial data, attribute data, and metadata to an NPMS-approved medium such as CD-ROMs or DVDs.
3. Mail submission to:

   NPMS National Repository
   Michael Baker Jr., Inc.
   3601 Eisenhower Avenue, Suite 600
   Alexandria, VA 22304

Appendix A: Updating the *NPMS Metadata/Attribute Builder* Template

When the template, metadata_attribute_template.mdb for the *NPMS Metadata/Attribute Builder* software is periodically updated, operators should replace the existing file with the updated one to take advantage of the most current set of domain values, including an updated operator list. When the template is updated, the file will be posted on the NPMS Web site (in the Software section).

To install the updated template on your local computer perform the following steps:

1. From the Software section of the NPMS Web site, opt to download the template for the *NPMS Metadata/Attribute Builder* software.
2. Save the downloaded Microsoft Access .MDB file to a temporary location on your computer.
3. Verify that the *NPMS Metadata/Attribute Builder* software is not currently open on your computer. If it is, close it before continuing.
4. Locate where the *NPMS Metadata/Attribute Builder* software is installed on your computer (generally this will be C:\Program Files\NPMS_Builder).
5. Copy and paste the downloaded .MDB into the folder where the software is installed. When prompted, select to overwrite the existing file.
6. The updated template is now installed. When you now use *NPMS Metadata/Attribute Builder* you will see the template additions/changes in the software.

An up-to-date template may not always be available for you to install. However, your Operator ID may always be easily added to the template you already have installed on your computer by following these steps:

1. Make sure that the *NPMS Metadata/Attribute Builder* software is closed.
2. Locate where the *NPMS Metadata/Attribute Builder* software is installed on your computer (generally this will be C:\Program Files\NPMS_Builder).
3. Locate the metadata_attribute_template.mdb in the folder.
4. Open the metadata_attribute_template.mdb file in Microsoft Access by double-clicking on the file name.
5. Locate and open the table named id_ops.
6. Scroll to the bottom of the id_ops table and add your Operator ID in the *opid* column and your operator name in the *operator* column. Refer to PHMSA's online Operator ID and operator name serach tool located at https://opsweb.phmsa.dot.gov/cfdocs/opsapps/pipes/search_operator.cfm if your unsure of the formal name associated with your Operator ID.
7. Close the Microsoft Access software.
8. Open the *NPMS Metadata/Attribute Builder* software and confirm that your Operator ID additional has been added to the operator drop-down list.

If you need additional assistance with installing the updated template, manually adding your Operator ID, or are experiencing problems, contact the National Repository at 703-317-6294 or npms-nr@mbakercorp.com.

Appendix B: Abandonment Certification Template

Ms. Amy Nelson
GIS Manager
US Department of Transportation
Pipeline and Hazardous Materials Safety Administration
East Building, E22-321
1200 New Jersey Ave SE
Washington, D.C. 20590

NPMS-required attributes:

Opid	System Name	Sub-System	PlineID	Commodity	Diameter	Date of Abandonment	Method of Abandonment

I certify that, to the best of my knowledge, all of the reasonably available information requested was provided and, to the best of my knowledge, the abandonment was completed in accordance with applicable laws.

_____ _____ _____
Name Signature Date

Appendix C: Alternate Linear Reference Submission Format

The National Repository accepts submissions as described in Table 3-1 or in the following linear reference format. This format is intended to simplify submission for pipeline operators who use PODS, APDM or other linear referenced GIS systems. This format is compatible with the ESRI linear referencing system using Routes and Measures to uniquely describe features on a graphical centerline.

The Pipeline System Attribute Table describes each system submitted and is used as a parent record for each of the pipelines that belong to the system. The Centerline feature class is a spatial representation of the pipe centerline. Note that the Centerline feature class must be a PolylineM (measure enabled) feature class. Each of the attribute tables that follow (Pipe Segment, Installation Method, etc.) must overlay on the centerline feature class to completely describe all of the required submission attributes. PLINE_ID is equivalent to the ESRI Route_ID.

Event Table	**Coverage**
Pipe Segment	Must fully cover centerline – no gaps or overlaps
Installation Method	Required only where pipe segment crosses water body which is 100 feet in width or greater
Centerline Accuracy	Must fully cover centerline – no gaps or overlaps
MAOP	Must fully cover centerline – no gaps or overlaps
Gas Class Location/HCA	Must fully cover centerline – no gaps or overlaps
Liquid HCA Could Affect Segment	Required only where could-affect segment exists
Special Permit	Required only where Special Permit applies
ILI/DA	Must fully cover centerline – no gaps or overlaps
Pipe Coating	Must fully cover centerline – no gaps or overlaps
Facility Response Plan	Required only where a Facility Response Plan is required
Leak Detection Method	Must fully cover centerline – no gaps or overlaps
Pressure Test	Must fully cover centerline – no gaps or overlaps

For users working within ESRI software, a file geodatabase template of the layers and tables has been developed for your convenience. Please download this compressed template from https://www.npms.phmsa.dot.gov/Documents/Draft_OperStandards_FGDB_Template.zip.

Pipeline System Attribute Table (Please name this table "aPipelineSystem")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Link (Primary key) between the geospatial elements (pipeline segments) and their respective attribute records. Assigned by the operator or the operator's software package (i.e., COVER-ID, MSLINK_ID, etc.). Note the OPER_LINK and the PLINE_ID may be identical. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y

OPID	I	5	Operator Number	Unique tracking number assigned by PHMSA to the company that physically operates the pipeline system. If you do not know your firm's OPID, check with your DOT/Regulatory Compliance department or the NPMS Web site.	Positive integer	Y
OPER_NM	C	40	Operator Name	The company name that physically operates the pipeline system.	Character	Y
SYS_NM	C	40	System Name	Assigned by the operator. The operator's name for a functional grouping of pipelines.	Character	Y
SUBSYS_NM	C	40	Sub System Name	Assigned by the operator. A unique name for a smaller sub-section of a pipeline system. A subset of SYS_NM.	Character	N
COMMODITY	C	3	Commodity Category	Abbreviation for the primary commodity carried by the pipeline system. CRD=crude oil, PRD=non-HVL product, AA=anhydrous ammonia, LPG=liquefied petroleum gas, NGL=natural gas liquids, OHV=other HVLs, CO2=carbon dioxide, ETH=fuel grade ethanol, EPL=empty liquid, NG=natural gas, PG=propane gas, SG=synthetic gas, HG=hydrogen gas, OTG=other gas, EPG=empty gas. Note that when propane is transported as a liquid, use the LPG commodity abbreviation. The PG abbreviation should only be used when the commodity is in gaseous form. Note that when the pipeline is no longer transporting a commodity and is, therefore, considered to be empty, the use of EPL or EPG should represent the commodity that was previously transported. For instance, a natural gas transmission line that was later filled with water would be coded EPG because a gas commodity was last transported.	CRD, PRD, AA, LPG, NGL, OHV, CO2, ETH, EPL, NG, PG, SG, HG, OTG, EPG	Y
CMDTY_DTL1	C	3	Commodity Detail 1	Abbreviation for the primary commodity's first subcategory detail. If the primary commodity defined in the COMMODITY field is not CRD, PRD, or NG, this field should be left blank. If the primary commodity in the COMMODITY field is CRD, PRD, or NG and the subcategory is not known or stated, this field should be left blank. The primary commodity CRD has the following subcategories: CRW=sweet crude, CRR=sour crude. The primary commodity PRD has the following subcategories: RGS=refined non-ethanol blended gasoline, RFD=refined fuel oil, diesel, RKJ=refined kerosene, jet fuel, OTR=other refined and/or non-HVL petroleum products, ETB=ethanol blended gasoline, BDB=biodiesel blend,OBI=other biofuels. The primary commodity NG has the following subcategories: NG1=pipeline quality or tariff quality natural gas, NG2=wet but non-sour natural gas, NG3=sour but non-wet natural gas, NG4=wet, sour natural gas.	CRW, CRR, RGS, RFD, RKJ, OTR, ETB, BDB, OBI, NG1, NG2, NG3, NG4, <Null>	Y- if the COMMODITY is CRD, PRD or NG N – If the COMMODITY is not CRD, PRD or NG
CMDTY_DTL2	C	3	Commodity Detail 2	Abbreviation for the primary commodity's	CRW, CRR, RGS,	N

				second subcategory detail. Refer to the CMDTY_DTL1 field for additional information and valid values.	RFD, RKJ, OTR, ETB, BDB, OBI, NG1, NG2, NG3, NG4, <Null>	
CMDTY_DTL3	C	3	Commodity Detail 3	Abbreviation for the primary commodity's third subcategory detail. Refer to the CMDTY_DTL1 field for additional information and valid values.	CRW, CRR, RGS, RFD, RKJ, OTR, ETB, BDB, OBI, NG1, NG2, NG3, NG4, <Null>	N
CMDTY_DESC	C	40	Commodity Description	Descriptive information of the commodities carried by the pipeline system. For example, "NATURAL GAS" or "PROPANE."	Character	N
INTERSTATE	C	1	Interstate Designation	(Y)es / (N)o designator to identify if the pipeline system is an interstate pipeline. Y=Interstate, N=Intrastate. (Use PHMSA definition; see glossary).	Y, N	Y
OFFSHORE_GG	C	1	Offshore Gas Gathering	If the gas pipeline is classified as an offshore gas gathering line, it is required to be submitted to the NPMS.	Y, N, <Null>	Y – for offshore gas gathering pipeline segments N – for other gas or liquid pipeline segments
THROUGHPUT	I	4	Average daily throughput	For gas : MMSCFD=million standard cubic feet per day (yearly average) For liquid : MMBBLD= million barrels per day (yearly average)		Y

Pipeline Centerline Feature Class (Please name this table "Centerline")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y

BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y

Pipeline Attribute Table – Pipe Segment (Please name this table "PipeSegment")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
MATERIAL	I	1	Type of pipe material	Identify whether pipe segment is 1=cast iron, 2=plastic, 3=steel, 4=composite, 5=other	1,2,3,4,5	Y
DIAMETER	D	5	Diameter	Nominal diameter of the pipeline segment, in inches (three decimal places, ##.###).	Real Number	Y
WALL_TH	D	4	Wall thickness	Nominal wall thickness of the pipeline segment, in inches (three decimal places, #.###).	Real Number	Y
GRADE	C	15	Predominant pipe grade	Predominant pipe grade or strength: A25, A25P, B, X42, X46, X52, X56, X60, X65, X70, X80, X90, X100, X120, UNKNOWN, PLASTIC PIPE, OTHER	A25, A25P, B, X42, X46, X52, X56, X60, X65, X70, X80, X90, X100, X120, UNKNOWN, PLASTIC PIPE, OTHER	Y
PIPE_JOIN	C	1	Pipe joining method	Indicate whether pipe joining method is W= welded, C= coupled, S= screwed, F= flanged, P= plastic pipe joint, or O= other	W,C,S,F,P,O	Y

SMYS	D	4	Highest percent operating SMYS	Hoop stress caused by highest operating pressure during the year as a percent of Specified Minimum Yield Strength. Report with up to one decimal place. Example: 75.5 percent SMYS= .755.	Real Number	Y
SEAM_TYPE	C	10	Seam Type	SM= Seamless, LERW=Low frequency or direct current electric resistance welded, HERW=High frequency electric resistance welded, DSAW=Double submerged arc weld, SAW=Submerged arc weld, EFW=Electric-fusion weld, FLW=Furnace lap weld, FBW=Furnace butt weld, PLAS=Plastic, OTHER=Other	SM, LERW, HERW, DSAW, SAW, EFW, FLW, FBW, PLAS, OTHER	Y
CNSTR_YR	I	4	Predominant year of original construction	Predominant year of original construction or year installed		Y
STATUS_CD	C	1	Pipeline Status Code	Identifies the current status of the pipeline segment. I=in service, D=idle, B=abandoned, R=retired.	I, D, B, R	Y
ONSHORE	C	1	Onshore/offshore	Whether pipe segment is onshore (Y) or offshore (N) according to operator's records. Must match onshore/offshore designations submitted in operator's Annual Report to PHMSA.	Y, N	Y
LOW_STRESS	C	1	Low Stress	(Y)es / (N)o designator to identify if the hazardous liquid pipeline segment is a low stress pipeline. Field is required for liquid in-service pipelines. If the hazardous liquid pipeline operates at 20% or less of SMYS, the segment is a low stress pipeline. Field should be left blank for gas pipelines or for liquid pipelines which are idle, abandoned, or retired.	Y, N, <Null>	Y – for liquid pipeline segments N – for gas pipeline segments
ILI_ABLE	C	1	Piggable?	Can commercially available devices (pigs) travel, inspect the entire circumference and wall thickness of the pipe, and record or transmit inspection data in sufficient detail for further evaluation of anomalies? Y=Yes, N=No. This attribute concerns only the mainline, not stations. Non-mainline segments should have [null] for this attribute.	Y,N, [null]	Y

Pipeline Attribute Table – Installation Method (Please name this table "InstallationMethod")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial	A, C, J, S, T, B, N,	Y

				modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.		
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
INST_METH	C	10	Installation method if pipe segment crosses water body which is 100 feet in width or greater	Required only if pipe segment crosses water body which is 100 feet in width or greater. OC=Open cut, TT=Trenchless technology, OTHER=other method	OC, TT, OTHER, [null]	Y- for segments that cross water body which is 100 feet in width or greater N – for all other pipelines

Pipeline Attribute Table – Centerline Accuracy (Please name this table "CenterlineAccuracy")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y

QUALITY_CD	C	1	Positional Accuracy	Operator's estimate of the positional accuracy of the submitted data. A=within 5 feet; B=between 5 and 50 feet; C=greater than 50 feet; D=unknown	A,B,C,D	Y

Pipeline Attribute Table – MAOP (Please name this table "MAOP")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
MAOP	I	5	MAOP (gas) or MOP (liquid)	Maximum (Allowable) Operating Pressure in psig (pounds per square inch gauge). Sample value: 1000		Y

Pipeline Attribute Table – Gas Class Location/HCA (Please name this table "GasClassHCA")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y

REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
CLASS	I	1	Class location	(Gas) Predominant class location for a gas transmission pipe segment (per §192.5)	1, 2, 3, 4	Y- for gas operators
GAS_HCA	C	1	Gas HCA Segment	(Gas) Pipe segment is in a High Consequence Area (per §192.903)	Y, [null]	Y– if segment is affected by HCA

Pipeline Attribute Table – Liquid HCA Could Affect Segments (Please name this table "LiquidHCA")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y

END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
PA_AFF	C	1	Segment « could affect » HPA or OPA HCA	(Liquid) Pipe segment is in an area that could affect a Populated High Consequence Area. These areas are also known as Highly Populated Areas or Other Populated Areas.	Y, [null]	Y – if segment is affected by HCA
ECO_AFF	C	1	Segment « could affect » Ecological HCA	(Liquid) Pipe segment is in an area that could affect an Ecologically Sensitive High Consequence Area (either operator-determined HCA or one of the HCA datasets supplied by PHMSA).	Y, [null]	Y– if segment is affected by HCA
DW_AFF	C	1	Segment « could affect » Drinking Water HCA	(Liquid) Pipe segment is in an area that could affect a Sole-Source Drinking Water High Consequence Area (either operator-determined HCA or one of the HCA datasets supplied by PHMSA).	Y, [null]	Y– if segment is affected by HCA
CNW_AFF	C	1	Segment « could affect » Commercially Navigable Waterway HCA	(Liquid) Pipe segment is in an area that could affect a Commercially Navigable Waterway.	Y, [null]	Y– if segment is affected by HCA

Pipeline Attribute Table – Special Permit (Please name this table "SpecialPermit")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
SP_PERMIT	C	1	Segment is part of PHMSA-issued Special Permit	Use this designation for active PHMSA-issued Special Permits only (not expired Special Permits)	Y, [null]	Y - if special permits exist
SP_PERMIT_NO	C	10	Special Permit Number	If segment is operating under a PHMSA-issued Special Permit, note the permit number	Character	Y - if special permits exist

Pipeline Attribute Table – ILI/DA (Please name this table "ILI_DA")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
ILI_COR	I	4	Year of last corrosion ILI inspection	Year of last corrosion ILI inspection (use [null] if segment has not had an ILI inspection)		Y
ILI_DENT	I	4	Year of last dent ILI inspection	Year of last dent ILI inspection (use [null] if segment has not had an ILI inspection)		Y
ILI_CRA	I	4	Year of last crack ILI inspection	Year of last crack ILI inspection (use [null] if segment has not had an ILI inspection)		Y
ILI_OTH	I	4	Year of last other ILI inspection	Year of last other ILI inspection (use [null] if segment has not had an ILI inspection)		Y
DA_YR	I	4	Year of last direct assessment	Year of last direct assessment (use [null] if segment has not had a direct assessment)		Y

Pipeline Attribute Table – Pipe Coating (Please name this table "PipeCoating")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be	Positive integer	Y

				needed.		
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
COATED	I	1	Coated/uncoated pipe	Identify whether pipe segment is **effectively** 1=Cathodic Protection coated steel, 2=no CP coated steel, 3=CP bare steel, 4=no CP bare steel, 5=plastic	1,2,3,4,5,6	Y
COAT_TYPE	I	2	Type of coating	Identify whether pipe segment is 1=coal tar enamel, 2=fusion bonded epoxy, 3=asphalt, 4=cold applied tape, 5=polyolefin, 6=extruded polyethylene, 7=field applied epoxy, 8=paint, 9=composite, 10=other, 11=no coating	1,2,3,4,5,6,7,8,9, 10, 11	Y

Pipeline Attribute Table – Facility Response Plan (Please name this table "FacResponsePlan")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system.	Character	Y

				Equivalent to PODS Route_ID or APDM Physical Lineloop		
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
FRP_CONTRL	C	8	FRP Control Number	Facility Response Plan Control Number for applicable liquid pipe segments (n/a for pipe segments which do not have an FRP)	Character	Y - if segment has an FRP
FRP_SEQ	C	4	FRP Sequence Number	Facility Response Plan Sequence Number for applicable liquid pipe segments (n/a for pipe segments which do not have an FRP)	Character	Y - if segment has an FRP

Pipeline Attribute Table – Leak Detection Method (Please name this table "LeakDetectMethod")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
LEAK	C	2	Type of leak detection	Identify whether leak detection is SC=Scada-based, CP=CPM, AE=Aerial patrol only, CO=combination aerial/ ground patrol, IN=Instrumented, GP=Ground patrol for gas operators, IG= Instrument ground patrol IA=Instrumented air patrol	SC, CP, AE, CO, GP, IN, IG, IA	Y

Pipeline Attribute Table – Hydro Test (Please name this table "HydroTest")

Field Name	Field Type[1]	Field Length	Short Description	Full Description	Acceptable Values (UPPERCASE)	Required Field[2]
OPER_LINK	I	8	Unique Link ID	Foreign key link to the Pipeline System Attribute table. Note that once processing is complete, the OPER_LINK value will be removed from the data by NPMS staff as it will no longer be needed.	Positive integer	Y
REVIS_CD	C	1	Revision Code	Identifies this pipeline segment as an A=addition to the NPMS, C=addition due to construction, J=addition due to mileage which is new to PHMSA's jurisdiction, S=spatial modification of the existing NPMS feature, T=attribute modification of the existing NPMS feature, B=both a spatial and attribute modification of the existing NPMS feature, or N=no change to the existing NPMS feature.	A, C, J, S, T, B, N,	Y
PLINE_ID	C	80	Pipeline ID	Assigned by the operator. This is a unique identifier for a specific section of pipeline within a pipeline system. Equivalent to PODS Route_ID or APDM Physical Lineloop	Character	Y
BEG_MEAS	I	12	Begin Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
END_MEAS	I	12	End Segment Distance (measure)	Equivalent to PODS Measure or APDM Continuous Station. The value should be rounded to the nearest foot.	Integer	Y
ORG_HYD	I	4	Year of original hydrostatic test	Year of original hydrostatic test (use [null] if segment has not had a hydrostatic test)		Y - if segment had hydrostatic test
ORG_HYD_PR	C	8	Original hydrostatic test pressure	Pressure of original hydrostatic test in psig, with up to one decimal place (use [null] if segment has not had a hydrostatic test)		Y - if segment had hydrostatic test
LAST_HYD	I	4	Year of last hydrostatic test	Year of last hydrostatic test (use [null] if segment has not had a hydrostatic test)		Y - if segment had hydrostatic test
LAST_HYD_PR	C	8	Last hydrostatic test pressure	Pressure of last hydrostatic test in psig, with up to one decimal place (use [null] if segment has not had a hydrostatic test)		Y - if segment had hydrostatic test

NOTES: 1 I – Integer; C – Character; D – Double.
2 Y – Yes; N – No.

Appendix D: Glossary

A

Abandoned pipeline	A pipeline that has been permanently removed from service. The NPMS accepts geospatial data submissions for pipelines which have been abandoned in place, but not for pipelines abandoned by removal.
Accuracy	The degree of conformity with a recognized or established standard.
Accuracy (absolute)	The accuracy of a map in representing the geographic location of an object relative to its true location on the earth's surface. Absolute accuracy is based on geographic coordinates.
Accuracy (relative)	The accuracy of a map in representing the geographic location of an object relative to the locations of other objects.
Alignment sheet	A general-purpose drawing designed to be used by company personnel during the operation and maintenance of the pipeline.
Alphanumeric	Consists of a possible combination of letters, numbers, and punctuation symbols.
Area	A generic term for a bounded, continuous, two-dimensional object that may or may not include its boundary.
ASCII	American Standard Code for Information Interchange. A popular standard for the exchange of alphanumeric data.
Attribute	A characteristic that helps to describe the data.

B

Base map	A map containing visible surface features and boundaries that is used for local reference.
Breakout tank……	A tank used to a) relieve surges in a hazardous liquid pipeline system or b) receive and store hazardous liquid transported by a pipeline for reinjection and continued transportation.

C

CAD or CADD	Computer Aided Drafting (CAD) and Design (CADD). An automated system for the drafting and display of graphic oriented information.
Control point	A point of known horizontal position used in digitizing paper maps.
Conversion	The process of transforming information from one form to another, e.g., analog (paper) data into digital data.

Coordinates ..... Pairs of numbers expressing a known horizontal location on the earth's surface.

Crude oil ..... Liquid petroleum out of the ground, as distinguished from refined oils manufactured from crude oil.

D–E

Database ..... Structured collection of data defined for a particular use, user, system, or program; may be sequential, network, hierarchical, relational, or semantic.

Data capture ..... The process of converting hard-copy maps into a digital format.

Data dictionary ..... A listing of each data field and a definition or description of what is contained in that field.

Data set ..... A collection of related data.

Datum (geodetic) ..... The level surface to which elevations are referenced, such as mean sea level. A datum serves as a frame of reference for measuring a location on the surface of the earth.

Digital ..... The discrete numerical representation of data.

Digital centerline ..... A series of connected data elements representing the pipeline.

Digital orthophotos ..... A digital image of an aerial photograph in which the displacement caused by the camera tilt and by terrain has been corrected.

Digitize ..... The process of converting hard-copy manual drawings into digital format.

DLG ..... Digital Line Graphs. Digitized data from USGS base map categories, including transportation, hydrology, elevation contours, and public land survey boundaries.

DXF ..... Drawing eXchange Format. A graphic file and data interchange standard.

F

Facilities ..... Components of the pipeline system, such as the pipe, valves, and compressor stations.

FGDC ..... Federal Geographic Data Committee. Established through OMB and charged with coordinating the development, use, sharing, and dissemination of geographic data.

G

Geodetic control	Surveying and monumental points on the earth's surface whose location is established in accordance with national standards.
Geographic	Referring to coordinate systems, latitude/longitude or comparable geographic grid location reference.
Geospatial data	Information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth.
GIS	Geographic Information System. Computer hardware, software, and geographic data used to capture, store, update, maintain, analyze, and display graphically referenced information.
GPS	Global Positioning System. Survey instrument/process using satellite-generated timing data to establish either ground or aerial coordinates.
Graphic element	Points, lines, arcs, symbols, etc., which can be displayed.

H

Hardware	The physical components of a computer system or network such as the computer, printer, plotter, and terminal.
Hazardous liquid	Petroleum, petroleum products, or anhydrous ammonia.
Hazardous liquid trunkline	A hazardous liquid transmission pipeline other than a flow line, gathering line, or in-plant pipeline.
Highly volatile liquid (HVL)	A hazardous liquid that will form a vapor cloud when released to the atmosphere and has a vapor pressure exceeding 276 kPa (40 psia) at 37.8° C (100° F). Note: natural gas liquids are also HVLs.

I-K

In-service pipeline	A pipeline that currently transports natural gas or hazardous liquid.
Inactive/idle pipeline	A pipeline that is maintained to a degree that it may, in the future, be potentially brought back into service.
Interstate pipeline	A pipeline or part of a pipeline that is regulated by FERC.

L

Latitude ..... Distance measured north or south of the equator.

Liquefied Natural Gas (LNG) ..... Natural gas or synthetic gas having methane as its major constituent that has been changed to a liquid or semi solid.

Liquefied Petroleum Gas (LPG) ..... Butane and propane separated from natural gasoline and sold in liquid form as fuel. Also known as bottled gas and tank gas.

LNG Plant ..... A component of a facility that is used for 1) liquefying or solidifying natural gas, or 2) transferring, storing, or vaporizing liquefied natural gas.

Longitude ..... Distance measured east or west from the Prime Meridian in Greenwich, England.

Low stress pipeline ..... Hazardous liquid pipelines operating at 20% or less of SMYS.

M

Media ..... The physical devices used to record, store, or transmit data, i.e. CD-ROM, diskette, cartridge, tape.

Metadata ..... Descriptive information about data, such as the timeliness of the data, attribute sources, and accuracy of the data.

MQAT ..... Joint Government-Industry Pipeline Mapping Quality Action Team. Sponsored by PHMSA, API, and AGA/INGAA.

N

NAD 27, 83 ..... North American Datum (of 1927 or 1983). Two mathematical representations of the earth's surface.

Natural gas liquid ..... Also referred to as NGL. Can be ethane, butane, propane, or a propane-butane mix.

Natural gas transmission line ..... A pipeline system, other than a gathering line, that 1) Transports gas from a gathering line or storage facility to a distribution center, storage facility, or large-volume customer that is not downstream from a distribution center. A large-volume customer may receive similar volumes of gas as a distribution center, and includes factories, power plants, and institutional users of gas, 2) Operates at a hoop stress of 20 percent or more of specified minimum yield strength (SMYS), or 3) Transports gas within a storage field.

Nominal diameter ..... A dimensionless designator of pipe that indicates the standard pipe size.

O

One-Call ..... Service to notify underground utilities of planned excavations.

Operator ..... A person or firm who operates a pipeline system and engages in the transportation of gas or hazardous liquid. The operator may or may not also be the owner of the pipeline system.

Orthophoto ..... Photo with camera tilt and relief displacements removed, resulting in a scale-correct image.

Overlay ..... Simultaneously viewing two or more digital data sets of similar geographic areas.

P

Petroleum..... Crude oil, condensate, natural gasoline, natural gas liquids, and liquefied petroleum gas.

Petroleum product..... Flammable, toxic, or corrosive products obtained from distilling and processing crude oil, unfinished oils, natural gas liquids, blend stocks, and other miscellaneous hydrocarbon compounds.

Pipeline corridor ..... A linear area where two or more pipelines (either part of the same or different pipeline systems) are closely grouped in a single right-of-way. Pipeline corridors pose a cartographic challenge. In digital files, multiple lines are required, and operators should separate them into individual layers or files.

Pipeline crossing ..... A point where two or more pipelines cross, but where there is no physical connection between the pipelines. Pipeline segments should not be broken at pipeline crossings.

Pipeline intersection ..... A point where a physical connection between two pipelines occurs. A commodity from one pipeline can flow into another pipeline(s), either a branch within a pipeline system or a connection between two pipeline systems.

Pipeline segment ..... A linear feature representing part or all of a pipeline system on a map. A pipeline segment must have only two ends. No branches are allowed. A pipeline segment may be a straight line or may have any number of vertices. Each pipeline segment must be uniquely identified. The number of pipeline segments should be kept to the minimum needed to represent a pipeline system and its associated attributes. A unique line segment in the computer-aided drafting (CAD) or GIS data set should represent each pipeline segment.

Pipeline system ..... All parts of a major natural gas transmission line or hazardous liquid trunkline though which gas or hazardous liquid is transported. By definition, only one firm can operate a pipeline system. Operators should assign unique names to each of their pipeline systems. A pipeline system may have an unlimited number of branches. Each pipeline system must be represented by one or more pipeline segments.

Q

Quadrangles (Quads) ..... Typically refers to the USGS map sheets in the 7.5-minute quad series or the 15-minute quad series. Also known as topographic maps.

Quality ..... An essential or distinguishing characteristic needed for cartographic data to be fit for use.

R

Repository ..... The entity designated to maintain, store, and warehouse NPMS data.

Retired pipeline ..... A pipeline that is still connected to the system but has been taken out of service and is no longer maintained. The pipeline has not yet been permanently abandoned.

ROW ..... Right-of-Way. A section of land designated for use by one or more pipelines. The NPMS refers to ROWs as pipeline corridors.

S

Scale (large) ..... Small map area showing greater detail, e.g., 1:2,400 = 1" to 200'.

Scale (small) ..... Large map area with less detail, e.g., 1:100,000 = 1" to 8333'.

Spatial data ..... Data about the location of objects and their relationship with one another.

T–Z

Thematic ..... The depiction of particular features or concepts.

Topographic maps ..... Map showing horizontal and vertical contours, or lines of equal surface elevation.

Topography ..... Shape of configuration of the land surface. Represented by contour lines in map form.

Topology ..... Description of the geographic relationship of features, especially features that are adjacent to or connected to another feature.

Vector ..... Data composed of individual coordinate points and lines whose endpoints are defined by coordinate pairs.