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

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GIS Manager, US DOT PHMSA
Today’s NPMS Topics

• Overview of the NPMS
• What is new in the NPMS, including new tools and GIS data.
• Top 8 recommendations to help operators prepare better NPMS submittals.
  – Will not be discussed in detail, but please share these slides with anyone who produces NPMS data submissions for PHMSA.
• Approved modifications to the NPMS data standards.
  – PHMSA vision for implementation.
  – New attributes, data types and requirements.
  – Stay tuned for more on this topic with Ron Brush immediately after this presentation.

Please hold questions until the end.

These slides are written to serve as a reference and hyperlink source after today’s discussion; please download and share with co-workers in your company who participate in NPMS data submission or public awareness efforts.
What is the NPMS?

• GIS data collected from over 1,500 pipeline operating companies
• Annual GIS data submissions represent operations as of 12/31 of the previous year
  – 49 CFR 191.29 (Gas Transmission and LNG)
    • Due each year on March 15
  – 49 CFR 195.61 (Hazardous Liquid)
    • Due each year on June 15
• NPMS Operator Standards Manual
  – Outlines procedures and data standards
    • Spatial data and Attributes
    • Contact information
    • Metadata/Cover letter Information
• NPMS Submission Guide
  – Guidance and tips to help operators prepare accurate submittals (FAQs)
• Operator Submission and Validation Environment (OSAVE)
What is the NPMS?

• More than a pipeline map...
  – Spatial and attribute history on each pipeline segment
  – Accident and incidents associated to pipe segments to track asset history
  – PHMSA inspection boundaries
  – Underground Natural Gas Storage
  – High Consequence Area GIS data
  – Unusually Sensitive Area GIS data

• More than a collection of data...
  – Inspection planning and analysis
  – Accident and incident investigations
  – Emergency response
  – Risk analysis and resource allocation
  – Policy analysis and engineering research
  – Public Awareness, outreach and support for emergency responders and pipeline safety initiatives at all levels of government

“To protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives.”
What isn’t the NPMS?

- Gas gathering or gas distribution pipelines
- Planned pipelines
  - If it’s in the NPMS then it is already in or on the ground!
- A huge data processing or help center
  - 3 full time GIS analysts (npms@dot.gov)
- Experts on interpreting pipeline regulations
  - Contact PHMSA’s Community Liaison Group
How can I access the NPMS?

- Public Map Viewer
- Public Map Viewer iPhone App
- Search Operator directory by state, county or ZIP where they operate pipelines
- Download national pipeline map or pipeline mileage spreadsheets by county and offshore area

www.npms.phmsa.dot.gov
What NPMS data can I access?

Applies to pipeline, LNG plant and BOT data only:

- **General public**
  - Only publicly available tools. Same pipelines as other users, with additional limitations.

- **Pipeline operators** who submit data to the NPMS.
  - Only the data for facilities they operate.

- **Local government officials**, including emergency responders.
  - All NPMS facilities in their county.

- **State government officials**.
  - All NPMS facilities in their state.

- **Federal government officials**.
  - All NPMS facilities in their area of interest or the entire US.

- **Tribal government officials**.
  - All NPMS facilities in the counties that intersect tribal lands.
What NPMS data can I access?

**High Consequence Area (HCA)** GIS data available from the NPMS:
A resource to support integrity management planning for hazardous liquid operators

<table>
<thead>
<tr>
<th>HCA Type</th>
<th>GIS Data Access</th>
<th>On PIMMA</th>
<th>On Public Viewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>High and Other Population Areas</td>
<td><a href="#">Download Here</a></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Commercially Navigable Waterways</td>
<td><a href="#">Download Here</a></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Great Lakes USA</td>
<td><a href="#">Download Here</a></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ecological Unusually Sensitive Area</td>
<td>Restricted <a href="#">Request Here</a></td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Drinking Water Unusually Sensitive Area</td>
<td>Restricted <a href="#">Apply Here</a></td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
What is New in the NPMS?

Offshore pipelines on the Public Map Viewer
What is New in the NPMS?

Operator Public Awareness URLs

– Opportunity to reach 40,000 monthly NPMS users with your company’s public awareness resources.
– Update URL anytime in OSAVE on Public Contact Information form, and confirm accuracy annually.
– Displayed on PIMMA, Public Viewer and Operator Directory.
What is New in the NPMS?

Improved resources for Tribal Governments (live November 2020)

– Tribal Government specific PIMMA and GIS Data Request forms
– Tribal lands data on all web map viewers
What is New in the NPMS?

New Query Tools on Public Viewer and PIMMA

– Query pipelines in a user defined area (e.g., neighborhood or project location).
– Interact between attribute results and map screen.
– Download attribute and contract information to a spreadsheet.
What is New in the NPMS?

Great Lakes Ecological Unusually Sensitive Area (USA) GIS data

- For hazardous liquid operator integrity management planning.
- Section 19 PIPES Act of 2016 mandated new Great Lakes USA.
What is New in the NPMS?

Updated Ecological Unusually Sensitive Area (USA) GIS Data

Distribution ends by April 2021

• For hazardous liquid operator integrity management planning.
• Updated in 2018.
• Request GIS data in states where you operate HL pipelines.
• NatureServe (vendor) data product training required for all GIS data users.
• See instructions for requesting data at https://www.npms.phmsa.dot.gov/USADWData.aspx
What is New in the NPMS?

Updated Drinking Water USA GIS Data

• For hazardous liquid operator integrity management planning.
• Updated in 2019
• Request GIS data in states where you operate HL pipelines.
• See instructions for requesting data at https://www.npms.phmsa.dot.gov/USADWData.aspx
What is New in the NPMS?

Operator Submission Status and History on Public Display

- Displayed on PHMSA’s Public Pipeline Data Mart.
- Available from every user portal on NPMS website, search for any operator name or OPID.
- Displays status, including when the submission was published online or if we are waiting for the operator to correct issues in their submittal.

**NPMS Submission Status**

**NPMS Submission Status**
Time run: 8/21/2020 4:30:32 PM

Portal - Data as of 8/20/2020 9:29:42 PM

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>NPMS Compliance</th>
<th>Status</th>
<th>Type</th>
<th>Submission Received</th>
<th>Extension Granted</th>
<th>Operator Error Delays (Count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Yes</td>
<td>Published to PIMMA Plus 07/15/2019</td>
<td>No change confirmation</td>
<td>2/27/2019</td>
<td>6/6/2019</td>
<td>2</td>
</tr>
<tr>
<td>2019</td>
<td>No</td>
<td>Submission Issue; Pending Operator Correction</td>
<td>Full data submission</td>
<td>3/11/2020</td>
<td>7/14/2020</td>
<td>6</td>
</tr>
</tbody>
</table>

Export
NPMS Top 8: How can I improve my company’s NPMS submission?

#1 - Take care to record the correct revision code (REVIS_CD attribute)

- Tells NPMS staff how to treat each pipeline.
- When revision code conflicts with the data we see on the map and information provided in OSAVE workflow, we must stop processing and ask you for corrections or clarifications.
- Pay special attention to codes on new pipelines and misuse of N (No Change to this segment).

Image: Example of an operator’s correct use of revision codes
#1 - Take care to record the correct revision code (REVIS_CD attribute)

- In particular, if the pipeline was not in your previous submission (your company’s data in the NPMS National Layer), it will be rejected unless it reflects one of the following revision codes:
  - A – Addition for your company due to new construction that created new mileage (like a re-route, or a new route). This is not an in place replacement or repair.
  - J – Addition for your company due to jurisdictional change, such as upgraded from gas gathering to gas transmission
  - A – Addition for your company due to acquisition, new operatorship or previous omission in error.

- Do not default to N (No Change) if any spatial or attribute change is possible.
- Capture proper revision codes or other information about each spatial change as part of your change management procedure so you do not need to determine correct values retroactively.
  - Review your last NPMS submittal via OSAVE’s data reviewer feature or request a GIS data export.
NPMS Top 8: How can I improve my company’s NPMS submission?

#2 – Accurately report any acquisition or changes in operatorship

- Still important if your company operates both the old and the new OPID.
- Be clear about which pipeline segments and OPIDs are affected.
- Always check your company’s National Registry Notifications in the PHMSA Portal.
- Required in 49 CFR §191.22 and §195.64.

*TIP* If you prefer to upload a spreadsheet or document with this information, please say that in the note box.

Image: Example of an operator’s correct reporting of an acquisition.
NPMS Top 8: How can I improve my company’s NPMS submission?

#3 – Account for missing pipelines

- Always review the data in the NPMS National Layer to ensure you do not mistakenly omit a pipeline from your submission.
- NPMS staff need to know if a line is missing intentionally, and why.
  - Permanently abandoned?
  - No longer subject to NPMS regulation?
  - Divested?
  - Removed from ground?

*Tip* If you prefer to upload a spreadsheet with this information, please say that in the note box.

Image: Example of an operator’s correct reporting of a pipeline no longer subject to NPMS Gas Transmission or Hazardous liquid NPMS submittals.
NPMS Top 8: How can I improve my company’s NPMS submission?

#4 – NPMS submissions must match Annual Report mileage

• Each OPID must report the same pipelines on both PHMSA reporting methods
  – Required per 49 CFR §191.22 and §195.64
• Compare NPMS mileage to Annual Report mileage before submitting.
• View your Annual Report mileages on the public Pipeline Data Mart (displayed above new NPMS Submission Status table), or coordinate internally.
• NPMS staff generally accept up to 5% error to accommodate mapping system differences

Image: Example of an operator NPMS submission discrepancy with their Annual Report.
NPMS Top 8: How can I improve my company’s NPMS submission?

#5 – Reduce unnecessary segmentation

Image: Example of an operator NPMS submission with unnecessary segmentation.
NPMS Top 8: How can I improve my company’s NPMS submission?

#6 – Accurately describe your company and this submission

• First question reflects what your company operates under this OPID.
• Second question reflects the type of submission you are completing at this time.

Image: Example of a company that operates both gas transmission and hazardous liquid pipelines, but is only completing the gas transmission portion of their NPMS submission.
NPMS Top 8: How can I improve my company’s NPMS submission?

#7 – Know what to expect before you start the annual submittal process in OSAVE

https://www.npms.phmsa.dot.gov/AboutOSAVE.aspx

For a detailed explanation of OSAVE, please refer to the NPMS Operator Submission Guide and the OSAVE User Guide. For ‘how to’ examples, refer to our instructional videos by topic:

- OSAVE View Submission History: https://youtu.be/H5R27BZpkm8
- OSAVE No Change Notification: https://youtu.be/nr4Mf2HwQW0
- OSAVE Removal of OPID: https://youtu.be/JktqrfHh0vU
- OSAVE Full Data Replacement: https://youtu.be/ztKldPztJt8
- OSAVE Submit Data Additions Only: https://youtu.be/yishqHFR8gk
- OSAVE Submit Edits and Deletions via Map: https://youtu.be/GEE-X5pEDfE
NPMS Top 8: How can I improve my company’s NPMS submission?

#8 – Do not misrepresent a pipe as “ABANDONED”

- PHMSA regulations only recognize **two operational statuses: Active or Abandoned**
  - Abandonment regulations are captured in 49 CFR 192.727 and 195.402(c)(10)
- PHMSA regulations define the term “abandoned” to mean **permanently removed from service** (49 CFR 192.3)
  - If you may use the pipeline or divest it in the future, it is still required in NPMS and on Annual Reports under the commodity last carried.
- NPMS Status codes will be aligned with regulations
  - Includes an option to report an Active pipeline as also unfilled
- If an Active or Abandoned line is purged, capped and filled, please report the fill material in Commodity Description field (e.g., filled with water, nitrogen)
- Read the advisory bulletin titled **Clarification of Terms Relating to Pipeline Operational Status** for more details
Approved modifications to the NPMS Information Collection

- The NPMS Information Collection (NPMS data standards) is reviewed and approved every three years by the Office of Management and Budget (OMB, part of the Executive Office of the President).

- OMB approved a large revision to the NPMS in January 2020

- How we got here:
  - Original standards 1998
  - 2011 PHMSA started interviews with internal inspection, policy and engineering staff, as well as pipeline operating companies to gather requirements and gauge impacts
  - Four separate proposals (two 60 day notices, two 30 day notices): 2014, 2015, 2016, 2019
  - Two Public Meetings: 2015, 2015
  - One Technical Workshop: 2015
Approved modifications to the NPMS Information Collection

Where to find more information today:

- Details in final notice approved by OMB: [2019 30 day notice](#) in the Federal Register
- All notices, public comments, and iterations of the Draft NPMS Operator Standards: [Regulations.gov Docket Number PHMSA-2014-0092](#)
- OMB Public Notice of Approval at [RegInfo.gov](#)
- OMB Control Number: 2137-0596
- [Future NPMS Attribute Standards and Revision Summary](#) on NPMS website
Approved modifications to the NPMS Information Collection

Revision Highlights:

- Modernized spatial accuracy requirement.
- New pipeline and LNG plant attributes.
- Previously voluntary information is now required.
- New data layers related to LNG Plants.
- When designated, attributes may be reported as unknown or as predominant values.
Approved modifications to the NPMS Information Collection

PHMSA’s Vision for Implementation

• Publish an announcement in the Federal Register
  – PHMSA will delay spatial accuracy requirement until submissions due March/June 2027
  – PHMSA will accept NACE Standard RP0102-2002 definitions for Inline Inspection
• Publish new NPMS webpage as a central hub for updates and information, including File Geodatabase and Shapefile templates
• Explore new data submission formats, including an LRS format.
• Provide updated documentation, operator webinars and/or new demo video resources to help operators.
• Modify OSAVE to support new submission requirements and options.
  – Operators can submit previously voluntary items/improved spatial accuracy now
  – Operators will not submit new data elements before March/June 2023
Approved modifications to the NPMS Information Collection

Operators can submit as early as March/June 2021:

Optional data elements will become mandatory in Phase 1

- Pipe Nominal Diameter (Nominal Pipe Size)
- Commodity Details (for Crude, Product or Natural Gas)
- Breakout Tank locations and attributes (BOTs)
- Modernized spatial accuracy
- Abandoned pipelines
- Facility Response Plan sequence number (not mandatory until Phase 2)
Approved modifications to the NPMS Information Collection

PHMSA will start collection no earlier than March/June 2023

**Phase 1**

- Optional data elements become mandatory (except FRP#)
- Pipe material
- Pipe join method
- Onshore/offshore
- In-line inspection (yes/no)
- Class location

- Gas HCA segment
- Coated (yes/no)
- Breakout Tank data and attributes
- LNG plants (type of plant, year constructed, and capacity, in addition to separate layers and attributes for impoundments and exclusion zones)
Approved modifications to the NPMS Information Collection

New LNG Plant Attributes

**Phase 1**

<table>
<thead>
<tr>
<th>Attribute Field Name</th>
<th>Short Description</th>
<th>LNG Plant Attribute Field Full Description</th>
<th>Acceptable Values (UPPERCASE)</th>
</tr>
</thead>
</table>
| TYPE                 | Type of LNG Plant | Field Type = Text, Field Length = 2  
Identifies the type of LNG Plant. BL=base load, PS=peak shaving, SA=satellite, MT=mobile/temporary, O=other.                                                                                                                                                        | BL, PS, SA, MT, O                                  |
| CAPACITY             | Total Capacity    | Field Type = Integer, Long  
Total capacity of LNG Storage in Barrel units (bbl).                                                                                                                                                                                         | Positive integer                                   |
| CNSTR_YEAR           | Year Constructed  | Field Type = Integer, Long  
Identifies the year the LNG Plant was constructed (matches “date put in service” from the operator’s Annual Report).                                                                                                                                                           | Positive 4 Digit Integer; (example: 2019)           |
Approved modifications to the NPMS Information Collection

New LNG Plant Impoundment Layer and Attributes

**Phase 1**

New Polygon Features:

<table>
<thead>
<tr>
<th>Attribute Field Name</th>
<th>Short Description</th>
<th>LNG Plant Impoundment Attribute Field Full Description</th>
<th>Acceptable Values (UPPERCASE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPID</td>
<td>Operator ID Number</td>
<td>Field Type = Integer, Long&lt;br&gt;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 or the NPMS website.</td>
<td>Positive integer</td>
</tr>
<tr>
<td>LNG_ID</td>
<td>LNG Plant ID</td>
<td>Field Type = Text, Field Length = 20&lt;br&gt;Assigned by the operator. This is a unique identifier for a specific plant. Must match the LNG_ID value used in the LNG Plant attribute table for this specific plant.</td>
<td>Character</td>
</tr>
<tr>
<td>IMPOUND_ID</td>
<td>Unique ID for Impound</td>
<td>Field Type = Text, Field Length = 30&lt;br&gt;Assigned by the operator. This is a unique identifier for the specific impoundment.</td>
<td>Character</td>
</tr>
</tbody>
</table>
Approved modifications to the NPMS Information Collection

New LNG Plant Exclusion Zone Layer and Attributes

Phase 1

New Polygon Features:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Short Description</th>
<th>LNG Plant Exclusion Zone Full Description</th>
<th>Acceptable Values (UPPERCASE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPID</td>
<td>Operator ID Number</td>
<td>Field Type = Integer, Long</td>
<td>Positive integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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 or the NPMS Web site.</td>
<td></td>
</tr>
<tr>
<td>LNG_ID</td>
<td>LNG Plant ID</td>
<td>Field Type = Text, Field Length = 20</td>
<td>Character</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assigned by the operator. This is a unique identifier for a specific plant. Must match the LNG_ID value used in the LNG plant attribute table for this specific plant.</td>
<td></td>
</tr>
<tr>
<td>EZONE_ID</td>
<td>Unique ID for Zone</td>
<td>Field Type = Text, Field Length = 30</td>
<td>Character</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assigned by the operator. This is a unique identifier for the specific exclusion zone.</td>
<td></td>
</tr>
<tr>
<td>HFLUX</td>
<td>Heat Flux</td>
<td>Field Type = Double</td>
<td>Decimal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of the lower flammable limit of the gas (heat flux).</td>
<td></td>
</tr>
</tbody>
</table>
Approved modifications to the NPMS Information Collection

PHMSA will start collection no earlier than March/June 2024

**Phase 2**

- Seam type
- Pipe grade
- Wall thickness
- Facility Response Plan (FRP) Sequence Number (becomes mandatory)

- Decade of installation
- Hazardous liquid segment could affect an HCA (population, CNW and Eco USA only)
- Last assessment method and year
Approved modifications to the NPMS Information Collection

PHMSA will require in March/June 2027: Phase 3

- Gas transmission pipe segment
  - Segment is in a Class 2, 3, or 4 area
    - No
    - Segment is in a High Consequence Area
      - Yes
        - Positional accuracy standard is +/- 50 feet
      - No
        - Within its potential impact radius, segment has one or more buildings intended for human occupancy or an identified site
          - Yes
            - Positional accuracy standard is +/- 100 feet
          - No
            - Positional accuracy standard is +/- 100 feet

- Hazardous liquid pipe segment
  - Positional accuracy standard is +/- 50 feet
Please stay with me for more discussion about the revisions to the NPMS Information Collection and implementation strategies for pipeline operators with Ron Brush at 10:45 am CDT