

# Get Ready for NPMS Info Collection

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- What can I do now to prepare for NPMS Info Collection submissions?
- How to take a preliminary assessment and make a game plan
- Understand challenges that some operators will face

# Timeline

- PHMSA will start collecting Phase 1 data no earlier than 2023 (due by March 15 or June 15, 2023 depending on the facility type).
  - All new data features and data layers (i.e., abandoned pipelines, LNG plant impoundments, LNG plant exclusion zones and breakout tanks) are required in Phase 1.
- Phase 2 data no earlier than 2024.
- Phase 3 is mandatory by 2027.

## DUE DATES

Gas Transmission	March 15
LNG Plants	March 15
Haz. Liquid	June 15

# Summary of Revisions

- Modernized spatial accuracy requirement.
- 21 New pipeline and new LNG plant and Breakout tank attributes, as outlined in the attribute standards tables.
- Previously voluntary data elements are now required, including abandoned pipelines that previously operated as gas transmission or hazardous liquid pipelines, pipeline diameter, pipeline commodity details, pipeline facility response plan sequence number and breakout tank locations with attributes.
- New NPMS data submission requirements for LNG plant impoundment and exclusion zones (polygons).
- When designated, pipeline attributes may be reported as unknown when accurate information is not available, or as a predominant value (representing at least 90% of the pipeline segment).



# What We Don't Know Yet

- Will there will be a new linear referenced format submission option?
- Possibility of submitting Gas MCA's in the future?
- When training will be available.

# NPMS Definition of Pipe Segment

## Dynamic Segmentation

OPID  
Diameter  
Wall Thickness  
Class Location  
Gas HCA  
Decade Installed  
ILI Insp. Year

OPID	1234									
Diameter	12"									
Wall Thickness	0.250"		0.375"		0.250"					
Class Location	1	2		3						
Gas HCA	No	HCA		No		HCA		No		
Decade Installed	1940	1970		2010		1990		1940		
ILI Insp. Year	2018									
NPMS Pipe Segment	1	2	3	4	5	6	7	8	9	10

Example	
ATTR	VALUE
OPID	1234
OPER_NM	XYZ NAME
MATERIAL	S
DIAMETER	12
WALL_TH	0.250
COATED	Y
COMMODITY	NG
CMDTY_DTL1	NG1
QUALITY_CD	C
QUALITY_RQ	B
PIPE_JOIN	W
GRADE	X52
SEAM_TYPE	UNKERW
DECADE_IN	1980
ILI_ABLE	Y
CLASS	2

# What can you do now to prepare?

- Get a copy of the approved changes at  
Select “OMB approved future attribute standards”  
<https://www.npms.phmsa.dot.gov/PipelineOperator.aspx>
- Review and understand what will be required
- Take inventory
  - Where is your data? Single GIS, Multiple GIS databases, Other locations?
  - Do you have data gaps?
  - Overlapping attributes?
  - Abandoned pipelines
  - Are you storing positional accuracy
  - What about unknown values?
- Setup repeatable workflow and processes to provide consistent NPMS and Annual reports

# Diameter

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1 *	DIAMETER	Diameter reported in Nominal Pipe Size (NPS)	<p>Field Type = Double (5, 3)</p> <p>Nominal pipe size of the pipeline segment; identifies the diameter with a dimensionless value, (e.g., 8.625" outside diameter pipe is reported as NPS 8, 5" outside diameter pipe is NPS 4.5). Decimals are only accepted when less than NPS 5.</p>	Decimal	Both



# Wall Thickness

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required? <i>Gas, Liquid, Both or otherwise as indicated</i>
1	WALL_TH	Wall Thickness	Field Type = Text, Field Length = 5  Wall thickness of the pipeline segment, in inches (three decimal places, #.###). Use U if thickness is unknown.	Decimal or U	Both

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1	MATERIAL	Type of Pipeline Material	Field Type = Text, Field Length = 5 Identifies the material of the pipeline segment. C=cast iron, P=plastic, S=steel, CM=composite, W=wrought iron, O=other.	C, P, S, CM, W, O	Both
1	MATERIAL_O	Other Material Type	Field Type = Text, Field Length = 40 Identifies the type of pipeline material if O (other) is selected in the MATERIAL field.	Character	Required- If Material reported as O

# Pipe Join - Predominant

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1	PIPE_JOIN	Predominant Pipeline Joining Method	Field Type = Text, Field Length = 1	W, C, S, F, P, U, O	Both
			Identifies the actual or predominant (90% of pipeline segment) pipeline joining method for this pipeline segment. W= welded, C= coupled, S= screwed, F= flanged, P= plastic pipe joint, U=unknown, O= other.		
1	PIPE_JOIN_O	Other Pipeline Joining Method	Field Type = Text, Field Length = 40	Character	Required- If Pipe Join reported as O
			Indicates the pipeline joining method if O (other) is selected in the PIPE_JOIN field.		

# External Coating

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1	COATED	Coated Yes/No	Field Type = Text, Field Length = 1  (Y)es / (N)o designator to identify if the pipeline segment is coated. Y= coated, n=not coated.	Y, N	Both



# Commodity Detail (3 fields)

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1 *	CMDTY_DTL1 CMDTY_DTL2 CMDTY_DTL3	Commodity Detail 1	Field Type = Text, Field Length = 3	CRW, CRR, RGS, RFD, RKJ, OTR, ETB, BDB, OBI, NG1, NG2, NG3, NG4	Required- If Commodity Category is crude oil (CRD), petroleum product (PRD) or natural gas (NG).
			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.		
			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.		

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1	ONSHORE	Onshore Yes/No	Field Type = Text, Field Length = 1  (Y)es / (N)o designator to identify if the pipeline segment is onshore (Y) or offshore (N) per 49 CFR §191.3 and 49 CFR §195.2. Must reflect onshore/offshore designations submitted in operator's Annual Report to PHMSA.	Y, N	Both

- How do you determine the boundary? Should match Annual Report mileage.
- Does it match Federal or State water boundaries? Many states includes offshore water boundaries.

*49 CFR 191.3 (Gas) and 195.2 (Liquids): Offshore means beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters;*

# Class Location - Predominant

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1	CLASS	Predominant Class Location	Field Type = Integer, 1 digit	1, 2, 3, 4	Gas
			(Gas) Actual or predominant (90% of pipeline segment) class location for a gas transmission pipeline segment (per 49 CFR §192.5).		

- Do you have Class 1 segments? (i.e. no record means Class 1)
- Note +/- 50' spatial accuracy requirement for Class 2-4
- Submit all segments or determine predominant?

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
1	GAS_HCA	Gas HCA Segment Yes/No	Field Type = Text, Field Length = 1  (Gas) (Y)es / (N)o designator to identify if a gas pipeline segment is in a gas HCA (High Consequence Area) per 49 CFR §192.903. Y=in a gas HCA, N=not in a gas HCA.	Y, N	Gas



Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required? <i>Gas, Liquid, Both or otherwise as indicated</i>
1	ILI_ABLE	Inline Inspection Yes/No	<p>Field Type = Text, Field Length = 1</p> <p>(Y)es / (N)o designator to identify if the pipeline is capable of accepting an inline inspection (ILI) tool with currently available technology. Y=capable, N=not capable.</p> <p>Per NACE Standard RP0102-2002:            Inline Inspection is defined as the inspection of a pipeline from the interior of the pipe using an in-line inspection tool. Also called intelligent or smart pigging.            Inline Inspection Tool is defined as a device or vehicle that uses a nondestructive testing technique to inspect the pipeline from the inside. Also known as intelligent or smart pig.</p>	Y, N	Both

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
2	GRADE	Predominant Pipeline Grade	Field Type = Text, Field Length = 15	A25, A25P, B, X42, X46, X52, X56, X60, X65, X70, X80, X90, X100, X120, U, P, O	Both
			Identifies the actual or predominant (90% of pipeline segment) pipeline grade for this pipeline segment: A25, A25P, B, X42, X46, X52, X56, X60, X65, X70, X80, X90, X100, X120, U = Unknown, P = Plastic, O=other.		

# Pipe Longitudinal Seam

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required? <i>Gas, Liquid, Both or otherwise as indicated</i>
2	SEAM_TYPE	Seam Type	<p>Field Type = Text, Field Length = 10</p> <p>Identifies the seam type for this pipeline segment. SMLS= Seamless, LFERW=Low frequency or direct current electric resistance welded, HFERW=High frequency electric resistance welded, UNKERW=Electric resistance welded with unknown frequency (possible if made around 1970), DSAW=Double side submerged arc weld, SSAW=Single side submerged arc weld, SPRSAW=Spiral single side submerged arc weld EFW=Flash weld, LAPW= Lap weld, FBW=Furnace butt weld, PLAS=Plastic or O=Other unlisted seam type, U=Unknown seam type.</p>	SMLS, LFERW, HFERW, UNKERW, DSAW, SSAW, SPRSAW, EFW, LAPW, FBW, PLAS, O, U	Both

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
2	DECADE_IN	Predominant Decade of Installation	<p>Field Type = Text, Field Length = 6</p> <p>Identifies the actual or predominant (90% of pipeline segment) decade of installation for this pipeline segment.            P1940=Pre-1940; P1950=1940-1949;            P1960=1950-1959; P1970=1960-1969;            P1980=1970-1979; P1990=1980-1989;            P2000=1990-1999; P2010=2000-2009;            P2020=2010-2019; P2030=2020-2029,            U=unknown.</p>	P1940, P1950, P1960, P1970, P1980, P1990, P2000, P2010, P2020, P2030, U	Both



Phase	Attribute Field Name	Short Description	Acceptable Values -UPPERCASE	Attribute Field Required?
				<i>Gas, Liquid, Both or otherwise as indicated</i>
2	HPA_AFF	Segment «Could Affect» HPA HCA Yes/No	Y, N	Liquid
2	OPA_AFF	Segment «Could Affect» OPA HCA Yes/No	Y, N	Liquid
2	ECO_AFF	Segment «Could Affect» Ecological USA HCA Yes/No	Y, N	Liquid
2	CNW_AFF	Segment «Could Affect» CNW HCA Yes/No	Y, N	Liquid

HPA – Highly Populated Areas  
 OPA – Other Populated Areas  
 ECO – Ecologically Sensitive Areas  
 CNW – Commercially Navigable Waterways

# Most Recent Assessment Method (3 fields)

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
2	ASSMNT_M1 ASSMNT_M2 ASSMNT_M3	Method of Most Recent Assessment	Field Type = Text, Field Length = 5	ILI, PT, DIR, EX	Required- If pipeline segment not exempt from assessment
			Identifies the most recent method, if the pipeline segment is required to be assessed per §195 Subpart F or §192 Subpart O. ILI <sup>1</sup> = inline inspection, PT = hydrostatic pressure test, DIR=direct assessment method, EX=exempt from assessment.		
			For example, if an ILI assessment was completed in March, but a DIR was completed in August of the same year, you will only report the DIR on that pipeline segment.		

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required? <i>Gas, Liquid, Both or otherwise as indicated</i>
2	ASSMNT_YR	Year of Most Recent Assessment	Field Type = Integer, 4 digits Identifies the 4-digit year of the most recent assessment, If the segment of pipeline is required to be assessed per §195 Subpart F or §192 Subpart O (ASSMNT_M1 does not equal 'EX').	Positive Integer; (example: 2019)	Required- If pipeline segment not exempt from assessment

Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
2	FRP_SEQ	FRP Sequence Number	<p>Field Type = Integer, Long</p> <hr/> <p>Facility Response Plan (FRP) Sequence Number for applicable liquid pipeline segments per 49 CFR §194. Assigned by PHMSA and provided to the operator in the Letter of Approval (LOA) for the operator's submitted FRP.</p>	Positive 4 Digit Integer; (example: 2019)	Required- For applicable liquid segments per 49 CFR §194

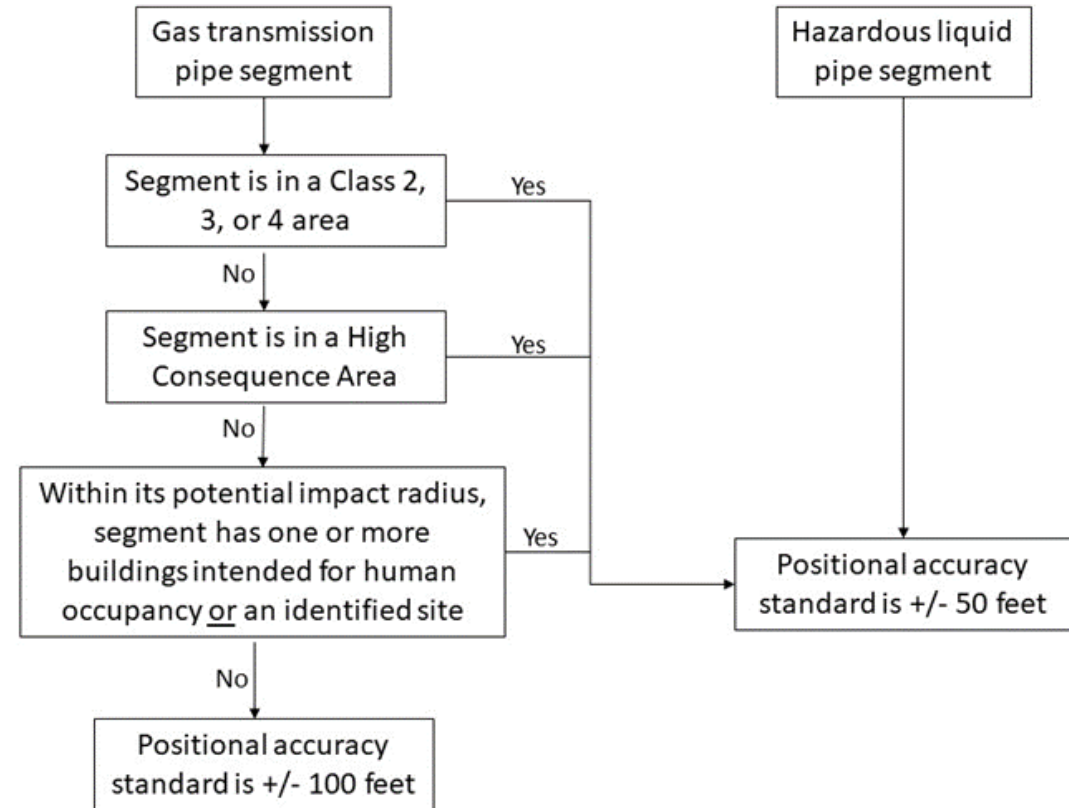


Phase	Attribute Field Name	Short Description	Pipeline Attribute Field Full Description	Acceptable Values -UPPERCASE	Attribute Field Required?
					<i>Gas, Liquid, Both or otherwise as indicated</i>
3	QUALITY_RQ	Data Quality Requirement Category	<p>Field Type = Text, Field Length = 2</p> <p>Is the segment subject to a 50 foot positional accuracy standard or a 100 foot positional accuracy standard? See the graphic in Section 4 to make the determination. A=50 foot, B=100 foot</p>	A,B	Both
	QUALITY_CD	Data Quality Code (Positional Accuracy)	<p>Field Type = Text, Field Length = 1</p> <p>Identifies the positional accuracy of the submitted data. A=less than 5 feet, B=5-25 feet, C=25.01-50 feet, D=50.01-100 feet, E=100.01 or greater.</p>	A, B, C, D, E	Both



No later than 2027, hazardous liquid pipeline operators must submit data with a positional accuracy of +/- 50 feet.

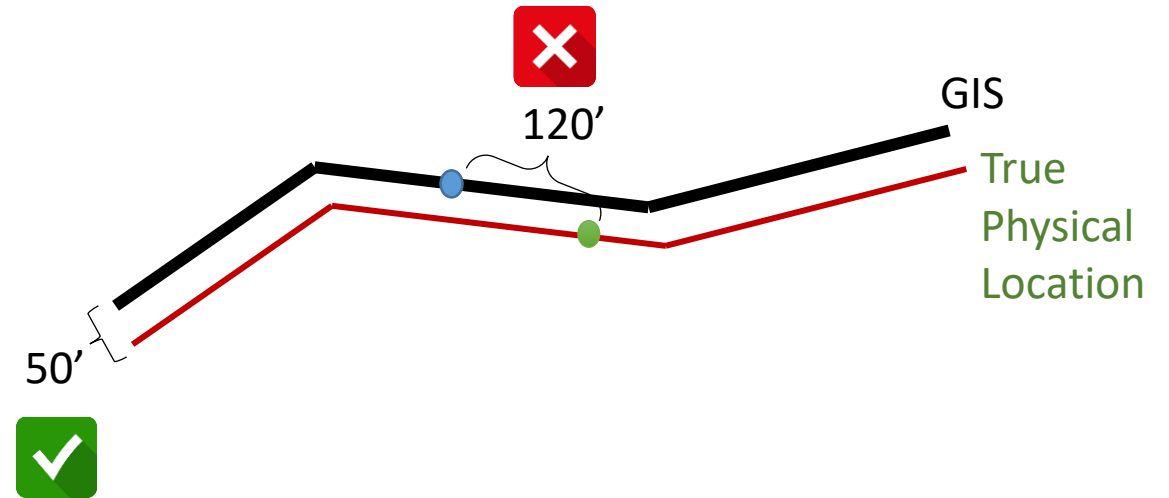
No later than 2027, gas transmission operators must submit data with +/- 50 feet accuracy for all segments which are in a Class 2, Class 3, or Class 4 area; are within an HCA or have one or more buildings intended for human occupancy or an identified site within its potential impact radius. All other gas transmission pipeline segments must be mapped to a positional accuracy of +/- 100 feet.



# What is “Positional Accuracy”

- +/- 50' and +/- 100'
- Geographic accuracy (Lat/Long)
- Offshore pipe that moves
- Linear reference accuracy
- What if you don't use Linear Referencing?
- Location sources:
  - ILI IMU data
  - Ground patrol/GPS survey
  - Original as-built
  - Aerial survey

- Using centerline accuracy meta-data?
- How do you find out?



# Summary of Info Collection Tables in PODS

Phase	Attribute	Short Description	Predominant?	Gas/Liquid	PODS 4-6 GIS Tables	PODS 7 Tables
1	CLASS	Predominant Class Location	X	GAS	DOT_CLASS	CLASS_LOCATION
1	CMDTY_DTL1/DTL2/DTL3	Commodity Detail 1		Both	PRODUCT_RANGE	PRODUCT
1	COATED	Coated Yes/No		Both	EXTERNAL_COATING	COATING
1	DIAMETER	Diameter reported in Nominal Pipe Size (NPS)		Both	PIPE_SEGMENT	PIPE_SEGMENT
1	GAS_HCA	Gas HCA Segment Yes/No		GAS	HCA_BOUNDARY	CONSEQUENCE_SEGMENT
1	ILI_ABLE	Inline Inspection Yes/No		Both	ILI_RANGE	PIPELINE
1	MATERIAL	Type of Pipeline Material		Both	PIPE_SEGMENT	PIPE_SEGMENT
1	ONSHORE	Onshore Yes/No		Both	---	PIPE_OPERATING_CONDITION
1	PIPE_JOIN	Predominant Pipeline Joining Method	X	Both	---	PIPE_SEGMENT
1	WALL_TH	Wall Thickness		Both	PIPE_SEGMENT	PIPE_SEGMENT
2	ASSMNT_M1/M2/M3	Method of Most Recent Assessment		Both	<i>(Multiple tables)</i>	<i>(Multiple tables)</i>
2	ASSMNT_YR	Year of Most Recent Assessment		Both	<i>(Multiple tables)</i>	<i>(Multiple tables)</i>
2	CNW_AFF	Segment "Could Affect" CNW HCA Yes/No		LIQUIDS	HCA_CA_SEGMENT	CONSEQUENCE_SEGMENT
2	ECO_AFF	Segment "Could Affect" Ecological USA HCA Yes/No		LIQUIDS	HCA_CA_SEGMENT	CONSEQUENCE_SEGMENT
2	HPA_AFF	Segment "Could Affect" HPA HCA Yes/No		LIQUIDS	HCA_CA_SEGMENT	CONSEQUENCE_SEGMENT
2	OPA_AFF	Segment "Could Affect" OPA HCA Yes/No		LIQUIDS	HCA_CA_SEGMENT	CONSEQUENCE_SEGMENT
2	DECADE_IN	Predominant Decade of Installation	X	Both	PIPE_SEGMENT	PIPE_SEGMENT
2	FRP_SEQ	FRP Sequence Number		LIQUIDS	---	---
2	GRADE	Predominant Pipeline Grade	X	Both	PIPE_SEGMENT	PIPE_SEGMENT
2	SEAM_TYPE	Seam Type		Both	PIPE_SEGMENT	PIPE_SEGMENT
3	QUALITY_RG	Data Quality Requirement Category		Both	---	---

## Considerations

## Data Model Enhancements?

- Onshore/Offshore
- Pipe Join method
- DA method and data
- FRP Sequence
- Data Quality Requirement

## PODS 7 Notes

- PODS 7 has 2 diameter fields
- Gas and Liquid HCA Segments are stored together in Consequence\_Segment

## Considerations

# Acquisitions and Divestitures

### Acquisitions

- How quickly can you prepare new data for annual reporting?
- Do you have a good process for this?
- What if the new data doesn't meet 100' Centerline Accuracy?

### Divestitures

- How do you mark sold assets to exclude from annual reporting?



## Considerations

# Automated NPMS Reporting

- Easy repeatable process.
- Single source of the truth. Matching Annual Report.

# Abandoned Pipelines

- How are you storing/managing abandoned pipelines?
- 100' Centerline Accuracy is not retroactive for abandoned pipelines
  - Other attributes should reflect last state of pipeline when it was abandoned (Class Location or HCA, Commodity, etc.)

## Download Approved Info Collection Attributes

[https://www.npms.phmsa.dot.gov/Documents/NPMS\\_Aproved\\_InfoCollection\\_Standards.pdf](https://www.npms.phmsa.dot.gov/Documents/NPMS_Aproved_InfoCollection_Standards.pdf)

<https://www.govinfo.gov/content/pkg/FR-2019-04-11/pdf/2019-07133.pdf>

## NPMS Home Page

<https://www.npms.phmsa.dot.gov/>

## Operator Standards Manual (2017)

[https://www.npms.phmsa.dot.gov/Documents/Operator\\_Standards.pdf](https://www.npms.phmsa.dot.gov/Documents/Operator_Standards.pdf)

# Get Ready for NPMS Info Collection

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- Simplification of the data model
- Remove the need for linear referencing as the sole method for locating features
- Provide a formal data exchange specification for transfer of schema and data
- Framework for documentation including edit workflows and design decisions
- Adherence to accepted standard for data model design and management of geo-data
- One conceptual and one logical data model → MANY physical database implementations
- Extendible through modules
- Documentation, documentation, documentation



Thank you  
Any questions?