ENERGY TRANSFER

Transwestern Pipeline Company

Facility Risk and Scheduling Assessment

Code Reference :	Procedure No.: J.09	
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 1 of 20**

1.0 Procedure Description

This Standard Operating Procedure (SOP) describes the assessment of risk-related data in order to identify threats to pipeline facilities.

2.0 Scope

This SOP provides instructions to gather data relevant to risk assessments, calculate risks, and analyze results. It includes guidelines for reporting, archiving, and re-evaluating criteria.

3.0 Applicability

This SOP applies to the process of determining the ranking of pipeline segments as it is used in the integrity management process, prioritization of assessment, prevention, and mitigation.

4.0 Frequency

Semi-annually: Run company risk assessment software, evaluate Risk Assessment Algorithms, and evaluates and updates Subject Matter Expert (SME) data

Annually: Evaluate software functionality

As required: Adjust parameters or algorithms as a result of integrity management activities

5.0 Governance

The following table describes the responsibility, accountability, and authority of the operations described in Section 7.0 of this SOP.

Function	Responsibility	Accountability	Authority
All Operations	Pipeline Integrity Engineer	Principal Codes & Compliance Engineer	Director of Technical Services

6.0 Terms and Definitions

Terms associated with this SOP and their definitions follow in the table below. For general terms, refer to *A.01 Glossary and Acronyms*.

Terms	Definitions
Baseline Assessment Plan (BAP)	The collection of activities, schedules, and results of the assessments required for the initial assessment of an HCA.
Integrated Risk Assessment System (IRAS)	IRAS is the database used to store the data required to conduct the risk assessment software (*RiskAnalyst*)

Code Reference :		
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Procedure No.: J.09 Page 2 of 20

Terms	Definitions
Integrity Compliance Activity Manager (ICAM)	ICAM is a patented database which is the company's Integrity Management Plan (IMP). It is a tool used by the Pipeline Integrity group to track all integrity compliance activities on company facilities in HCA areas.

7.0
Risk
Assessment

This SOP includes the following risk assessment procedures:

- Data Gathering

- Integrating Data

- Baseline Assessment Plan

- Assessment Schedule

- Assessment Schedule Update

- Assessment Schedule Review and Update

- Risk Assessment

- Threat Susceptibility

- Evaluating Results

- Archiving Data

- Re-evaluating

7.1
Data Gathering

Corrosion Specialists, GIS, Principal Codes & Compliance Engineer and Pipeline Integrity Engineer use the following process to verify data gathering is performed properly.

NOTE: Risk data owners are responsible for updating parameters as conditions change. Risk data owners are designated in Appendix B: Parameter Responsibility.

Step	Task	Done By
1	Collects the data needed to calculate risk.	Pipeline Integrity Engineer
2	Updates parameters collected specifically for the company risk assessment software on an annual basis.	Principal Codes & Compliance Engineer
3	Updates pipeline attributes in accordance with *SOP B.11 Project Documentation and As-Built Process.*	GIS Analyst
4	Updates ICAM to verify process is complete.	Pipeline Integrity Engineer

7.2
Integrating
Data

Data integration is performed using the *DataView* software which displays all pipeline data to a common pipeline centerline. Users can view each data element with complete hierarchy information.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 3 of 20**

7.3
Baseline
Assessment
Plan

- The Principal Codes & Compliance Engineer details the characteristics of the assessment method

NOTE:	Pre-1970 ERW pipe that has not been hydro-tested does not exist on TW.

Step	Activity
1	Determine assessment method to be used.
2	When scheduling assessments using ILI, give a copy of the company ILI specifications to the ILI vendor.
3	Make sure all prior assessments are scheduled for reassessment prior to December 17, 2009.

7.4
Assessment
Schedule

- The Pipeline Integrity Engineer should do the following:

Step	Activity
1	Review threat risk rankings.
2	Schedule a date for the assessment.

7.5
Assessment
Schedule
Update

- The Principal Codes & Compliance Engineer determines changes needed.

Step	Activity
1	Determine if new assessment methods are commercially available.
2	Determine if new assessment methods are commercially feasible.
3	Update threat assessment methodology.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 4 of 20

7.6
Assessment Plan Schedule Review and Update

- The Pipeline Integrity Engineer utilizing the GIS Analysis does the following:

Step	Activity
1	Determine if there are any new pipelines with an HCA.
2	Determine if there is any changes in the size of the PIR
3	Add any new HCA's to the Assessment Plan.
4	Review the new risk rankings.
5	Change dates if necessary.
6	If there are significant changes, utilize MOC to document changes.

7.7
Risk Assessment

The Pipeline Integrity group uses risk assessment software to:

- Determine system integrity with relative ranking.

- Run "what-if" scenarios to determine how certain actions impact risk.

- Establish a Baseline Assessment Plan (BAP).

- Assist with prioritizing expenditures.

> **NOTE:** Contact the Principal Codes & Compliance Engineer for detailed information about accessing or using the company risk assessment software.

Step	Activity
1	**RUN** IRAS DataExchange to import updated data into IRAS database.
2	**GENERATE** risk results as follows - Open *RiskAnalyst Administrator* - **Select "Run Model"** - **Select Applicable Pipelines** - **Select "Calculate"**
3	**IMPORT** risk scores to Assessment Scheduler
4	**UPDATE** implementation verification process in ICAM threat/risk.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 5 of 20

**7.8
Threat
Susceptibility**

The Pipeline Integrity Engineer uses *RiskAnalyst* to determine segment specific threat susceptibility which is used in choosing the appropriate assessment methodology.

Step	Activity
1	**DETERMINE** threat susceptibility by reviewing threat probabilities in *RiskAnalyst*.
2	**UPDATE** implementation verification process in ICAM threat/risk.
3	**IMPORT** Threats to Assessment Scheduler.

**7.9
Evaluating
Results**

The Pipeline Integrity group is responsible for scheduling assessments within the Assessment Scheduler software application.

Step	Activity
1	**SELECT** the assessment technique(s) for each HCA based on threat susceptibility using the Assessment Scheduler software program.
2	**SCHEDULE** integrity assessment based on risk ranking.

NOTE:
1. The Assessment Scheduler software program is located on the Citrix server. Access Citrix through the Engineering website. Contact local IT personnel for access to Citrix.
2. Scheduling an initial assessment results in establishing a BAP.
3. Subsequent scheduling will produce risk assessment results that must be archived. Refer to Section 7.6.

3	**USE** the Assessment Scheduler to maintain BAP reports and to assist with the comparison of HCA managed segments.

**7.10
Archiving Data**

No archiving activities are required as *RiskAnalyst* stores all historical risk results and raw inputs for each risk run.

**7.11
Re-evaluating**

The Pipeline Integrity Engineer is responsible for implementing or facilitating changes to the risk assessment software and functionality as well as algorithms and parameters.

Step	Activity
1	**REVIEW** Risk Results with Pipeline Integrity Group.
2	**REVIEW** Algorithms with Pipeline Integrity Group.
3	**REVIEW** software functionality with Pipeline Integrity Group and GIS Group annually.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 6 of 20

8.0 Documentation Requirements

RiskAnalyst results, retained for the life of the facility
Assessment Scheduler
Complete ICAM reporting requirements

9.0 References

B.11 Project Documentation and As-Built Process

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 7 of 20

Appendix A:
KSA and OQ
Task Table

There are no Operator Qualification (OQ) tasks required for this procedure.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 8 of 20**

Appendix B: Parameter Responsibility The following chart indicates the party responsible for each risk parameter in the data gathering process. The far right column identifies the source of the parameter.

Responsibility	Description of Parameter	Source/Notes
GIS Analyst	Date of installation of pipe (includes installation dates for pipe segments for cutouts)	PDMS
GIS Analyst	Job or Contract Number used for construction of pipeline	PDMS
Gas Control	Maximum Operating Temperature - Maximum operating temperature by valve section	Extract and process from SCADA discharge temperatures
GIS Analyst	Maximum Allowable Operating Pressure - Maximum allowable operating pressure (psi)	PDMS
GIS Analyst	Diameter - Outside diameter of pipe in inches	PDMS
GIS Analyst	Wall thickness - Nominal wall thickness of pipe measured in inches (includes WT's for pipe segments associated with cutouts)	PDMS
GIS Analyst	Grade or Yield Strength - ASTM Specification and Grade Designation (includes grades for pipe segments associated with cutouts)	PDMS
N/A	Pipe Toughness - This is estimated based on year of construction and diameter using the following lookup table. Table below. The above guidelines reflect the fact that steelmaking practices prior to 1975 had no means of sulphide control. Starting in 1975 and lasting through to the end of that decade, in response to the pipeline industry's concerns with fracture propagation in larger diameter, higher stress pipelines, the steel industry was engaging in some level of sulphide control and sulphide modification through practices such as rare-earth steel making practice. Following further evolution in code development and steelmaking practice, modern HSLA steels, having their advent in the early 1980s typically are associated with low levels of sulphur, along with calcium modification steelmaking practices for the pipeline industry. Greater levels of toughness are typically associated with larger diameters, 20" and above.	We will estimate pipe toughness based on year of construction and diameter using the lookup table.

Pipe Installation Year	NPS (in)	Full size CV toughness (ft*lbs)
< 1975	all	7
1975 to 1979	< 20	7
	>= 20	20
> 1979	< 20	20
	>= 20	30

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 9 of 20**

GIS Analyst	Pipe Manufacturer
	  - Identify the mill that manufactured the pipe installed at each location. This field shall specify any locations with the following mills as a minimum:
	    • Armco;
	    • Republic;
	    • Kaiser;
	    • US Steel;
	    • Youngstown;
	    • Stupp;
	    • AO Smith;
	    • Bethlehem; and
	    • others (list)
		PDMS

GIS Analyst	Pipe Seam Type
	  - Identify the seam type:
	    • butt / lap welded;
	    • ERW
	    • DSAW;
	    • flash-welded;
	    • "seamless"
	    • others (list)
		PDMS

GIS Analyst	Joint Factor o	PDMS

GIS Analyst	Joint coupling type
	  - Identify the joint coupling type:
	    o Girth weld (default value)
	    o Oxyacetalene weld
	    o Coupling
	    o Threaded
	    o others (list)
		PDMS will record items that are not "Girth Weld"; default to Girth Weld for the risk calculations if no information is stored for a location (Note: none of the other joint types have been installed historically)

GIS Analyst	Hard spot issues
	  - Identify specific locations where hard spots may be a concern if they are not identified using the following criteria:
	    o AO Smith Pipe Installed Prior to 1960;
	    o DSAW Pipe (i.e., pipe typically > 16" OD) Manufactured by Bethlehem, Kaiser, or Republic prior to 1961;
	    o ERW Pipe (i.e., pipe < 20" OD) manufactured by Youngstown prior to 1961.
		This is a yes or no answer. Provide only Yes locations
		
		If "Unknown" manufacturer:
		Date of install >=1962 = No
		Date of install before 1962 = yes
		Date unknown or placeholder value = yes - –

GIS Analyst	Date of installation for Mainline and Field Joint Coating - Generally the same date as the pipe installation date, but may differ for locations have been recoated.	PDMS

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 10 of 20

GIS Analyst	Coating Type (Mainline)
	- Mainline coating type (includes mainline coating types for pipe segments associated with cutouts and recoating)
	- Valid entries (to be cross referenced with PDMS codelists):
	   o Coal Tar Enamel (TGF3)
	   o Coal Tar Enamel (TGF4)
	   o Asphalt (hot applied)
	   o Tape--Single Wrap
	   o Tape--Double Wrap
	   o FBE fusion bonded epoxy
	   o Flakeline
	   o Wax (hot applied)
	   o Wax (cold applied)
	   o Mastic (cold applied asphalt)
	   o Liquid Epoxy
	   o Somastic
	   o X-TRU-Coat
		PDMS

GIS Analyst	Coating Type (Field Joint)
	- Field joint coating (includes field joint coating types for pipe segments associated with cutouts and recoating)
	- At a minimum, the following field joint coating types for FBE mainline coatings shall be identified
	   o Field applied FBE
	   o Liquid epoxy
	   o Cold applied polyethylene tape with primer
	   o Wax tape
	   o Liquid polyurethane
		SME input only where known. Where not known, a lookup based on year of installation of coating and mainline coating type will be used (supplied by Transwestern).

GIS Analyst	Equipment
	- Locations of the following equipment:
	   o Mainline valves;
	   o By-pass valves;
	   o Regulators;
	   o PSV's;
	   o Flange joints;
	   o Compressors (discharge location)
		PDMS

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	Effective Date: *December 15, 2008*	Page 11 of 20

Pipeline Integrity Engineer	Equipment Failure History
	- Specify the number of recorded failures within a specific range or grouping of pipelines for each type of equipment listed below
	- Identify the number of years over which equipment failure data was collected
	- Types of equipment:
	  o Mainline valves;
	  o By-pass valves;
	  o Regulators;
	  o PSV's;
	  o Flange joints;
	  o Compressors
		A customized lookup table will be created based on the form of the data provided by Transwestern (likely totals for each business unit) based on data for the previous 5 years extracted from PIPE

Asset Management Technician	Test Post Locations - unique identifier or name for test post - location (chainage)	CPDM

Corrosion Specialist	Cathodic Protection Survey Data
	  • CIS Surveys, Test Lead Surveys
	    o On and off readings
	    o Exact location
	    o Date of reading
		Test lead survey = CPDM
		CIS = Excel

Asset Management Technician	Total CP Outage Time - Estimate the total time in fractional years that CP has been below criteria since the pipeline was installed	SME. CP criteria used must be consistent across Transwestern Pipeline Company.
Asset Management Technician	Depth of Cover - Provide nominal depth of cover or "typical minimum depth of cover"	SME with default of 30inches; data in the future will come from "shallow pipe surveys" (Excel spreadsheets)
Asset Management Technician	Sleeve repairs - Location of sleeve - Date sleeve installed - Type of sleeve (girth weld repair, dresser coupling, hard spot, band clamp – weld over, band clamp – no weld over, clockspring, etc.)	Optional; data in PIPE or locations reported from MFL logs to be used in the future
Pipeline Integrity Engineer	ILI Inspection and Tool Run Locations - Date of Inspection or tool run; - Type of run (ie: Hi-res MFL, Low res MFL, SCC, Hard Spot) - Status (run completed & digs done; or run completed and digs not done) - Start and End locations of tool run	ILI vendor final report

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 12 of 20

Pipeline Integrity Engineer	ILI Defects Reported
	- External Corrosion Features:
	  o Location of cluster;
	  o Interacted Length of cluster;
	  o Maximum Depth of cluster;
	  o Burst pressure of cluster
	  o RPR of cluster
	- Internal Corrosion Features
	  o Location of Cluster;
	  o Interacted Length of cluster;
	  o Maximum Depth of Cluster;
	  o Burst pressure of cluster;
	  o RPR of cluster
		ILI Vendor Reports

Asset Management Technician	Excavation Data - Location and date for all Excavations where a visual coating assessment was performed	PIPE (use standard length of 10ft)

	Coating Condition
	- Bond Condition (Top, Bottom, and Side)
	  o Good
	  o Poor
	  o Unknown
		PIPE coating assessment form (must be associated with each excavation location above)

	- Distortion (Top, Bottom, and Side)
	  o Yes
	  o No
	  o Unknown
		PIPE coating assessment form (must be associated with each excavation location above)

	- Brittle (Top, Bottom, and Side)
	  o Yes
	  o No
	  o Unknown
		PIPE coating assessment form (must be associated with each excavation location above)

	- Soil Penetration (Top, Bottom, and Side)
	  o Yes
	  o No
	  o Unknown
		PIPE coating assessment form (must be associated with each excavation location above)

	Corrosion features found during excavation - Surface of corrosion or SCC feature (internal or external) - As found maximum depth in % of WT	SME. PIPE will be enhanced to cover this in the future. Algorithm is only looking for corrosion depths > 25% WT and SCC cracks > 10% WT
Pipeline Integrity Engineer	Direct Assessments - Start and End location of assessed area - Date of assessment - Type of direct assessment or direct assessment technique (ie: ECDA, ICDA, SCCDA)	SME

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 13 of 20

GIS Analyst	Commissioning Proof Test and Hydrostatic Re-Test - Identify Start and End location of test section - Identify minimum test pressure for each test section - Identify date of test - Type of test (Commissioning Proof Test or Re-test)	PDMS
Gas Control	Pressure cycling - Identify specific locations where unusually severe pressure cycle magnitudes and/or frequencies have been experienced in the past	Process from SCADA based on difference between daily discharge highs and low. Low is less than 85% of high then it is a yes. Once a yes, it always stays a yes. This is a yes or no answer. Provide only Yes locations
Asset Management Technician	Chemical Inhibition - List segments where a designed chemical inhibition program is implemented	SME. This is a yes or no answer. Provide only Yes locations
Asset Management Technician	Internal Corrosion Monitoring Programs - List segments where an internal corrosion monitoring program is in place - Provide date of last internal inspection	New IC Tracker spreadsheet. No data currently. This is a yes or no answer. Provide only Yes locations
Asset Management Technician	Cleaning Pig Program - List segments where a cleaning program is implemented	New IC Tracker spreadsheet. No data currently. This is a yes or no answer. Provide only Yes locations

N/A or Asset Management Technician	Pipeline Product Type
	- Designate the primary type of fluid carried by the pipeline. Responses are:
	  o Dry natural gas (default)
	  o Gas treated with chemical inhibitor
	  o Gas + >0.2 GPM
	  o Wet gas
		We expect all pipelines to be "Dry Natural Gas". Others will be identified by exception by SME.

Gas Control	Gas Composition - mol fraction CO_2 - mol fraction H_2S - total molecular weight	Typical gas composition can be used as a default value that is loaded for the entire pipeline MARRS (primary), SCADA, or FloGAS
Gas Control	Gas flow rate - Volumetric flow rate (ft^3 per day)	SCADA
Asset Management Technician	Pipeline Elevation	DEM
Asset Management Technician	Bacteria Count - Estimate the number of bacteria colonies per mL for a specific pipeline segment.	New IC Tracker spreadsheet. No data currently. Load only areas where colonies per mL are not zero. A zero value will be used as a default value.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 14 of 20**

GIS Analyst	Class Location
	- Designation of each segment as:
	   o Class 1;
	   o Class 2;
	   o Class 3; or
	   o Class 4
	
	HCA's
	- Location (start and end chainage) of HCA
	- Type of HCA (Impared Mobility, Outdoor Area with >= 20 people, Class 3, Class 4)
		PDMS

GIS Analyst	Environmentally Sensitive Areas - Identify locations of environmentally sensitive areas	SSURGO / STATSGO
GIS Analyst	Wet Areas - Locations (start and end chainage) of all "wet" areas, water bodies, and water crossings	(State) NLD Note: Weight data in PDMS is insufficient to define these locations. We will need to look at land use data and other sources as an alternative.

GIS Analyst	Soil Type
	- USGS soil type classification for all segments in system
	- To be used for assessing severity of soil conditions from perspective of corrosion susceptibility
	- Soil type categories in the shapefile to be mapped to suggested lookup values in the following table:
	   - Bedrock
	   - Cobbles
	   - Clay
	   - Loam/peat
	   - Sand
	   - Water body
		STATSGO USGS Shape files

Principal Codes and Compliance Engineer	Failure History - Incident and Failure history. For each incident, identify the location, date, associated failure mode and the type of damage incurred. Associated Failure Mode(s) allowed - Third Party Damage - Internal Corrosion - Stress Corrosion Cracking - Incorrect Operations - External Corrosion Type of Damage - Rupture - Leak - Hit (3rd Party Damage only) - Hydrotest failure (IC and SCC only)	Excel spreadsheet and PIPE

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 15 of 20

Pipeline Integrity Engineer	History of Girth Weld Anomalies	SME. This is a yes or no answer. Provide only Yes locations
GIS Analyist	One Call Requests - The number of one call requests related to excavations in the pipeline right of way in 12 month period	SME. One calls counts collected by grid must be reduced to an estimated count related to the pipeline right of way only – IRTH
GIS Analyist	Land Use Types of Land Use (to be confirmed) - Commercial - Industrial - High density residential - Low density residential - Agricultural - Remote - Water crossings (rivers, creeks) - Wetlands	NLD. Land use types will be taken from the types of land use identified in the datafile provided by Transwestern.
Public Awareness Manager / Paradigm	One Call Advertising Method Valid responses: - Advertising via direct mail-outs and promotion among contractors (default value) - Advertising via direct mail-outs and promotion among contractors + Community meetings -	SME will identify areas that do not have default value
Asset Management Technician	ROW Sign Frequency Valid responses: - Signs at selected crossings - Signs at all crossings - All crossings plus intermittently along route	SME
Asset Management Technician	Buried Markers Valid responses: - No buried markers (default value) - Buried markers	SME
Principal Codes and Compliance Engineer	One Call Legislation Valid responses: - Mandatory - Mandatory plus civil penalty - Right-of-way agreement	SME will provide a lookup table by State
Asset Management Technician	Patrol Frequency (Aerial or ground patrols) Valid responses: - Semi-daily patrols - Daily patrols - Bi-daily patrols (every 2 days) - Weekly patrols - Biweekly patrols (every 2 weeks) - Monthly patrols - Semi-annually patrols - Annually patrols (default value)	SME will provide areas where it is not the default value

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 16 of 20**

Asset Management Technician	Locate Request Response Time
	    Valid responses:
	      - Response the same day
	      - Response within two days
	      - Response within three days
		SME lookup table by State

N/A	Pipeline Locating Methodology
	    Valid responses:
	      - By company records
	      - By magnetic techniques
	      - By pipe locators/probe bars (default)
		Use default value for all pipelines

N/A	Pipe Exposure Methodology
	    Valid responses:
	      - Provide route information
	      - Locate/mark
	      - Locate/mark/site supervision
	      - Pipe exposed by hand (default)
		Use default value for all pipelines – I don't believe for recoats it is excavated by hand.

Asset Management Technician	Blasting Activity - Estimate the number of blasts per year within 500ft of pipeline and possible charge to pipe separation distance in ft	SME. When a value for the number of blasts cannot be estimated, 20 blast events/yr will be loaded - this is high

Asset Management Technician	Atmospheric Exposure
	    Valid responses:
	      - Completely above ground
	      - Partially above ground
	      - None (default)
		SME for locations that have not been designed to be above ground. L(D,NO) ranges can be loaded with "None" as a default
		
		PDMS for locations that have been designed to be above ground.

Asset Management Technician	Above Ground Facility Accessibility
	    Valid responses:
	      - Above-ground facility adjacent to roadway
	      - Above-ground facility not adjacent to roadway
		SME. Provide data for locations in at above ground facilities only

Asset Management Technician	Above Ground Facility Protection
	    Valid responses:
	      - Protected by barricade or fence with no key or other device required to gain access
	      - Protected by barricade or fence and requires a key or other device to gain access
	      - Protected by barricade or fence with monitored security cameras and/or a manned site
	      - Not protected by barricade or fence
		SME. Provide data for locations in at above ground facilities only

GIS Analyst / Asset Management Technician	Slab Barriers - Identify where slab barriers of any kind are located	PDMS

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 17 of 20

Asset Management Technician	Warning Tape - Identify where warning tape is located	SME
Public Awareness Manager	Communication program with blasting contractors - Identify where a heightened communication with blasting contractors is employed (Yes responses only)	SME. This is a yes or no response. Load only Yes responses into the database.
Asset Management Technician	MIC - Identify where MIC has been reported to be found (Yes responses only)	SME. This is a yes or no response. Load only Yes responses into the database.
Asset Management Technician	Foreign Line Interference - Identify locations where past monitoring has confirmed that interference due to a foreign line impacts a specific segment of pipeline. - Also indicate with a yes or no in a separate column whether this interference has been mitigated.	SME
Asset Management Technician	DC Rail Interference - Identify locations where past monitoring has confirmed that interference due to a DC rail line impacts a specific segment of pipeline. - Also indicate with a yes or no in a separate column whether this interference has been mitigated.	SME
Asset Management Technician	AC Interference - Identify locations where past monitoring has confirmed that interference due to an AC corridor impacts a specific segment of pipeline. - Also indicate with a yes or no in a separate column whether this interference has been mitigated.	SME
Asset Management Technician	CP Shielding - Identify locations where there is documented evidence of shielding over a specific segment of pipeline (Yes responses only)	SME. This is a yes or no response. Load only Yes responses into the database.
Asset Management Technician	Telluric Effects - Identify locations where past monitoring has confirmed that specific segment is prone to strong telluric currents (Yes responses only)	SME. This is a yes or no response. Load only Yes responses into the database.

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 18 of 20

Pipeline Integrity Engineer	Number of Audit Findings	Data will be extracted from SME database. Record only locations that have a value greater than zero (subset of Consolidated Audit Database). The default value will be zero. Note: the timeframe over which data is collected must be consistent for all IOps variables.
Gas Control	Number of Overpressure Events between 1.0xMAOP to 0.75x SMYS	Process counts from SCADA. Record only locations that have a value greater than zero. The default value will be zero. Note: the timeframe over which data is collected must be consistent for all IOps variables.
Gas Control	Number of Overpressure Events greater than 0.75x SMYS	Process counts from SCADA. Record only locations that have a value greater than zero. The default value will be zero. Note: the timeframe over which data is collected must be consistent for all IOps variables.
Asset Management Technician	Time required to isolate a rupture (hrs) - Estimate the approximate time (in hrs) to isolate a rupture once a failure has occurred for each position on the pipeline	SME
Asset Management Technician	Outage duration to repair a pipeline failure (days) - Estimate the approximate time (in days) to repair a failure once it has been isolated for each position on the pipeline - This parameter can be estimated using the following lookup table rather than SME interview: 	NPS (in)	"Dry" Areas	"Wet" Areas
---	---	---
<= 6	1d	2d
8 to 12	2d	4d
>12	3d	8d		Lookup table provided will be used.
Marketing	Toll rate ($/mmscf) - Provide the toll rate applicable for each position on the pipeline	Define using common terms of reference – e.g., non-interruptible, summer 2005 values
Pipeline Integrity Engineer	Fraction of Throughput - Estimate the approximate fraction of a pipeline segment's throughput (%) that can be delivered to delivery points by rerouting through other parts of the system. (ie: looped lines = 100%, single line = 0%)	SME
Corrosion Specialist	pipewall$_{est}$ - estimate of remaining pipe wall based on corrosion during CP outages	WKM factor (not defined) – can be calculated but the total duration of CP outage outside of what is captured by CPDM must be provided. Otherwise, this will be an SME estimated outage duration.
Pipeline Integrity Engineer	Frost Depth	Public data source (NOAA or building codes).

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	Page 19 of 20

Pipeline Integrity Engineer	Seismic Area or Fault Line	Public data source from OPS. This is a yes or no response. Load only Yes responses into the database.
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above
Asset Management Technician	Unstable slope	SME. This is a yes or no response. Load only Yes responses into the database.
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above
Asset Management Technician	Extreme External Loading	SME. This is a yes or no response. Load only Yes responses into the database.
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above
Asset Management Technician	Susceptibility to Settlement	SME. This is a yes or no response. Load only Yes responses into the database.
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above
Asset Management Technician	Susceptibility to Blasting	SME. This is a yes or no response. Load only Yes responses into the database.
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above
Asset Management Technician	Dynamic Water Environment (erosion)	SME. This is a yes or no response. Load only Yes responses into the database.
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above

Code Reference :		Procedure No.: J.09
49 CFR 192.911, 192.917, 192.919, 192.921, 192.935, 192.937, and 192.947	**Effective Date:** *December 15, 2008*	**Page 20 of 20**

Pipeline Integrity Engineer	Lightning Strike Frequency	Public data source (NASA)
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above
Pipeline Integrity Engineer	Flood Frequency or Flood Severity	NOAA or STATSGO
	Remediation - None - Monitoring - Stabilization	SME. Records must be associated with locations identified above