

Applying Transmission Integrity/Data Management Techniques to Gathering Lines



GeoGathering 2011

GIS for Gathering and Production Lines

Agenda

- SourceGas Overview
- Quality Management
- System Knowledge
 - Performance Metrics
 - Identify Current Activities
 - Field Validation
 - Data Integration
 - Implement Improvements
- Lessons Learned
- Plans for the future
- Questions?

SourceGas SYSTEM MAP



LEGEND

SOURCEGAS ASSETS (CO, NE & WY)

- RWAG COLORADO TRANSMISSION PIPELINES (INTRASTATE)
- WYOMING TRANSMISSION PIPELINES (LIC)
- NEBRASKA TRANSMISSION PIPELINES (LIC)
- DISTRIBUTION PIPELINES (LIC)
- TOWNS SERVED
- ◆ STORAGE FIELDS
- △ COMPRESSOR STATIONS

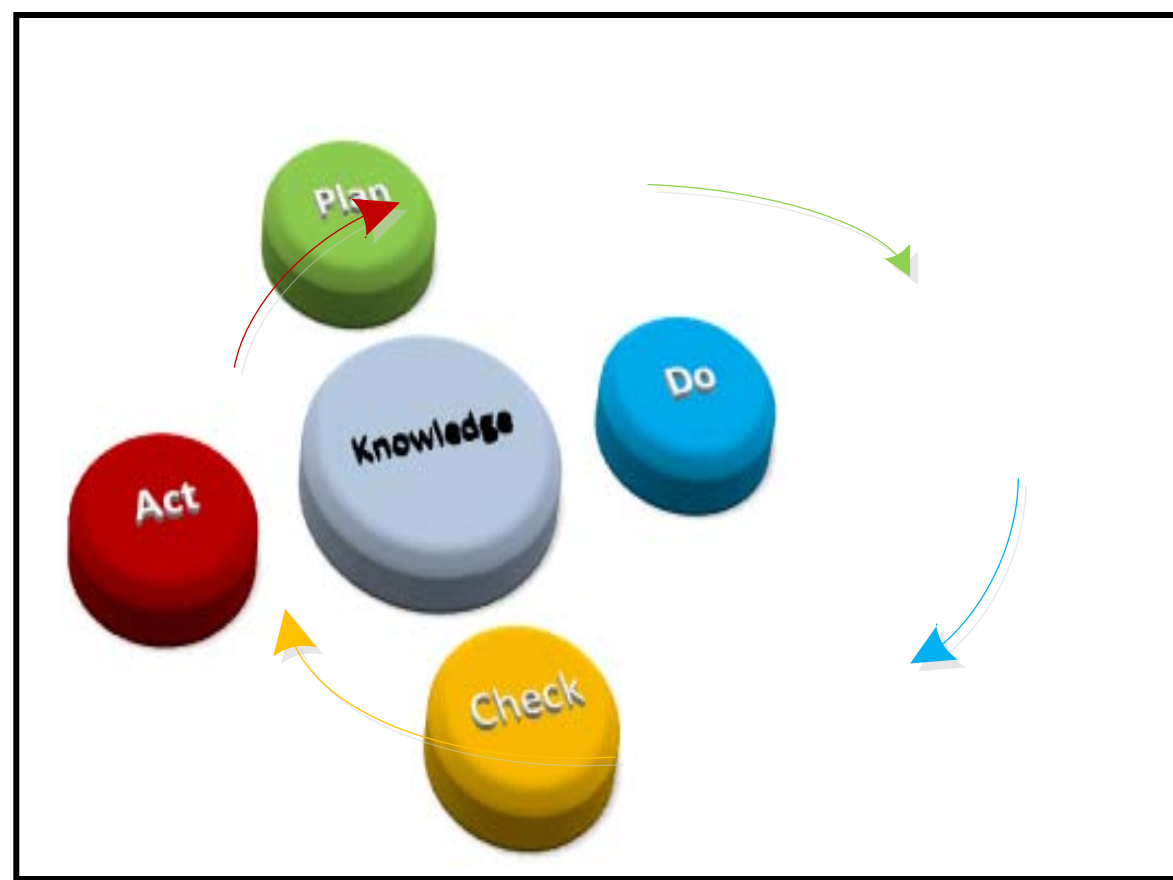
SOURCEGAS AWG ASSETS (AR)

- AWG PIPELINES
- ATLAS PIPELINE OPERATED BY AWG
- ▲ AWG INTERCONNECTS
- ◆ LNG FACILITY
- ◆ COMPRESSOR STATIONS
- TOWNS SERVED

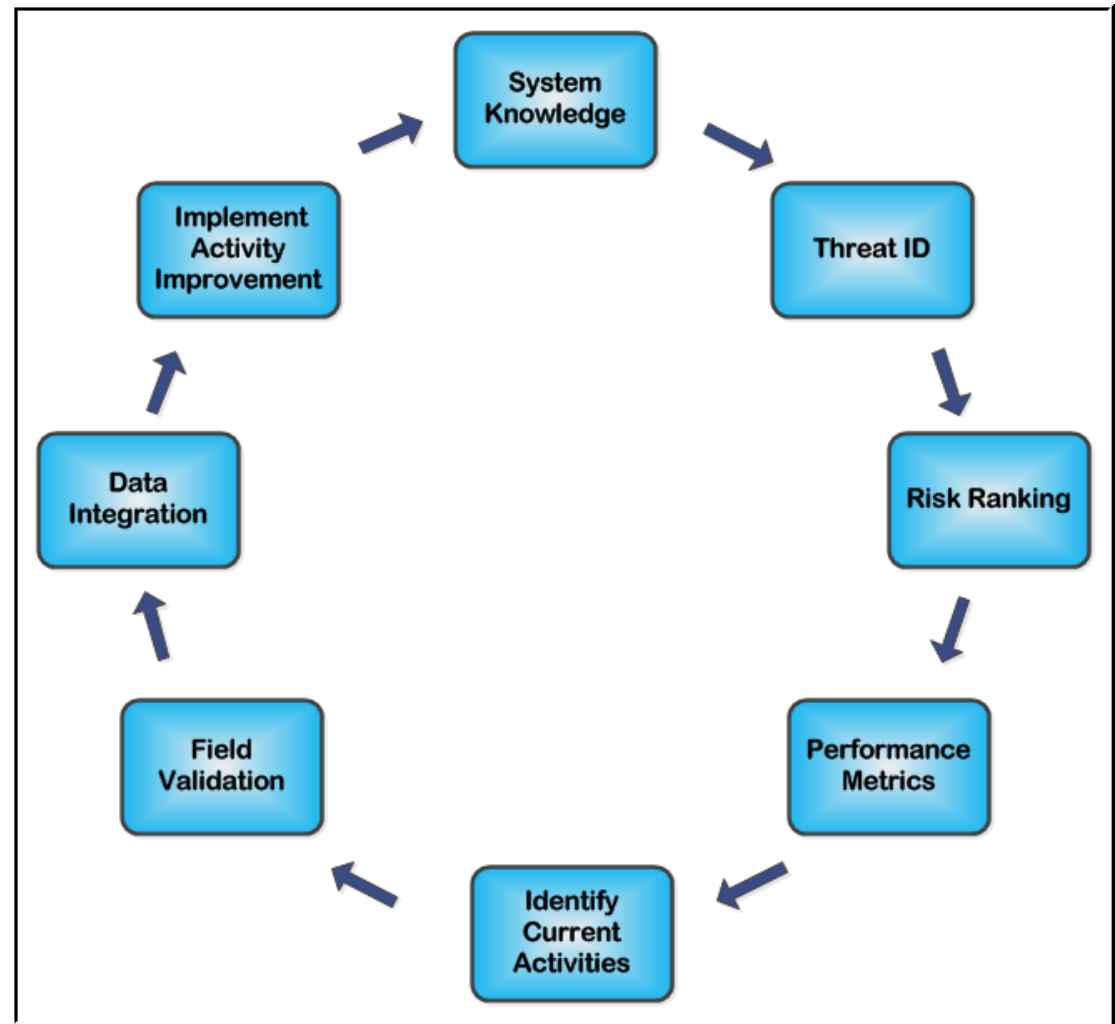
SourceGas

- Distribution utility headquartered in Lakewood Colorado
- Operations in Arkansas, Colorado, Nebraska and Wyoming
- Serve nearly 420,000 customers
- Operate 17,700 miles of distribution, transmission and gathering lines

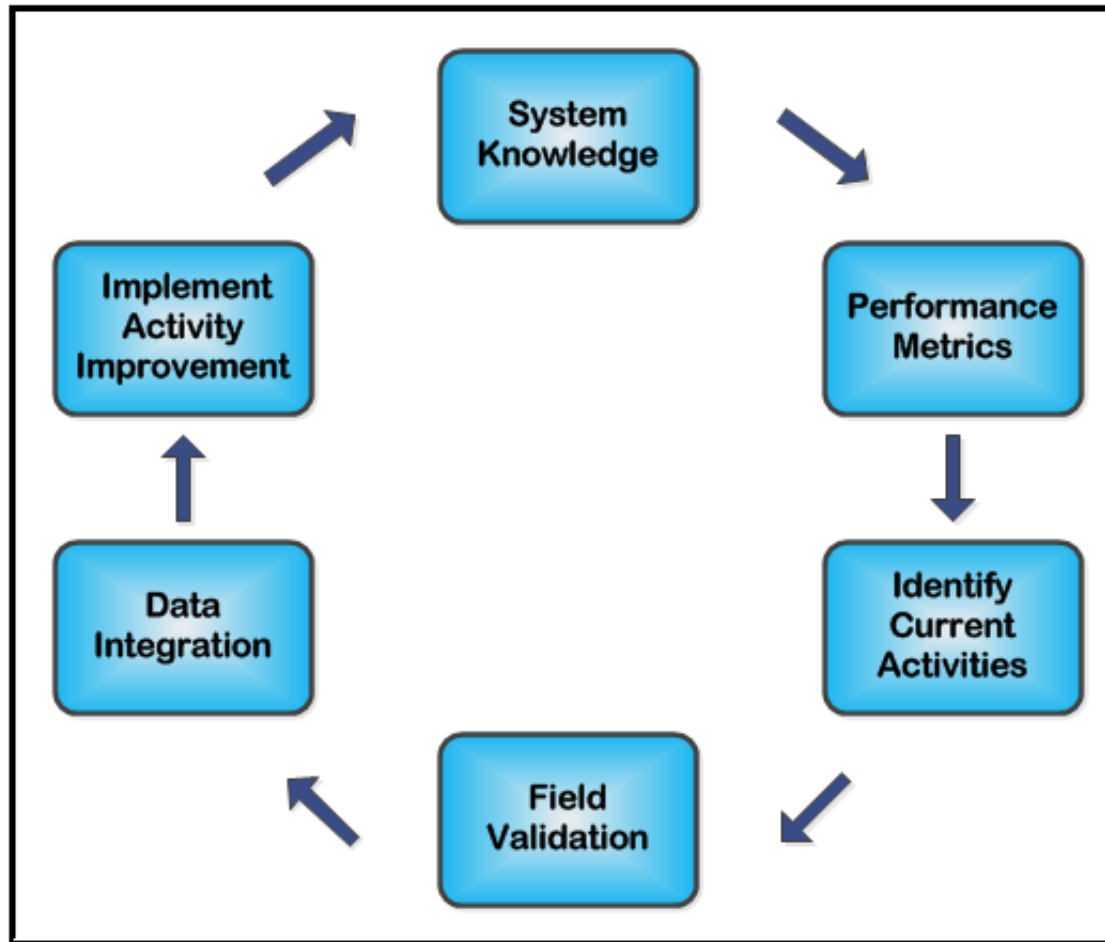
Quality Management



Integrity Approach



Performance Approach for Gathering





System Knowledge

UNDERSTANDING YOUR SYSTEM

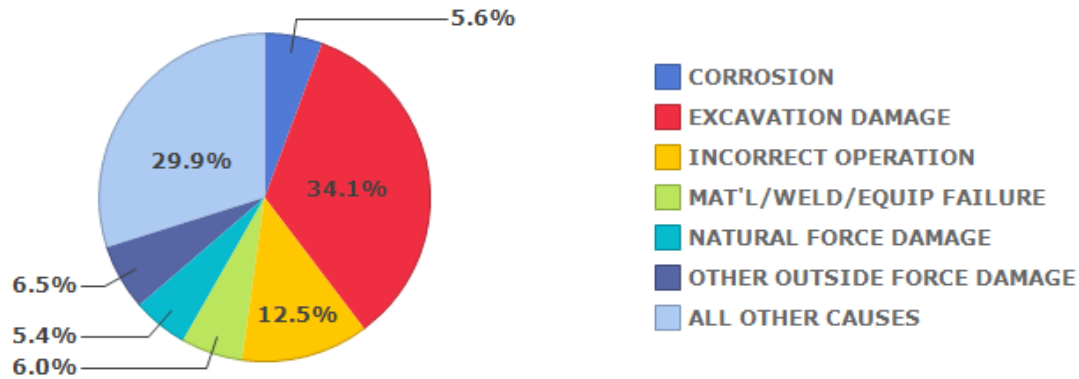
Activities are being performed on pipelines every day

- What kind of data is being collected?
- How is the data being collected?
- Where is this data being stored (central or local)?
- What is the highest threat to your system?
- What data is being used to perform the analysis?
- Is the data sufficient or are improvements needed?



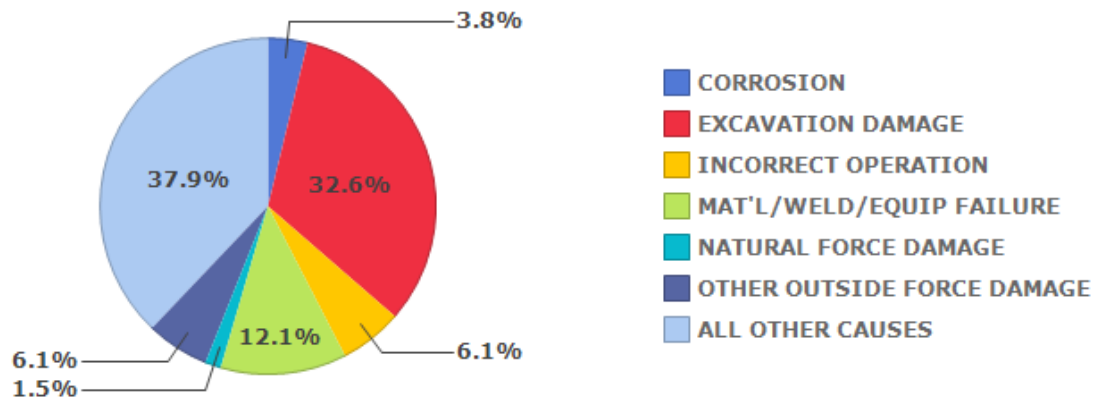
Performance Metrics

Serious Incident Cause Breakdown
National, All Pipeline Systems, 1991-2010

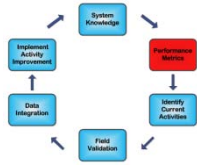


Source: PHMSA Significant Incidents Files July 29, 2011

Serious Incident Cause Breakdown
National, Gas Transmission, 1991-2010

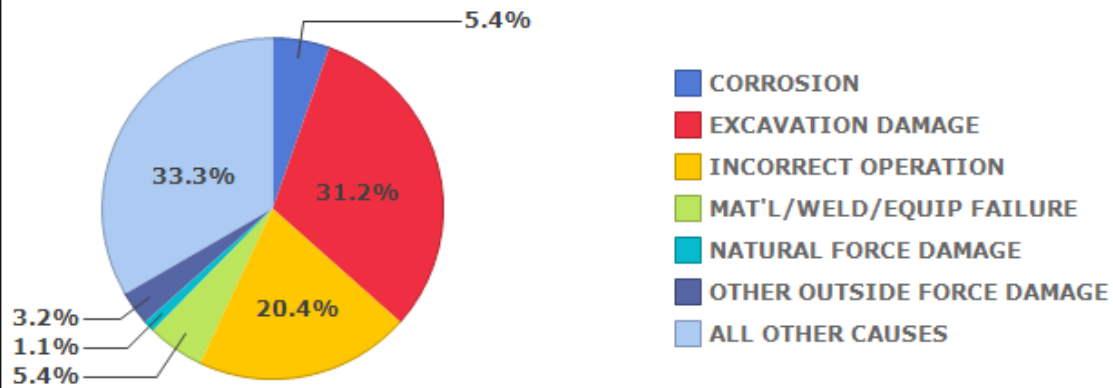


Source: PHMSA Significant Incidents Files July 29, 2011



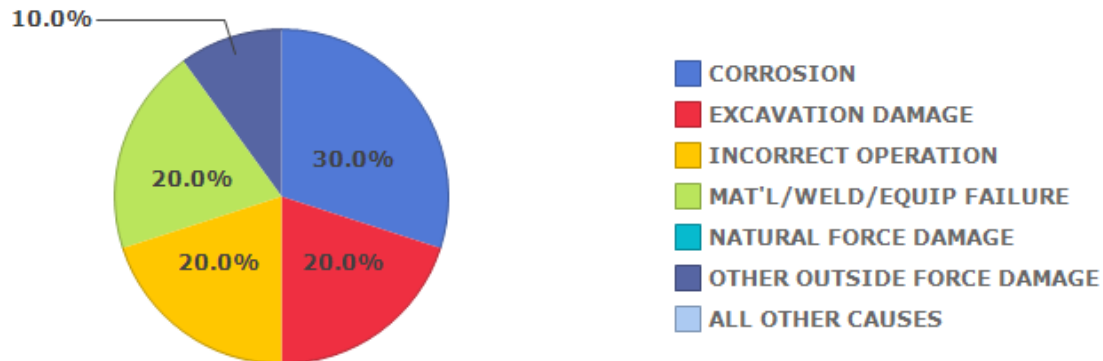
Performance Metrics

Serious Incident Cause Breakdown
National, Hazardous Liquid, 1991-2010

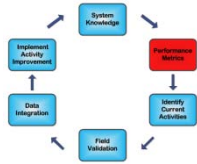


Source: PHMSA Significant Incidents Files July 29, 2011

Serious Incident Cause Breakdown
National, Gas Gathering, 1991-2010



Source: PHMSA Significant Incidents Files July 29, 2011



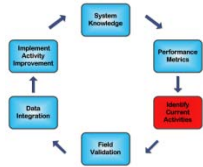
Performance Metrics

HOW IS YOUR SYSTEM PERFORMING?

- How do you compare to the national average?
- Review / trend annual data
- Use data available to you

CURRENT SOURCEGAS DATABASES

- Third Party Damages
- Corrosion Database (PCS)
- Leaks Database
- PODS – (GIS)



Identify Current Activities

RECENT CHANGES

- Requiring GPS coordinates on all data collection processes since 2010

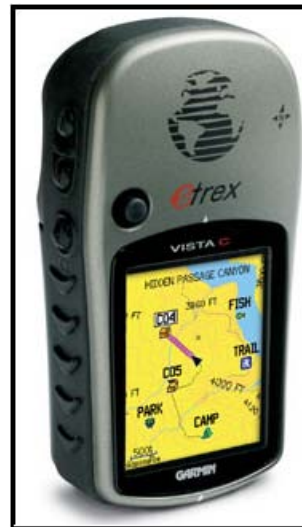
CURRENT DATA COLLECTION FORMATS

- Garmin and Trimble GPS
- GIS Shapefiles

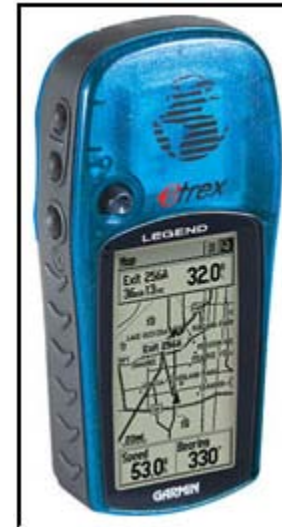
Garmin eTrex



Garmin eTrex - Vista



Garmin eTrex - Legend





Identify Current Activities

Trimble - Data Dictionaries

File Edit Options Help

Name: DISTRIBUTION

Comment:

Features:	Attributes:	Text
<input checked="" type="checkbox"/> PIPELINE START P...	<input checked="" type="checkbox"/> PIPELINE NAME	Length: 30
<input checked="" type="checkbox"/> PIPELINE	<input checked="" type="checkbox"/> PIPELINE NUMBER	Default Value:
<input checked="" type="checkbox"/> SERVICE	<input type="checkbox"/> LOCATE METHOD	
<input checked="" type="checkbox"/> LINE MARKER	<input type="checkbox"/> PIPE CLASSIFICATI...	
<input checked="" type="checkbox"/> ELBOW	<input type="checkbox"/> NOMINAL DIAMET...	
<input checked="" type="checkbox"/> TAP	<input checked="" type="checkbox"/> WALL THICKNESS	
<input checked="" type="checkbox"/> FARM TAP	<input type="checkbox"/> MATERIAL	
<input checked="" type="checkbox"/> TEE	<input type="checkbox"/> TYPE	
<input checked="" type="checkbox"/> REDUCER	<input type="checkbox"/> EXTERNAL COATI...	
<input checked="" type="checkbox"/> VALVE	<input type="checkbox"/> STATUS	
<input checked="" type="checkbox"/> METER	<input type="checkbox"/> FIELD ATTRIBUTE	
<input checked="" type="checkbox"/> STOPPLE FITTINGS	<input checked="" type="checkbox"/> PROJECT NUMBER	
<input checked="" type="checkbox"/> TBS STATION	<input checked="" type="checkbox"/> DEPTH-INCHES	
<input checked="" type="checkbox"/> MBS STATION	<input type="checkbox"/> ASBESTOS COATI...	
<input checked="" type="checkbox"/> REG STATION	<input checked="" type="checkbox"/> COMMENT	
<input checked="" type="checkbox"/> RECTIFIER		
<input checked="" type="checkbox"/> ANODE		
<input checked="" type="checkbox"/> HOUSE COUNT SU...		
<input checked="" type="checkbox"/> HOUSE COUNT CO...		
<input checked="" type="checkbox"/> EPV		
<input checked="" type="checkbox"/> SPAN BEGIN		
<input checked="" type="checkbox"/> SPAN END		
<input checked="" type="checkbox"/> SPAN INTERMITTE...		
<input checked="" type="checkbox"/> WELD		
<input checked="" type="checkbox"/> POT HOLE		
<input checked="" type="checkbox"/> LEAK		
<input checked="" type="checkbox"/> ROW MARKER		
<input checked="" type="checkbox"/> CASING VENT		
<input checked="" type="checkbox"/> BORE LOCATION		
<input checked="" type="checkbox"/> DEPTH OF COVER		
<input checked="" type="checkbox"/> OTHER		

On Creation: Normal
On Update: Normal

Default Feature Settings:

Min. Positions: 4
Accuracy: Code
Log Interval: 1 seconds
Label 1: TYPE
Label 2: WALL
THICKNESS

New Feature... F3 New Attribute... F7
Edit Feature... F4 Edit Attribute... F8
Delete Feature F5 Delete Attribute F9





Identify Current Activities

PIPELINE ATTRIBUTES BEING COLLECTED WITH GPS

- New Construction
- Updated Centerline
- Depth of Cover
- Wall Thickness
- Coating / Condition
- Defects
- Leaks
- Third Party Damage
- Corrosion



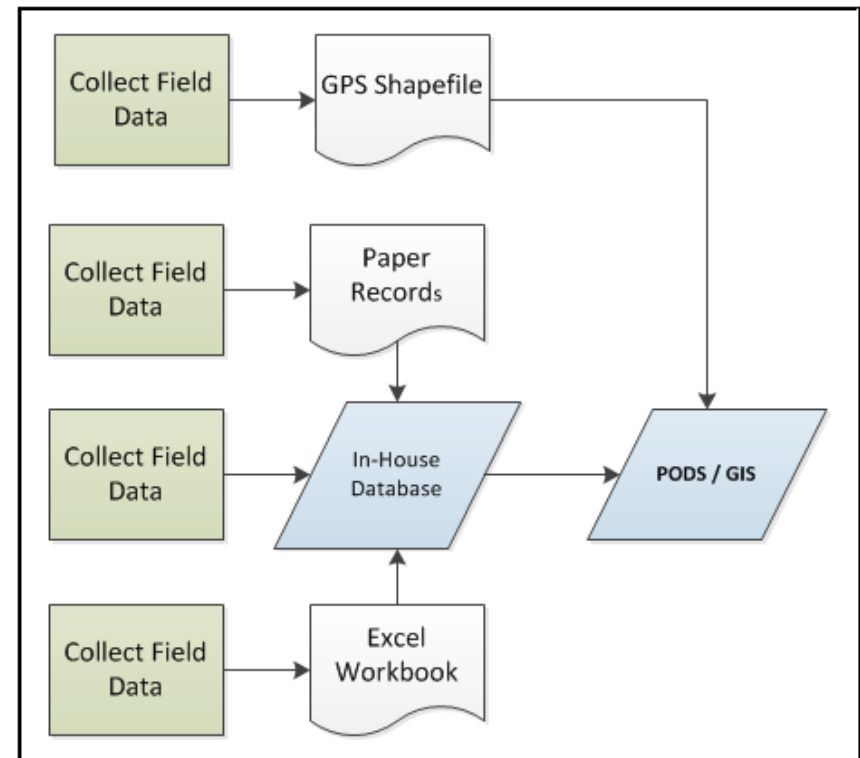
Identify Current Activities

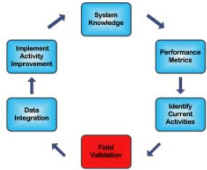
OTHER CURRENT DATA COLLECTION FORMATS

- Paper Records
- Excel Workbooks
- In-house databases

CURRENT PROCEDURES

- O&M Procedures
- Best practices

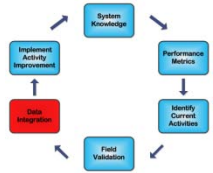




Field Validation

REVIEW DATA WITH FIELD OPERATIONS

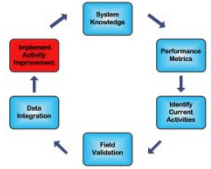
- Ensure the field understands how the system is performing
- Does operations agree with the data?
- Is data entry being entered correctly/ completely?
- What department(s) are responsible for overseeing the data?
- Are current practices and procedures being followed?



Data Integration

CENTRALIZE YOUR DATA

- Where is the data stored and in what format (Access, PODS, Esri, Excel, etc.) Can the process be improved?
- Be sure the data is getting input into the appropriate location in a timely manner
- Verify the appropriate personnel are receiving the data (GIS, Engineering, C&S, Management, etc.)
- If the data is not electronic (paper records), is there a way to easily upload it into a database?



Implement Improvements

ARE CHANGES NECESSARY?

- Update O&M procedures and Best Practices to improve data collection if needed
- Ensure all procedures are being followed correctly
- Enhance communications with field employees
- Document actions taken
- “If it ‘aint broke, don’t fix it”

Lessons Learned

IMPROVEMENTS

- Communication is a key element to success
- Data entry will not always be correct. Check the data and ask for SME input
- Train and re-train
- Ask for feedback from the field
- Be patient

Plans for the Future

ENHANCEMENTS

- Improve our current data collection standards and procedures
- Integrate our daily dig sheets into a centralized database
- Link our centralized corrosion database into GIS
- Look at enhanced GPS data collection processes for cleaner data integration
- Link in-house databases with PODS to centralize our data

Questions?