Managing the Lifecycle of a Defect

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Defect Discovery

• ILI Survey discovers the defect
• Understanding ILI Reports
• Understanding the PODS database
• Single Frame of Reference
**Discovery of Defects**

![Image of.xls spreadsheet]
Attributes of the Defect
Attributes of the Defect

• Absolute Odometer
• Type of Anomaly
• Maximum Depth
• Orientation
• Weld Distance US/DS
• Wall Thickness
### Attributes of the Defect

<table>
<thead>
<tr>
<th>ID</th>
<th>Defect ID</th>
<th>Odometer</th>
<th>Anomaly Type</th>
<th>Internal External</th>
<th>Clock</th>
<th>Max Depth Pct</th>
<th>Length</th>
<th>Width</th>
<th>Mod B31G BP</th>
<th>Mod B31G ERF</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>5270.35</td>
<td>Metal Loss</td>
<td>Internal</td>
<td>08:55</td>
<td>34.05</td>
<td>1.261</td>
<td>1.538</td>
<td>2307.6</td>
<td>.659</td>
<td>Near Joint</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>5270.36</td>
<td>Metal Loss</td>
<td>Internal</td>
<td>08:30</td>
<td>40.27</td>
<td>0.632</td>
<td>0.927</td>
<td>2365.0</td>
<td>.643</td>
<td></td>
</tr>
</tbody>
</table>
Orientation Conversion

Time * 720 = Degrees

08:55 * 720 = 267.5
08:30 * 720 = 255.0
# Defect Alignment

- **Single Frame of Reference**

<table>
<thead>
<tr>
<th>Station</th>
<th>Control Data</th>
<th>Survey Data</th>
<th>Odometer</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>0+00.0</td>
<td></td>
<td></td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>20+00.0</td>
<td></td>
<td></td>
<td>2100.0</td>
<td>20+00.0</td>
</tr>
<tr>
<td>65+00.0</td>
<td></td>
<td></td>
<td>5270.0</td>
<td>5105.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6700.0</td>
<td>65+00.0</td>
</tr>
</tbody>
</table>
Analyze the Defect

- Attribute
- Proximity
Analyze with Queries

- Predicted Burst Pressure < MOP
- Metal Loss > 80%
- Dent located on Bottom near Metal Loss, Cracking or a Stress Riser
### Link Physical Inspection Records to the Defect

<table>
<thead>
<tr>
<th>Table</th>
<th>Columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILI_Data</td>
<td>ILI_Data_ID, Event_ID, ILI_Inspection_ID</td>
</tr>
<tr>
<td>ILI_PI_Link</td>
<td>ILI_PI_Link_ID, ILI_Data_Event_ID, Physical_Inspection_Event_ID</td>
</tr>
<tr>
<td>PI_Metal_Loss</td>
<td>Event_ID, PI_Event_ID</td>
</tr>
</tbody>
</table>

This diagram illustrates the linking process between physical inspection records and defect data, ensuring accurate and reliable information management for pipeline integrity.
Defect Maintenance

- Maintenance
  - Maint_ID
  - Event_ID

- Maintenance_Event
  - Maint_ID
  - Event_ID

- PI Defect
- PI Excavation
- ILI Defect

- Facility Repair
Use and Maximize PODS

ILI_Defect_Query
ILI_Defect_Query_ID
Type_CL
Query
Date

PI_Excavation
Event_ID
PI_Event_ID

Event (Sleeve)
Event_ID

ILI_PI_Link
ILI_PI_Link_ID
ILI_Data_Event_ID
Physical_Inspection_Event_ID

ILI_Data
ILI_Data_ID
Event_ID
ILI_Inspection_ID

ILI_Query_Feature
ILI_Query_Feature_ID
ILI_Query_Query_ID
ILI_Data_Event_ID

Maintenance
Maint_ID
Event_ID

Maintenance_Event
Maint_ID
Event_ID

Facility Repair

ILI Defect

PI Excavation

PI Defect
Advantages to PODS Database Management

• Structural Integrity
• Risk Analysis
  – Corrosion Threat
• Generate Alignment Sheets
  – Integrity Sheets
Why *Use PODS to Manage Defects*?

- Desktop databases no longer cut it
- Extendable to create linkages
- Assessable to all
- Standardizes data
- Establishment of defect workflows
Q & A

• Question & Answer