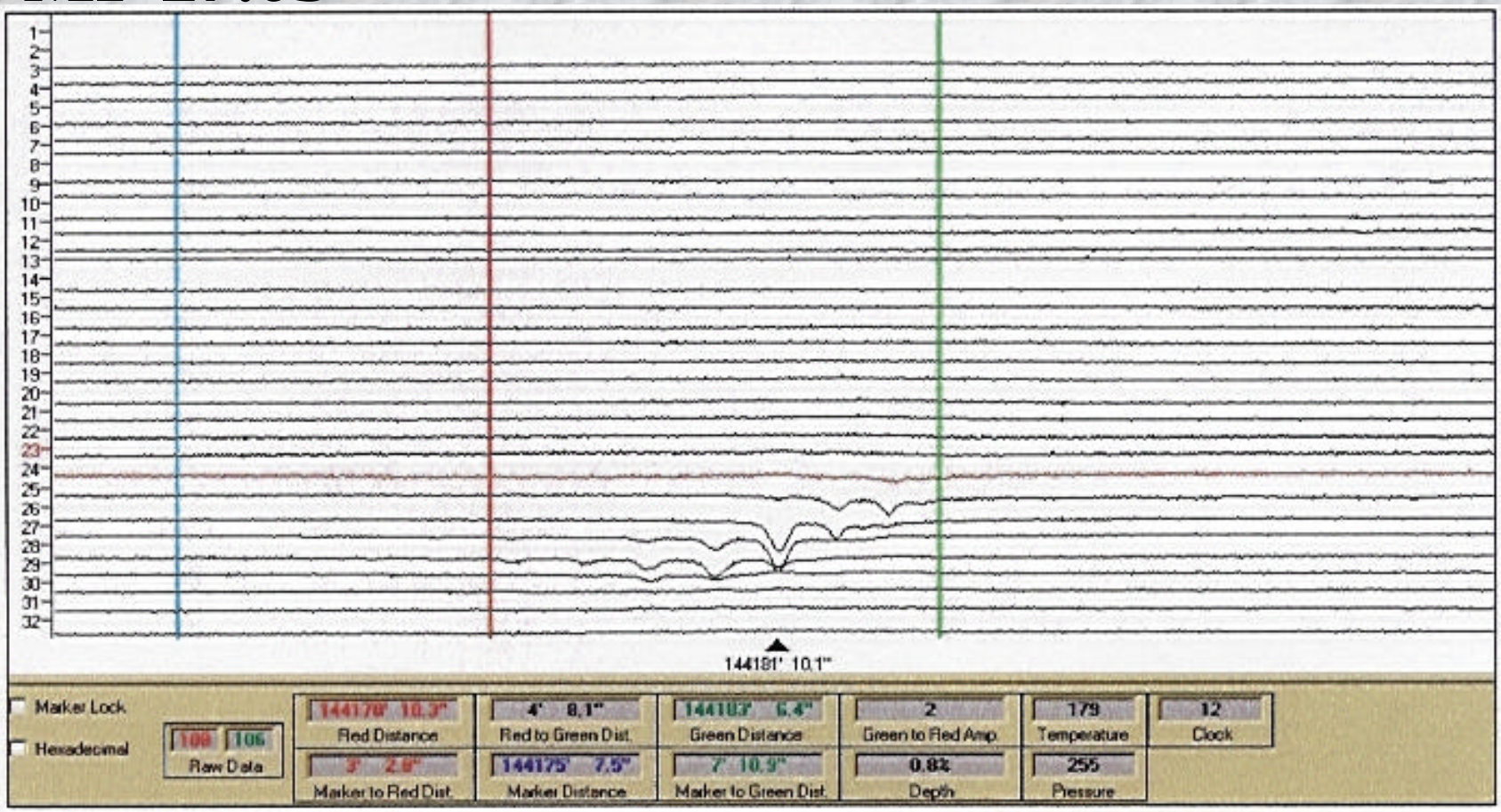
Objectives of Internal Inspection Program

- Priority #1 - Identify All Areas of Mechanical Damage for Remediation
- Priority #2 - Identify All Areas of Metal Loss (Internal and External Corrosion, Mill Defects, Etc.) for Remediation
- Priority #3 - Confirm existence of all known pipeline features, including past repairs.

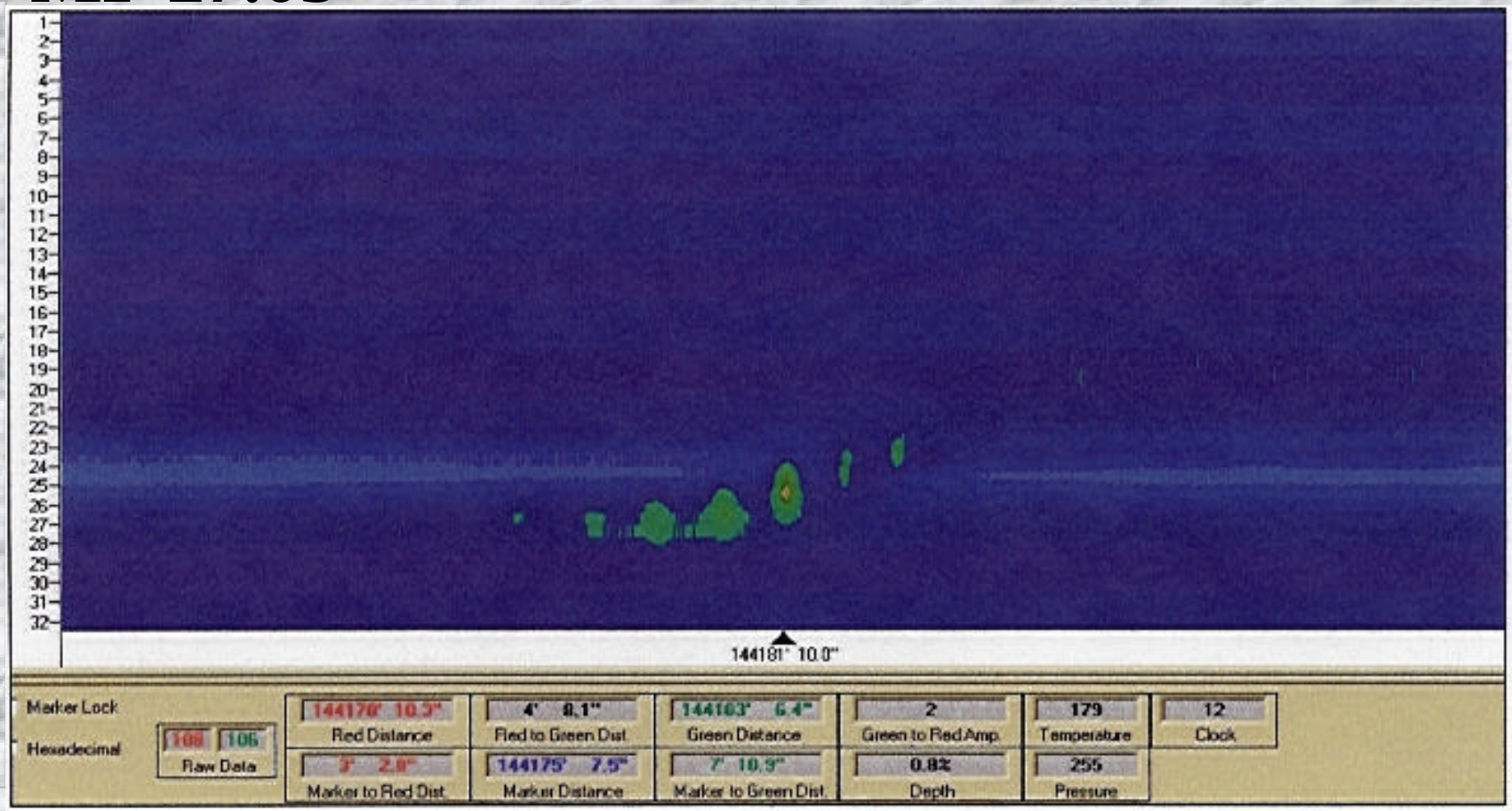
Individual Anomaly Report

- **MP 27.03**



Individual Anomaly Report

- **MP 27.03**



Individual Anomaly Report

- **MP 27.03**

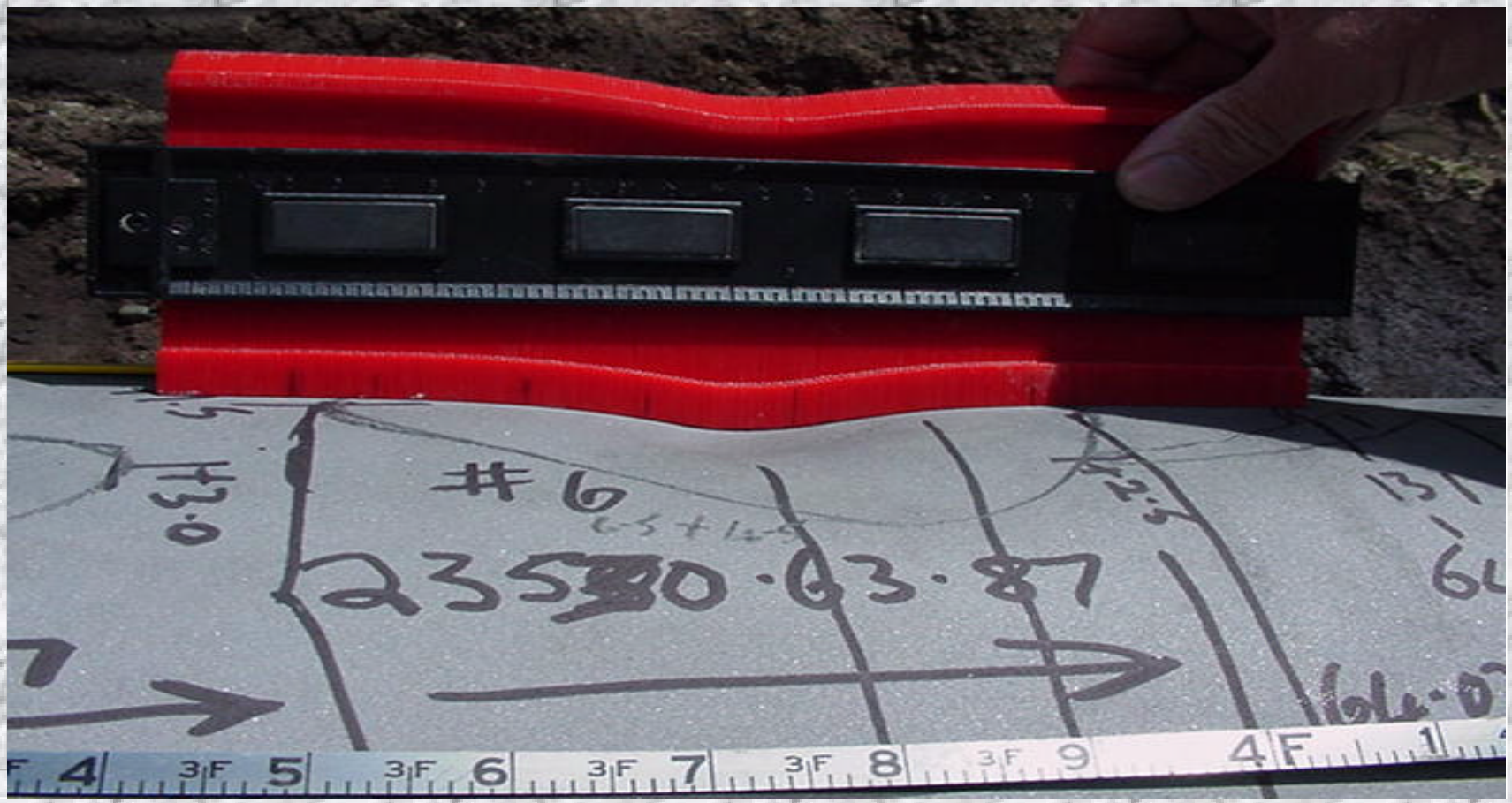
Individual Anomaly Report

MP 27.03

Dent Number	Depth (inches)	Length (inches)	Width (inches)	OPS Anomaly Disposition
1	0.063 (0.39 % of pipe diameter)	1.500	0.750	Cut Out
2	0.063 (0.39 % of pipe diameter)	2.000	1.000	
3	0.063 (0.39 % of pipe diameter)	2.000	1.000	
4	0.093 (0.58 % of pipe diameter)	3.750	2.750	
5	0.187 (1.17 % of pipe diameter)	5.500	3.000	
6	0.375 (2.34 % of pipe diameter)	6.500	4.500	
7	0.156 (0.98 % of pipe diameter)	7.000	4.250	
8	0.125 (0.78 % of pipe diameter)	9.500	5.000	
9	0.031 (0.19 % of pipe diameter)	8.000	3.500	

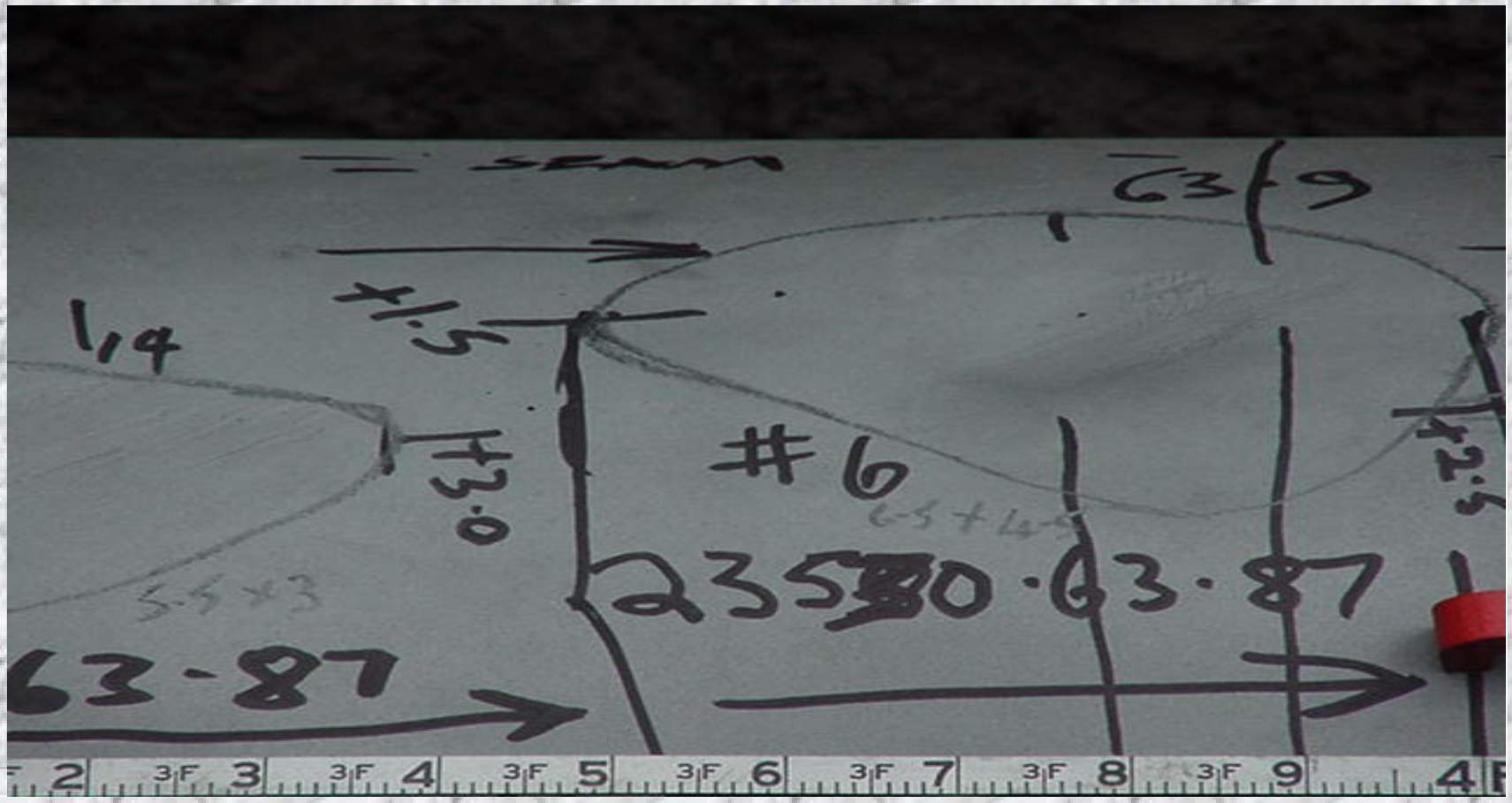
Individual Anomaly Report

- **MP 27.03**



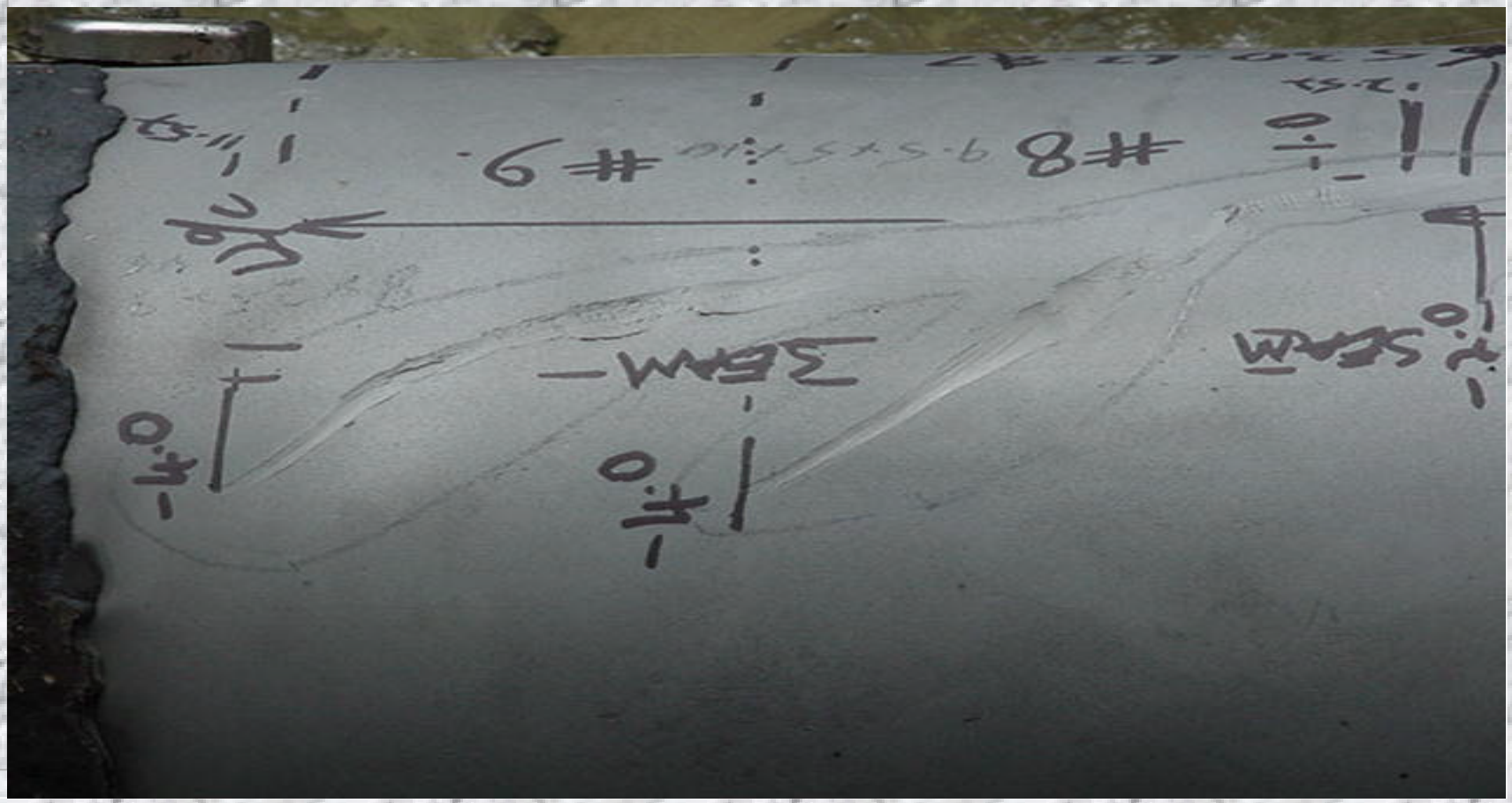
Individual Anomaly Report

- **MP 27.03**



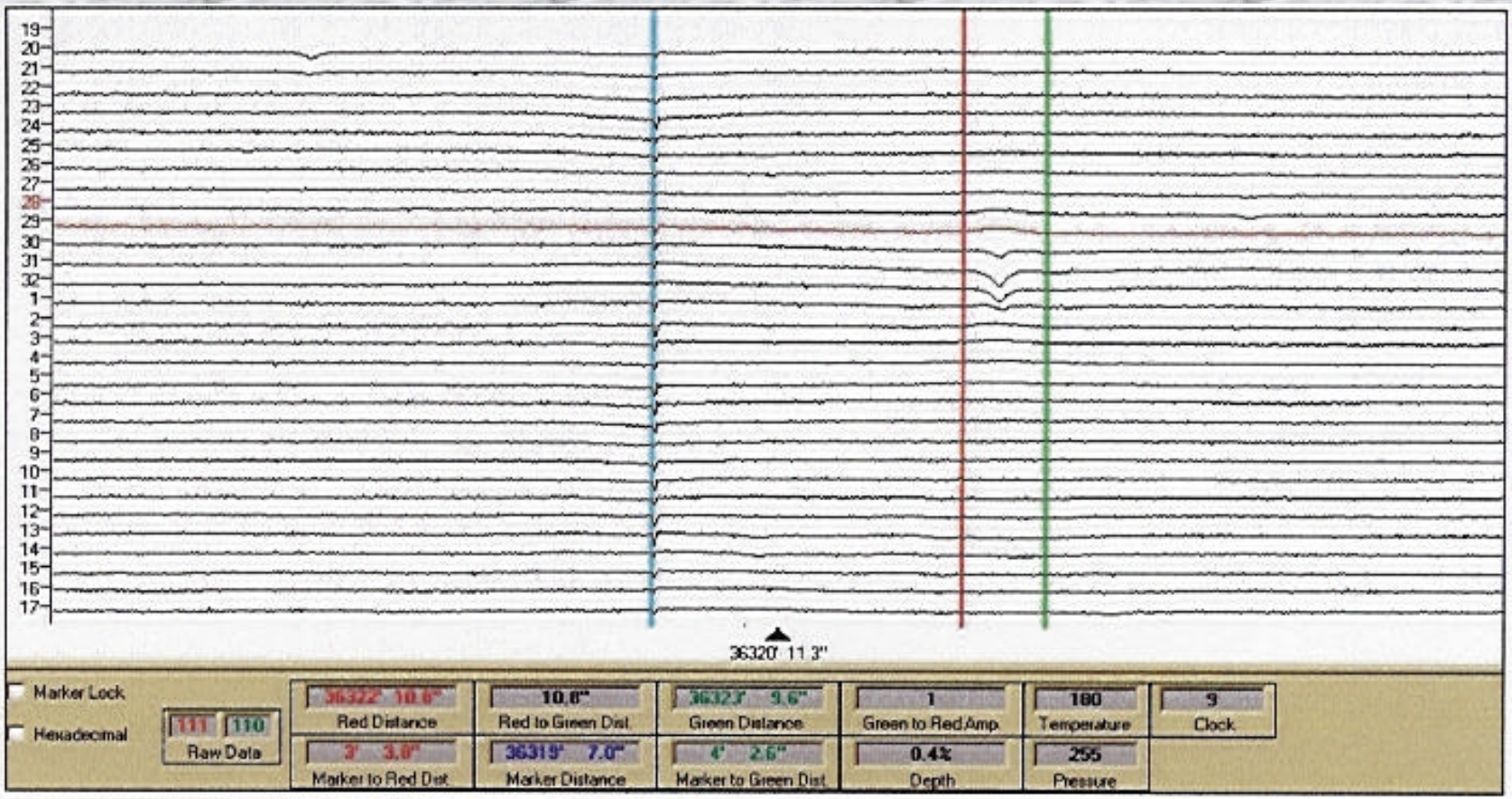
Individual Anomaly Report

- **MP 27.03**



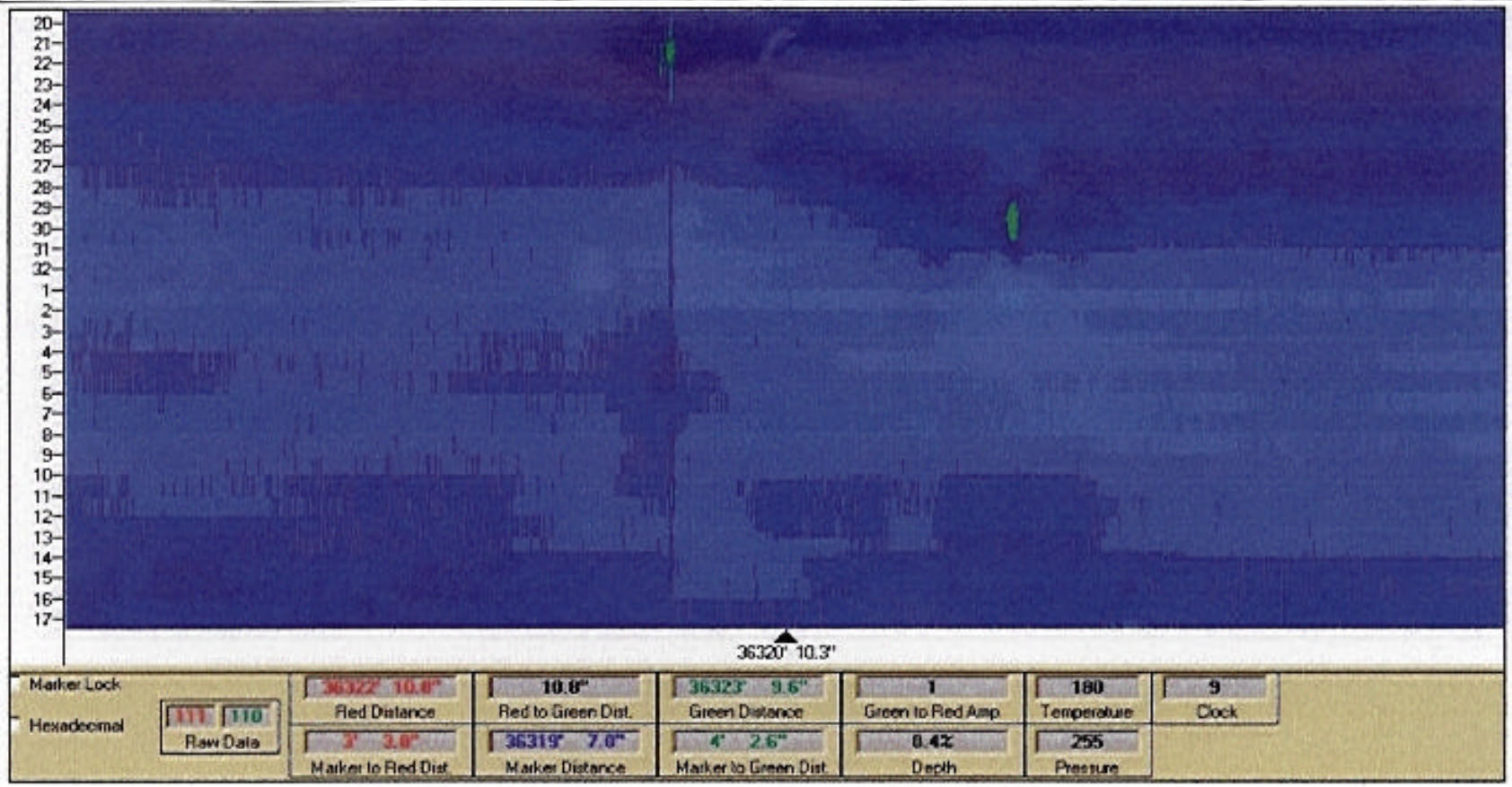
Individual Anomaly Report

- **MP 6.66**



Individual Anomaly Report

- **MP 6.66**



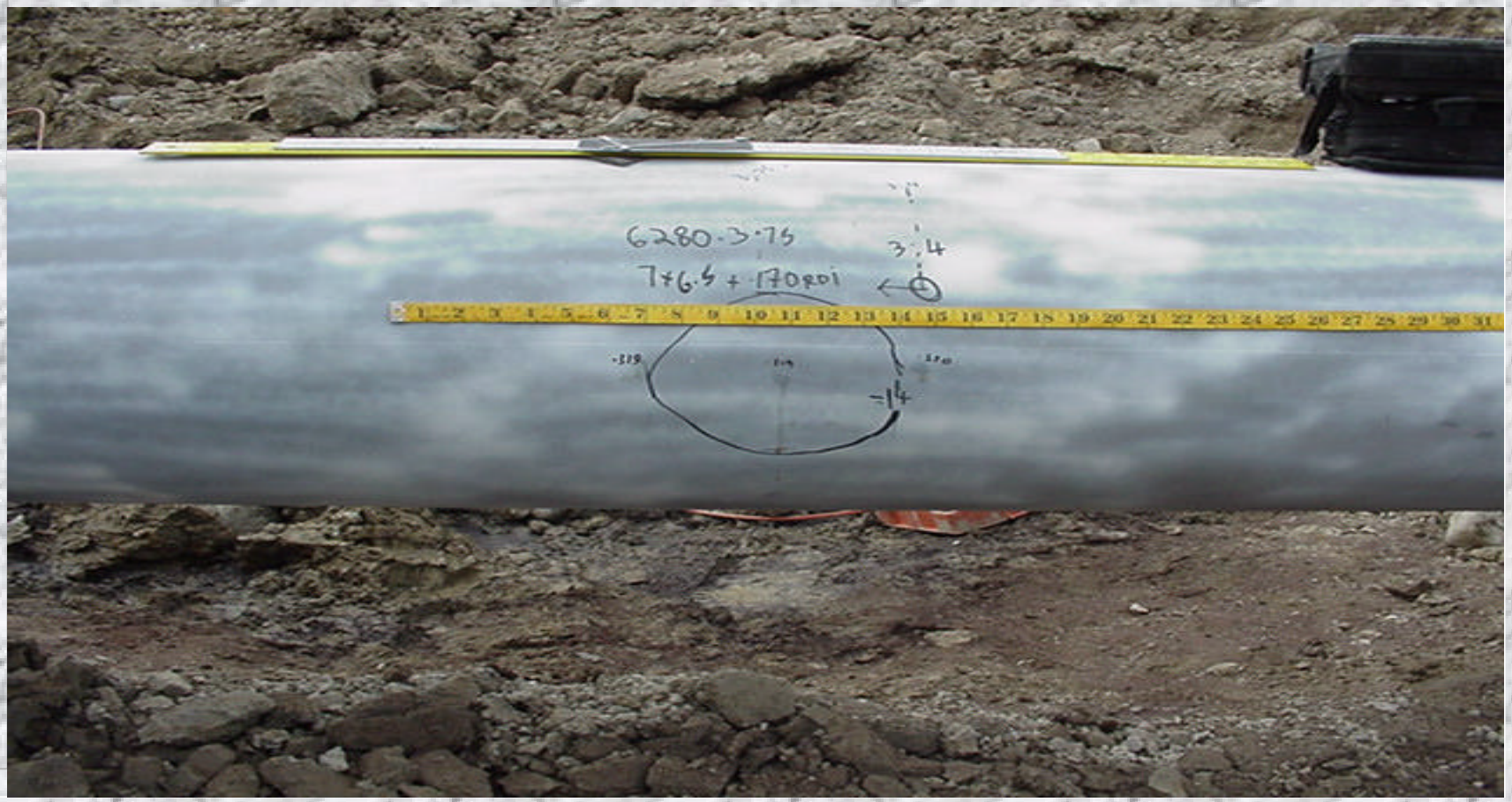
Individual Anomaly Report

MP 6.66

Dent Number	Depth (inches)	Length (inches)	Width (inches)	OPS Anomaly Disposition
1	0.170 (1.07 % of pipe diameter)	7.000	6.500	Clean and Recoat
2	0.035 (0.22 % of pipe diameter)	3.000	2.000	
3	0.050 (0.31 % of pipe diameter)	4.750	3.500	

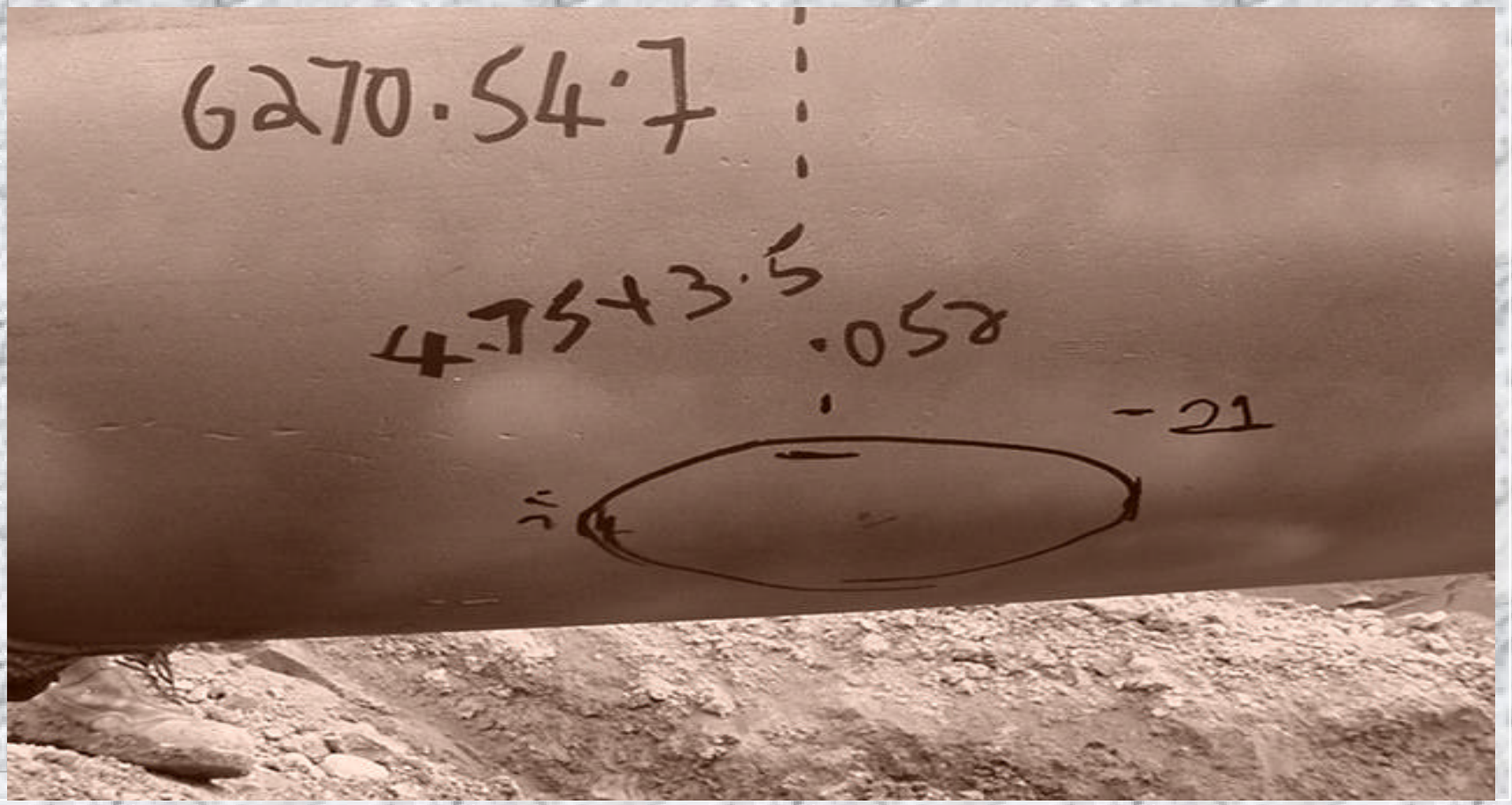
Individual Anomaly Report

- **MP 6.66**



Individual Anomaly Report

- **MP 6.66**



Preliminary Findings Summary

- Nineteen Required Dig Locations
- Fourteen Mechanical Damage Digs - Nine requiring replacement pipe sections
- Five Metal Loss Digs (Two Pending) - None required replacement pipe sections based on repair criteria however two of three completed to date will be replaced.

Anomaly Dig Criteria

- Deformation Anomalies on top half of pipe, and...
- Greater than 0.1 inches in depth, and ….
- Coincident with longitudinal seams or girth welds, or...
- Coincident with metal loss.
- Anomaly must be exposed if coincidence is unknown

Repair Criteria

- Repair Criteria
  - OPS recognizes the ASME B31.4 Code for Pressure Piping as the industry standard governing repairs to hazardous liquid pipelines.
  - Regarding to defects identified on the out of service Ferndale to Allen segment of pipeline in accordance to B31.4 Code the pipeline repairs will be made by cutting out a cylindrical piece of pipe containing the defects and replacing it with pipe meeting the requirements of the B31.4 Code.

Conclusions

- Smart Pig Program has been very successful - All Priority Objectives Achieved
- Proper pig program implementation allowed the operator to eliminate integrity issues by root cause analysis
- Eleven anomalies that survived the hydrostatic strength test will be eliminated.
- Third Party Damage is the prominent integrity issue with Olympic Pipeline

Questions ?