Transmission Main Condition Assessment: Manito & 57th

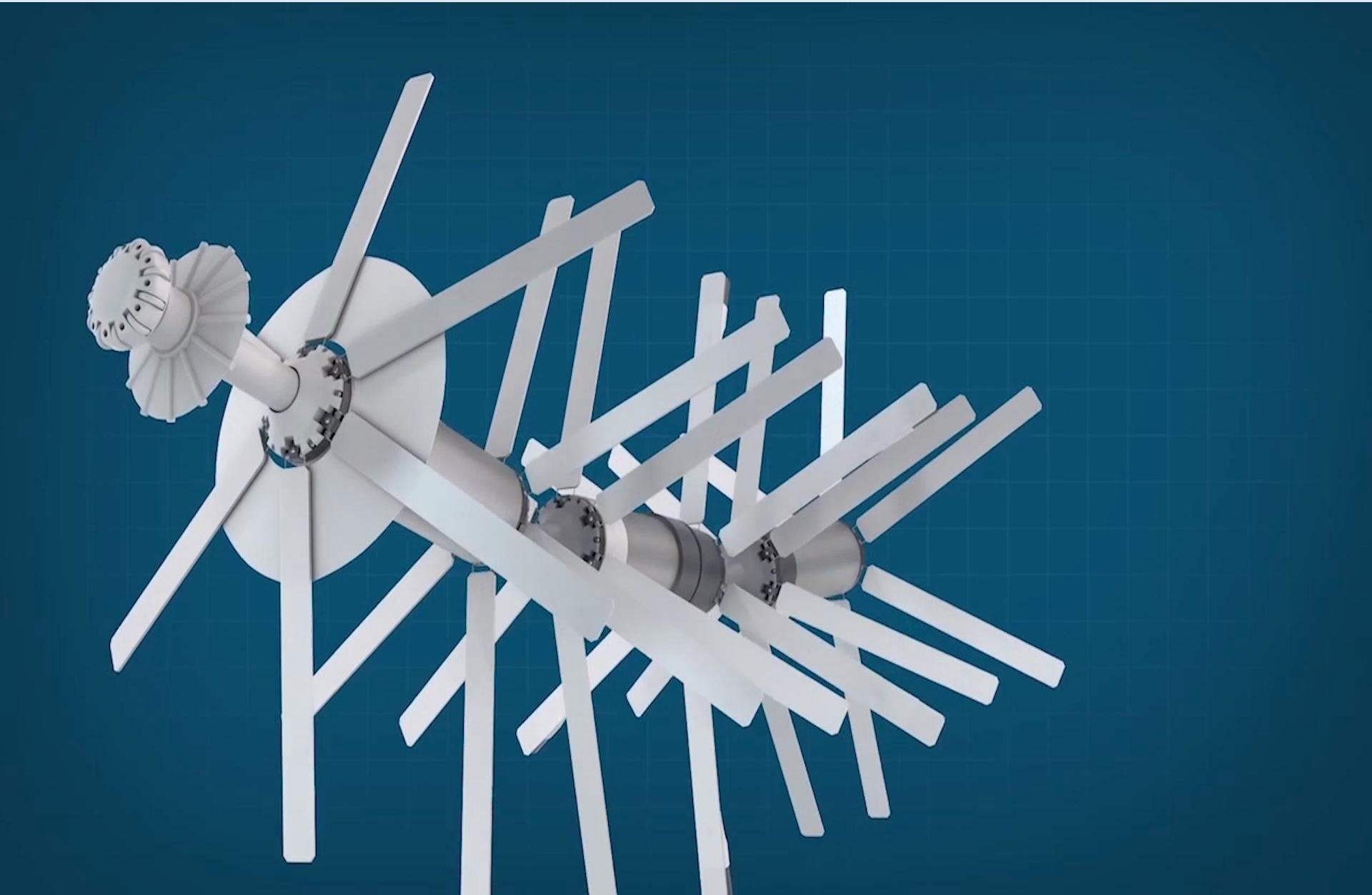
Technology Utilized

Pipe Diver

Smart Ball

Smart Ball

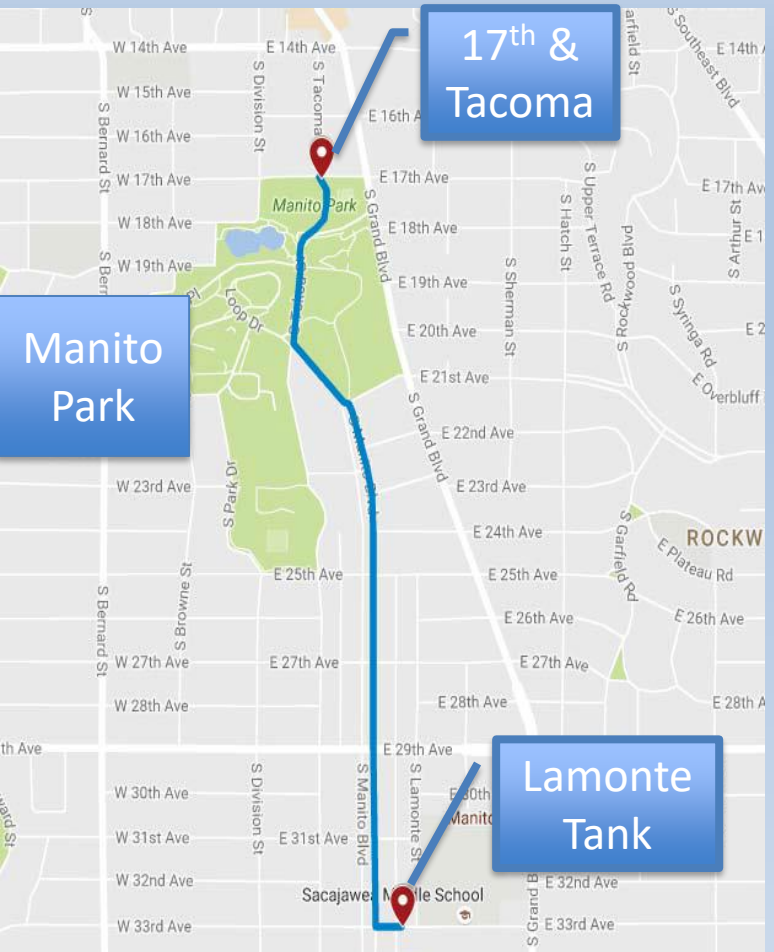
Pipe Diver

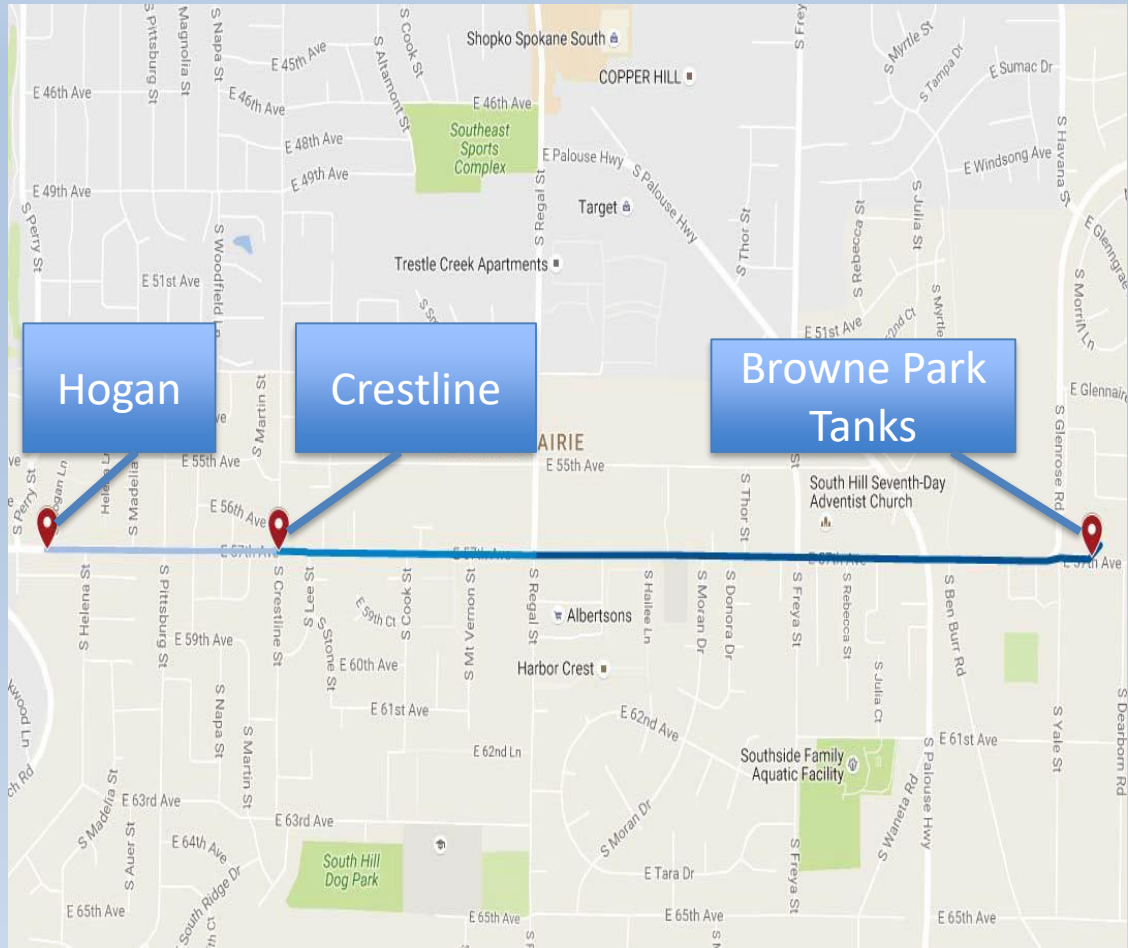


Project Location

Manito Transmission Main
1.1 Miles of 24” Steel Main

57th Avenue Transmission Main
2.0 Miles of 18”/24”/30” Steel Main

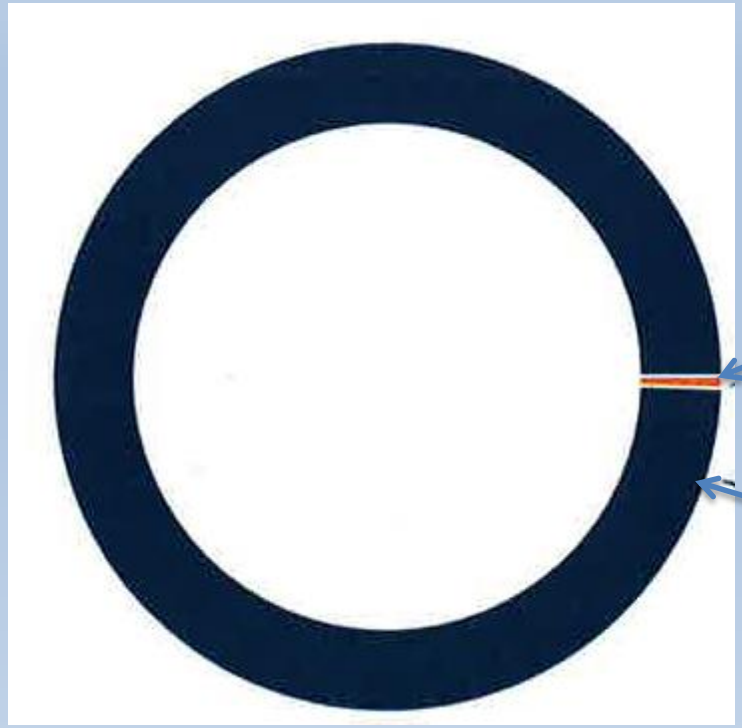




Inspection Results

Manito Transmission Main

- 202 pipe segments inspected
- Zero leaks
- Zero electromagnetic anomalies



0.6% of pipes with corrosion

99.4% of pipes with no corrosion

57th Avenue Transmission Main

- 282 pipe segments inspected
- 1 leak detected
- 3 Pipe segments with electromagnetic Anomalies

Electromagnetic Inspection Data Analysis

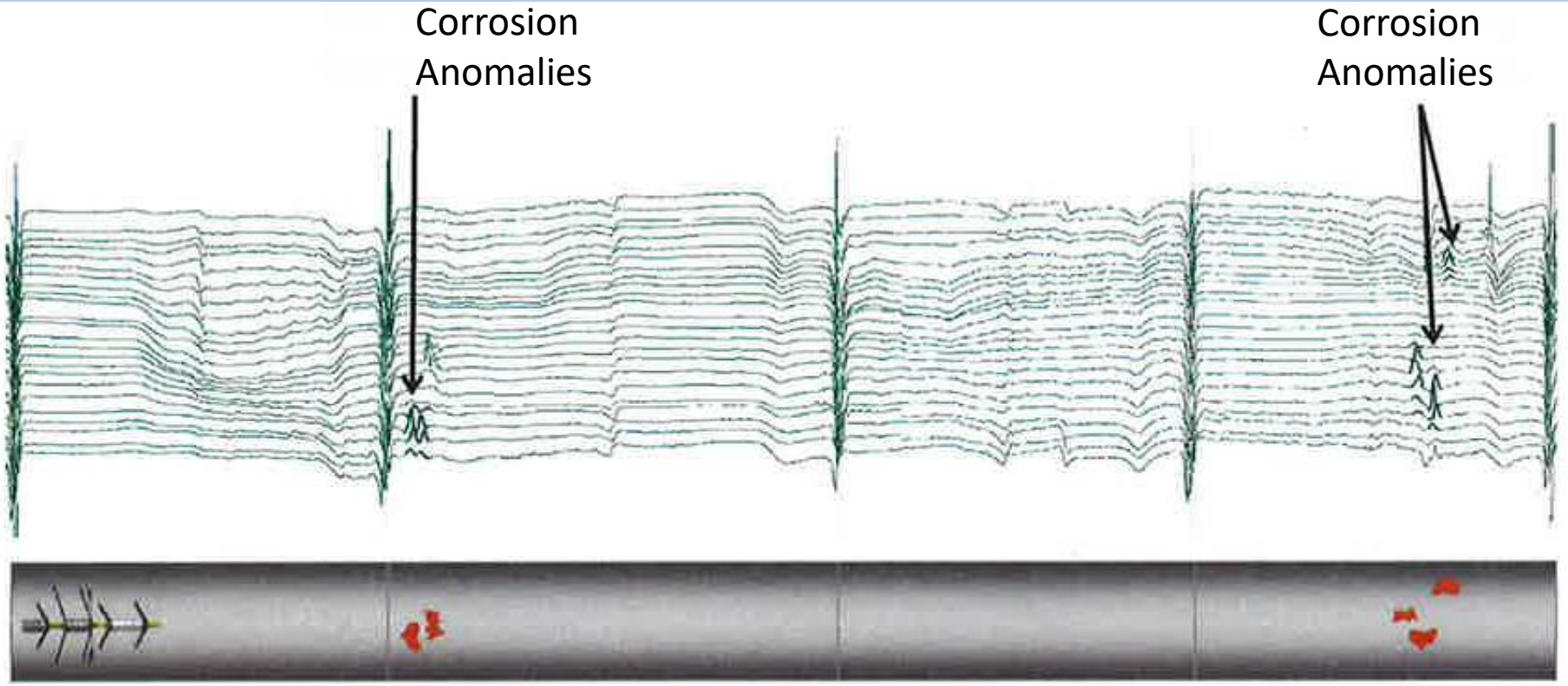


Table 1: Electromagnetic Anomalies in 57th Avenue Transmission Main

Pure Reference Number	Upstream Joint (Station)	Longitudinal Position of Anomaly (feet from Upstream joint)	Circumferential Position of Anomaly (degrees facing Downstream)	Calculated Volume Loss (cubic inches)	Estimated Depth of Wall Loss
11	48+77	7	297	4	20%
1172	80+71	2	351	4	35%
		3	351	3	45%
1174	81+51	25	260	5	50%
		27	305	4	50%
		28.5	110	3	35%

Leak Detected 57th & Palouse

Leak Repair – 57th & Palouse

Questions?

Leak Detection
What we do today

and

Where we are going tomorrow

Standard Leak Survey Listening on Valves

Listening on Hydrants

Leak Correlation Equipment

Geophones – Pinpoint the Leak

Standard Acoustic Survey
National Averages

<1.76
Leaks Found
per person / day

1 leak Found every
1.9 miles
per person per day

Survey Cycle
length of time
2-3 years

Leak Survey by Satellite

Comparison between acoustic survey and satellite leak detection.

>6.1

Leaks Found
per person / day

1 leak Found every

0.19 miles

per person per day

Survey Cycle
length of time

Quarterly