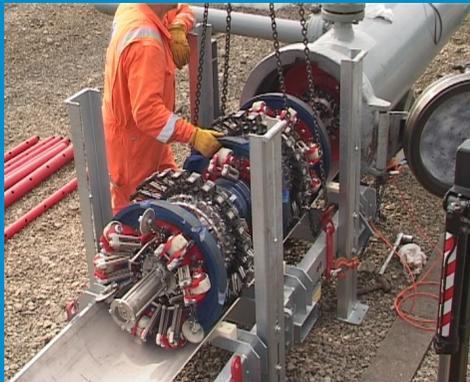


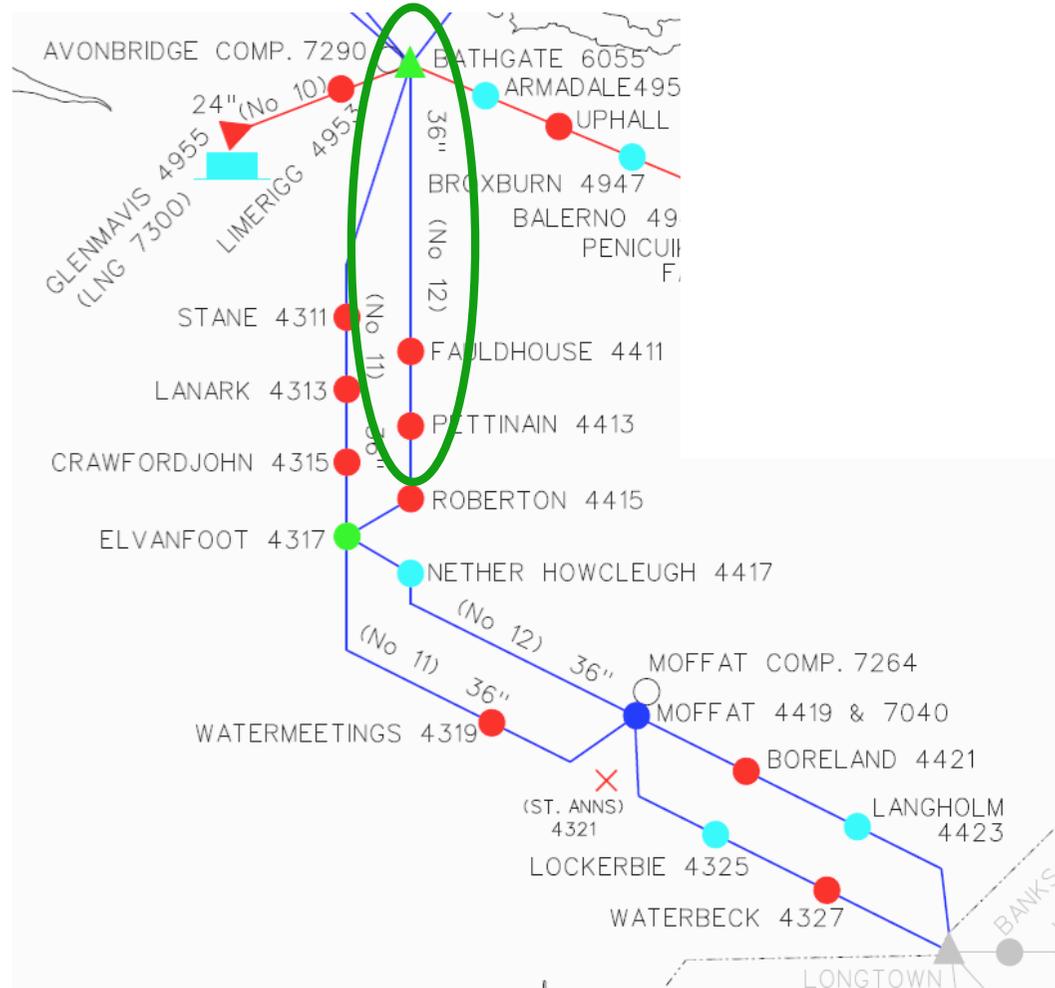
## ILI Case Study



**Brian Woodhouse – Integrity Manager National Grid UK**  
**UKOPA Technical Seminar**  
**Eakring - 29 May 2012**

## ILI Case Study

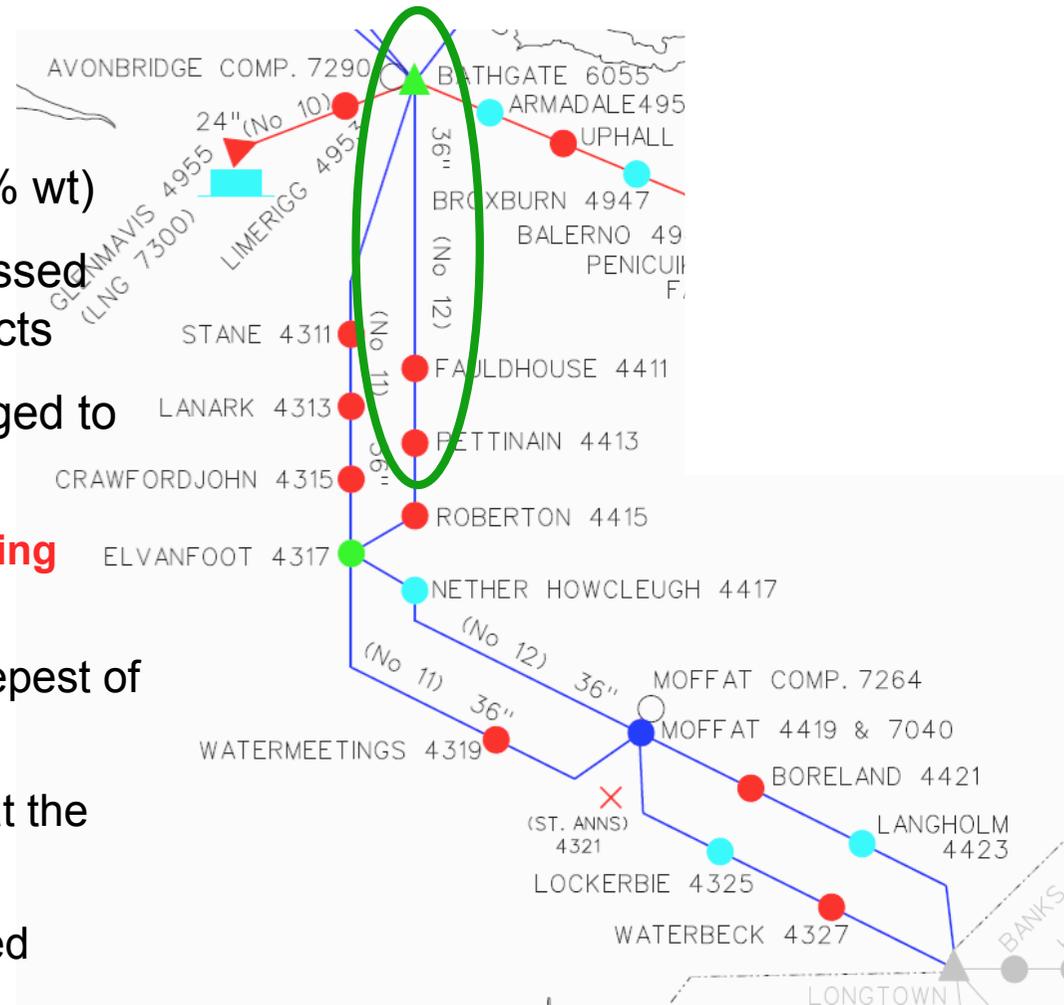
- Bathgate to Longtown
- Feeder 12
- Isolation between Bathgate to Pettinain
- 915 nom OD (36")
- 12.7mm nom W/T
- Constructed 1978
- 85 barg MOP
- > 72 % smys
- Inspection May 2011



## ILI Case Study

### ■ High Level Summary;

- 945 metal loss features were reported (deepest feature 46% wt)
- 742 of which have been assessed as milling/manufacturing defects
- 203 features were initially judged to be external corrosion
  - **18 judged to exceed reporting criteria**
- 54 dents were reported, the deepest of which is 3.2%ID
- All 54 of the dents are located at the bottom.
- 21 No. Weld Anomalies recorded ( 4 Girth /17 Long)



# ILI Case Study

- Case Study specific to this location

weld log distance	feature to weld	joint number	joint length	wt	log distance	o'clock orient.	event	outer dime.	length	width	max. depth	avg. depth
m	m		m	mm	m				mm	mm	%	%
14633.80	-7.55	14340	12.30	12.70	14641.55	11:58	metal loss-corrosion	PITT	29	17	12	5
14633.80	-7.65	14340	12.30	12.70	14641.46	11:54	metal loss-corrosion	PITT	31	23	15	6
14633.80	-7.88	14340	12.30	12.70	14641.68	12:00	metal loss-corrosion	PITT	20	15	20	10
14633.80	-8.04	14340	12.30	12.70	14641.84	12:00	metal loss-corrosion	AXGR	44	18	15	5
14633.80	-8.12	14340	12.30	12.70	14641.92	11:55	metal loss-corrosion	PITT	26	27	39	17
14633.80	-8.27	14340	12.30	12.70	14642.07	11:55	CLUSTER	AXGR	70	19	20	5
14633.80	-8.62	14340	12.30	12.70	14642.42	12:40	metal loss-corrosion	PITT	34	25	12	5
14633.80	-8.80	14340	12.30	12.70	14642.60	12:38	metal loss-corrosion	PITT	28	18	22	9
14633.80	-9.35	14340	12.30	12.70	14643.15	12:03	metal loss-corrosion	PITT	28	20	34	15
14633.80	-9.46	14340	12.30	12.70	14643.26	12:00	CLUSTER	AXGR	67	32	32	8
14633.80	-9.80	14340	12.30	12.70	14643.60	12:50	metal loss-corrosion	PITT	31	18	18	7
14633.80	-10.36	14340	12.30	12.70	14644.16	11:40	metal loss-corrosion	PITT	36	20	30	12
14633.80	-10.42	14340	12.30	12.70	14644.22	11:39	metal loss-corrosion	PITT	23	16	22	10
14633.80	-10.49	14340	12.30	12.70	14644.29	11:39	metal loss-corrosion	PITT	42	31	13	5
14633.80	-10.95	14340	12.30	12.70	14644.75	11:55	metal loss-corrosion	PITT	21	27	20	10
14646.10	-0.55	14350	12.26	12.70	14646.66	06:24	metal loss-repaired					
14646.10	-0.69	14350	12.26	12.70	14646.80	06:06	metal loss-repaired					
14646.10	-1.08	14350	12.26	12.70	14647.18	05:44	metal loss-repaired					
14646.10	-2.46	14350	12.26	12.70	14648.56	05:32	metal loss-corrosion	PITT	20	22	10	5
14646.10	-3.39	14350	12.26	12.70	14649.50	07:10	metal loss-corrosion	PITT	23	21	30	14
14646.10	-3.59	14350	12.26	12.70	14649.69	07:09	CLUSTER	AXGR	115	38	33	7
14646.10	-3.79	14350	12.26	12.70	14649.90	07:05	metal loss-corrosion	PITT	38	29	11	4
14646.10	-3.89	14350	12.26	12.70	14649.99	07:31	metal loss-corrosion	AXGR	63	21	16	5
14646.10	-4.00	14350	12.26	12.70	14650.10	07:32	metal loss-corrosion	PITT	22	16	16	8
14646.10	-4.18	14350	12.26	12.70	14650.29	07:18	metal loss-corrosion	PITT	26	20	12	5
14646.10	-4.69	14350	12.26	12.70	14650.80	07:16	metal loss-corrosion	PITT	25	17	11	5
14646.10	-5.15	14350	12.26	12.70	14651.25	05:40	metal loss-corrosion	PITT	27	19	14	6
14646.10	-5.27	14350	12.26	12.70	14651.37	05:30	metal loss-corrosion	PITT	29	24	18	8

**Total of 16 Defects from 12% to 39% loss Of wall (Peak) in A single spool – All around the 12 o'clock position**

# ILI Case Study

- Typical Excavation Finding



Coating Removed



Coal Tar Coating split along 12 c

## ILI Case Study

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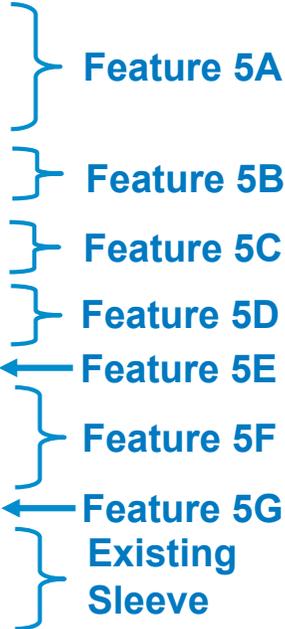
- Defect cleaned up



# ILI Case Study

## Case Study specific to this location

weld log distance	feature toweld	joint number	joint length	wt	log distance	o'clock orient.	event	outer dime.	length	width	max. depth	avg. depth
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14646.10	-3.59	14350	12.26	12.70	14649.69	07:09	CLUSTER	AXGR	115	38	33	7
14646.10	-3.79	14350	12.26	12.70	14649.90	07:05	metal loss-corrosion	PITT	38	29	11	4
14646.10	-3.89	14350	12.26	12.70	14649.99	07:31	metal loss-corrosion	AXGR	63	21	16	5
14646.10	-4.00	14350	12.26	12.70	14650.10	07:32	metal loss-corrosion	PITT	22	16	16	8
14646.10	-4.18	14350	12.26	12.70	14650.29	07:18	metal loss-corrosion	PITT	26	20	12	5
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14646.10	-5.15	14350	12.26	12.70	14651.25	05:40	metal loss-corrosion	PITT	27	19	14	6
14646.10	-5.27	14350	12.26	12.70	14651.37	05:30	metal loss-corrosion	PITT	29	24	18	8



# ILI Case Study

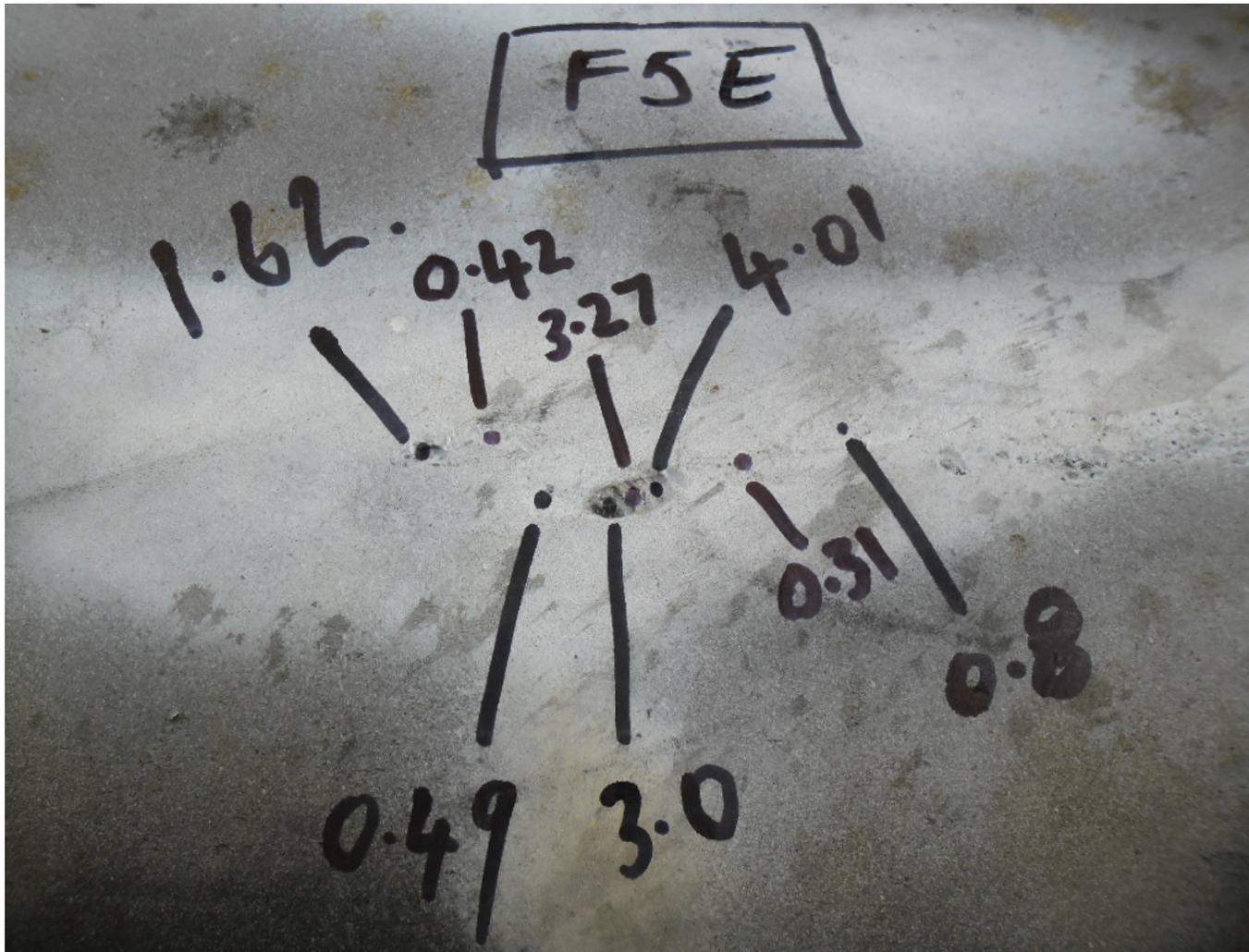
- Detailed Surveys



**Peak 5.03 mm –  
39 % Loss of  
wall**

## ILI Case Study

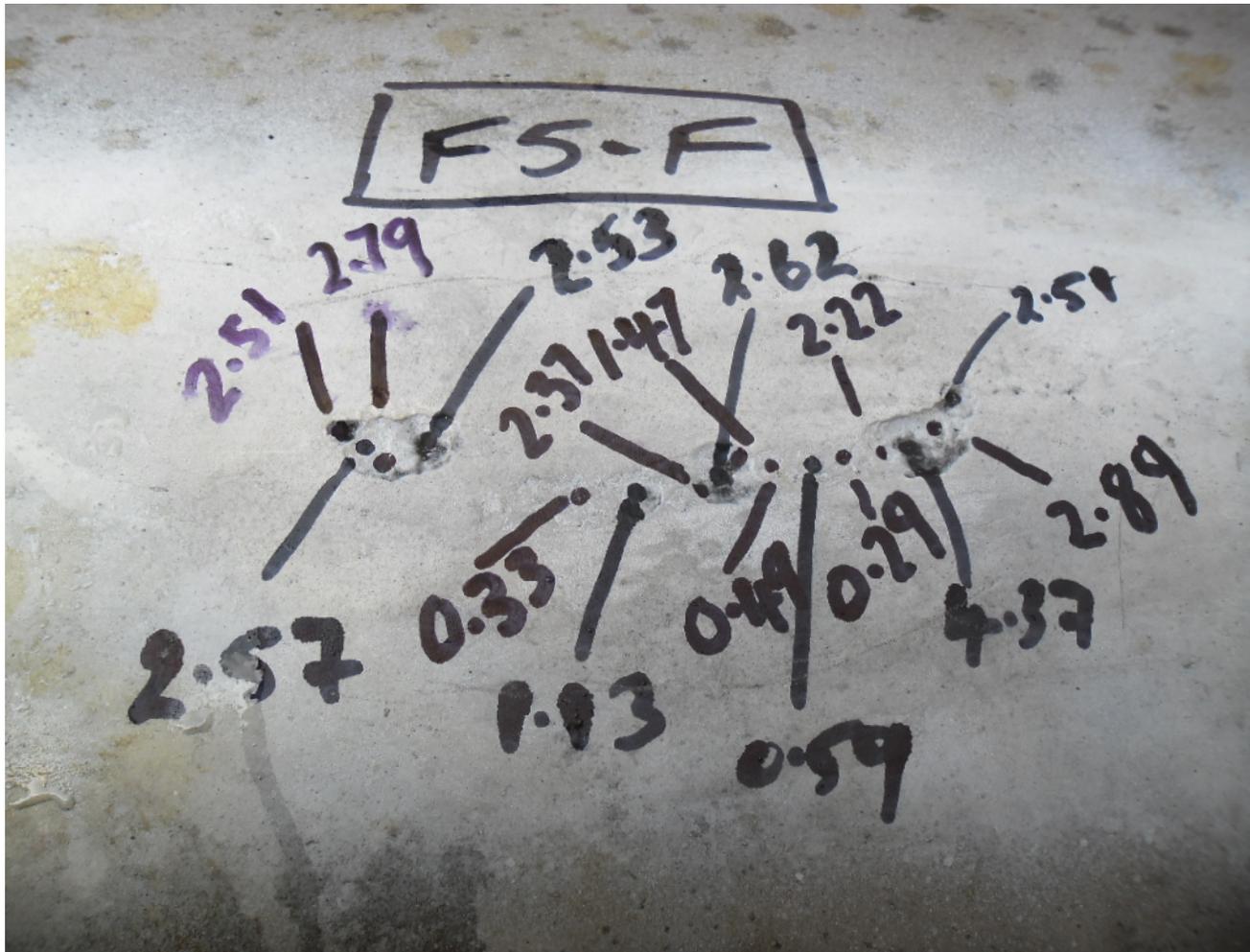
- Detailed Surveys



Peak 4.01 mm –  
31 % Loss of  
wall

## ILI Case Study

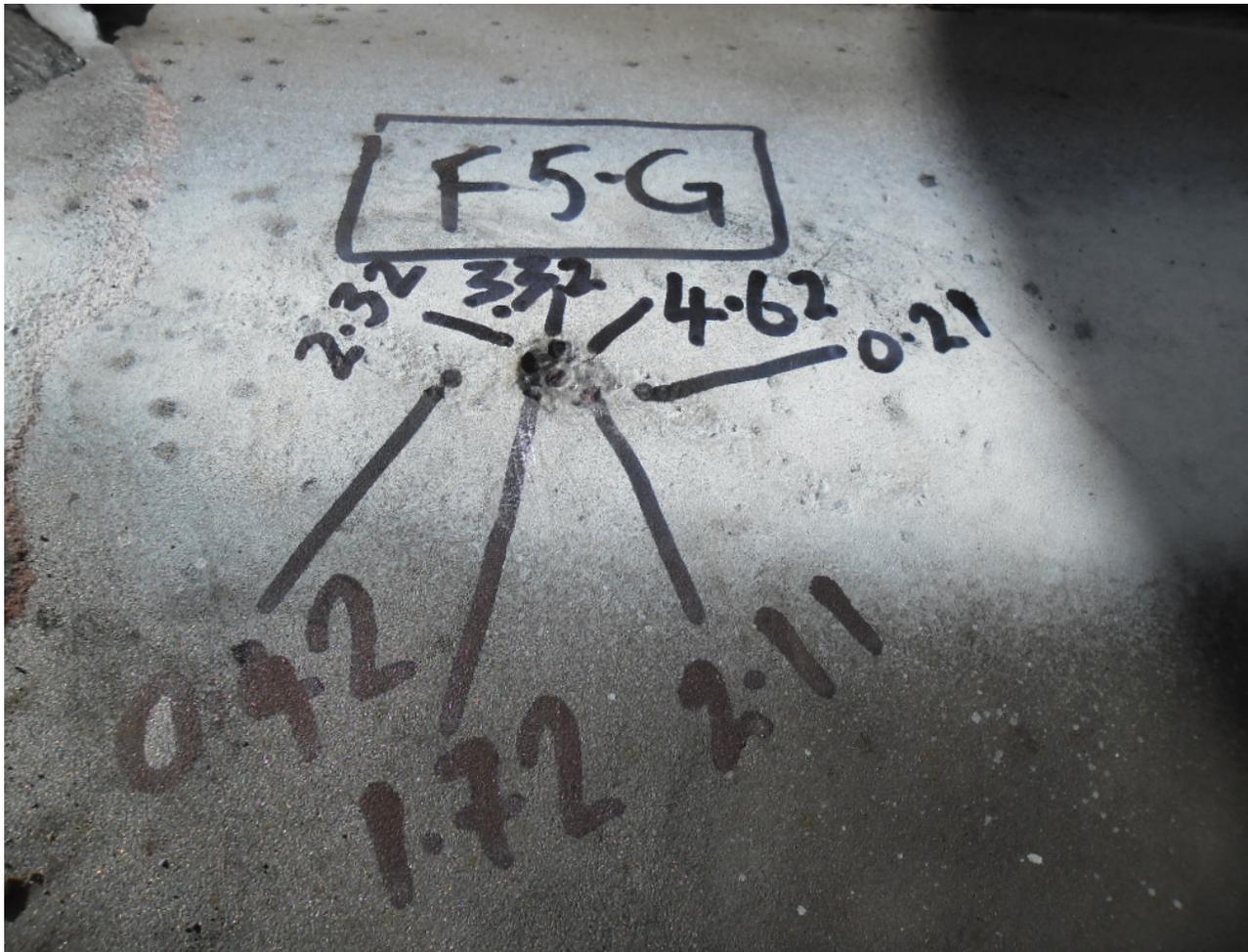
- Detailed Surveys



Peak 4.37 mm –  
34 % Loss of  
wall

## ILI Case Study

- Detailed Surveys



Peak 4.62 mm –  
36 % Loss of  
wall

# ILI Case Study

- Detailed Surveys



# ILI Case Study

- Sleeve Repair



**Thank You!**

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**Thank You!**