



# **UKOPA Technical Seminar**

**20th June 2007**

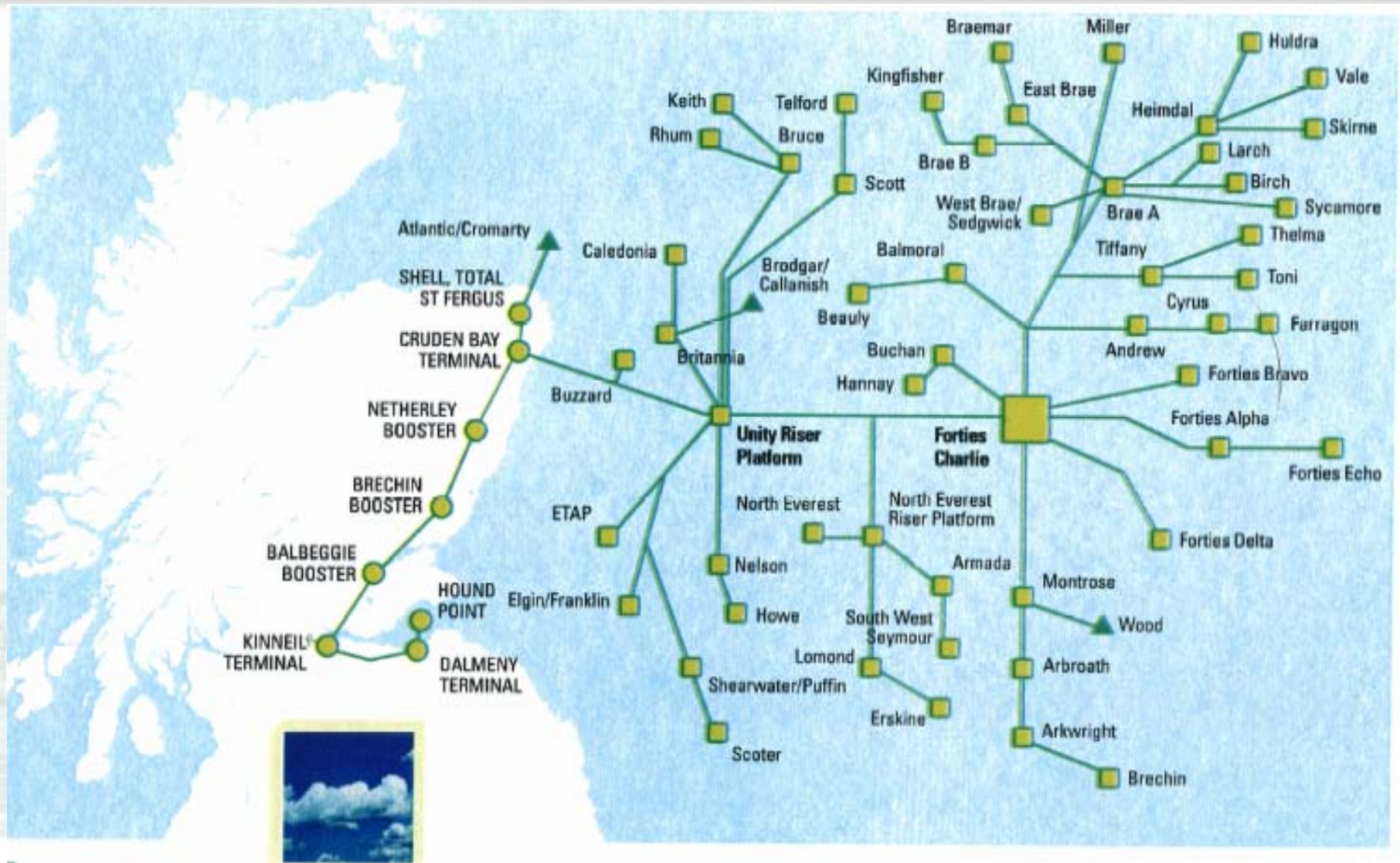
**Eakring Training Centre**

**“A PROPOSED SOLUTION TO A  
SPECIFIC PROBLEM”**

Mark Kelso

BP FPS Pipeline TA

# FPS System Map



# FPS, LANDLINE TECHNICAL INFORMATION



- **212 km long pipeline**
- **Outside Diameter 36" (915mm)**
- **9.5 mm wall thickness, 11.1mm at River Crossings**
- **Material API5LX65 (spiral & longitudinal welds)**
- **MAOP 63.9 barg**
- **Max Flowrate 1,070,000 barrels/day**
- **Today's Flowrate 690,000 barrels/day**
- **Currently transports over 40% of UK Oil and Gas supplies**



# FPS, LANDLINE TECHNICAL INFORMATION



➤ **Constructed over 2 ½ year period 1973-1975**

➤ **Commissioned 1975**

➤ **4-off Pumping Stations**

**Cruden Bay – installed 1978**

**Netherley – installed 1992**

**Brechin – installed 1978**

**Balbeggie – installed 1992**

➤ **18-off Valve Sites**

# FPS, LANDLINE INSPECTION STATUS



- **Pipeline first inspected 1980 using MFL**
- **Currently on 5 year inspection frequency**
- **Engineering review carried out 2004 to review pipeline after 30 years in service and to define any special inspection requirements**

## **Findings :-**

- ✓ **Continue with MFL technology for pipeline re-endorsement**
- ✓ **Utilise Caliper technology to inspect for dents and ovality**
- ✓ **Utilise Ultrasonic technology to inspect for laminations and cracks in welds**

## **Inspection Programme (delayed from 2005)**

➤ **Cruden Bay to Kinneil Terminal at Grangemouth**

➤ **10 vehicle program including :-**

**6-off single module cleaners (5-off brush, 1-off magnetic)**

**Profile Tool**

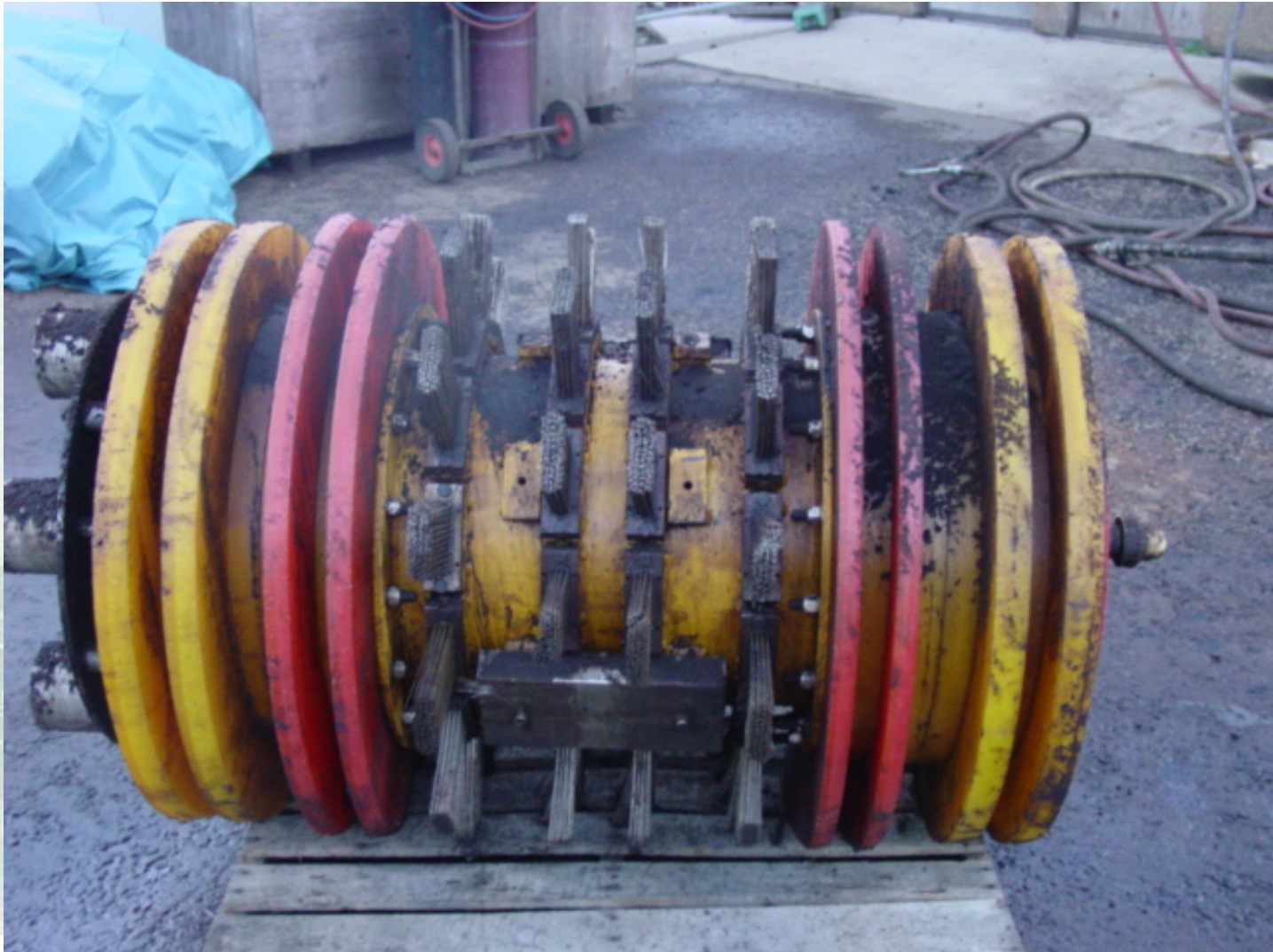
**Caliper** (Dent  $\pm 0.6\%$ , Ovality  $\pm 1.0\%$ )

**MFL** (Depth  $\pm 0.1t$ , Length  $\pm 10-20\text{mm}$ )

**USWM – perpendicular probes (laminations & wall thickness)**

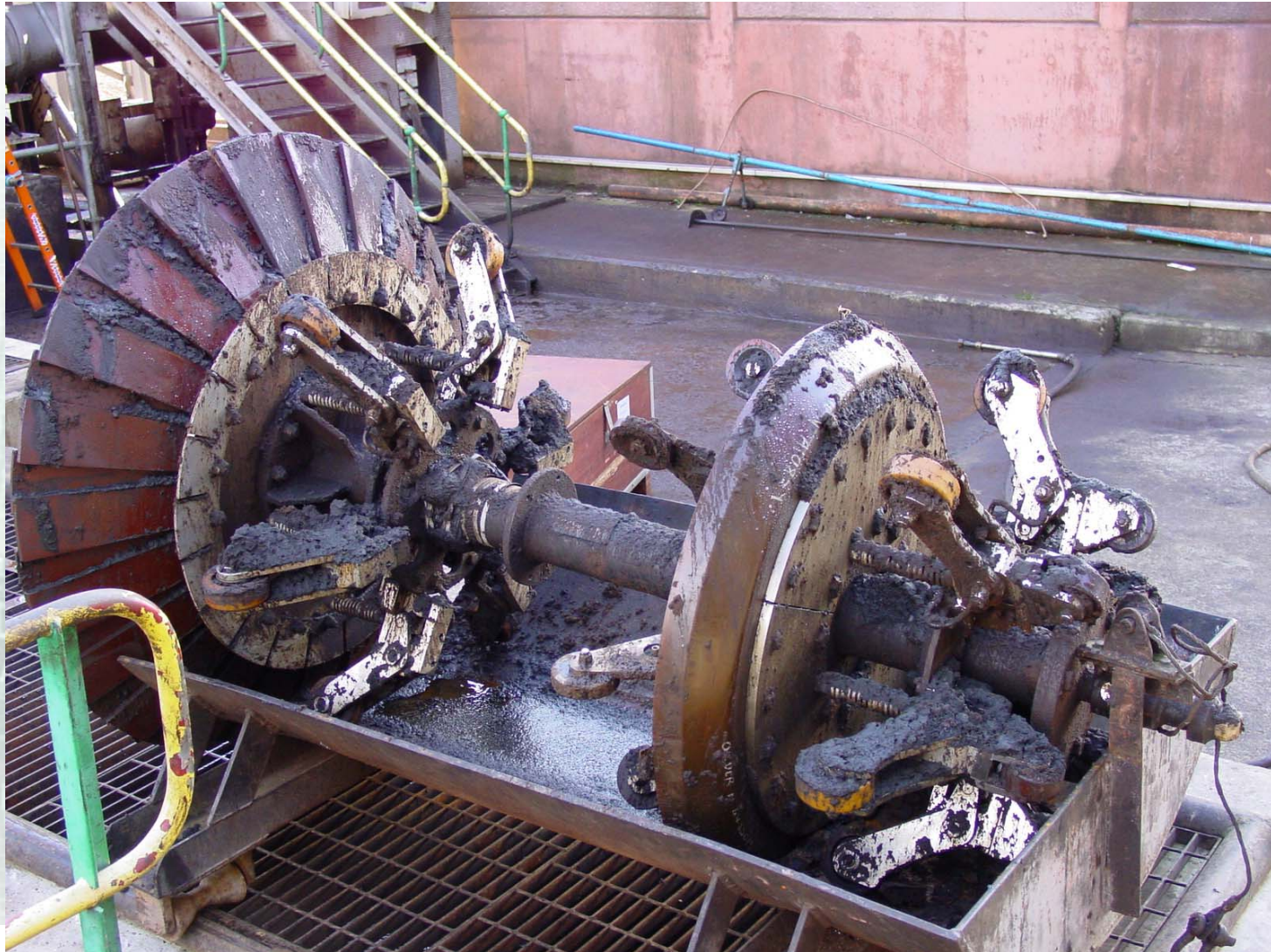
(Depth  $\pm 0.5\text{mm}$ , Lamination min 50mm)

# Cleaner#1 - Removal





# Profile - Removal





# Caliper - Removal





# MFL - Removal





# USWM - Removal

