

1300 or Bust

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Yorkshire Water's Modelling Objectives

- To complete its main modelling programme by June 2013
 - 68 Drainage Area Plans
 - 7 Multi Agency Studies
 - 59 WFD Studies
 - 8 Bathing Beaches Studies
 - Supporting DG5 programme



Overall FS Programme

- This contract is unique
- On average each FS tranche requires between 1300 and 1470 flow monitors
- YW have agreed 7 week turn around of FMs
- Will require detailed management of the process to ensure it is successful
- Programmed to complete in Sept 2012



Flow Surveys

- Forgotten element
- To achieve Company's stated objectives the FS forms the critical path
- It is also an expensive element
- AMP5 sewer modelling budget £35m
 - Flow surveys account for approx 35%



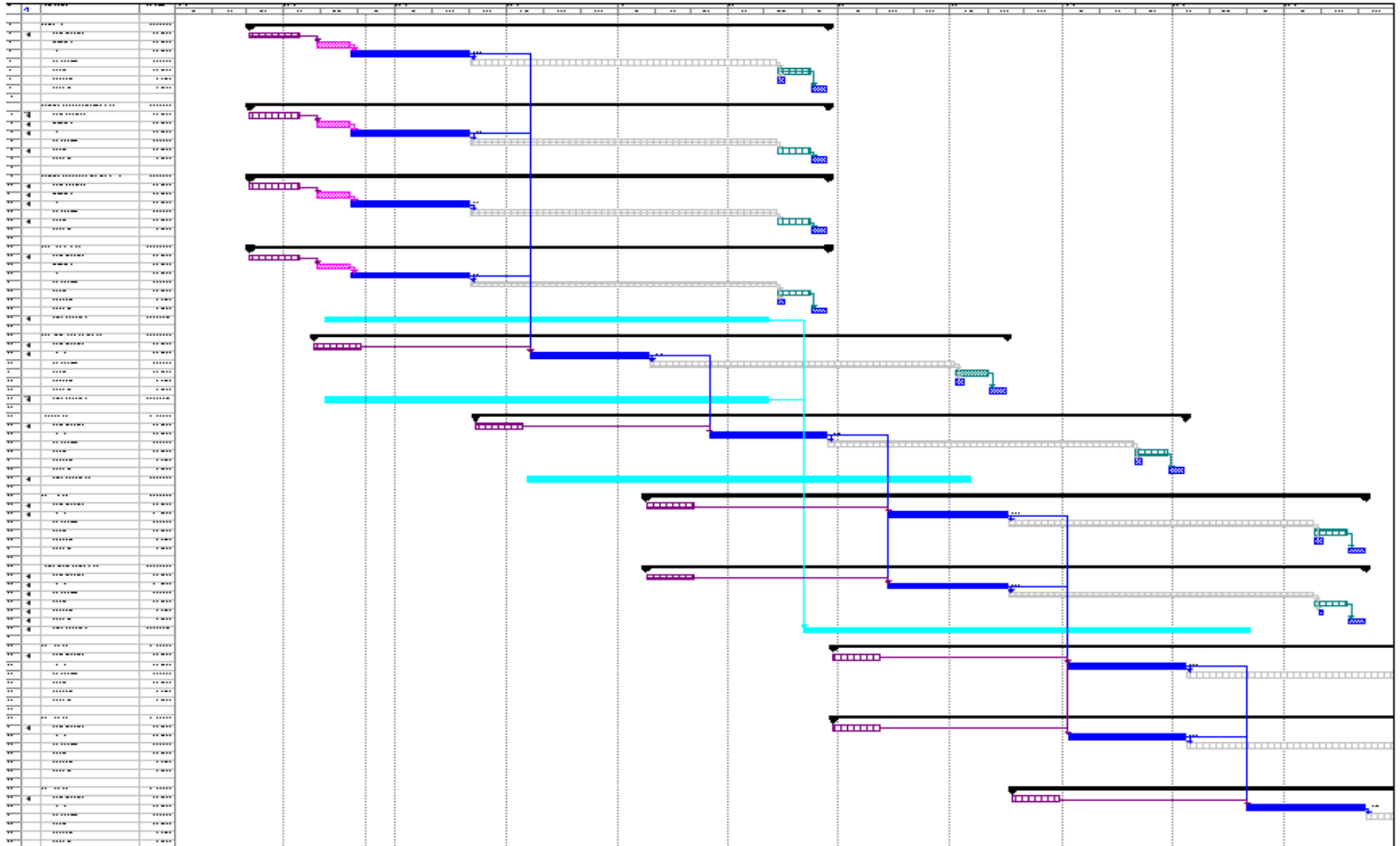
Reducing Costs not Quality

- Why are flow surveys so expensive?
- Analysis of process indicates manpower costly
- Why weekly visits
 - Not to download data – secondary
- To comply with clause 3.21 of the Model Contract Document for Short Term Sewer Flow Surveys
 - independent checks on depth and velocity.





FS Programme



Yorkshires Response

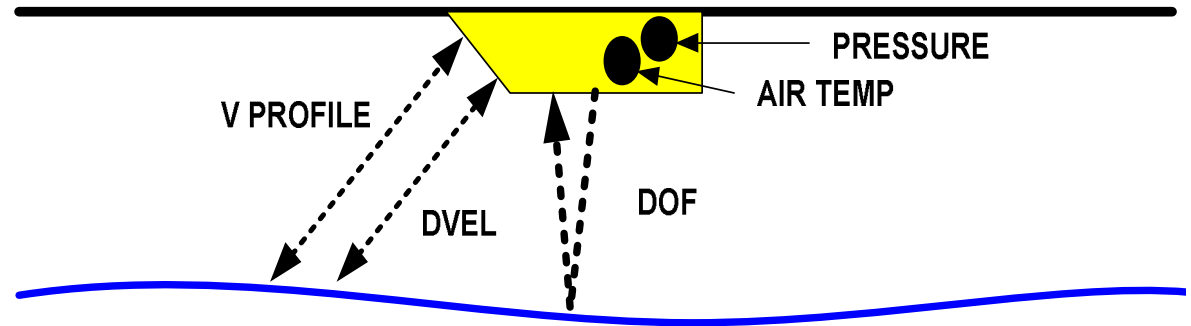
- Search for a monitor
 - a) that can self diagnose
 - b) doesn't require visit in 14 week survey
 - c) that is as reliable as existing advance monitors
 - d) that doesn't "cost the earth"
 - e) that is available in sufficient quantities to meet YW's requirements both now and future
 - f) provides live data that can be reviewed in "real time"



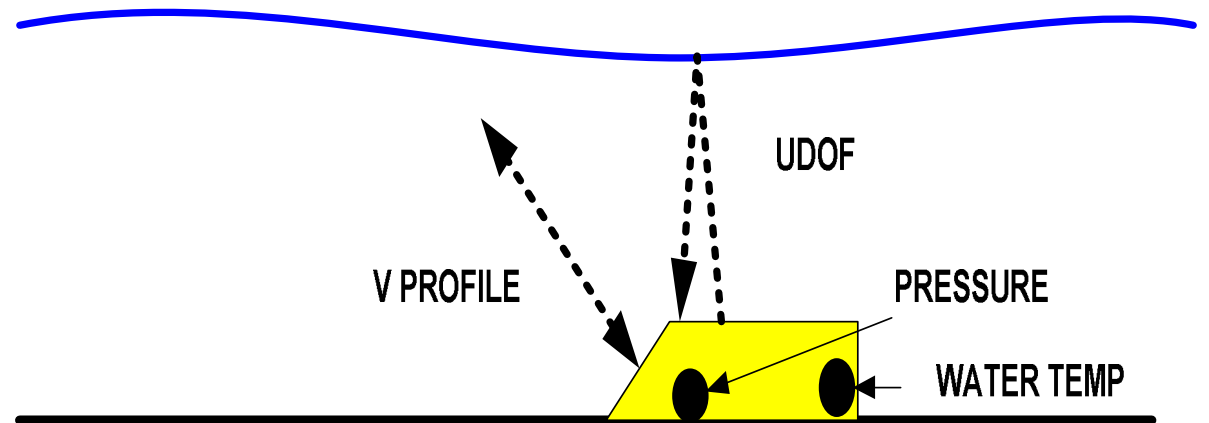
Configurations

- **Strategies:**

- Combo 3 for sites flowing so fast that flow sprays.
- Combo 2 and Combo 3 for cross checking:
 - Vprofile cross check DVEL
 - UDOF cross checks DOF
 - Pressure checked by DOF and UDOF.



Combo 3 – None contact velocity



Combo 2 – Pulsed doppler velocity



Assurances Required

- YW Directors required confidence in “deliverables” and costs predications
 - Obtained assurances from parent company in USA re deliverables
 - There would be a reduction in projected costs
 - Capability to meet programme.



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Tennessee's Flooding



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Other Challenges to Overcome (1)

- **Traffic Management Act 2004**
 - The Traffic Management Act was introduced in 2004 to tackle congestion and disruption on the road network. The Act places a duty on local traffic authorities to ensure the expeditious movement of traffic on their road network and those networks of surrounding authorities. The Act gives authorities additional tools to better manage parking policies, moving traffic enforcement and the coordination of street works.
 - Permit Schemes – specified times, embargoes and extent of resurfacing.
 - Fixed Penalty Notices – “lane rental” and “overstaying charging powers”

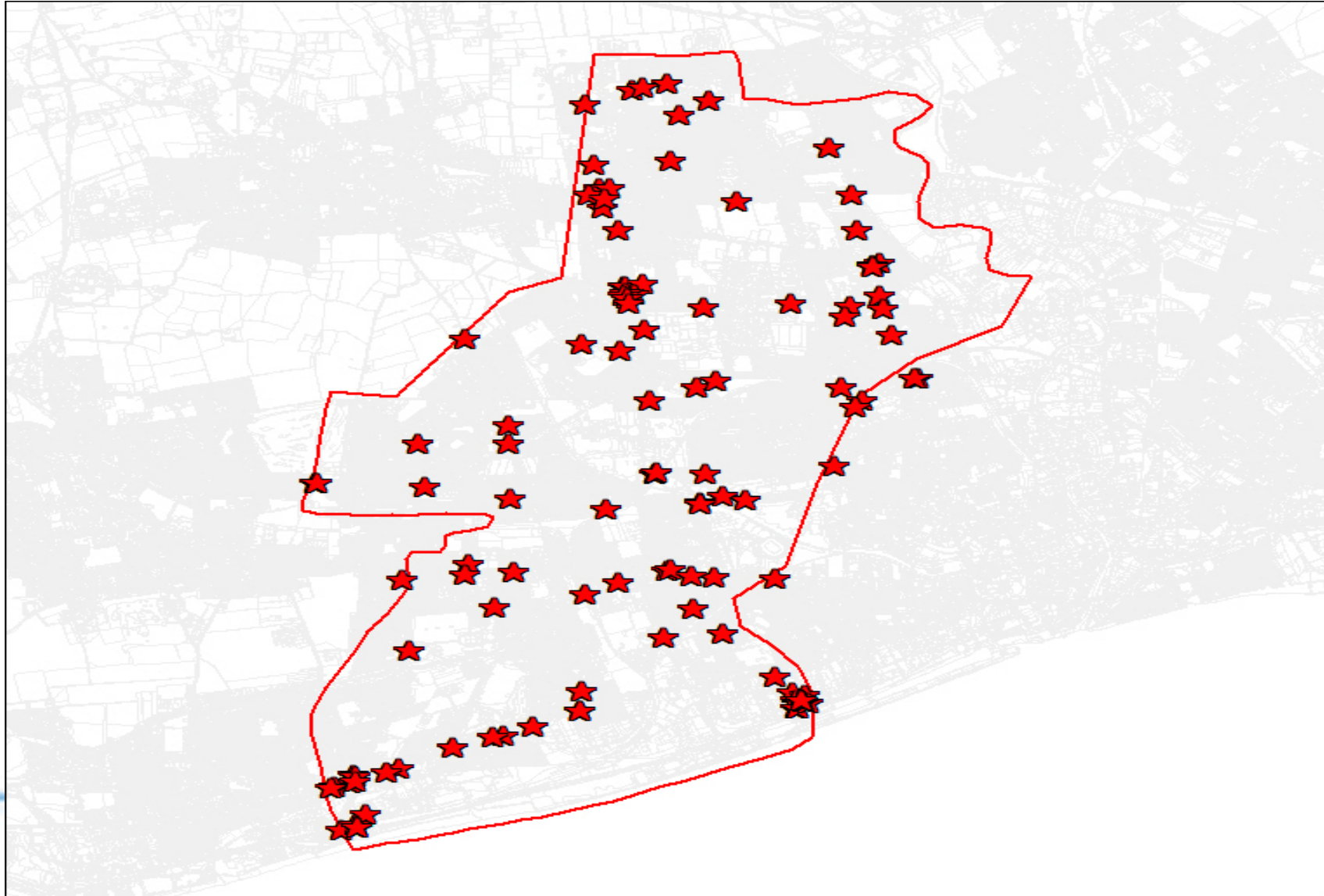


Other Challenges to Overcome (2)

- Giving “contractors” access to YW corporate systems and training how to use them
- GSM signal coverage poor in rural areas
- Large pump refurbishment programme
- Accuracy of sewer records
- Resources
 - Contractors
 - Consultants



105 Monitors in One DAZ

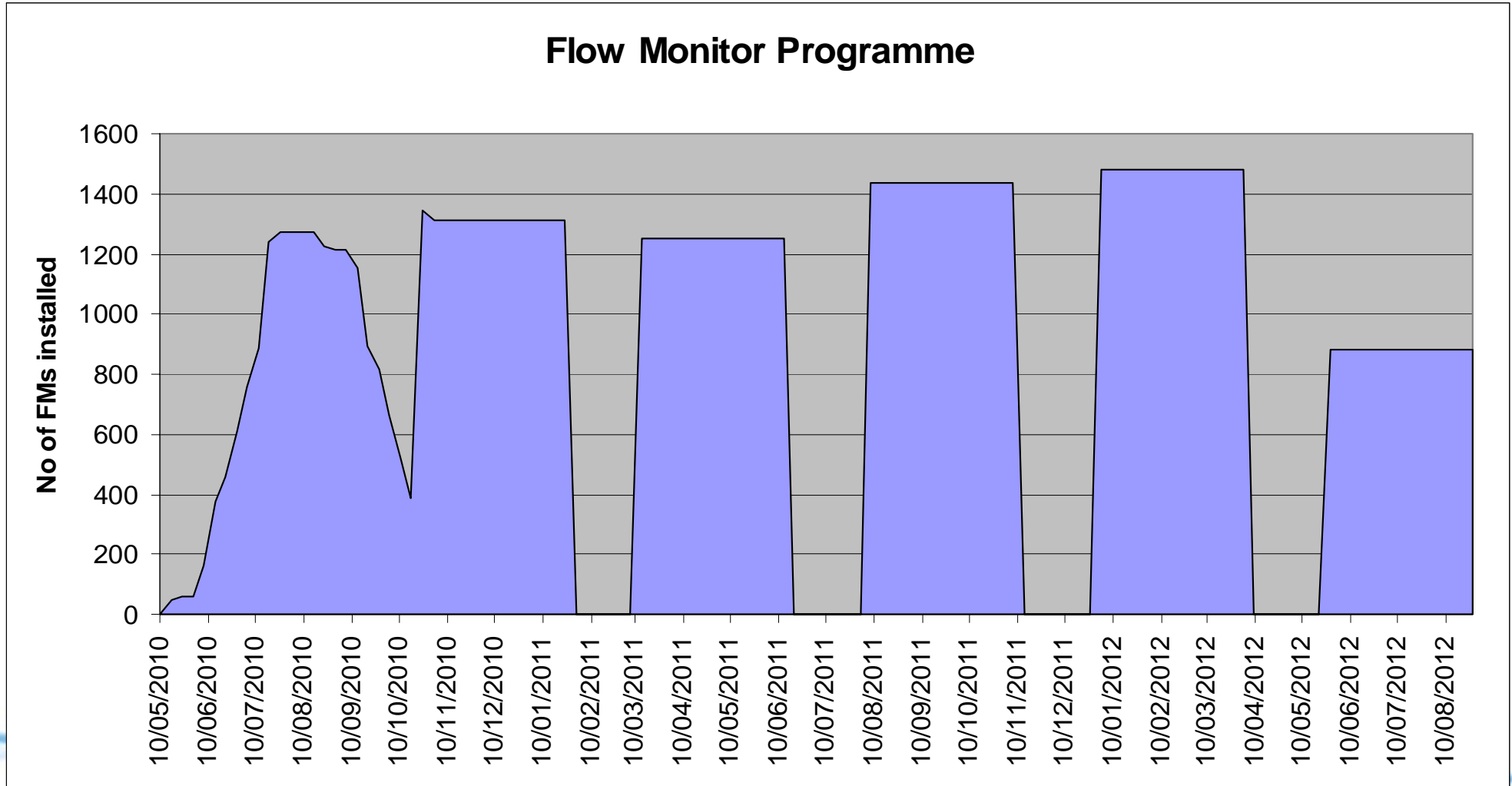


Contractors

- 1440 flow monitors
 - Install / Reinstall (8 FM per day)
 - Remove (10 FM per day)
 - Calibrate
- Peak loading of work v staff resources
- Sequence has to be completed in seven weeks
- FM reliability part of KPIs



Installation Blocks



Consultants

- Investigations
 - Imperative that FM location is agreed early
 - Raingauge sites becoming harder to find
- Data handling
 - Not difficult but to do efficiently could take up to 6 modellers to manage
 - If FMs remain in after appropriate storm data obtained it will be costly for Consultant.



Instrument Management (1)

- Probably the most important part of the FM exercise
- REM upto 1450 FMs in the ground at any one time
- Spread between Staites and Chesterfield – Earby and Hull
- Small group of one from each consultant + IETG + YW



Instrument Management (2)

- Where the FM is
- Is the FM performing within prescribed criteria
- Is the data being analysed as it is received
- Where is the FM going next.



Conclusion

- Its ambitious and exciting programme
- Its started slow but its now gaining momentum
- Teamwork is paying benefits
- Looking good for meeting targeted end date
- BUT the story is only just beginning

