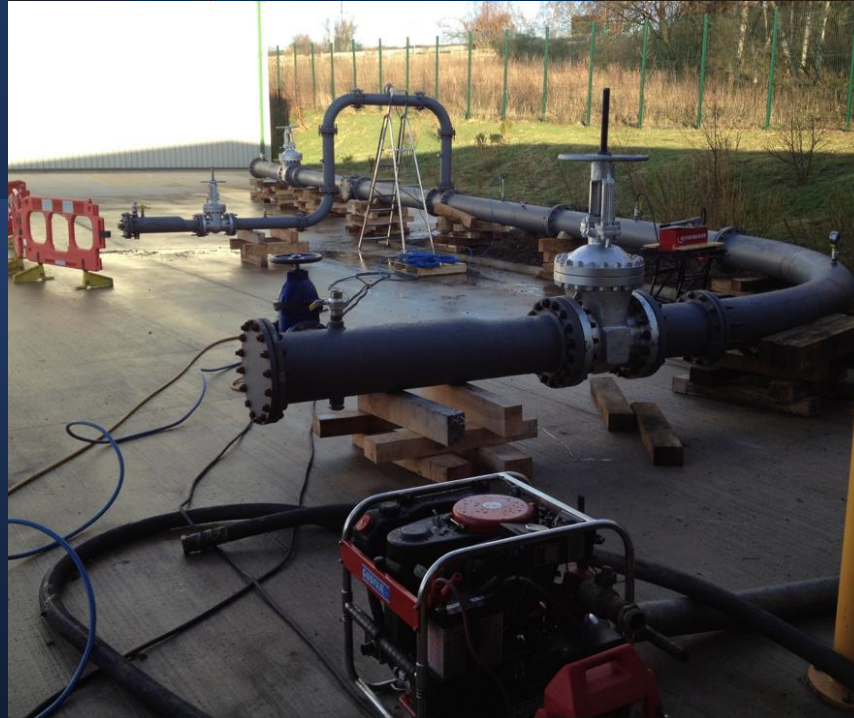


Pig and Inspection tool trialling



Pigtek Overview



Pigtek are leaders in providing specialist pigging products and services to the international oil, gas and water pipeline industries. Our products and services are focused 100% on pipeline pigging and associated equipment for applications where “standard” equipment is not performing or cannot perform.

The team at Pigtek are formed of individuals that have many years of experience in running these types of pig / inspection tool trials along with an in-depth knowledge of pipeline operating conditions, thus are well versed in supplying a service that reflects any potential pipeline pigging scenario.

Pigtek have been trialling many different sizes and types of pigs and inspection tools since 2001.

This ability to trial pigs onshore prior to subjecting the pigs to live pipeline operating conditions has been invaluable to clients globally, thus ensuring that the pigs perform as designed and without hindrance to ongoing pipeline operations.



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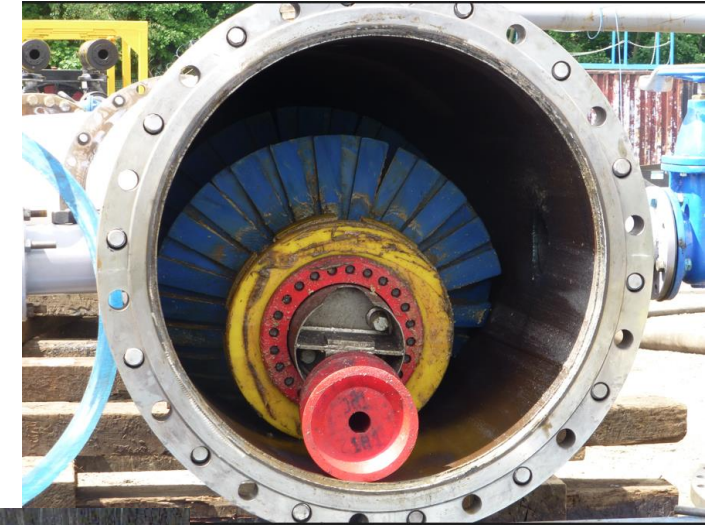
Pipeline Scenarios



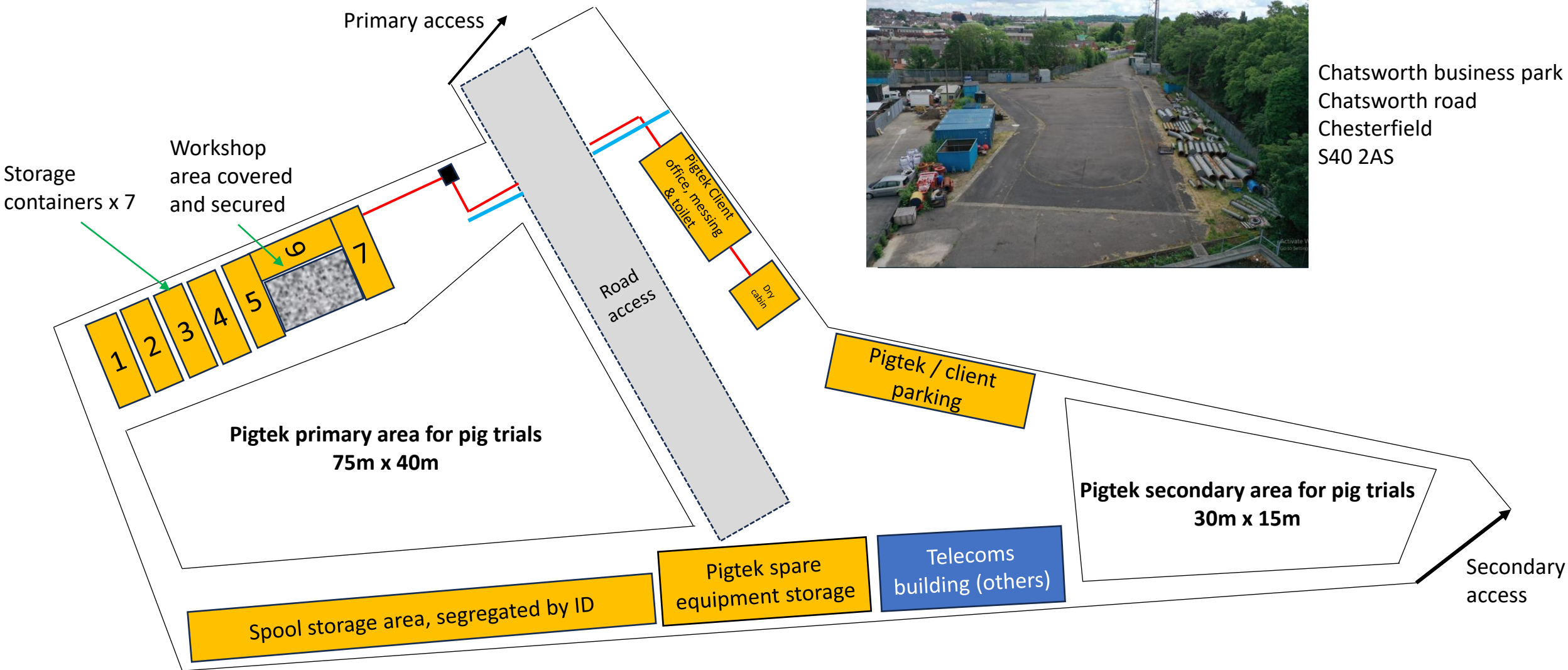
Do your pigging operations have the following issues now or in the future:

1. Has the pipeline been modified / designed with varying ID changes?
2. Is the pipeline being tied into an existing pipe via Drop-In tee?
3. Has new pipeline infrastructure been installed, wye piece, etc?
4. Is the pipeline fitted with short radius bends?
5. Has the pipeline flow conditions changed?
6. Do your pigs interact with other pigs in the pipeline system?
7. Is there excessive debris or an obstruction in the pipeline?
8. Do you need the pig to travel in a pipeline diameter greater than the pig's diameter
9. Are your current pigs suffering from high rates of wear?
10. Or a combination of any of the above?

Trialling of pigs to simulate any of the pipeline issues above prior to putting the pig into service is the best way to reduce risk and to ensure trouble free operational pigging.



Pig Trial Facility

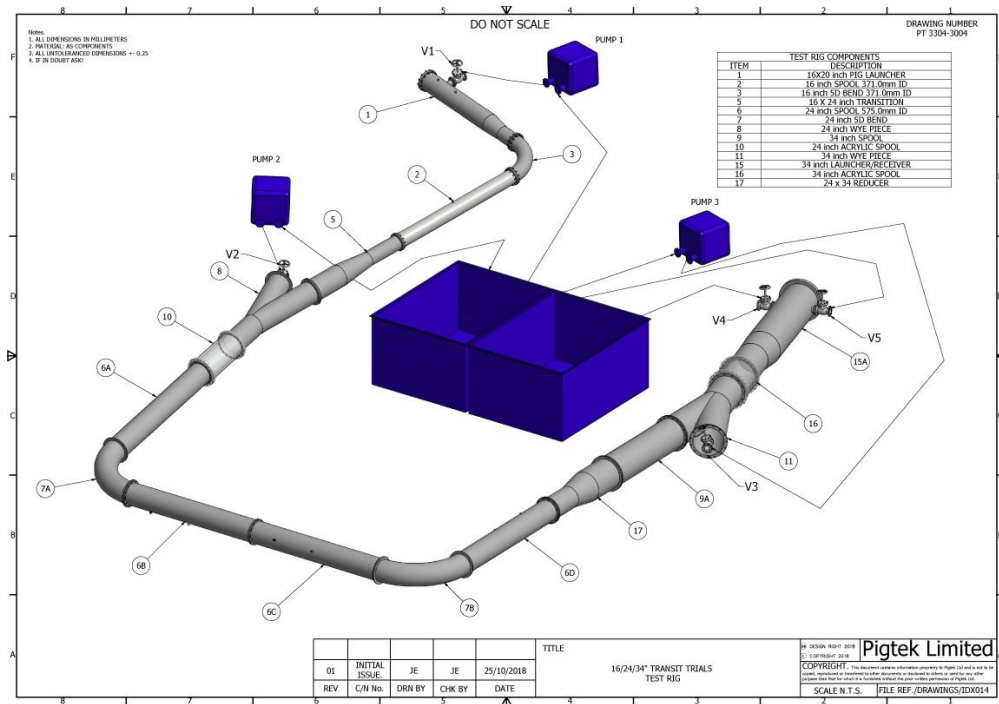


Chatsworth business park
Chatsworth road
Chesterfield
S40 2AS

Engineering & Design



Pigtek aim to deliver a bespoke service to your pigging requirements. With a focus on replicating your pipeline operating conditions and ensuring that the planned trials are based around giving the client as much information and assurance as possible that the pig is indeed fit to enter the pipeline.



Engineering timeline

1. Kick off meeting held to discuss the pipeline system and planned pig / inspection tool trials.
2. ID bore map of the pipeline and drawing(s) of the pig trial rig prepared by Pigtek, based on client supplied data.
3. Detailed procedure prepared by Pigtek for client A01 review.
4. Risk assessment held on the scope.
5. Detailed procedure updated with client comments along with findings from risk assessment and issued as final P01.
6. Daily reports issued throughout the scope execution.
7. Final report issued detailing all activities and findings.
8. If required, non-routine pigging endorsement populated in readiness for review with client SME, including participation in non-routine pigging risk assessment to validate pig designs to be used.

Equipment & Instrumentation



Pipework

Pigtek have a significant number of pipe spools, pig launchers / receivers, wyes, & tees in stock. This will always be our first port of call to save the client money, before fabricating any new bespoke spools.



However, if our current stock doesn't fit the bill then we have a team of dedicated suppliers to provide us with the exact spool of choice for your pig trial.



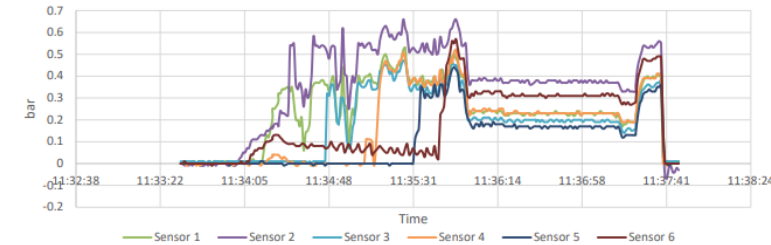
Pumps

As each pumping operation is different, Pigtek can support a range of flowrates from a few litres per minute up to 50m³ per minute either from Pigtek in-house pumps or via a dedicated pump suppliers.

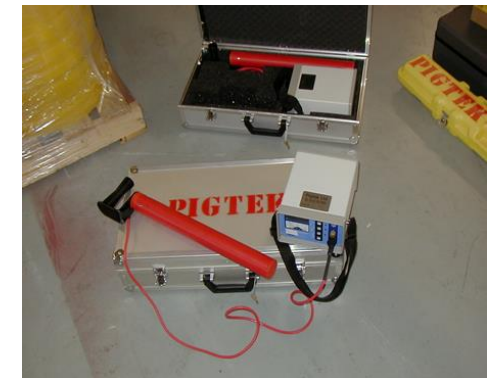


Instrumentation

Pig trial rigs are set up for monitoring flow, pressure and pig location. A multi-channel data logger is utilised to record data for analysis.



Pig tracking around the trial rig is very important to aid continuous tracking of the pig's position while passing through the rig.



Pig Trial Services



Pigtek, Chesterfield - Pig trialling facility

All pig / inspection tool trials are undertaken at Pigtek, Chesterfield, UK. The facilities include the following:

1. Dedicated Pigtek team to facilitate all trials scope.
2. 5000m² hard standing area to allow one or more trial rigs to be housed at any one time.
3. Client office c/w wi-fi, toilet & messing facilities provided.
4. Onsite equipment storage & workshop.
5. Onsite forklift and telehandler provided for pig loading and recovery.
6. Mains electric and water provided.

Each pig trial rig is built of bespoke equipment to reflect each pipelines unique design, similarly equipment pumping packages are individually tailored to suit the pipelines flowrates.



All pig trial operations are performed in a water filled environment.

Due to the nature of the operation, the use of compressed air to propel pigs is not an option unless thoroughly risk assessed.

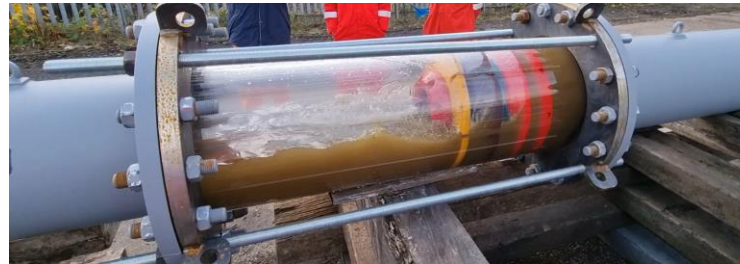
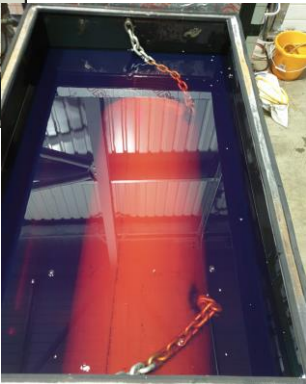
Pig Trial Services (cont)



In addition to passing pigs through a pig trial rig, Pigtek perform several other tests to confirm that your selected pig design is indeed fit for purpose. In addition, Pigtek can also carry out minor fabrication modifications where necessary should your pig design need this during the pig trials.



Dual diameter pig undergoing heat trials in diesel at 50 °c whilst in a compressed state



Pig passing through clear spool section in trial rig.



Wax simulation in pig trial rig



Urethane abrasion testing



Dual diameter pig tow arm pull test