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2024 TECHNICAL AWARDS ENTRY FORM

Entry Deadline: Friday 19th April 2024

Please tick which categories you are entering (entries may be submitted in multiple categories using the same entry form)

- Large Diameter Pipeline Project Award
- Large Diameter Pipeline Technology Award
- Utility Pipeline Project Award
- Utility Pipeline Technology Award
- Subsea Pipeline Award
- iICE Award
- Health & Safety Award
- Net Zero Carbon Award

1. Brief title of entry: pCAT™ Long Range Subsectional Pipe Deterioration Assessment.....

2. Company name: Hydrosave

3. Signed: 

4. Date: 22nd March 2024.....

5. Company contact name: Stuart Williams.....

6. Telephone: 07776 589218

7. Email: swilliams@hydrosave.co.uk

8. Precis of your entry (50 words): pCAT™ is a long range non intrusive technology which allows an asset owner to identify subsectional wall loss, lining deterioration, delamination, air/gas pockets, restrictions, existing repairs, connections and valve status over long distances without the need for excavation or isolation.



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9. **Summary of entry:** pCAT™ is a non-invasive, non-destructive technology for performing pipe..... condition assessment whilst the network remains in operation. This patented technology uses inverse transient analysis to measure and determine the internal and external condition of pipes; and is suitable for any pressurised fluid filled pipeline carrying wholesome, raw or wastewater; it can be applied to all metallic, concrete and AC pipes. pCAT™ works by analysing the partial reflection of a small controlled transient signal that is injected into the pipeline. This signal is monitored and recorded by .. sensors temporarily placed on existing assets at approximately 750m intervals. The transient wave experiences partial reflection when it encounters any change in pipeline structure, including known..... features of the system as well as other issues related to pipe deterioration (wall thickness), air/gas..... pockets, blockages, material/size changes, lining loss, unknown connections; and valve status. Similar technologies exist for long range condition assessment utilising acoustic methods to obtain an average wall thickness between sensor locations; however, pipe corrosion does not occur uniformly ... throughout a network and therefore 'average wall' measurement does not represent the true nature of . deterioration. pCAT™ surveys sections typically at 750m intervals using existing assets such as air..... valves, hydrants, or washouts; which results in approximately 10m subsectional data for the whole..... survey length. This methodology identifies and locates small defects or 'hot spots' within long stretches of pipeline allowing for replacement or rehabilitation techniques to be limited to those sections in need of attention and thus limiting capital spend.

.....
In summary, pCAT™ is a true game changer to the water utilities sector in that it can survey many miles in a single day without causing any disruption to supply, zero water quality risk, it's a no dig solution .. that gives sub 10m sectional accuracy verified to 0.2mm compared to point contact conventional methods of NDT. In line with PR24 whereby water companies must monitor deterioration of their. Infrastructure; pCAT™ does exactly that when used over set periods of time; as the overlaid data will provide the exact deterioration of the asset over that period. This will also assist when modelling deterioration for similar assets within the network.



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Ancillary Entry Information

(Entry is restricted to normal type face and font size on this form plus no more than 5 pages of A4 drawings or photographs)

Links to external videos or demonstrations are allowed.



pCAT wave shown on Toughbook



Wave generation point with monitoring transducer.



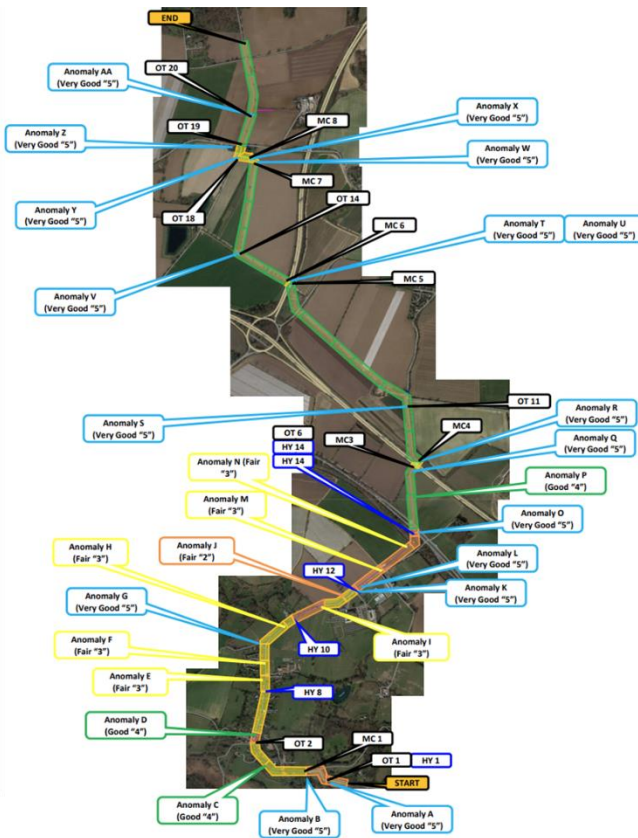
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Monitoring location showing GPS system, Toughbook and Pressure Transducer.



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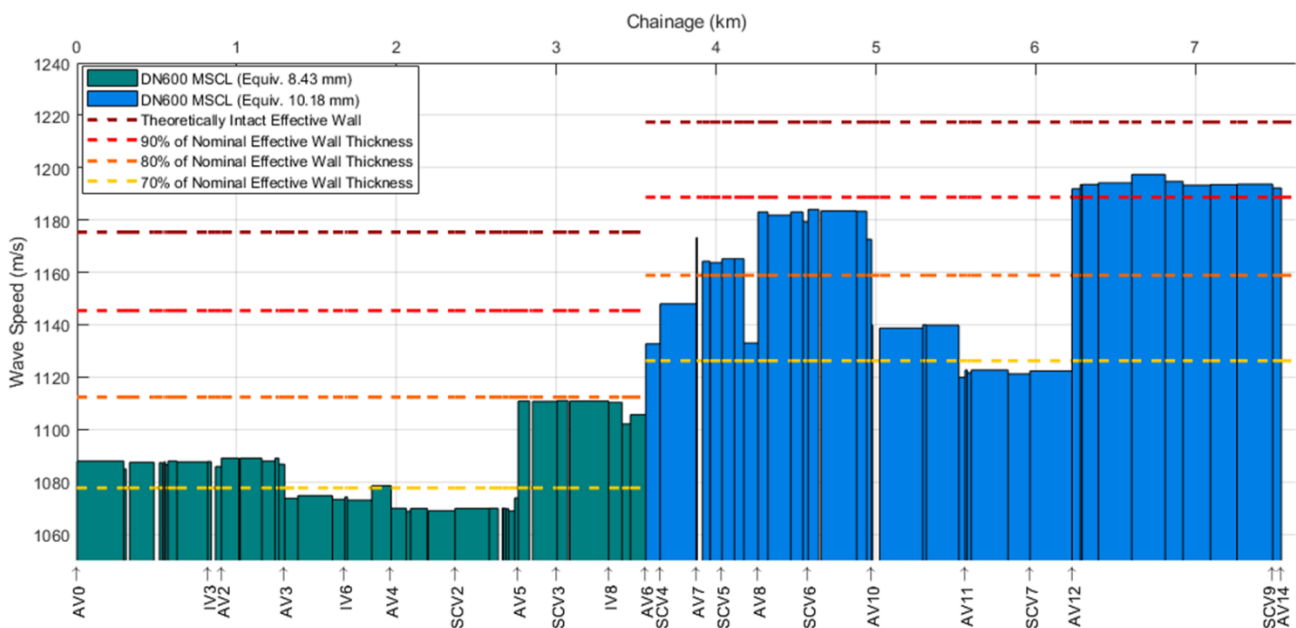


- **Very Poor:** The detected anomaly indicates a location of probable failure; it is most likely interrupting the system serviceability and is vulnerable to bursts and leaks.
- **Poor:** The detected anomaly indicates a location of possible future failure; it is potentially interrupting the system serviceability and may be vulnerable to bursts and leaks.
- **Fair:** The detected anomaly does not correspond to any known system components and/or requires corrective maintenance
- **Good:** Known anomaly requiring some maintenance or Unknown anomaly not corresponding to any known system components.
- **Very Good:** The detected feature corresponds to known system components based on the collected system information.

Subsection Priority:

- 90 – 100% Remaining Wall
- 70 – 80% Remaining Wall
- 0 - 60% Remaining Wall
- 80 – 90% Remaining Wall
- 60 – 70% Remaining Wall
- No condition assessment

Visual display of assets along with sectional deterioration grading.



Subsectional view of pipe wall thickness compared to Intact Wall as per Standard.