

IQ INTEGRITY - ONE Software Fabric Maintenance Client Case Study: June 2017

(June 2017: an IQ Integrity client kindly provided this version of their UK North Sea Facilities Fabric Maintenance Case Study management presentation. This compares standard workflow and spreadsheet / documentation versus enhanced inspection and fabric maintenance workflow, supported by a ONE asset integrity software solution.)

ONE AIM – UK North Sea Facilities Fabric Maintenance Case Study

Standard workflow and spreadsheet/documentation versus enhanced workflow supported by a ONE software system.

Summary

This case study is constructed from 2016 data and, compared across three platforms.

Our company Inspection and FM procedures and process improvements have been coded and embedded into ONE, meaning every anomaly is reported, review and assessed against our standards consistently across our facility base.

On these platforms, implementation of a pro-active Fabric Maintenance (FM) and Inspection strategy and workflow, which is supported by our ONE integrity management software, has been the foundation and fundamental in realising significant efficiency increases & cost savings, during Inspection reporting and FM execution.

Comparisons are:

- Reduction in average cost per anomaly: £3858.00 (£4778.00 vs £920)
- Increased anomalies close-out: Platform B 53 (2015) vs 724 (2016) **
- Inspection reporting efficiency: +36%

The ONE system offers huge benefits in conjunction with a pro-active FM workflow:

- Efficiency and productivity increase
- Cost reduction
- Providing a full audit trail, data consistency and control.
- Rationalising data repositories
- Clear alignment of Anomaly, Defined Life Repair and FM task tracking.
- Offshore execution and onshore preparation.
- Client 'owned' system and data - future proofs and de-risks service provider contract changes.

** (242 anomalies closed out in last 4 months of 2016. $(242*3) = 724$ Full Year)

Platform Comparisons

Asset Information

Three Platforms selected of similar size and age to enable a harmonised data set and closer interpretation of results.

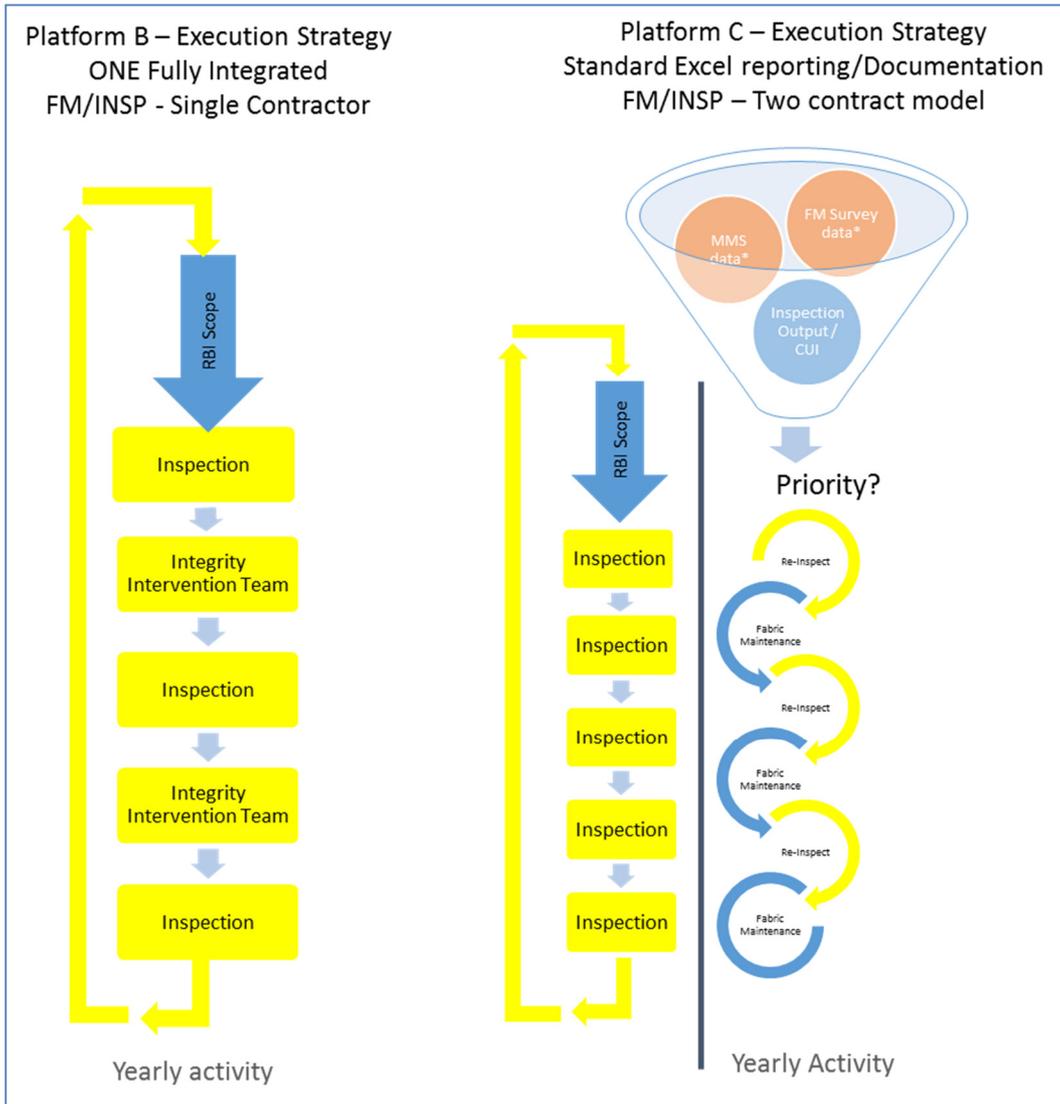
	Commissioned	Age	Size	Tonnage	Producing	Metallurgy	Type	Integrity Contract Model	ONE Supported
Platform A	1992	24	9,000	16,500	Condi & Gas	Carbon Steel	Steel Jacket	INSP/FM Combined	Yes
Platform B	1992	24	10,400	21,100	Condi & Gas	Carbon Steel	Steel Jacket	INSP/FM Combined	Yes
Platform C	1992	24	9,100	18,200	Condi & Gas	Carbon Steel	Steel Jacket	INSP/FM Separate	No

Key points (Work-flow differences)

The significant differences in our platform workflows and execution strategies are listed in this table. There is clear evidence that moving away from the 'standard methodology' has benefits for integrity of all platforms, for transparency of risk and remedial actions and, a streamlined workflow.

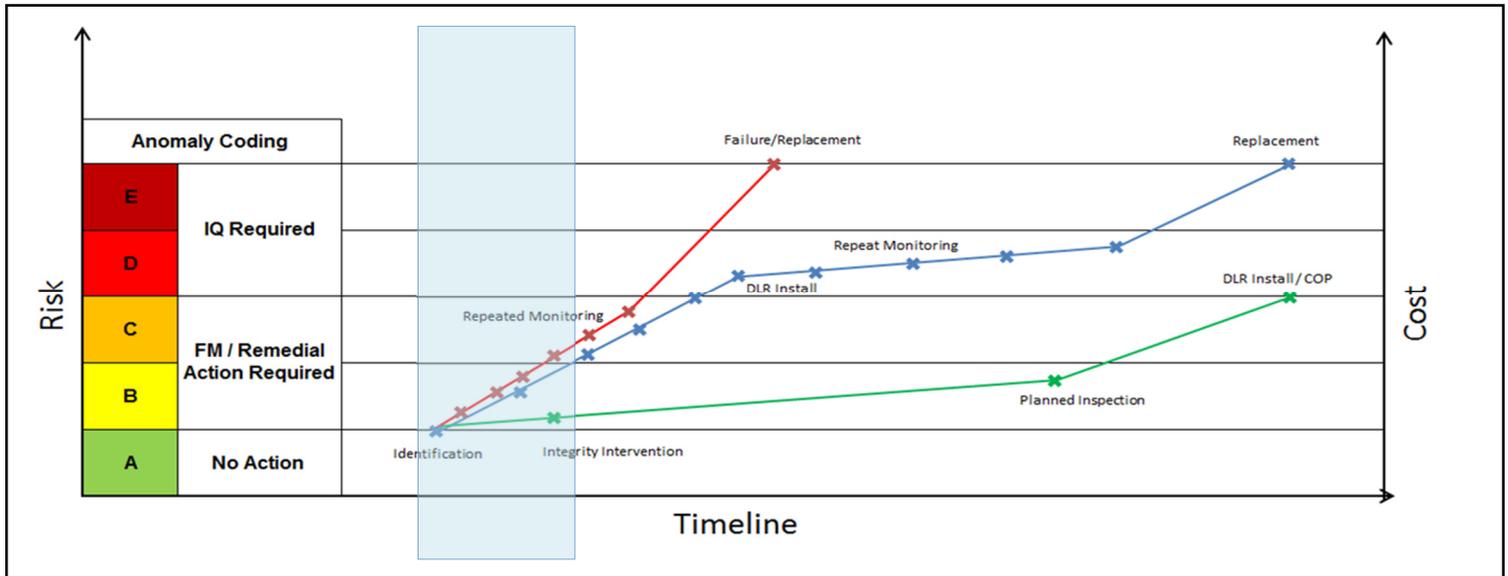
Platform B – Execution Strategy ONE Fully Integrated FM/INSP – Single Contractor	Platform C – Execution Strategy Standard Excel based reporting/documentation FM/INSP – Two contract model
Minimised Data Handoffs	Multiple interfaces both on and offshore
Single entity system	Multiple data repositories and hand-offs
Current Inspection Data utilised to execute FM (Live-line Blasting Limitations)	Multiple site revisits and inspection activity to facilitate FM
All scope captured via inspection input and discipline engineer review.	Multiple inputs into FM priority (* independent from Risk Based approach)
Direct credit taken for executed FM in RBI reassessment	No hard wire connection between FM executed activity and RBI reassessment.
Aligned Contractor KPI's to full lifecycle risk reduction	Fragmented approach multiple activity owners
Clear demonstration to facilities regarding approach/intent and success factors	
Clear articulation of facility threats and risk profile	
Clear ownership of offshore scope	
Combined Planning process. Aligned conservation/decision making	

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Anomaly Classification

Utilising the system reporting and task functionality re inspections are minimised to facilitate integrity interventions. The differences in approach to anomaly management are illustrated on this chart.



Blue box indicates live line blast window

Crosses are Integrity activities (Inspection, FM, Repair and replacement)

An uncontrolled or worst case scenario (red line) to anomaly management, we continue to inspect a FM anomaly and do not mitigate until the component fails or requires replacement. The potential for situation (although rare) is exacerbated by poor data control and workflow management.

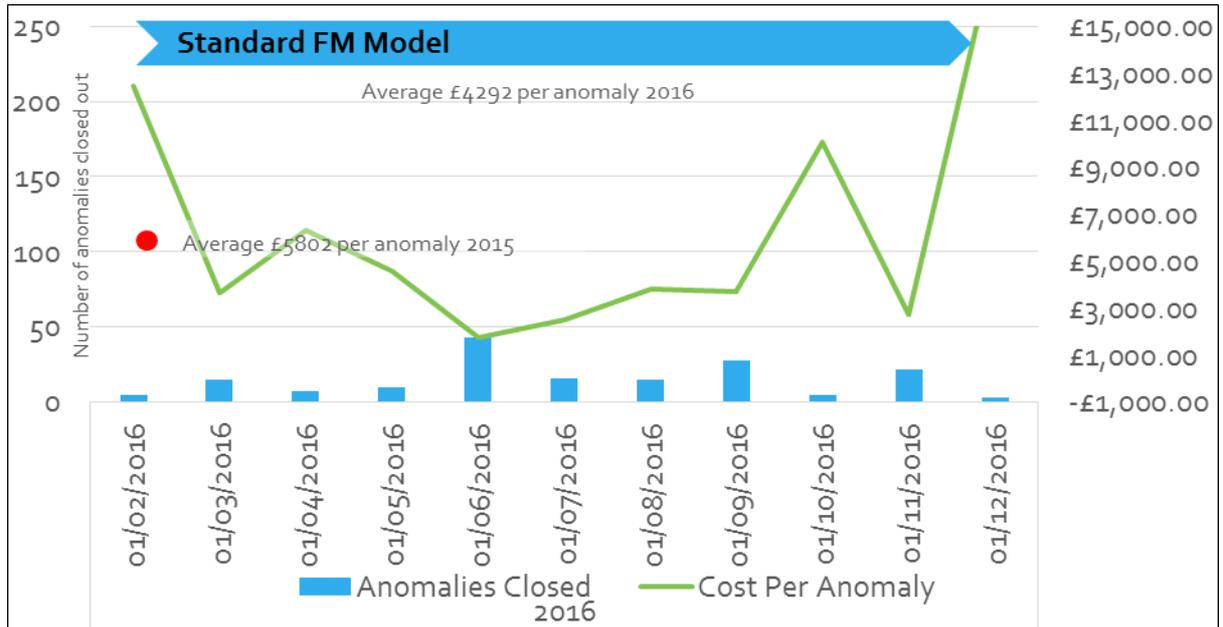
Our historical approach (blue line) to anomaly management, we inspect the FM anomaly frequently. With no FM intervention thereby increasing our inspection costs until a point where we need to mitigate with a DLR/Temporary Repair and ultimately increasing the cost. Then we inspect/monitor the mitigation until the component requires to be replaced.

With pro-active optimised workflow (green line), we carry out an appropriate and timely FM mitigation in line with our Live line blast intervention period. This generally enables us to push out the next inspection to the following RBI cycle and reduces or removes the requirement to monitor less than the RBI interval. Following that inspection we, if required, install a DLR/Temporary repair or further FM certified until cessation of production

Here we reduce our known risk and requirement to repeatedly inspect without mitigating the issue, supported by the knowledge management in our ONE system.

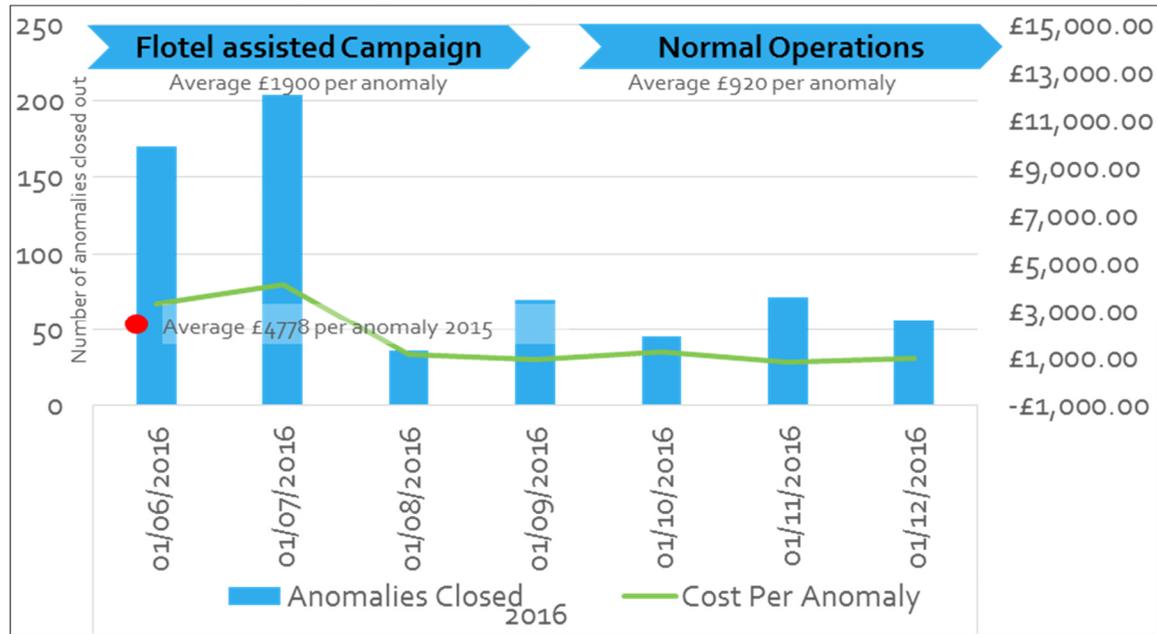
2016 Cost per Anomaly Closed Out

Platform A - No ONE System or pro-active FM



- Costs as per standard FM model.
- Repeat inspection to facilitate intervention.
- Standard Coating system and approach.
- Disjointed anomaly close-out QA/QC.
- 2015 Fabric Maintenance Total Spend: £202,629.00
- 2015 Platform A Cost Per Anomaly: £5802.00
- 2016 Anomalies closed out: 172
- 2016 Average cost per anomaly: £4292.92
- Reduction in average cost 2015-2016: 27%

Platform B - ONE Fully Integrated and proactive FM



- Integrity Intervention team
- Reduction of inspection burden
- Asset Integrity Provider fully accountable to deliver end to end solution
- Targeted anomaly approach, rationalised coatings.
- Combined close-out.
- Clear/Live concise Integrity driven metrics
- 2015 Fabric Maintenance Total Spend:£255,309.00
- 2015 Platform B Cost Per Anomaly: £4778.00
- 2016 Anomalies closed out: 1133 (Flotel Assisted)
- 2016 Average Flotel Cost per anomaly: £1900
- 2016 Post Flotel cost per anomaly: £920 (System and processes fully established and integrated)

Inspection Reporting

Systemised Inspection and anomaly reporting has realised increased efficiency levels; whilst also increasing reporting standards and auditability.

Platform B – ONE Fully Integrated		Platform C – Not Supported by ONE	
Total inspection reports	732	Total inspection reports	868
Inspection man-days available	696	Inspection man-days available	1312
Cost per Inspection Report	£831.00	Cost per Inspection Report	£1,011.18
Man Hours per inspection activity completed/Reported	7.8	Man Hours per inspection activity completed/Reported	12.3

Targeted Reporting - Integrity Led & Performance Driven

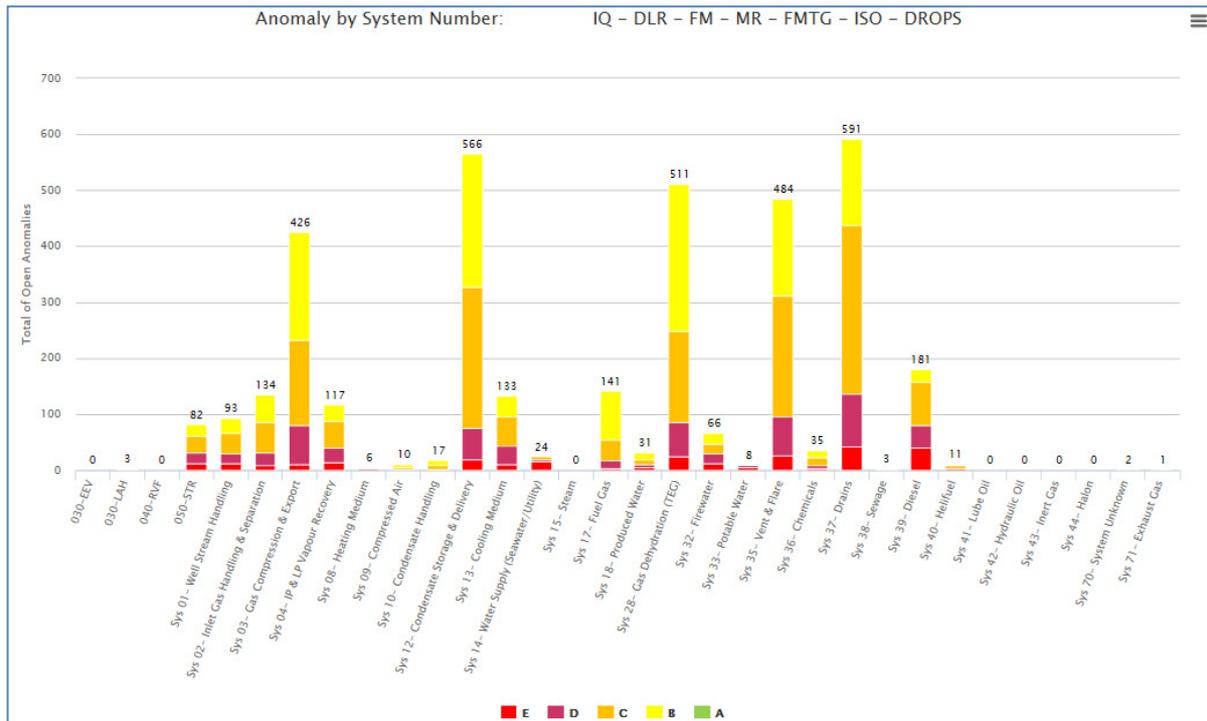
System - Integrity threats

All Anomalies risk assessed with tasks and timelines identified for mitigation.

Within the ONE system we have live visibility of anomalies by System and their risk grade, along with the anomaly location area and access requirements for intervention.

This allows us to strategically target focus areas that provide maximum risk reduction.

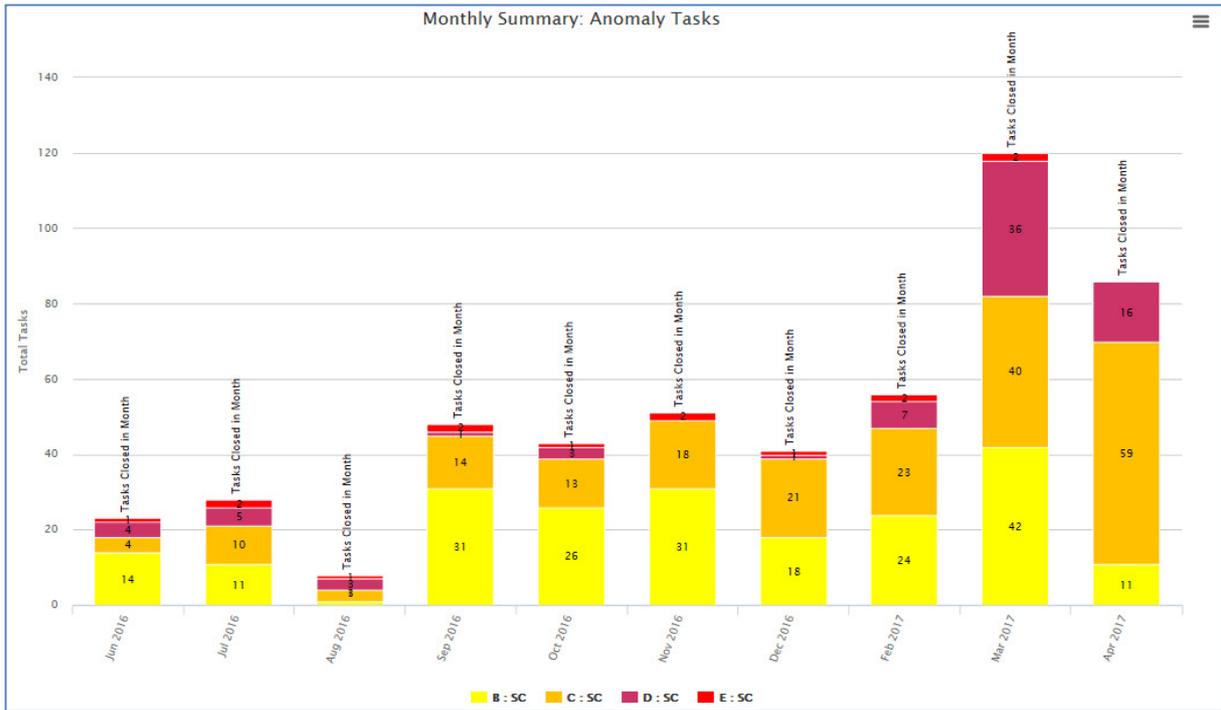
It also gives increased visibility and understanding when shaping business planning assumptions for future integrity presence on our facilities.



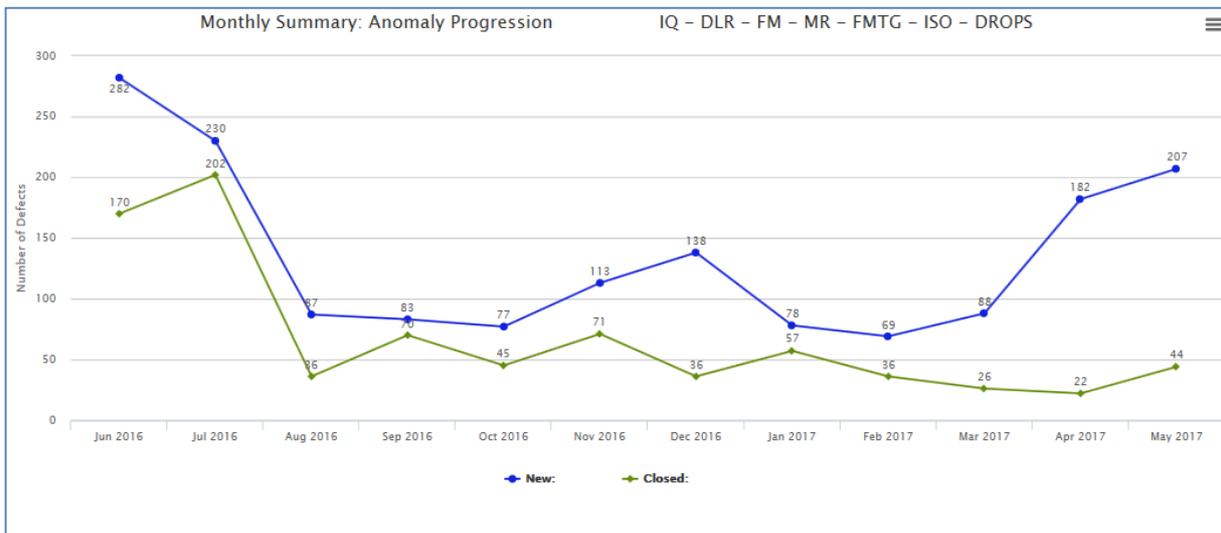
Clear concise reporting

Contractor monthly/annual KPI's are driven around targeting and execution biggest risks. Our live and historic reporting options visualise anomaly reduction progress and efficiency.

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Anomaly Progression



Summary & Next Steps

The application of ONE and development of supporting processes has been fundamental in realising significant efficiency increases & cost savings, during Inspection reporting and Fabric Maintenance execution.

Benefits

The ONE system offers huge benefits in conjunction with a pro-active FM workflow:

- Efficiency and productivity increase
- Cost reduction
- Providing a full audit trail, data consistency and control.
- Rationalising data repositories
- Clear alignment of Anomaly, Defined Life Repair and FM task tracking. Both offshore execution and onshore preparation.
- Client 'owned' system and data - future proofs and de-risks service provider contract changes.

Future

Going forward we are looking to establish the following system enhancements which should ultimately allow us to have a single integrated integrity system;

- Inspection register integration
- Inspection work pack generation
- FM work pack generation
- Mobile application – Paper less reporting
- RBA module