ProDecon® Case Study
UK Petrochemical Plant

PFAS Decontamination Using PFAScrub™

PROJECT HIGHLIGHTS

- BEST PRACTICE MINIMISING CLIENT RISK
- 12,000L FIRE SUPPRESSION SYSTEM
- PFAS MASS (MG) REDUCED BY 99.82%
- REBOUND CONCENTRATIONS BELOW REGULATORY LIMITS
- MINIMAL WASTE PRODUCED
- UNIQUE PFAS TESTING AND SWABBING METHODOLOGY

THE CHALLENGE

A petrochemical plant required a specialist PFAS decontamination partner to remove PFAS which can self-assemble in multiple layers on fire suppression tank walls, to form a waterproof coating. Water rinsing of fire suppression equipment and storage tanks using water alone can lead to 'PFAS rebound', resulting in re-contamination of new foam stocks. ProDecon have partnered with Tetra Tech to provide market leading PFAS and decontamination expertise.

THE SOLUTION

ProDecon provided an end-to-end transition service including pre-engineering, foam removal, a three stage decontamination cycle, loading of new foam and importantly PFAS testing and analysis for verification of the decontamination KPI's. ProDecon set up an enclosed system and controlled area before de-inventory of the old foam stock to IBC's ready for disposal. The system was then water flushed to remove residual concentrate and any loosely adhered residues. At this point an initial swab sample from a know area using our 3 stage swabbing process was taken.

The system was then connected to our decontamination skid and decontaminated using **PFAS**crub™ solution at 50-60°C. The decontamination process was designed to ensure sufficient contact time and attrition on all surfaces in contact with the foam concentrate including tank surfaces and distribution pipework. On completion the **PFAS**crub™ solution was drained to IBC's followed by a final water flush to remove residual chemical. A final swab sample was then collected for use in process verification.

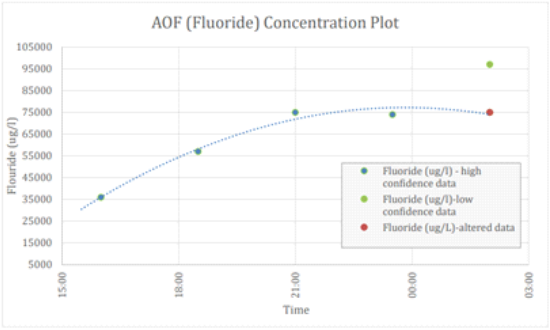
PFAS containing wastes require expensive high temperature incineration. ProDecon's process is designed to minimise waste with this 12,000Ltr system successfully completed generating less than 4000Ltr total effluent volume.

PROCESS MONITORING

During decontamination, samples were periodically collected from the decontamination solution for AOF analysis. This provides an indication of the organic fluorine recovered by the decontamination solution. Swab samples collected following water flush and again after decontamination for TOP Assay are used to demonstrate PFAS removed and potential residual on the internal surfaces.

THE RESULTS

The AOF results reported an increasing trend over the course of the decontamination works. This indicates that PFAS mass is being successfully removed from interior surface of the tanks as the cleaning procedure progresses.



TOP Assay analysis of the pre and post decontamination swabs demonstrate the effectivness of the **PFAS**crub™ decontamination process in removing assembled PFAS layers left behind after water flushing, with 99.82% removed.

Initial Pre-Decon	Verification Post - Decon	% Reduction Of Derivatives Post – Decon	Estimated Rebound Conc. Post – Ox (ppb)	EU Regulation Post – Ox (ppb)	Pass
Post-Ox	Post-Ox				
Total PFAS					
49,014,843	85,889	**99.82%**	N/A	N/A	N/A
PFOA					
18,135,000	16,933	**99.91%**	1.411	1,000	✓
PFOS					
13,585	Non detect	**100.00%**	Non detect	10	✓
PFCA					
75,108	496	**99.34%**	0.041	260	✓

The Post decontaminatiom results are used to calculate the potential rebound concentration should all the detected residual PFOA, PFOS and C9-C14 PFCA's rebound into new foam stocks. Comparison against regulatory thresholds demonstrates another successful decontamination!

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