



CASE STUDY

Emergency Response For AFFF Firefighting Foam Cleanup

THE CHALLENGE

An industrial site in Michigan experienced a large-scale release of AFFF (aqueous film forming foam) due to a heat sensor in the fire suppression system being triggered. AFFF is a widely used firefighting foam that contains high concentrations of PFAS, also known as forever chemicals.

570 gallons of concentrated AFFF foam mixed with water and resulted in a large-scale AFFF spill with more than **1.46 million gallons of PFAS-impacted waters**. The impacted waters included the direct runoff from the foam release and site water that had been cross-contaminated.

Due to growing concern over the environmental and health risks associated with PFAS, and the increasing regulatory guidelines on remediation methods, the site owner required a rapid, compliant, and environmentally responsible solution for PFAS removal and destruction.

An emergency response team from Crystal Clean was called to resolve the spill and cleanup using the 4never™ solution.

THE SOLUTION

Crystal Clean deployed its 4never™ PFAS remediation team and technology to the industrial site. After an initial event assessment, frac tanks were staged on-site to start immediate collection of the PFAS-impacted waters while additional equipment was being prepared for deployment. Impacted waters collected in the frac tanks were transported to Crystal Clean's Wyoming, MI processing facility for treatment in a large-scale commercial SAFF® (Surface Active Foam Fractionation) unit.

After receiving the client received the proper permits, four mobile SAFF® units were deployed to the industrial site to create an on-site PFAS processing plant. The four SAFF® units operated daily to process thousands of gallons of PFAS-impacted waters down to just a few gallons of PFAS concentrate.

The concentrated PFAS waste was then securely transported to Crystal Clean's Wyoming, MI facility for final management off-site destruction via a certified third-party.

This large-scale, mobile deployment of 4never™ technology exemplified the system's adaptability and ability to rapidly address emergency PFAS contamination events.



THE RESULTS

This emergency response event took place over the course of 30 days from initial call to final project completion. Crystal Clean's 4never™ team provided a turnkey, customized solution to address the unique needs of the customer.

Day 1

- Client called Crystal Clean and emergency response teams were mobilized for initial assessment.

Days 2 - 12

- Frac tanks were staged on-site to collect impacted waters.
- PFAS-impacted waters were transported to Crystal Clean Wyoming, MI facility for treatment.

Days 13 - 17

- Four SAFF® units deployed to site for commissioning to enable on-site processing
- Application for discharge permit being finalized by client.

Days 18 - 29

- On-site SAFF® units process PFAS-impacted waters.
- Treated waters stored in frac tanks, tested for compliance with discharge permit, and discharged by client.

Day 30

- Project completed with more than 1.46 million gallons of PFAS-impacted waters treated.

THE NUMBERS

Total Gallons of PFAS-impacted Waters Treated

1,460,000 Gallons

Length of Operation

30 Days

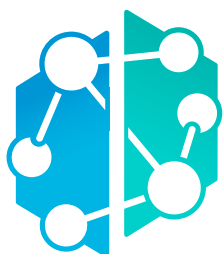
Number of SAFF® Units Deployed

4 Mobile SAFF® Units

Treatment Results

	PRE-TREATMENT	POST-TREATMENT	MICHIGAN REGULATIONS
PFOA	26	ND	22
PFOS	43	ND	12
PFOS-LN	36	ND	N/A

*All units are in ng/L (ppt)



4never™

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