Acrylonitrile Tower Cleaning & Degassing Case History

Background:

- A chemical plant had an Acrylonitrile Tower that was plugged with crystallized acrylonitrile. There were also "chunks" of this material throughout the tower.
- Additionally, 4-5 inches of sludge material was at the bottom of the tower.
- An Industrial Services Company was required to remove these "chunks", as well as to remove all traces of acrylonitrile vapor prior to entry being made and maintenance being performed on the tower since acrylonitrile is highly flammable and toxic.

Application of SuperAll #38:

- A 3D style nozzle was initially used to blast ambient temperature water and break up the "chunks" of material.
- A mixture of SuperAll #38 and water at a 2% concentration was circulated through the tower.
- The LEL readings were at 100% prior to circulation with SuperAll. After circulating for about 4 hours the readings dropped to zero.
- Following pumping off the residual solution, a one inch layer of SuperAll and water (again at 2% concentration) was added to the tower. The tower was then filled with steam and let sit for about two hours.
- All of the effluent from the cleaning process was pumped through a carbon canister when removed from the tower, but exhibited no odor prior to the canister indicating that SuperAll had eliminated any hydrocarbon breakout.
- The effluent was then trucked off to be disposed of by the Industrial Services Company at one of their waste processing facilities.

Results:

- The tower was successfully cleaned and degassed using SuperAll #38.
- The effluent from the cleaning was successfully hauled and processed off site.
- The normal odor typically present during past cleanings was not experienced (meaning that the use of SuperAll eliminated the hydrocarbon that normally caused the odor).

Conclusions:

- Significant chemical cost and time savings were realized.
- The tower was cleaned in a shorter period of time than in the past.
- The volume of effluent from the cleaning process was drastically reduced, resulting in reductions in offsite trucking and waste processing costs.

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