



## Twice the amount of sludge had built up after our client's turnaround was delayed during the pandemic; 7 years of buildup was removed at >99% efficiency with non-man entry

### CHALLENGE

Manual removal, shovel and mini track hoe of neglected tank solids is impractical and too costly.

### SOLUTION

- FQE<sup>®</sup> Solvent-PR+ added at 3-5% by volume dissolves and disperses sludge
- Application with elevated temperature accelerates rate

### RESULTS

- Solvent-PR+ works so quickly the frozen mixer and circulation system can be used within hours
- Cleaning solution of Solvent-PR+ removes 99% of initial sludge
- Manual removal prevented and tank is cleaned within days

### PRODUCTS

**FQE<sup>®</sup> Solvent-PR<sup>+</sup>**

### Delinquent turnaround accentuates tank heal problems

Historically, sludge builds up in the pitch tank at 0.5-1.0 feet per year. The heel material is typically cleaned and removed with manual labor inside the tank via manned entry with a mini track hoe and shovels. With a delayed turnaround the sludge bottoms have built to 10-feet in height. Also, with the extended delay the material is much harder in strength and consistency.

The tank capacity of 160,000 gallons has accumulated a hard sludge layer that now occupies 30% of the fill capacity. The extent of the heal is so severe that it is not plausible to clean by manual cleaning. The contents of the tank are above the manways and sludge has solidified to where tank circulation is plugged, and the tank mixer is inoperable. Just the man hours, EHS hazards and costs to clean the tank in a routine manner is impractical.

### Use engineering to clean tank without manned entry for safer operation

A solvent package was identified through laboratory testing and analysis to bring a more manageable and safer solution to cleaning the tank with engineering controls applied and the application of a chemical reagent. This allows the tank contents to be solvated and dissolved into a liquid pumpable solution within the tank. No persons will be in the tank, and fewer operators are needed during the dissolving cleaning step, providing a less intensive resource process.

Therefore this cleaning route is safer, more effective, less expensive, and more manageable in regards to time management and equipment usage. A small percentage of Solvent-PR+ was added to the tank and heated with plant process steam. When the cleaning solution is added to the tank, the sludge immediately began to soften, and dissolve (melt) into a liquid phase.

### Solvent chemical cleaning makes history, is faster, and a reduction in labor

Once the solvent is applied, it only takes 4 hours until the mixer and circulation become unplugged. This expedites the cleaning process as the solvent and heat break apart, dissolves, and frees up solids to be resolved into a pumpable liquid. The resolved effluent is then pumped down to remove over 99% of the initial sludge layer. The remaining heal is soft gummy and can be removed with a vacuum truck for the first time ever.



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