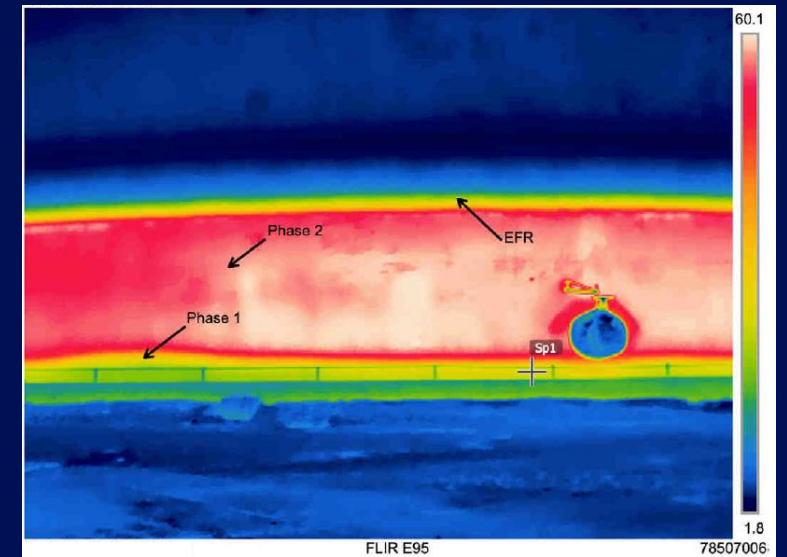
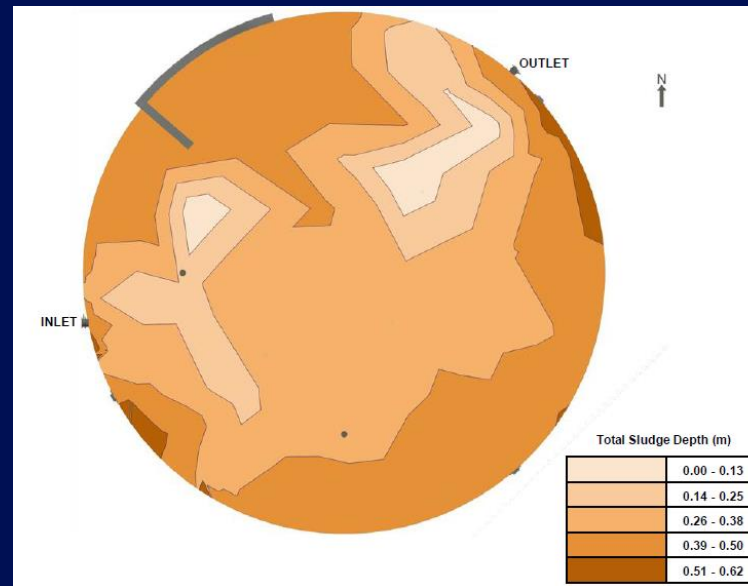
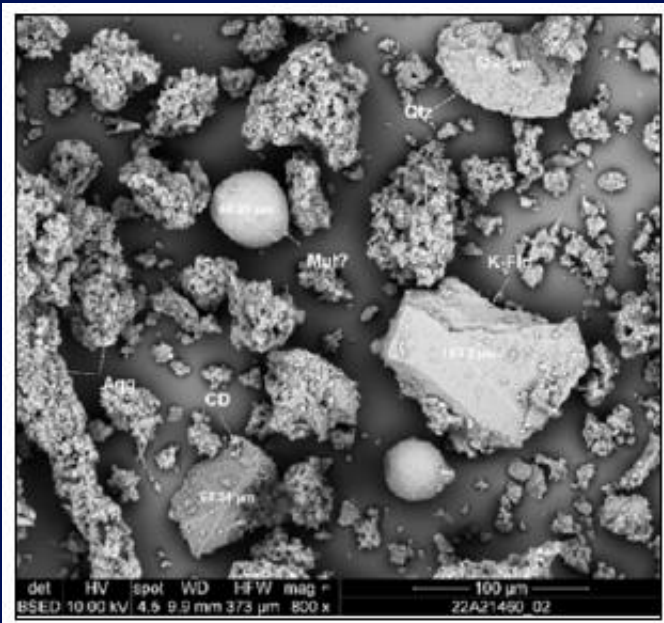


# TANKSCOPE TANK PROFILING CASE STUDY

- 1). Topography
- 2). Thermography
- 3). Core Sampling

- 4). Analysis Report
- 5). Process Design
- 6). Collaboration





# TANKSCOPE TANK PROFILING CASE STUDY

## TANKSCOPE PROVIDED THE CLIENT WITH AN OPEX SAVINGS OF \$600K USD

### Location: Midwest USA

Historically, the Client would utilize general tank cleaning practices as provided by the cleaning vendor without any knowledge of what is actually comprised within the tank. This left the client susceptible to significant change order values along with if not modified, re-designed scope of work changes. This would lead to extended periods of outage along with a significant over spend, and in some instances, bringing in an additional cleaning vendor to clean the tank.

Past experiences on this specific tank have seen previous outages in excess of \$2.5M USD and spanning anywhere from 9 – 18 months in outage scheduling.

The above values are not taking into account the additional costs required to execute on the tank cleaning project, including but not limited to; rental of equipment, disposal of effluent product, installation of isolation equipment, etc.

TankScope's findings not only provided a significant OPEX savings with a significantly lower overall spend, but it allowed the client to make informed decisions on scope of work execution along with no longer requiring the additional burden of equipment rental and specialized isolation equipment.

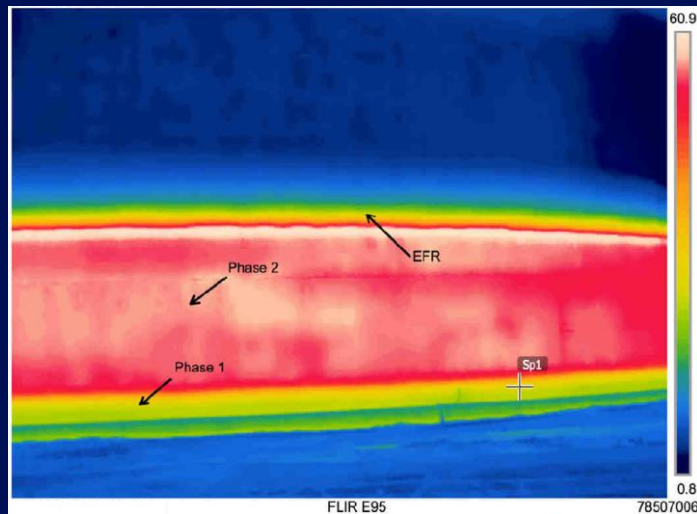


# TANKSCOPE TANK PROFILING CASE STUDY

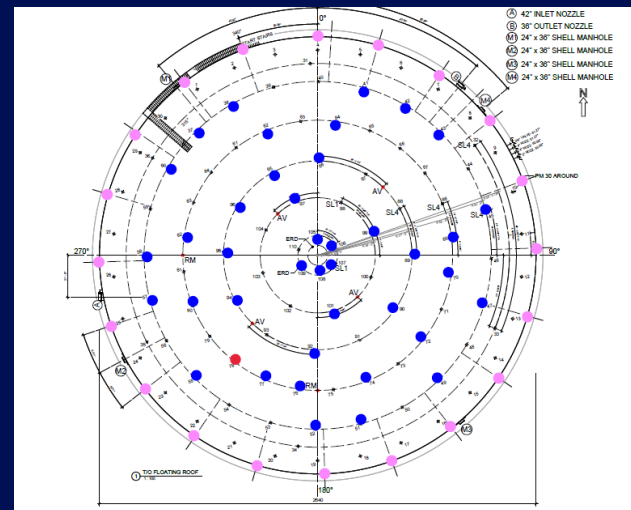
## TANKSCOPE WAS 98% ACCURATE OF ACTUAL MATERIAL CONDITIONS

### The Process:

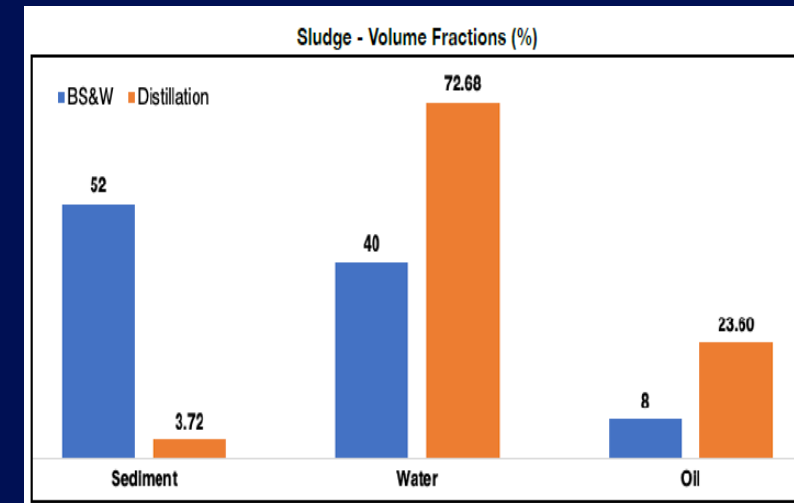
- TankScope performed various procedures on this tank including but not limited to;
- Thermography, topography, core sampling, material characterization and particle size distribution. The photos below provide some insight as to what TankScope provided the client.
- The findings that TankScope provided the client allowed for a streamlined process in tank treatment and cleaning, with no additional operational change orders.



Shell side thermography



Topography access points



Material characterization



# TANKSCOPE TANK PROFILING CASE STUDY

## TANK CLEANING PROCESS REDUCED TO 35 DAYS BASED ON FINDINGS

### The Findings and Outcomes:

- 3D modeling and thermography details were accurate and allowed for safe isolation without the financial burden of acquiring additional equipment and labor on the front end.
- Once the manway was removed, TankScope's findings were indicative of actual product within the tank.
- TankScope's reporting and analysis was 98% accurate to actual disposition of material within the tank.
- This allowed for a streamlined process in tank treatment allowing for elevated accountability on behalf of the cleaning vendor.
- Material was successfully processed through the [REDACTED] centrifuge operations without any upsets, as expected by material characterization findings provided by TankScope.
- Alternative vendor proposal utilizing past practices was in excess of \$2.0M USD with additional rental equipment and an execution timeline of 62 days.
- Post TankScope Services /Reporting – Revised scope of work - \$1.0M USD initial budget – Actual - \$500K USD with no additional rental cost or labor provision. Execution timeline of 35 days.
- Expedited cleaning duration will allow for mechanical repairs to be completed in 2022 – herein – allowing for further work at the [REDACTED] to be brought forward to not impede the 2023 Turnaround Schedule.
- The learnings from this pilot project has garnered the confidence in the service(s) TankScope has to offer, and this service(s) will be further utilized to provide the needed insight on crude storage tank outages.



# TANKSCOPE TANK PROFILING CASE STUDY

Same tank comparison detailing the value add in TankScope's findings prior to executing the cleaning portion

## TRADITIONAL RFP METHOD WITHOUT FINDINGS

### \$2M USD

Direct cost overages due to not profiling the tank prior to cleaning

Tank	1
Previous practice budget	\$1M USD
Timeline to Clean Tank	9 – 18 months
Diameter	220 ft
Labor /equipment rental	\$750K USD
Processing equipment	\$150K USD
Assumed sludge level	≥3 ft
Actual sludge level	<u>Unknown</u>
Change order impact	<u>\$1.5 – 2M USD</u>

### VS

## TANKSCOPE SERVICE FINDINGS

### \$0.5M USD

Direct cleaning cost savings on the initial budget below (1 tank)

Tank	1
Initial budget	\$1M USD
Timeline to Clean Tank	35 Days
Diameter	220 ft
Storage	Waste water/slop
Estimated sludge volume	≥3 ft
Actual sludge level	≤12 in
Incremental oil recovered	N/A
Revised cleaning plan	✓