

# TankScan Helps Jet Engine Manufacturer Improve Operational Reliability

## Jet Engine Manufacturer

Focusing on advancing sustainable travel beyond where we have ever been before. Part of one of the largest aerospace corporations in the world, this jet engine plant tests and assembles jet engines.



Applications:  
Lube System Health

Market:  
Manufacturing

## Challenge

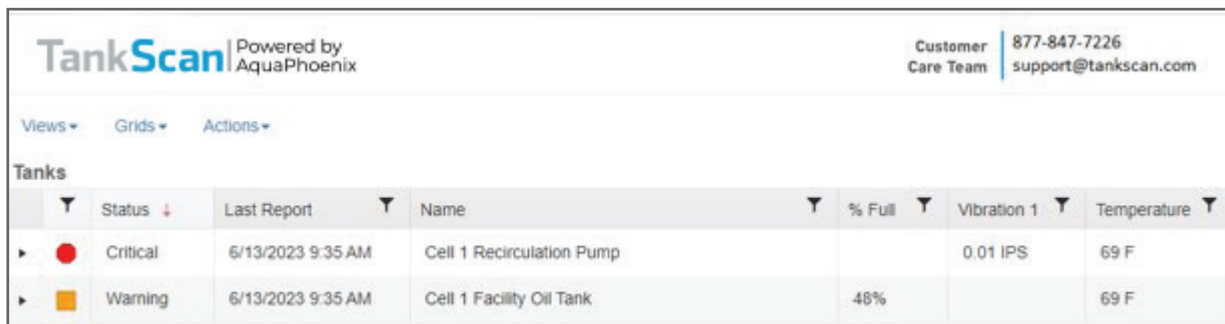
This jet engine manufacturer was challenged with reducing related costs while improving overall operational reliability. One area of interest was the lube system performance for their long-term testing. If the lube system fails then the long-term test and engine are at risk of failure resulting in increased costs and extended test times. The plant wanted to be notified of critical conditions outside the plant because the automated testing on the jet engines are conducted without human supervision. The data needed to be secure, while at the same time available to personnel after business hours, on weekends, and all hours of the day and night. They also needed the entry cost to be low with minimal costs associated with engineering, integration, and installation services. Lastly, they wanted the system to be able to scale in size and be able to mix and match sensor hardware and connectivity of cellular and Wi-Fi technologies all while using the same provider for software and setup support.

Previously this jet engine manufacturer had no automated notifications that were delivered off-premise. While in the plant the PLC (Programmable Logic Controller) would collect the lube health data and display an alert but required going to the HMI (Human Machine Interface) and reviewing the process conditions. The major concerns were reducing unnecessary tasks, improving the reliability of the operation, and understanding what is happening with the systems at all times.



## Solution

In 2023, this jet engine manufacturer installed the **TankScan TSG cellular to 4-20mA sensor gateway** at their jet engine facility to monitor their critical lube systems. The monitoring system leverages cellular wireless technology, magnetically connected vibration and temperature sensors, and integration to the existing level sensor and PLC systems via the 4-20mA current loop, thus eliminating the need to add another level sensor. The new health monitoring system uses IIoT (Industrial Internet of Things) platform to automatically monitor the conditions of the lube system and notify through email and text messages when an alert condition or anomaly is detected. The user is provided notifications with accurate readings to mobile devices or PC's they already own and requires no software installation, rather it is all driven through the intelligence platform hosted in the cloud. The image below shows the overview screen, showing the measurement list which is automatically sorted by most critical alerts on the top of the list. The historical trend of the measurements can be easily viewed with a single mouse click.



The screenshot shows the TankScan web interface. At the top, it says 'TankScan | Powered by AquaPhoenix'. On the right, it lists 'Customer Care Team' with phone number '877-847-7226' and email 'support@tankscan.com'. Below this are tabs for 'Views', 'Grids', and 'Actions'. The main section is titled 'Tanks' and contains a table with the following columns: Status, Last Report, Name, % Full, Vibration 1, and Temperature. The table has two rows: one for 'Cell 1 Recirculation Pump' with a 'Critical' status (red dot) and one for 'Cell 1 Facility Oil Tank' with a 'Warning' status (orange square). Both reports are dated '6/13/2023 9:35 AM'. The 'Cell 1 Facility Oil Tank' row shows a '% Full' of 48% and a 'Temperature' of 69 F.

Status	Last Report	Name	% Full	Vibration 1	Temperature
Critical	6/13/2023 9:35 AM	Cell 1 Recirculation Pump		0.01 IPS	69 F
Warning	6/13/2023 9:35 AM	Cell 1 Facility Oil Tank	48%		69 F

## Results

The manufacturer has seen numerous benefits from equipment health monitoring including:

- Reduced labor associated with inspection rounds
- Improved reliability of their operations with remote visibility to off-site and on-site personnel
- Improved confidence and reduced risk of equipment failure