

CASE STUDY / SENSING & CONTROL

Radar Level Sensing for Bulk Fertilizer Case Study

Ultrasonic level sensors were failing in dense chemical vapor across 40-foot storage towers, resolved by changing the sensing technology, not the brand.

SITUATION

A California bulk fertilizer distributor, multiple 40-foot storage towers

Multiple storage towers needed reliable level monitoring, but the vapor conditions inside a fertilizer storage tank were defeating the sensors already installed.

THE PROBLEM

Ultrasonic level sensors were failing under vapor-heavy conditions: ultrasonic attenuation from dense chemical vapors caused sensor drop-outs and false readings. Manual tank climbing to verify inventory was a standing safety risk. Inventory variance from unreliable readings carried roughly \$50,000/year in shrinkage exposure, and there was no real-time visibility across towers – each reading required a site visit.

The failure mode was physics, not a defective unit. Ultrasonic level sensing is sound-based, and sound attenuates in dense vapor. Swapping to a different ultrasonic sensor brand would not have fixed this – the sensing technology itself was mismatched to the tank environment.

EQUIPMENT SPECIFIED

Component	Detail
Level sensor	80 GHz pulse radar level controllers – electromagnetic sensing, non-contact, narrow beam
Integration	SCADA-compatible, PLC-integrated across every tower
Controls	Automated pump interlocks, hi/lo alarms
Reporting	Real-time inventory tracking in tons, cross-tower visibility

THE SPECIFICATION RULE

Vapor-heavy, foamy, or dusty environments call for radar, not ultrasonic

Radar uses electromagnetic energy instead of sound, which makes it generally far more reliable than ultrasonic in vapor, foam, and dust environments. This is a technology-selection rule, not a brand-selection rule – the same failure mode would recur with any ultrasonic sensor in the same tank conditions, and the same reliability holds for any properly specified radar unit in that environment.

RESULT

0 ultrasonic-attenuation drop-outs

24/7 SCADA visibility across every tower. Manual tank climbing eliminated. Inventory control improved directly from reliable, continuous readings rather than periodic manual checks.

NEXT STEP

Every tank has a different vapor density, foam behavior, and dielectric profile. A spec review starts with your actual tank conditions – not a generic level-sensor swap.

[Request a spec review](#)

NEXT STEP

Send LibertyCES the process data, not a part number.

Tank dimensions, product vapor characteristics, foam or dust conditions, and current equipment — that's what a real spec review needs to start.

Request a spec review

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