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engineering profitability

Silo Inventory Measurement Upgrade

J000466

Background

The inventory of raw materials within several storage silos of a manufacturing facility employed unreliable and ineffective inventory measurement instruments. The measurements were unreliable, largely because they did not measure at the correct location from the centre of the conical silo tops.

Initial Condition

Only limited areas of the upper surface of the silos were accessible via a ladder and catwalk enclosed by railing. The existing inventory measurement instruments could not be accessed from the catwalk for required maintenance. There were no anchors available for a fall arrest system, nor was a timely rescue, in the event of a fall, reasonably feasible due to limited vehicular access to the silos. The client had initially envisioned either adding a fall arrest system and rescue structure or, extending the existing catwalks structures to facilitate the performance of maintenance work.

Analysis

Induspec collaborated with the client to determine the key issues; the measurement instruments were not located correctly and could not be readily accessed for maintenance, and an extension of the catwalks, or a fall arrest system were calculated to be far more expensive than the client had anticipated.

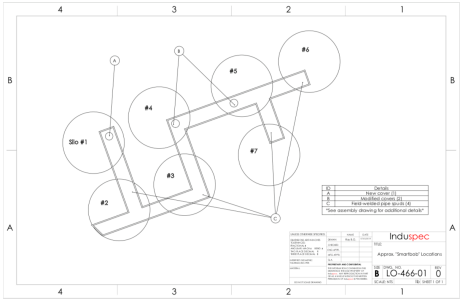
Outcome

A much more cost-effective means of achieving the client's goal was developed by Induspec. Induspec determined the location of the correct radial distance of the measurement devices lined up with existing walkways.

Recommendations

Induspec, in collaboration with the client, recommended the fabrication and installation of steel mounting assemblies through the catwalks onto the silos. The mounting assemblies were located in compliance with the measurement instrument manufacturer's instructions to ensure the accuracy of the measurements, as well as minimize their obstruction to foot traffic. The retrofit work could be completed using minimal material resources, as well as eliminated the need to extend the existing catwalks or to install anchorage points. An added benefit was that maintenance staff could now service or remove the measurement devices much more conveniently and safely than ever before.

Implementation

Sealed fabrication design and installation drawings for the measurement instrument mounting assemblies were provided to the client. Induspec worked with a local contractor to manufacture and install the new level mounts and Induspec finally mounted the measurements devices (sans electrical connections). The cost to achieve the project's goals was less than half of estimated original costs. The Induspec solution was simple, highly effective and much more affordable. Induspec is Engineering Profitability.

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