

TIPS FOR MAKING THE MOST OF YOUR SILO INSPECTION

Bulk storage silos are a key component in many facilities. Oftentimes, as long as the silos are holding and discharging material as designed, we tend to ignore them until something goes wrong. This article offers tips on how to make the most of a silo inspection and keep your silo operating efficiently and safely.

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A well-maintained silo can last upward of 20 years, which is an incredible return on investment. Part of maintaining your silo is to include it in your general asset inspection plan, conducting inspections on your own at least once a year. Look for holes, cracks, leaks, and dents, and verify that the silo still looks level and plumb. If there are attachments like ladders, guardrails, conduit, or brackets, verify that everything connects properly. Inspect anchoring systems to confirm that clamps, stirrups, and bolts are intact. If the silo sits on grout, make sure it's solid and sloped so water drains away from the unit.

If your inspection reveals anything that's concerning or that indicates the start of a problem, you may need to call a professional. By preparing beforehand, you can make the visit more efficient and effective. These tips can help you make the most of such a visit.

Collect information. A competent inspection company is going to have questions, so gathering information will benefit you and those conducting the inspection. Photograph any data plates on your silo. Also confirm the silo's material contents and their current bulk density.

Document your areas of concern, perhaps with sketches or photos. Having an understanding of your system is helpful. Also consider the way you use your silo as that also affects its longevity. A silo used for long-term storage or back-up might have a longer lifespan or receive different treatment than a silo that empties multiple times a day.

Prepare the site. Once the scope of the inspection is clear, the price agreed upon, and the date scheduled, look at your site. Clean up any material or dust present on the surface, in the skirt, or around the silo. Evaluate the location around the silo for access. Note any

challenges, such as buildings, retaining dams, conveying lines, or other overhead items. On the day of the inspection, assign a site contact to escort the inspector, and schedule a brief training session with your safety team to go over any topics of concern.

The inspector needs access to touch and measure multiple spots on each section of the silo. While many silos are equipped with a ladder or ladder/cage combination, it is a safe presumption that a lift will be required. Inspecting from a lift allows the inspector greater access around the silo as well as a better look at the ladder and connections from a safe location.

Know your objective. Do you just want to understand the specific condition or situation for planning purposes? Do you want to repair the silo? Do you want to replace it? Submit this information to the experts so they can bring all the tools necessary to give you the answers you need.

Consider all the options. A targeted silo inspection can take on many forms and be fully customized to meet your needs. If you have a leak in the middle of the silo's material portion or somewhere near the hopper, perhaps confined-space entry by qualified personnel will be required. If you suspect the base metal has thinned over time, you will want it tested ultrasonically. If the silo seems structurally fine but the coating is starting to fail, a coating inspection would be in order. For silos still in production, non-destructive testing is a good option. This is a way to obtain data without damaging the tank or the coatings. Some inspections can take place with the material still in the silo; other inspections require the silos to be empty and certified clean prior to the inspection. Be ready to accommodate potential possibilities.

Inspection reasons vary

While inspecting aging silos is a common reason for inspection, there are a few other instances where an inspection is required. Occasionally, silos need moving. It could be to a newer pad on the same site or to a location in a different part of the country. Structural analysis helps determine if lift haul lugs and general silo conditions are conducive to a move.

While a qualified inspector might conclude that a silo is structurally sound to move across the country, a qualified engineer might conclude that that same silo can't handle the same loads and capacity in a new location. This often comes as a surprise to many companies. Silos are highly customized, designed specifically for their geological location and for the material that they hold. Most silos are only part of a larger system for moving materials. Changing any variables can lead to an undesirable outcome, often at great expense.

Some inspections become necessary due to changes in bulk material. If the material has changed in type or density, or the conveying system has changed in pressure or velocity, an expert can determine whether your silo is usable at maximum capacity. Perhaps your original design was for a pelleted material, but the current conveying process causes degradation, leading ultimately to a denser material for storage.

Recent changes to safety standards for fixed ladders and personal fall arrest systems have caused an increase in inspections as well. While these changes apply immediately to new construction, proactive companies are evaluating the option of retrofitting current ladder systems in the field to bring them into compliance.

Summary

Upon completion of the inspection, you should expect a summary report that should be kept on file for possible future reference. Having an understanding of the lifespan and condition of your assets goes a long way toward operating safely and toward responsible long-term fiscal planning. An unexpected silo event can be catastrophic for the safety of your people and the operation of your business. An expert silo inspection is an investment. It buys you the space and time you need to be proactive with planning, rather than reactive to a setback. **PBE**

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