

Fertilizer Company Worker Crushed to Death by Falling Concrete Ecology Block



SUMMARY

In February 2012, a 56-year-old heavy equipment operator working for a fertilizer distribution company died when a concrete "ecology block" weighing approximately 4000 pounds fell from a retaining wall, crushing him.

The victim and other employees were unloading bulk fertilizer into a large steel storage tank. The interior of the tank was partitioned into containment bays using stacked concrete ecology blocks to separate the different materials. Semi-truck trailers filled with bulk fertilizer were driven into the storage tank and backed into a containment bay, which was bordered on three sides by ecology block walls. Using a mobile conveyor belt system, or piler, connected to the rear of the trailer, fertilizer was unloaded into a pile on the floor. As the pile grew larger, the victim operated a front end loader to push the material to the back of the bay.

At one point, the victim stopped the front end loader and went to investigate whether material was leaking through the rear wall of the bay. He climbed onto and walked along the ecology block wall to the back wall of the bay, which blocked a large opening in the tank. The second worker in the tank shut off the piler and heard several loud booms. He yelled for the victim, but there was no answer. He ran up the pile and saw that the blocks had collapsed, so he ran outside and around the storage tank and found the victim pinned by a fallen block against the wall of the tank. He yelled to another employee to call 911.

Investigators suspect that the victim saw that material was leaking between the blocks of the wall and climbed down a ladder on the back of the tank to take a closer look. The victim was apparently trying to brace the unstable block wall with some long pieces of lumber when it collapsed. The top block of the wall fell directly onto the victim's head and neck, crushing him against the wall of the storage tank. First responders arrived within five minutes, but the victim was declared dead at the scene.



Photo of fallen ecology block against tank wall

RECOMMENDATIONS

To prevent similar incidents, Washington State Fatality and Control Evaluation (FACE) recommends that employers should:

- **Plan bulk material storage facilities for safety and stability by choosing structures designed specifically for bulk material containment, whether they are permanent or modular.**
- **Consult a registered professional engineer prior to constructing bulk material containment walls or other structures using ecology blocks.**
- **Provide employees with training on the hazards of working around ecology block walls, and safe practices, including:**
 - Inspect ecology block wall storage areas before and after loading in material
 - Immediately stop work around ecology block walls showing signs of material leakage, leaning, moving, or other damage
 - Never attempt to brace or stabilize a leaning ecology block wall on your own
 - Avoid walking on top of ecology block walls
 - Avoid contacting ecology block walls with heavy or other equipment
 - Notify the proper person if structural integrity issues in an ecology block wall are found
- **Regularly assess and audit the structural stability of ecology block walls. If integrity appears compromised, work around the wall must cease and the wall must be repaired or rebuilt.**

The full version of this investigation report, along with the detailed recommendations and discussions section, can be found at: www.lni.wa.gov/Safety/Research/Face/Files/CrushedByEcologyBlock.pdf

Or go to www.lni.wa.gov/SHARP. Choose the **Publications** tab on the left side of the page and enter **52-36-2016** into the search box.



The Washington State Fatality Assessment and Control (WA FACE) program is one of many workplace health and safety programs administered by the Washington State Department of Labor & Industries' Safety & Health & Research for Prevention (SHARP) program. It is a research program designed to identify and study fatal occupational injuries. Under a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH grant # 2U60OH008487-11), WA FACE collects information on occupational fatalities in WA State and targets specific types of fatalities for evaluation.

More information about WA FACE can be found at www.lni.wa.gov/Safety/Research/FACE.

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