



Craig R. Knoche & Associates
Civil Engineers, P.C.

- Civil Engineers
- Surveyors
- Land Planners

December 9, 2021

Mr. Ted Meyers
Tuf-Tite, Inc.
1200 Flex Court
Lake Zurich, Illinois 60047

RE: Riser and Internal Safety Lid Test

Dear Mr. Meyers,

As requested, the following items were tested:

- 1) 24x12-RIS, round riser with internal ledges
- 2) 24-FLAT-SL, internal safety lid

A test was performed to determine if there was any noticeable stress failure in either the internal ledges or the safety lid. The test included placing the Riser, with Internal Safety Lid installed, on a platform scale, zeroed out. Six 50-lb bags of shot blast media were placed on the internal safety lid to create a dead load of approximately 136 kg or 300 lbs. The load was in place for 15 minutes before being removed.

Neither the ledges in the Riser nor the lid showed any structural damage. There was no noticeable stress failure at the ledge connection point to the riser while there was only a nominal amount of inward deflection (roughly $\frac{1}{4}$ ") in the safety lid once the 300 lb. load was removed.

Overall, the riser and lid performed within expectations with no noticeable failure. Please do not hesitate to call if you have any questions or need additional information.

Respectfully submitted,

Steven R. Kudwa, P.E.
Illinois Registered Professional Engineer
License No. 062-054950

