

Todd –

Thank you for meeting with Luke and I today regarding the Liquid Transfer Unit at Twin Enviro Services in Milner, CO. Per your request, I've attached the following information regarding this unit:

- Location of the unit on the Twin property
- Photo of the two tanks that comprise the unit installed within secondary containment
- Backup calculations

Each of the two tanks weighs about 10,000 pounds empty, so the risk of floating is not considered an issue. Additionally, the tanks are approximately 35-feet long and conservatively less than 12-feet in height. With this height to base area ratio, overturn of the tanks is not considered as a potential failure and tie-downs are not required.

Design stresses on the underlying liner from the tanks (as calculated by Golder, November 2019 – see attached) is 8.2 psi, providing for a global factor of safety of 18.8. While snow is not anticipated to accumulate within the footprint of the tanks (on top nor underneath), even adding snow loads of 102 psf = 0.74 psi are inconsequential to the global factor of safety, and outside the tank footprints snow load would be well below the loading anticipated by the filled tanks. Therefore, the unit base can accommodate the snow loading.

We understood from the meeting this information is for documentation purposes to support the administrative building permit.

Please feel free to contact me or Luke with any questions or if you need additional information.

Thanks,

Rebecca Lindeman

Jardon
Engineering & Inspections LLC

Rebecca Lindeman, P.E.

303.517.8189
Rebecca_jardon@outlook.com
PO Box 772143
Steamboat Springs, CO 80477

**RCRBD Record
Set T.C.**

01/16/2020