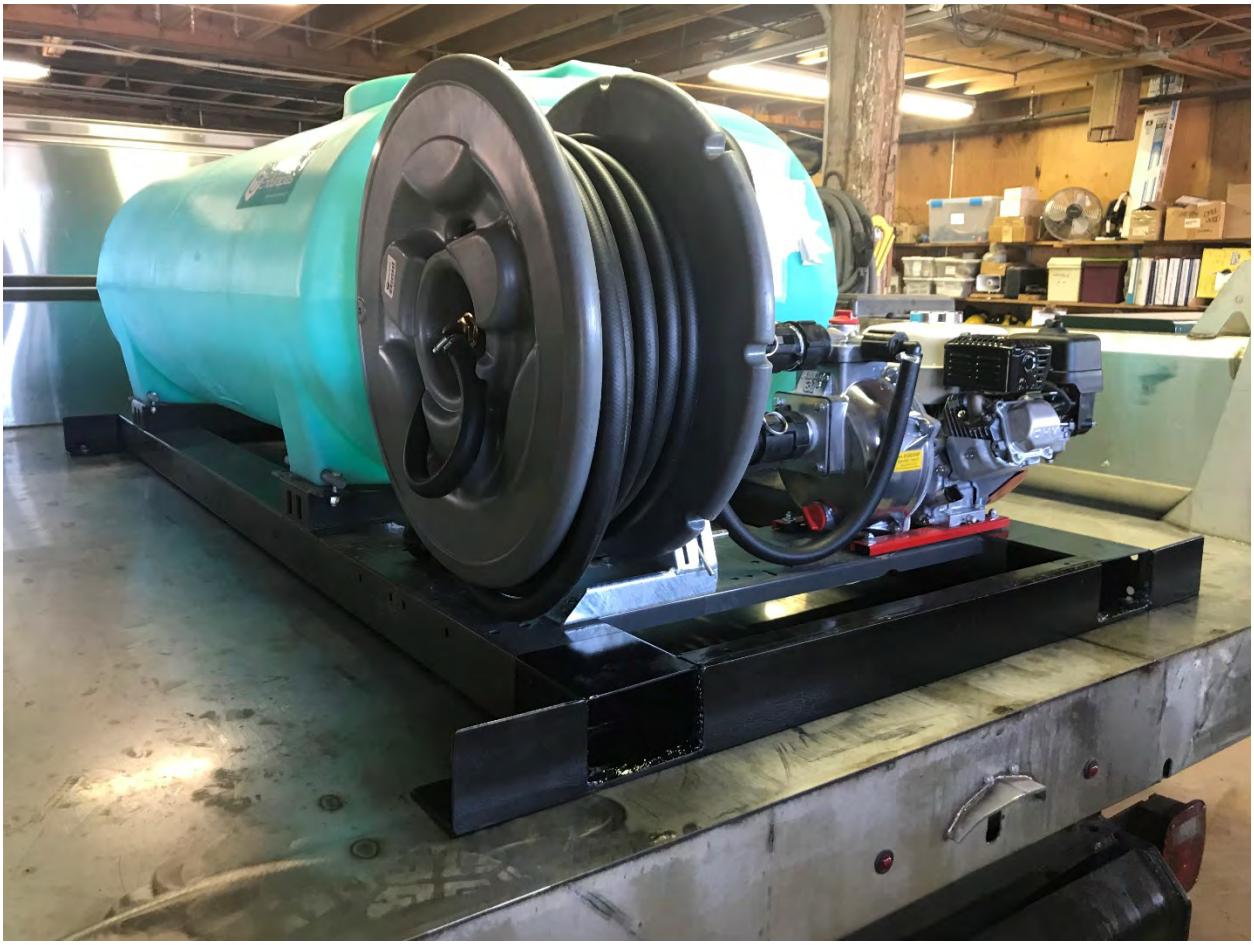
Tender Truck for Rx Fire at Nachusa Grasslands

By Bill Kleiman, The Nature Conservancy

May 20 2020



A water tender is used to fill up the other pumper units being used on prescribed fires. Water tenders need to hold and pump a lot of water at modest pressure. They also are the place you put all those tools and supplies you don't need in every vehicle. Once you create a tender you won't like burning without one.

In March 2020 we purchased a 350 gallon Enduraplas "Fire Ranger" to use as a tender tank in our RAM 4500 dump truck. The Enduraplas SMF300FG1 20GH was $3,600. It is a well thought out unit. The skid unit weighs 500 pounds empty and perhaps 3,350 pounds full, which is 1.7 ton. A reasonable load for this heavy duty truck. Don't put this in a half ton truck.

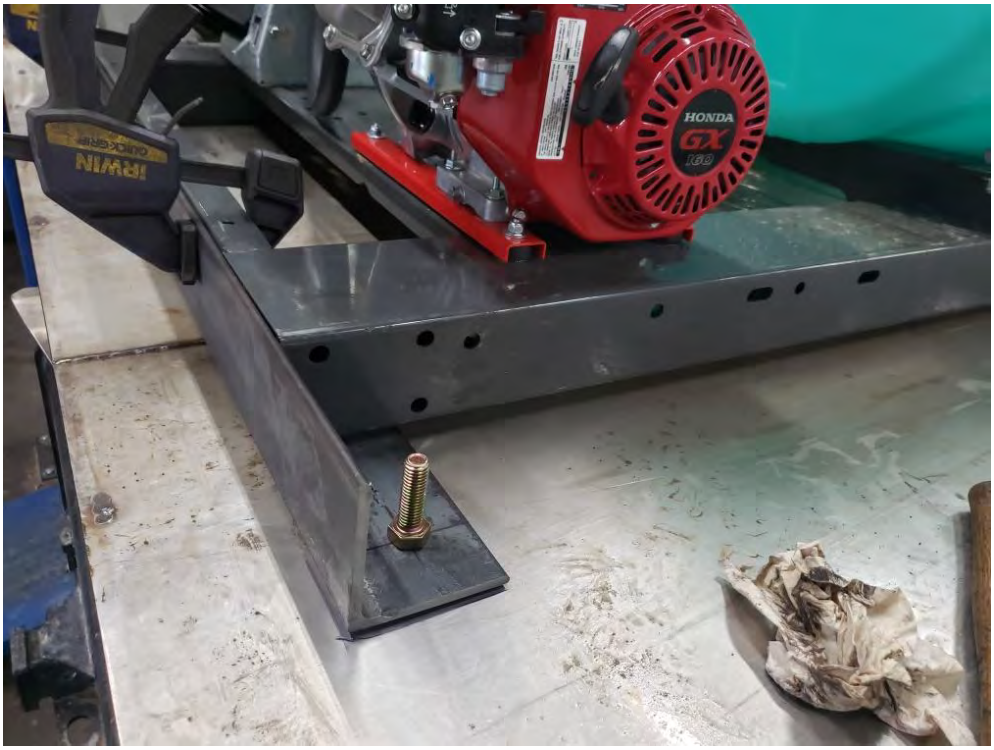
We also purchased 25 Baffle Balls for $240 from Enduraplas. Elsewhere I reported that the baffle balls took all the slosh out of the water tank. They were a great addition.

Bolting the skid to the truck bed:

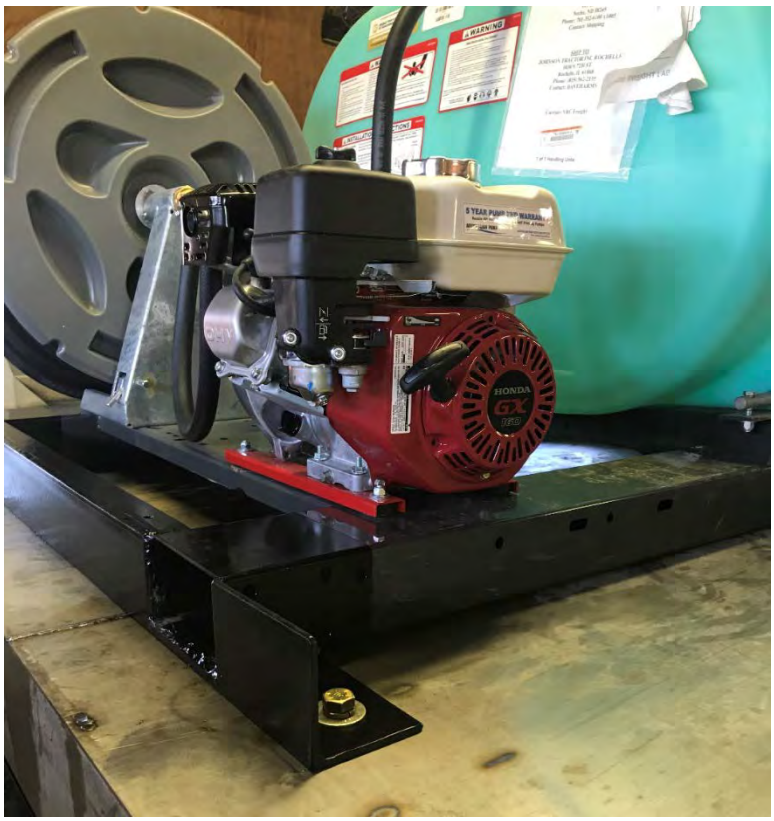
Our truck is a stainless steel dump truck. It has no tie down points for using straps to hold the skid tank in place. I am reluctant to use straps anyway as they can be precarious, allowing the tank to slide about the bed and frequently being inadequate of a hold down. If you use straps make sure the straps don't go over rough edges and apply a force in various directions you need.

To bolt the unit to the bed, we looked for a way to drill through the stainless bed and bolt the skid frame down. We ended up concluding that the dump truck bed had frame members in the way of a simple straight bolt through the tender skid frame. We were going to need metal fabrication. We took the truck and tender skid to Bellini Welding in Dixon Illinois. Their staff Tim McBride spent a day mounting the skid to the truck. Below photo is the skid unit arrived on its pallet. Look at the gray frame on the engine side of the skid. Then look below this photo to the next photo to see the metal L channel that was added by Bellini.

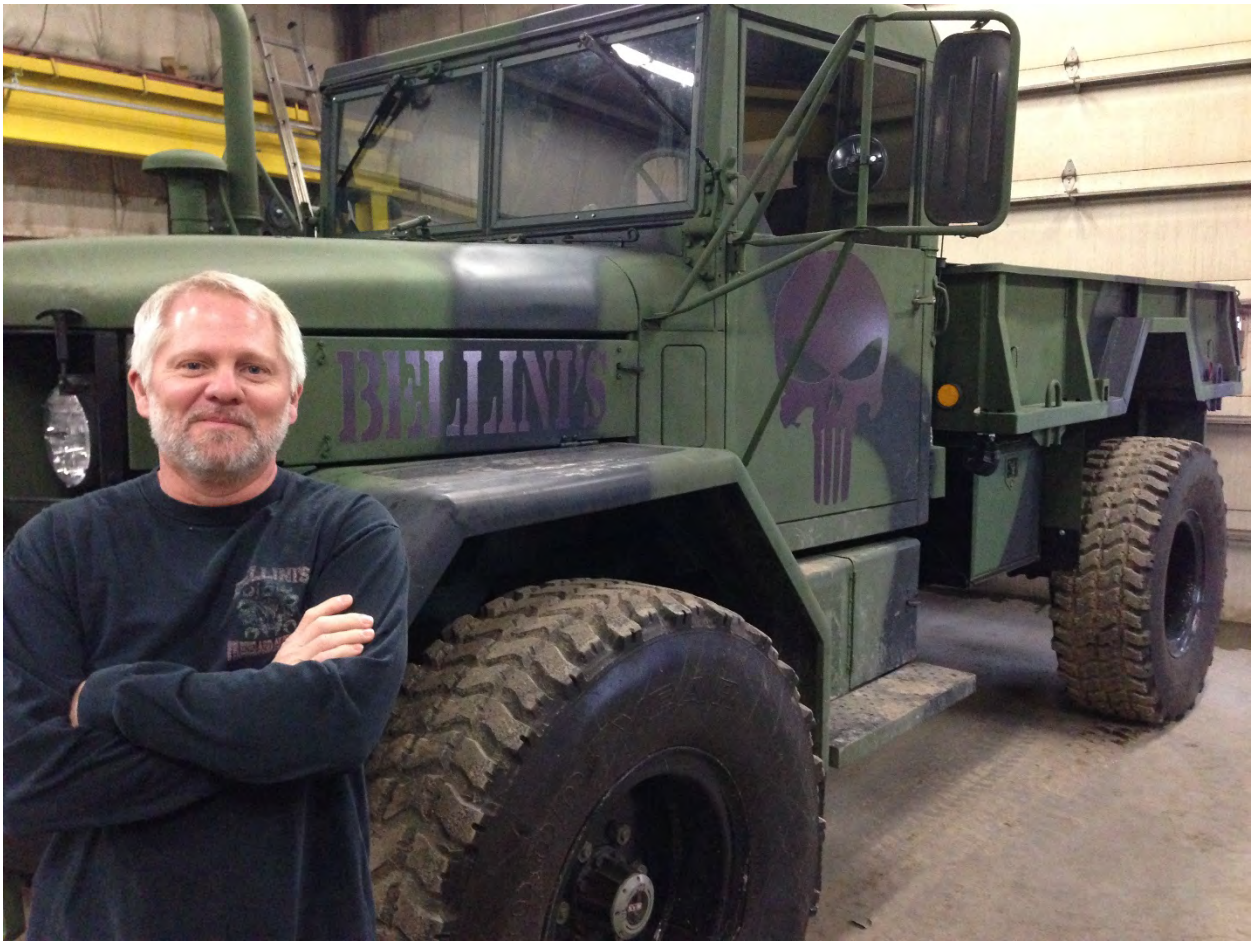
Below is the mockup before welding.



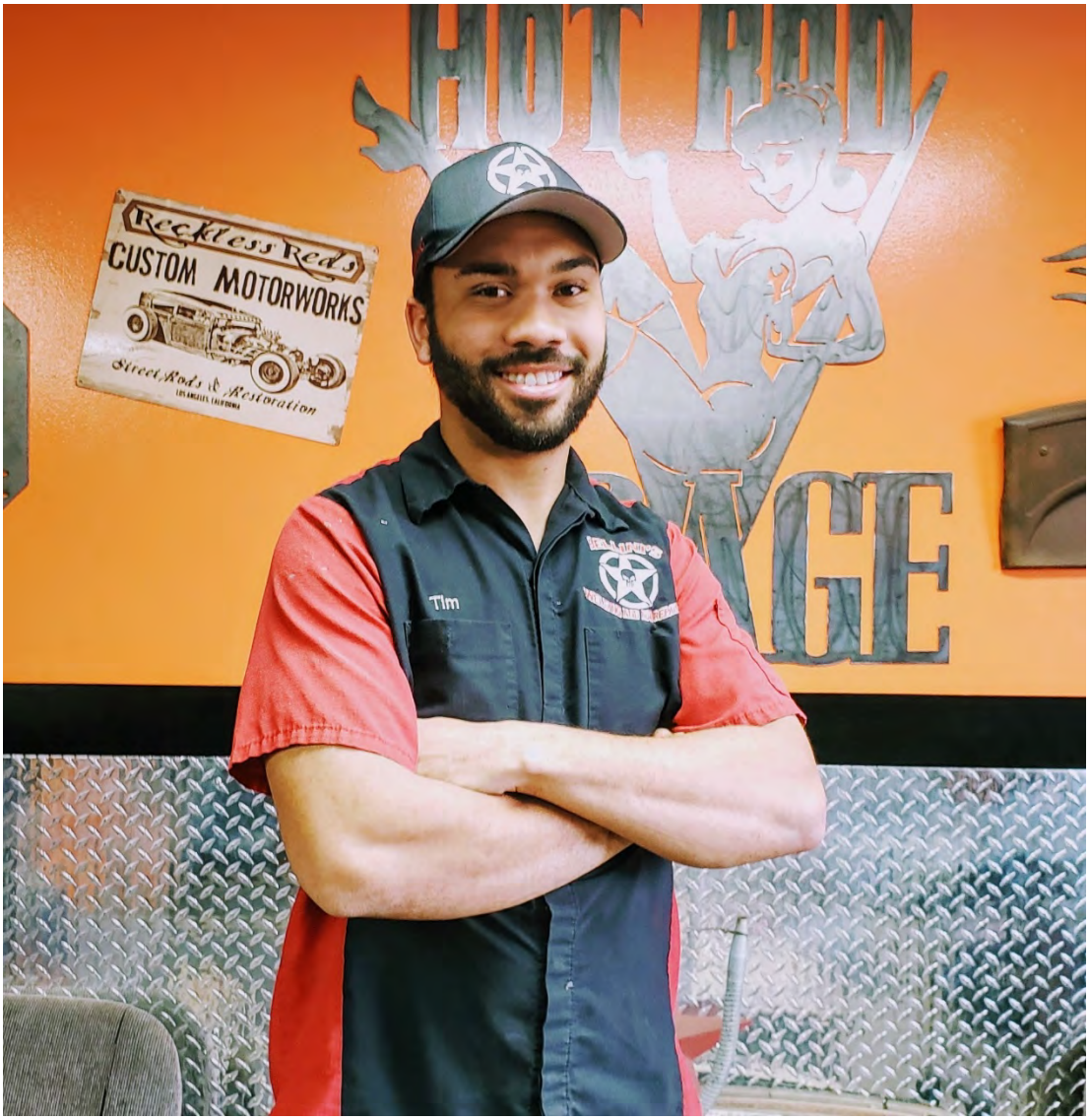
Below is the final bracket welded on. The pallet fork openings were cut open again for storing the skid in the off season.



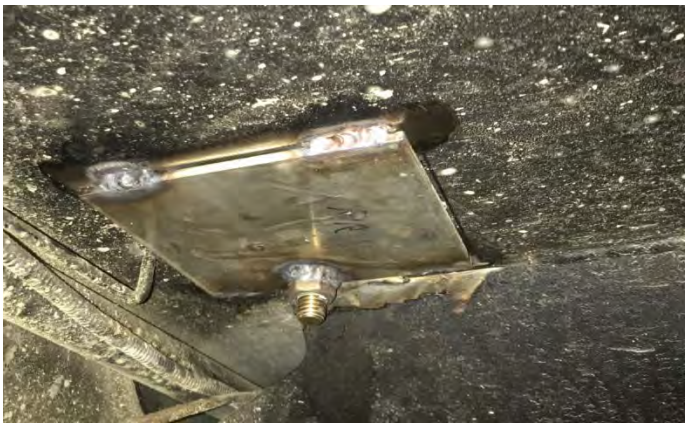
Below is Brian Bellini who can fabricate anything, and with flair.



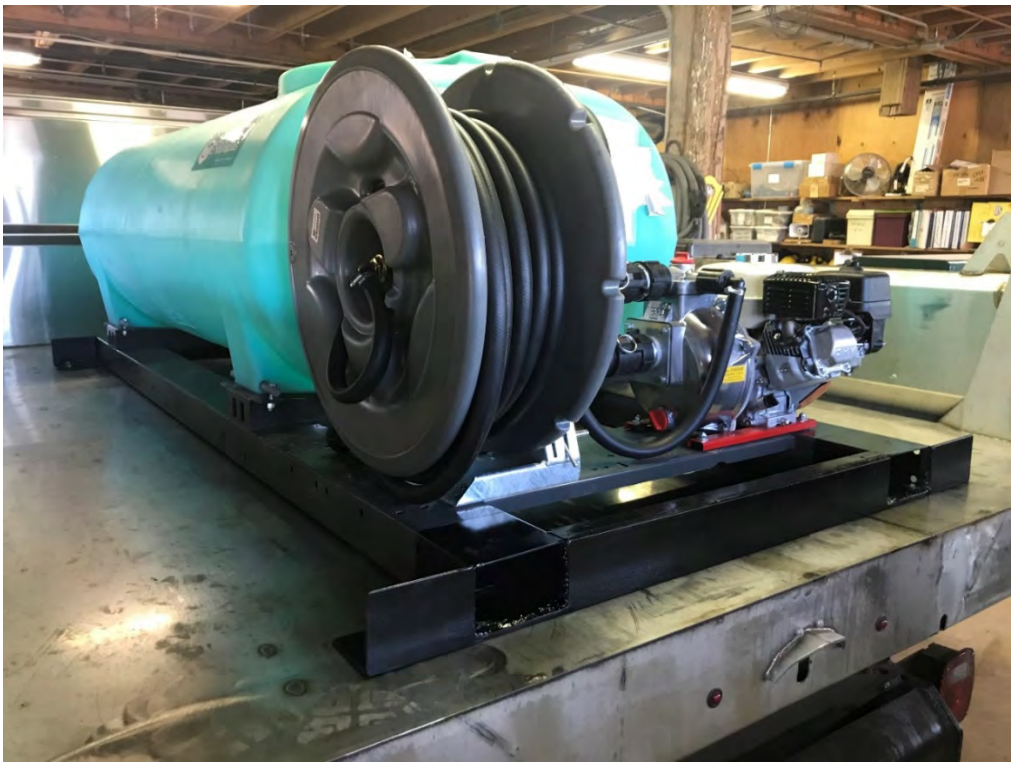
Below is Tim McBride of Bellini's



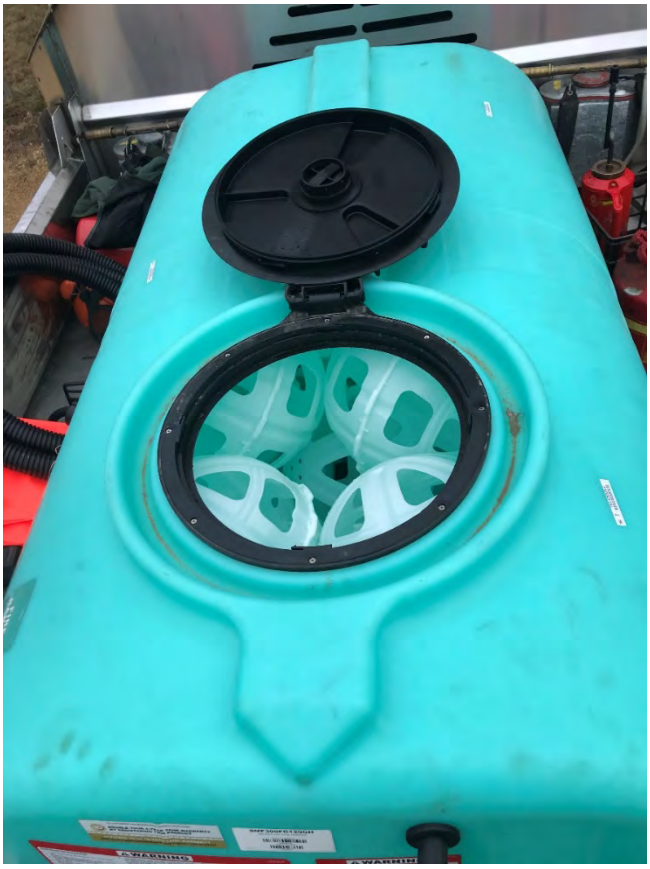
Below is the underside of the stainless dump body. Stainless plate was welded to the bed which acts as a huge washer to keep the nut from being pulled through the bed in an vehicle accident. The nut was welded to the plate which makes it easier to mount the skid in the future.



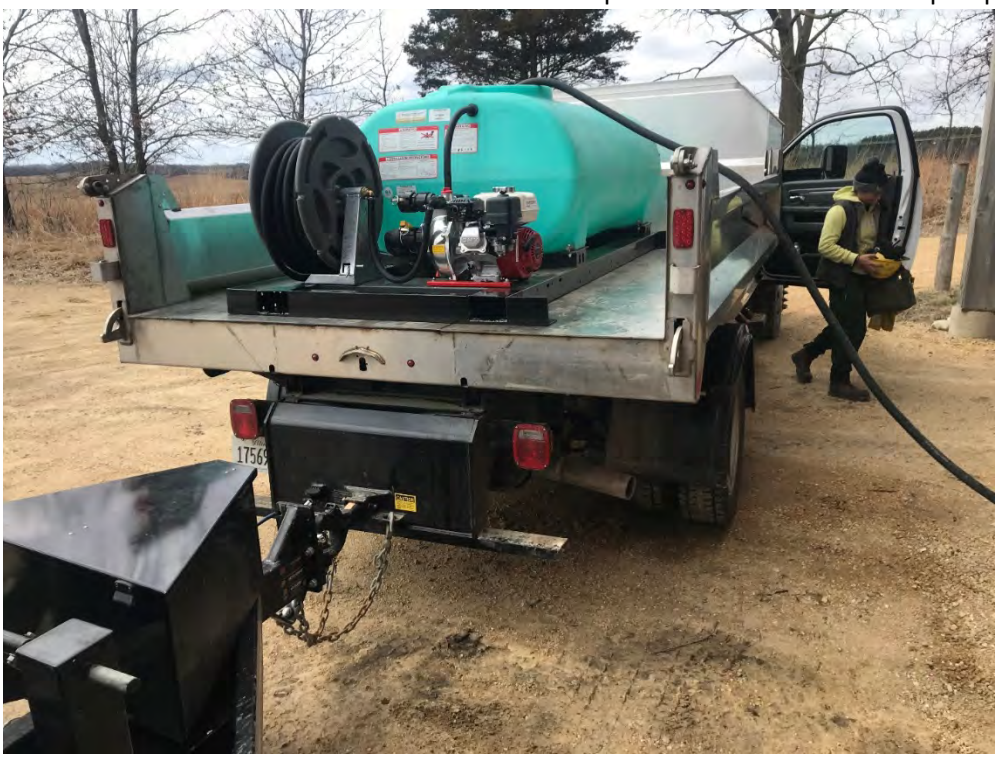
The skid unit is now bolted solid at the four corners. The bolt down welding and fabrication cost $800. If this were not a dump truck this cost would have been avoided.



Here are the baffle balls inside the tank. This unit is now very safe and steady and ready for years of service.

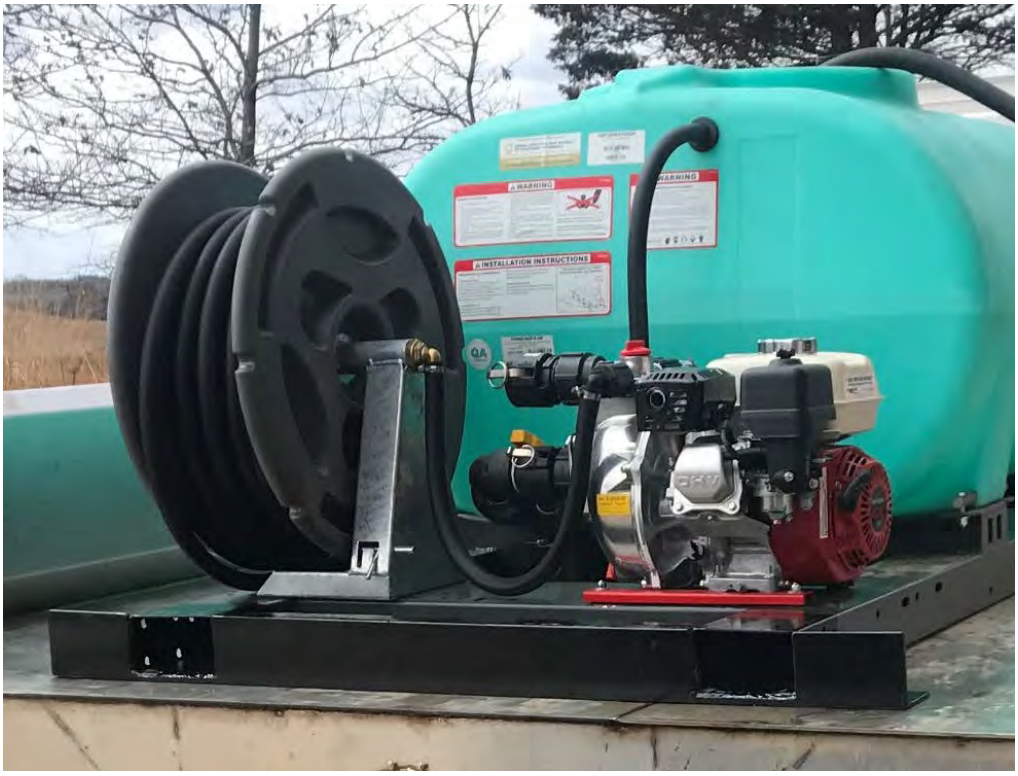


Below the tender is being filled from our Headquarters 1.25” line that runs at 30 gallons per minute. So we can fill this tender tank in about ten minutes. The tender also pulls a trailer with our UTV pumper.

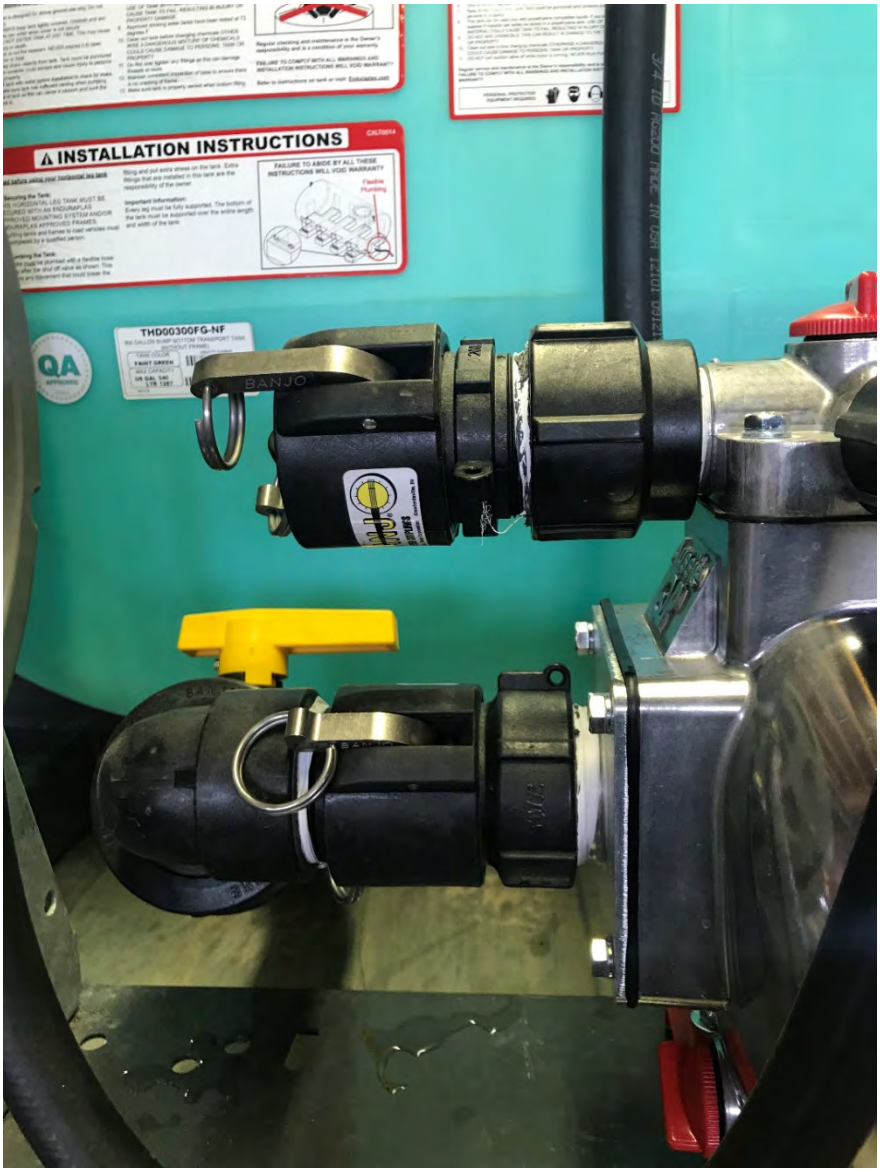


PLUMBING THE TENDER TO MOVE A LOT MORE WATER

This skid unit uses a Honda GX160 5hp motor turning an Aussie brand centrifugal pump that can pump 120 GPM at up to 100 psi. I tested the flow rate that comes out of the 100 feet of ¾’ hose and its nozzle. That flow was a mere 13 gpm at mid motor throttle. I took the nozzle off the hose but only increased the gpm to 17. Neither of these flow rates are high enough for a tender.

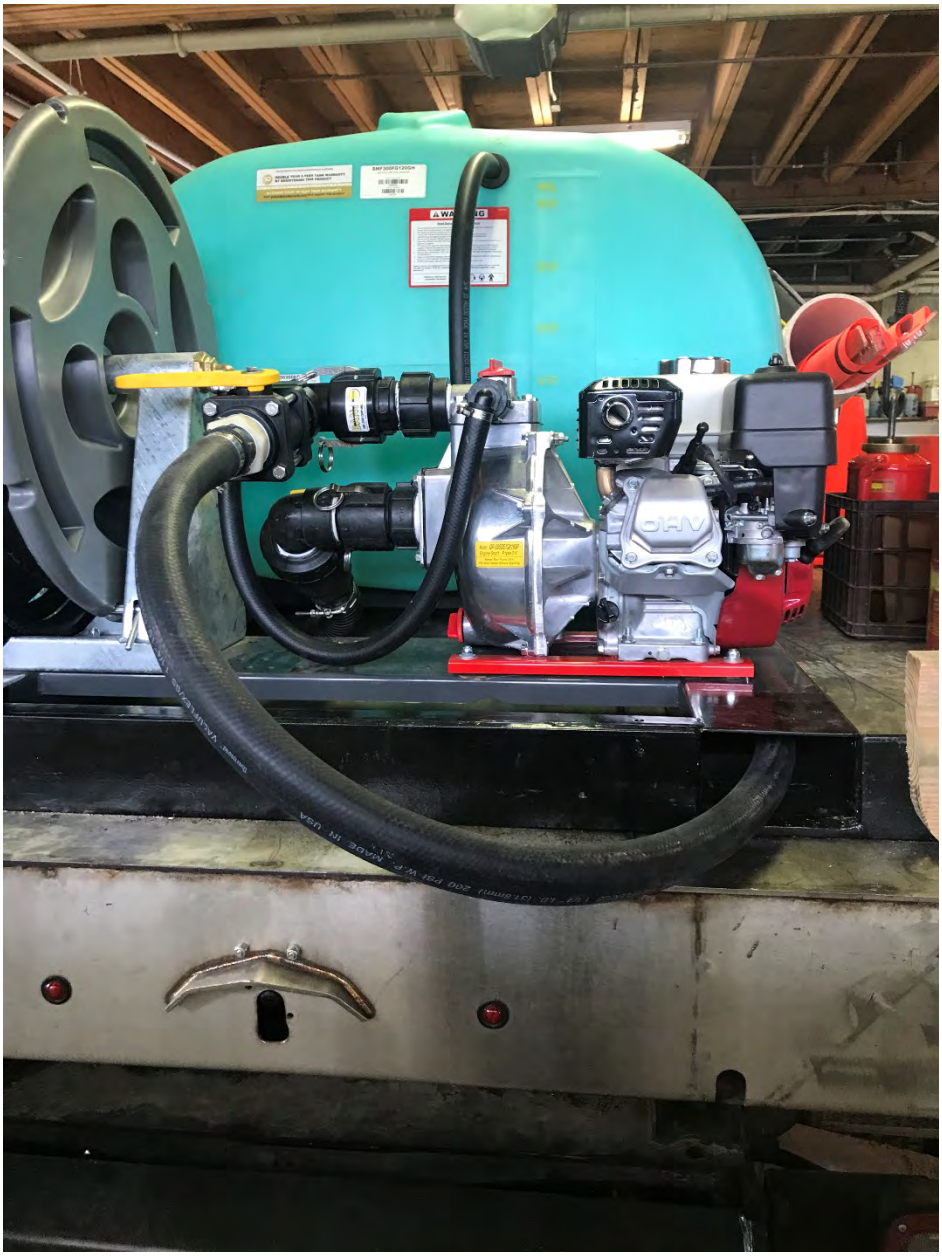


Below shows that output on the top with the Banjo cam cap.

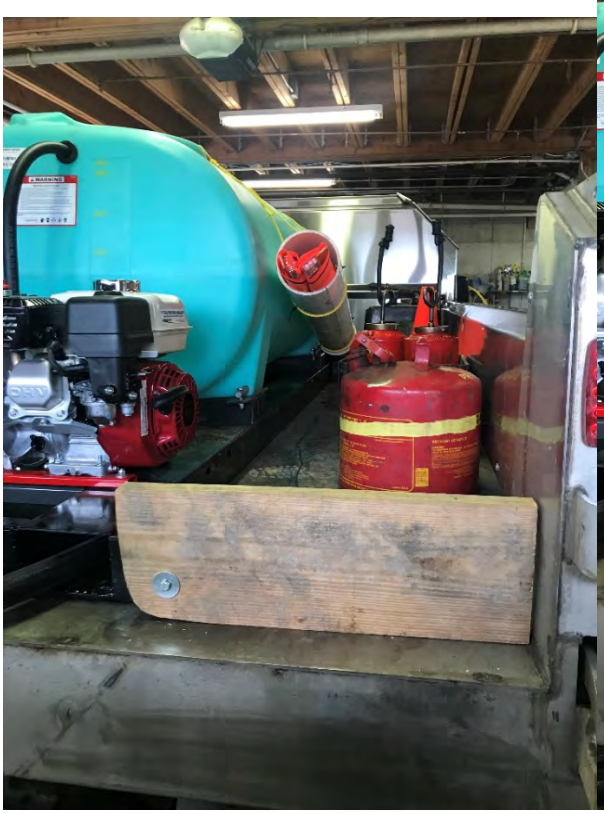


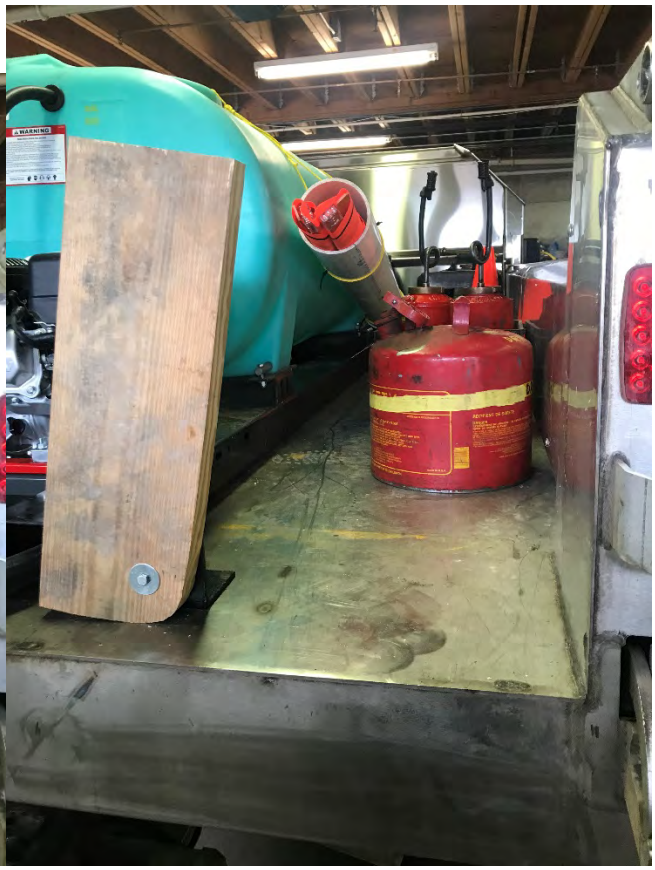
Below shows the plumbed a bypass to the hose reel. That output now has a 2 inch Banjo elbow fitting to a 2” ball valve to the 10 foot of 1.25” inch line. The line fits in the pallet fork frame for storage.

The 1.25” rubber ag hose was from Agstart (200 psi EPDM sprayer hose). This hose size was hard to find. One inch is common, and might have been big enough. With the motor at less than half throttle the flow rate was a massive 73 gpm and it had a lot of hose push back, and shot about 15 feet. I may need to move the valve to the end of this line instead of the beginning so the wild hose can be handled. This means I can’s store the hose in that pallet fork frame.

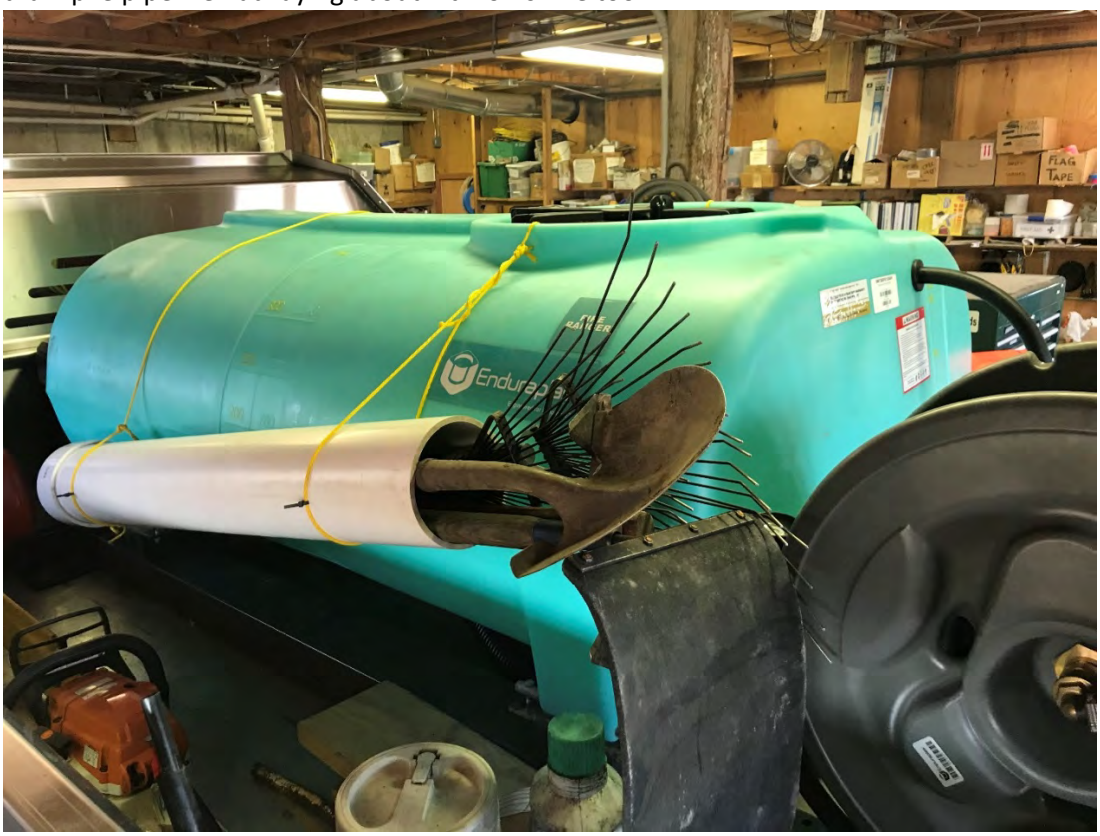

WARNING
GHV

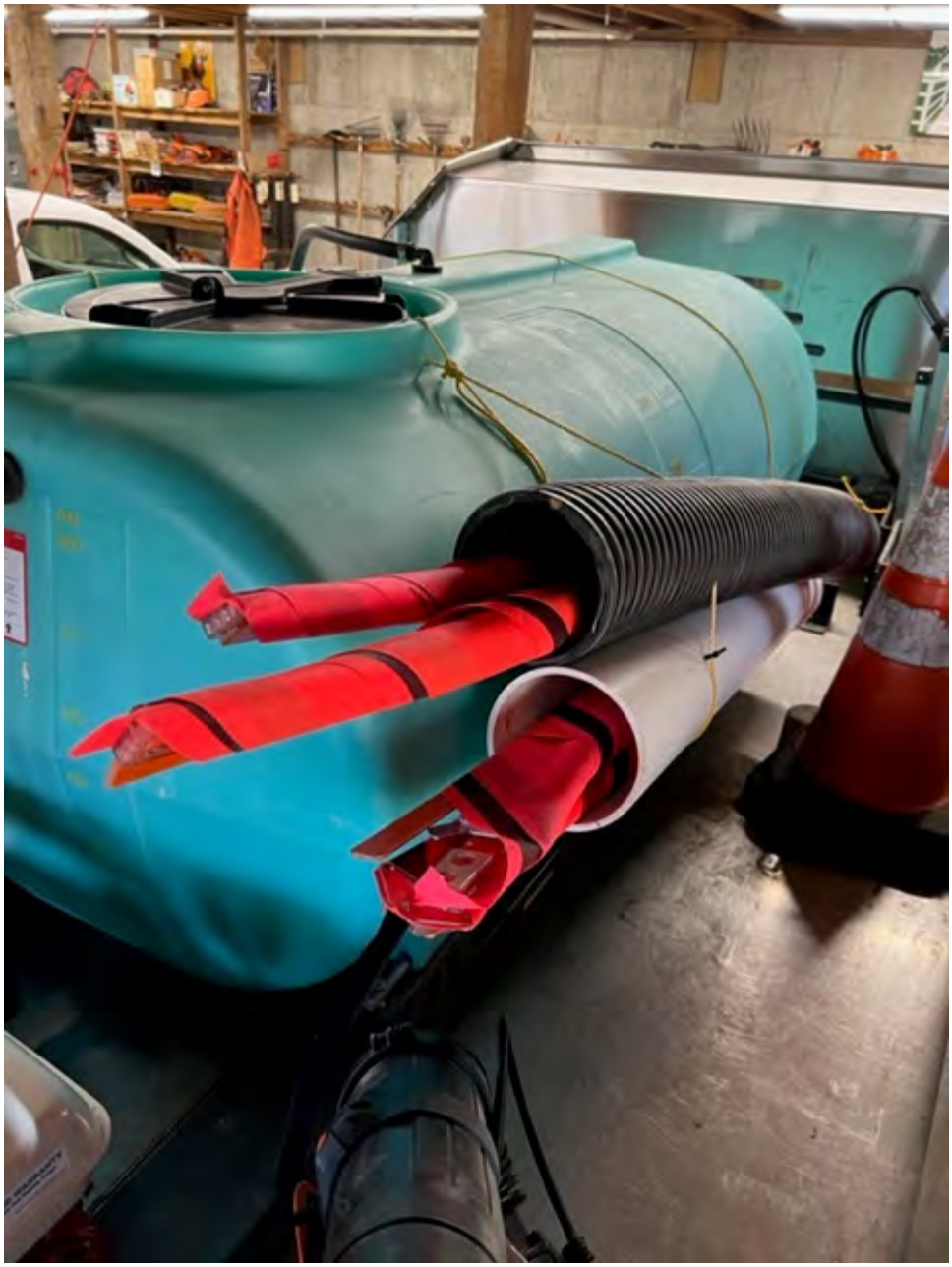
Below is a type of tail gate we fashioned to keep stuff from falling out.



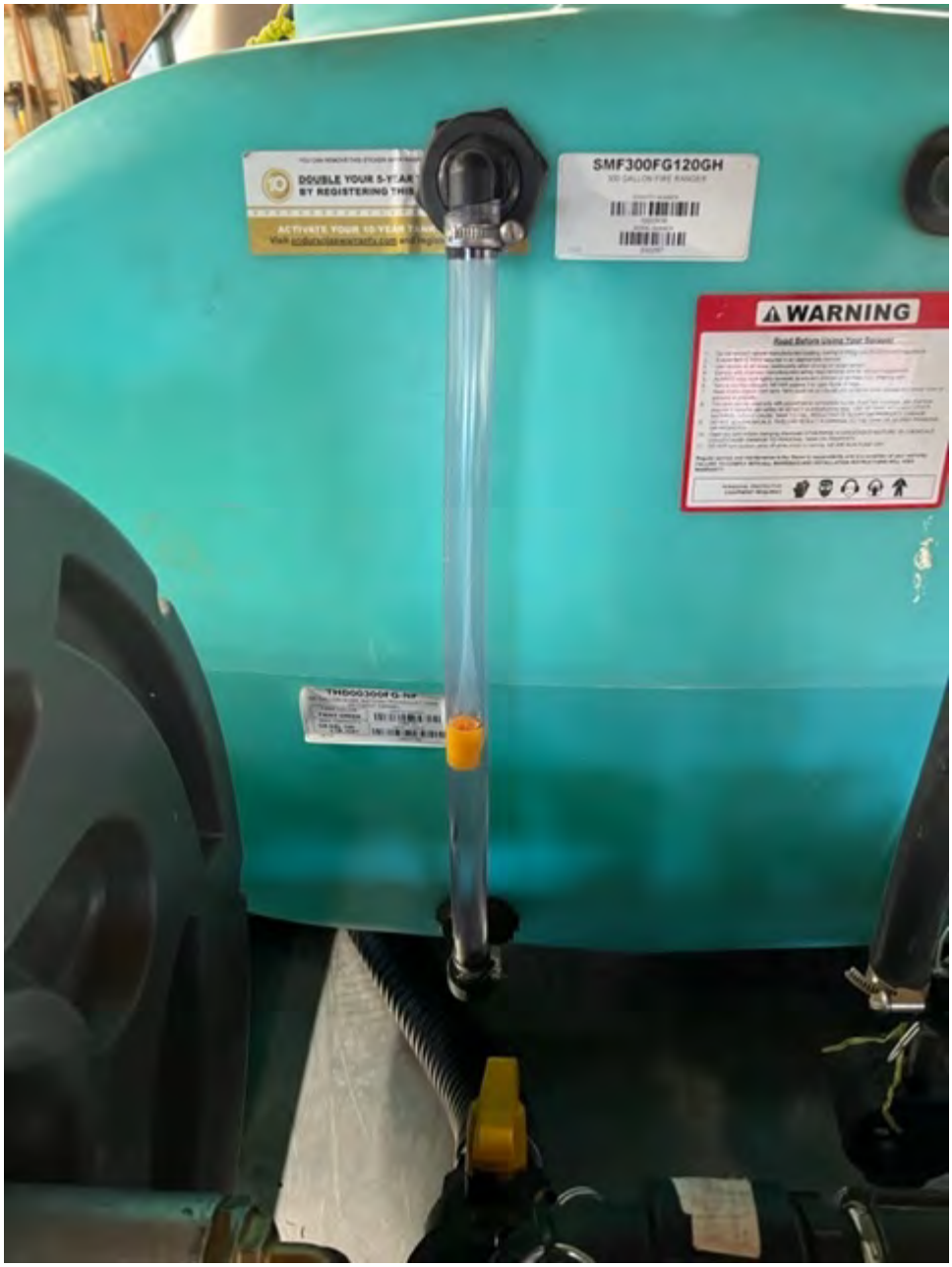


Below shows 6 inch pvc tube cut to about 4 foot long, with a cap on bottom with drain holes. We used rope to keep the tube from going up or down and held to that convenient angle. The PVC was expensive, so we later added the black drain pile pipe we had laying about. It works fine too.

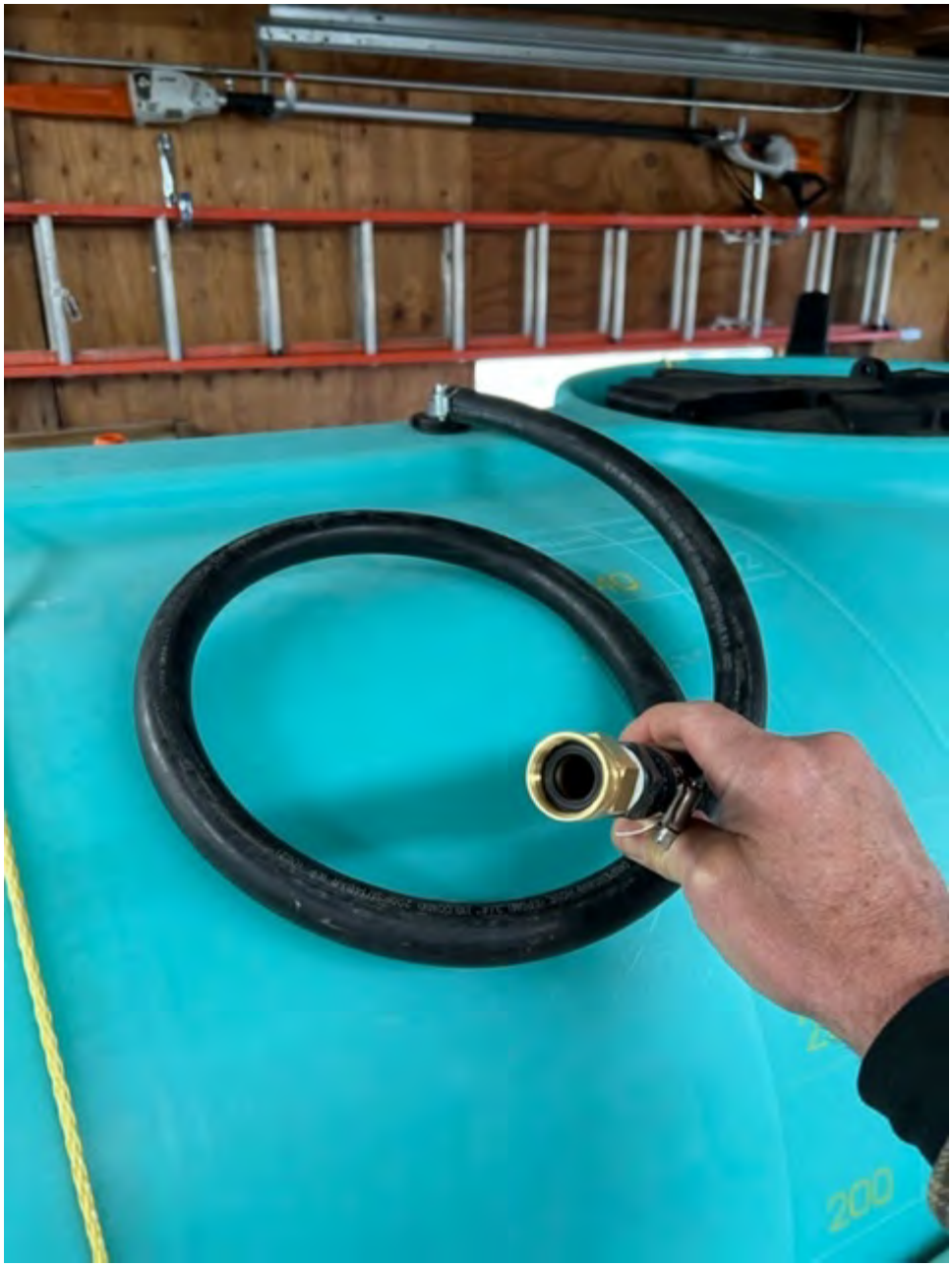




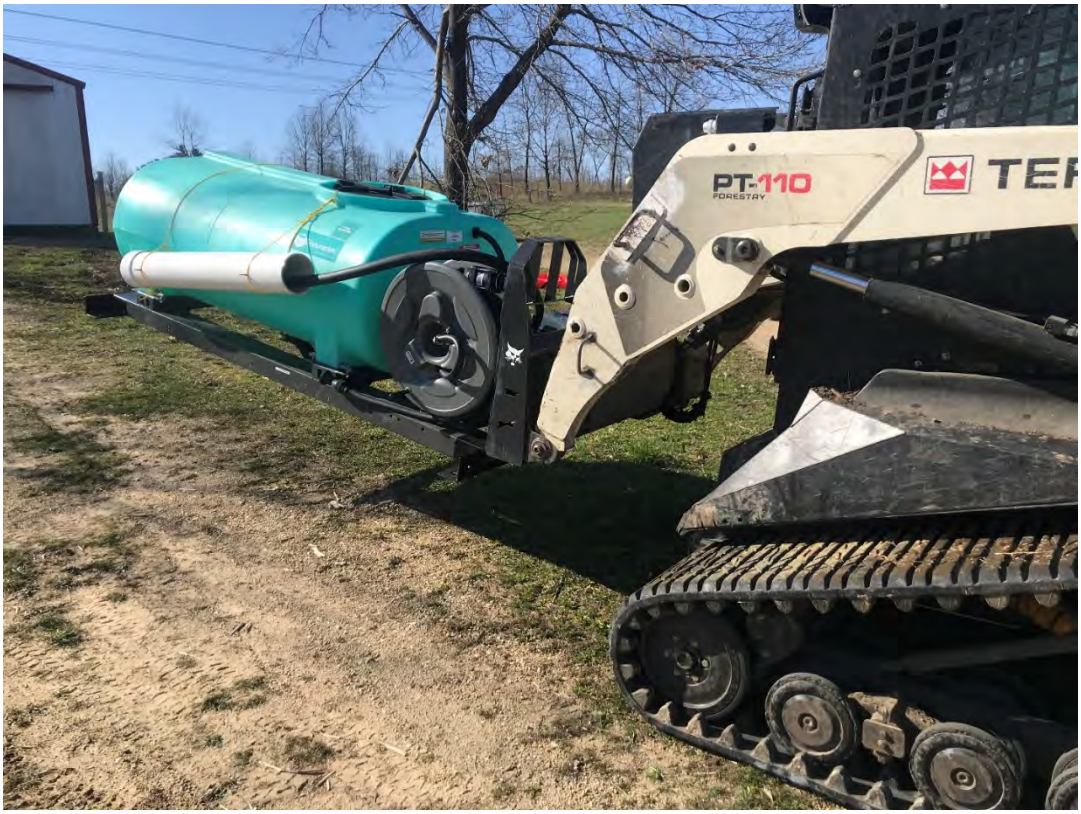
Below, we added a water sight gauge because the water level was hard to see in the tank. Just buy those fitting at the local farm store. A yellow magic marker cap is in the clear tube. Works fine.



Below, when we want to fill the tank we have to climb up in the bed to get at the fill lid. This is tricky with a tall dump truck full of equipment. So we added this short fill line. You just hook up your garden hose while standing on firm ground. When we want to fill with our high flow hose we climb up in the bed, carefully.



Below is one way to forklift the load. We also lift it from the side.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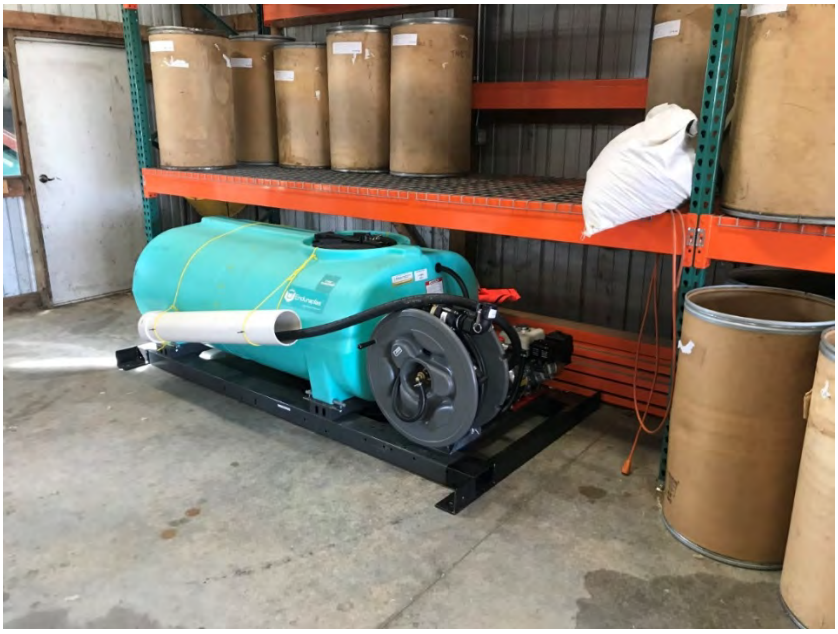
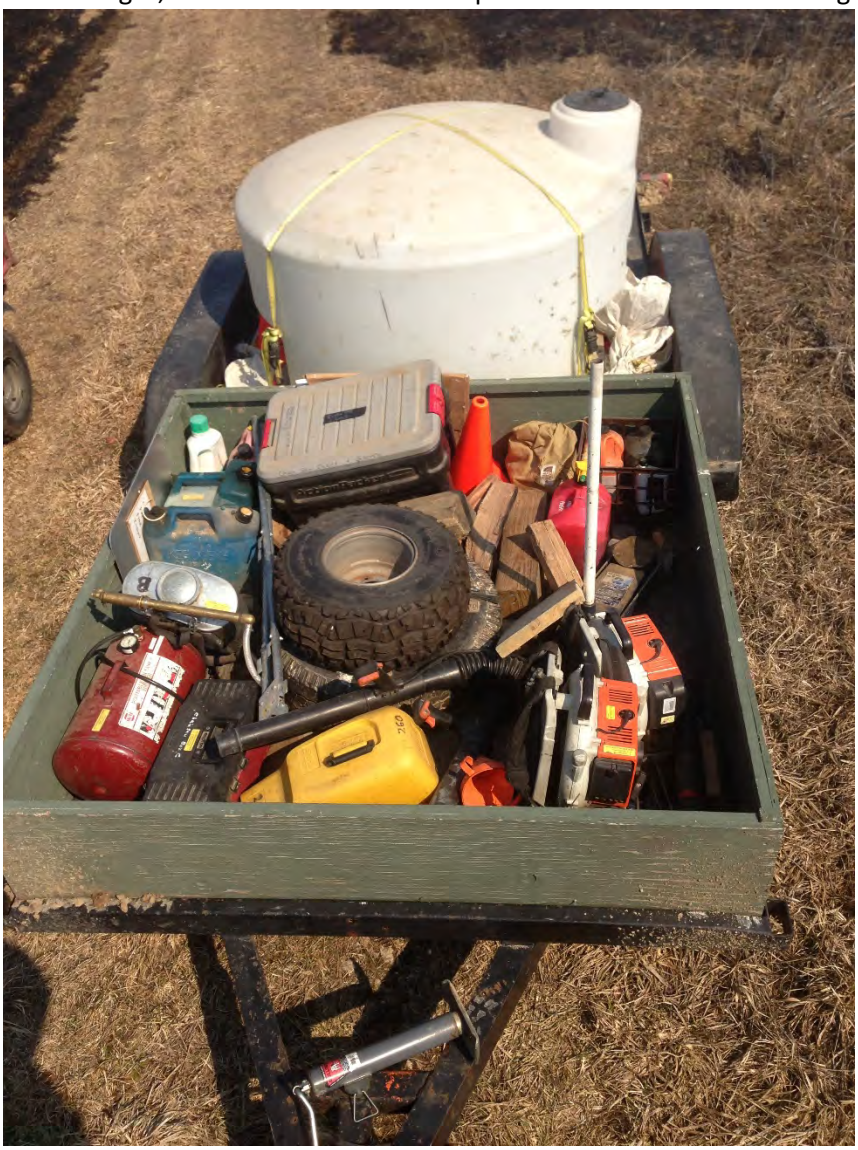
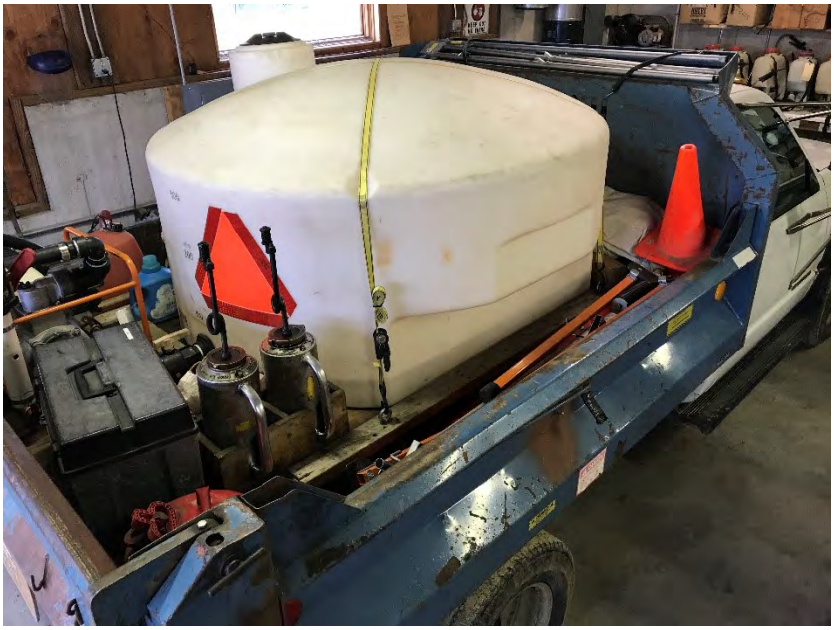


Below is a trailer style of tender we used to use. A truck bed tender can get into more places, can be parked easily in a shed at night, and it allows the truck to pull a UTV. But this was still a great tender.



Below is our former dump truck with its tender setup.



Thank you to volunteer maintenance tech Paul Mellen for working with me to get this tender set up.

End. Bill Kleiman