



PIPELINE TERMINAL CLIENT'S JUSTIFICATION FOR "L-POD" SYSTEM

One of the next phases of the Oil Terminal is putting in a stabilizer to assist with the high BTU and gravity oil that we bring in. This was in the original scope, the header system on the working tanks was actually built for this additional equipment, however it was pushed back to Phase II of the installation process.

That being said, I have been reviewing stabilizer options and processes that we current have and comparing to what is available in the industry. There is a company in Tulsa who has a product called the L-Pod. It was originally designed to assist with high BS&W issues in south Texas for EOG Resources. They have been using the skid system for over 6 years but only as a BS&W type skid. Over the past 6 years the technology of the skid has changed a little bit and they also have learned about a few other processes that the skid assists with besides the BS&W issue. This past year they have been retrofitting the skid with updated equipment so that it can be adapted for other uses as well as the BS&W.

This process was brought to my attention by Panhandle Meter in Pampa who is working on the new skid changes and programming of the skid with Rockwell Automation. It sounds really good, the skid that was just built is a little too much for me, we really do not need all of the bells and whistles that were added. I have sent in a few emails to them requesting more details about the overall process and documentation that verifies the before and after product. I am excited to find a process skid that might work for us without adding a bunch of equipment or multiple skids within the facility. Here are a few ideas and thoughts about how we might use the L-Pod Skid in the Oil Terminal.

1. **Use the L-Pod as a Stabilizer for the high gravity oil.** This will allow us to knock out the C6+ gas components prior to shipping of the oil. Based on the liquid price of crude versus the natural gas price we can play the market, this is because we can estimate the loss of product due to shrink when we sale off the gas from using the Stabilizer. This gas that we are selling off of the Stabilizer is a very rich product, we will be increasing the BTU of the gas already being sold in the system, so utilizing a composite sampler at the sale receipt will be critical. The current stabilizer at the North Frye Ranch CDP is typically good to knock out the highs from 22.2 RVP down to 10.8. However this is still too high for pipeline delivery, if we could run that oil through this skid we could knock it down to 3 with increased gas sales, then blend the oil back into the system for sale. This is more of a value added idea, we are already producing the oil, already hauling off the high gravity oil, but still getting docked per barrel. This would eliminate the docking fees per barrel and truck, while at the same time increase the gas volume and BTU.

2. Typically when we run crude through a stabilizer it doesn't just take the RVP down, it also changes the overall gravity of the product. This is due to the C6+ components that are no longer part of the product makeup. Typically we see around a 10 gravity drop when running through a stabilizer. If we have 20,000 barrels of 60* gravity oil in tank 1, we would need to dilute that oil with 22,000 barrels of 45* gravity Oil to drop the overall gravity below 52*. We only have a 40,000 barrel tanks, so we cannot dilute that much oil in a single tank to correct the problem. However, we could **run that oil through the L-Pod and knock down the gravity so that it doesn't take as much oil during the blending process.** Even if we only dropped the original volume of oil down to 55* gravity, it would only take 9000 barrels of 45* gravity oil to bring below 52* gravity. This not only can be done in a single tank but this also saves up money. Money saved buying the lower grade gravity and the trucking cost to haul it in. Calculations based on API MPMS 12.3.





3. **Use the L-Pod to clean up BS&W in the crude.** The Oil Terminal payment is based on monthly sampling from a composite sampling pot, this is where and when the BS&W readings are taken. By running all of the bad or dirty oil through the L-Pod System we can eliminate the possibility of contaminating the 40K barrel Storage Tanks. We can also use the L-Pod to fine tune the BS&W of the product being sold. Selling an average of 15000 barrels per day for the month is a total sales of 450,000 barrels per month. At the end of the month if we have 0.03% BS&W, it would change the overall total sales to 436,500 barrels. By running the oil through the L-Pod we could eliminate and reduce the BS&W down to 0.01%. This would **increase the sale by 9000 barrels and add back \$720,000.00 to the bottom line per month**, based on \$80 per barrel.

4. **Use the L-Pod to provide tank cleaning services for production.** Each Wellhead location has at least 3 tanks, there are over 1300 locations just within our current company, that is 3900 total tanks. Each tank has 6-10” of bottom gunk that is made up of BS&W and Crude, for a total of 31,200” of product. Usually a company has to get a hot oiler to drive out and circulate the tanks to get this cleaned up which cost between \$3-400.00 each. We will only charge \$2-250.00 per tank, tank size is the variable. Based on only having 300 barrel tanks, that is a total of over 52,000 barrels of product. If we could clean up 75% of that product and turn it into marketable crude oil, **we could profit \$3,144,960 dollars** at \$80 dollars per barrel. Not to mention the by-product increase of associated values: no more dirty tanks, not more rejected loads, increased sales of the gas vented off of the stabilization of the product, and the saving of 50% of cost per tank for 3rd party contract. Remember, you brought this product in without any production cost or associated expenses, we were actually paid to haul it off, which also netted us around \$780,000.00 for providing the services. This process if managed properly could **increase the bottom line at \$4.5 million dollars per year** counting up the savings and sales.

They have has been very informative about the product, the skid is actually patented so any variations and similar process will also have to go through them. We have a meeting coming up soon so I hope to learn more about the skid and skid options. I am trying to get the skid rent free for testing purposes, They told me that they would work with us on an agreement that would benefit both parties. A move in the right direction considering that the skid would cost around \$1 million dollars with all of the bells and whistles. **Payout for Idea #1 is 70 days. Payout for Idea #2 is tricky because its money is tied to monthly average so it could pay out in 1 week to 2 months depending on volume. Payout for Idea #3 is between 5-6 weeks. Payout for Idea #4 is just over 2 months.**

Cost savings do not reflect the actual installation cost or any rental associated cost if we do not buy the skid. Those cost can only be determined and estimated once the skid drawings are received and location within the facility has been approved.

I&E Measurement Specialist

