



CONSERVATION OF RESOURCES

Oil Recycling Solution For 4 Stage CNG Compressor

Technical Application Bulletin

PROJECT BACKGROUND

DISCOVER	DIAGNOSE
<ul style="list-style-type: none"> • Customer switched industries to run the service group of a CNG Fueling Station Manufacturer. • The compressors used for this process require a bleed off of the waste oil that saturates the pistons, as well as the gas being delivered to the trucks. • The customer discovered that the company was spending over \$28,000 in bleed off make-up annually, and at one (1) facility. 	<ul style="list-style-type: none"> • Schroeder visited the local facility to learn about the fluid. It was noted that the fluid could be recycled up to four (4) years. • We knew that we could build a Filter System that would allow us to return their investment (on the skid) in less than one (1) year in recycled oil cost alone.

INDUSTRIES



DESIGN

What We Did: We used the existing individual components required to prove the recycling concept, components that would later be packaged as a single solution for all sites, to do field trials and prove our concept.

We scheduled a visit and trials at a site where we knew the application would be the most difficult because of the high water content.

We documented every step with data recording and cameras. We measured the time it would take to process the oil and knew that we could control the unit to make it so the operator would only have to start the unit, walk away, let it run, and come back to transfer the oil when done. Less than 15 minutes total interface time to complete the process.

After the field trials we then took virgin oil into our Fluid Care Center (FCC), along with samples of the used oil and the recycled oil, and did a full lab analysis to produce a detailed FCC summary report.

The report was used to make the “Proof of Concept” proposal for our customer to use to gain his board or director’s approval. With this data we then designed the single No Oil Left Behind (N.O.L.B.) Unit, priced it down, and delivered the customer a detailed quotation and summary report with the ROI calculations included on the back. This was done to allow the customer to justify the purchase of 15 units.



DELIVER

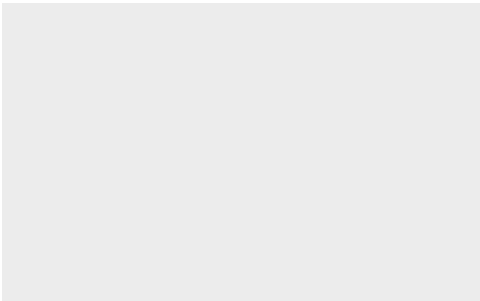
- We made a drawing, cost estimate, and a detailed proposal.
- The customer signed off and placed an order for one (1) unit at each of their 15 locations (15 total units were ordered).
- In short, the customers' fleet specific, single recycling product became the No Oil Left Behind (N.O.L.B.) Unit.
- This unit is a Polyalkylene Glycol (PAG oil) recycling system that allows the customers' service technicians to safely collect, contain and condition the bleed off oil that is collected weekly.
- The bleed-off oil is stored in the N.O.L.B. unit until it is filled.
- Once filled and removed, the recycled oil is certified by an independent lab, marked as clean and then stored in a three (3) barrel storage system (Dirty, Recycled and New).
- The whole N.O.L.B. unit and process allows the customer to collect and recycle previously disposed of CNG compressor lubrication fluid. The compressor fluid is restored to the ISO fluid cleanliness levels shown by NORIA to extend the life of the Compressors' most high tolerance lubricated component and the unit will restore the water levels to <10,000 ppm.
- The result is up to 4 years of extended oil service life through oil recycling/ reuse. In addition, by using the N.O.L.B unit, there is a reduced risk of spill when bleeding-off the compressor. Before, recycling waste buckets were used to collect the bleed-off oil and the used oil barrels were stacking up and the oil had to be disposed of at a cost.

CNG Compressor	Without NOLB	With NOLB	Savings
Waste Volume (1 location)	17.5 drums	.35 drums	17.15 drums
Waste Volume (15 locations)	262.5 drums	5.25 drums	257.25 drums
Cost of Waste Oil	\$2,035 / drum	\$2,035 / drum	-
Annual Cost at 1 location	\$35,613 / year	\$712.25 / year	\$34,900.75
Annual Cost at 15 locations	\$534,188 / year	\$10,684 / year	\$523,504
Annual % of Oil Wasted	100%	2%	98%

CUSTOMER BENEFITS

- Conditions the used, previously disposed of, CNG compressor PAG lubricating fluid to its optimized state
- Cuts annual oil waste from 17.5 drums to only .35 per location

FURTHER APPLICATION AREAS



ROI

Annual Cost-Savings At One (1) Location



\$34.9K

Wasted Oil Per Year



▼98%

Annual Waste Per Year At One (1) Location



.35 drums

Underlying values:

Annual volume of Waste Oil w/o NOLB = 17.5 drums per location (15 total locations at \$2,035 a drum) 17.5 x 15 x 2,035 = \$534,188 + disposal

Annual volume of Waste Oil w/ NOLB = 98% of 17.5 drums per location (15 total locations at \$2,035 a drum) .98 x 17.5 = 17.15 17.5 - 17.15 = .35 x 15 x 2,035 = \$10,683.75 + disposal

PRODUCT SPECS

N.O.L.B. | No Oil Left Behind Filter Cart

Flow: 1.5 gpm (5.7 L/min)

Relief Pressure: 100 psi

Ambient Temp. Range:

10°F to 113°F

Weight: 500 lbs.

Compatibility: Compressor Oils (Viton® seals standard)