



Marine Applications

Scott Irwin-Port Engineer





Products Used

- Engine Oils
 - Ultra RDE Oil (8900)
 - SAE 40 RDE Zinc Free
 - Monolec Ultra Engine Oil (8800)
 - SAE 15W-40
 - Monolec GFS Engine Oil (8430-8450)
 - 8430 SAE 30
 - 8440 SAE 40
 - 8450 SAE 50
- Greases
 - Almagard Vari-Purpose Lubricant (3752)
 - H1 Quinplex Food Machinery Lubricant (4025)
 - Monolec Extend EM Grease (1282)
- Reliability Products
 - Xclude Desiccant Breathers
 - Xpel Tags & Labels
 - Xport Single Point Lubricators
 - Xport Clear Grease Guns



Vessels Converted to LE

- ✓ Prowler
- ✓ Bering Prowler
- ✓ Ocean Prowler
- ✓ Arctic Prowler
- ✓ Gulf Prowler
- ✓ Beauty Bay
- ✓ Bluefin
- ✓ Courageous
- ✓ Baranof
- ✓ Starbound
- ✓ Pacific Capes
- ✓ Pacific Glacier
- ✓ Northern Glacier
- ✓ Vaerdal
- ✓ Blue Gadus
- ✓ Blue Pacific
- ✓ Cape Kiwanda
- ✓ Arctic Explorer
- ✓ Ocean Explorer
- ✓ Pacific Explorer
- ✓ Northwest Explorer



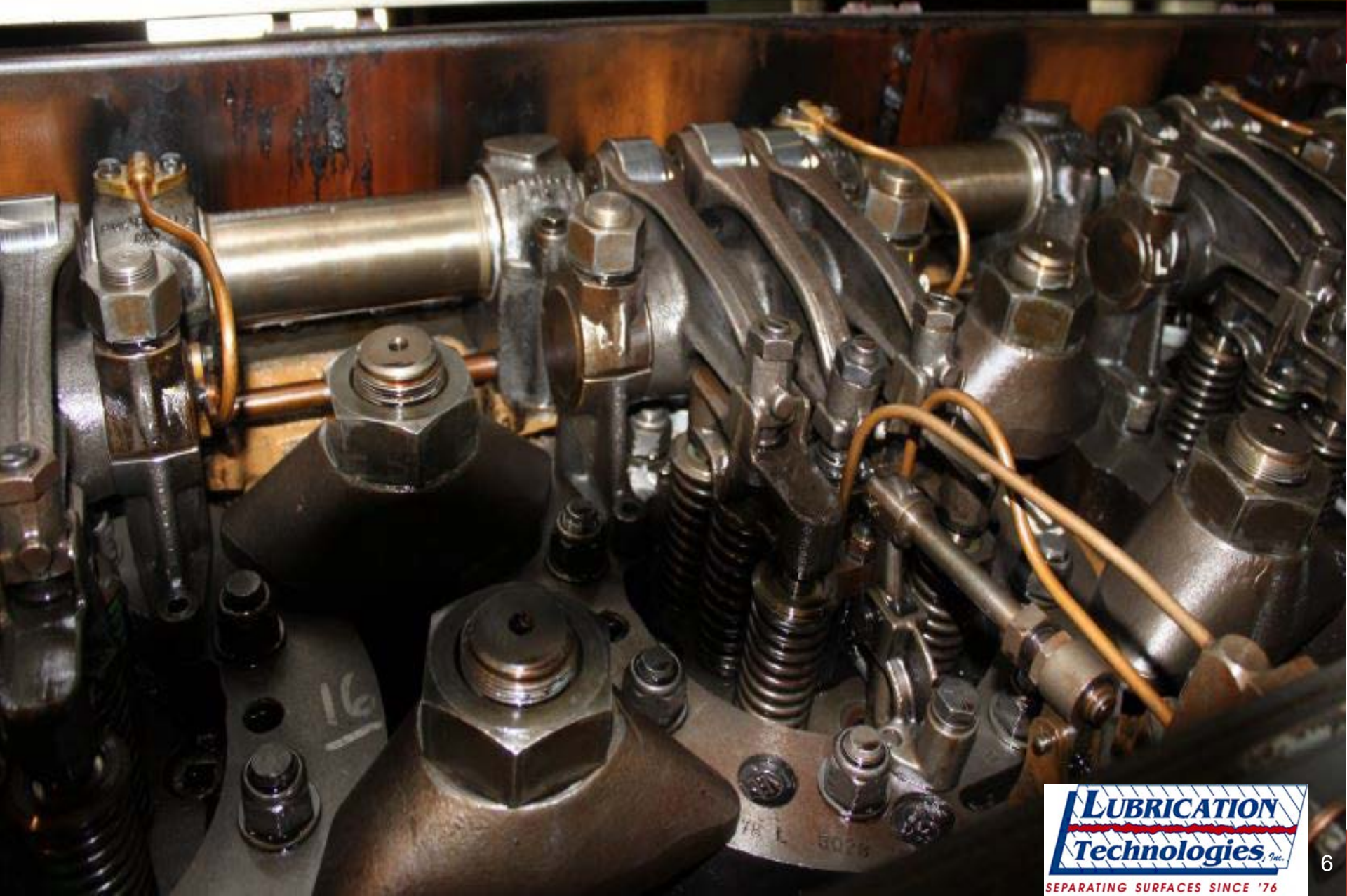
Types of Engines & Sizes


- Alco 251 Series
- Cat 3512, 3412, 3306, 399, 353
- GE 250 Series
- EMD 645, 567
- Cummins K19, KTA 38
- GM 12V149, Series 60
- John Deere 4045

EMD 645-Locomotive Engine Before LE Monolec Engine Oil



EMD 645-Locomotive Engine After LE Monolec Engine Oil





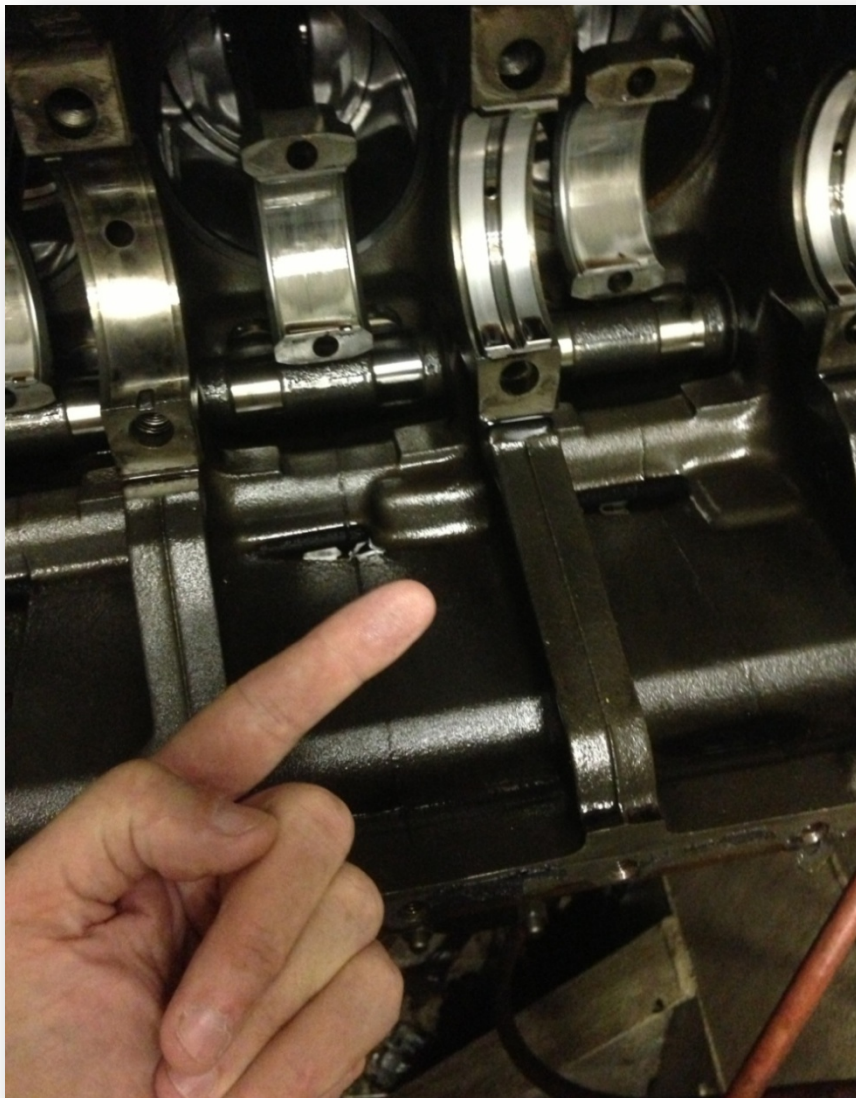
Oil Ring- normally these grooves are worn away.

**Cat 3306 Gen Set w/22,000 Hrs-
seen as it was disassembled**





Finger wiped across block as seen-not cleaned previously



22,000 Hrs on Bearing shell





BARANOF

SEATTLE · WA

7 Totes to fill 2,000 gal tank



Courageous Savings

- Yearly savings using LE
 - \$37,650
 - 62% decrease





Savings Calculation

Main Engines	
Sump Size (gal)	220
Lube Cost (gal)	\$18.00
Cost per Change	\$3,960.00
L.E. Lube Cost (gal)	\$20.50
Cost per Change	\$4,510.00
Avg Change Hours (before)	700
Avg Change Hours (after)	3000
Avg Hours Run/Year	6480
Avg Oil Consumption/Day	1
Total Cost (before)	\$41,518.29
Total Cost (after)	\$15,276.60
Total Savings per Year	\$26,241.69
Total Savings %	63%





Savings Calculation

Auxilliaris	
Sump Size (gal)	40
Lube Cost (gal)	\$18.00
Cost per Change	\$720.00
L.E. Lube Cost (gal)	\$20.50
Cost per Change	\$820.00
Avg Change Hours (before)	250
Avg Change Hours (after)	750
Avg Hours Run/Year	3240
Avg Oil Consumption/Day	0.25
Total Cost (before)	\$9,938.70
Total Cost (after)	\$4,234.28
Total Savings per Year	\$5,704.43
Total Savings %	57%





Savings Calculation

Total LE Savings	
Number Main Engines	1
Number Auxilliaries	2
Total Annual Savings	\$37,650.54
Total Savings %	62%

THINK GREEN!

Total Lube Used Before (gal)	3411
Total Lube Used After (gal)	1158
Total Waste Lube Before (gal)	3073
Total Waste Lube After (gal)	821

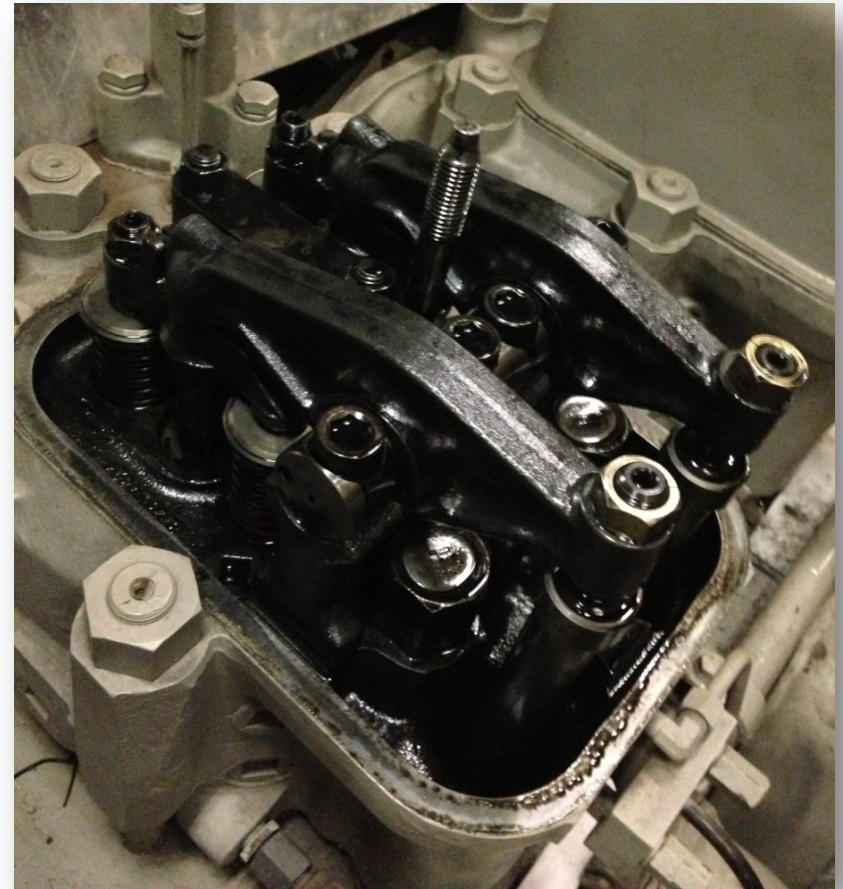
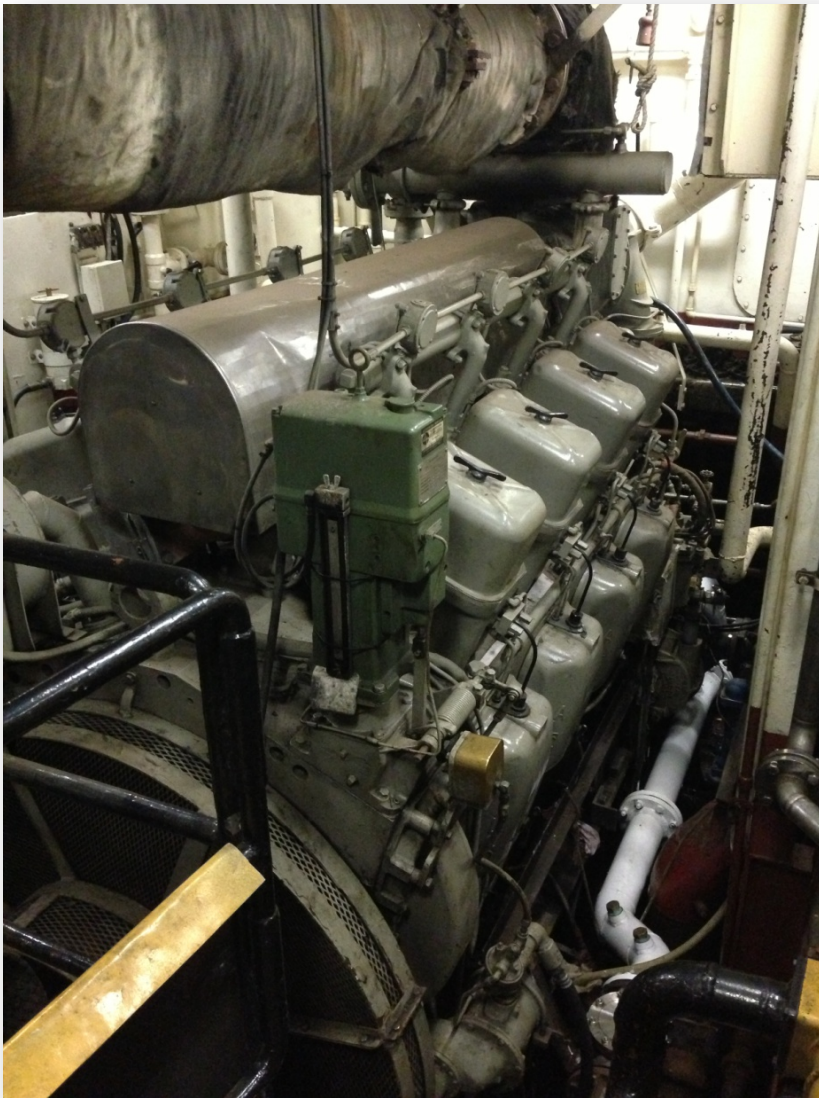
This spreadsheet illustrates the savings potential when choosing LE superior lubricants over conventional lubricants.

The savings reflect longer oil change intervals while still maintaining original filter change intervals.





251 Alco before LE
Locomotive Engine





Oil Sample Results

Courageous – Alco 251 Series

108 days at sea-average oil
consumption = 3 qts/day

Sample #	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorous	Zinc
2	4	0	0	1	0	0	0	0	0	0	2	2	0	0	5	0	0	0	41	20	4323	0	109	126
3	4	0	0	1	0	0	0	0	0	0	2	5	0	0	2	0	0	0	19	26	4476	0	61	73
4	4	0	0	1	0	0	0	0	0	0	2	4	0	0	1	1	0	0	15	29	4448	0	52	61
5	5	0	0	1	0	0	0	0	1	0	2	4	1	0	1	0	0	0	12	25	4679	0	44	51
6	7	0	0	3	0	0	0	0	0	0	2	2	0	0	1	1	0	0	9	28	4959	0	28	38

Sample #	Sample Information							Contaminants			Fluid Properties					
	Date Sampled	Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base Number	Oxidation	Nitration
			h	h		gal		% Vol	% Vol	% Vol	cSt	cSt	mg KOH/g	mg KOH/g	abs/cm	abs/0.1 mm
2	18-Jan-2015	26-Jan-2015	469	20092	No	0	Yes	0.9 - GC	<.1	<.1 - FTIR		15.3		13.1		
3	06-Mar-2015	13-Mar-2015	433	21092	Unk	30	Yes	0.6 - GC	0.3 - FTIR	<.1 - FTIR		15.3		13.9		
4	28-Mar-2015	06-Apr-2015	850	21509	No	45	Yes	0.7 - GC	<.1	<.1 - FTIR		15.0		12.8		
5	24-Apr-2015	01-May-2015	1444	22103	No	50	Yes	0.7 - GC	0.2 - FTIR	<.1 - FTIR		15.3		13.4		
6	16-Jun-2015	22-Jun-2015	2587	23246	No	80	Yes	0.5 - GC	0.2 - FTIR	<.1 - FTIR		15.2		13.1		

Prowler Savings





Savings Calculation

Main Engines	
Sump Size (gal)	40
Lube Cost (gal)	\$18.00
Cost per Change	\$720.00
L.E. Lube Cost (gal)	\$20.50
Cost per Change	\$820.00
Avg Change Hours (before)	300
Avg Change Hours (after)	2100
Avg Hours Run/Year	6480
Avg Oil Consumption/Day	1
Total Cost (before)	\$20,412.00
Total Cost (after)	\$8,065.29
Total Savings per Year	\$12,346.71
Total Savings %	60%





Savings Calculation

Auxillaries	
Sump Size (gal)	8
Lube Cost (gal)	\$18.00
Cost per Change	\$144.00
L.E. Lube Cost (gal)	\$20.50
Cost per Change	\$164.00
Avg Change Hours (before)	250
Avg Change Hours (after)	750
Avg Hours Run/Year	3240
Avg Oil Consumption/Day	0.1
Total Cost (before)	\$2,109.24
Total Cost (after)	\$985.23
Total Savings per Year	\$1,124.01
Total Savings %	53%





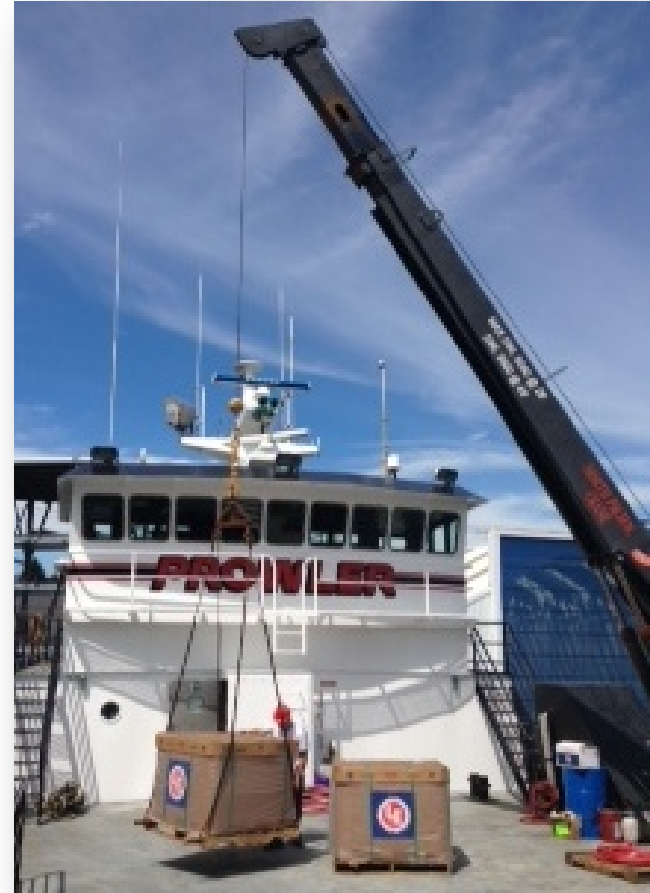
Savings Calculation

Total LE Savings	
Number Main Engines	2
Number Auxiliaries	2
Total Annual Savings	\$26,941.45
Total Savings %	60%
THINK GREEN!	
Total Lube Used Before (gal)	2502
Total Lube Used After (gal)	883
Total Waste Lube Before (gal)	1935
Total Waste Lube After (gal)	316
This spreadsheet illustrates the savings potential when choosing LE superior lubricants over conventional lubricants.	
The savings reflect longer oil change intervals while still maintaining original filter change intervals.	





Oil Delivery & Loading





Tote to Pump Preparation





Tote to Pump Preparation





Tote to Pump Preparation





Tote to Pump Preparation





Tote to Pump Preparation



New Vessel Construction-\$36M



First “Moon Pull” design vessel in United States



Fresher than Fresh Processing





Contact Info



**Thanks to
Scott Irwin who
created this
presentation**