

Converting the Boilers to #2 Oil / Distillate Fuel

LMCF used two sources to calculate fuel consumption rates: Chapman Technical and LMCF Chief Engineer Chuck Cart, who holds an Unlimited Tonnage Engineers license. Both sources came to a conclusion that offered a wide but similar range in fuel consumption.

Chapman Technical: Estimates fuel consumption would be between 12,000 and 24,000 gallons a day.

Chief Engineer Chuck Cart: Estimates fuel consumption would be between 11,729 and 23,510 gallons a day.

Averaging these four numbers provides a reasonable estimate for fuel consumption, while taking into account that the Badger's boilers were designed to burn coal, not diesel (tube spacing and combustion area are different in boilers designed to burn #2 diesel). Estimated gallons of #2 diesel that would be burned per day: 17,809.75. Fuel is averaging around \$3.25 a gallon. Daily fuel cost at that price would be approximately **\$57,881.68 per day**.

Using the best case scenario of 11,729 gallons of fuel per day, our fuel cost would be $(11,729 \text{ gal} * \$3.25 = \$38,119.25)$ **\$38,119.25 per day**. Our current coal fuel cost is in the \$8,400.00 per day range.

Based on the best case scenario for fuel consumption and an approximate sailing season of 140 days, the increase in annual fuel cost would be **\$4,160,695.00** ($\$29,719.25 * 140 \text{ days} = \$4,160,695.00$ per year).

This increase in fuel cost does not take into account the cost of the boiler conversion.

Note: heavy oil / bunker type fuels are rapidly being phased out through the regulatory process and soon will be unavailable; as such, they were not included as an option.

Chuck Le

From:
To:
Subject:

Chuck,

I spoke with
boilers if fire
he was using

from Foster
@ 29,500 #
furnace volu
BTU liberatic
for 24hrs
times 3 boile
49,350btu/c
divided by th
gives an est
23,510 gal/d

or

assumed av
2000#/ton
13,000 btu/#
60ton x 2000
divided by 13
gives 11,729

John also es
we agree tha
very easily.

If you have a

Chuck C.

Chuck Leonard

From: John Chapman [john@chaptech.us]
To: 'Chuck Leonard'
Subject: Fuel Oil Fired Boilers

Chuck.

To reiterate my continued conversations with Chuck Cart and our combined estimates for re-outfitting the boilers with F.O. burners, we estimate the following:

Estimated cost to change out burners, install new F.O. tanks, install related piping systems, engineering and approvals is approximately \$250 – 260K

The estimated fuel consumption has a broad range depending on the approach used. The least amount estimated is about 12,000 gal/day and the most was estimated at about 24,000 gal/day.

Chuck Cart told me that he would take time to review the estimates with you but if there is anything I can answer or assist with please let me know.

Regards,
John

John A. Chapman

Chapman Technical
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Sturgeon Bay, WI 54235
Cell (920) 883-2132
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Chuck Leonard

From: Pamperin, Michelle [MPamperin@usoil.com]
Subject: US Oil Firm Fixed Pricing

US Oil Firm Fixed Pricing

ULS #2

| | |
|--------|----------|
| Feb 12 | \$3.2140 |
| Mar 12 | \$3.2321 |
| Apr 12 | \$3.2961 |
| May 12 | \$3.3007 |
| Jun 12 | \$3.2798 |
| Jul 12 | \$3.2895 |
| Aug 12 | \$3.2905 |
| Sep 12 | \$3.3165 |
| Oct 12 | \$3.3236 |
| Nov 12 | \$3.2942 |
| Dec 12 | \$3.3116 |
| Jan 13 | \$3.3353 |
| Feb 13 | \$3.3133 |
| Mar 13 | \$3.2764 |

*Price is the market close only and may not reflect the true cost of the contract. Please check with US Oil for current price

*base price only FOB terminal and does not include any freight, inspection fees or taxes

*Contracts are done on clear fuel. Dyed fuel and Premium diesel may be applied to the contracted gallons at the current applicable rates. Currently .0035 for dye and .02 for PDF.

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