

## © Copyright Statement

All rights reserved. All material in this document is, unless otherwise stated, the property of **FPC International, Inc.** Copyright and other intellectual property laws protect these materials. Reproduction or retransmission of the materials, in whole or in part, in any manner, without the prior written consent of the copyright holder, is a violation of copyright law.



INDUSTRIES

TO: Ed D'Esposito
FROM: Fred Gregg
SUBJ: Fuel Catalyst Evaluation
DATE: July 22, 1991

Beginning April 12, 1991, MFM began a burner test using a fuel catalyst blended with waste oil. The product used is called FPC-1, a combustion enhancer developed at Brigham Young University and produced by U.H.I. Corporation out of Provo, Utah.

The purpose of the test was to prove whether or not a fuel additive would improve combustion of the waste oil, thereby reducing demand for fuel in the dryer. It was hoped that improved combustion would also significantly reduce CO emissions as well as decreasing unburned hydrocarbons discharged from the stack. Better combustion should mean less waste.

Prior to the test, historical data was accumulated and averaged to give a before scenario of normal operating conditions. This data consisted of bulk density, moisture, CO, O2, tons per hour, gallons per ton, gallons per hour, and gallons per minute. The data was taken from field tests, daily production reports, and monthly operations reports adjusted for inventory increases and decreases.

The conditions before and during the test were not ideal due to the dryer shell overheating, limiting production, and unusually wet weather. Because of these factors, the net affect of the catalyst may very well be understated.

The test went as follows:

Base Line: Figures are Averages for Previous Six Months

Table with 4 columns: Base Line, Treated, Net Difference, % Change. Rows include Tons Per Hour, Gallons Per Ton, Gallons Per Hour, Gallons Per Minute, Oxygen, Carbon Monoxide, Bulk Density, and Bulk Moisture.

The net effect on fuel usage would be an estimated 240,000 gallon decrease based on the present level of production of 143,000 tons annually. The net savings in dollars would be:

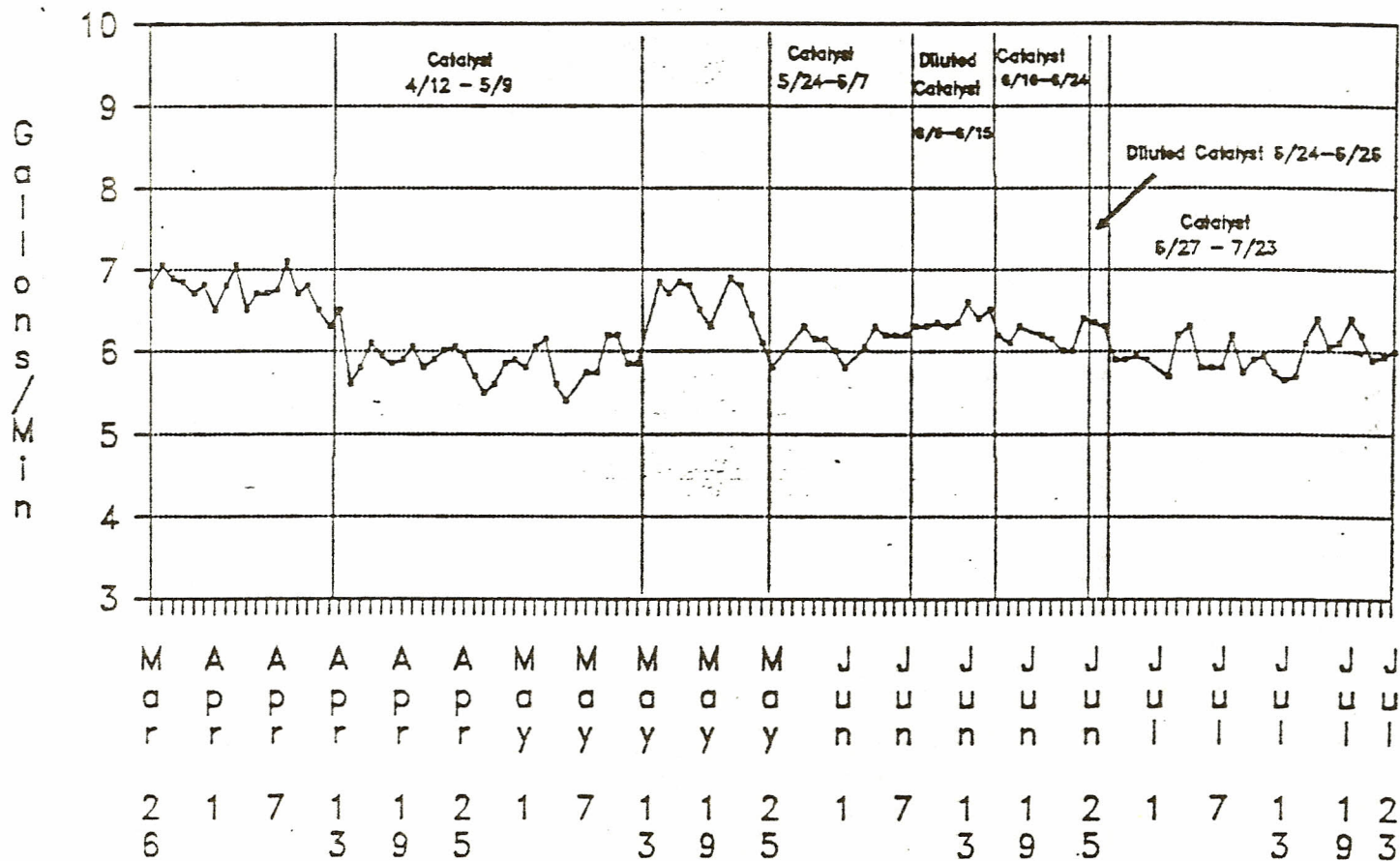
Fuel... 240,000 gallons @ .361 = \$86,640.00
\*Catalyst... 283 gallons @ 91.00= \$25,753.00
Net Savings = \$60,887.00

\* 283 gallons based on 1 to 7000 ratio and treating 1,980,000 gallons annually

TN TECHNOLOGIES INC. INVENTORY SHEET

1. MOISTURE TESTER:  
Series- mola  
Model No.- 5010A  
Serial No.- B218  
Isotope- AM 241-BE  
Amount- 1 Ci  
Date Measured- 05/90
  
2. BULK DENSITY TESTER:  
Series- SG  
Model No.- 5202  
Serial No.- B1297  
Isotope- CS-137  
Amount- 500 mci  
Date Measured- 04/91
  
3. LEVELING DEVICE: (source)  
Series- CN  
Model No.- 5205  
Serial No.- B593  
Isotope- CS-137  
Amount- 20 mci  
Date Measured- 02/91
  
4. BULK DENSITY TESTER: (detector)  
A. D series 6" Transducer  
B. Model No.- 9701  
C. Serial No.- 0520
  
5. LEVELING DEVICE: (detector)  
A. D series 3" Transducer (2ft. length)  
B. Model No.- 9703  
C. Serial No.- 00213
  
6. 9700 D SYSTEM TRANSMITTER: ( 2 each)  
Serial No.- B04204  
Serial No.- B04205

# Mid-Florida Mining Company Clay Processing—Mean Daily Fuel Use Rate



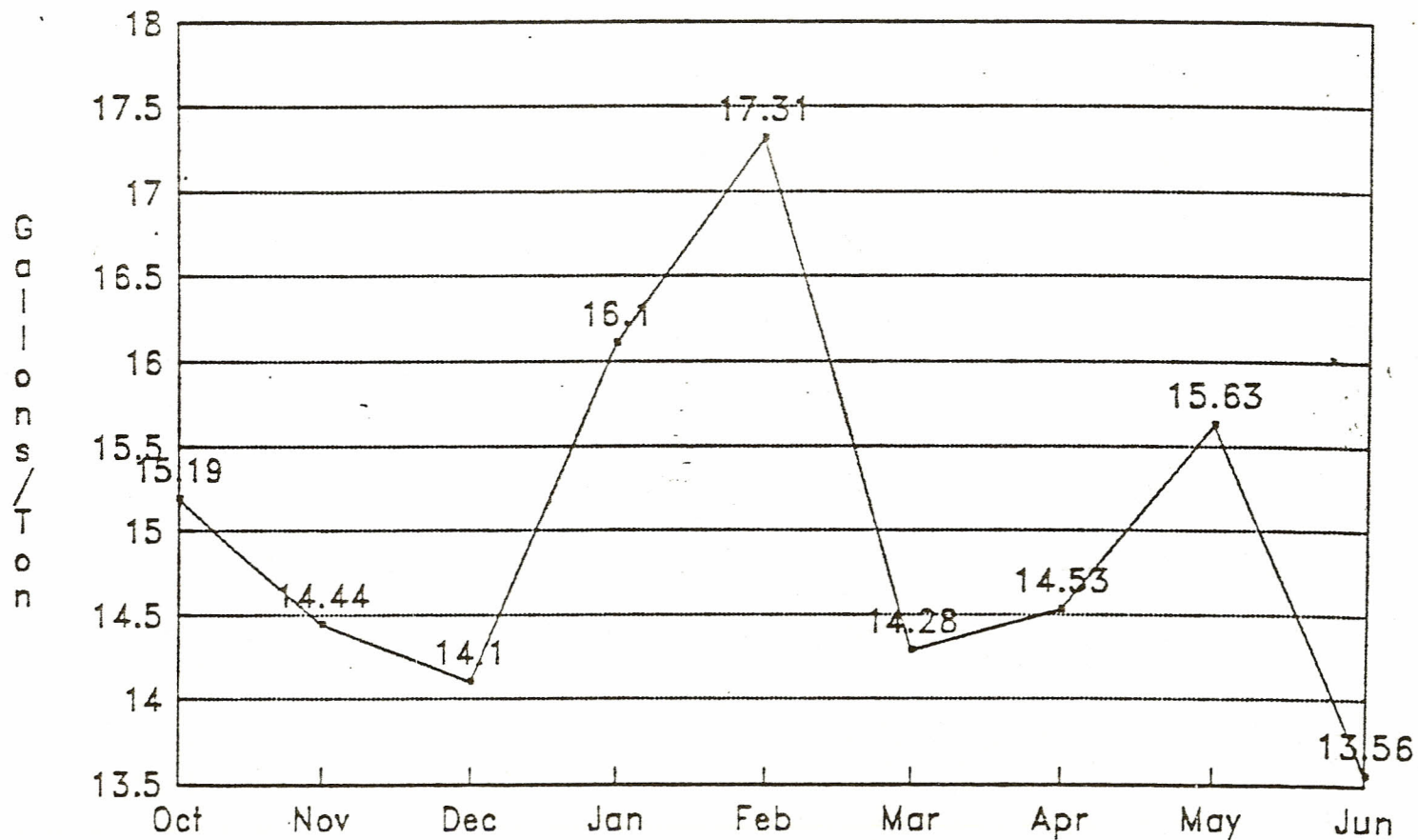
Prepared by: MFM Environmental, Inc.

Reviewed by: Marisa J. Odr

Date: 7/25/91

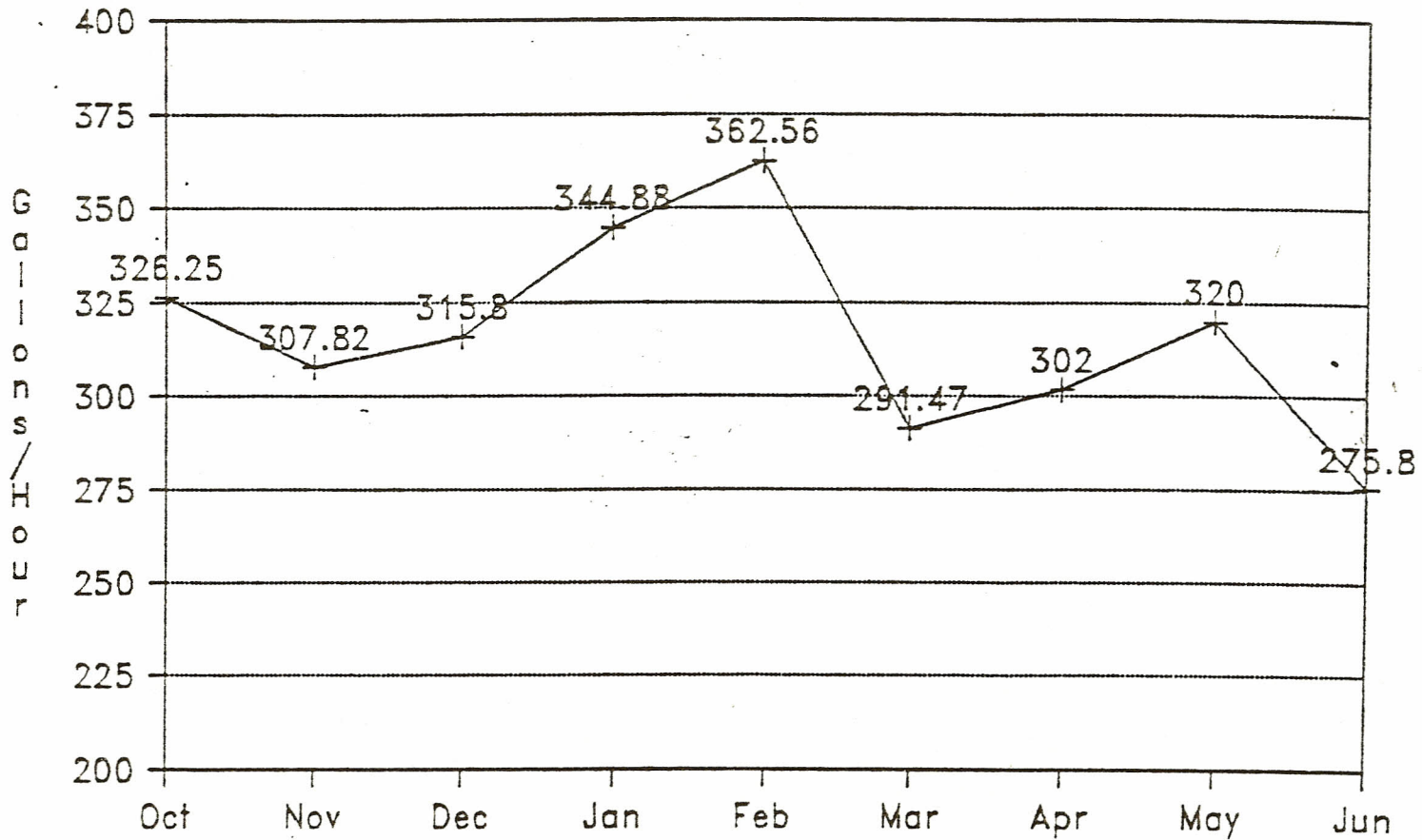


# Mid-Florida Mining Company Clay Processing—Fuel Consumption Rate



Prepared by: MFM Environmental, Inc.  
Reviewed by: Marcia S. Cole  
Date: 7/25/91

# Mid-Florida Mining Company Clay Processing - Kiln Fuel Hourly Rate



Prepared by: MEM Environmental, Inc.  
Reviewed by: *Maryse S. Collier*  
Date: 7/25/91



---

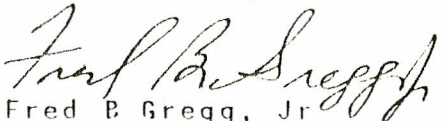
INDUSTRIES

---

Daily logs were recorded and graphed to better illustrate the net effect of the catalyst. Copies of these logs and graphs are attached. In spite of the fact that during the test period the bulk moisture was considerably higher, indicating increased fuel demand, there was still a dramatic reduction in consumption without a tonnage decrease. Also, shut downs for tip cleaning was cut by more than half. I believe this alone would more than pay for the catalyst in increased production and less waste due to smoking the drum.

Attached will be found graphs that best illustrate the net effect of the catalyst on burner efficiency. The dramatic savings in fuel usage demonstrate the positive effect of treated fuel on consumption.

The month of June was the first full month of using treated fuel. The plant operated 612 hours during this month, and had we been burning fuel at the old rate of 324 gallons per hour, we would have burned 197,000 gallons. Instead, we burned 167,000 gallons, a 30,000 gallon savings or \$10,830.00. The cost for the catalyst was \$2,184.00 a 395% return on investment.

  
Fred B. Gregg, Jr.  
Plant Engineer

cc. Dave Titus  
Mike Wilkinson  
W.M. Palmer