

DEPARTMENT OF ENVIRONMENTAL REGULATION



RECEIVED D.E.R.
SEP 22 1989 SEP 5 1989
DER-BAQM SOUTHWEST DISTRICT
TAMPA

APPLICATION FOR RENEWAL OF
PERMIT TO OPERATE AIR POLLUTION SOURCE(S)

If major alterations have occurred, the applicant should complete the Standard Air Permit Application Form.

Source Type: CEMENT MANUFACTURING Renewal of DER Permit No. A027-89814

Company Name: FLORIDA MINING & MATERIALS County: HERNANDO

Identify the specific emission point source(s) addressed in this application (i.e., Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired):

KILN NO. 1 W/BAGHOUSE EQUIPPED W/16 SEPARATE COMPARTMENTS AND STACKS

Source Location: Street: U.S. HWY 98, NW OF BROOKSVILLE City: BROOKSVILLE

UTM: East 17-356.005 E North 3169.89 N

Latitude: 28 ° 38' 34" N. Longitude: 8 2 ° 2 8' 2 5" W.

1. Attach a check made payable to the Department of Environmental Regulation in accordance with operation permit fee schedule set forth in Florida Administrative Code Rule 17-4.05.
2. Have there been any alterations to the plant since last permitted? Yes No
If minor alterations have occurred, describe on a separate sheet and attach.
3. Attach the last compliance test report required per permit conditions if not submitted previously.
4. Have previous permit conditions been adhered to? Yes No If no, explain on a separate sheet and attach.
5. Has there been any malfunction of the pollution control equipment during tenure of current permit? Yes No If yes, and not previously reported, give brief details and what action was taken on a separate sheet and attach.
6. Has the pollution control equipment been maintained to preserve the collection efficiency last permitted by the Department? Yes No
7. Has the annual operating report for the last calendar year been submitted? Yes No If no, please attach.

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP		ACTION NO	
		ACTION DUE DATE	
1. TO: (NAME, OFFICE, LOCATION)	CLAIR FANCY	Initial	
		Date	
2.	BAQM - CAPS	Initial	RECEIVED
		Date	
3.	IT 306 F	Initial	SEP 22 1989
		Date	
4.	DER - BAQM	Initial	
		Date	
REMARKS: THIS APPLICATION IS A MODIFICATION TO A MAJOR SOURCE. FLA. MINING WANTS TO CHANGE THE FUEL TO THE KILN. EXISTING NO. 6 OIL 0.77% S PROPOSED FLOLITE OIL 1.0% S SHOULD CAPS PROCESS THE APP.		INFORMATION	
		Review & Return	
		Review & File	
		Initial & Forward	
		DISPOSITION	
		Review & Respond	
		Prepare Response	
		For My Signature	
		For Your Signature	
		Let's Discuss	
		Set Up Meeting	
		Investigate & Report	
		Initial & Forward	
		Distribute	
		Concurrence	
		For Processing	
		Initial & Return	
FROM:	George W. Richardson	DATE	Tampa
		PHONE	SC 552-7612

B. Please provide the following information if applicable:

A. Raw Materials and Chemical Used in Your Process:

Description	Contaminant		Utilization	
	Type	%wt	Rate	lbs/hr
LIMESTONE	PARTICULATE	0.02		191,667
CLAY	PARTICULATE	0.18		19,167
FLY ASH	PARTICULATE	0.14		24,167
STAUROLITE	PARTICULATE	1.40		2,500
MILL SCALE	PARTICULATE	1.40		2,500

B. Product Weight (lbs/hr): 240,000

C. Fuels Coal is the primary fuel source and will be utilized in combination with Flolite or No. 6 oil.

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	Avg/hr*	Max/hr**	
COAL	16,800 lb/hr		208.1016
FLOLITE 1.0% S	52.5 gal/hr		7.6125
NO. 6 DIESEL OIL 0.77% S	50.3 gal/hr		7.6125

D. Normal Equipment Operating Time: hrs/day 24; days/yr 330; wks/yr ;
 hrs/yr (power plants only) ; if seasonal, describe 7920 hours or less.
Kiln will operate on flolite and coal, with no. 6 diesel oil and
coal as a back-up fuel source.

The undersigned owner or authorized representative*** of Florida Mining & Materials is fully aware that the statements made in this application for a renewal of a permit to operate an air pollution source are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted facility.

*During actual time of operation.

**Units: Natural Gas-MMCF/hr;
 Fuel Oils-barrels/hr; Coal-lbs/hr.

***Attach letter of authorization if not previously submitted

Henry E. Andre
 Signature, Owner or Authorized Representative
 (Notarization is mandatory)
 Henry E. Andre, Vice President

Typed Name and Title

P.O. Box 6

Address
 Brooksville, FL 34605-0006

City State Zip

8/25/89
 Date

(904) 796-7241
 Telephone No.

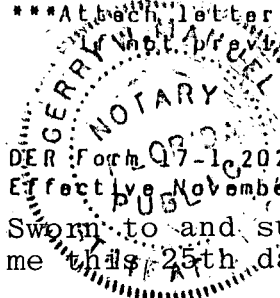
Berry W. Manuel
 Notary Public

Notary Public, State of Florida
 My Commission Expires July 9, 1993
 Bonded Thru Troy Fain - Insurance Inc.

DER Form 99-1 (2022)

Effective November 30, 1982

Sworn to and subscribed before me this 25th day of August 1989.



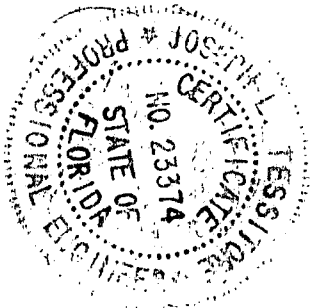
FLORIDA MINING & MATERIALS
APPLICATION FOR RENEWAL OF
PERMIT TO OPERATE AIR POLLUTION SOURCE(S)
SUPPLEMENTAL REQUIREMENTS
PERMIT NO. A027-89814

ITEM 2 ALTERATIONS TO PLANT

Although there have been no physical alterations to the plant processing equipment since the issuance of permit No. A027-89814, Flolite (which has the specifications of No. 5 oil) has been substituted in the place of No. 6 oil. Flolite will be utilized in combination with coal as a fuel for the combustion of Kiln No. 1. This substitution is based on a cost savings from the refined No. 6 oil. No. 6 oil will be utilized in combination with coal as a back-up fuel should Flolite become inaccessible.

* It should be noted that there are 16 stacks not 14 stacks as listed in the current permit.

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed Joseph L. Tessitore

Joseph L. Tessitore, P.E. Vice President
Name (Please Type)

Cross/Tessitore and Associates, P.A.
Company Name (Please Type)

4763 South Conway Rd., Suite F, Orlando, Florida 32812
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 8-29-89 Telephone No. (407)851-1484

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

The purpose of this application is to update the current permit to include the supplemental fuel source - Flolite - (the equivalent to No. 5 oil specifications) to be utilized in combination with coal for the combustion of Kiln No. 1. Kiln No. 1 is currently permitted with No. 6 oil in combination with coal and this combination will be utilized as a backup fuel. The emission changes will be negligible. This will result in compliance with FDER regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction existing Completion of Construction existing

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Baghouse Complete	\$582,000.00
Cyclone Complete	\$ 64,000.00
Erection	\$640,000.00
Total	\$1,286,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Permit No. A027-89814 Issued 10/05/84
Expires 10/03/89

E. Requested permitted equipment operating time: hrs/day 24 ; days/yr 330; wks/yr _____ ;
if power plant, hrs/yr _____ ; if seasonal, describe: 7920 hr/yr or less as
demand deems necessary

F. If this is a new source or major modification, answer the following questions.
(Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO
 - a. If yes, has "offset" been applied? NO
 - b. If yes, has "Lowest Achievable Emission Rate" been applied? NO
 - c. If yes, list non-attainment pollutants. -
2. Does best available control technology (BACT) apply to this source?
If yes, see Section VI. NO
3. Does the State "Prevention of Significant Deterioration" (PSD)
requirement apply to this source? If yes, see Sections VI and VII. NO
4. Do "Standards of Performance for New Stationary Sources" (NSPS)
apply to this source? YES
5. Do "National Emission Standards for Hazardous Air Pollutants"
(NESHAP) apply to this source? NO
- H. Do "Reasonably Available Control Technology" (RACT) requirements apply
to this source? NO
 - a. If yes, for what pollutants? -
 - b. If yes, in addition to the information required in this form,
any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justifi-
cation for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Limestone	Particulate	0.02	191,667	
Clay	Particulate	0.18	19,167	
Fly Ash	Particulate	0.14	24,167	
Staurolite	Particulate	1.40	2,500	
Mill Scale	Particulate	1.40	2,500	

B. Process Rate, if applicable: (See Section V, Item 1)

- Total Process Input Rate (lbs/hr): 240,000
- Product Weight (lbs/hr): -

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Current emissions utilizing No. 6 oil and coal combination

Name of Contaminant	Emission ¹		Allowed Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	33	130.0	17-2.610(1)(b)	36.0	147	582.1	
SO ₂	* 60	237.6	-	-	60	237.6	

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).

* Estimated

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Limestone	Particulate	0.02	191,667	
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Fly Ash	Particulate	0.14	24,167	
Staurolite	Particulate	1.40	2,500	
Mill Scale	Particulate	1.40	2,500	

B. Process Rate, if applicable: (See Section V, Item 1)

- Total Process Input Rate (lbs/hr): 240,000
- Product Weight (lbs/hr): -

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Proposed emissions utilizing Flolite and coal combination

Name of Contaminant	Emission ¹		Allowed ² Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual 1/yr			lbs/hr	1/yr	
Particulate	33	130.0	17-2.610(1)(b)	36.0	147	582.1	
SO ₂	* 60	237.6	-	-	60	237.6	

¹ See Section V, Item 2.

² Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table 11, E. (1) - 0.1 pounds per million BTU heat input)

³ Calculated from operating rate and applicable standard.

⁴ Emission, if source operated without control (See Section V, Item 3).

* Estimated

FLORIDA MINING AND MATERIALS
PERMIT NO. A027-89814
SECTION III C AIRBORNE CONTAMINANTS
SULFUR DIOXIDE (SO₂) EMISSIONS

Current SO₂ Emissions Utilizing No. 6 Oil and Coal Combination

Assumptions

Kiln Feed Material	= 120 ton/hr
Clinker Produced (55% of Kiln Feed)	= 66 ton/hr
Mineral Material SO ₂ Emission Factor	= 10.2 lb/ton of Clinker (AP-42 Table 8.6-1)
Coal Input to Kiln	= 16,800 lb/hr; 8.4 ton/hr
Sulfur Content of Coal	= 0.8% (0.008)
No. 6 Oil Input to Kiln	= 50.32 gal/hr
Sulfur Content of No. 6 Oil	= 0.77% (0.0077)
Specific Gravity No. 6 Oil	= 8.3 lb/gal
Lb SO ₂ /hr	= Sulfur Content x 2
Operating Hours	= 7920 hr/yr

Kiln Material SO₂

Calculations

$$66 \text{ ton/hr} \times 10.2 \text{ lb/ton} = 673.2 \text{ lb SO}_2/\text{hr}$$

Kiln Coal SO₂

Calculations

$$\begin{aligned} 16,800 \text{ lb/hr} \times (0.008) &= 134.4 \text{ lb S/hr} \\ \text{Lb SO}_2/\text{hr} &= 134.4 \text{ lb S} \times 2 \\ \text{Lb SO}_2/\text{hr} &= 268.8 \end{aligned}$$

Kiln No. 6 Oil SO₂

Calculations

$$\begin{aligned} 50.32 \text{ gal/hr} \times 8.3 \text{ lb/gal} &= 417.656 \text{ lb/hr} \\ 417.656 \text{ lb/hr} \times (0.0077) &= 3.2 \text{ lb S/hr} \\ 3.2 \text{ lb S/hr} \times 2 &= 6.4 \text{ lb SO}_2/\text{hr} \end{aligned}$$

Total Kiln SO₂ Emissions

Assumptions

SO ₂ from Mineral Input To Kiln	= 673.2 lb/hr
SO ₂ from Coal Input to Kiln	= 268.8 lb/hr
SO ₂ from No. 6 Oil Input to Kiln	= 6.4 lb/hr

SO Emissions currently estimated are 60 lb/hr. This emission rate is based on a 93.6% (1.0-0.936) SO removal efficiency.

Calculations

$$673.2 \text{ lb SO}_2/\text{hr} + 268.8 \text{ lb SO}_2/\text{hr} + 6.4 \text{ lb SO}_2/\text{hr} = 948.4 \text{ lb SO}_2/\text{hr}$$

$$948.4 \text{ lb SO}_2/\text{hr} \times (1.0 - 0.936) = 60 \text{ lb SO}_2/\text{hr}$$

$$60 \text{ lb SO}_2/\text{hr} \times 7920 \text{ hr/yr} / 2000 \text{ lb/ton} = 237.6 \text{ ton SO}_2/\text{yr}$$

Proposed SO₂ Emissions Utilizing Flolite and Coal Combination

Assumptions

Lb SO ₂ From Kiln Feed Material	= 673.2 lb/hr
Lb SO ₂ From Coal Input to Kiln	= 268.8 lb/hr
Flolite Input to Kiln	= 52.5 gal/hr
Sulfur Content of Flolite	= 1.0% (0.01)
Specific Gravity of Flolite	= 8.0 lb/gal
Lb SO ₂ /hr	= Sulfur Content x 2
Operating Hours	= 7920 hr/yr

SO₂ Emissions currently estimated are 60 lb/hr. This emission rate is based on a 93.6% (1.0 - 0.936) SO₂ removal efficiency.

Kiln Flolite SO₂

Calculations

$$\begin{aligned} 52.5 \text{ gal/hr} \times 8.0 \text{ lb/gal} &= 420 \text{ lb/hr} \\ 420 \text{ lb S/hr} \times (0.01) &= 4.2 \text{ lb S/hr} \\ 4.2 \text{ lb S/hr} \times 2 &= 8.4 \text{ lb SO}_2/\text{hr} \end{aligned}$$

Total Kiln SO₂ Emissions

Calculations

$$673.2 \text{ lb SO}_2/\text{hr} + 268.8 \text{ lb SO}_2/\text{hr} + 8.4 \text{ lb SO}_2/\text{hr} = 950.4 \text{ lb SO}_2/\text{hr}$$

$$950.4 \text{ lb SO}_2/\text{hr} \times (1.0 - 0.936) = 60 \text{ lb SO}_2/\text{hr}$$

$$60 \text{ lb SO}_2/\text{hr} \times 7920 \text{ hr/yr} / 2000 \text{ lb/ton} = 237.6 \text{ ton SO}_2/\text{yr}$$

plant in question, and the particulate emission standards in the community, the cement industry generally uses mechanical collectors, electrical precipitators, fabric filter (baghouse) collectors, or combinations of these devices to control emissions.

Table 8.6-1 summarizes emission factors for cement manufacturing and also includes in footnote d typical control efficiencies of particulate emissions. Table 8.6-2 indicates the particle size distribution for particulate emissions from kilns and cement plants before control systems are applied.

TABLE 8.6-1. EMISSION FACTORS FOR CEMENT MANUFACTURING WITHOUT CONTROLS^{a,b,c,d}

Pollutant	EMISSION FACTOR RATING: B			
	Dry Process		Wet Process	
	Kilns	Dryers, grinders, etc.	Kilns	Dryers, grinders, etc.
Particulate ^e				
kg/Mg	122.0	48.0	114.0	16.0
lb/ton	245.0	96.0	228.0	32.0
Sulfur dioxide ^f				
Mineral source				
kg/Mg	5.1	-	5.1	-
lb/ton	10.2	-	10.2	-
Gas combustion				
kg/Mg	Neg ^h	-	Neg	-
lb/ton	Neg	-	Neg	-
Oil combustion				
kg/Mg	2.1S ⁱ	-	2.1S	-
lb/ton	4.2S	-	4.2S	-
Coal combustion				
kg/Mg	3.4S	-	3.4S	-
lb/ton	6.8S	-	6.8S	-
Nitrogen oxides				
kg/Mg	1.3	-	1.3	-
lb/ton	2.6	-	2.6	-
Lead				
kg/Mg	0.06	0.02	0.05	0.01
lb/ton	0.12	0.04	0.10	0.02

^aOne barrel of cement weighs 171 kg (376 pounds).

^bThese emission factors include emissions from fuel combustion, which should not be calculated separately.

^cReferences 1-2.

^dEmission factors expressed in weight per unit weight of cement produced. Dash indicates no available data.

^eTypical collection efficiencies for kilns, dryers, grinders, etc., are: multi-cyclones, 80%; electrostatic precipitators, 95%; electrostatic precipitators with multicyclones, 97.5%; fabric filter units, 99.8%.

^fThe sulfur dioxide factors presented take into account the reactions with the alkaline dusts when no baghouses are used. With baghouses, approximately 50% more SO₂ is removed because of reactions with the alkaline particulate filter cake. Also note that the total SO₂ from the kiln is determined by summing emission contributions from the mineral source and the appropriate fuel.

^gThese emissions are the result of sulfur being present in the raw materials and are thus dependent upon source of the raw materials used. The 5.1 kg/Mg (10.2 lb/ton) factors account for part of the available sulfur remaining behind in the product because of its alkaline nature and affinity for SO₂.

^hNegligible.

ⁱS = Sulfur in fuel.

^jReferences 7-8.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Fuller Dracco				
Custom Baghouse	Particulate	99.5%	≥10 Micron	Manufacturer's Data

E. Fuels (Flolite will be utilized in combination with coal)

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Flolite (equivalent to No. 5 oil specifications)	52.5 gal/hr		7.6125

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: See Enclosed Flolite Analysis Sheet

Percent Sulfur: 1.0% Percent Ash: -

Density: Approx. 8.0 lbs/gal Typical Percent Nitrogen: -

Heat Capacity: - BTU/lb 145,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): N/A

F. If applicable, indicate the percent of fuel used for space heating. N/A

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

**FLORIDA MINING & MATERIALS
KILN NO. 1
COMBUSTION CALCULATIONS
UTILIZING FLOLITE**

FUEL COMBUSTION CALCULATION INPUT PARAMETERS

DATE: 28-Jul-89

HOURS OF OPERATION

FM&M - A027-89814

hrs/day	=	X	hrs/yr	=	7,920
days/wk	=	X			
wks/yr	=	X			

FUEL CONSUMPTION

Residual Oil (No. 5) Consumption = 0.4158 Million gal/yr

EMISSION FACTORS

Emission factors for Residual Oil are from AP-42, Table 1.3-1.

Particulates (Uncontrolled)

lbs/1,000 gal of Residual Oil = 10 lbs/1,000 gal

Sulfur Dioxide

Residual Oil % Sulfur by Weight = 1 %
 lbs/1,000 gal of Residual Oil = 157 lbs/1,000 gal of fuel

Nitrogen Oxide

lbs/1,000 gal of Residual Oil = 55 lbs/1,000 gal

Carbon Monoxide

lbs/1,000 gal of Residual Oil = 5 lbs/1,000 gal

Hydrocarbon

lbs/1,000 gal of Residual Oil = 0.28 lbs/1,000 gal

ADDITIONAL DATA

Efficiency of Air Pollution Control = 99.5 %

I ITEM 2 I

CALCULATION OF EMISSIONS

PARTICULATES

Residual Fuel Oil Consumption (No. 5)

$$0.4158 \text{ million gal/yr} \times 10.0 \text{ lb/1,000 gal}$$

$$\text{-----}$$
$$2,000 \text{ lbs/ton}$$

$$= 2.079 \text{ tons/yr}$$

Air Pollution Control Efficiency = 99.5 %

Total Controlled Particulates =

$$2.079 \text{ tons/yr} \times (1 - 0.995000) = 0.010395 \text{ tons/yr}$$

$$0.010395 \text{ tons/yr} \times 2,000 \text{ lbs/ton}$$
$$\text{-----}$$
$$7,920 \text{ hrs/yr} = 0.002625 \text{ lbs/hr}$$

SULFUR DIOXIDE (SO2)

Residual Fuel Oil Consumption (No. 5)

Emission Factor = 157 lbs/1,000 gal x S, where

$$S = \text{Fuel Oil \% Sulfur by Weight} = 1 \%$$

$$= 157 \text{ lbs/1,000 gal} \times 1$$

$$= 157 \text{ lbs/1,000 gal}$$

$$0.4158 \text{ million gal/yr} \times 157.0 \text{ lb/1,000 gal}$$

$$\text{-----}$$
$$2,000 \text{ lbs/ton}$$

$$= 32.6403 \text{ tons/yr}$$

$$32.6403 \text{ tons/yr} \times 2,000 \text{ lbs/ton}$$
$$\text{-----}$$
$$7,920 \text{ hrs/yr} = 8.2425 \text{ lbs/hr}$$

NITROGEN OXIDE (NOX)

Residual Fuel Oil Consumption (No. 5)

$$\begin{aligned} & 0.4158 \text{ million gal/yr} \quad \times \quad 55.0 \text{ lb/1,000 gal} \\ & \hline & \quad \quad \quad 2,000 \text{ lbs/ton} \\ & = 11.4345 \text{ tons/yr} \\ & 11.4345 \text{ tons/yr} \times 2,000 \text{ lbs/ton} \\ & \hline & \quad \quad \quad 7,920 \text{ hrs/yr} \end{aligned} = 2.8875 \text{ lbs/hr}$$

CARBON MONOXIDE (CO)

Residual Fuel Oil Consumption (No. 5)

$$\begin{aligned} & 0.4158 \text{ million gal/yr} \quad \times \quad 5.0 \text{ lb/1,000 gal} \\ & \hline & \quad \quad \quad 2,000 \text{ lbs/ton} \\ & = 1.0395 \text{ tons/yr} \\ & 1.0395 \text{ tons/yr} \times 2,000 \text{ lbs/ton} \\ & \hline & \quad \quad \quad 7,920 \text{ hrs/yr} \end{aligned} = 0.2625 \text{ lbs/hr}$$

HYDROCARBONS (HC)

Residual Fuel Oil Consumption (No. 5)

$$\begin{aligned} & 0.4158 \text{ million gal/yr} \quad \times \quad 0.3 \text{ lb/1,000 gal} \\ & \hline & \quad \quad \quad 2,000 \text{ lbs/ton} \\ & = 0.058212 \text{ tons/yr} \\ & 0.058212 \text{ tons/yr} \times 2,000 \text{ lbs/ton} \\ & \hline & \quad \quad \quad 7,920 \text{ hrs/yr} \end{aligned} = 0.0147 \text{ lbs/hr}$$

I ITEM 3 I

FUEL COMBUSTION EMISSION CALCULATIONS SUMMARY

POLLUTANT	ACTUAL EMISSION RATE		POTENTIAL EMISSION RATE	
	(LB/HR)	(TON/YR)	(LB/HR)	(TON/YR)
PARTICULATES	0.002625	0.010395	0.525	2.079
SULFUR DIOXIDE	8.2425	32.6403	8.2425	32.6403
NITROGEN OXIDE	2.8875	11.4345	2.8875	11.4345
CARBON MONOXIDE	0.2625	1.0395	0.2625	1.0395
HYDROCARBONS	0.0147	0.058212	0.0147	0.058212

FLORIDA MINING & MATERIALS

**FLOLITE MANUFACTURER'S
DATA**

F03182
K.L.W.0.1

Best Available Copy

FLOLITE

TYPICAL SPECIFICATIONS

GENERAL - Flolite has the normal specifications of #5 fuel oil; however, it has a constant viscosity designed to meet the needs of individual customers.

<u>ANALYSIS</u>	<u>TYPICAL SPECIFICATIONS</u>
API GRAVITY @ 60°F	18 - 29
SULFUR % WT	1.0% Maximum
B S & W	1.0% Maximum
WATER BY DISTILLATION	1.0% Maximum
BTU/GAL	Approx. 145,000 +
VANADIUM	50 - 100 PPM
TOX	Below 500 PPM
PCB's	Below detectable limits (0.5 PPM)
CCR	1.5%
ASPHALTENES	0.5%
METALS	Below EP toxicity Maximum levels.

Best Available Copy



INTERNATIONAL PETROLEUM CORPORATION

MATERIAL SAFETY DATA SHEET

INTERNATIONAL PETROLEUM CORPORATION FUEL OIL - FLOLITE

DANGER!
PROLONGED AND REPEATED CONTACT WITH SKIN
CAN BE HARMFUL
COMBUSTIBLE
KEEP OUT OF REACH OF CHILDREN

TYPICAL COMPOSITION

A mixture of Petroleum Residual (atmospheric or vacuum) and Cutter Stocks (lt. cycle oils, diesel, jet or re-refined oil) blended to meet specifications.

EXPOSURE STANDARD

No OSHA exposure standard of Threshold Limite Value has been established for this material. However, due to the possible carcinogenic effect, exposure should be reduced to the lowest feasible leve.

PHYSIOLOGICAL & HEALTH EFFECTS

Expected to cause no more than minor irritation.

Not expected to be irritating to the skin; but minor irritation may be noted following prolonged or frequently repeated contact. Prolonged or repeated contact with the skin may eventually lead to skin cancer. See additional Health Data.

Not expected to be acutely toxic by inhalation.

Not expected to be acutely toxic by ingestion.

EMERGENCY & FIRST AID PROCEDURES

Eyes

Wash eyes with fresh water for eye at least 15 minutes. If irritation continues, see a doctor.

Skin

Remove and launder contaminated clothing. Wash thoroughly with soap and water following skin contact.

Inhalation

Since this material is not expected to be an inhalation problem, no first aid procedures are required.

Ingestion

If swallowed, give a large amount of water to drink, make person vomit and call a doctor.

This product may contain significant amounts of polynuclear aromatic hydrocarbons (PNA's) which have been shown to cause skin cancer after prolonged and frequent contact with the skin of test animals. Brief or intermittent skin contact with this product is not expected to have serious effects if the skin is washed off. While skin cancer is unlikely to occur in human beings following use of this product, skin contact should be reduced to a minimum.

SPECIAL PROTECTIVE INFORMATION

Eye Protection: Chemical safety goggles must be worn if there is a likelihood of exposure.

Skin Protection: When handling this material, wear impervious protective clothing, which may include neoprene or rubber gloves, apron, overshoes, goggles and complete facial protection.

Respiratory Protection: This material may be an inhalation hazard and unless ventilation is adequate, the use of an approved respirator is recommended.

Ventilation: Use this material only in well ventilated areas.

Other: If eye or skin contact does occur, washing facilities for eyes and skin should be available nearby.

FIRE PROTECTION

Liquid evaporates and forms vapor which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature raises above 85 F.

Flash Point: (P-M) 55 C (Min.)

Autoignition Temp.: NDA

Flammability Limits: NDA

Extinguishing Media: CO₂, Dry Chemical, Foam, Water Spray.

Special Fire Fighting Procedures: For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. See Hazardous Decomposition products. Read the entire bulletin.

Environment Impact: This material may be classed as a water pollutant and should be kept out of sewage and drainage systems and all bodies of water.

Precautions if Material is Released or Spilled: Eliminate all open flames in vicinity of spill or released vapor. Clean up spills as soon as possible. Absorb large spills with absorbent clay, diatomaceous earth or other suitable material.

Waste Disposal Methods: Place contaminated materials in disposable containers and bury in an approved dumping area.

REACTIVITY DATA

Stability (Thermal, Light, Etc.): Stable.

Incompatibility (Materials to avoid): May react with strong oxidizing materials.

Hazardous Decomposition Products: Normal combustion forms carbon dioxide and water vapor and oxides of sulfur; incomplete combustion can produce carbon monoxide.

Hazardous Polymerization: Will not occur.

PHYSICAL PROPERTIES

Solubility: Insoluble in water; miscible with hydrocarbons.

Appearance (Color, Odor, etc.): Black liquid.

Boiling Point: NDA

Melting Point: n/a

Gravity (API): NDA

Vapor Pressure (mm Hg & Temp.): NDA

Vapor Density (Air=1): NDA

Percent Volatile (Volume %): NDA

Evaporation (α=1): NDA

Pour Point: Below +6 C

Viscosity: 4.4 to 38.0 cSt @ 50 C
45 to 300 SUS @ 100 F

% Sulfur: 1.9 (Max.)

n/a = Not Applicable

NDA = No Data Available

SPECIAL PRECAUTIONS

DO NOT USE OR STORE near flames, sparks or hot surfaces. USE ONLY IN WELL VENTILATED AREA.

The above information is based on data of which we are aware and is believed to be correct as of the date hereof. Since the information contained herein may be applied under conditions below our control and with which we may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for this particular purpose.