

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 ■ FAX 377-7158

.KA 521-95-09

April 1, 1997

RECEIVED

APR 03 1997

BUREAU OF
AIR REGULATION

Mr. A. A. Linero, P.E.
Administrator
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: FDEP File No. 0530010-003-AC (PSD-FL-233)
Southdown, Inc.
Burning of Used Oil/Grease in
Kilns 1 and 2

Dear Mr. Linero:

This letter is in response to your letter of March 18, 1997, to Mr. Don Kelly, Plant Manager of the Southdown Portland cement plant in Hernando County, Florida. In that letter, you addressed activities associated with the disposal of on-site generated, non-hazardous used oil and grease. You stated that Southdown's present permits and the referenced permit that will be issued in the near future for Kilns 1 and 2 do not specifically address the burning of these used lubricants in the two cement kilns. As you suggested, this letter is a request to allow the burning of a limited amount of on-site generated, non-hazardous used oil and grease in Kilns 1 and 2. It is requested that the referenced proposed air construction permit be amended to allow this activity.

As stated in Mr. Gill's letter to the Department dated February 24, 1997, the Southdown plant in Hernando County has been burning on-site generated, non-hazardous used oil and grease for a number of years. I would like to point out that this is common practice in the cement industry. Southdown anticipates that no more than 5,000 gallons a year of on-site generated, non-hazardous oil and grease will be burned in either Kiln 1 or 2. The spent lubricants can consist of oil or grease drippings collected and containerized and sealed one-gallon cans, oily rags and/or oily absorbent that has been used in the cleanup of a small on-site spill. The used oil/grease on oily rags and oily absorbent material will be containerized (typically in one-gallon containers) and introduced into either of the kiln systems at the base of the pre-heater (in a location similar to where whole tires are introduced in Kiln 1). As stated previously, the total volume of used oil-grease will not exceed 5,000 gallons per year on a liquid basis.

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For your information, I have attached hereto (Attachment A) typical analyses of used gear grease (the largest single source of the on-site generated, non-hazardous used oil/grease). It will be noted that this grease meets the on-specification used oil limits for arsenic, cadmium, lead and total halogens but exceeds the on-specification used oil limit for chromium. For the purpose of this request, the used oil/grease will be classified as an off-specification used oil with an expected upper limit on chromium to be 100 ppm. The other constituents will meet the on-specification used oil limits.

The handling and disposal of up to 5,000 gallons per year of off-specification used oil/grease makes Southdown subject to the recording requirements of Rule 62-710, FAC, to several Department air rules and to 40 CFR 279 (EPA Standards for Managing Use Oil). It was suggested by Department personnel that 40 CFR 279 would be the applicable regulation dealing with the combustion of off-specification used oil as the Department has no specific rules or guidance for this activity.

Specifically, Rule 40 CFR 279, Subpart G includes the standards for burning off-specification used oil for energy recovery. In reviewing 40 CFR 279, paragraphs 279.12 and 279.16 authorize the burning of off-specification used oil for energy recovery in certain devices including industrial furnaces. Rule 40 CFR 260.10 identifies cement kilns as an industrial furnace. Rule 40 CFR 279, Subpart G, sets forth requirements for notification (279.62, Used Oil Storage; 279.64, Tracking; 279.65 and Notifications, 279.66). Additionally, 279.63 includes a rebuttable presumption for used oil if the total halogen content of the used oil exceeds 1,000 ppm. In the case of the off-specification used oil that will be burned by Southdown, the analyses in Attachment A demonstrate that the total halogen concentration of the used oil/grease is well below 1,000 ppm. Rule 40 CFR 279.60 further requires compliance with Subpart C (Standards for Used Oil Generators) and Subpart I (Standards for Disposal of Used Oil).

In summary, the federal regulations cover administrative matters, storage requirements and the documentation of the characteristics of the off-specification used oil. These are solid waste matters that Southdown will address through applicable state and federal programs. Nothing in the federal (or state) rules restrict the burning of off-specification used oil in approved industrial furnaces; which cement kilns are.

The Department's air rules, as we interpret them, require only that Southdown provide reasonable assurance that the burning of the small amount of on-site generated, non-hazardous used oil/grease does not result in the emission of regulated or non-regulated air pollutants that will exceed standards or guidelines and does not result in exceedances of air



quality standards or ambient guidelines developed to protect human health and welfare. These assurances will be provided in the following paragraphs.

The 5,000 gallons of used oil/grease that will be burned at Southdown represents less than 0.02 percent of the heat input to the two kilns. To demonstrate the impact of emissions from this small amount of used oil/grease, emission factors were developed for several metals and organic compounds expected from the combustion of used oil. For the most part, these emission factors were derived for AP-42, Section 1.11. In the case of arsenic, cadmium, and lead, the on-specification used oil limits were used and the assumption was made that all of these metal would be released to the atmosphere. In the case, of chromium, it was assumed that the used oil/grease would contain 100 ppm chromium and that all of the chromium would be released to the atmosphere. Although it has been assumed that 100 percent of the metals are released to the atmosphere, partitioning factors for metals in fuels burned in cement kilns show 99+ percent of the metals are partitioned to the clinker. The total halogen limit (as chlorine) in the used oil/grease was assumed to be 1,000 ppm.

These emission factors were converted to annual emission rates assuming that 5,000 gallons of used oil/grease would be burned each year at the Southdown facility. It was further assumed that these emissions would occur uniformly throughout the year; as used oil/grease is generated uniformly throughout the year.

Similarly, emission factors were developed for the two cement kilns assuming the combustion of conventional fuel. These emission factors were developed from AP-42, Section 11.6. As with the used oil emission factors, the cement kiln emission factors were converted to annual emission based on the production of 760,000 tons of clinker in each of the two kilns. The emission factors and annual emission rates are summarized in Attachment B.

The emissions of the various constituents referenced in the previous paragraph were modeled with the SCREEN 2 air quality model. These results are summarized in Attachment C. The results of the modeling demonstrate that the impacts of the constituents evaluated are due almost exclusively to existing emissions from the two kilns. In no case, do emissions from the proposed burning of used oil/grease contribute even one percent of the annual Air Reference Concentration of a constituent.

This analysis demonstrates that the burning of 5,000 gallons of used oil/grease will not significantly change the emissions of any constituent from the two Southdown cement kilns. As a result, Southdown respectfully requests that the subject air construction permit for Kilns 1 and 2 be

Mr. A. A. Linero
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amended to allow the burning of up to 5,000 gallons per year of on-site generated, non-hazardous used oil/grease. Southdown has satisfied state and federal used oil management requirements through appropriate channels. If you have any questions regarding this information or related matters, please do not hesitate to contact me.

Very truly yours,

KOGLER & ASSOCIATES


John B. Koogler, Ph.D., P.E.

JBK:wa

c: Mr. Jerry Kissel, FDEP, Tampa
Mr. Don Kelly, Southdown
Mr. A. Gill, Southdown

cc: J. Heron, BAR
EPA
NPS
~~SWD~~ ✓
Hernando Co.



ATTACHMENT A
TYPICAL ANALYSES OF USED OIL/GREASE

ATTACHMENT B
EMISSION FACTORS
EMISSION RATES

**EMISSION FACTORS AND EMISSION RATES
OF TRACE CONSTITUENTS FOR USED OIL
BURNING AND CEMENT KILNS**

**FLORIDA MINING AND MATERIALS
BROOKSVILLE, FLORIDA**

Constituent	Emission Factor		Emission Rate	
	Used Oil(1) (lb/1000 gal)	Cement Kiln(2) (lb/ton clinker)	Used Oil(3) (lb/yr)	Cement Kiln(4) (lb/yr)
HCl	66C(5)	0.14	33.0000	212.800
As	4.0E-02(6)	1.3E-05	0.2000	19.760
Be	1.8E-03	6.6E-07	0.0090	1.003
Cd	1.6E-02(6)	2.2E-06	0.0800	3.344
Cr	8.0E-01(7)	1.4E-04	4.0000	212.8
Pb	55L(6,8)	7.5E-05	2.7500	114.0
Mn	6.8E-02	8.6E-04	0.3400	1307.2
Phenol	2.4E-03	1.1E-04	0.0120	167.2
Chlorobenzene	6.7E-06	1.6E-05	<0.0001	24.32
Naphthalene	1.3E-02	1.7E-03	0.0650	2584.0
Phenanthrene	1.1E-02	3.9E-04	0.0550	592.8
Phthalates	2.7E-03	1.4E-04	0.0135	212.8
Pyrene	7.0E-03	4.4E-06	0.0350	6.688
Benzo(a)anthracene/ chrysene	4.0E-03	2.0E-07	0.0200	0.304
Benzo(a)pyrene	4.0E-03	1.3E-07	0.0200	0.198

(1) Maximum emission factor from AP-42, Section 1.11 unless noted otherwise.

(2) From AP-42, Section 11.6.

(3) Based on burning 5,000 gallons per year of used oil/grease.

(4) Based on 760,000 tpy of clinker in each of two kilns.

(5) C = weight percent chlorine in fuel; 1000 ppm = 0.1 percent.

(6) Based on maximum limit in on-specification used oil (As = 5 ppm, Cd = 2 ppm and Pb = 100 ppm) and the assumption that all metal in oil/grease is released to the atmosphere. Partitioning factors for metals demonstrate that 99+ percent of the metals in fuels are partitioned to the clinker. The release assumption is therefore extremely conservative.

(7) Based on a limit of 100 ppm for chromium and the assumption that all Cr in oil/grease is released to the atmosphere. Partitioning factors for metals demonstrate that 99+ percent of the metals in fuels are partitioned to the clinker. The release assumption is therefore extremely conservative.

(8) L = weight percent lead in fuel; 100 ppm = 0.01 percent.

ATTACHMENT C
AIR QUALITY MODELING

Projected Impacts of Combusting On-Site Generated Used Oil/Grease
Florida Mining and Materials
Hernando County, Florida

Constituent	Emissions		Annual Impact (3)			Annual FL-ARC (4) ($\mu\text{g}/\text{m}^3$)	Percent of ARC Consumed			Used Oil & Kilns Within ARC ?
	Used Oil (1) (g/s)	Kilns 1 & 2 (2) (g/s)	Used Oil ($\mu\text{g}/\text{m}^3$)	Kilns ($\mu\text{g}/\text{m}^3$)	Used Oil & Kilns ($\mu\text{g}/\text{m}^3$)		Used Oil	Kilns	Used Oil & Kilns	
HCl	4.75E-04	3.0608	0.00107	6.92	6.93	7	0%	99%	99%	Yes
As	2.88E-06	2.84E-04	6.5E-06	6.4E-04	6.50E-04	2.30E-03	0%	28%	28%	Yes
Be	1.29E-07	1.44E-05	2.9E-07	3.3E-05	3.29E-05	4.20E-04	0%	8%	8%	Yes
Cd	1.15E-06	4.81E-05	2.6E-06	1.1E-04	1.11E-04	5.60E-04	0%	19%	20%	Yes
Cr	5.75E-05	3.06E-03	1.3E-04	6.9E-03	7.05E-03	1000	0%	0%	0%	Yes
Pb	3.96E-05	1.64E-03	8.9E-05	3.7E-03	3.80E-03	0.09	0%	4%	4%	Yes
Mn	4.89E-06	1.88E-02	1.1E-05	4.3E-02	4.25E-02	0.05	0%	85%	85%	Yes
Phenol	1.73E-07	2.40E-03	3.9E-07	5.4E-03	5.44E-03	30	0%	0%	0%	Yes
Chlorobenzene	1.44E-09	3.50E-04	3.3E-09	7.9E-04	7.91E-04	10	0%	0%	0%	Yes
Napthalene	9.35E-07	3.72E-02	2.1E-06	8.4E-02	8.41E-02	N/A	N/A	N/A	N/A	N/A
Phenanthrene	7.91E-07	8.53E-03	1.8E-06	1.9E-02	1.93E-02	N/A	N/A	N/A	N/A	N/A
Phthalates	1.94E-07	3.06E-03	4.4E-07	6.9E-03	6.93E-03	2000	0%	0%	0%	Yes
Pyrene	5.03E-07	9.62E-05	1.1E-06	2.2E-04	2.19E-04	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	2.88E-07	4.37E-06	6.5E-07	9.9E-06	1.05E-05	1.10E-03	0%	1%	1%	Yes
Benzo(a)pyrene	2.88E-07	2.85E-06	6.5E-07	6.4E-06	7.09E-06	3.00E-04	0%	2%	2%	Yes

Note:

- (1) Based on the combustion on 5,000 gal per year of used oil and grease generated on-site.
- (2) Based on the production of 760,000 tons per year of clinker in each of the two kilns.
- (3) The Scen2 Model predicted maximum 1-hour impact of 28.28 $\mu\text{g}/\text{m}^3$ is equal to an annual average impact of 2.26 $\mu\text{g}/\text{m}^3$, based on a persistence factor of 0.08 (EPA-454/R-92-024). The maximum impact is based on modeled emissions of 1.0 g/s.
- (4) From the FDEP "Air Toxics Working List" Version 4 (6/95).

03/25/97
14:07:55

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 95121 ***

SOUTHDOWN INC - BROOKSVILLE CEMENT Used Oil Combustion

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = 1.00000
STACK HEIGHT (M) = 32.0100
STK INSIDE DIAM (M) = 4.2700
STK EXIT VELOCITY (M/S) = 9.9000
STK GAS EXIT TEMP (K) = 394.0000
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = 42.7000
MIN HORIZ BLDG DIM (M) = 43.6300
MAX HORIZ BLDG DIM (M) = 76.8800

BUOY. FLUX = 113.437 M**4/S**3; MOM. FLUX = 332.229 M**4/S**2.

*** FULL METEOROLOGY ***

ANEMOMETER HEIGHT IS: 10.0 METERS

*** SCREEN AUTOMATED DISTANCES ***

BRODE OPTION 2 WAS NOT EXERCISED. RESULTS ARE NOT ASSUMED TO BE CONSERVATIVE WITH RESPECT TO ISCST2 RESULTS.

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
850.	28.28	6	2.0	3.8	10000.0	57.62	29.21	45.40	SS
900.	26.88	6	2.0	3.8	10000.0	57.62	30.78	45.50	SS
1000.	24.48	6	2.0	3.8	10000.0	57.62	33.88	45.70	SS
1100.	22.49	6	2.0	3.8	10000.0	57.62	36.96	45.89	SS
1200.	20.83	6	2.0	3.8	10000.0	57.62	40.01	46.09	SS
1300.	19.41	6	2.0	3.8	10000.0	57.62	43.04	46.28	SS
1400.	18.18	6	2.0	3.8	10000.0	57.62	46.05	46.47	SS
1500.	17.12	6	2.0	3.8	10000.0	57.62	49.03	46.66	SS
1600.	16.17	6	2.0	3.8	10000.0	57.62	51.99	46.85	SS
1700.	15.34	6	2.0	3.8	10000.0	57.62	54.94	47.04	SS
1800.	14.59	6	2.0	3.8	10000.0	57.62	57.87	47.23	SS
1900.	13.92	6	2.0	3.8	10000.0	57.62	60.78	47.42	SS
2000.	13.31	6	2.0	3.8	10000.0	57.62	63.68	47.60	SS
2100.	12.76	6	2.0	3.8	10000.0	57.62	66.56	47.79	SS
2200.	12.25	6	2.0	3.8	10000.0	57.62	69.42	47.97	SS
2300.	11.79	6	2.0	3.8	10000.0	57.62	72.28	48.16	SS
2400.	11.36	6	2.0	3.8	10000.0	57.62	75.12	48.34	SS
2500.	10.96	6	2.0	3.8	10000.0	57.62	77.95	48.52	SS
2600.	10.60	6	2.0	3.8	10000.0	57.62	80.76	48.70	SS

2700.	10.26	6	2.0	3.8	10000.0	57.62	83.57	48.88	SS
2800.	9.938	6	2.0	3.8	10000.0	57.62	86.36	49.06	SS
2900.	9.641	6	2.0	3.8	10000.0	57.62	89.15	49.24	SS
3000.	9.362	6	2.0	3.8	10000.0	57.62	91.92	49.41	SS
3500.	8.255	6	1.5	2.8	10000.0	66.65	105.65	47.05	SS
4000.	7.458	6	1.5	2.8	10000.0	66.65	119.17	47.98	SS
4500.	6.821	6	1.5	2.8	10000.0	66.65	132.50	48.89	SS
5000.	6.297	6	1.5	2.8	10000.0	66.65	145.67	49.77	SS
5500.	5.856	6	1.5	2.8	10000.0	66.65	158.69	50.63	SS
6000.	5.479	6	1.5	2.8	10000.0	66.65	171.58	51.47	SS
6500.	5.153	6	1.5	2.8	10000.0	66.65	184.34	52.30	SS
7000.	4.866	6	1.5	2.8	10000.0	66.65	196.99	53.10	SS
7500.	4.612	6	1.5	2.8	10000.0	66.65	209.54	53.89	SS
8000.	4.385	6	1.5	2.8	10000.0	66.65	221.98	54.66	SS
8500.	4.105	6	1.5	2.8	10000.0	66.65	234.34	53.43	SS
9000.	3.931	6	1.5	2.8	10000.0	66.65	246.61	54.21	SS
9500.	3.771	6	1.5	2.8	10000.0	66.65	258.79	54.96	SS
10000.	3.620	6	1.5	2.8	10000.0	66.65	270.90	55.55	SS
15000.	2.708	6	1.0	1.9	10000.0	82.90	388.43	58.54	SS
20000.	2.247	6	1.0	1.9	10000.0	82.90	500.95	63.36	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 850. M:
850. 28.28 6 2.0 3.8 10000.0 57.62 29.21 45.40 SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

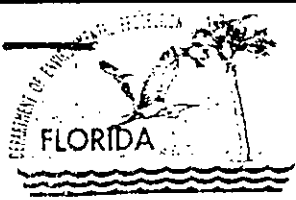
*** CAVITY CALCULATION - 1 ***
CONC (UG/M**3) = 134.6
CRIT WS @10M (M/S) = 2.39
CRIT WS @ HS (M/S) = 3.02
DILUTION WS (M/S) = 1.51
CAVITY HT (M) = 60.80
CAVITY LENGTH (M) = 100.90
ALONGWIND DIM (M) = 43.63

*** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = 147.0
CRIT WS @10M (M/S) = 3.86
CRIT WS @ HS (M/S) = 4.87
DILUTION WS (M/S) = 2.43
CAVITY HT (M) = 49.28
CAVITY LENGTH (M) = 41.20
ALONGWIND DIM (M) = 76.88

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	28.28	850.	0.
BUILDING CAVITY-1	134.6	101.	-- (DIST = CAVITY LENGTH)
BUILDING CAVITY-2	147.0	41.	-- (DIST = CAVITY LENGTH)

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

May 6, 1997

attach figure

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Don Kelly
Plant Manager
Southdown, Inc.
Post Office Box 6
Brooksville, Florida 34605-0006

Re: DRAFT Permit No. 0530010-003-AC (PSD-FL-233)
Kilns and Coolers No. 1 and No. 2

Dear Mr. Kelly:

Enclosed is one copy of the Draft Air Construction Permit for the Southdown cement plants located at US Highway 98, Northwest of Brooksville, Hernando County. The Technical Evaluation and Preliminary Determination along with the Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Teresa Heron or Mr. Linero at 904/488-1344.

Sincerely,

A. A. Linero 5/6
for C. H. Fancy, P.E., Chief,
Bureau of Air Regulation

CHF/th/h

Enclosures

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 Don Kelley, Plant Mgr
 Southdown, Inc
 P O Box 6
 Brooksville, FL
 34605-0006

4a. Article Number
 P 265 659 235

4b. Service Type

Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
 7-2-97

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
 X Audrey Maddox

PS Form 3800, April 1995

Return Receipt

Thank you for using Return Receipt Service.

P 265 659 235

US Postal Service
Receipt for Certified Mail
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

Sent to Don Kelley	
Street & Number Southdown	
Post Office, State, & ZIP Code Brooksville FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	6-26-97
0530010-003-AC PSD-FL-233	

PS Form 3800, April 1995