Bruce

STATE OF FLORIDA

# DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

November 23, 1987

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert E. Kindorf
Vice President
Spiralkote, Inc.
1200 Central Florida Parkway
Orlando, Florida 32809

Dear Mr. Kindorf:

Re: Amendment Request on the Construction Permit
No. AC 48-117138

The Department is in receipt of Mr. Jerome J. Guidry's letters with attachments dated September 30 and October 6, 1987, requesting that the cover page to the above referenced construction permit be amended to accurately described the air source in the configuration that it was received by the facility and as reflected in the Certification of Completion. The source is an Olympia Model 746 Central Impressions, which is a flexographic printing and coating unit and was built in Germany. The permittee did not request an increase in the allowable pollutant emissions and final compliance has already been demonstrated. Based on the information submitted, the Department's Central Florida District and Bureau of Air Quality Management agrees with the request and the following shall be changed and added:

Construction Permit-Cover Page:
2nd Paragraph:

From:

For the construction/installation of the Olympia Model 746 Central Impressions, which is a flexographic printing and coating unit with three associated natural gas dryers: a $0.8 \times 10^6$ Btu/hr - overhead dryer, a $0.5 \times 10^6$ Btu/hr overhead dryer, and a $0.15 \times 10^6$ Btu/hr tunnel oven. The dryers will operate at an idling level when not being used for production. The associated catalytic incinerator system will have a minimum 70% capture and transport efficiency and 95% destruction efficiency. The incinerator system will be custom designed by Etter Engineering

Company, Inc., and consist of two identical 2500 CFM natural gas fired ($0.4 \times 10^6$ Btu/hr) units utilizing an Eclipse model 80-AHO burner. The duct work and collection system will be designed and installed by Dec-E-Tech Industrial Design Engineering. The source emits volatile organic compounds and organic solvents (used for clean-up). The Olympia 746 will replace the existing Kidder I. The UTM coordinates are Zone 17, 461.37 km East and 3142.05 km North.

To:

For the construction/installation of the Olympia Model 746 Central Impressions, which is a flexographic printing and coating unit with three assocsiated natural gas dryers: a $0.8 \times 10^6$ Btu/hr overhead dryer, a $0.5 \times 10^6$ Btu/hr overhead dryer, and a $0.15 \times 10^6$ Btu/hr tunnel oven. The dryers will operate at an idling level when not being used for production. The associated catalytic incinerator system will have a minimum 70% capture and transport efficiency and 95% destruction efficiency. The incinerator system was custom designed by Etter Engineering Company, Inc., and consists of three incinerators (No. 1: 2252 dscfm; No. 2: 3065 dscfm; and, No. 3.: 2658 dscfm) and are natural gas fired ($0.8 \times 10^6$ Btu/hr, maximum; $0.1 \times 10^6$ Btu/hr, normal) using Eclipse Model 80-AHO burners. The duct work and collection system was designed and installed by Dec-E-Tech Industrial Design Engineering. The source emits volatile organic compounds and organic solvents (used for clean-up). The Olympia Model 746 CI will replace the existing Kidder I. The UTM coordinates are Zone 17, 461.37 km East and 3142.02 km North.

Attachments to be Incorporated:

7. Mr. Jerome Guidry's letter with attachment dated September 30, 1987, and received October 5, 1987.

8. Mr. Jerome Guidry's letter with attachment dated October 6, 1987, and received October 8, 1987.

This letter must be attached to your construction permit, No. AC 48-117138, and shall become a part of the permit.

Secretary

Dale Twachtmann
Secretary

DT/ks

cc: T. Sawicki, Cent. FL Dist.
J. Guidry, P.E.
B. Pittman, Esq.

ATTACHMENT 7

POST, BUCKLEY, SCHUH & JERNIGAN, INC.
800 NORTH ORANGE AVENUE
ORLANDO, FLORIDA 32801-1088
305/423-7275

PM
CER. Mail # P-609-605-583
2-Oct. 1987
ORLANDO, FL

full copy

DER
OCT 5 1987
BAQM

September 30, 1987

Mr. A.T. Sawicki, P.E.
Supervisor, Air Section
Florida Department of Environmental Regulation
St. Johns River District
3319 MaGuire Blvd.
Suite 232
Orlando, Florida 32803

Re: Spiralkote, Inc.
Olympia 746 Printing Press
AC48-117138

Dear Mr. Sawicki:

We have prepared the following response to your September 2, 1987 letter to me concerning the above referenced source.

Item #1 A sketch which relates the third incinerator to the process is attached.

Item #2 The fuel utilization rate and geometry of the third incinerators are attached using pages from the air pollution construction permit application. Also see the stack test report dated May 19-20, 1987.

As with the other existing catalytic incinerators at Spiralkote, the primary fuel is the solvent ladened air that is being controlled. Fuel is only used intermittently to maintain the catalyst bed temperature when the press shuts down for short periods of time. The maximum heat input when the burner is operating is 0.8 MMBTU/hr of natural gas. The manufacturer expects that the actual gas consumption is 0.1 MMBTU/hr during normal operation and incineration of VOC's. Therefore, when all three incinerators are operating simultaneously, the total natural gas consumption is 0.3 MMBTU/hr.

The stack geometry for this third incinerator is the same as the other two incinerators. Upon measuring their air flow during the May, 1987 stack test, we determined that the actual flow is different from that stated in the original application. The application states an air flow of 2500 ACFM while the actual measured flows are as follows: Incinerator 1 outlet 4211 ACFM and 2252 DSCFM; Incinerator 2 outlet 5463 ACFM and 3065 DSCFM; incinerator 3 outlet 5107 ACFM and 2658 DSCFM. The appropriate pages from the permit application have been amended and are enclosed.

Item #3 The test report, dated May 19-20, 1987, was mailed to Orange County and according to September 17, 1987 telephone conversation between John Turner and Bruno Ferraro is forwarding a copy to your office for evaluation. Attached is a copy of the results for the CI press (AC48-82733). This incinerator has not met the emission limiting standard for both cature and destruction efficiency. The incinerator manufacture is presently working on correcting the problem and we will be scheduling a new test in the near future.

Attached is a letter dated July 15, 1987 from Roger Decelles (Incinerator Manufacturer) to Bob Kindorf (Spiralkote) addressing the problems with the CI incinerator. The manufacturer is now completing the final repairs to the incinerator and will be tested upon completion.

Item #4 In the original permit application we indicated that the central impressions printing deck of the Olympia 746 press was to have one incinerator while the two downstream decks would share an incinerator. (See Flow diagram from original application). During typical operation only one downstream deck is used at a time. On the rare occasion that both decks would be used the incinerator would have to control emissions from both decks. The German manufacturer decided that two separate incinerators would be necessary to make the system more efficient. We were not informed of this change until the unit was delivered and installed at Spiralkote at which time Bruno Ferraro (Grove Scientific Company) contacted you by telephone (May 14, 1987) to discuss this additional incinerator. In your discussion it was determined that there was no net increase in emissions, by adding this extra incinerator, because a portion of the VOC's were being re-routed to the third incinerator. Because no additional VOC's were being generated, you indicated that this design change should be explained when submitting the certificate of completion application (as we did). The appropriate pages of the application are being forwarded to DER Tallahassee with a copy of this letter.

Kidder I Press (AC48-82735) has not been in operation since August, 1986 and will not be operated again at this facility. Spiralkote is currently trying to sell this press.

Item #5 The appropriate supporting information is being submitted to the central air permitting staff in Tallahassee by copy of this letter.

If you have any question regarding this matter, please call me at (305) 423-7275 or Bruno Ferraro at (305) 298-2298.

Sincerely,

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

Jerome Guidry, P.E.
Manager, EAD Division

cc: Clair Fancy, P.E.
Bob Kindorff
Bruno Ferraro

JJG:BAF:syp

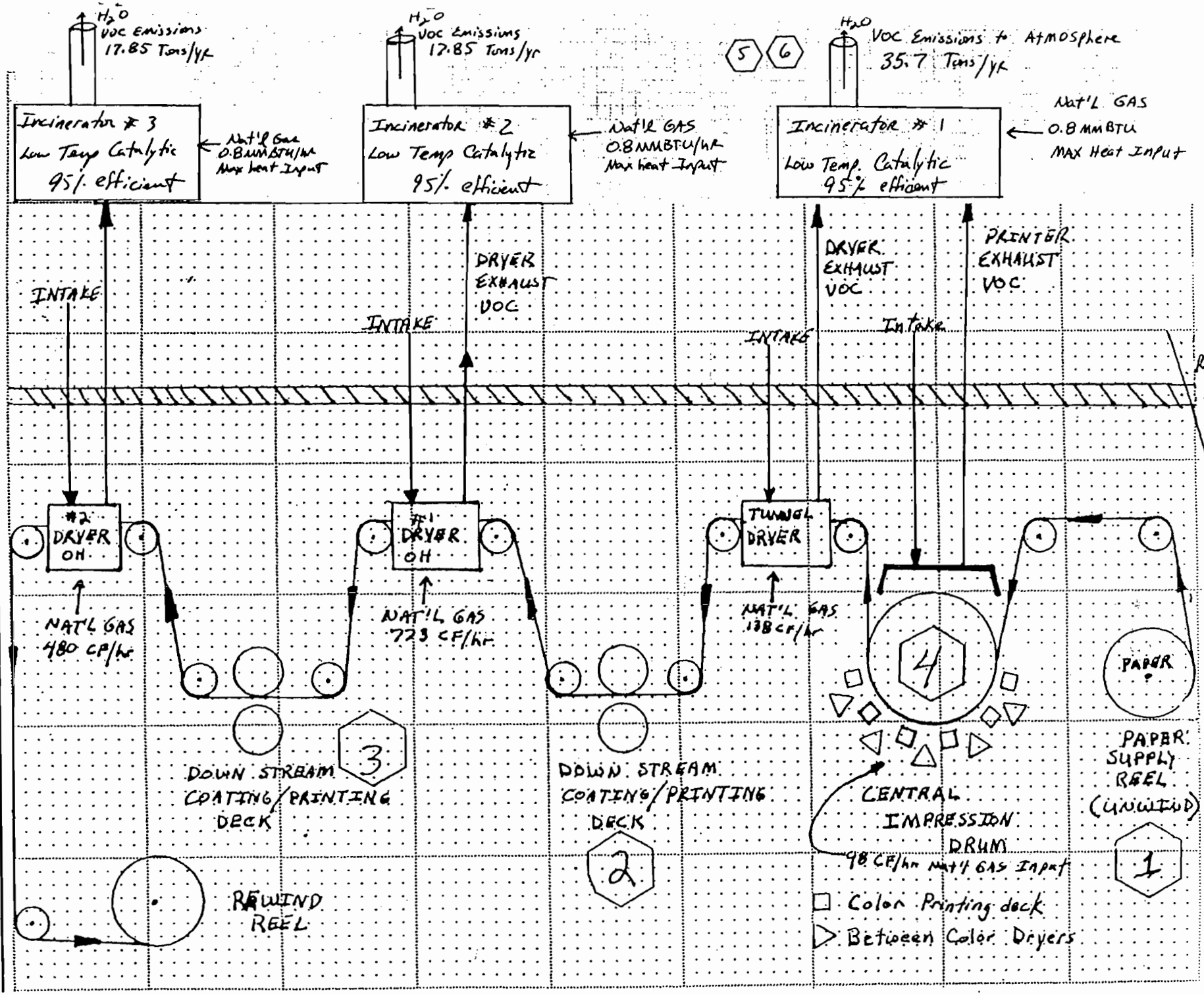
Certified Mail No. P 609 605 532

A3:bg

Post, Buckley, Schuh & Jernigan, Inc.
CONSULTING ENGINEERS and PLANNERS

CHK. BY: _____
DATE: 9-28-87
SHEET NO.: 1
JOB NO.: 21-023.00

SUBJECT: Flow Diagram - Olympia 746 CI PRESS



| Type (Be Specific) | Consumption* | | Maximum Heat Input (MMBTU/hr) |
|---|---|---|---|
| | avg/hr | max./hr | |
| Incinerator 1 | 95 | 760 | 0.8 |
| Incinerator 2 | 95 | 760 | 0.8 |
| Incinerator 3 | 95 | 760 | 0.8 |
| | | | |

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

## ITEM #2

Incinerator #1 *

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ft. Effective Stack Diameter: 1.86 ft.

Gas Flow Rate: 4211 ACFM 2252 DSCFM Gas Exit Temperature: 480 °F.

Water Vapor Content: 6.2 % Velocity: 25.88 FPS

Incinerator #2 *

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ft. Effective Stack Diameter: 2.0 ft.

Gas Flow Rate: 5463 ACFM 3065 DSCFM Gas Exit Temperature: 425 °F.

Water Vapor Content: 6.2 % Velocity: 29.13 FPS

Incinerator #3 *

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ft. Effective Stack Diameter: 2.0 ft.

Gas Flow Rate: 5107 ACFM 2658 DSCFM Gas Exit Temperature: 494 °F.

Water Vapor Content: 6.2 % Velocity: 27.2 FPS

*ALL FLOWS & STACK GEOMETRY REPRESENTS MEASURED VALUES FROM STACK TEST DATED MAY, 1987

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

PBSJ
ORLANDO, FLORIDA
305/423-7275



August 5, 1987

Mr. A. T. Sawicki, P.E.
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, FL 32803

RE: Spiralkote, Inc.
Olympia 746 Press
Permit No. AC48-117138

Dear Mr. Sawicki:

Enclosed are four copies of the above referenced Certificate of Completion of Construction (with attachments) and a check for $500 for the application fee. Also attached is the compliance report as required by the specific conditions of the construction permit. If you have any questions, please call me.

Sincerely,

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

Jerome J. Guidry, P.E.
Manager, EAD Division

JJG:BAF:daa

cc: Robert E. Kindorf
Bruno A. Ferraro

Certified Mail No. P 609 605 043

fp SPIRALKOTE, INC.
1200 CENTRAL FLORIDA PKWY.
ORLANDO, FLA. 32821

Commercial National Bank
OF PEORIA
Member Midwest Financial Group, Inc.
PEORIA, ILLINOIS 61631

6903

70-4/711

PAY----------Five hundred and 00/100----------

DATE: August 3, 1987

AMOUNT: $*500.00**

TO THE ORDER OF: Florida Dept of Environmental Regulations

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

# AIR POLLUTION SOURCES
# CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC48-117138 DATE: 7/28/87

Company Name: Spiralkote, Inc County: Orange

Source Identification(s): Olympia 746 flexographic printing & coating unit & associated catalytic incinerator system.

Actual costs of serving pollution control purpose: $ 310,000

Operating Rates: 6240 hrs/yr Design Capacity: 26 reams/hr

Expected Normal 26 reams/hr During Compliance Test 25.1 reams/hr

Date of Compliance Test: 5/19/87 (Attach detailed test report)

Test Results:

| Pollutant | Actual Discharge | Allowed Discharge |
|---|---|---|
| VOC | 3.37 lb VOC/hr as carbon (6.52 lb VOC/hr) | 22.8 lb/hr |
| Capture Effic. | 90.24 percent | 70 percent |
| Destruction Effic. | 97.48 percent | 95 percent |

Date plant placed in operation: May 1987

This is to certify that, with the exception of deviations noted**, the construction of the project has been completed in accordance with the application to construct and Construction Permit No. AC48-117138 dated 8/22/86.

A. Applicant:

Robert E. Kindorf, Vice President — Robert E. Kindorf
Name of Person Signing (Type) — Signature of Owner or Authorized Representative and Title

Date: _____ Telephone: (305) 859-7780

B. Professional Engineer:

Jerome J. Guidry, P.E. — [signature]
Name of Person Signing (Type) — Signature of Professional Engineer

Post, Buckley, Schuh & Jernigan, Inc. — Florida Registration No. 32589
Company Name

Date: 8-5-87

(Seal)

889 N. Orange Avenue, Orlando, FL 32801
Mailing Address

(305) 423-7275
Telephone Number

*This form, satisfactorily completed, submitted in conjunction with an existing application to construct permit and payment of application processing fee will be accepted in lieu of an application to operate.

**As built, if not built as indicated include process flow sketch, plot plan sketch, and updates of applicable pages of application form.

STACK TEST RESULTS FOR CI PRESS
AC48-82733
Will be retested in October, 1987

Dec-E-Tech
Industrial design engineering & manufacturing
P.O. Box 72 • Tyngsborough, MA • 01879 • Tel.# 617/649-3285

July 15, 1987

JUL 22 1987

Mr. Bob Kindorf
Spiralkote, Inc.
Subsidiary of Fleming-Potter Co.
1200 Central Florida Parkway
Orlando, FL 32821

Dear Bob:

As per our meeting and conversation with Herb Etter the following is a summary of our conversation and agreements made to rectify the problem with the Kidder 6 Color Recirculation/ Incineration system installed by Dec-E-Tech Inc.

As we discussed, Dec-E-Tech contracted to install an incineration system utilizing an Etter incinerator which uses Carulite 200 magnesium dioxide pellets. Etter has guaranteed an overall destruction of greater than 95% on their incinerator. All testing of this unit, to this point, however, has been in the area of 89% destruction efficiency.

Most recently the Carus' laboratory analysis of the second pellet charge indicated hydrocarbon soaking at low temperatures which led to the destruction of these pellets. Although one can only speculate as to the cause and time of pellet destruction, we can make the system less prone to this event by improving the 3 way valve and changing operational procedures whereby the incinerator will see less cycling.

In order to rectify and prove the incinerator to be viable, we agree to the following:

1. Dec-E-Tech will re-design, remove and install the 3 way valve prior to the incinerator.

2. All parties will witness and approve the effectiveness of the new 3 way prior to re-charging the incinerator.

3. Etter will ensure that the incinerator components have been installed properly and are operational.

4. Recharging of the incinerator will be supervised by Etter Engineering.

5. The unit will be run with the press and the incinerator will be tested with Etter's portable FID at time 0 and 10 hours later.

6. If the FID indicates a destruction efficiency of less than 95%, Etter will immediately repair the unit and retest the system as noted in #5.

This I believe will satisfy all parties, whereby all the parameters can be controlled and properly analyzed if problems occur.

If we are all in agreement that these are the facts, we will proceed accordingly. If not, please notify all parties in writing.

I will notify everyone when the 3 way will be installed.

Sincerely,

Roger Decelles

RD/cac

cc: H. Etter
J. R. Wilson

Table 1 Volatile Organic Compounds
CI Press Summary
Spiralkote, Inc.
May 18, 1987

| Run No. | Inlet PPM C | | Inlet Flow | Run Time | Inlet lb C | | Usage | Capture Efficiency | | Outlet PPM C | | Outlet Flow | Outlet Lb C | | Destruction Efficiency | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RTL | CAE | SCFMD | (Minutes) | RTL | CAE | Lb C | RTL | CAE | RTL | CAE | SCFMD | RTL | CAE | RTL | CAE |
| 1 | 2617 | 1822 | ---- | 103 | 17.14 | 11.93 | 29.85 | 57.42 | 40.00 | 213 | 371 | ---- | 1.68 | 2.87 | 90.20 | 75.94 |
| 2 | 2598 | 2720 | ---- | 103 | 17.02 | 17.82 | 33.32 | 51.07 | 53.48 | 249 | 256 | ---- | 1.96 | 2.00 | 88.46 | 88.78 |
| 3 | 1657 | 1588 | ---- | 87 | 9.17 | 8.77 | 12.98 | 70.62 | 67.56 | 162 | 182 | ---- | 1.08 | 1.21 | 88.23 | 86.20 |
| AVG | ---- | ---- | 2042 | --- | 14.44 | 12.84 | 25.38 | 56.89 | 50.59 | --- | --- | 2460 | 1.57 | 2.03 | 89.13 | 84.19 |

Factors for Calculating Ink/Varnish Solvent Content

Inmont White Ink = 44.6% VOC as supplied

20 lbs virgin Ink diluted with 2.25 lbs 90/10 Solvent

$$\frac{2.25 \text{ lbs of } 90/10 \text{ Solvent}}{20 \text{ lbs Ink}} \times 100 = 11.25\% \text{ cut}$$

∴ 0.1125 is the multiplier for ink/solvent mixture to determine quantity of virgin ink returned

Inmont Extender Varnish = 54.9% as supplied

20 lbs virgin Extender cut with 4.5 lbs 90/10 Solvent

$$\frac{4.5 \text{ lbs}}{20 \text{ lbs varnish}} \times 100 = 22.5\% \text{ Cut}$$

∴ 0.225 is the multiplier for varnish/solvent mixture to determine quantity of virgin varnish returned

Run 1 - CI Press 5-19-87

## INK

Start with 80 # virgin Ink
Returned 25 # Ink/solvent mixture

To determin amount of virgin ink in Ink/Solvent Mixture

$25 - (25 \times 0.1125) =$ 22.1875 lbs virgin Ink in Mixture
2.8125 lbs of 90/10 solvent in mixture

80 # virgin ink
- 22.1875 # virgin ink returned from Mixture
57.8125 # virgin ink used during run 1

$57.8125\# \times 0.243 =$ 14.048 lbs Carbon used from Ink

Run 1 - CI Press 5-19-37

VARNISH

Start with 42 # virgin Extender Varnish
Return 16 # Varnish/Solvent mixture

To Determin amount of virgin varnish in mixture

16 - (16 x 0.225) = 12.4 # virgin varnish in mixture

3.6 lbs of 90/10 solvent in mixture

42 # virgin varnish
- 12.4 # virgin varnish returned from mixture
29.6 # virgin varnish used during Run 1.

29.6 # x 0.313 = 9.2648 lbs Carbon from Varnish

Run 1 - CI Press 5-19-87

SOLVENT

90% ETOH / 10% NPA Blend

Start with 71.5 # Solvent Blend

Returned - 47.5 #

24 #

also Returned - 6.4125 # from Ink and Varnish Solvent mixtures

17.5875 # of Solvent used

(17.5875# ÷ 6.681 #/gal) x 2.4825 #C/gal = 6.535 #C used

Run 1 Summary 5-19-87
CI Press

| | Ink | Varnish | Solvent |
|---|---|---|---|
| Total # USED | 57.8125 | 29.6 | 17.5875 |
| Total Carbon | 14.048 | 9.2648 | 6.535 |

Total Available Carbon = 14.048* + 9.2648* + 6.535*
= 29.8478 #C

Run Time = 1:42:55
Total Production = 43,500 ft or 12.98 Reams/hr

Run 2- CI Press 5-19-87

## Ink

Started with 76.5 # virgin ink
Returned 26.75 # Ink/solvent mixture

26.75 - (26.75 x 0.1125) = 23.74 # virgin ink in Mixture
3.009 # of % Solvent in mixture

76.5 # virgin ink
- 23.74 # virgin ink returned in Mixture
52.76 # virgin ink used during Run 2

52.76 # x 0.243 = 12.82 # Carbon used from Ink

Run 2- CI Press 5-19-87

VARNISH

Started with = 48.25 # virgin extender Varnish
Returned 14.75 # Varnish/solvent mixture

14.75 - (14.75 x 0.225) = 11.431 # virgin varnish in Mixture
3.319 lbs of 90/10 solvent Blend in mixture

48.25 # virgin varnish
- 11.431 # virgin varnish returned in mixture
36.819 # virgin varnish used during Run 2

36.819# x 0.313 = 11.524 lbs Carbon from Varnish

Run 2 - CI Press 5-19-87

Solvent - 90/10 Blend

Start with 71.5 #
returned -41 #
returned -3.009 # From Ink/solvent mixture
returned -3.319 # From Varnish/solvent mixture
24.172 # of Solvent used during Run 2

(24.172 # ÷ 6.681 #/gal) X 2.4825 #c/gal = 8.98 #c used

# Run 2- Summary CI Press 5-19-87

| | INK | Varnish | Solvent |
|---|---|---|---|
| Total * used | 52.76 | 36.819 | 24.172 |
| Total Carbon | 12.82 | 11.524 | 8.98 |

Total Available Carbon = 12.82# + 11.524# + 8.98#
= 33.324 #C used Run 2

Run Time = 1:43:13

Total Production = 43,270 ft or 12.91 Reams/hr

Run 3 - CJ Press 5-19-97

## Ink

started with 70 * virgin ink
returned 29 * Ink solvent mixture

29 - (29 X 0.1125) = 25.7375 * virgin ink in mixture
3.2625 * Solvent 90/10 in Mixture

70 * virgin ink
- 25.7375 * virgin ink returned in mixture
44.2625 * virgin ink used during Run 3

44.2625 * X 0.2443 = 10.756 * Carbon used from Ink

Run 3- CI Press 5-14-37

Varnish

Varnish Deck Malfunctioned during this Run no varnish applied to wc6.

Run 3 - CI Press 5-19-87

Solvent

started with 35# 90% blend
returned - 25.75# 90% blend
returned - 3.2625# from ink/solvent mixture
5.9875# of solvent used during Run 3

(5.9375# ÷ 6.091# /gal) X 2.4825 gal = 2.22 gal used

Run 3 - CI Press 5-19-87

Summary

| | Ink | Varnish | Solvent |
|---|---|---|---|
| Total * used | 44.2625 | NONE | 5.9875 |
| Total Carbon * | 10.756 | NONE | 2.22 |

Total Available Carbon = 10.756 * + 2.22 *

= 12.976 * C used run 3

Run Time = 1:27:05

Production = 35,515 or 12.54 Reams/hr

# EPA METHOD 5

## SOURCE TEST CALCULATIONS

Plant SPIRALKOTE Stack CJ out Date 5-19-87 Run No. ____

Bar. Press, PB 29.98 Stack Press, PS 29.98 Stack Dimensions 26.75 x 30.75

CP .84 Stack Area 5.71 $ft^2$, Eff. Stack Area ____ $ft^2$, Avg. Stack Temp. TS 896 °R

Avg. Meter Temp. Tm., ____ °R. Avg. $\sqrt{\Delta P}$, .172 "$H_2O$, Avg. Meter Orifice H" ____ $H_2O$

Meter Vol, VM ____ $ft^3$, Moisture Plus Silica Gel, VIc ____ ml, SAMPLE TIME ____ min

NOZZLE DIA. ____ in. NOZZLE AREA ____ $ft^2$ An: 1/8-0.000767 $ft^2$;

3/16 - 0.0001916 $ft^2$; 1/4 - 0.000341 $ft^2$; 3/8 - 0.000767 $ft^2$; 1/2 - 0.0013 $ft^2$

ORSAT: $CO_2$ 0 %, $O_2$ 21 %, CO ____ %, $N_2$ 79 %

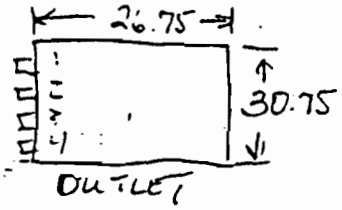
---

| | |
|---|---|
| VWstd = (.04714) x (Vic) | ____ SCF |
| *VM (Leak Rate Correction) = VM - (CFM - 0.02 CFM) x Time | ____ $ft^3$ |
| VMstd = [(17.647)(VM)(Y)] x [PB + ( H ÷ 13.6)] ÷ TM | ____ SCF |
| Bwo = Moisture Fraction = (VWstd) ÷ (VMstd + VWstc) | 0.04 |
| FDA = Fraction of dry air = (1.0) - (Bwo) | 0.96 |
| MD = 0.44 (__ % $CO_2$) + 0.32 (__ % $O_2$) + 0.28 (__ % $N_2$ + __ % CO) = | 28.84 |
| MS = [(MD) x (FDA)] + [(18) x (Bwo)] | 28.41 |
| $\%EA = \frac{(\ \%\ O_2) - [0.5 - (\ \%\ CO)]}{[0.264(\_\_\%\ N_2)] - [(\_\_\%\ O_2) + 0.5\ (\_\_\%\ CO)]} \times 100$ | ____ |
| (Vs)avg = Avg. Velocity = (85.48) x (CP) x ($\sqrt{\Delta P}$) x $\sqrt{\frac{TS}{MS \times PS}}$ | 12.67 FPS |
| QS = gas flow rate - (Vs)avg x (AS) x (60) | 4340 ACFM |
| $(QS)std = (QS) \times (FDA) \times \frac{(528)}{TS} \times \frac{(PS)}{29.92}$ | 2460 SCFMD |
| $I = TS \frac{[(0.00267 \times VIc) + (VMstd17.647)]}{(TIME \times PS \times AN \times Vs \times 60)} \times 100$ | ____ % |
| C's = Grains/DSCF = (0.0154) x (mg) ÷ (VMstd) | ____ GR/DSCF |
| Grains/ACF = (C's) x (17.647) x (PS) x (FDA) ÷ (TS) | ____ GR/ACF |
| C = lb/DSCF = (C's) ÷ 7000 | ____ lb/DSCF |
| $E_{12}$ = (C's) x (12) ÷ (% $CO_2$) | ____ GR/DSCF @12% $CO_2$ |
| $E_{50}$ = (C's) x (100 + %EA) ÷ (150) | ____ GR/DSCF @ 50% EA |
| EM = Particulate emission rate = (C's) x (QS)std x (0.00857) | ____ lbs/hr |
| E = (lb/MM Btu) = CF [(20.9) ÷ (20.9 - $\%O_2$)] | ____ lb/MM Btu |

F Factors: Anthracite Coal = 10140
Bituminous Coal = 9820
Liquid Fossil Fuels = 9220
Gaseous Fossil Fuels = 8740

# PRELIMINARY VELOCITY TRAVERSE

PLANT [illegible]
DATE 5/19/87
LOCATION [illegible] OUTLET
STACK I.D. [illegible] (5.71 FT²)
BAROMETRIC PRESSURE, in. Hg 29.95
STACK GAUGE PRESSURE, in. $H_2O$ -0.09
OPERATORS HODGE GABEL NECK




SCHEMATIC OF TRAVERSE POINT LAYOUT

4% $H_2O$ 1220 TIME

| TRAVERSE POINT NUMBER | VELOCITY HEAD ($\Delta p_s$), in. $H_2O$ | STACK TEMPERATURE ($T_s$), °F |
|---|---|---|
| 1-1 | .03 | 344 |
| 2 | .03 | 334 |
| 3 | .04 | 342 |
| 4 | .045 | 353. |
| 5 | .045 | 360 |
| 6 | .045 | 370 |
| 2-1 | .035 | 356 |
| 2 | .02 | 363 |
| 3 | .01 | 372 |
| 4 | .02 | 383 |
| [illegible] | .04 | 395 |
| [illegible] | .06 | 399 |
| [illegible] | .04 | 393 |
| [illegible] | .02 | 387 |
| [illegible] | .01 | 388 |
| 4 | .015 | 387 |
| 5 | .03 | 407 |
| 6 | .05 | 412 |
| [illegible] | .035 | 398 |
| [illegible] | .035 | 402 |
| [illegible] | .03 | 413 |
| [illegible] | .025 | 419 |
| [illegible] | .025 | 422 |
| [illegible] | .05 | 414 |
| AVERAGE | .177 | 384 |

.177 384

4231 ACFM

| TRAVERSE POINT NUMBER | VELOCITY HEAD ($\Delta p_s$), in. $H_2O$ | STACK TEMPERATURE ($T_s$), °F |
|---|---|---|
| 1-1 | .03 | 486 |
| 2 | .045 | 488 |
| 3 | .045 | 490 |
| 4 | .05 | 490 |
| 5 | .055 | 493 |
| 6 | .055 | 491 |
| 2-1 | .04 | 490 |
| 2 | .03 | 490 |
| 3 | .02 | 493 |
| 4 | .02 | 493 |
| 5 | .04 | 492 |
| 6 | .06 | 493 |
| 3-1 | .025 | 486 |
| 2 | .015 | 486 |
| 3 | .005 | 485 |
| 4 | .01 | 488 |
| 5 | .02 | 489 |
| 6 | .03 | 489 |
| 4-1 | .03 | 479 |
| 2 | .025 | 480 |
| 3 | .015 | 482 |
| 4 | .02 | 484 |
| 5 | .015 | 484 |
| 6 | .02 | 485 |
| AVERAGE | .167 | 488 |

overall ave $T_s$ = 436°F

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# STACK SAMPLING FIELD DATA SHEET

Air Consulting and Engineering
2601 N.W. 67th PLACE, SUITE 4
GAINESVILLE, FLORIDA 32606

TEST ID _____

PAGE _____ OF _____

PLANT Spiralkote SOURCE CI OUTLET
PLANT LOCATION ORLANDO
TYPE OF SAMPLING TRAIN EPA 2
TYPE OF SAMPLES $H_2O$
DATE 5-19-87 RUN NO. 2
TIME START 1453 TIME END 1553
SAMPLE TIME 10 min/pt 60 Total min
BAR PRESS. 29.98 "Hg STACK PRESS. _____ "Hg
ASSUMED MOISTURE 4 % FDA .96
WEATHER CLOUDY TEMP. _____ °F
METER BOX NO. 1 ΔH 2.00 Y 1.000
HOMOGRAPH $C_f$ _____ PITOT CORR. FACTOR 0.84
NOZZLE CALIBRATION _____ _____ _____ = _____
STACK DIMINSIONS _____
STACK AREA _____ (EFFECTIVE _____ $ft^2$)
STACK HEIGHT _____ ft.
STACK DIAMETER: UPSTREAM _____ DOWNSTREAM _____
PORT SIZE _____ In. NIPPLE LENGTH _____
U CORD LENGTH: _____
REMARKS: _____

.0472 x ml = $SCF_{H_2O}$
= 1.77

$\frac{528}{T_m °R} = SCF_{S.V.}$
= 41.24

$\frac{SCF_{H_2O}}{SCF_{SV} + SCF_{H_2O}}$

1.70 $SCF_{H_2O}$

.96Y = 41.263 $ft^3$ std

4.1 % moisture

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 529.405 ft.³
INITIAL 486.601 ft.³
NET 42.804 ft.³
IMPINGERS VOL. GAIN 26 ml
SILICA GEL NO. 44 WT. GAIN 11.6
FILTER NO. _____ TOTAL CONDENSATE 37.6 ml

ORSAT

| | 1 | 2 | 3 | 4 | AVG |
|---|---|---|---|---|---|
| % $CO_2$ | | | | | |
| % $O_2$ | | | | | |
| % CO | | | | | |
| % $N_2$ | | | | | |

$F_O$ _____ $F_O$ RANGE _____
LEAK CHECKS: METER BOX/PUMP _____
ORSAT BAG _____ GAS SAMPLE SYSTEM _____
ORSAT ANALYZER _____
PRE-TEST .020 CFM 15 "Hg POST-TEST _____ CFM _____ "Hg
BOX OPERATOR Jake PROBE HOLDER _____
PYROMETER NO. _____ PITOT TUBE NO. _____
PITOT TUBE LEAK CHECK: PRETEST _____
POST-TEST(+) _____ $H_2O$ _____ SEC
POST-TEST(-) _____ $H_2O$ - _____ SEC

| PORT AND TRAVERSE POINT NUMBER | DISTANCE FROM INSIDE STACK WALL (IN.) | CLOCK TIME | GAS METER READING ($FT^3$) | STACK VELOCITY HEAD | METER ORIFICE PRESS. DIFF. ("$H_2O$) | | STACK GAS TEMP. (°F) | SAMPLE BOX TEMP. (°F) | LAST IMPINGER TEMP. (°F) | DRY GAS METER TEMP. (°F) | VACUUM ON SAMPLE TRAIN ("Hg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CALC. | ACTUAL | | | | | |
| 1 | | | | | | 2.0 | 415 | | 82 | 89 | 2.5 |
| | | | 493.6 | | | 2.0 | 418 | | 63 | 88 | 2.5 |
| | | | 501.0 | | | 2.0 | 425 | | 62 | 88 | 3 |
| | | | 508.2 | | | 2.0 | 434 | | 61 | 87 | 3 |
| | | | 515.3 | | | 2.0 | 430 | | 62 | 87 | 3 |
| | | | | | | | | | | | |

# EPA METHOD 5

## SOURCE TEST CALCULATIONS

Plant SPIRALKOTE Stack CI INLET Date 5-19-87 Run No. ____

Bar. Press, PB 29.98 Stack Press, PS 29.87 Stack Dimensions 16"x16"

CP .84 Stack Area 1.78 $ft^2$, Eff. Stack Area ____ $ft^2$, Avg. Stack Temp. TS 592 °R

Avg. Meter Temp. Tm., ____ °R. Avg. $\sqrt{\Delta P}$, .372 "$H_2O$, Avg. Meter Orifice H" ____ $H_2O$

Meter Vol, VM ____ $ft^3$, Moisture Plus Silica Gel, VIc ____ ml, SAMPLE TIME ____ min

NOZZLE DIA. ____ in. NOZZLE AREA ____ $ft^2$ An: 1/8-0.000767 $ft^2$;

3/16 - 0.0001916 $ft^2$; 1/4 - 0.000341 $ft^2$; 3/8 - 0.000767 $ft^2$; 1/2 - 0.0013 $ft^2$

ORSAT: $CO_2$ ____ %, $O_2$ ____ %, CO ____ %, $N_2$ ____ %

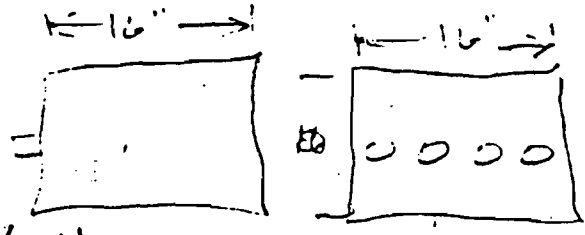
---

| | |
|---|---|
| VWstd = (.04714) x (Vic) | ____ SCF |
| *VM (Leak Rate Correction) = VM - (CFM - 0.02 CFM) x Time | ____ $ft^3$ |
| VMstd = [(17.647)(VM)(Y)] x [PB + ( H ÷ 13.6)] ÷ TM | ____ SCF |
| Bwo = Moisture Fraction = (VWstd) ÷ (VMstd + VWstc) | 0.037 |
| FDA = Fraction of dry air = (1.0) - (Bwo) | 0.963 |
| MD = 0.44 (__% $CO_2$) + 0.32 (__% $O_2$) + 0.28 (__% $N_2$ + __% CO) = | 28.84 |
| MS = [(MD) x (FDA)] + [(18) x (Bwo)] | 28.44 |
| $\%EA = \frac{(\%O_2) - [0.5 - (\%CO)]}{[0.264(\%N_2)] - [(\%O_2) + 0.5(\%CO)]} \times 100$ | ____ |
| (Vs)avg = Avg. Velocity = (85.48) x (CP) x ($\sqrt{\Delta P}$) x $\sqrt{\frac{TS}{MS \times PS}}$ | 22.3 FPS |
| QS = gas flow rate = (Vs)avg x (AS) x (60) | 2381 ACFM |
| $(QS)std = (QS) \times (FDA) \times \frac{(528)}{TS} \times \frac{(PS)}{29.92}$ | 2042 SCFMD |
| $I = TS \frac{[(0.00267 \times VIc) + (VMstd17.647)]}{(TIME \times PS \times AN \times Vs \times 60)} \times 100$ | ____ % |
| C's = Grains/DSCF = (0.0154) x (mg) ÷ (VMstd) | ____ GR/DSCF |
| Grains/ACF = (C's) x (17.647) x (PS) x (FDA) ÷ (TS) | ____ GR/ACF |
| C = lb/DSCF = (C's) ÷ 7000 | ____ lb/DSCF |
| $E_{12}$ = (C's) x (12) ÷ (% $CO_2$) | ____ GR/DSCF @12% $CO_2$ |
| $E_{50}$ = (C's) x (100 + %EA) ÷ (150) | ____ GR/DSCF @ 50% EA |
| EM = Particulate emission rate = (C's) x (QS)std x (0.00857) | ____ lbs/hr |
| E = (lb/MM Btu) = CF [(20.9) ÷ (20.9 - $\%O_2$)] | ____ lb/MM Btu |

F Factors: Anthracite Coal = 10140
Bituminous Coal = 9820
Liquid Fossil Fuels = 9220
Gaseous Fossil Fuels = 8740

# PRELIMINARY VELOCITY TRAVERSE

PLANT SPIRAL KOTE
DATE 5/19/87
LOCATION C E PRESH - INLET
STACK I.D. 16"X16" (1.78 FT²)
BAROMETRIC PRESSURE, in. Hg 29.98
STACK GAUGE PRESSURE, in. $H_2O$ -1.5
OPERATORS




3.7% $H_2O$

SCHEMATIC OF TRAVERSE POINT LAYOUT

Av. = .371 Av = 137.8≈138°F

| TRAVERSE POINT NUMBER | VELOCITY HEAD ($\Delta p_s$), in. $H_2O$ | STACK TEMPERATURE ($T_s$), °F |
|---|---|---|
| 1-1 | .11 | |
| 2 | .12 | 140 |
| 3 | .14 | |
| 4 | .15 | 139 |
| 5 | .17 | 138 |
| 6 | .15 | 139 |
| 2-1 | .11 | 135 |
| 2 | .12 | 136 |
| 3 | .13 | 138 |
| 4 | .13 | 138 |
| 5 | .16 | 139 |
| 6 | .15 | 138 |
| 3-1 | .12 | 136 |
| 2 | .13 | 137 |
| 3 | .12 | 138 |
| 4 | .14 | 138 |
| 5 | .15 | 139 |
| 6 | .16 | 138 |
| 4-1 | .12 | 135 |
| 2 | .13 | 137 |
| 3 | .15 | 138 |
| 4 | .16 | 139 |
| 5 | .16 | 138 |
| 6 | .14 | 132 |
| AVERAGE | .371 | |

2358 ACFM
2002 SCFM

Av = .373

| TRAVERSE POINT NUMBER | VELOCITY HEAD ($\Delta p_s$), in. $H_2O$ | STACK TEMPERATURE ($T_s$), °F |
|---|---|---|
| 1410F DB 1-1 | .14 | 123 |
| 940F WB 2 | .15 | 120 |
| 3 | .14 | 125 |
| 4 | .15 | 128 |
| 5 | .14 | 128 |
| 6 | .16 | 128 |
| 2-1 | .115 | 126 |
| 2 | .115 | 126 |
| 3 | .12 | 127 |
| 4 | .13 | 127 |
| 5 | .15 | 127 |
| 6 | .17 | 127 |
| 3-1 | .10 | 126 |
| 2 | .12 | 127 |
| 3 | .13 | 127 |
| 4 | .15 | 128 |
| 5 | .17 | 129 |
| 6 | .15 | 129 |
| 4-1 | .09 | 129 |
| 2 | .12 | 130 |
| 3 | .14 | 130 |
| 4 | .17 | 129 |
| 5 | .17 | 129 |
| 6 | .165 | 129 |
| AVERAGE | .373 | 127.3 |

≈127

$\bar{T}_s$ = 132°F + 460 = 592°R

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# STACK SAMPLING FIELD DATA SHEET

Air Consulting and Engineering
2601 N.W. 67th PLACE, SUITE 4
GAINESVILLE, FLORIDA 32606

2008701 A

TEST ID _____

PAGE 1 OF 1

PLANT SPIRALKOTE SOURCE CI. OUTLET
PLANT LOCATION ORLANDO
TYPE OF SAMPLING TRAIN EPA 2
TYPE OF SAMPLES $H_2O$
DATE 5-19-87 RUN NO. 1
TIME START 1255 TIME END 1330
SAMPLE TIME _____ min/pt 35 Total min
BAR PRESS. 29.98 "Hg STACK PRESS. _____ "Hg
ASSUMED MOISTURE 4 % FDA 96
WEATHER _____ TEMP. _____ °F
METER BOX NO. 1 ΔH 2.00 Y 1.000
NOMOGRAPH $C_f$ _____ PITOT CORR. FACTOR 0.84
NOZZLE CALIBRATION _____ = n/a
STACK DIMINSIONS _____
STACK AREA _____ (EFFECTIVE _____ $ft^2$)
STACK HEIGHT _____ ft.
STACK DIAMETER: UPSTREAM _____ DOWNSTREAM _____
PORT SIZE _____ in. NIPPLE LENGTH _____
U CORD LENGTH: 50
REMARKS: _____

SCF = 27.46
$V_{WV}$ = 1.14
$\%\ H_2O$ = 4.0

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 489.958 ft.³
INITIAL 461.402 ft.³
NET 28.556 ft.³
IMPINGERS VOL. GAIN 17 ml
SILICA GEL NO. 23 WT. GAIN 7.1
FILTER NO. _____ TOTAL CONDENSATE 24.1 ml

ORSAT

| | 1 | 2 | 3 | 4 | AVG |
|---|---|---|---|---|---|
| % $CO_2$ | | | | | |
| % $O_2$ | | | | | |
| % CO | | | | | |
| % $N_2$ | | | | | |

$F_O$ _____ $F_O$ RANGE _____
LEAK CHECKS: METER BOX/PUMP OK
ORSAT BAG _____ GAS SAMPLE SYSTEM OK
ORSAT ANALYZER _____
PRE-TEST 0.02 CFM 15 "Hg POST-TEST 0.00 CFM 6 "Hg
BOX OPERATOR GABEL PROBE HOLDER _____
PYROMETER NO. 1 PITOT TUBE NO. _____
PITOT TUBE LEAK CHECK: PRETEST OK
POST-TEST(+) _____ $H_2O$ _____ SEC
POST-TEST(-) _____ $H_2O$ _____ SEC

| PORT AND TRAVERSE POINT NUMBER | DISTANCE FROM INSIDE STACK WALL (IN.) | CLOCK TIME | GAS METER READING ($FT^3$) | STACK VELOCITY HEAD | METER ORIFICE PRESS. DIFF. ("$H_2O$) CALC. | METER ORIFICE PRESS. DIFF. ("$H_2O$) ACTUAL | STACK GAS TEMP. (°F) | SAMPLE BOX TEMP. (°F) | LAST IMPINGER TEMP. (°F) | DRY GAS METER TEMP. (°F) | VACUUM ON SAMPLE TRAIN ("Hg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | 2.0 | 412 | | 72 | 87 | 2.5 |
| | | | 465.0 | | | 2.0 | 410 | | 66 | 88 | 2.5 |
| | | | 468.5 | | | 2.0 | 408 | | 65 | 89 | 2.5 |
| | | | 472.0 | | | 2.0 | 411 | | 65 | 89 | 2.5 |
| | | | 475.5 | | | 2.0 | 412 | | 65 | 90 | 2.5 |
| | | | 479.0 | | | 2.0 | 413 | | 65 | 90 | 2.5 |

ATTACHMENT 8

PBSJ
POST, BUCKLEY, SCHUH & JERNIGAN, INC.
889 NORTH ORANGE AVENUE
ORLANDO, FLORIDA 32801-1088
305/423-7275

Full copy

PM
Oct. 6, 1987
Orlando, FL
CF: P-609-605-540

DER

OCT 8 1987

BAQM

2774443
6635 E. Colonial Dr
32807

October 6, 1987

Mr. Clair Fancy, P.E.
Deputy Chief BAQM
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Re: Spiralkote, Inc.
Olympia 746 Flexographic Printing Press
AC48-117138

Dear Mr. Fancy:

Enclosed are two (2) copies of a request for a modification for the above referenced source. This modification has been discussed briefly by Bruce Mitchell and Bruno Ferraro (Grove Scientific). If you have any questions concerning this source, please call Mr. Ferraro at (305) 298-2282 or me at (305) 423-7275. Two additional copies have been submitted to Tom Sawicki in Orlando.

Sincerely,

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

Jerome J. Guidry, P.E.
Manager, EAD Division

cc: Bob Kindorf
Bruno Ferraro
A.T. Sawicki, P.E.

JJG:BAF/syp

Certified Mail No. P 609 605 531

A3:bg

STATE OF FLORIDA

# DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

## APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Printing facility [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [X] Operation [X] Modification

COMPANY NAME: Spiralkote, Inc. COUNTY: Orange

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) Olympia 746 Flexographic Printing press

SOURCE LOCATION: Street 1200 Central Florida Parkway City Orlando, 32809

UTM: East 461370 North 3142050

Latitude 28 ° 24 ' 21 "N Longitude 81 ° 23 ' 40 "W

APPLICANT NAME AND TITLE: Robert E. Kindorf, Vice President of Production

APPLICANT ADDRESS: 1200 Central Florida Parkway, Orlando, Fl 32809

### SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Spiralkote, Inc

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further I agree to maintain and operate the pollution control source and pollution contro facilities in such a manner as to comply with the provision of Chapter 403, Florid Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferabl and I will promptly notify the department upon sale or legal transfer of the permitte establishment.

*Attach letter of authorization

Signed: Robert E. Kindorf

Robert E. Kindorf, Vice President
Name and Title (Please Type)

Date: 10-2-87 Telephone No. (305) 859-7780

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project hav been ~~designed~~/examined by me and found to be in conformity with modern engineerin principles applicable to the treatment and disposal of pollutants characterized in th permit application. There is reasonable assurance, in my professional judgment, tha

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

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 _____

Jerome J. Guidry, P.E.
Name (Please Type)

Post, Buckley, Schuh & Jernigan, Inc.
Company Name (Please Type)

889 North Orange Avenue, Orlando, FL 32801
Mailing Address (Please Type)

Florida Registration No. 32589 Date: 10-6-87 Telephone No. (305) 423-7275

## 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.

To modify the Olympia 746 Flexographic printing press by adding a third catalytic incinerator to control VOC emissions. No increase or decrease in VOC emmissions will result and the project will result in full compliance with 17-2 FAC.

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.)

| | |
|---|---|
| Catalytic Incinerator 1 | $155,000 |
| Catalytic Incinerator 2 | $155,000 |
| Catalytic Incinerator 3 | $155,000 |

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

AC48-117138

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 5 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe:_____

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? | Yes |
| c. If yes, list non-attainment pollutants. | N/A |
| 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? | No |
| 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? | N/A |

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 justification 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 | | |
| Paper | None | N/A | 519 | (1) |
| Coating KJ 902 | VOC | 86 | 24.9 | (2) |
| Coating NB 1061 | VOC | 66 | 17.7 | (3) |
| Ink | VOC | 74 | 46.2 | (4) |
| | | | | |

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

1. Total Process Input Rate (lbs/hr): 607.8

2. Product Weight (lbs/hr): 540.5

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

| 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 T/yr | | | lbs/hr | T/yr | |
| VOC | 22.5 | 70.3 | 17-2.640 | 22.5 | 67.3 | 209.9 | (5) & (6) |
| | | | LAER | | | | |
| | | | 70% Capture | | | | |
| | | | 95% Destruction | | | | |
| | | | | | | | |

[1]See Section V, Item 2.

[2]Reference 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)

[3]Calculated from operating rate and applicable standard.

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

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) |
|---|---|---|---|---|
| Three Catalytic | VOC | 95% | N/A | Stack Test |
| Incineration systems | | | | results attached. |
| custom built by Etter Engineering Co. | | | | |
| | | | | |
| | | | | |
| | | | | |

E. Fuels Natural gas used for all heating.

| Type (Be Specific) | Consumption* | | Maximum Heat Input (MMBTU/hr) |
|---|---|---|---|
| | avg/hr | max./hr | |
| Between Color dryer | 98 CF/hr | 98 CF/hr | 0.1035 |
| Tunnel oven | 138 CF/hr | 138 CF/hr | 0.145 |
| #1 overhead dryer | 773 CF/hr | 773 CF/hr | 0.814 |
| #2 overhead dryer | 480 CF/hr | 480 CF/hr | 0.506 |

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

Fuel Analysis:

Percent Sulfur: N/A Percent Ash: N/A

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

Annual Average N/A Maximum _____

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

Some solvents are reclaimed by distillation. Waste solvents, coating and inks are shipped to Oldover Corporation, Green Cove Springs, to burned in their boilers. This procedure is currently being used by this generator.

SEE ATTACHMENT

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

## SECTION IV: INCINERATOR INFORMATION N/A

| Type of Waste | Type 0 (Plastics) | Type I (Rubbish) | Type II (Refuse) | Type III (Garbage) | Type IV (Pathological) | Type V (Liq.& Gas By-prod.) | Type VI (Solid By-prod.) |
|---|---|---|---|---|---|---|---|
| Actual lb/hr Incinerated | | | | | | | |
| Uncontrolled (lbs/hr) | | | | | | | |

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

| | Volume $(ft)^3$ | Heat Release (BTU/hr) | Fuel | | Temperature (°F) |
|---|---|---|---|---|---|
| | | | Type | BTU/hr | |
| Primary Chamber | | | | | |
| Secondary Chamber | | | | | |

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

E. Fuels Natural Gas used for all heating.

| Type (Be Specific) | Consumption* | | Maximum Heat Input (MMBTU/hr) |
|---|---|---|---|
| | avg/hr | max./hr | |
| Incinerator 1 | 95 | 760 | 0.8 |
| Incinerator 2 | 95 | 760 | 0.8 |
| Incinerator 3 | 95 | 760 | 0.8 |
| | | | |

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

## ITEM #2

Incinerator #1 *

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ft. Effective Stack Diameter: 1.86 ft.

Gas Flow Rate: 4211 ACFM 2252 DSCFM Gas Exit Temperature: 480 °F.

Water Vapor Content: 6.2 % Velocity: 25.88 FPS

Incinerator #2 *

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ft. Effective Stack Diameter: 2.0 ft.

Gas Flow Rate: 5463 ACFM 3065 DSCFM Gas Exit Temperature: 425 °F.

Water Vapor Content: 6.2 % Velocity: 29.13 FPS

Incinerator #3 *

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ft. Effective Stack Diameter: 2.0 ft.

Gas Flow Rate: 5107 ACFM 2658 DSCFM Gas Exit Temperature: 494 °F.

Water Vapor Content: 6.2 % Velocity: 27.2 FPS

*ALL FLOWS & STACK GEOMETRY REPRESENTS MEASURED VALUES FROM STACK TEST DATED MAY, 1987

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

## SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

## SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY N/A

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

C. What emission levels do you propose as best available control technology?

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

## SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION N/A

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) $SO^{2}$* _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

| Pollutant | Emission Rate |
|---|---|
| TSP | _____ grams/sec |
| $SO^2$ | _____ grams/sec |

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

## Project Description

As originally permitted, this source was to have 2 catalytic incinerators to control VOC emissions from the Olympia 746 printing press. The manufacturer modified this source by adding a third incinerator to control emissions from the downstream decks. Originally the two downstream decks were to be controlled by a single shared incinerator, but, since typically only one of the downstream decks operates at a time, the third incinerator was added. DER was notified by telephone when we were made aware of this addition. The result is no decrease or increase in VOC emissions but a more efficient control system for this press. The stack test has been submitted to the Orlando DER and the source is in compliance with the permit specific conditions. By this application we are applying for both a modification and an operation permit. The certificate of completion application and the compliance report, submitted to the Orlando DER, and is attached to this modification. The application fee has been submitted to the Orlando DER (copy attached).

## SUPPLEMENTAL REQUIREMENTS

Supplement 1: Process input rate was determined by the manufacturer's designed printing rate. The product weight is the weight of the printed paper less the solvent weight.

Supplement 2: Emissions were calculated from the solvent content of the inks and coatings assuming 70% capture of VOCs and 95% destruction.

Total control efficiency is:

$0.7 \times 0.95 \times 100 = 66.5\%$

Compliance will be demonstrated by an EPA Method 25 VOC stack test (or the latest approved method) with capture efficiency being determined by the amount of solvent being used during the test and the concentration of VOCs collected at the inlet of the incinerator.

Supplement 3-9: Attached.

## VOC EMISSION SUMMARY

| | Potential | | Actual | |
|---|---|---|---|---|
| Raw Material | lbs/hr | Tons/yr | lbs/hr | Tons/yr |
| KJ 902 | 21.414 | 66.811 | 7.1736 | 22.381 |
| NB 1061 | 11.682 | 36.447 | 3.9134 | 12.210 |
| Ink | 34.188 | 106.66 | 11.452 | 35.733 |
| Total | 67.284 | 209.918 | 22.539 | 70.324 |

EMISSION CALCULATIONS FOR VOLATILE ORGANIC COMPOUNDS

Comment: OLYMPIA 746 PRESS

Chemical name: COATING KJ 902

| | | |
|---|---|---|
| Chemical density: | | 0.6812 grams per cubic centimeter |
| | or | 5.68 pounds per gallon |
| VOC concentration: | | 4.8848 pounds per gallon |
| | or | 86.0 per cent |
| Usage rate: | | 4.3838 gallons per hour |
| | or | 24.9 pounds per hour |
| VOC control efficiency: | | 66.5 per cent |

Operating shedule: 24 Hours per day
5 Days per week
52 Weeks per year

TOTAL 6240 Hours per year

---

Potential emissions = ( Usage rate ) x ( VOC Concentration )

= ( 4.3838 ) x ( 4.8848 )

= 21.414 lb per hr x 6240 hr per year

x ( 1 ton / 2000 pounds )

= 66.811 Tons per year

Maximum emissions = Potential emissions x ( 1 - Efficiency )

= ( 21.414 ) x ( 1 - 0.665 )

= 7.1736 pounds per hour

Actual emissions = Maximum emissions x Operating schedule

= 7.1736 lb/hr x 6240 hrs/year

x ( 1 ton / 2000 pounds)

= 22.381 tons per year

01-Jan-80

EMISSION CALCULATIONS FOR VOLATILE ORGANIC COMPOUNDS

Comment: OLYMPIA 746 PRESS

Chemical name: COATING NB 1061

| | | | |
|---|---|---|---|
| Chemical density: | | 0.6048 | grams per cubic centimeter |
| | or | 5.0427 | pounds per gallon |
| VOC concentration: | | 3.3281 | pounds per gallon |
| | or | 66.0 | per cent |
| Usage rate: | | 3.5100 | gallons per hour |
| | or | 17.7 | pounds per hour |
| VOC control efficiency: | | 66.5 | per cent |

Operating shedule: 24 Hours per day
5 Days per week
52 Weeks per year

TOTAL 6240 Hours per year

---

Potential emissions = ( Usage rate ) x ( VOC Concentration )

= ( 3.5100 ) x ( 3.3281 )

= 11.682 lb per hr x 6240 hr per year

x ( 1 ton / 2000 pounds )

= 36.447 Tons per year

Maximum emissions = Potential emissions x ( 1 - Efficiency )

= ( 11.682 ) x ( 1 - 0.665 )

= 3.9134 pounds per hour

Actual emissions = Maximum emissions x Operating schedule

= 3.9134 lb/hr x 6240 hrs/year

x ( 1 ton / 2000 pounds)

= 12.210 tons per year

01-Jan-80

EMISSION CALCULATIONS FOR VOLATILE ORGANIC COMPOUNDS

Comment: OLYMPIA 746 PRESS

Chemical name: INK

| | | | |
|---|---|---|---|
| Chemical density: | | 0.9021 | grams per cubic centimeter |
| | or | 7.5213 | pounds per gallon |
| VOC concentration: | | 5.5657 | pounds per gallon |
| | or | 74.0 | per cent |
| Usage rate: | | 6.1425 | gallons per hour |
| | or | 46.2 | pounds per hour |
| VOC control efficiency: | | 66.5 | per cent |

Operating shedule: 24 Hours per day
5 Days per week
52 Weeks per year

TOTAL 6240 Hours per year

---

Potential emissions = ( Usage rate ) x ( VOC Concentration )

= ( 6.1425 ) x ( 5.5657 )

= 34.188 lb per hr x 6240 hr per year

x ( 1 ton / 2000 pounds )

= 106.66 Tons per year

Maximum emissions = Potential emissions x ( 1 - Efficiency )

= ( 34.188 ) x ( 1 - 0.665 )

= 11.452 pounds per hour

Actual emissions = Maximum emissions x Operating schedule

= 11.452 lb/hr x 6240 hrs/year

x ( 1 ton / 2000 pounds)

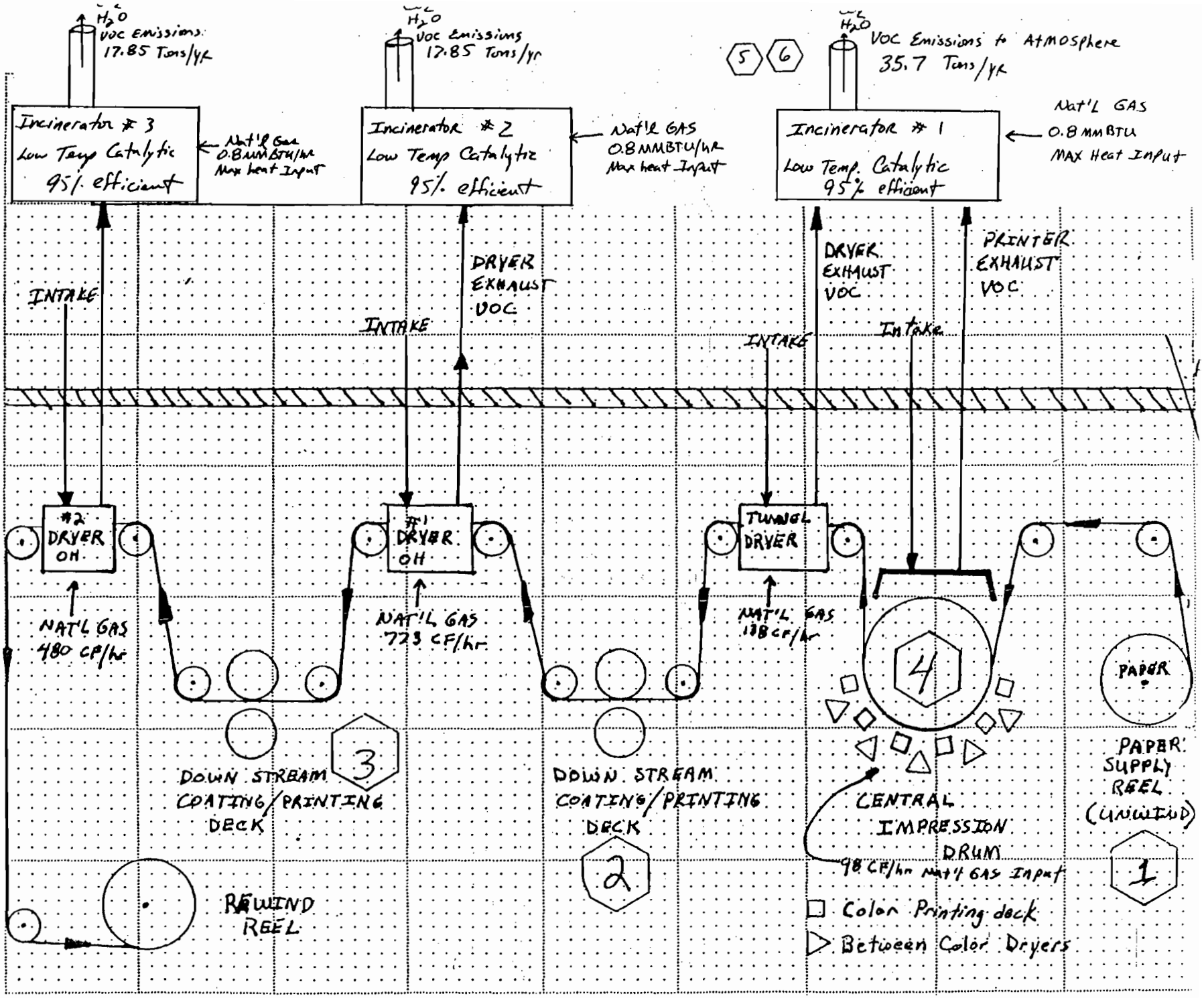
= 35.733 tons per year

01-Jan-80

Post, Buckley, Schuh & Jernigan, Inc.
CONSULTING ENGINEERS and PLANNERS

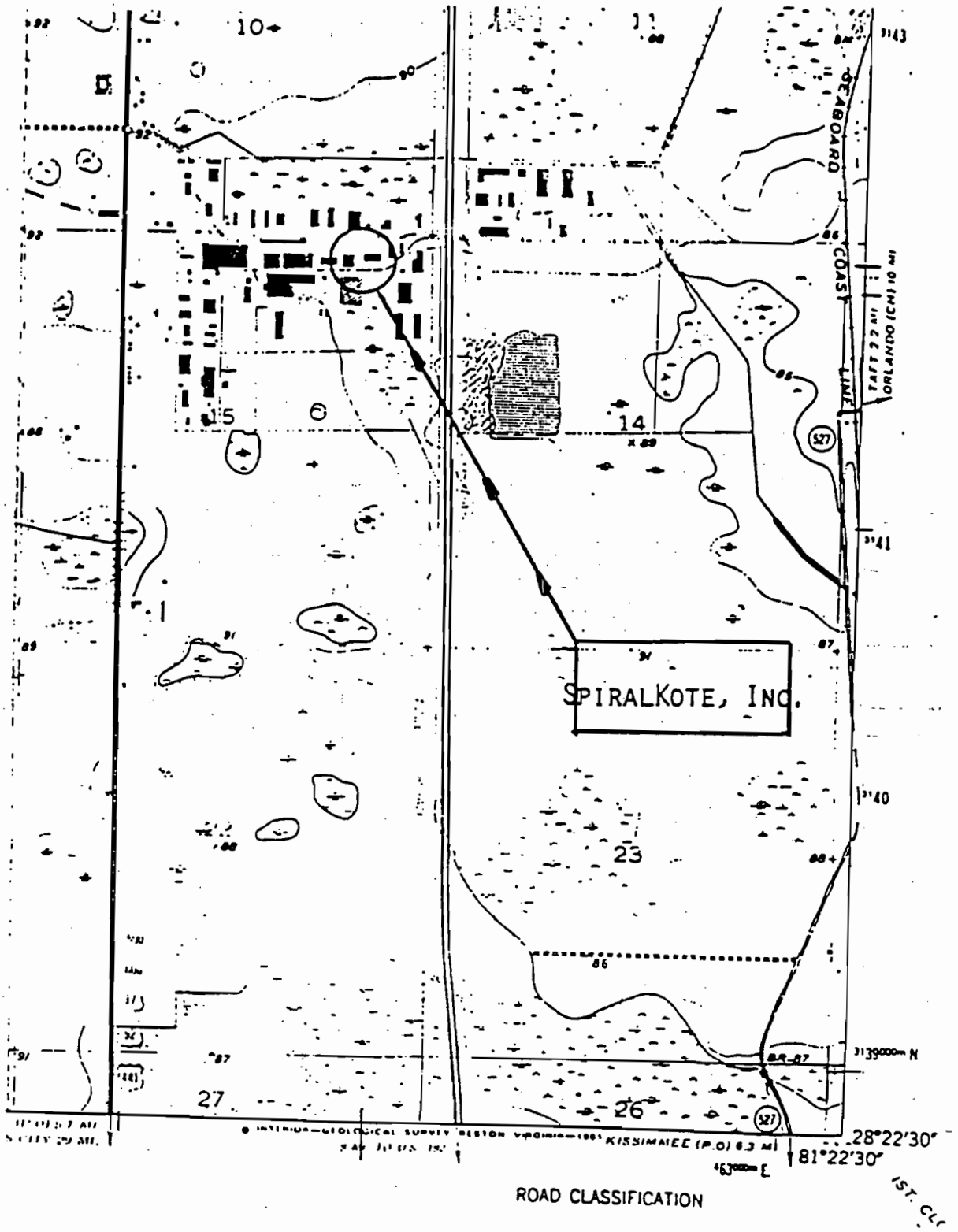
COMP. BY: Ferraro
CHK. BY:
DATE: 9-28-87
SHEET NO.: 1
JOB NO.: 21-023.00

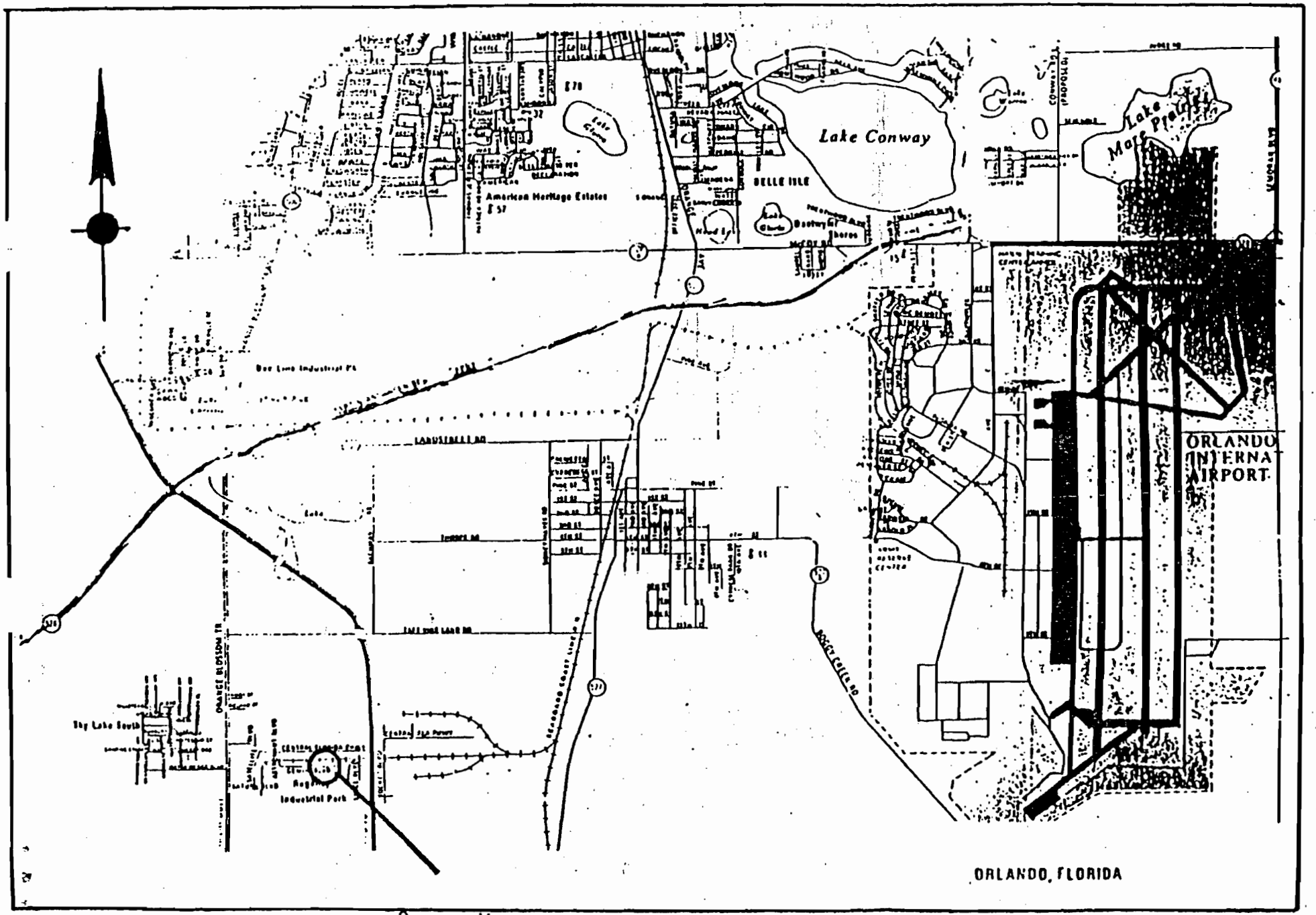
SUBJECT: Flow Diagram - Olympia 746 CI PRESS



# SITE LOCATION MAP -- U.S.G.S. MAP SECTION

## SPIRALKOTE, INC.

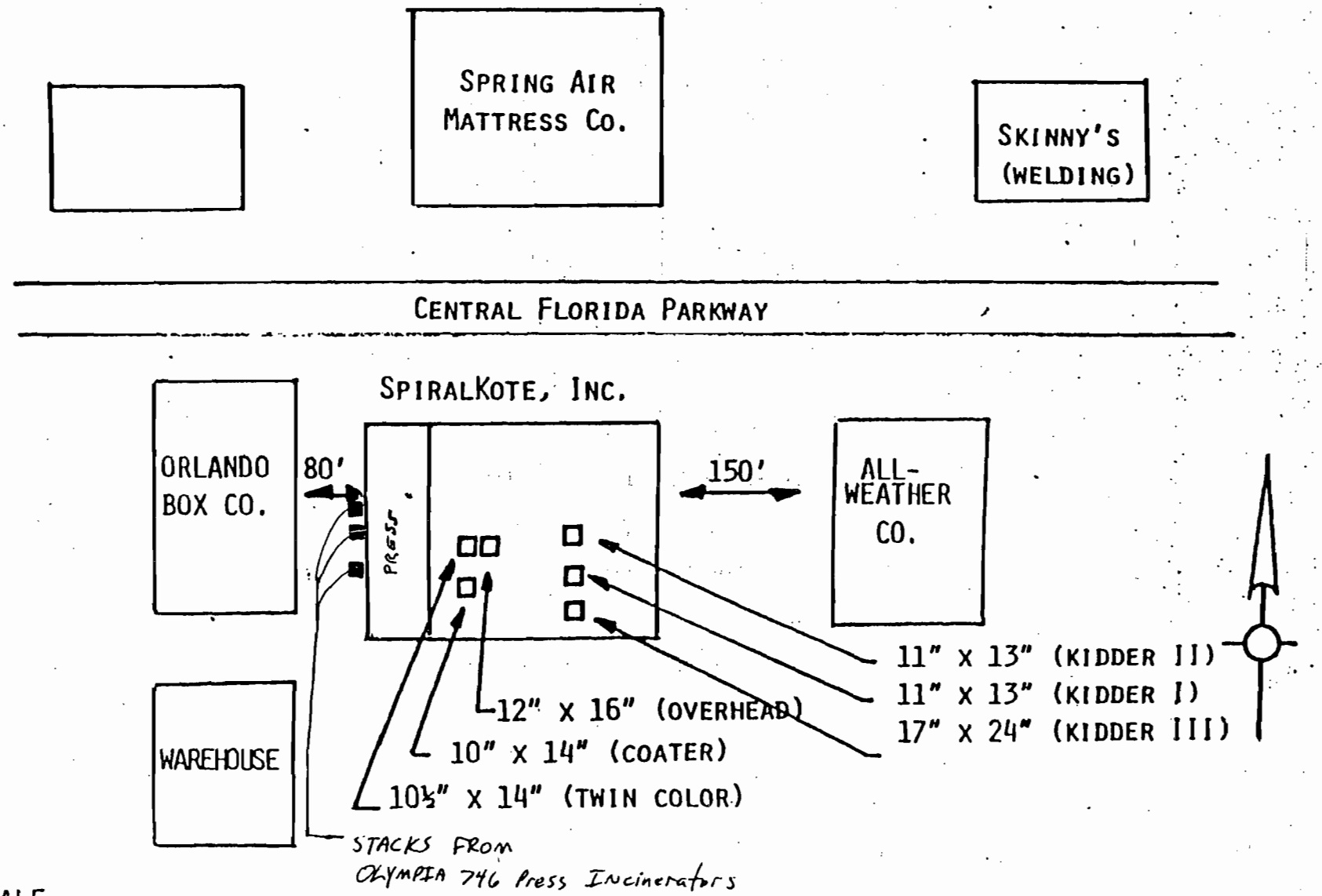





SPIRALKOTE, INC. GENERAL LOCATION MAP

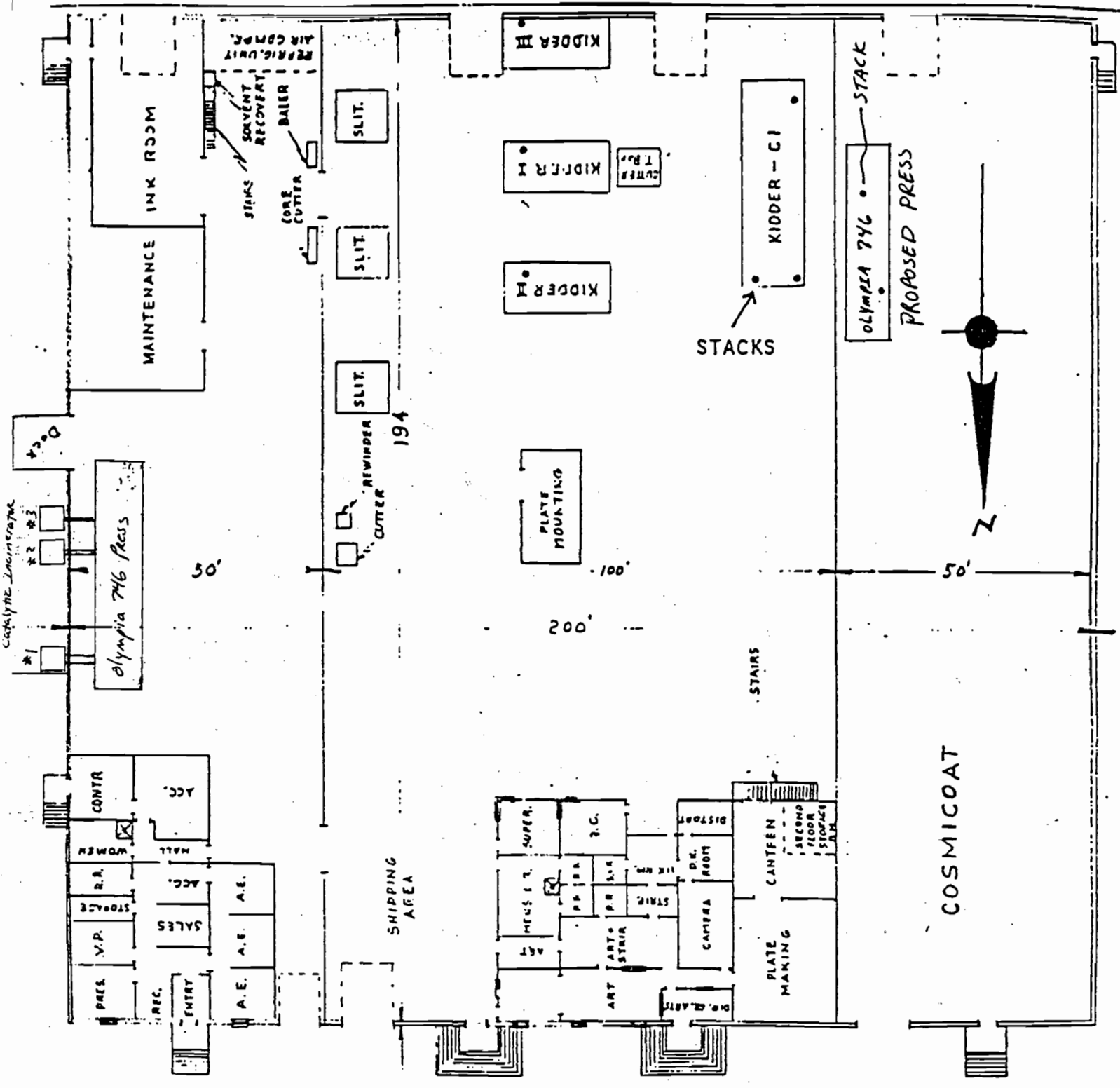
# PLOT PLAN OF AREA/ROOF SKETCH — SPIRALKOTE, INC.

LOCATED IN THE
REGENCY INDUSTRIAL PARK




NOT TO SCALE

# PLOT PLAN OF FACILITY SPIRALKOTE, INC.




(FRONTS ON CENTRAL FLORIDA PARKWAY)