

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # _____
Form Title _____
Effective Date _____
DER Application No. _____
Filed in by DER: _____

AC14-244330

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

D.E.P.

SOURCE TYPE: Air Curtain Incinerator [x] New¹ [] Existing¹

JAN 24 1994

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

SOUTHWEST DISTRICT TAMPA

COMPANY NAME: Dwight Daughtrey Construction, Inc.

COUNTY: Desota

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) Air Curtain Incinerator

SOURCE LOCATION: Street Route 3 Box 915

City Arcadia

UTM: East 402.0

North 3001.2

APPROX. Latitude 27° 08' 34" N

Longitude 82° 00' 14" W

APPLICANT NAME AND TITLE: Dwight Daughtrey, Owner

APPLICANT ADDRESS: Route 3, Box 915; Arcadia, FL 33821

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

Dwight Daughtrey

I am the undersigned owner or authorized representative* of Construction, 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 control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed:

Dwight Daughtrey, Owner

Name and Title (Please Type)

Date: 1-19-94 Telephone No. (843) 627-5902

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 have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

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

941-494-4108

DER Form 17-1.202(1)

Effective October 31, 1982

Page 1 of 12

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 _____

Abdel-Karim Conrado, P.E.

Name (Please Type)

So. Fla. Environmental Services

Company Name (Please Type)

6821 Vista Parkway North, W.P.B., FL 33411

Mailing Address (Please Type)

Florida Registration No. 35551 Date: Jan. 14, 1994 Telephone No. (407) 687-5300

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.

This application is submitted for an Air Construction Permit for an ^{Portable} Air Curtain Incinerator (40' long X 16 & 3/4' wide). The incinerator will be used for disposal of lumber & tree debris, vegetation, and lot clearing materials.

The Waukesha Pit Burner Machine will be constructed by Dwight Daughtrey Construction, Inc. for particulate control. (Air flow 100MPH to 150MPH)

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

Start of Construction Upon issuance of permit Completion of Construction N/A

- 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.)

Estimated: Engine, Pipe, Blower, & other parts \$ 2,300.00

Estimated Labor 1,550.00

Total Estimated Cost \$ 3,850.00

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

N/A

176 budget

E. Requested permitted equipment operating time: hrs/day 8 ; days/wk 2 ; wks/yr 11 ;
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? _____
 - b. If yes, has "Lowest Achievable Emission Rate" been applied? _____
 - 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? 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? _____
 - 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)

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Lumber & Tree				
Debris, Vegetation				
& Lot Clearing	Particulate	-----	Approximate	
Materials			5,000 (To be verified after issuance	
			of permit.	

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

1. Total Process Input Rate (lbs/hr): Approximately 5,000 lbs/Hr.

2. Product Weight (lbs/hr): N/A

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

(See attached calculation sheets)

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/yr	T/yr	
Particulate	4.88	0.429			5,720	2.86	
SO2	0.25	0.022			44	0.022	
NOX	10	0.88			1,760	0.88	

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).

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)
Waukesha Pit Burner				
Machine To be built by	Particulate	85%		FDER Letter
Daughtrey Construction, Inc.				Dated 7-11-86
(Portable)				

2/2/86

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Diesel	N/A	N/A	N/A (Start-up Only)
Approximately 50 Gallons for start-up per day of use.			

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

Fuel Analysis:

Percent Sulfur: N/A Percent Ash: _____
 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 _____ Maximum N/A

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

Ash will be used for topsoil.

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

Stack Height: N/A ft. Stack Diameter: _____ ft.
 Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.
 Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

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.)
		5,000 (To be verified after issuance of permit)					
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste Lumber & Tree Debris, Vegetation & Lot Clearing Materials

Total Weight Incinerated (lbs/hr) 5,000 Design Capacity (lbs/hr) 5,000

Approximate Number of Hours of Operation per day 8 day/wk 2 wks/yr. 11

Manufacturer Dwight Daughtrey Construction, Inc.

Date Constructed To be constructed upon receipt of permit Model No. Waukesha Pit Burner Machine (Portable)

	Volume (ft) ³	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber	<u>N/A</u>				
Secondary Chamber					

Stack Height: N/A 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) _____

Brief description of operating characteristics of control devices: _____

Curtain of air feeds fire to increase combustion efficiency and reduce emissions.

Air flow will be approximately: Min; 100MPH and Max; 150MPH

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

Ash will be used for top soil.

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

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:

¹Explain method of determining efficiency.

²Energy 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:

¹Explain method of determining efficiency.

²Energy 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:

¹Applicant 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 _____ () SO₂* _____ 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

3. 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) _____

4. 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.

5. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO ²	_____ grams/sec

6. 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.

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

8. 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.

9. 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.

SECTION III, C.-AIRBORNE CONTAMINANTS EMITTED

DWIGHT DAUGHTREY CONSTRUCTION, INC.

AIR CURTAIN INCINERATOR

EMISSION CALCULATIONS

2.1-12

Emission Factors from AP-42 Table 2.1-3 Uncontrolled Emission Factors for Industrial/Commercial Refuse Combustors, Trench (wood). The unit will be burning approximately 20 tons per day or 2.5 tons per hour of lumber and tree debris, vegetation, and lot clearing materials. Approximately 50 gallons of diesel fuel would be utilized for startup. The requested operating time is 8 hours per day, 2 days per week, 11 weeks per year for a total of 176 hours/year.

POTENTIAL PARTICULATE FACTOR: 13 LB/TON (UNCONTROLLED)

13 LB/TON X	2.5 TON/HR =	32.5 LB/HR
32.5 LB/HR X	176 HR/YR =	5720 LB/YR
5720 LB/YR /	2000 LB/TON =	2.86 TON/HR

ACTUAL PARTICULATE FACTOR: 13 LB/TON * 85% EFF. (CONTROLLED)

13 LB/TON X (1-.85) X	2.5 TON/HR =	4.875 LB/HR
4.875 LB/HR X	176 HR/YR =	858 LB/YR
858 LB/YR /	2000 LB/TON =	.429 TON/HR

SULFUR OXIDES FACTOR: 0.1 LB/TON

.1 LB/TON X	2.5 TON/HR =	.25 LB/HR
.25 LB/HR X	176 HR/YR =	44 LB/YR
44 LB/YR /	2000 LB/TON =	.022 TON/HR

NITROGEN OXIDE FACTOR: 4.0 LB/TON

4 LB/TON X	2.5 TON/HR =	10 LB/HR
10 LB/HR X	176 HR/YR =	1760 LB/YR
1760 LB/YR /	2000 LB/TON =	.88 TON/HR



TABLE 2.1-3. UNCONTROLLED EMISSION FACTORS FOR INDUSTRIAL/COMMERCIAL REFUSE COMBUSTORS^a

EMISSION FACTOR RATING: A

Incinerator type	Particulate		Sulfur oxides ^b		Carbon monoxide		Volatile organics ^c		Nitrogen oxides ^d	
	kg/Mg	lb/ton	kg/Mg	lb/ton	kg/Mg	lb/ton	kg/Mg	lb/ton	kg/Mg	lb/ton
Multiple chambers ^e	3.5	7	1.25	2.5 ^f	5	10	1.5	3	1.5	3
Single chamber ^g	7.5	15	1.25	2.5 ^f	10	20	7.5	15	1	2
Trench ^h										
Wood	6.5	13	0.05	0.1 ⁱ	NA	NA	NA	NA	2	4
Rubber tires	69	138	NA	NA	NA	NA	NA	NA	NA	NA
Municipal refuse	18.5	37	1.25	2.5 ^f	NA	NA	NA	NA	NA	NA
Flue fed										
Single chamber ^k	15	30	0.25	0.5	10	20	7.5	15	1.5	3
Modified ^l	3	6	0.25	0.5	5	10	1.5	3	5	10
Domestic single chamber										
Without primary burner ^m	17.5	35	0.25	0.5	150	300	50	100	0.5	1
With primary burner ⁿ	3.5	7	0.25	0.5	Neg	Neg	1	2	1	2
Pathological ^o	4	8	Neg	Neg	Neg	Neg	Neg	Neg	1.5	3

^aFactors are averages based on EPA procedures for incinerator stack testing. NA = not available. Neg = negligible.

^bExpressed as SO₂.

^cExpressed as methane.

^dExpressed as NO₂.

^eReferences 6,10-13.

^fBased on municipal incinerator data.

^gReferences 6,10-11,13.

^hReference 8.

ⁱBased on data for wood combustion in conical burners.

^kReferences 6,11-15.

^lWith afterburners and draft controls. References 6,13-14.

^mReferences 10-11.

ⁿReference 10.

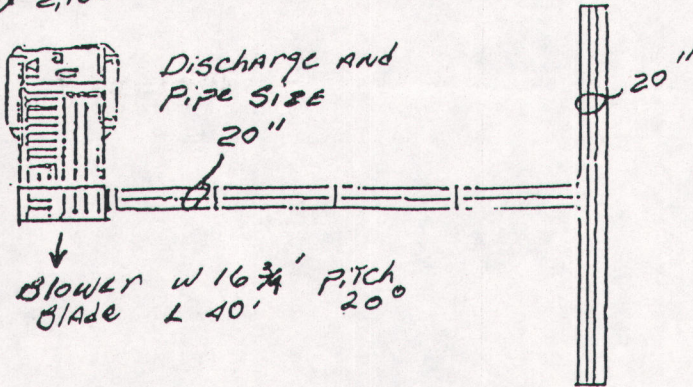
^oReference 6,16.

DESIGN FOR DAUGHTREY PORTABLE AIR CURTAIN INCINERATOR

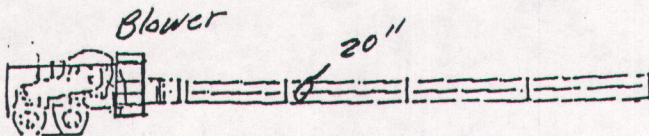
TOP VIEW

DIESEL ENGINE

R.P.M.
Min 200
MAX 2,100



Side View



Belt Driven	
Pulley size	Belt Length
Power end 15 ¹ / ₂ "	38 ³ / ₄ "
Blower end 9 ³ / ₄ "	

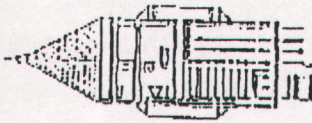
Blower Type XL
 Size 123
 Serial # 6553-AL
 CLARAGE FAN CO.



Manufacturer
Distributor
Contractor

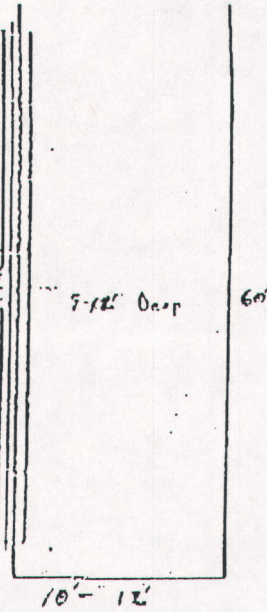
Quick, Safe, Economical, Clean Destruction of Trees and Brush

Diesel engine drives large blower. Produces air flow up to 150 MPH.



TOP VIEW

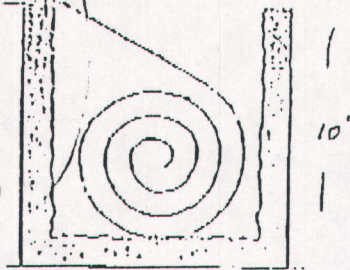
35 ft. manifold produces
60 ft. trench
60 FEET



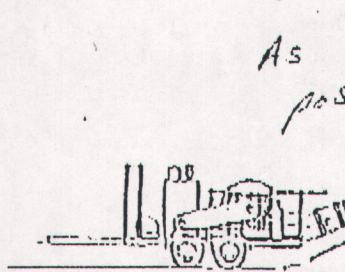
SIDE VIEW

Excavated earthen trench (60' x 12' x 10')

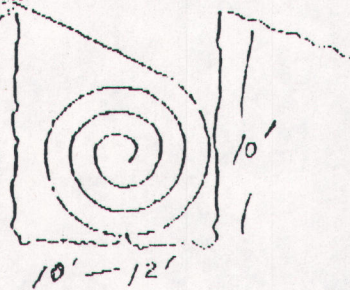
Trench temperature exceeds 2200 degrees Fahrenheit.



INAILS NEED TO BE AS VERTICAL AS POSSIBLE

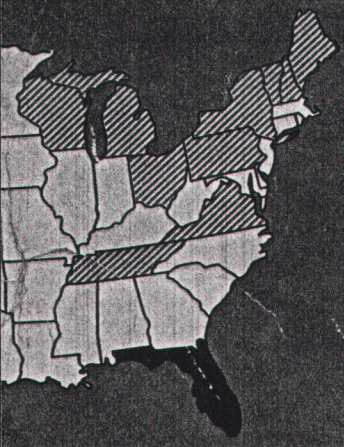


Trench created above ground.

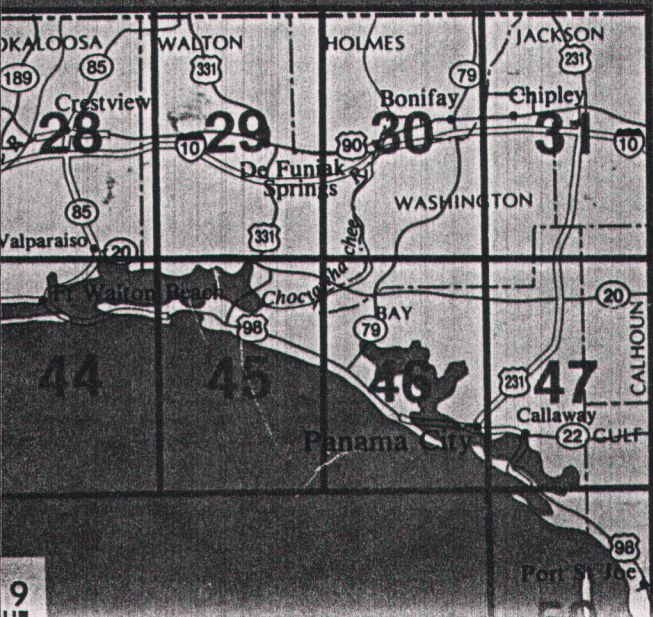
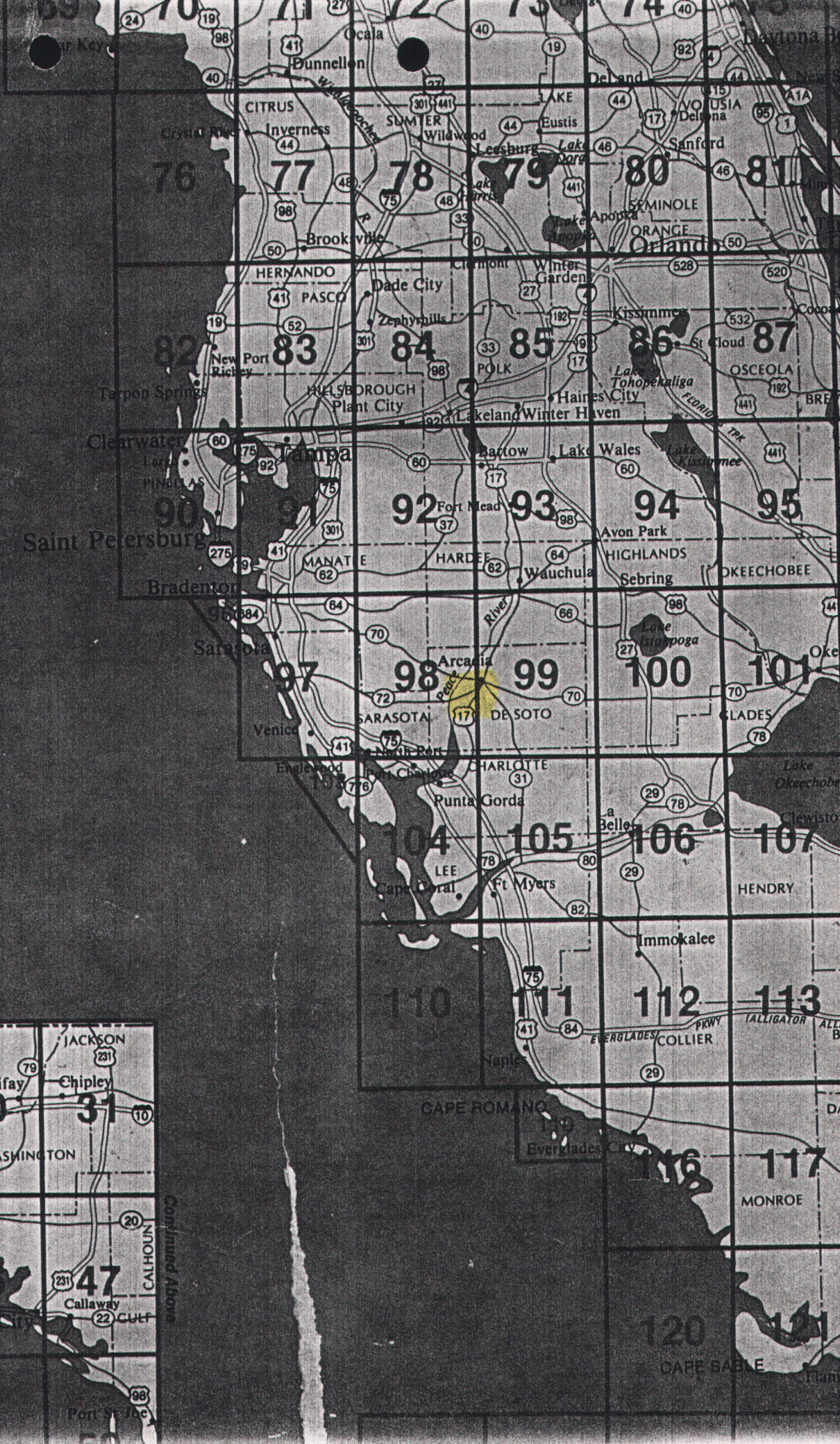


I received this from Air Burners to show how the pit can be dug.

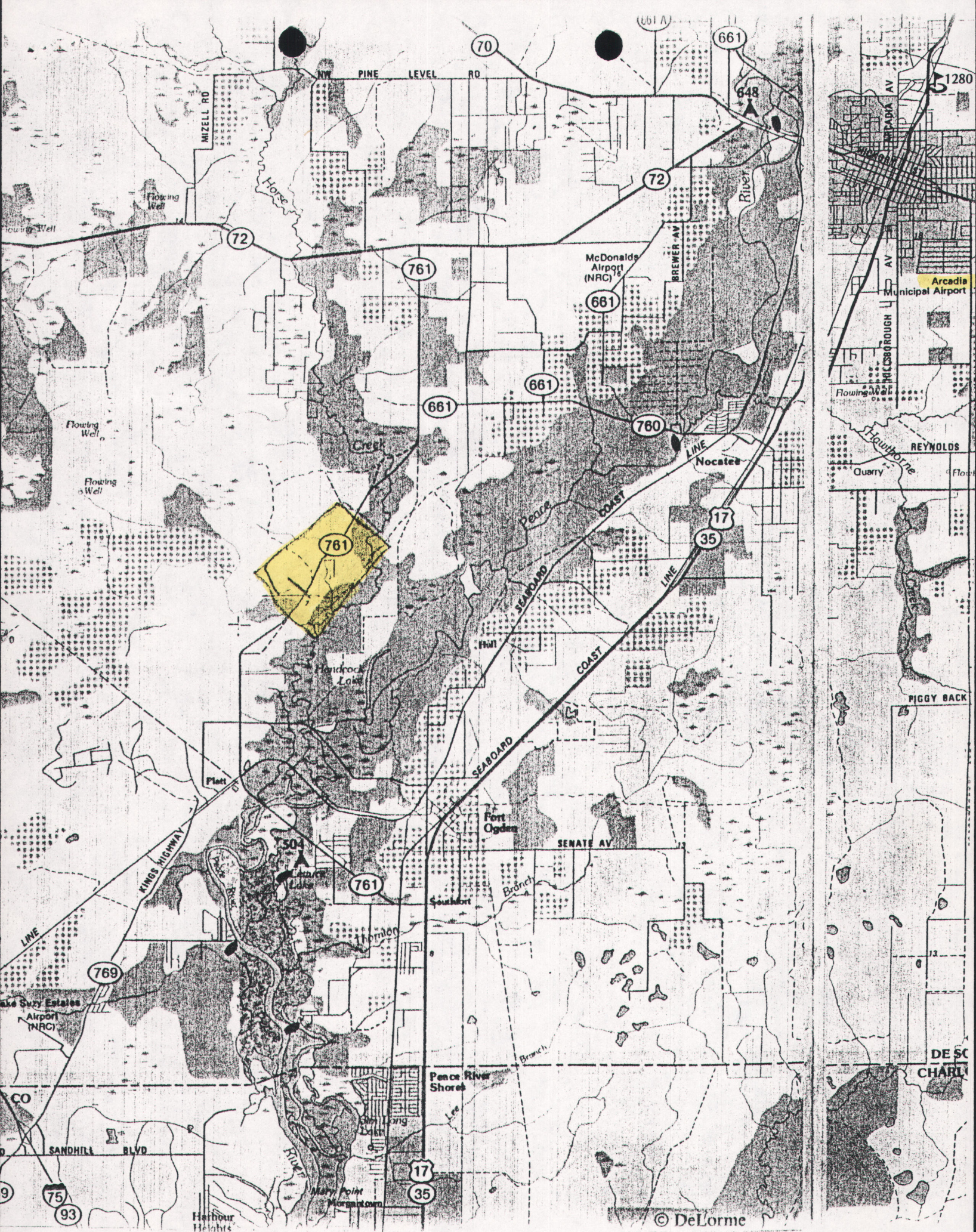
Contents
 Maps 25-127
 Historic Sites 12-13
 Page Chart 24
 Museums 11-12
 Mutuals 22
 Parks 9
 Saltwater Fishing 13-14
 Springs 22-23
 State Parks 8
 Wildlife 10
 S 8



New Hampshire,
 state, Pennsylvania, Virginia,
 consin, Southern California,
 Washington
 see



Continued Above





South Florida Environmental Services

January 18, 1994

Mr. Harry Kerns, Permitting Supervisor
Fla. Dept. of Environmental Protection
S.W. District Office
3804 Coconut Palm Dr.
Tampa, FL 33619

D.E.P.

JAN 24 1994
SOUTHWEST DISTRICT
TAMPA

Ref: Dwight Daughtrey Construction permit for a Portable Air
Curtain Incinerator

Dear Mr. Kerns;

I am writing on behalf of Dwight Daughtrey Construction,
Inc. Please find enclosed the following:

1. Check in the amount of \$250.00 for application fee.
2. Application to construct a Portable Air Curtain
Incinerator.
3. Emission calculations.
4. AP 42 Table 2.1-3.
5. Design Drawings.
6. Regional and site maps.

If you have any questions or need additional information,
please call myself at (407) 687-5300 or Diane Daughtrey at
(813) 627-5902. Thank you for your help in this matter.

Sincerely yours

Robert E. Jackson, Jr.
General Manager