TTL, Inc. PRACTICING IN THE GEOSCIENCES

3516 Greensboro Avenue • P.O. Drawer 1128 • Tuscaloosa, Alabama 35403 • Telephone 205-345-0816 • FAX 205-345-0992

August 12, 1994

Mr. Bob Jamison, Vice President
Sunbelt Resources, Inc.
5453 Jug Factory Road
Tuscaloosa, Alabama 35405

Re: Letter from John C. Brown, Jr., P.E.
Administrator of Air Permitting and Standards
Department of Environmental Protection, State of Florida
Dated July 14, 1994; referencing File No. A037-253484

Dear Mr. Jamison:

Mr. Brown requested additional information for the processing of your permit application. The information Mr. Brown requested was organized into 10 separate paragraphs. Our response to each numbered paragraph is stated below.

Paragraph 1 pertains to the information required by F.A.C. Rule 17-297.570 for test reports. We recognize that our report format, which is acceptable to the Alabama Department of Environmental management (ADEM), makes it difficult for the Florida Department of Environmental Protection (FDEP) to determine that all required information is included. Therefore, we have numbered all pages in our report and have referenced the page numbers that address the requirements in F.A.C. Rule 17-297.570 (3) a - u.

F.A.C. Rule 17-297.570 (3) a - f. This information is in the permit application submitted by John B. Koogler. (See Attachment A).

F.A.C. Rule 17-297.570 (3) g. The sketch of the duct, as described, needs to be provided by Sunbelt, from the equipment manufacture.

F.A.C. Rule 17-297.570 (3) h. (Date, starting time, and duration of each run)
for particulates, see pages 19-21
for carbon monoxide, see page 5

F.A.C. Rule 17-297.570 (3) i. (Test procedures)
for particulates, 40 CFR 60, Appendix A, Method 5, which has been adopted by reference by FDEP [F.A.C. Rule 17-297. 401 (5) (a)]. (ADEM has adopted this procedure by reference also, which explains the statement on page 6 of our report.)

for carbon monoxide, 40 CFR 60, Appendix A, Method 10, as stated on page 10 of our report, and adopted by reference by FDEP [F.A.C. Rule 17-297. 401(10)]

for opacity, 40 CFR 60, Appendix A, Method 9, as stated on page 9 of our report, and adopted by reference by FDEP [F.A.C. Rule 17-297. 401(9) (a)]

F.A.C. Rule 17-297.570 (3) j. (Number of points sampled, etc.)
for particulates, see pages 6-8

for carbon monoxide, the unit was installed by the manufacturer per EPA requirements

F.A.C. Rule 17-297.570 (3) k. (Data to be shown for each point for each run)
for particulates, see pages 19-21, with statistics on page 18
(The pressure drop across the baghouse is shown on the operator's log, Attachment B)

for carbon monoxide, see page 5

F.A.C. Rule 17-297.570 (3) l. (Equipment used)
for particulates, see page 6
for carbon monoxide, see page 10

F.A.C. Rule 17-297.570 (3) m. (Calibration data)
for particulates, see pages 48-49

for carbon monoxide, daily standard operating procedure per manufacture recommendations and logged in operators daily records

F.A.C. Rule 17-297.570 (3) n. (Data about filters used)
for particulates, see page 6

F.A.C. Rule 17-297.570 (3) o. (No chemical solutions were used.)

F.A.C. Rule 17-297.570 (3) p. (Amount of pollutant collected from sampling probe and filters)
for particulates, see pages 19-21, 23-25, and 50-52.

F.A.C. Rule 17-297.570 (3) q. (Names of individuals)
Process variable data was furnished by Mr. David Peterson (see page 1)
Tests were conducted, and samples were analyzed, by Mr. Garry Pearson, Mr. Lee Lindley, and Mr. Ryan Holland
Reports were prepared by Mr. Jack Davis

F.A.C. Rule 17-297.570 (3) r. (All measured and calculated data, etc.)
for particulates, see pages 3 and 18
for carbon monoxide, see page 5

F.A.C. Rule 17-297.570 (3) s. (Detailed calculations)
for particulates, see pages 16-17 for equations which were incorporated into a spread-sheet program (Lotus 1,2,3) to utilize the data on pages 19-21, generating the results on pages 3 and 18

for carbon monoxide, direct readout from analyzer

F.A.C. Rule 17-297.570 (3) t. (Applicable emission standards)
These are shown in Attachment C, the Florida Permit, on page 6.
TTL's test results are expressed in these and other units on page 3 of our report.

F.A.C. Rule 17-297.570 (3) u. (Certification with respect to test procedures used)
The summary of TTL's results (page 2) is signed by Jack E. Davis, CIH, and James C. Bambarger, P.E.

Paragraph 2 asks about modifications to EPA Method 5 as described in 40 CFR, Appendix A. There were no modifications made to this procedure.

Paragraph 3 is addressed by Attachment D, which was provided by Sunbelt.

Paragraph 4 asks for explanation of the statement made by Dr. Koogler on the Certificate of Completion that the carbon monoxide test was not done in accordance with 40 CFR 60, Appendix B, Performance Specification 4 Evaluation. This Performance Evaluation was performed with EPA Protocol Standards and the results of the test showed the analyzer passed all requirements. The results of these test are shown in the March report from page 36 to 46.

Paragraph 5 requests a soil analysis, which was provided by Sunbelt. It is Attachment E.

Paragraph 6, concerning the minimization of fugitive emissions from treated soil, should be addressed by Sunbelt, based on your communications with regulatory officials.

Paragraph 7, about the fuel used, must also be addressed by Sunbelt.

Paragraph 8, the operation log showing pressure drop across the baghouse during the method 5 test, is Attachment B, which was provided by Sunbelt.

Paragraph 9 requests a copy of the qualified observer certification, which is provided as Attachment F. The certification number of the smoke reader is recorded on page 9 of TTL's report. The certification requirements of ADEM are those specified in 40 CFR 60, Appendix A, Method 9, Section 3.

Paragraph 10 requests information which is included in pages 26-35 of TTL's report. The form used is one approved by ADEM, which is equivalent to EPA in the State of Alabama. If Florida DEP requests us to do so, we will transfer the information to another form.

TTL appreciates the detailed requirements of Florida's Department of Environmental Protection and desires to provide the information requested to demonstrate compliance with FDEP's regulations. If we can be of further assistance, please do not hesitate to give me a call.

Sincerely yours,

TTL, Inc.

Jack E. Davis, CIH
Vice President

JED:lc

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEVRON LS DIESEL 2

PRODUCT NUMBER(S): CPS270005 CPS271006 CPS272093

COMPANY IDENTIFICATION

Chevron USA Products Company
Environmental, Safety, and Health
575 Market St., Room 2900
San Francisco, CA 94105 2866

EMERGENCY TELEPHONE NUMBERS

HEALTH (24 hr): (800)231-0623 or
(510)231-0623 (International)
TRANSPORTATION (24 hr): CHEMTREC
(800)424-9300 or (202)483-7616

PRODUCT INFORMATION: MSDS Requests: (415) 894-2783
Environmental, Safety, & Health Info: (415) 894-1899
Product Information: (510) 242-5357

2. COMPOSITION/INFORMATION ON INGREDIENTS

100.0 % CHEVRON LS DIESEL 2

CONTAINING

COMPONENTS	AMOUNT	LIMIT/QTY	AGENCY/TYPE
DIESEL FUEL NO. 2 Chemical Name: FUELS, DIESEL, NO. 2 CAS68476346	100.0%		

INCLUDING

HDS DISTILLATE, MIDDLE
Chemical Name: DISTILLATES, HYDRODESULFURIZED MIDDLE
CAS64742809

GAS OIL, LIGHT
Chemical Name: DISTILLATES, STRAIGHT RUN MIDDLE
CAS64741442

Revision Number: 1 Revision Date: 09/01/93 MSDS Number: 005556
NDA - No Data Available NA - Not Applicable

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Toxicology and Health Risk Assessment Unit, CRTC, P.O. Box 4054, Richmond, CA 94804

KEROSENE
Chemical Name: KEROSINE
CAS8008206

HYDROSULFURIZED KEROSINE
Chemical Name: KEROSINE, HYDRODESULFURIZED
CAS64742810

CAT CRACKED DISTILLATE, LIGHT
Chemical Name: DISTILLATES, LIGHT CATALYTIC CRACKED
CAS64741599

TOTAL SULFUR
<500.0PPM

COMPOSITION COMMENT:
All the components of this material are on the Toxic Substances Control Act Chemical Substances Inventory.

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	TPQ - Threshold Planning Quantity
RQ - Reportable Quantity	PEL - Permissible Exposure Limit
C - Ceiling Limit	CAS - Chemical Abstract Service Number
A1-5 - Appendix A Categories	() - Change Has Been Proposed

3. HAZARDS IDENTIFICATION

********** **EMERGENCY OVERVIEW** **********

Pale yellow liquid.

- **COMBUSTIBLE**
- **HARMFUL OR FATAL IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE**
- **CAUSES SKIN IRRITATION**
- **MAY CAUSE CANCER BASED ON ANIMAL DATA**

****

POTENTIAL HEALTH EFFECTS
EYE:
This substance is not expected to cause prolonged or significant eye irritation.
SKIN:
This substance is a moderate skin irritant so contact with the skin could cause prolonged (days) injury to the affected area. The degree of injury will depend on the amount of material that gets on the skin and the speed and thoroughness of the first aid treatment. If absorbed through the skin, this substance is considered practically non-toxic to internal organs.
INGESTION:

If swallowed, this substance is considered practically non-toxic to internal organs. Because of the low viscosity of this substance, it can directly enter the lungs if it is swallowed (this is called aspiration). This can occur during the act of swallowing or when vomiting the substance. Once in the lungs, the substance is very difficult to remove and can cause severe injury to the lungs and death.

INHALATION:

Prolonged breathing of vapors can cause central nervous system effects. This hazard evaluation is based on data from similar materials.

SIGNS AND SYMPTOMS OF EXPOSURE:

INHALATION: Central nervous system effects may include one or more of following: headache, dizziness, loss of appetite, weakness and loss of coordination. SKIN: May include pain or a feeling of heat, discoloration, swelling, and blistering.

CARCINOGENICITY:

This product contains a mixture of petroleum hydrocarbons called middle distillates (which means they boil between approximately 350F and 700F). Because of this broad description, many products are considered middle distillates yet they are produced by a variety of different petroleum refining processes. Toxicology data developed on some middle distillates found that they caused positive responses in some mutagenicity tests and caused skin cancer when repeatedly applied to mice over their lifetime. This product may contain some middle distillates found to cause those adverse effects.

4. FIRST AID MEASURES

EYE:

No first aid procedures are required. However, as a precaution flush eyes with fresh water for 15 minutes. Remove contact lenses if worn.

SKIN:

Remove contaminated clothing. Wash skin thoroughly with soap and water. See a doctor if any signs or symptoms described in this document occur. Discard contaminated non-waterproof shoes and boots. Wash contaminated clothing.

INGESTION:

If swallowed, give water or milk to drink and telephone for medical advice. DO NOT make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then take the person and product container to the nearest medical emergency treatment center or hospital.

INHALATION:

If any signs or symptoms as described in this document occur, move the person to fresh air. If any of these effects continue, see a doctor.

NOTE TO PHYSICIANS:

Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid which can cause pneumonitis.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
FLASH POINT: (P-M) 125F (52C) Min.
AUTOIGNITION: NDA
FLAMMABILITY LIMITS (% by volume in air): Lower: 0.6 Upper: 4.7
EXTINGUISHING MEDIA:
CO2, Dry Chemical, Foam and Water Fog.
NFPA RATINGS: Health 0; Flammability 2; Reactivity 0.
FIRE FIGHTING INSTRUCTIONS:
Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 85 F.

For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of normal products of combustion or oxygen deficiency. Read the entire document.
COMBUSTION PRODUCTS:
Normal combustion forms carbon dioxide and water vapor; incomplete combustion can produce carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

CHEMTREC EMERGENCY NUMBER (24 hr): (800)424-9300 or (202)483-7616
ACCIDENTAL RELEASE MEASURES:
Eliminate all sources of ignition in vicinity of spill or released vapor.

Clean up small spills using appropriate techniques such as sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Follow prescribed procedures for reporting and responding to larger releases.

U.S.A. regulations require reporting spills of this material that could reach any surface waters. The toll free number for the U.S. Coast Guard National Response Center is (800) 424-8802.

7. HANDLING AND STORAGE

HANDLING AND STORAGE:
DO NOT USE OR STORE near flame, sparks or hot surfaces. USE ONLY IN WELL VENTILATED AREA. Keep container closed.

DO NOT weld, heat or drill container. Replace cap or bung. Emptied

container still contains hazardous or explosive vapor or liquid.

CAUTION! Do not use pressure to empty drum or drum may rupture with explosive force.

WARNING! Not for use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT
EYE/FACE PROTECTION:
No special eye protection is usually necessary.
SKIN PROTECTION:
Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.
RESPIRATORY PROTECTION:
No special respiratory protection is normally required. However, if operating conditions create high airborne concentrations, the use of an approved respirator is recommended.
ENGINEERING CONTROLS:
Use this material only in well ventilated areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION:
Pale yellow liquid.

pH:	NDA
VAPOR PRESSURE:	0.04 PSIA @ 40C
VAPOR DENSITY (AIR=1):	NDA
BOILING POINT:	176 - 370C (348-698F)
FREEZING POINT:	NDA
MELTING POINT:	NA
SOLUBILITY:	Soluble in hydrocarbon solvents; insoluble in water.
SPECIFIC GRAVITY:	0.84 @ 15.6/15.6C (Typical)
DENSITY:	NDA
EVAPORATION RATE:	NDA
VISCOSITY:	1.9 cSt @ 40C (Min.)
PERCENT VOLATILE (VOL):	NDA

10. STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS:
NDA.
CHEMICAL STABILITY:
Stable.

CONDITIONS TO AVOID:
No data available.
INCOMPATIBILITY WITH OTHER MATERIALS:
May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
HAZARDOUS POLYMERIZATION:
Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Minimal effects clearing in less than 24 hours.
SKIN EFFECTS:
Moderate irritation at 72 hours. (Moderate erythema). The dermal LD50 in rabbits is >5 ml/kg. This material was not a skin sensitizer in the Buehler Guinea Pig Sensitization Test.
ACUTE ORAL EFFECTS:
The oral LD50 in rats is > 5 ml/kg.
ACUTE INHALATION EFFECTS:
The 4-hour inhalation LC50 in rats is greater than 5 mg/l.
ADDITIONAL TOXICOLOGY INFORMATION:
The data above is obtained from studies sponsored by the American Petroleum Institute (API).

12. ECOLOGICAL INFORMATION

ECOTOXICITY:
No data available.
ENVIRONMENTAL FATE:
No data available.

13. DISPOSAL CONSIDERATIONS

DISPOSAL CONSIDERATIONS:
Use material for its intended purpose or recycle if possible. This material, if it must be discarded, is a hazardous waste (ignitable characteristic) as defined by USEPA under RCRA (40CFR261). Contact with this material may contaminate the other media and qualify that substance as a hazardous waste (toxicity characteristic). Measurement of certain physical properties or analysis for regulated components may be necessary to make a correct determination. Federal law requires disposal of all hazardous waste at a licensed disposal facility.

14. TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (eig., technical name) and mode-specific or quantity-specific shipping requirements.

DOT SHIPPING NAME: GAS OIL
DOT HAZARD CLASS: COMBUSTIBLE LIQUID
DOT IDENTIFICATION NUMBER: UN1202
DOT PACKING GROUP: III

15. REGULATORY INFORMATION

SARA 311 CATEGORIES:

1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01=SARA 313	11=NJ RTK	21=TSCA Sect 4(e)
02=MASS RTK	12=CERCLA 302.4	22=TSCA Sect 5(a)(e)(f)
03=NTP Carcinogen	13=MN RTK	23=TSCA Sect 6
04=CA Prop 65-Carcin	14=ACGIH TWA	24=TSCA Sect 12(b)
05=CA Prop 65-Repro Tox	15=ACGIH STEL	25=TSCA Sect 8(a)
06=IARC Group 1	16=ACGIH Calc TLV	26=TSCA Sect 8(d)
07=IARC Group 2A	17=OSHA PEL	28=Canadian WHMIS
08=IARC Group 2B	19=Chevron TWA	29=OSHA CEILING
09=SARA 302/304	20=EPA Carcinogen	30=Chevron STEL
10=PA RTK		

The following components of this material are found on the regulatory lists indicated.

KEROSINE
is found on lists: 02,10,11,

16. OTHER INFORMATION

NFPA RATINGS: Health 0; Flammability 2; Reactivity 0;
(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT:
Revised for indexing purposes only.

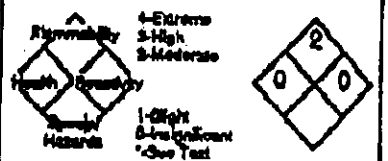
****

Revision Number: 1 **Revision Date: 09/01/93** **MSDS Number: 005556**
NDA - No Data Available **NA - Not Applicable**

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

BP OIL

MATERIAL SAFETY DATA SHEET

24-HOUR EMERGENCY ASSISTANCE	GENERAL ASSISTANCE	NFPA FIRE HAZARD SYMBOL
BP America: 800-321-8642 CHEMTREC Assist: 800-424-9300	216-441-8105	
MSDS Number > 1354	Version #: 3	

MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375

PRODUCT IDENTIFICATION

TRADE NAME:
LOW SULFUR NO. 2 DIESEL

CAS NUMBER:	68476-34-6
SYNONYM(S):	PROCESS STREAM: NO. 2 DIESEL FUEL; FUEL OIL; MIDDLE DISTILLATE
CHEMICAL FAMILY:	PETROLEUM HYDROCARBONS
MOLECULAR FORMULA:	MIXTURE
MOLECULAR WEIGHT:	NA
PRODUCT CODE:	NA HIERARCHY: 040.020

HAZARDS IDENTIFICATION

HEALTH

DANGER!
HARMFUL OR FATAL IF SWALLOWED
ASPIRATION HAZARD IF SWALLOWED--CAN ENTER LUNGS AND CAUSE DAMAGE
MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT
VAPORS MAY BE HARMFUL
POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA

FLAMMABILITY

CAUTION!
COMBUSTIBLE LIQUID & VAPOR

REACTIVITY

STABLE

[redacted]

INGESTION:

MODERATELY TOXIC (ACUTE EXPOSURE). Human oral LDLo = ~10 mls. Aspiration into lungs may cause pneumonitis. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death.

SKIN:

PRACTICALLY NON-TOXIC (ACUTE EXPOSURE). Rabbit dermal LD50 = >5 ml/kg. MODERATELY IRRITATING. Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. May cause allergic reactions in some individuals. Absorption from prolonged or massive skin contact may cause poisoning. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first; within a few hours, tissue will become swollen, discolored and extremely painful (see Notes to Physician section).

EYE:

SLIGHTLY IRRITATING. Exposure to vapors, fumes or mists may cause irritation.

INHALATION:

May cause respiratory tract irritation. Exposure may cause central nervous system symptoms similar to those listed under "Ingestion" (see Ingestion section). Degenerative changes in the liver, kidneys and bone marrow may occur with prolonged, high concentrations. Repeated or prolonged exposures may cause behavioral changes.

SPECIAL TOXIC EFFECTS:

Products of similar composition have produced skin cancer in laboratory animals and have been positive in mutagenic test systems.

IARC has determined that diesel engine exhaust is probably carcinogenic to humans. (IARC Class--2A). Lifetime exposure to whole diesel exhaust has been shown to cause cancer in laboratory animals. NIOSH recommends that whole diesel exhaust be regarded as a potential occupational carcinogen.

WARNING: The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels.

[redacted]

INGESTION:

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty.

[redacted]

prevent aspiration. Individuals intoxicated by Diesel Fuel No. 2 should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function. Positive pressure ventilation may be necessary. After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary edema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated. In case of skin injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss.

[redacted]

EYE PROTECTION:
Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION:
Wear impervious gloves and protective clothing to prevent skin contact.

RESPIRATORY PROTECTION:
NIOSH/MSHA approved breathing equipment must be available for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations.

[redacted]

BOILING POINT: 160 C (320 F)
SPECIFIC GRAVITY: 0.84 - 0.88 @ 60 F
MELTING POINT: NA
% VOLATILE: NEGLIGIBLE
VAPOR PRESSURE: 0.4 MM HG @ 68 F
EVAPORATION RATE (WATER=1): SLOWER
VAPOR DENSITY (AIR=1): 4.7
VISCOSITY: 1.2 - 4.6 CST @ 100 F
% SOLUBILITY IN WATER: NEGLIGIBLE
OCTANOL/WATER PARTITION COEFFICIENT: ND
POUR POINT: -12.22 C (10 F)
pH: NEUTRAL
APPEARANCE/ODOR: STRAW COLORED LIQUID WITH A HYDROCARBON ODOR.

STABILITY/INCOMPATIBILTY:

Stable. Avoid contact with strong oxidizers.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:

Combustion may produce CO, CO2 and reactive hydrocarbons.

SPILL OR RELEASE TO THE ENVIRONMENT:

If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures.

-- Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material.

-- For technical advise and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department.

-- Notify the National Response Center, if required. Also notify appropriate state and local regulatory agencies, the LEPC and the SERC. Contact the local Coast Guard if the release is into a waterway.

Emergency Action:

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. (Also see Personal Protection Information section.)

Spill or Leak Procedure:

Shut off ignition sources; no flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Water spray may reduce vapor; but it may not prevent ignition in closed spaces. Small Spills: Take up with sand or other noncombustible absorbant material and place into containers for later disposal. Large Spills: Dike far ahead of liquid spill for later disposal.

ND = No Data
NA = Not Applicable

Notification:
Any spill or release, or substantial threat of release, of this material to navigable water (virtually any surface water) sufficient to cause a visible sheen upon the water must be reported immediately to the National Response Center (800/424-8802), as required by U.S. Federal Law. Failure to report may result in substantial civil and criminal penalties. Also contact the Coast Guard and appropriate state and local regulatory agencies.

WASTE DISPOSAL:
This substance, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however it could be characteristically hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. Check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, 264, 268 and 270 apply. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate.

The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

SARA TITLE III INFORMATION:
Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: X Delayed Hazard: X Fire Hazard: X Pressure Hazard: - Reactivity Hazard: -

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION:
There may be specific regulations at the local, regional or state level that pertain to this material.

[illegible]

The following Canadian Workplace Hazardous Materials Information System (WHMIS) categories apply to this product:

Compressed Gas	-	Flammable/Combustible	X	Oxidizer	-	Acutely Toxic	-
Other Toxic Effects	X	BioHazardous	-	Corrosive	-	Dangerously Reactive	-

[illegible] INFORMATION

HANDLING/STORAGE:

SECTION 2 - HAZARDS INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REF.
A distillate having a minimum viscosity of 32.6 SUS at 100 degrees F to a maximum of 40.1 SUS at 100 degrees F	68476-34-6	99.90-100	None established

REVISION DATE: 21-sep-1993 REPLACES SHEET DATED: 31-aug-1993
COMPLETED BY: BP OIL HSEQ DEPARTMENT

ND = No Data
NA = Not Applicable

SUNBELT
• Resources, Inc •

5453 Jug Factory Road Tuscaloosa, Alabama 35405 (205) 758-3657 FAX (205) 349-4288

Paragraph 6

We went to extreme measures to prevent any fugitive dust from leaving the Port St. Joe, Florida site. We covered all post burned soil with polyethylene and kept sprinklers running each day. We also put a silt fence 8' - 10' high along Avenue A.

ATTACHMENT A

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO ~~OPERATE~~/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Mobile Soil Remediation Unit [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Sunbelt Resources, Inc. COUNTY: Statewide

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) Tarmac Model P734CFD

SOURCE LOCATION: Street (Mobile Facility) City

UTM: East North

Latitude ___° ___' ___"N Longitude ___° ___' ___"W

APPLICANT NAME AND TITLE: Terry Bunn, President

APPLICANT ADDRESS: 715 Skyland Blvd. East, Tuscaloosa, Ala 35405

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Sunbelt Resources, 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. Furthe: 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-transferab and I will promptly notify the department upon sale or legal transfer of the permitte establishment.

*Attach letter of authorization

Signed:

Terry Bunn, President
Name and Title (Please Type)

Date: 7/21/94 Telephone No. (205) 758-3657

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 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)

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 _____

John B. Koogler, Ph.D., P.E.
Name (Please Type)

Koogler & Associates, Environmental Services
Company Name (Please Type)

4014 N.W. 13th Street, Gainesville, FL 32609
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 7/8/94 Telephone No. (904) 377-5822

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.

Construction permit application for a 50 ton/hour mobile soil remediation facility.

The counties in which the plant will operate will be decided at the time public notice.

See page 2a of 12 for additional information.

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

Start of Construction NA Completion of Construction NA

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.)

Cost of afterburner, heat exchanger and baghouse is $650,000.

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

None

SECTION IIA: PROCESS DESCRIPTION

Sunbelt Resources, Inc. (Sunbelt) plans to operate a mobile thermal soil remediation plant in the state of Florida. It is anticipated that the plant will operate statewide. The counties in which a Public Notice will be published will be determined at the time the Department completes its Intent to Issue.

The mobile soil remediation unit is manufactured by Tarmac Equipment Company, Inc. of Kansas City, Missouri. Attachment 2 includes a general description of each component of the plant. Attachment 1 is the process flow diagram for the plant. The process entails heating the petroleum contaminated soil in a rotary kiln to temperatures between 600 and 900°F. The hydrocarbons are evaporated from the soil and are destroyed in an afterburner having a destruction efficiency estimated to be 99 percent. Following the afterburner, the gas is passed through an air-to-air heat exchanger and are cooled to 375°F. The gases then pass through a baghouse for particulate matter control and are exhausted to the atmosphere.

The mobile soil remediation unit will operate in compliance with all requirements of Chapters 17-2, 17-4 and 17-775, FAC. Typically, the soils processed through the plant will be used as backfill at the site of origin.

The soil remediation unit will process soils allowed under the requirements of Chapter 17-775, FAC at a rate of up to 50 tons per hour. The actual processing rate will depend upon the type of soil encountered and the level of contaminate in the soil. The contaminated soil from on-site stockpiles will be placed into cold-feed hoppers equipped with a variable speed feeder. The feeder meters the contaminated soil onto a belt conveyor which transports it to the rotary kiln. The rotary kiln is designed to dry and heat the contaminated soil to a temperature of 600-900°F to vaporize the hydrocarbon contaminants contained in the soil. The rotary kiln is heated with a 30 million BTU per hour burner capable of firing either on-specification used oil or virgin No. 2 fuel oil; each with a sulfur content of 0.3 percent or less.

The hydrocarbons and dust suspended in the gas stream leaving the rotary kiln are ducted to an afterburner for VOC control. The afterburner is designed for a residence time in excess of 1.0 seconds at a temperature of 1600°F. The afterburner is heated with a 30 million BTU per hour burner firing either propane or natural gas. Propane will be the primary fuel with natural gas being fired only when readily available.

From the afterburner, the gas stream will pass through an air-to-air heat exchanger where it will be cooled from approximately 1600°F to approximately 375°F. From the heat exchanger, the gas stream will pass through a baghouse with an air-to-cloth ratio of approximately 5.0/1.

The process flow utilized by Sunbelt assures that hydrocarbons will not condense on the baghouse dust. This eliminates the potential of recontamination of the baghouse dust and the reintroduction of hydrocarbon contaminants back into the site.

On start up, the plant is checked out and warm up procedures are completed. Once operating, the safety controls and automatic monitors make the operation of the remediation plant relatively uncomplicated. Automatic safety controls, temperature gauges and recording devices are designed to allow the plant to operate within strict parameter ranges.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr ; if seasonal, describe:

Annual hours of operation will be limited to 4400 hr/yr or less

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? (1)

   a. If yes, has "offset" been applied? NA

   b. If yes, has "Lowest Achievable Emission Rate" been applied? NA

   c. If yes, list non-attainment pollutants. (1)

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (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? (1)

   a. If yes, for what pollutants? (1)

   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.

1. Facility is a mobile soil remediation unit. It is probable that the plant will operate in areas of the state that are designated non-attainment for ozone (Duval, Broward, Dade, Palm Beach, Hillsborough and Pinellas counties) and it is possible that the plant will operate in the areas of Duval and Hillsborough counties designated non-attainment for particulate matter. As the plant is mobile and will not be at any one location for an extended period of time, compliance with the Departments emission limiting standards for Thermal Soil Treatment limits should be considered RACT.

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		
Soil	P.M.	2-3	100,000	
	VOC	0.5		

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

1. Total Process Input Rate (lbs/hr): 100,000 lb/hr (50 tph); wet weight

2. Product Weight (lbs/hr): typically 92,000 lb/hr (46 tpy); dry weight

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	
P.M.	3.9	8.6	(a)	3.9	2250	4950	
SO_2	10.1	22.2	(b)	10.1	10.1	22.2	
NOx	6.5	14.3	(c)	6.5	6.5	14.3	
VOC	5.0	11.0	(d)	5.0	500.1	1100	
CO	5.0	11.0	(e)	5.0	5.0	11.0	

[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).

Note: All Emission limits requested by applicant.
a) 0.04gr/dscf c) Based on AP-42 e) 100 ppm in stack gas
b) 0.3% sulfur fuel oil d) 99% VOC control

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)
Baghouse- Tarmac	P.M.	99.8	>2um	Mfg.
Model P1424BH				
Afterburner - Tarmac	VOC	99+%	NA	Mfg. & FDER
Model P830HO				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Dryer- No. 2 Oil	185	214 gal/hr	30.0
- On-Spec Used Oil	200	240 gal/hr	30.0
Afterburner- Propane	120	140 gal/hr	14.0
-Natural Gas	12.0	14.0 mcfh	14.0

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

Fuel Analysis: No. 2/ Used Oil/ Propane

Percent Sulfur: 0.3/ 0.3/ Nil Percent Ash: Nil/ Nil/ Nil

Density: 6.8/ 7.0/ 5.0 lbs/gal Typical Percent Nitrogen: Nil/ Nil/ Nil

Heat Capacity: 20,590/17,860/19,500 BTU/lb 140,000/ 125,000/ 97,500 BTU/gal

Other Fuel Contaminants (which may cause air pollution): Trace metals in on-specification used oil.

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

Annual Average NA Maximum NA

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

None

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

Stack Height: 25 ft. Stack Diameter: 3.5 ft.

Gas Flow Rate: 24,487 ACFM 11,458 DSCFM Gas Exit Temperature: 375 °F.

Water Vapor Content: 26 % Velocity: 42.4 FPS

SECTION IV: INCINERATOR INFORMATION

(NOT APPLICABLE)

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) _____

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

(See Page 7a of 12)

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.

SECTION V: SUPPLEMENTAL INFORMATION

1. Operating Parameters

A. Soil Remediation Unit

Feed Rate	-	50 tph
Moisture	-	8%; typical
Dry Feed	-	46 tph
VOC	-	0.5%; typical high concentration
Heat Input	-	30.0 MMBTU/hr (by Mfg)
No. 2 Fuel	-	214 gal/hr
Used Oil	-	240 gal/hr
Soil Discharge Temperature	-	600-900°F (600°F design @ 50 tph)

Gas Discharge from SRU to Afterburner

Moisture	-	9,950 lb/hr (Comb. products + soil moisture)
	-	3,548 scfm
Dry Gas	-	42,275 lb/hr
	-	9,352 scfm
VOC	-	500 lb/hr (at 0.5% contamination)
	-	46 scfm
Total	-	52,725 lb/hr
	-	12,946 scfm
	-	20,473 Acfm @ 375°F and 27% moisture

B. Afterburner

Heat in Gas Stream at 375°F

Dry Gas	=	42,275 lb/hr x 71.3 BTU/lb
	=	3.01 MMBTU/hr
Moisture	=	9,950 lb/hr x 1180.0 BTU/lb
	=	11.74 MMBTU/hr
Total	=	14.75 MMBTU/hr

Heat in Gas Stream at 1600°F

Dry Gas	=	42,275 lb/hr x 392.3 BTU/lb
	=	16.58 MMBTU/hr

Moisture = 9,950 lb/hr x 1095 BTU/lb

= 10.90 MMBTU/hr

Total = 27.48 MMBTU/hr

Heat Required in Afterburner @ 5% Loss

= 1.05 (27.48 - 14.75)

= 13.36 MMBTU/hr

30 MMBTU/hr provided by MFG

Fuel Use; Propane @ 97,500 BTU/gal

= 13.36 x 10^6/97,500

= 137 gal/hr

Use 140 gal/hr (700 lb/hr)

Combustion Products

Dry Gas @ 16.6 lb/lb

= 700 lb/hr x 16.60 lb/lb

= 11,620 lb/hr

Moisture @ 1.64 lb/lb

= 700 lb/hr x 1.64 lb/lb

= 1148 lb/hr

Total Gas Flow from Afterburner

Dry Gas: SRU = 42,275
Afterburner = 11,620

Total = 53,895 lb/hr

x (385/30)ft^3/lb x 1/60 hr/min

= 11,528 scfm (74% of flow)

Moisture: SRU = 9,950
Afterburner = 1,148

Total = 11,098 lb/hr

x (385/18)ft^3/lb x 1/60 hr/min

= 3956 scfm (26% of flow)

Total: = 15,484 scfm @ 68°F and wet

= 60,410 Acfm @ 1600°F and 26% Moisture

Afterburner Volume = 1100 ft^3 (by Mfg)

Residence time @ 1600°F

= 1.09 seconds

NOTE: At 1600°F and a residence time of 0.3 seconds, FDER assumes a VOC destruction efficiency of 99+%.

C. Air/Air Heat Exchange

Temperature in = 1600°F

Temperature out = 375°F

Gas Volume out = 24,487 Acfm @ 375°F and 26% Moisture

D. Baghouse

Temperature in = 375°F

Temperature out = 375°F

Gas Volume = 24,487 Acfm @ 375°F

= 11,458 scfm, dry

Cloth Area = 4939 ft^3

Air/Cloth Ratio = 4.96/1

2/3. Controlled and Uncontrolled Emissions

A. Particulate Matter

Uncontrolled at 45 lb/ton (AP-42, Section 8.0)

= 50 tph x 45 lb/ton

= 2250 lb/hr

x 4400 hr/yr x 1/2000 lb/ton

= 4950 tpy

Controlled to 0.04 gr/dscf

= 11458 ft^3/min x 0.04 gr/ft^3 x 60 min/hr x 1/7000

= 3.93 lb/hr

x 4400 hr/yr x 1/2000 lb/ton

= 8.6 tpy

B. Sulfur Dioxide

Controlled and Uncontrolled

SRU - 240 gal/hr used oil at 0.3% sulfur; worst case

Afterburner - 140 gal/hr propane with 0.014 pounds sulfur per 1000 gal

SO_2 = [240 gal/hr x 7.0 lb/gal x (0.003 x 2)lb SO_2/lb]

+ [140 gal/hr x ((0.014/1000) x 2)lb SO_2/gal]

= 10.1 lb/hr

x 4400 hr/yr x 1/2000 lb/ton

= 22.2 tpy

C. Nitrogen Oxides

Controlled and Uncontrolled

SRU = 240 gal/hr used oil; worst cast @ 20 lb/1000 gal

Afterburner = 140 gal/hr propane @ 12.4 lb/1000 gal

NOx = [240 gal/hr x 20/1000 lb/gal]
+ [140 gal/hr x 12.4/1000 lb/gal]
= 6.5 lb/hr
x 4400 hr/yr x 1/2000 lb/ton
= 14.3 tpy

D. Carbon Monoxide

Controlled and Uncontrolled

Assume 100 ppm (dry volume basis) in stack gas

CO = 11458 dscfm
x 60 min/hr
x (100×10^{-6})
x 28/385
= 5.0 lb/hr
x 4400 hr/yr x 1/2000 lb/ton
= 11.0 tpy

E. VOC

Uncontrolled

SRU = 240 gal/hr used oil (worst case) at 0.34 lb/1000 gal

Afterburner

Fuel = 140 gal/hr propane at 0.25 lb/1000 gal

Contaminated Soil = 500 lb VOC/hr

VOC = [240 gal/hr x 0.34/1000 lb/gal]
+ [140 gal/hr x 0.25/1000 lb/gal]
+ [500 lb/hr]
= 500.1 lb/hr
x 4400 lb/yr x 1/2000 lb/ton
= 1100 tpy

Controlled at 99% Control

$(VOC)_c$ = 500.1 (1 - 0.99)

= 5.0 lb/hr

x 4400 lb/yr x 1/2000 lb/ton

= 11.0 tpy

4. Design Details of Baghouse in Attachment 1. Afterburner details are documented in Section V.

5. Control Efficiencies

1.0 Particulate Matter

E = (2250 - 3.93) x 100/2250

= 99.8%

2.0 VOC

E = 99%; estimated based on FDER criteria

6. Flow Diagram

Attachment 1

7/8. Site and Location Maps

Not Applicable

9. Application Fee

Type IE application (<25 tpy of any single pollutant)

10. Certification of Completion

NA

ATTACHMENT B

DATE 3922 MONTH DAY YEAR

Time	Entry
	Ron 6:00 Am to 5:30 Pm
8:00	Waiting on motor for Pugmill Got here
8:15	at 6:00 Am 772 here to do stack test Hook
8:30	up new motor on Pugmill look to be running good
8:45	Head up at 8:30 Am Job 00394 Start soil at 9:
9:00	at 20 to 25 Ton's Per hour
9:15	At 10:00 Am Running Job 00394 at 20 to 25 Ton's Pe
9:30	Material Temp at 777 Burner at 0 % Oxidizer
9:45	Temp at 1544 Burner at 8% Cooler #1 Temp at 717
10:00	Damper at 100% Mag at 2 Cooler #2 Temp at 322
10:15	Damper at 72% Mag at 2 Baghouse Temp at 308
10:30	Damper at 90% Mag at 3.4 Dryer Draft at .1 C.O. 7 PPm Afte
10:45	1 hour running have burned 19.91 Ton's
11:00	At 11:00 Am Running Job 00394 at 20 to 25 Ton Pe
11:15	Material Temp at 942 Burner at 0% Oxidizer
11:30	Temp at 1555 Burner at 7% Cooler #1 Temp at 725
11:45	Damper at 100% Mag at 2 Cooler #2 Temp at 331
12:00	Damper at 69% Mag at 2.1 Baghouse Temp at 310
12:15	Damper at 91% Mag at 4.4 Dryer Draft at .13 C.O. 12 PPm Aft
12:30	2 hour running have burned 42.59 Ton's
12:45	At 12:00 Pm Running Job 00394 at 20 to 25 Ton's Per h
1:00	Material Temp at 936 Burner at 0 % Oxidizer
1:15	Temp at 1550 Burner at 8% Cooler #1 Temp at 726
1:30	Damper at 100% Mag at 1 Cooler #2 Temp at 330
1:45	Damper at 68% Mag at 2.3 Baghouse Temp at 309
2:00	Damper at 91% Mag at 3.4 Dryer Draft at .1 C.O. 12 PPm Aft
2:15	3 hour running Job 00394 have burned 65.30 Tons At 1:
2:30	Discharge conv. shutdown Trying to get restarted. Back
2:45	to running at 1:05 Pm Plug end is going bad. Order Load of
3:00	fuel from Gander for tomorrow they are to have Sulder cont, To
3:15	At 2:00 Pm Running Job 00394 at 20 to 25 Ton's Per h
3:30	Material Temp at 969 Burner at 0% Oxidizer
3:45	Temp at 1542 Burner at 8% Cooler #1 Temp at 72[illegible]
4:00	Damper at 100% Mag at 1 Cooler #2 Temp at 331
4:15	Damper at 62% Mag at 2.1 Baghouse Temp at 312
4:30	Damper at 93% Mag at 4 Dryer Draft at .12 C.O. 18 PPm Af
4:45	4 hour running Job 00394 have burned 92.52 Ton's
5:00	At 3:00 Pm Running Job 00394 at 20 to 25 Ton's Per hou
5:15	Material Temp at 1025 Burner at 0 % Oxidizer
5:30	Temp at 1537 Burner at 20% Cooler #1 Temp at 725
5:45	Damper at 100% Mag at 1 Cooler #2 Temp at 319
6:00	Damper at 94% Mag at 2.2 Baghouse Temp at 298
6:15	Damper at 92% Mag at 4.2 Dryer Draft at. C.O. 13 PPm Aft
6:30	5½ hour running have burned 116.36 Ton's Sun coming
6:45	out at 2:30 Pm. Discharge belt went down at 3:05 Pm
7:00	look like Gear is out. Shut down and Pull Motor and Gear
NOTES	box off Shacking conv. Ran 5½ hour for total of 121.04

ATTACHMENT C

Final Determination

Sunbelt Resources, Inc.
Tuscaloosa, Alabama

50 TPH Mobile Soil Thermal Treatment Facility
Statewide Operation

Permit No.: AC37-216863

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

February 18, 1993

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to construct a 50 TPH mobile soil thermal treatment facility (rotary kiln with a baghouse and afterburner) was distributed on December 23, 1992. The Notice of Intent to Issue was published in the Pensacola Journal on January 27, 1993, and in the Ft. Walton Beach Daily News and the Panama City News Herald on January 28, 1993. Circulation of these papers include Gulf, Okaloosa, and Escambia Counties.

Copies of the evaluation were available for public inspection at all Department District and County air program offices.

No comments were submitted on the Department's Intent to Issue the permit. The final action of the Department will be to issue construction permit AC37-216863 as proposed in the Technical Evaluation and Preliminary Determination.

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

PERMITTEE:
Sunbelt Resources, Inc.
715 Skyland Blvd., East
Tuscaloosa, AL 35405

Permit Number: AC37-216863
Expiration Date: January 1, 1994
County: Mobile Operation
Project: 50 TPH Mobile Soil Thermal Treatment Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 275, 296, 297 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Authorization to construct a 50 TPH mobile soil thermal treatment facility with air pollution controlled by an afterburner and baghouse. Major components of the facility are a contaminated soil feed bin, bin to dryer belt conveyor, a 30 MMBtu/hr dryer that is 7 ft. in diameter by 34 ft. long, a Tarmac Model P830HO 14 MMBtu/hr afterburner operating at 1600°F with approximately 1 second residence time, an air to air cooler, a Tarmac Model P1424BH baghouse, a pug mill, fuel (No. 2 fuel oil, propane, and natural gas) systems, and associated equipment. The facility is equipped with a stack (3.5 ft. diameter by 25 ft. high) that discharges approximately 24,487 acfm of flue gas at 375°F to the atmosphere.

This facility may operate in Gulf, Okaloosa, and Escambia Counties. The facility may operate in any other county within Florida after completing the public notice requirement and receiving Department authorization to operate in the county.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application received July 22, 1992.
2. DER letter dated August 7, 1992.
3. Koogler's letter dated September 9, 1992.
4. DER letter dated September 30, 1992.
5. Koogler's letter dated October 5, 1992.
6. Koogler's letter dated November 19, 1992.

PERMITTEE:
Sunbelt Resources, Inc.

Permit Number: AC37-216863
Expiration Date: January 1, 1994

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

PERMITTEE:
Sunbelt Resources, Inc.

Permit Number: AC37-216863
Expiration Date: January 1, 1994

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

PERMITTEE:
Sunbelt Resources, Inc.

Permit Number: AC37-216863
Expiration Date: January 1, 1994

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and

PERMITTEE:
Sunbelt Resources, Inc.

Permit Number: AC37-216863
Expiration Date: January 1, 1994

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Miscellaneous

1. A part of this permit is the previous (14) General Conditions. The following index of the specific conditions of this permit is provided for convenience.

Purpose of Specific Conditions	Specific Condition Numbers
Miscellaneous	1
Construction Requirements	2 - 5
Emission Restrictions	6 - 11
Operation Requirements	12 - 24
Compliance Requirements	25 - 28
Administrative Requirements	29 - 34

Construction Requirements

2. The construction of this facility shall reasonably conform to the plans and schedule submitted in the application.

PERMITTEE:
Sunbelt Resources, Inc.

Permit Number: AC37-216863
Expiration Date: January 1, 1994

SPECIFIC CONDITIONS:

3. The stack sampling facilities must comply with Rule 17-297.345, F.A.C.

4. The facility shall be equipped with a means to measure the pressure drop across the particulate matter air pollution control device and continuous emissions monitors and recorders for hot zone temperature and carbon monoxide concentration (Rule 17-296.415(1)(c), F.A.C.).

5. The facility shall be equipped with instruments to measure the process feed rate of contaminated soil to the dryer.

Emission Restrictions

6. Particulate matter emissions shall not exceed any of the following limits (based on data in the application and Rule 17-296.415(2)(b), F.A.C.):

(A) 0.04 grains per dry standard cubic foot
(B) 3.9 pounds per hour
(C) 8.6 tons in any 12 consecutive month period at 4400 hrs/yr operation time.

7. Carbon monoxide emissions shall not exceed 100 parts per million by volume, dry, during any 60 consecutive minute period (Rule 17-296.415(1)(b), F.A.C.).

8. Visible emissions from the stack shall not exceed 5 percent opacity (Rule 17-296.415(2)(a), F.A.C.).

9. Reasonable precautions shall be taken to minimize uncontrolled particulate matter emissions (Rule 17-296.310, F.A.C.). These provisions are applicable to any source, including vehicular movement, transportation of materials, and industrial related activities such as loading, unloading, storing, and handling. Before and after thermal soil treatment is accomplished, unconfined emissions of particulate matter from the soil shall be controlled by the application of water and/or containment (Rule 296.415(3), F.A.C.).

10. Operation of this facility shall not result in the emissions of air pollutants which cause or contribute to an objectionable odor (Rule 17-296.320, F.A.C.).

11. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other

PERMITTEE:
Sunbelt Resources, Inc.

Permit Number: AC37-216863
Expiration Date: January 1, 1994

SPECIFIC CONDITIONS:

requirements of Chapter 17-296 and 17-297, F.A.C., or any other requirements under federal, state, or local regulations.

Operation Requirements

12. In case of excess emissions resulting from a malfunction, the permittee shall notify the Department's District office that the facility is operating in and Bureau of Air Regulation (BAR) office within one (1) working day of the cause and duration of the upset. If requested, the permittee shall submit a full written report on the malfunction. (Rule 17-210.700, F.A.C.).

13. The facility shall only treat petroleum contaminated soil as defined in Rule 17-775, F.A.C. (Rule 17-296.415).

14. This facility may not treat PCB contaminated soil.

15. The input rate of petroleum contaminated soil to the facility shall not exceed 50 tons per hour. Material entering the kiln cannot be larger than 2 inches in diameter. The permittee shall have the means of determining feed or production rates of the facility on site.

16. Untreated soil removed from the ground at the contaminated site shall be stored under a waterproof cover and on an impermeable surface.

17. The unit shall not be operated at a location or in a manner that creates a nuisance, and shall observe local noise ordinances.

18. This unit shall be allowed to operate 24 hours per day, 7 days per week, 52 weeks per year, but not more than 4400 hours per year.

19. The input of petroleum contaminants into the facility shall not exceed 500 lbs/hr (daily average) (data per application).

20. The dryer shall use virgin No. 2 fuel oil only. The sulfur content of this fuel shall not exceed 0.2 percent sulfur by weight (daily average). The fuel heat input to the dryer shall not exceed 30 million Btu per hour, approximately 214 GPH of No. 2 fuel (data per application).

21. The afterburner shall burn virgin No. 2 fuel oil, natural gas, or propane only. The sulfur content of the virgin No. 2 fuel shall not exceed 0.3 percent sulfur by weight (daily average). The fuel heat input to the afterburner shall not exceed 14.0 million Btu per

SPECIFIC CONDITIONS:

hour, approximately 100 GPH No. 2 fuel oil, 140 GPH propane, or 14.0 mcfh of natural gas fuel (data per application).

22. Contaminated soil shall not be treated by the facility unless the afterburner is operating at a minimum temperature of 1600°F, and a retention time above 0.5 seconds (Rule 17-296.415(1)(a), F.A.C.) (data per application).

23. All emission monitoring equipment shall be properly installed, calibrated, operated, and maintained in accordance with the manufacturer's requirements for that instrument.

24. Pressure drop across the particulate matter air pollution control device shall be recorded hourly and the temperature and carbon monoxide concentration of the hot zone shall be recorded continuously (Rule 17-296.415(1)(c), F.A.C.).

Compliance Requirements

25. The Bureau of Air Regulation (BAR), District and County environmental agency that the facility is operating in shall be notified in writing at least 15 days in advance of any formal compliance test to be conducted on this facility. The notification shall give the date, time, place, and contact person for the test (Rule 17-297.340(1)(i), F.A.C.).

26. This facility shall be tested (EPA test methods are specified in 40 CFR 60, Appendix A, revised July 1, 1992) at 90-100% of its permitted process rate within 30 days of placing it in service for:

(A) Particulate matter (PM) emissions by EPA Methods 1, 2, 3, 4, and 5.
(B) Visible emissions by EPA Method 9.
(C) Carbon monoxide (CO) emissions by averaging all readings taken each hour from the CO continuous emission monitor during the PM test periods.
(D) Afterburner temperature by averaging all readings taken each hour from the continuous temperature monitor during the PM test period.
(E) Afterburner residence time using the test data collected by EPA Methods 1 and 2.
(F) Fuel oil sulfur limits based on analysis referenced in 40 CFR 60.17 or other methods after Department approval. An analysis by the permittee or certified analysis by the fuel oil supplier is acceptable for proof of compliance with this requirement.

PERMITTEE:
Sunbelt Resources, Inc.

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Expiration Date: January 1, 1994

SPECIFIC CONDITIONS:

(G) Contaminated soil analysis for volatile organic aromatics (VOA), total recoverable petroleum hydrocarbons (TRPH), polynuclear aromatic hydrocarbons (PAH), volatile organic halocarbons (VOH), and metals as required by Rule 17-775.410, F.A.C.

27. Results of compliance tests shall be submitted to the BAR within 45 days of the test.

28. When the Department, after investigation, has good reason to believe that any applicable emission standard or condition of this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the plant and to provide a report on the results of said tests to the Department (Rule 17-297.340(2), F.A.C.).

Administrative Requirements

29. The permittee for a mobile unit shall notify the Bureau of Air Regulation, local government (city and/or county), and the Department District office by registered mail at least 3 days prior to moving to a new operating site. The notification shall provide the permit number of the facility, a copy of the last stack test results, the date of the proposed move, the new work site for the facility, the amount of contaminated soil at the new site, and the locations and contamination levels of the soils to be treated. The Department may notify the permittee of new restrictions for the facility that will apply while it is operating at this work site (Rule 17-775.700(1), F.A.C.).

30. The permittee shall maintain a log that shows the date, location, operation time, pressure drop across the PM control device, processing rate, type and quantity of fuel consumption in the dryer and afterburner, and operation problems. These records shall be maintained for a minimum of 3 years.

31. The permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements, all continuous monitoring system performance evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, all soil analysis required by Rule 17-775, F.A.C., and all other information required by rule or this permit, recorded in a permanent form suitable for inspection. The file shall be retained for at least 3 years

PERMITTEE:
Sunbelt Resources, Inc.

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Expiration Date: January 1, 1994

SPECIFIC CONDITIONS:

following the date of such measurements, maintenance, reports, and records.

32. The permittee shall submit to BAR each calendar year, on or before March 1, an annual operation report for this facility for the preceding calendar year containing at least the following information pursuant to Subsection 403.061(13), F.S.:

(A) Annual amount of material and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Annual hours of operation.
(D) Any changes in the information contained in the permit.
(E) All compliance test reports for the preceding year.
(F) Temperature and CO exceedance reports for the year.

33. The permittee, for good cause, may request that this construction permit be extended. Such request shall be submitted to the BAR prior to 60 days before the expiration of the permit (Rule 17-4.090, F.A.C.).

34. An application for an operation permit must be submitted to the BAR at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (Rule 17-4.220, F.A.C.).

Issued this 24 day
of February, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Howard L. Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. AC37-216863
Mobile Operation

Mr. Terry Bunn, President
Sunbelt Resources, Inc.
715 Skyland Blvd., East
Tuscaloosa, AL 35405

/

Enclosed is Permit Number AC37-216863 to construct a 50 TPH mobile soil thermal treatment facility that may operate in Gulf, Okaloosa, and Escambia Counties, issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 2-26-93 to the listed persons.

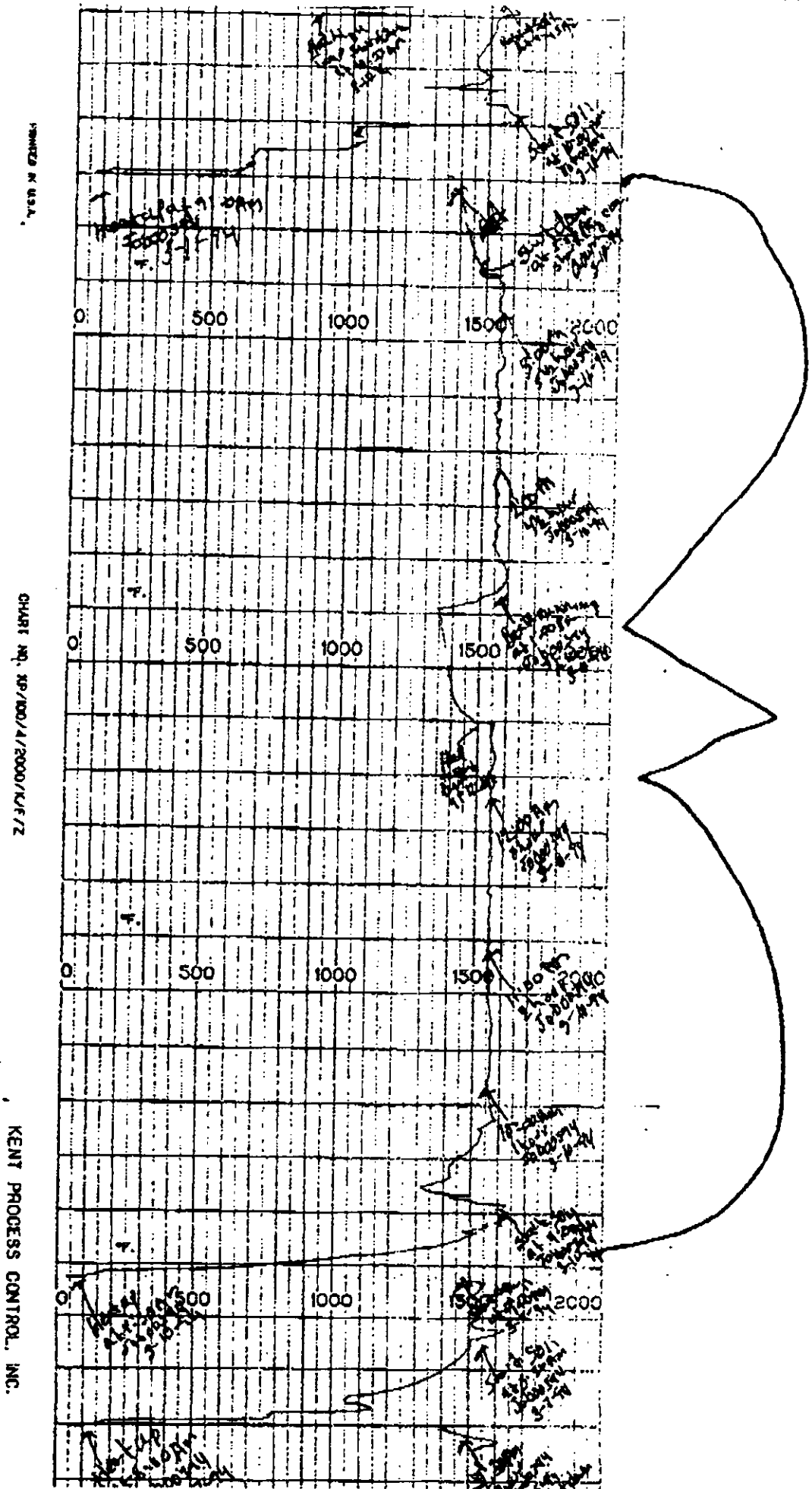
Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

(Clerk) 2-26-93 (Date)

Copies furnished to:
District Air Program Administrators
County Air Program Administrators
John Koogler, P.E.
Tom Conrardy, BWC

ATTACHMENT D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KENT PROCESS CONTROL, INC.
CHART NO. XP/100/4/2000/KJF/Z

ATTACHMENT E

Contaminated Soil Pre-burn Composite Sampling
Remedial Action Plan
Apalachicola Northern Railroad
Gulf County, Florida

Area Sampled: North Plume In-situ Soil, Refer To Figure 1
Dates Sampled: August 9 and 10, 1993

Composite Area	TRPH	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury
NP1	16000	<1.0	2.8	<0.50	1.8	2.10	<0.030
NP2	21000	<1.0	2.2	<0.50	2.0	0.72	<0.030
NP3	26000	<1.0	3.5	<0.50	1.7	3.50	0.041
NP4	28000	<1.0	2.8	<0.50	2.0	1.20	<0.030
NP5	8500	<1.0	2.8	<0.50	1.7	0.60	<0.030
NP6	11000	4.4	2.4	<0.50	1.6	0.79	<0.030
NP7	27000	<1.0	4.5	<0.50	2.1	6.60	<0.030
NP8	23000	<1.0	5.8	<0.50	2.6	2.50	0.033
NP9	13000	<1.0	4.4	<0.50	12.0	1.00	<0.030
NP10	19000	<1.0	3.2	<0.50	2.4	0.94	<0.030
NP11	16000	1.2	5.6	<0.50	2.5	1.10	<0.030
NP12	1100	14.0	3.3	<0.50	2.8	0.68	<0.030
Average	17467	6.5*	3.6	<0.50	2.9	1.81	0.037*

Area Sampled: Stockpile Soil, Refer To Figure 2
Dates Sampled: December 14 and 15, 1993

Composite Area	TRPH	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury
DS1	2200	8.2	69	0.66	10	450	0.140
DS2	1100	4.6	68	1.20	12	250	0.150
DS3	2700	4.4	93	<0.50	7	300	0.082
DS4	1500	10.0	97	1.20	13	520	0.280
DS5	10000	12.0	62	<0.50	11	150	0.077
DS6	11000	3.6	75	0.58	13	160	0.150
DS7	3100	4.4	74	0.69	11	170	0.089
DS8	4700	8.6	71	<0.50	26	130	0.072
DS9	3800	6.9	48	<0.50	25	150	0.073
Average	4456	7.0	73	0.87*	14	253	0.124

Note: 1. TRPH = Total Recoverable Petroleum Hydrocarbons
2. All data are reported in milligram per kilogram dry weight (mg/kg dw).
3. See attached maps for soil composite area location.
4. * = Average value only includes those values above detection limit.

Source: Alvarez, Lehman & Associates, Inc., 1994

Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Sun Belt Resources Inc.	Project Name:	A.N.R.R.(16) (3-15-94)
Address:	5453 Jug Factory Rd.	Project Number:	00394
	Tuscaloosa, AL 35405	Project Manager:	D.Peterson
		Sampler Name:	

Sample Information

Lab ID:	40741030-002	Date Sampled:	03/11/94 :
Client ID:	QC Report -Soil	Date Received:	03/15/94 : 0
Matrix:	Soil	Date Reported:	03/17/94

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed

METHOD REFERENCES

1. Test Methods For Evaluating Solid Waste: Physical Chemical Methods. EPA SW 846. November 1986.
2. Methods For Chemical Analysis of Water and Wastes. EPA 600/4-79-200. Revised March 1983.
3. Standard Methods For Examination of Water and Wastewater, APHA-AWWA-WACF., 17th Edition. 1989.

Note: Solid sample analysis reported on a wet weight basis except metals.

Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Sun Belt Resources Inc.	Project Name:	A.N.R.R.(16) (3-15-94)
Address:	5453 Jug Factory Rd.	Project Number:	00394
	Tuscaloosa, AL 35405	Project Manager:	D.Peterson
		Sampler Name:	Sun Belt Resources Inc.

Sample Information

Lab ID:	40741030-001	Date Sampled:	03/11/94 12:00
Client ID:	1600394	Date Received:	03/15/94 : 0
Matrix:	Soil	Date Reported:	03/17/94

Analytical Parameter	Result	Units	Detection Limit	Method No.	Analyst	Date Analyzed
SAMPLE PREPARATION						
Metal Digestion	03/16/94			3051		
TRACE METALS						
Lead	125	mg/kg	0.1	7421	bg	03/16/94
MISCELLANEOUS TESTING						
Percent Moisture	18.9	Percent			cv	03/16/94
Petroleum Hydrocarbon Analysis						
Total Petroleum Hydrocarbons (IR)	6	mg/kg	5	9073	av	03/16/94

Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Sun Belt Resources Inc.	Project Name:	A.N.R.R.(16) (3-15-94)
Address:	5453 Jug Factory Rd.	Project Number:	00394
	Tuscaloosa, AL 35405	Project Manager:	D.Peterson
		Sampler Name:	

Sample Information

Lab ID:	40741030-002	Date Sampled:	03/11/94 :
Client ID:	QC Report -Soil	Date Received:	03/15/94 : 0
Matrix:	Soil	Date Reported:	03/17/94

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed

DUPLICATE STUDIES

Lead ID:	40741030-001	
Lead Variance:	6	Percent

MATRIX SPIKE STUDIES - METALS

Lead ID:	40741030-001	
Lead Recovery:	109	Percent

METHOD SUMMARIES

Metal analysis is performed on digested extracts using Atomic Absorption or ICP Spectroscopy. AA samples are atomized using FASTAC auto deposition and are automatically deposited into graphite cells or directly into flame. ICP samples are automatically sampled, nebulized, and transported into the plasma torch. Final results are produced by auto data/reduction and graphics printer.

Petroleum Hydrocarbon Analysis:
(1) TPH (IR) Based on Methods SW846 9073 and EPA 418.1
Analyzed by FTIR using BioRad FTS 7 instrumentation.
(2) TPH (GC) / Petroleum Hydrocarbon Profile
Based on Methods ASTM D3328, SW846 8100/3550 and the State of California L.U.F.T. field manual.
Analyzed by GC/FID using Hewlett Packard 5890 GC.

ATTACHMENT F

Alabama Dept. of Environmental Management

AIR DIVISION

this certifies that

Lee Lindley

has satisfactorily completed a course in

VISIBLE EMISSIONS EVALUATION

and is duly certified to perform opacity determinations for the period indicated on the reverse of this card.

Jewel B. Coleman

TRAINING OFFICER

CHIEF, AIR DIVISION

636

CERTIFICATE VALIDATION

LECTURE EXPIRATION DATE	10/2/96

CERTIFICATION EXPIRATION DATE	TRAINING OFFICER
10-4-94	JBC

ADEM FORM 265 9/88

EMISSION STUDIES
PARTICULATE, OPACITY, AND CARBON MONOXIDE

BAGHOUSE STACK

SUNBELT RESOURCES

PORT ST. JOE, FLORIDA

MARCH, 1994

TTL, Inc. PRACTICING IN THE GEOSCIENCES

3516 Greensboro Avenue ▪ P. O. Drawer 1128 ▪ Tuscaloosa, Alabama 35403 ▪ Telephone 205-345-0816 ▪ Fax 205-345-0992

TTL, Inc. PRACTICING IN THE GEOSCIENCES

3516 Greensboro Avenue • P.O. Drawer 1128 • Tuscaloosa, Alabama 35403 • Telephone 205-345-0816 • FAX 205-345-0992

April 4, 1994

Mr. Bob Jamison
Sunbelt Resources, Inc.
5453 Jug Factory Road
Tuscaloosa, Alabama 35405

Re: Emission Study, Opacity
Particulate , & Carbon Monoxide

Dear Mr. Jamison:

This report documents the Particulate Emission, Opacity and Carbon Monoxide Monitoring performed on the Baghouse Stack at the Sunbelt Resources Port St. Joe, Florida facility on March 10, 1994.

If you or any of your associates have any questions, do not hesitate to call.

Sincerely,

TTL, Inc.

Jack E. Davis, CIH
Vice President

Garry C. Pearson
Chief Industrial Technologist

JED/GCP/rmb

EMISSION STUDY

PARTICULATE, OPACITY, AND CARBON MONOXIDE

on

BAGHOUSE STACK

at

SUNBELT RESOURCES, INC.

PORT ST. JOE, FLORIDA

Prepared by:

TTL, Inc.

Post Office Drawer 1128

Tuscaloosa, Alabama 35403

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II.	Summary of Test Results	2
III.	Sampling and Analytical Procedures	6
	A. Determination of Particulate Emissions in Stack Gas-Method 5	6
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4.	Summary of Performance Specification Evaluation on CEMS	11

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2.	Selection of Points	8

INTRODUCTION

This report documents the particulate emissions test and opacity and carbon monoxide monitoring performed on the Baghouse Stack from Sunbelt Resources plant in Port St. Joe, Florida. The purpose of these tests was to measure the emission of particulate, light scattering particles, and carbon monoxide from this facility during the burning of petroleum contaminated soils.

Mr. David Peterson of Sunbelt Resources, Inc. was present during the test and was responsible for the operation of this equipment. Messrs. Garry Pearson, Lee Lindley, and Ryan Holland performed the test for TTL, Inc., Tuscaloosa, Alabama.

SUMMARY OF TEST RESULTS

Table 1 is a summary of the results of the tests performed March 10, 1994, on the baghouse stack effluent gas from Sunbelt Resources located in Port St. Joe, Florida.

The particulate concentrations were 0.0095, 0.0125 and 0.0108 gr/dscf during the test, for an average concentration of 0.0109 gr/dscf.

The particulate mass emission rates were 1.12, 1.54 and 1.26 lb/hr during the test, for an average mass emission rate of 1.31 lb/hr.

Table 2 is a summary of the visible emission monitoring performed on the baghouse stack. During these test, no set of 24 points of monitoring exceed 5% opacity limit for this discharge stack. Results of each set of data is enclosed in the appendix along with a statistical evaluation of the raw data.

Table 3 is summary of the carbon monoxide (CO) monitoring during the method 5 sampling of the effluent gas. The results showed the average concentration of CO was 13.1 ppm. The carbon monoxide concentration never exceeded the permit standard of 100 ppm at any time during the 3 hours of particulate sampling.

During the test, the average characteristic of the discharge stack were as follows:

Temperature	254.7°F
Moisture	14.79%
Velocity	88.393 fps
Flow	22,098 ACFM

TTL, Inc.

Jack E. Davis, CIH
Vice President

James C. Bambarger, P.E.
President

Table 1: Summary of Particulate Test

Run No.	#1	#2	#3	Average
Stack Gas Temperature (F)	262.7	246.6	248.4	254.7
Moisture Content (% by Volume)	15.16	14.43	15.66	14.79
Stack Gas Velocity (actual ft/sec)	88.360	89.998	86.819	88.393
Volume Flow Rate (actual cfm)	22090	22500	21705	22098
Volumetric Flow Rate (dscfm)	13721	14417	13673	13937
Particulate Concentration (gr/dscf)	0.0095	0.0125	0.0108	0.0109
Particulate Concentration Adjusted to 12% CO_2 (gr/dscf)	0.0162	0.0408	0.0167	0.0245
Particulate Concentration Adjusted to 50% Excess Air (gr/dscf)	0.0159	0.0452	0.0186	0.0266
Particulate Emission Rate (lb/h)	1.12	1.54	1.26	1.31
% Isokinetic	100.25	98.31	99.31	99.29

Table 2: Summary of Average Opacity

	Set Number	Run #1	Run #2	Run #3
	1	0.00	0.00	1.46
	2	0.00	0.00	2.29
	3	0.00	0.00	2.92
	4	0.00	0.00	3.13
	5	0.00	0.00	1.67
	6	0.00	0.00	1.25
	7	0.00	0.00	1.67
	8	0.00	0.00	3.54
	9	0.00	0.00	3.13
	10	0.00	0.00	2.71
Average		0.00	0.00	2.38
Maximum		0.00	0.00	3.54
Minimum		0.00	0.00	1.25

Table 3: SUMMARY CARBON MONOXIDE MONITORING

10:20 AM	13 ppm
10:30 AM	15 ppm
10:40 AM	8 ppm
10:50 AM	16 ppm
11:00 AM	12 ppm
11:10 AM	9 ppm
11:20 AM	13 ppm
11:30 AM	17 ppm
11:40 AM	11 ppm
11:50 AM	9 ppm
12:00 PM	9 ppm
12:10 PM	8 ppm
12:20 PM	8 ppm
12:30 PM	8 ppm
12:40 PM	8 ppm
12:50 PM	8 ppm
1:00 PM	12 ppm
1:10 PM	13 ppm
1:20 PM	16 ppm
1:30 PM	20 ppm
1:40 PM	24 ppm
1:50 PM	18 ppm
2:00 PM	18 ppm
2:10 PM	11 ppm
2:20 PM	13 ppm
2:30 PM	12 ppm
2:40 PM	12 ppm
2:50 PM	19 ppm
3:00 PM	15 ppm
3:10 PM	18 ppm
3:20 PM	13 ppm

Average	13.1 ppm
Standard Deviation	4.14 ppm
Variance	17.2 ppm
Maximum	24 ppm
Minimum	8 ppm

SAMPLING AND ANALYTICAL PROCEDURES

A. Determination of Particulate Emissions in Stack Gas-Method 5

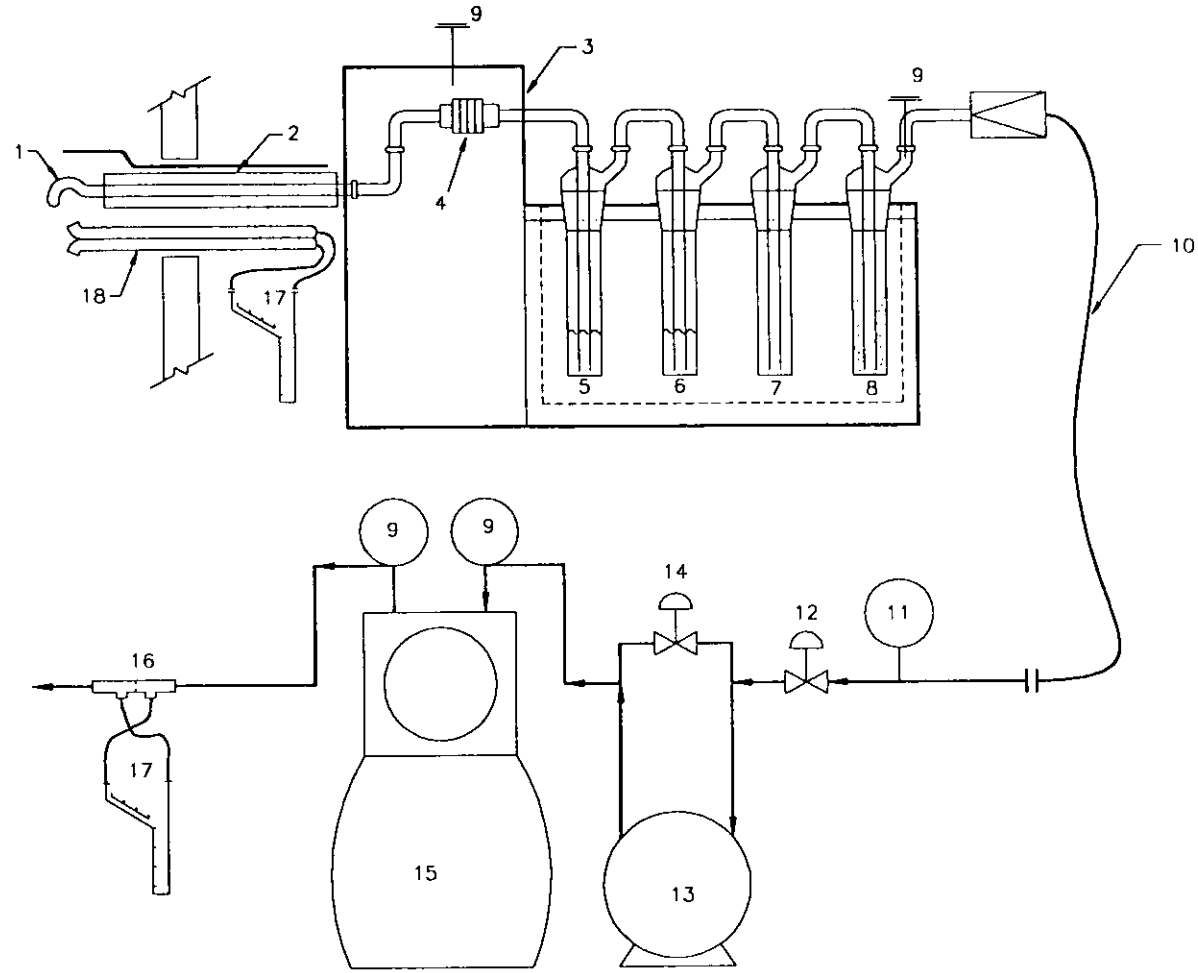
The tests for particulate emissions from this installation were conducted by the method specified in the Code of Federal Regulations, Title 40, Part 60, Appendix A, Method 5, as adopted by the Florida Department of Environmental Protection.

Sampling equipment comprised the following: Stainless steel nozzle, five (5) foot stainless steel probe, sample case, and meter box by Nutech Corporation (see Figure 1). All test equipment was properly calibrated, with calibration data enclosed in the Appendix.

Preliminary measurements were made of stack dimensions, average temperature, velocity head, and percent moisture. Stack temperature was determined with a thermocouple system. Velocity head was metered with a Stausscheibe Pitot tube and a differential manometer. The Silica Gel method was used for the moisture content determination.

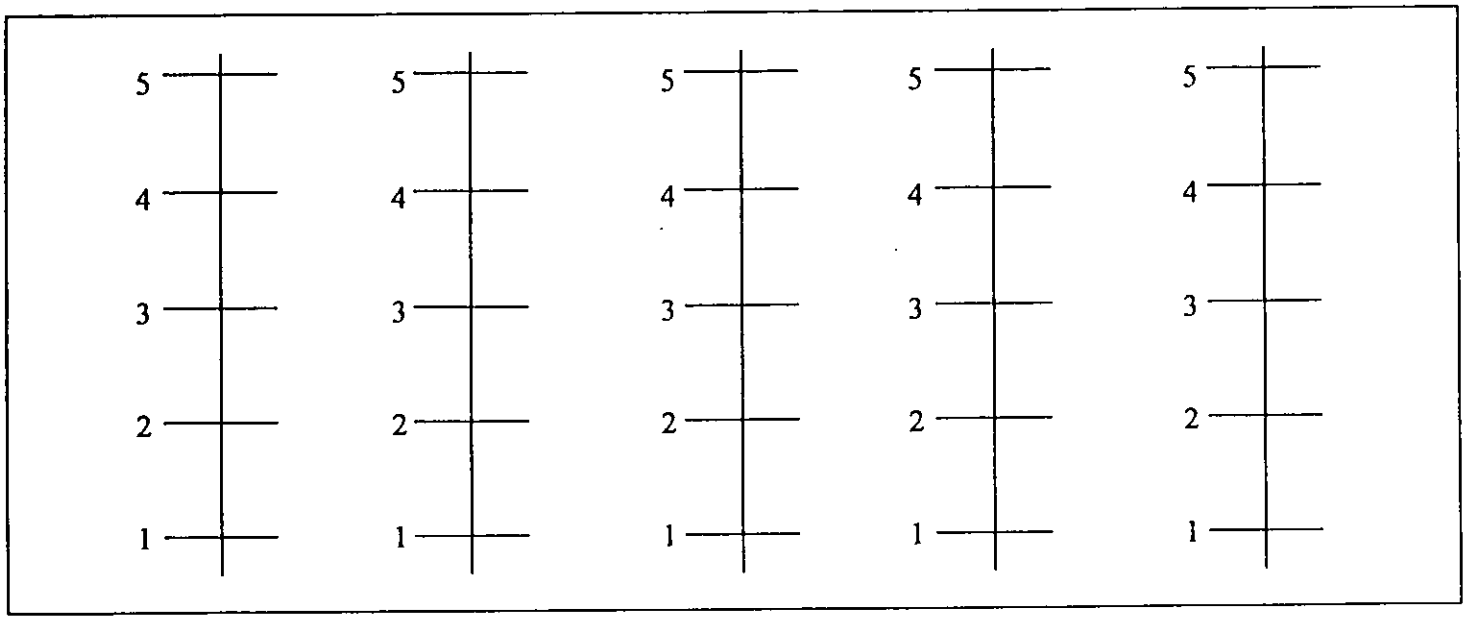
The particulate emission rate was measured by use of the sampling train described in Figure 1. The tests consisted of three (3) runs. Each run was performed by sampling for two and one half minutes at each of twenty-five (25) points located in a five (5) by five (5) grid matrix of the rectangular stack (see Figure 2). The Stausscheibe Pitot tube was connected adjacent to the sampling probe to allow stack gas velocity measurement. A programmable Tandy PC-8 calculator was used to set the flow through the meter box to obtain isokinetic sampling.

Also, sample recovery procedures were performed and specified in Method 5 of the CFR, as adopted by the Florida Department of Environmental Protection.



1 Nozzle
2 Probe, Heated
3 Heated Compartment
4 Filter
5 Impinger with 100 ml H_2O
6 Impinger with 100 ml H_2O
7 Impinger (Empty)
8 Impinger with Silica Gel
9 Thermometer
10 Flexible Sample Line
11 Vacuum Guage
12 Main Control Valve
13 Air Tight Vacuum Pump
14 By-Pass Control Valve
15 Dry test meter
16 Calibrated Orifice
17 Incline Manometer
18 "S" Type Pitot Tube

Figure 1. Particulate Sampling Train



Point	Stack Width (Inches)	Distance From Port (Inches)
1	20	2.0
2	20	6.0
3	20	10.0
4	20	14.0
5	20	18.0

Figure 2. Selection of Points

B. Determination of Opacity Emissions in Stack Discharge-Method 9

The tests for opacity emissions from this installation were conducted by the method specified in the Code of Federal Regulations, Title 40, Part 60, Appendix A, Method 9, as required by the Florida Department of Environmental Protection.

The plume opacity was determined by Mr. Lee Lindley (Certification No. 636 Expiration 10-4-94). The visual opacity measurements were recorded on field data sheets and copies are enclosed in the appendix. The field data sheets include name of the plant, emission location type facility, observer's name and affiliation, a sketch of the observer's position relative to the source, and a date. Also, the time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition and plume background are recorded on the field data sheets at the time opacity readings are initiated and completed. Opacity observations were recorded to the nearest 5 percent at 15-second intervals.

C. Determination of Carbon Monoxide Emissions-Method 10

The test for carbon monoxide emissions from this installation were conducted by the method specified in the code of Federal Regulations, Title 40, Part 60, Appendix A, Method 10, using a Rosemont Analytical Model 880A, Non-Dispersion, Infrared Analyzer. Sampling equipment comprised of the following: stainless steel nozzle and probe, gas dryer, and sampling pump as designed by Southern Technologies, Inc.. All test equipment was properly calibrated with EPA protocol gas standards manufactured and certified by Scott Specialty Gases, Inc.

The monitoring consisted of taking readings from the digital readout at approximately 10 minute intervals, all reading were taken during the method 5 sampling of the effluent gas.

The Continuous Emission Monitor System (CEMS) was evaluated by Performance Specification 4 of the Code of Federal Regulations, Part 60, Appendix B, (see appendix). Table 4 is the results of these tests which showed the CEMS obtained a relative accuracy of 6.208%; which was within the 10% allowed for monitors of this type.

Table 4: Summary Performance Specification Evaluation on CEMS

		Set No. 1	Set No. 2	Set No. 3	Average
Arithmetic Mean, d bar	Reference Monitor	26.50	29.33	31.50	29.11
	CEMS Monitor	27.16	28.68	32.38	29.41
	Difference	-0.658	0.658	-0.883	-0.294
Standard Deviation, Sd	Difference	1.171	1.634	2.352	1.719
Confidence Coefficient, CC	Difference	0.744	1.038	1.494	1.092
Relative Accuracy, RA		5.291	5.784	7.547	6.208

APPENDIX

TABULAR TEST DATA, CALCULATIONS, AND SUPPORTING DOCUMENTS

NOMENCLATURE

Form as follows: Parameter Sheet = Equation Sheet = Definition

Dp	=	Δp	=	Average velocity head of stack gas, in. H_20
SQR(Dp)	=	$\sqrt{\Delta p}$	=	Average of the square roots of the velocity pressure, in. H_20
Dh	=	ΔH	=	Average pressure differential of orifice, in. H_20
tm	=	t_m	=	Average temperature of meter, °F
ts	=	t_s	=	Average temperature of stack, °F
As	=	A_s	=	Area of stack, ft^2
An	=	A_n	=	Cross-sectional area of nozzle, ft^2
Vm	=	V_m	=	Volume of gas sample as measured by dry gas meter, ACF
Vmc	=	V_{mc}	=	Volume of gas sample, corrected for leak, ACF
Y	=	Y	=	Dry gas meter calibration factor, (dimensionless)
Th	=	Θ	=	Total sampling time, minutes
Lp	=	L_p	=	Leakage rate observed during the post-test leak check, CFM
La	=	L_a	=	Maximum acceptable leakage rate for either a pretest leak check or for a leak check following a component change; equal to 0.02 CFM or 4 percent of the average sampling rate, whichever is less, CFM
Vlc	=	V_{lc}	=	Total volume of liquid collected in impingers and silica gel, ml
CO2	=	CO_2	=	% by volume, dry bases from gas analysis
O2	=	O_2	=	% by volume, dry bases from gas analysis
N2	=	N_2	=	% by volume, dry bases from gas analysis
CO	=	CO	=	% by volume, dry bases from gas analysis
Kp	=	K_p	=	Pitot tube constant, 85.49 ft/sec [(lb/lb-mole)(in.Hg)/(oR)(in. H_20)] 1/2
Cp	=	C_p	=	Pitot tube coefficient (dimensionless)
Mn	=	m_n	=	Total amount of particulate matter collected,mg
ma	=	m_a	=	Mass of residue of acetone after evaporation,mg
Vaw	=	V_{aw}	=	Volume of acetone used in wash, ml
Va	=	V_a	=	Volume of acetone blank, ml
Pbar	=	P_{bar}	=	Barometric pressure at the sampling site, in. Hg
Pg	=	P_g	=	Stack static pressure, in. H_20
Ps	=	P_s	=	Absolute stack pressure, in. Hg
Pm	=	P_m	=	Meter pressure, in. Hg
Vw(std)	=	$V_{w(std)}$	=	Volume of water vapor in the gas sample, corrected to standard conditions, SCF
Vm(std)	=	$V_{m(std)}$	=	Volume of gas sample measured by the dry gas meter, corrected to standard conditions, DSCF
Bws	=	B_{ws}	=	Water vapor in the gas stream, proportion by volume (dimensionless)
Md	=	M_d	=	Molecular weight of stack gas; dry basis, lb/lb-mole
Ms	=	M_s	=	Molecular weight of stack gas; wet basis, lb/lb-mole

vs	=	v_s	=	Average stack gas velocity, ft/sec
EA	=	EA	=	Excess air, %
cs	=	c_s	=	Particulate concentration, grains/DSCF
c50	=	c_{50}	=	Particulate concentration, (c_s adjusted to 50% excess air) grains/SDCF
c12	=	c_{12}	=	Particulate concentration, (c_s adjusted to 12% CO_2) grains/SDCF
Qa	=	Q_a	=	Volumetric flow rate, ACFM
Qstd	=	Q_s	=	Volumetric flow rate, DSCFM
Wa	=	W_a	=	Weight of residue in acetone wash, mg
PMR	=	PMR	=	Particulate mass rate, lb/hr
Vn	=	V_n	=	Volume collected at stack conditions through nozzle, ACF
I	=	I	=	Percent of isokinetic sampling

Standard conditions are 68°F, 29.92 in. Hg.

CFM - Cubic feet per minute
SCFM - Standard cubic feet per minute
DSCFM - Standard dry cubic feet per minute
SCF - Standard cubic feet

EQUATIONS

The following equations were used in the computer calculations of the raw data:

1. $$P_s = P_{barometric} + \frac{P_g}{13.6}$$

2. $$P_m = P_{barometric} + \frac{\Delta H}{13.6}$$

3. $$v_s = K_p C_p (\overline{\sqrt{\Delta p}}) \sqrt{\frac{T_s}{M_s P_s}}$$

4. $$V_{m(std)} = 17.64\, V_m \left[\frac{\left(P_{barometric} + \frac{\Delta H}{13.6} \right)}{T_m} \right]$$

5. $$V_{mc} = V_m - (L_p - L_s)\theta$$

6. $$V_{W(std)} = 0.04707\, V_{lc}$$

7. $$B_{ws} = \frac{V_{W(std)}}{[V_{m(std)} + V_{W(std)}]}$$

8. $$M_d = 0.44\,(\%CO_2) + 0.32\,(\%O_2) + 0.28\,(\%N_2 + \%CO)$$

9. $$M_s = M_d(1 - B_{ws}) + 18\,(B_{ws})$$

10. $$EA = \frac{[\%O_2 - 0.5\,(\%CO)]}{[0.264\,(\%N_2) - \%O_2 + 0.5\,(\%CO)]}$$

11. $$Q_s = 60\ v_s A_s$$

12. $$Q_s = Q_s(1 - B_{ws})\left(\frac{528}{T_s}\right)\left(\frac{P_s}{29.92}\right)$$

13. $$W_s = m_s\left[\frac{V_{sw}}{V_s}\right]$$

14. $$c_s = 0.0154\left[\frac{m_n}{V_{m(std)}}\right]$$

15. $$c_{50} = \frac{c_s}{1 - \left[\frac{1.5(\%O_2) - 0.133(\%N_2) - 0.75(\%CO)}{21}\right]}$$

16. $$c_{12} = c_s\left[\frac{12}{\%CO_2}\right]$$

17. $$PMR = c_s Q_s (60)(7000)$$

18. $$V_n = \left[\frac{T_s}{P_s}\right][(0.002669)\ V_{lc}] + \left[\frac{V_m}{T_m}\right]\left[P_{barometric} + \frac{\Delta H}{13.6}\right]$$

19. $$I = \frac{[(100)\ V_n]}{[(60)\ \Theta\ v_s A_n]}$$

PARAMETER			
RUN NO.	#1	#2	#3
DATE	03-10-94	03-10-94	03-10-94
Dp		2.008	1.896
SQR(Dp)	1.374	1.409	1.365
Dh	1.445	1.526	1.431
tm	59.4	61.3	65.6
ts	262.7	246.6	248.4
As	4.1667	4.1667	4.1667
An	0.000194141	0.000194141	0.000194828
Vm	39.044	40.371	39.143
Vmc	39.044	40.371	39.143
Y	1.00369	1.00369	1.00369
Th	62.5	62.5	62.5
Lp	0.003	0.003	0.003
La	0.02	0.02	0.02
Vlc	152	147.8	156.5
CO2	7.05	3.67	7.75
O2	12.75	17.16	12.96
N2	80.19	79.18	79.30
CO	0.00	0.00	0.00
Kp	85.49	85.49	85.49
Cp	0.809	0.809	0.809
Mn	24.7	33.4	27.7
ma	0	0	0
Vaw	200	200	200
Va	200	200	200
Pbar	29.98	29.98	29.98
Pg	0.06	0.06	0.06
Ps	29.984	29.984	29.984
Pm	30.086	30.092	30.085
Vw(std)	7.155	6.957	7.366
Vm(std)	40.041	41.259	39.665
Bws	0.1516	0.1443	0.1566
Md	29.638	29.273	29.758
Ms	27.874	27.646	27.916
vs	88.360	89.998	86.819
EA	151.6	458.0	162.4
cs	0.009500	0.012466	0.010754
c50	0.015917	0.045170	0.018650
c12	0.016168	0.040795	0.016661
Qa	22090.2	22499.8	21705.0
Qstd	13721.5	14417.0	13673.2
Wa	0	0	0
PMR	1.117	1.541	1.260
Vn	64.49	64.42	62.99
I	100.247	98.314	99.307

Plant	Moisture		Initial	Final		BAR-PRESS	GAS ANALYSIS			AVERAGE
Sunbelt Resources	IMPINGER	1	100	229	129	29.98	CO2	7.40	6.50	7.25	7.05
	IMPINGER	2	100	109	9		O2	12.14	13.25	12.88	12.75
SITE	IMPINGER	3	0	1	1	STK-PRES	CO	0.00	0.00	0.00	0.00
Port St. Joe, Florida	SILICA	4	314.8	327.8	13	0.06	N2	80.46	80.25	79.87	80.19
DATE	TOTALS		514.8	666.8	152						

03-10-94

RUN 1 — STACK DIA.(in.) 30X20 4.1667

TIME 10:35am - 11:37am

NOZZLE CALIBRATIONS

	PRE-TEST	POST-TEST
	0.189 in.	0.188 in.
	0.190 in.	0.188 in.
	0.189 in.	0.190 in.
AVG.	0.189333	0.188667

LEAK CHECKS

PRE-TEST VOLUME @	VAC	POST-TEST VOLUME @	VAC
0.005	15.00	0.003	8.00

AREA 0.000194 SQ.FT

PROBE WASHINGS

CRUCIBLE	#2
FINAL	101.2396
INIT	101.2201
NET	0.0195

FILTER WEIGHTS

FILT. NO.	A-9
FINAL	0.4144
INIT	0.4092
NET	0.0052

METER READING	#1	#2	#3	#4	#5	TOTAL	
FINAL	765.965	773.431	779.675	788.003	797.191		
INITIAL	758.147	765.965	773.431	779.675	788.003		
NET	7.818	7.466	6.244	8.328	9.188	39.044	39.044

PORT/POINT		TIME	METER READING	DELTA P	DELTA H	TEMPERATURES INLET	OUTLET	STACK	OVEN	IMPINGER	VACUUM	VOLUME CHANGE	SQRT DP
A /	1	2.5	759.665	1.80	1.34	55	54	218	234	46	2.0	1.518	1.3416
	2	5.0	761.275	2.10	1.60	56	54	278	241	44	2.5	1.610	1.4491
	3	7.5	762.890	2.00	1.51	57	54	281	235	45	2.5	1.615	1.4142
	4	10.0	764.450	1.90	1.43	59	54	280	241	46	2.5	1.560	1.3784
	5	12.5	765.965	1.70	1.26	60	55	280	249	47	2.5	1.515	1.3038
B /	1	15.0	767.495	1.90	1.43	59	56	204	252	49	2.0	1.530	1.3784
	2	17.5	769.030	1.90	1.43	60	55	272	248	49	2.0	1.535	1.3784
	3	20.0	770.550	1.60	1.17	61	56	282	248	50	2.0	1.520	1.2649
	4	22.5	772.120	1.55	1.13	62	56	281	247	50	2.0	1.570	1.2450
	5	25.0	773.431	1.70	1.26	62	56	279	246	51	2.0	1.311	1.3038
C /	1	27.5	774.685	1.30	0.93	61	56	186	248	51	2.0	1.254	1.1402
	2	30.0	775.905	1.20	0.84	62	57	279	251	51	2.0	1.220	1.0954
	3	32.5	777.165	1.20	0.84	63	58	283	247	52	2.0	1.260	1.0954
	4	35.0	778.395	1.20	0.84	63	57	280	251	52	2.0	1.230	1.0954
	5	37.5	779.675	1.40	1.00	63	58	278	250	52	2.0	1.280	1.1832
D /	1	40.0	781.290	2.10	1.60	63	58	189	251	51	2.5	1.615	1.4491
	2	42.5	783.035	2.30	1.78	64	58	275	247	48	3.0	1.745	1.5166
	3	45.0	784.655	2.00	1.51	65	58	282	247	53	2.5	1.620	1.4142
	4	47.5	786.340	2.10	1.60	65	59	281	252	55	2.5	1.685	1.4491
	5	50.0	788.003	2.20	1.69	66	59	280	250	56	2.5	1.663	1.4832
E /	1	52.5	789.775	2.40	1.86	65	59	190	248	55	3.0	1.772	1.5492
	2	55.0	791.620	2.60	2.04	65	59	268	246	57	3.0	1.845	1.6125
	3	57.5	793.445	2.50	1.95	66	59	279	253	58	3.0	1.825	1.5811
	4	60.0	795.295	2.60	2.04	66	59	282	248	61	3.0	1.850	1.6125
	5	62.5	797.191	2.60	2.04	66	60	281	253	62	3.0	1.896	1.6125
	SUM	812.5	19443.3	47.9	36.1	1554.0	1424.0	6568.0	6183.0	1291.0	60.0	39.0	34.3
	MAX	62.5	797.2	2.6	2.0	66.0	60.0	283.0	253.0	62.0	3.0	1.9	1.6
	MIN	2.5	759.7	1.2	0.8	55.0	54.0	186.0	234.0	44.0	2.0	1.2	1.1
	AVG	32.5	777.7	1.9	1.4	62.2	57.0	262.7	247.3	51.6	2.4	1.6	1.4
							AVG 59.417						
	AVGS			1.7844	23.87027	63.05333	121.44	251.16	181.9867	37.9	2.148573		
							AVG 119.750						

Plant	Moisture		Initial	Final		BAR-PRESS	GAS ANALYSIS			AVERAGE
Sunbelt Resources	IMPINGER	1	100	226	126	29.98	CO2	3.14	4.53	3.34	3.67
	IMPINGER	2	100	108	8		O2	17.12	17.53	16.82	17.16
SITE	IMPINGER	3	0	1	1	STK-PRES	CO	0.00	0.00	0.00	0.00
Port St. Joe, Florida	SILICA	4	301.1	313.9	12.8	0.06	N2	79.75	77.94	79.84	79.18
DATE		TOTALS	501.1	648.9	147.8						

03-10-94					LEAK CHECKS				PROBE WASHINGS	
RUN	STACK DIA.(in.)		NOZZLE CALIBRATIONS		PRE-TEST		POST-TEST		CRUCIBLE	#1
2	30X20	4.1667	PRE-TEST	POST-TEST	VOLUME @	VAC	VOLUME @	VAC	FINAL	97.7432
TIME			0.188 in.	0.189 in.	0.006	15.00	0.003	8.00	INIT	97.7124
12:25 p.m. - 1:27 p.m.			0.188 in.	0.188 in.					NET	0.0308
			0.190 in.	0.190 in.	AREA					
			AVG. 0.188667	0.189	0.000194 SQ.FT				FILTER WEIGHTS	

METER READING	#1	#2	#3	#4	#5	TOTAL		FILT. NO.	A-10
FINAL	805.917	813.575	820.286	828.853	838.003			FINAL	0.4190
INITIAL	797.632	805.917	813.575	820.286	828.853			INIT	0.4164
NET	8.285	7.658	6.711	8.567	9.150	40.371	40.371	NET	0.0026

PORT/POINT		TIME	METER READING	DELTA P	DELTA H	TEMPERATURES INLET	OUTLET	STACK	OVEN	IMPINGER	VACUUM	VOLUME CHANGE	SQRT DP
A /	1	2.5	799.350	2.10	1.60	58	57	126	226	52	2.0	1.718	1.4491
	2	5.0	801.015	2.20	1.69	58	57	266	226	51	2.5	1.665	1.4832
	3	7.5	802.695	2.15	1.64	60	57	271	235	51	2.5	1.680	1.4663
	4	10.0	804.375	2.10	1.60	60	57	279	242	52	2.5	1.680	1.4491
	5	12.5	805.917	1.80	1.34	61	58	277	244	55	2.0	1.542	1.3416
B /	1	15.0	807.245	2.00	1.51	61	57	128	243	55	2.5	1.328	1.4142
	2	17.5	809.145	1.95	1.47	62	58	269	246	56	2.5	1.900	1.3964
	3	20.0	810.665	1.80	1.34	62	58	277	247	58	2.5	1.520	1.3416
	4	22.5	812.105	1.60	1.17	63	58	279	247	58	2.0	1.440	1.2649
	5	25.0	813.575	1.70	1.26	63	58	276	248	58	2.0	1.470	1.3038
C /	1	27.5	814.940	1.50	1.09	62	58	154	249	57	2.0	1.365	1.2247
	2	30.0	816.240	1.30	0.93	63	58	250	247	58	2.0	1.300	1.1402
	3	32.5	817.560	1.30	0.93	64	59	278	245	59	2.0	1.320	1.1402
	4	35.0	818.870	1.30	0.93	64	58	280	249	59	2.0	1.310	1.1402
	5	37.5	820.286	1.60	1.17	65	60	282	244	60	2.0	1.416	1.2649
D /	1	40.0	821.985	2.20	1.69	64	59	118	248	60	2.5	1.699	1.4832
	2	42.5	823.715	2.30	1.78	66	60	276	246	64	3.0	1.730	1.5166
	3	45.0	825.415	2.20	1.69	67	60	282	247	65	3.0	1.700	1.4832
	4	47.5	827.085	2.20	1.69	67	60	285	248	65	3.0	1.670	1.4832
	5	50.0	828.853	2.30	1.78	68	61	282	234	65	3.0	1.768	1.5166
E /	1	52.5	830.540	2.20	1.69	68	61	138	250	64	2.5	1.687	1.4832
	2	55.0	832.410	2.70	2.13	68	61	252	247	66	3.0	1.870	1.6432
	3	57.5	834.250	2.50	1.95	68	61	276	249	67	3.0	1.840	1.5811
	4	60.0	836.070	2.50	1.95	69	61	283	248	69	3.0	1.820	1.5811
	5	62.5	838.003	2.70	2.13	69	62	282	246	68	3.0	1.933	1.6432

SUM	812.5	20452.3	50.2	38.2	1600.0	1474.0	6166.0	6101.0	1492.0	62.0	40.4	35.2
MAX	62.5	838.0	2.7	2.1	69.0	62.0	285.0	250.0	69.0	3.0	1.9	1.6
MIN	2.5	799.4	1.3	0.9	58.0	57.0	118.0	226.0	51.0	2.0	1.3	1.1
AVG	32.5	818.1	2.0	1.5	64.0	59.0	246.6	244.0	59.7	2.5	1.6	1.4
						AVG						
						61.313						
		AVGS	1.301333	0.985733	44.21333	40.65333	165.0133	162.72	38.09333	1.62		
						AVG						
						123.542						

Plant	Moisture		Initial	Final		BAR-PRESS	GAS ANALYSIS				AVERAGE
Sunbelt Resources	IMPINGER	1	100	232	132	29.98	CO2	8.08	7.81	7.35	7.75
	IMPINGER	2	100	112	12		O2	12.78	13.39	12.71	12.96
SITE	IMPINGER	3	0	1	1	STK-PRES	CO	0.00	0.00	0.00	0.00
Port St.Joe, Florida	SILICA	4	316.3	327.8	11.5	0.06	N2	79.14	78.81	78.95	79.30
DATE	TOTALS		516.3	672.8	156.5						

03-10-94

RUN	STACK DIA.(in.)		NOZZLE CALIBRATIONS	PRE-TEST	POST-TEST
3	30X20	4.1667		0.189 in.	0.189 in.
TIME				0.188 in.	0.188 in.
2:10 p.m. - 3:07 p.m.				0.190 in.	0.190 in.
			AVG.	0.189	0.189

LEAK CHECKS				
PRE-TEST		POST-TEST		
VOLUME @	VAC	VOLUME @	VAC	
0.009	15.00	0.003	8.00	

AREA 0.000195 SQ.FT

PROBE WASHINGS	
CRUCIBLE	#6
FINAL	99.8430
INIT	99.8208
NET	0.0222

METER READING	#1	#2	#3	#4	#5	TOTAL
FINAL	846.061	853.401	859.703	868.285	877.715	
INITIAL	838.572	846.061	853.401	859.703	868.285	
NET	7.489	7.340	6.302	8.582	9.430	39.143

FILTER WEIGHTS	
FILT. NO.	A-11
FINAL	0.4247
INIT	0.4192
NET	0.0055

PORT/POINT		TIME	METER READING	DELTA P	DELTA H	TEMPERATURES INLET	OUTLET	STACK	OVEN	IMPINGER	VACUUM	VOLUME CHANGE	SQRT DP
A /	1	2.5	840.220	1.80	1.34	62	60	143	228	45	2.0	1.648	1.3416
	2	5.0	841.695	2.00	1.51	62	60	258	238	45	2.0	1.475	1.4142
	3	7.5	843.305	1.90	1.43	63	61	278	251	45	2.0	1.610	1.3784
	4	10.0	844.810	1.80	1.34	64	61	283	249	48	2.0	1.505	1.3416
	5	12.5	846.061	1.10	0.77	65	61	279	229	51	2.0	1.251	1.0488
B /		15.0	847.495	1.60	1.17	66	61	131	244	52	2.0	1.434	1.2649
	2	17.5	849.039	1.90	1.43	67	61	267	237	53	2.0	1.544	1.3784
	3	20.0	850.505	1.70	1.26	67	61	284	248	53	2.0	1.466	1.3038
	4	22.5	851.925	1.60	1.17	68	62	279	236	54	2.0	1.420	1.2649
	5	25.0	853.401	1.70	1.26	69	62	276	235	54	2.0	1.476	1.3038
C /		27.5	854.695	1.20	0.84	69	62	119	251	54	2.0	1.294	1.0954
	2	30.0	855.895	1.20	0.84	69	63	264	246	54	2.0	1.200	1.0954
	3	32.5	857.135	1.20	0.84	69	63	283	246	54	2.0	1.240	1.0954
	4	35.0	858.370	1.20	0.84	69	63	284	242	54	2.0	1.235	1.0954
	5	37.5	859.703	1.40	1.00	70	63	281	246	55	2.0	1.333	1.1832
D /		40.0	861.380	2.20	1.69	70	64	149	249	55	2.5	1.677	1.4832
	2	42.5	863.175	2.40	1.86	70	64	215	245	57	3.0	1.795	1.5492
	3	45.0	864.865	2.10	1.60	70	64	280	249	58	3.0	1.690	1.4491
	4	47.5	866.540	2.20	1.69	71	65	284	247	59	3.0	1.675	1.4832
	5	50.0	868.285	2.30	1.78	71	65	283	242	60	3.0	1.745	1.5166
E /		52.5	870.040	2.30	1.78	72	65	181	247	59	3.0	1.755	1.5166
	2	55.0	871.910	2.60	2.04	72	66	272	249	59	3.0	1.870	1.6125
	3	57.5	873.780	2.50	1.95	73	66	273	250	62	3.0	1.870	1.5811
	4	60.0	875.675	2.70	2.13	74	66	282	249	62	3.0	1.895	1.6432
	5	62.5	877.715	2.80	2.22	74	66	282	250	63	3.0	2.040	1.6733
SUM		812.5	21447.6	47.4	35.8	1716.0	1575.0	6210.0	6103.0	1365.0	59.5	39.1	34.1
MAX		62.5	877.7	2.8	2.2	74.0	66.0	284.0	251.0	63.0	3.0	2.0	1.7
MIN		2.5	840.2	1.1	0.8	62.0	60.0	119.0	228.0	45.0	2.0	1.2	1.0
AVG		32.5	857.9	1.9	1.4	68.6	63.0	248.4	244.1	54.6	2.4	1.6	1.4
							AVG						
							65.646						
			AVGS	0.632	0.477067	22.88	21	82.8	81.37333	18.2	0.793333		

Plant: Sunbelt

Site: Port St. Joe

Date: 3-11-94

Moisture	Initial	Final	Totals
Impinger #1	100		
Impinger #2	100		
Impinger #3	0		
Impinger #4			
Totals			

Gas Analyses				Average
CO2				
O2				
CO				
N2				

Run #

Stack Diameter

Time

Nozzle Calibrations

Pre-test	Post-test
0.189	
0.190	
0.184	
Avg.	

Barometric Pressure

Stack Pressure 0.06

Leak Check
Pre-test
Volume @ Vac

Post-test
Volume @ Vac

Probe Washings
Crucible #
Final
Initial
Net

Filter Weights
Filter #
Final
Initial
Net

Meter Readings

	#1	#2	#3	#4
Final				
Initial				
Net				

Total cu.ft.

Port / Point	Time	Meter Reading	Δp	Δh	Inlet	Outlet	Temperatures Stack	Oven	Impinger	Vacuum
A / 1			1.8							
/ 2			2.1							
/ 3			2.1							
/ 4			2.0				269			
/ 5			1.7							
B / 1			1.7							
/ 2			1.8							
/ 3			1.6							
/ 4			1.5							
/ 5			1.5							
C / 1			0.92							
/ 2			1.0							
/ 3			1.05				262			
/ 4			1.1							
/ 5			1.3							
D / 1			2.1							
/ 2			2.2							
/ 3			2.1							
/ 4			2.1				260			
/ 5			2.4							
E / 1			2.4							
/ 2			2.6							
/ 3			2.6							
/ 4			2.6				262			
5			2.6							

Field Notes:

Plant: Sunbelt Resources
Baghouse
Site: Port St. Joe Florida
Date: 3-16-94

Moisture	Initial	Final	Totals
Impinger #1	100	229	129
Impinger #2	100	109	9
Impinger #3	0	1	1
Impinger #4	374.8	327.8	13
Totals	514.8	666.8	152

Gas Analyses

				Average
CO2	7.40	6.50	7.25	7.05
O2	12.14	13.25	12.88	12.75
CO	0.00	0.00	0.00	0.00
N2	80.46	80.25	79.87	80.19

Run # 1

Stack Diameter: 30X20

Time
10:35A
10:57A
11:08A
11:22A
11:37A

Nozzle Calibrations

	Pre-test	Post-test
	0.189	0.188
	0.190	0.188
	0.189	0.190
Avg.		

Barometric Pressure: 29.98

Stack Pressure: 0.06

Leak Check
Pre-test Volume @ 0.005 Vac 15
Post-test Volume @ 0.003 Vac 8

Probe Washings
Crucible # 2
Final 10L2396
Initial 10L2201
Net 0.0195

Filter Weights
Filter # A-9
Final 0.4144
Initial 0.4092
Net 0.0052

Meter Readings

	#1	#2	#3	#4
Final	765.965	773.431	779.675	788.003
Initial	758.147	765.965	773.431	779.675
Net	7.822	7.466	6.244	8.325

#5 797.191
Total 788.003
cu.ft. 9.188

Port / Point	Time	Meter Reading	Δp	Δh	Inlet	Outlet	Temperatures Stack	Oven	Impinger	Vacuum
A / 1	2.5	759.665	1.8	1.34	55	54	218	254	46	2.0
/ 2	5.0	761.275	2.1	1.60	56	54	278	241	44	2.5
/ 3	7.5	762.890	2.0	1.51	57	54	281	235	45	2.5
/ 4	10.0	764.450	1.9	1.43	59	54	280	241	46	2.5
/ 5	12.5	765.965	1.7	1.26	60	55	284	249	47	2.5
B / 1	15.0	767.495	1.9	1.43	55	56	204	252	49	2.0
/ 2	17.5	769.030	1.9	1.43	60	56	272	248	49	2.0
/ 3	20.0	770.550	1.6	1.17	61	56	282	248	50	2.0
/ 4	22.5	772.120	1.55	1.13	62	56	281	247	50	2.0
/ 5	25.0	773.431	1.7	1.26	62	56	279	246	51	2.0
C / 1	27.5	774.685	1.3	0.93	61	56	186	248	51	2.0
/ 2	30.0	775.905	1.2	0.84	62	57	279	251	51	2.0
/ 3	32.5	777.165	1.2	0.84	63	58	283	247	52	2.0
/ 4	35.0	778.395	1.2	0.84	63	57	280	251	52	2.0
/ 5	32.5	779.675	1.4	1.00	63	58	278	250	52	2.0
D / 1	40.0	781.290	2.1	1.60	63	58	189	251	51	2.5
/ 2	42.5	783.035	2.3	1.78	64	58	275	247	48	3.0
/ 3	45.0	784.655	2.0	1.51	65	58	282	247	53	2.5
/ 4	47.5	786.340	2.1	1.60	65	59	281	252	55	2.5
/ 5	50.0	788.003	2.2	1.69	66	59	280	250	56	2.5
E / 1	52.5	789.775	2.4	1.86	65	59	190	248	55	3.0
/ 2	55.0	791.620	2.6	2.04	65	59	268	246	57	3.0
/ 3	57.5	793.445	2.5	1.95	66	59	279	253	58	3.0
/ 4	60.0	795.295	2.6	2.04	66	59	282	248	61	3.0
5	62.5	797.191	2.6	2.04	66	60	281	253	62	3.0

Field Notes:

Avg 1.40

Plant: Sunbelt Resources
Baghouse
Site: Port St. Joe, Florida
Date: 3-10-94

Moisture	Initial	Final	Totals
Impinger #1	100	226	126
Impinger #2	100	108	8
Impinger #3	0	1	1
Impinger #4	301.1	313.9	12.8
Totals	501.1	648.9	147.8

Gas Analyses				Average
CO2	3.14	4.53	3.34	3.67
O2	17.12	17.54	16.82	17.16
CO	0.00	0.00	0.00	0.00
N2	79.75	77.94	79.84	79.18

Run # 2

Stack Diameter: 30 X 20

Time
12:25 P
12:41 P
12:56 P
1:12 P
1:27 P

Nozzle Calibrations

	Pre-test	Post-test
	0.188	0.189
	0.188	0.188
	0.190	0.190
Avg.		

Barometric Pressure: 29.98

Stack Pressure: 0.06

Leak Check
Pre-test Volume @ 0.006 Vac 15
Post-test Volume @ 0.003 Vac 8

Probe Washings
Crucible # 1
Final 92.2432
Initial 92.2124
Net 0.0308

Filter Weights
Filter # A10
Final 0.4480
Initial 0.4464
Net 0.0016

Meter Readings

	#1	#2	#3	#4	Total
Final	805.917	813.575	820.286	828.853	838.003
Initial	797.632	805.917	813.575	820.286	cu.ft. 828.853
Net	8.285	7.658	6.711	8.567	9.150

Port / Point		Time	Meter Reading	Δp	Δh	Inlet	Outlet	Temperatures Stack	Oven	Impinger	Vacuum
A	1	2.5	799.350	2.1	1.60	58	57	126	226	52	2.0
	2	5.0	801.015	2.2	1.69	58	57	266	226	51	2.5
	3	7.5	802.695	2.15	1.64	60	57	271	235	51	2.5
	4	10.0	804.375	2.1	1.60	60	57	279	242	52	2.5
	5	12.5	805.917	1.8	1.34	61	58	277	244	55	2.0
B	1	15.0	807.245	2.0	1.51	61	57	128	243	55	2.5
	2	17.5	809.145	1.95	1.47	62	58	269	246 ~~269~~ 1KP	56	2.5
	3	20.0	810.665	1.80	1.34	62	58	277	247	58	2.5
	4	22.5	812.105	1.60	1.17	63	58	279	247	58	2.0
	5	25.0	813.575	1.70	1.26	63	58	276	248	58	2.0
C	1	27.5	814.940	1.50	1.09	62	58	154	249	57	2.0
	2	30.0	816.240	1.30	0.93	63	58	250	247	58	2.0
	3	32.5	817.560	1.30	0.93	64	59	228	245	59	2.0
	4	35.0	818.870	1.30	0.93	64	58	280	249	59	2.0
	5	37.5	820.286	1.60	1.17	65	60	282	244	60	2.0
D	1	40.0	821.985	2.20	1.69	64	59	118	248	60	2.5
	2	42.5	823.715	2.3	1.78	66	60	276	246	64	3.0
	3	45.0	825.415	2.2	1.69	67	60	282	247	65	3.0
	4	47.5	827.085	2.2	1.69	67	60	285	248	65	3.0
	5	50.0	828.853	2.3	1.78	68	61	282	234	65	3.0
E	1	52.5	830.540	2.2	1.69	68	61	138	250	64	2.5
	2	55.0	832.410	2.7	2.13	68	61	252	247	66	3.0
	3	57.5	834.250	2.5	1.95	68	61	276	249	67	3.0
	4	60.0	836.070	2.5	1.95	69	61	283	248	69	3.0
	5	62.5	838.003	2.7	2.13	69	62	282	246	68	

Field Notes:

Avg 1.53

Plant	Moisture	Initial	Final	Totals
Sunbelt Resources	Impinger #1	100	232	132
Baghouse	Impinger #2	100	112	12
Site	Impinger #3	0	1	1
Port St. Joe Florida	Impinger #4	316.3	327.8	11.5
Date	Totals	516.3	672.8	156.5
3-10-94				

Gas Analyses				Average
CO2	8.08	7.81	7.35	7.75
O2	12.78	13.39	12.71	12.96
CO	0.00	0.00	0.00	0.00
N2	79.14	78.81	78.95	79.30

Run # 3

Stack Diameter 30 x 20

Nozzle Calibrations Pre-test	Post-test
0.189	0.189
0.188	0.188
0.190	0.190
Avg.	

Barometric Pressure 29.98

Stack Pressure 0.06

Leak Check

Pre-test Volume @ 0.009 Vac 15

Post-test Volume @ 0.003 Vac 8

Probe Washings

Crucible # 6

Final 99.8430

Initial 99.8208

Net 0.0222

Filter Weights

Filter # A-11

Final 0.4247

Initial 0.4192

Net 0.0055

Time

2:10 P

2:23 P

2:37 P

2:52 P

3:07 P

Meter Readings

	#1	#2	#3	#4	#5
Final	846.061	853.401	859.703	868.285	877.715
Initial	838.572	846.061	853.401	859.703	868.285
Net	7.489	7.340	6.302	8.582	

Total cu.ft. 9.430

Port / Point		Time	Meter Reading	Δ p	Δ h	Inlet	Outlet	Stack	Oven	Impinger	Vacuum
								Temperatures			
A	1	2.5	840.220	1.8	1.34	62	60	143	228	45	2.0
	2	5.0	841.695	2.0	1.51	62	60	258	238	45	2.0
	3	7.5	843.305	1.9	1.43	63	61	278	251	43	2.0
	4	10.0	844.810	1.8	1.34	64	61	283	249	48	2.0
	5	12.5	846.061	1.1	0.77	65	61	279	229	51	2.0
B	1	15.0	847.495	1.60	1.17	66	61	NP 131	244	52	2.0
	2	17.5	849.039	1.90	1.43	67	61	267	237	53	2.0
	3	20.0	850.505	1.7	1.26	67	61	284	248	53	2.0
	4	22.5	851.925	1.6	1.17	68	62	279	236	54	2.0
	5	25.0	853.401	1.7	1.26	69	62	226	235	54	2.0
C	1	27.5	854.695	1.2	0.84	69	62	119	251	54	2.0
	2	30.0	855.895	1.2	0.84	69	63	264	246	54	2.0
	3	32.5	857.135	1.2	0.84	69	63	283	246	54	2.0
	4	35.0	858.370	1.2	0.84	69	63	284	242	54	2.0
	5	37.5	859.703	1.4	1.00	70	63	281	246	55	2.0
D	1	40.0	861.380	2.2	1.69	70	64	149	249	55	2.5
	2	42.5	863.175	2.4	1.86	70	64	215	245	57	3.0
	3	45.0	864.865	2.1	1.60	70	64	280	244	58	3.0
	4	47.5	866.540	2.2	1.69	71	65	284	247	59	3.0
	5	50.0	868.285	2.3	1.78	71	65	283	242	60	3.0
E	1	52.5	870.040	2.3	1.78	72	65	181	247	59	3.0
	2	55.0	871.910	2.6	2.04	72	66	272	249	59	3.0
	3	57.5	873.780	2.5	1.95	73	66	273	250	62	3.0
	4	60.0	875.625	2.7	2.13	74	66	282	249	62	3.0
	5	62.5	877.715	2.8	2.22	74	66	282	250	63	3.0

Field Notes:

AVG. 1.431

→ Avg total 1.47

25

OPACITY DATA

Run #1
Summary of Average Opacity

Set Nu	Time Start - - End	Opacity Average
1	10:30 am - - 10:36 am	0.00
2	10:37 am - - 10:41 am	0.00
3	10:42 am - - 10:47 am	0.00
4	10:48 am - - 10:52 am	0.00
5	10:53 am - - 10:57 am	0.00
6	10:58 am - - 11:03 am	0.00
7	11:04 am - - 11:08 am	0.00
8	11:09 am - - 11:14 am	0.00
9	11:15 am - - 11:20 am	0.00
10	11:21 am - - 11:27 am	0.00

Opacity readings ranged from :
0 % Minimum
0 % Maximum

Highest six minute average 0.00

The source was in compliance of the greater than 5% opacity limit for visible emissions at the time the evaluation was made.

Run #2
Summary of Average Opacity

Set Nu	Time Start - - End	Opacity Average
1	12:28 pm - - 12:33 pm	0.00
2	12:34 pm - - 12:39 pm	0.00
3	12:40 pm - - 12:45 pm	0.00
4	12:46 pm - - 12:51 pm	0.00
5	12:52 pm - - 12:57 pm	0.00
6	12:58 pm - - 1:04 pm	0.00
7	1:05 pm - - 1:10 pm	0.00
8	1:11 pm - - 1:16 pm	0.00
9	1:17 pm - - 1:22 pm	0.00
10	1:23 pm - - 1:28 pm	0.00

Opacity readings ranged from :
0 % Minimum
0 % Maximum

Highest six minute average 0.00

The source was in compliance of the greater than 5% opacity limit for visible emissions at the time the evaluation was made.

Run #3
Summary of Average Opacity

Set Nu	Time Start - - End	Opacity Average
1	2:10 pm - - 2:15 pm	1.46
2	2:16 pm - - 2:21 pm	2.29
3	2:22 pm - - 2:27 pm	2.92
4	2:28 pm - - 2:34 pm	3.13
5	2:35 pm - - 2:41 pm	1.67
6	2:42 pm - - 2:47 pm	1.25
7	2:48 pm - - 2:54 pm	1.67
8	2:55 pm - - 3:00 pm	3.54
9	3:01 pm - - 3:06 pm	3.13
10	3:07 pm - - 3:10 pm	2.71

Opacity readings ranged from :
0 % Minimum
5 % Maximum

Highest six minute average 3.54

The source was in compliance of the greater than 5% opacity limit for visible emissions at the time the evaluation was made.

Client: Sunbelt Resources, Inc.
Location: Port St. Joe Florida
Emission Source: Baghouse Stack
Permit Number:

Start Time 10:30 am Stop Time 11:30 am

Min.	Seconds 0	15	30	45			
0	0	0	0	0	Set 1		
1	0	0	0	0		Average	
2	0	0	0	0		of Set 1	0.00
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0	Set 2		
7	0	0	0	0		Average	
8	0	0	0	0		of Set 2	0.00
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0	Set 3		
13	0	0	0	0		Average	
14	0	0	0	0		of Set 3	0.00
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0	Set 4		
19	0	0	0	0		Average	
20	0	0	0	0		of Set 4	0.00
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0	Set 5		
25	0	0	0	0		Average	
26	0	0	0	0		of Set 5	0.00
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0	Set 6		
31	0	0	0	0		Average	
32	0	0	0	0		of Set 6	0.00
33	0	0	0	0			
34	0	0	0	0			
35	0	0	0	0			
36	0	0	0	0	Set 7		
37	0	0	0	0		Average	
38	0	0	0	0		of Set 7	0.00
39	0	0	0	0			
40	0	0	0	0			
41	0	0	0	0			
42	0	0	0	0	Set 8		
43	0	0	0	0		Average	
44	0	0	0	0		of Set 8	0.00
45	0	0	0	0			
46	0	0	0	0			
47	0	0	0	0			
48	0	0	0	0	Set 9		
49	0	0	0	0		Average	
50	0	0	0	0		of Set 9	0.00
51	0	0	0	0			
52	0	0	0	0			
53	0	0	0	0			
54	0	0	0	0	Set 10		
55	0	0	0	0		Average	
56	0	0	0	0		of Set 10	0.00
57	0	0	0	0			
58	0	0	0	0			
59	0	0	0	0			

Composite Average	0.00
Composite Maximum	0
Composite Minimum	0

Client: Sunbelt Resources, Inc.
Location: Port St. Joe Florida
Emission Source: Baghouse Stack
Permit Number:

Start Time 12:28 pm Stop Time 1:28 pm

Min.	Seconds 0	15	30	45			
0	0	0	0	0	Set 1		
1	0	0	0	0		Average	
2	0	0	0	0		of Set 1	0.00
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0	Set 2		
7	0	0	0	0		Average	
8	0	0	0	0		of Set 2	0.00
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0	Set 3		
13	0	0	0	0		Average	
14	0	0	0	0		of Set 3	0.00
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0	Set 4		
19	0	0	0	0		Average	
20	0	0	0	0		of Set 4	0.00
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0	Set 5		
25	0	0	0	0		Average	
26	0	0	0	0		of Set 5	0.00
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0	Set 6		
31	0	0	0	0		Average	
32	0	0	0	0		of Set 6	0.00
33	0	0	0	0			
34	0	0	0	0			
35	0	0	0	0			
36	0	0	0	0	Set 7		
37	0	0	0	0		Average	
38	0	0	0	0		of Set 7	0.00
39	0	0	0	0			
40	0	0	0	0			
41	0	0	0	0			
42	0	0	0	0	Set 8		
43	0	0	0	0		Average	
44	0	0	0	0		of Set 8	0.00
45	0	0	0	0			
46	0	0	0	0			
47	0	0	0	0			
48	0	0	0	0	Set 9		
49	0	0	0	0		Average	
50	0	0	0	0		of Set 9	0.00
51	0	0	0	0			
52	0	0	0	0			
53	0	0	0	0			
54	0	0	0	0	Set 10		
55	0	0	0	0		Average	
56	0	0	0	0		of Set 10	0.00
57	0	0	0	0			
58	0	0	0	0			
59	0	0	0	0			

Composite Average	0.00
Composite Maximum	0
Composite Minimum	0

Client: Sunbelt Resources, Inc.
Location: Port St. Joe Florida
Emission Source: Baghouse Stack
Permit Number:

Start Time 2:10 pm Stop Time 3:10 pm

Min.	0	15	30	45			
0	0	0	0	0	Set 1		
1	5	0	0	0		Average	
2	0	5	5	5		of Set 1	1.46
3	0	0	0	0			
4	0	0	0	5			
5	0	0	5	5			
6	0	0	5	0	Set 2		
7	0	0	0	5		Average	
8	5	5	5	0		of Set 2	2.29
9	0	0	0	0			
10	5	5	0	0			
11	5	5	5	5			
12	5	5	5	5	Set 3		
13	5	5	5	0		Average	
14	0	5	5	5		of Set 3	2.92
15	5	5	5	0			
16	0	0	0	0			
17	5	0	0	0			
18	0	5	5	5	Set 4		
19	5	5	5	5		Average	
20	5	5	5	5		of Set 4	3.13
21	0	0	0	0			
22	0	0	0	5			
23	5	5	0	5			
24	0	0	5	5	Set 5		
25	5	5	5	5		Average	
26	0	0	0	0		of Set 5	1.67
27	5	0	0	0			
28	5	0	0	0			
29	0	0	0	0			
30	0	0	0	0	Set 6		
31	0	0	0	0		Average	
32	0	0	0	0		of Set 6	1.25
33	0	0	0	0			
34	5	5	5	5			
35	0	5	0	5			
36	0	0	5	5	Set 7		
37	0	0	5	5		Average	
38	0	0	0	5		of Set 7	1.67
39	5	0	0	0			
40	0	0	0	0			
41	5	5	0	0			
42	5	0	5	0	Set 8		
43	0	5	5	5		Average	
44	5	5	5	5		of Set 8	3.54
45	5	5	5	5			
46	5	5	5	0			
47	0	0	0	5			
48	5	5	5	5	Set 9		
49	0	0	5	5		Average	
50	5	0	0	5		of Set 9	3.13
51	5	5	0	0			
52	5	5	5	5			
53	0	0	0	5			
54	5	0	0	5	Set 10		
55	5	5	5	5		Average	
56	0	0	0	0		of Set 10	2.71
57	5	0	5	5			
58	0	0	5	5			
59	0	0	5	5			

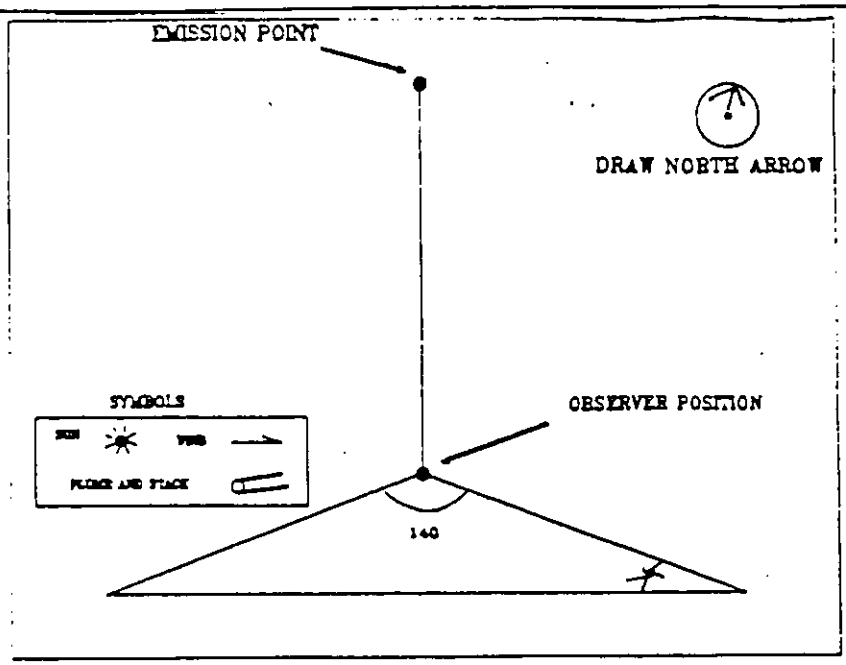
Composite Average	2.38
Composite Maximum	5
Composite Minimum	0

Alabama Department of Environmental Management
Air Division
Visible Emissions Observation Report

Facility # ___-____-____

Facility Name: Sunbelt Resources
Location: Port St. Joe, Florida
Emission Source: Stack
Control Device: Baghouse
Stack Height: 20'
Distance from Source: 40'
Direction from Source: SE

Conditions:	start	stop
Wind Direction:	NW TO SE	NTO S
Wind Speed:	10-15	10-15
Ambient Temperature:	52°F	52°F
Sky Cover:	overcast	overcast
Plume Background:	Brown	Brown
Plume Color:	TAN	Tan
Clock Time:	10:30A	11:30A



Condensed water in the plume? NO
Attached ___ Detached ✓

Min.	Seconds 0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0

Min.	Seconds 0	15	30	45
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0

Min.	Seconds 0	15	30	45
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0

Min.	Seconds 0	15	30	45
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

COMMENTS:

DATA REDUCTION: Highest Six Minute Average (SHA) ___ Total Minutes Observed: 60

Allowable ___% opacity
No. SHA's exceeding allowable: ___

Allowable ___% opacity
No. SHA's exceeding allowable: ___

Certification Expiration Dates: Lecture: 10/5/96 Field: 4/6/94 Certified By: E. Lang

Signature [signature] Date: 3/10/94

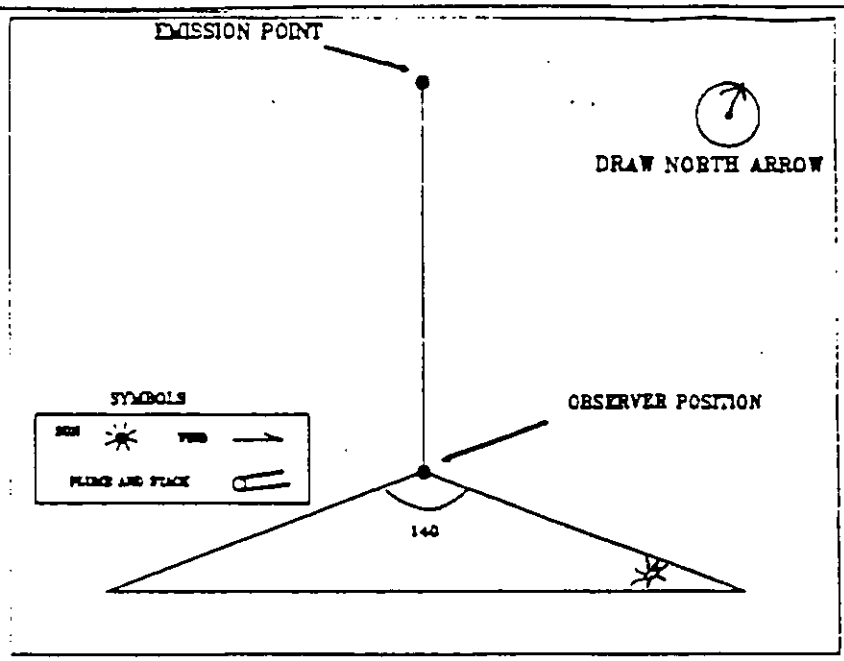
ADEM FORM 150 rev 3/90

Alabama Department of Environmental Management
Air Division
Visible Emissions Observation Report

Facility # ___-____-____

Facility Name: Sunbelt Resources Inc
Location: Port St Joe, Fl
Emission Source: Stack
Control Device: Baghouse
Stack Height: 20'
Distance from Source: 40'
Direction from Source: SE

Conditions:	start	stop
Wind Direction:	NTOS	NTOS
Wind Speed:	10-15	10-15
Ambient Temperature:	55°F	55°F
Sky Cover:	overCAST	PC
Plume Background:	Brown	Brown
Plume Color:	~~BROWN~~ TAN	Tan
Clock Time:	12:28P	1:28P



Condensed water in the plume? NO
Attached NA Detached ✓

Min.	Seconds 0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

COMMENTS:

DATA REDUCTION: Highest Six Minute Average (SHA) _____ Total Minutes Observed: 60

Allowable _____% opacity
No. SHA's exceeding allowable= _____

Allowable _____% opacity
No. SHA's exceeding allowable= _____

Certification Expiration Dates: Lecture: 10/5/96 Field: 4/6/94 Certified By: E. Lang

Signature [signature] Date: 3/10/94

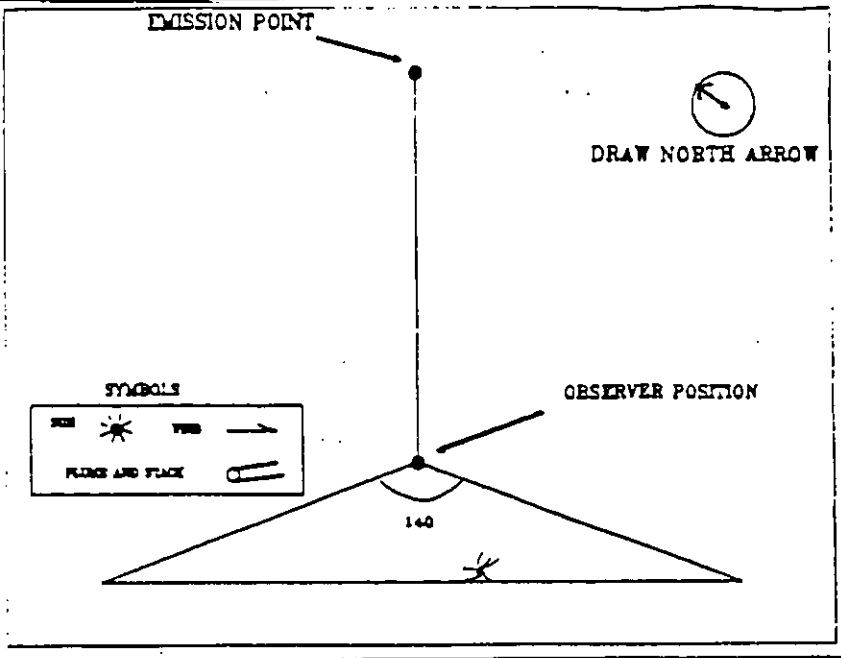
ADEM FORM 150 rev 3/90

Alabama Department of Environmental Management
Air Division
Visible Emissions Observation Report

Facility # ___-____-____

Facility Name: Sunbelt Resources Inc
Location: Port St. Joe, Fl
Emission Source: Stack
Control Device: Baghouse
Stack Height: 20'
Distance from Source: 60'
Direction from Source: SWest

Conditions:	start	stop
Wind Direction:	W TO S	NES
Wind Speed:	15	15
Ambient Temperature:	58°F	58°F
Sky Cover:	PC	PC
Plume Background:	Blue	Blue
Plume Color:	Tan	Tan
Clock Time:	2:10P	3:10P



Condensed water in the plume? No
Attached ____ Detached ✓

Min.	Seconds 0	15	30	45
0	0	0	0	0
1	5	0	0	0
2	0	5	5	5
3	0	0	0	0
4	0	0	0	5
5	0	0	5	5
6	0	0	5	0
7	0	0	0	5
8	5	5	5	0
9	0	0	0	0
10	5	5	0	0
11	5	5	5	5
12	5	5	5	5
13	5	5	5	0
14	0	5	5	5

Min.	Seconds 0	15	30	45
15	5	5	5	0
16	0	0	0	0
17	5	0	0	0
18	0	5	5	5
19	5	5	5	5
20	5	5	5	5
21	0	0	0	0
22	0	0	0	5
23	5	5	0	5
24	0	0	5	5
25	5	5	5	5
26	0	0	0	0
27	5	0	0	0
28	5	0	0	0
29	0	0	0	0

Min.	Seconds 0	15	30	45
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	5	5	5	5
35	0	5	0	5
36	0	0	5	5
37	0	0	5	5
38	0	0	0	5
39	5	0	0	0
40	0	0	0	0
41	5	5	0	0
42	5	0	5	0
43	0	5	5	5
44	5	5	5	5

Min.	Seconds 0	15	30	45
45	5	5	5	5
46	5	5	5	0
47	0	0	0	5
48	5	5	5	5
49	0	0	5	5
50	5	0	0	5
51	5	5	0	0
52	5	5	5	5
53	0	0	0	5
54	5	0	0	0
55	5	5	5	5
56	0	0	0	0
57	5	0	5	5
58	0	0	5	5
59	0	0	5	5

COMMENTS:

DATA REDUCTION: Highest Six Minute Average (SHA) ____ Total Minutes Observed: 60

Allowable ____ % opacity
No. SHA's exceeding allowable= ____

Allowable ____ % opacity
No. SHA's exceeding allowable= ____

Certification Expiration Dates: Lecture: 10/5/96 Field: 4/6/94 Certified By: E. Long

Signature [signature] Date: 3/10/94

ADEM FORM 150 rev 3/90

CONTINUOUS EMISSION MONITORING SYSTEM PERFORMANCE SPECIFICATION EVALUATION

TTL, Inc. PRACTICING IN THE GEOSCIENCES

3516 Greensboro Avenue • P.O. Drawer 1128 • Tuscaloosa, Alabama 35403 • Telephone 205-345-0816 • FAX 205-345-0992

Performance Specification 4 Evaluation

Client: Sunbelt Resources, Inc.

Site: Port St. Joe, Florida

Permit No.: AC37-216863

Set No. 1

			Carbon Monoxide		
Run No.	Date	Time	Reference Monitor	CEMS Monitor	Difference
1	3/1/1994	9:17	25	26.8	-1.80
2	3/1/1994	9:19	29	30.2	-1.20
3	3/1/1994	9:22	36	37.6	-1.60
4	3/1/1994	9:25	32	33.7	-1.70
5	3/1/1994	9:30	24	23.4	0.60
6	3/1/1994	9:35	26	28.4	-2.40
7	3/1/1994	9:38	21	22.6	-1.60
8	3/1/1994	9:41	23	23.4	-0.40
9	3/1/1994	9:44	24	23.8	0.20
10	3/1/1994	9:47	27	26.8	0.20
11	3/1/1994	9:50	26	25.8	0.20
12	3/1/1994	9:53	25	23.4	1.60
Arithmetic Mean , d bar			26.50		-0.658
Standard Deviation , Sd					1.171
Confidence Coefficient, CC					0.744
Relative Accuracy, RA					5.291

TTL, Inc. PRACTICING IN THE GEOSCIENCES

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Performance Specification 4 Evaluation

Client: Sunbelt Resources, Inc.

Site: Port St. Joe, Florida

Permit No.: AC37-216863

Set No. 2

			Carbon Monoxide		
Run No.	Date	Time	Reference Monitor	CEMS Monitor	Difference
1	3/1/1994	10:00	26	26.9	-0.90
2	3/1/1994	10:03	27	26.6	0.40
3	3/1/1994	10:06	24	25.8	-1.80
4	3/1/1994	10:09	31	28.6	2.40
5	3/1/1994	10:12	30	29.8	0.20
6	3/1/1994	10:15	35	33.4	1.60
7	3/1/1994	10:18	29	26.4	2.60
8	3/1/1994	10:21	29	26.7	2.30
9	3/1/1994	10:24	27	27.5	-0.50
10	3/1/1994	10:27	34	30.7	3.30
11	3/1/1994	10:30	28	29	-1.00
12	3/1/1994	10:34	32	32.7	-0.70
Arithmetic Mean , d bar			29.33		0.658
Standard Deviation , Sd					1.634
Confidence Coefficient, CC					1.038
Relative Accuracy, RA					5.784

TTL, Inc. PRACTICING IN THE GEOSCIENCES

3516 Greensboro Avenue • P.O. Drawer 1128 • Tuscaloosa, Alabama 35403 • Telephone 205-345-0816 • FAX 205-345-0992

Performance Specification 4 Evaluation

Client: Sunbelt Resources, Inc.

Site: Port St. Joe, Florida

Permit No.: AC37-216863

Set No. 3

				Carbon Monoxide	
			Reference	CEMS	
Run No.	Date	Time	Monitor	Monitor	Difference
1	3/1/1994	10:40	30	32.6	-2.60
2	3/1/1994	10:43	34	34.8	-0.80
3	3/1/1994	10:46	35	32.6	2.40
4	3/1/1994	10:58	29	33.3	-4.30
5	3/1/1994	11:01	29	34.8	-5.80
6	3/1/1994	11:07	37	37.8	-0.80
7	3/1/1994	11:10	32	30.1	1.90
8	3/1/1994	11:13	30	30.2	-0.20
9	3/1/1994	11:16	32	33.4	-1.40
10	3/1/1994	11:19	29	28.3	0.70
11	3/1/1994	11:22	30	31.2	-1.20
12	3/1/1994	11:25	31	29.5	1.50
Arithmetic Mean , d bar			31.50		-0.883
Standard Deviation , Sd					2.352
Confidence Coefficient, CC					1.494
Relative Accuracy, RA					7.547

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE IL 60067-0201

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 9294-71500
Scott Project # 555443

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure # G1, Section Number 3.0.4

Cylinder Number ALM016412
Cylinder Pressure 1900 psig
Certification Date 9-14-93
Previous Certification Dates None
General Exp. Date 9-14-96
Acid Rain Exp. Date 9-14-96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	151.6 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen
*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 2636	3-18-95	ALM013383	243.4 PPM CO IN N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
HORIBA /144E/560172153	8-20-93	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis
Date: 9-7-93 Response Units: mv
Z1=0.00 R1=110.1 T1=69.20
R2=110.1 Z2=0.00 T2=69.20
Z3=0.00 T3=69.20 R3=110.1
Avg. Conc. of Cust. Cyl. 151.7 ppm

Second Triad Analysis
Date: 9-14-93 Response Units: mv
Z1=0.00 R1=110.3 T1=69.20
R2=110.3 Z2=0.00 T2=69.20
Z3=0.00 T3=69.20 R3=110.3
Avg. Conc. of Cust. Cyl. 151.4 ppm

Calibration Curve
Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$
r=0.99999 CRM 2636
Constants: A=-0.09963078
B=2.11946 C=0.001464788
D=-0.000005701 E=0

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

Special Notes
If this product is used for Acid Rain Rule Compliance, the *Acid Rain Expiration Date* noted above applies per 40 CFR Part 75, Appendix H. Otherwise, the *General Expiration Date* applies.

Analyst Frank P. Doran

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE IL 60067-0201

Assay Laboratory
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1290 Combermere
Troy, MI 48083

Purchase Order 9294-71500
Scott Project # 555443

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure # G1, Section Number 3.0.4

Cylinder Number ALM023172
Cylinder Pressure 1900 psig

Certification Date 9-15-93
Previous Certification Dates None

General Exp. Date 9-15-96
Acid Rain Exp. Date 9-15-96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	85.50 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1679	12-20-94	ALM008559	96.67 ppm CO in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO: Beckman/867/0100157	8-23-93	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 9-7-93 Response Units: mv

Z1=0.00	R1=96.80	T1=85.90
R2=96.80	Z2=0.00	T2=85.90
Z3=0.00	T3=85.90	R3=96.80

Avg. Conc. of Cust. Cyl. 85.50 ppm

Second Triad Analysis

Date: 9-15-93 Response Units: mv

Z1=0.00	R1=96.80	T1=85.90
R2=96.80	Z2=0.00	T2=85.90
Z3=0.00	T3=85.90	R3=96.80

Avg. Conc. of Cust. Cyl. 85.50 ppm

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=0.99999	CRM 1679
Constants:	A=0.3465483
B=0.9339077	C=0.00095399
D=-0.000003327	E=0

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

Special Notes
If this product is used for Acid Rain Rule Compliance, the *Acid Rain Expiration Date* noted above applies per 40 CFR Part 75, Appendix H. Otherwise, the *General Expiration Date* applies.

Analyst Frank P. Doran

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
CAE INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL, 60067-5000

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 10084-71500
Scott Project # 559264

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number AAL3503
Cylinder Pressure 1900 psig
Certification Date 12-14-96
Previous Certification Dates None
Expiration Date 12-14-96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	44.98 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1679A	6-22-97	ALM024840	96.21 PPM CO IN N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO: Beckman/867/0100157	11-10-93	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components

Carbon Monoxide

First Triad Analysis

Date: 12-6-93 Response Units: mv

Z1=0.00	R1=96.40	T1=46.00
R2=96.40	Z2=0.00	T2=46.00
Z3=0.00	T3=46.00	R3=96.40

Avg. Conc. of Cust. Cyl. 44.98 ppm

Second Triad Analysis

Date: 12-14-96 Response Units: mv

Z1=0.00	R1=96.40	T1=46.00
R2=96.40	Z2=0.00	T2=46.00
Z3=0.00	T3=46.00	R3=96.40

Avg. Conc. of Cust. Cyl. 44.98 ppm

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=0.99999	CRM 1679A
Constants:	A=0.3465483
B=0.9339077	C=0.00095399
D=-0.000003327	E=0

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

Special Notes

Tim Sanderson

Analyst Tim Sanderson

TTL, Inc. PRACTICING IN THE GEOSCIENCES

3516 Greensboro Avenue • P.O. Drawer 1128 • Tuscaloosa, Alabama 35403 • Telephone 205-345-0816 • FAX 205-345-0992

Run No.	Date	Time	Carbon Monoxide		
			Reference Monitor ppm as CO	Monitor ppm as CO	Difference
1	3/1	9:17	25	26.8	
2	3/1	9:19	29	30.2	
3	3/1	9:22	36	37.6	
4	3/1	9:25	32	33.7	
5	3/1	9:30	24	23.4	
6	3/1	9:35	26	28.4	
7	3/1	9:38	21	22.6	
8	3/1	9:41	23	23.4	
9	3/1	9:44	24	23.8	
10	3/1	9:47	27	26.8	
11	3/1	9:50	26	25.8	
12	3/1	9:53	25	23.4	
Average					
Confidence Interval					
Accuracy					

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Run No.	Date	Time	Carbon Monoxide		
			Reference Monitor ppm as CO	Monitor ppm as CO	Difference
1	3/1	10:00	26	26.9	
2	3/1	10:03	27	26.6	
3	3/1	10:06	24	25.8	
4	3/1	10:09	31	28.6	
5	3/1	10:12	30	29.8	
6	3/1	10:15	35	33.4	
7	3/1	10:18	29	26.9	
8	3/1	10:21	29	26.7	
9	3/1	10:24	27	22.6	
10	3/1	10:27	34	30.7	
11	3/1	10:30	28	29.0	
12	3/1	10:34	32	32.7	
Average					
Confidence Interval					
Accuracy					

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Run No.	Date	Time	Carbon Monoxide		
			Reference Monitor ppm as CO	Monitor ppm as CO	Difference
1	3/1	10:40	30	32.6	
2	3/1	10:43	34	34.8	
3	3/1	10:46	35	32.6	
4	3/1	10:58	29	33.3	
5	3/1	11:01	29	34.8	
6	3/1	11:07	37	37.8	
7	3/1	11:10	32	30.1	
8	3/1	11:13	30	30.2	
9	3/1	11:16	32	33.4	
10	3/1	11:19	29	28.3	
11	3/1	11:22	30	31.2	
12	3/1	11:25	31	29.5	
Average					
Confidence Interval					
Accuracy					

System shut down

Carbon ~~Monoxide~~ Monoxide Reading

3-10-91 C.O.

10:20 Am 13 PPm

10:30 Am 15 PPm

10:40 Am 8 PPm

10:50 Am 16 PPm

11:00 Am 12 PPm

11:10 Am 9 PPm

11:20 Am 13 PPm

11:30 Am 17 PPm

11:40 Am 11 PPm

11:50 Am 9 PPm

3:10 Pm

3:20 Pm

3:30 Pm

METER CALIBRATIONS AND LAB DATA

POST-METER CALIBRATION
Sunbelt - Port St. Joe

Date 3-14-94 Box No. 80469
Pbar 29.91 In. H2O Calibrated By GLL

Orifice Manometer Setting D H (In. H2O)	D WTM (In. H2O)	Gas Volume WET TEST METER Initial	Gas Volume WET TEST METER Final	Gas Volume Dry Gas Meter Initial	Gas Volume Dry Gas Meter Final	Temperature Wet Test Meter Initial	Temperature Wet Test Meter Final	Temperature Dry Gas Meter Initial Inlet	Temperature Dry Gas Meter Initial Outlet	Temperature Dry Gas Meter Final Inlet	Temperature Dry Gas Meter Final Outlet	Y
1.47	0.1	0.0000	9.505	908.937	918.538	67.5	67.0	82	81	88	82	1.01612
1.47	0.1	0.0000	9.482	918.538	928.145	67.0	67.0	85	82	91	86	1.01864
1.47	0.1	0.0000	9.457	928.145	937.760	67.0	67.0	90	84	91	84	1.01743

1.01739

Pump must be operated for at least 15 minutes at each D H setting (.5, 1, 1.5, 2 and 3).

Tdgm = Average temperature of dry gas meter (inlet and outlet) + 460 F

Twtm = Average temperature of wet test meter + 460 F

$$Pwtm = Pb - \frac{d\ wtm}{13.6}$$

$$Pdgm = Pb + \frac{d\ H}{13.6}$$

d wtm= negative pressure on wet test meter in inches of H2O

Calculations

$$Y = \frac{(\text{wet final} - \text{wet initial})\ (Tdgm)\ (Pwtm)}{(\text{dry final} - \text{dry initial})\ (Twtm)\ (Pdgm)}$$

Average MCF = 1.00 + .02 = 1.01740

CALIBRATION FORM A

All sampling temperature measurements were made using the following Thermocouple system:

The functional block diagram for the Model 650/660 Series is shown in Figure 3.4. The microprocessor automatically compensates for all offset errors, gain errors, cold junction compensation and performs thermocouple linearization. Along to digital conversion, display and the ASCII digital output are also under microprocessor control.

There are six sections in the Model 650/660 Series Thermocouple Meter:

1. Input Signal Conditioning and Self Calibration
2. Analog-to-Digital Conversion
3. Display
4. ASCII Digital Output
5. Analog Output (optional)
6. Power Supply

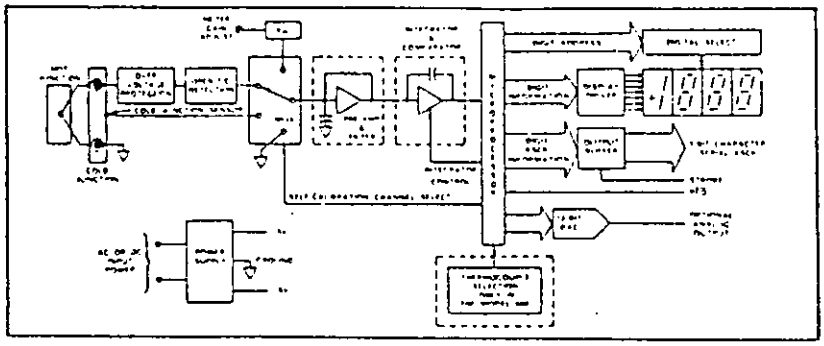

Figure 3.4. Block Diagram

Post Test	Run 1	Run 2	Run 3
Train Leak Rate	0.003	0.003	0.003
Pre Test (Answer Yes or No)			
Pitot Leak Check	yes	yes	yes
Orsat Leak Check	No	No	No
Metering System Leak Check	yes		
Barometer Calibrated	yes		
Sample Bag Leak (If used)	yes		

Signature [signature] Title Team Leader Date 3-11-94

Calibration data for dry gas meter, orifice, nozzle, pitot, and differential pressure gauge (if other than manometer) must be available for inspection at the time of the test and must be included in the stack test report.

Laboratory Data Sheet

Plant: Sunbelt Resources, Port St. Joe Florida

Date: 3-10-94

Run No.: 1

Stack No.: _____

Filter No.: A-9

Container Number	Final Weight, g	Tare Weight, g	Weight Gain, mg
A9	0.4144	0.4092	5.2
#2	101.2396	101.2201	19.5
	Weight of Particulate Matter, mg		24.7

Volume/Mass of Water Collected

	Liquid Impinger Volume, ml	Mass Silica Gel Weight, g
Final	339.0 ~~339.8~~	327.8
Initial	200.0	314.8
Amount Collected	139.0 ~~139.8~~	13.0
Total, g	152.0	

Laboratory Data Sheet

Plant: Sunbelt Resources Port St. Joe, Florida

Date: 3-10-94

Run No.: 2

Stack No.: _____

Filter No.: A-10

Container Number	Final Weight, g	Tare Weight, g	Weight Gain, mg
A-10	0.4190	0.4164	2.6
#1	97.7432	97.7124	30.8
	Weight of Particulate Matter, mg		33.4

Volume/Mass of Water Collected

	Liquid Impinger Volume, ml		Mass Silica Gel Weight, g
Final	335		313.9
Initial	200		301.1
Amount Collected	135		12.8
Total, g		147.8	

Laboratory Data Sheet

Plant: Sunbelt Resources

Date: 3-10-84

Run No.: 3

Stack No.:

Filter No.: A-11

Container Number	Final Weight, g	Tare Weight, g	Weight Gain, mg
A-11	0.4247	0.4192	5.5
6	99.8430	99.8208	22.2
	Weight of Particulate Matter, mg		27.7

Volume/Mass of Water Collected

	Liquid Impinger Volume, ml		Mass Silica Gel Weight, g
Final	345		327.8
Initial	200		316.3
Amount Collected	145		11.5
Total, g		156.5	

SAMPLE CHAIN OF CUSTODY

Plant Sunbelt Resources Port St. Joe, Florida

Date Sampled 3-10-94 Test Number 1

Run Number(s) 1, 2, 3

Sample Recovery

Container Code	Description
#2 Glass Bottle	Probe Wash
#6 "	" "
#1 "	" "
A-9 Petri Dish	Filters
A-10 "	"
A-11 "	"

Person Engaged in Sample Recovery

Signature Lee Lindley

Title Technician

Location at which Recovery was done Job-Site

Date and time of Recovery 3-10-94

Sample(s) Recipient, Upon Recovery if not Recovery Person

Signature Harry C. Russ

Title Team Leader

Date and Time of Receipt 3-10-94

Sample Storage Sample Box

Laboratory Person Receiving Sample

Signature Harry C. Russ

Title Team Leader

Date and Time of Receipt 3-10-94

Sample Storage Sample Box

Analysis

Container Code	Method of Analysis	Date and Time of Analysis	Signature of Analyst
#2	Gravimetric	3-11-94	Harry C. Russ
#6	"	"	"
#1	"	"	"
A-9	"	"	"
A-10	"	"	"
A-11	"	"	"