



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF PERMIT

Mr. James K. Poucher, President
CleanSoils, Inc.
14120 23rd Avenue North
Minneapolis, Minnesota 55447


January 31, 1990

Enclosed is construction permit No. AC 48-166670 for CleanSoils, Inc. to construct a portable soil remediation unit for operation in most of the northern half of Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any party to this 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 permit 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

Copy furnished to:

Gordon Dean, BWC
District Air Program Directors
County Program Air Sections
David Brashears, P.E.
Bruce Miller, EPA

P 938 762 828

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. James K. Poucher, Clean-	
Street and No. Soils 14120 23rd Avenue North	
P.O., State and ZIP Code Minneapolis, MN 55447	
Postage	S
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	S
Postmark or Date Mailed: 2-5-90 Permit: AC 48-166670	

PS Form 3800, June 1985

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. James K. Poucher, President CleanSoils, Inc. 14120 23rd Avenue North Minneapolis, Minnesota 55447	4. Article Number P 938 762 828
5. Signature - Address X <i>David H. [Signature]</i>	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X <i>David H. [Signature]</i> 14120 23rd Ave N Plymouth, MN	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery	8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1988

* U.S.G.P.O. 1988-212-865

DOMESTIC RETURN RECEIPT

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 2-5-90.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to
§120.52(9), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.

David Baker
Clerk

2-5-90
Date

Final Determination

**CleanSoils, Inc.
Minneapolis, Minnesota**

**60 TPH Soil Remediation Unit
North Florida Operation**

Permit Number: AC 48-166670

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

January 26, 1990

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to construct a portable 60 TPH soil decontamination unit to be operated throughout Florida was distributed on October 11, 1989. Copies of the evaluation were available for public inspection at all approved local programs, all Department District offices, and the Bureau of Air Regulation.

The Notice of Proposed Agency Action for this permit was published on December 13, 1989, in the Tampa Tribune, the Pensacola News Journal, the Florida Times-Union, and the Tallahassee Democrat. As these four papers do not have statewide distribution, the operation of this unit will be restricted to the following counties: Alachua, Baker, Bay, Bradford, Calhoun, Citrus, Clay, Columbia, De Soto, Dixie, Duval, Escambia, Franklin, Gadsden, Gulf, Hamilton, Hardee, Hernando, Highlands, Hillsborough, Jackson, Jefferson, Lafayette, Leon, Levy, Liberty, Madison, Manatee, Marion, Nassau, Orange, Osceola, Pasco, Pinellas, Polk, Putnam, Santa Rosa, Sarasota, St. Johns, Sumter, Suwannee, Taylor, Union, Volusia, Wakulla, and Walton.

The unit cannot be operated in other counties until the public notice requirements of F.A.C. Rule 17-2.220 are met.

During a phone conversation on October 27, 1989, Stuart Perry of the U.S. Environmental Protection Agency requested the applicable comments in their October 20, 1989, letter concerning Environmental Technology Southeast be applied to and addressed in the final determination for CleanSoils, Inc.

Their applicable comments and the Department's responses are discussed below.

1. The proposed permit allowed soils containing used oil with up to 4,000 ppm halogens to be treated in the soil decontamination unit. The EPA noted that the regulations published in the November 29, 1985, Federal Register required testing to confirm that a hazardous waste had not been mixed with any used oil containing more than 1,000 ppm halogens. The Department agrees with the EPA and has added this requirement to Specific Condition No. 7 of the permit.

2. The permit did not specify the number of test runs, duration of the tests, or the minimum sample volume to be used for the compliance tests. The EPA recommended that these specifications be included in the specific conditions of the permit. These specifications are addressed in F.A.C. Rule 17-2.700. The Department has noted in Specific Condition No. 16 that all tests must meet the requirements of F.A.C. Rule 17-2.700.

3. The proposed permit required the benzene and VOC emissions to be measured by EPA Test Method 25. The EPA noted that Method 18 was the appropriate test method to measure benzene. The Department agrees and has changed Specific Condition No. 9 to allow the use of EPA Method 18 to measure the benzene emissions from the unit.

4. The proposed permit requires the applicant to monitor the pressure drop across the baghouse and the temperature of the afterburner during compliance tests. The EPA recommends that air pollution control equipment parameters be recorded continuously by calibrated instruments when the unit is in operation. The Department has revised Specific Condition No. 19 to require continuous recording of the pressure drop across the baghouse and the temperature of the afterburner by calibrated instruments during operation.

In a letter dated December 27, 1989, the applicant asked that the permit be changed to allow the use of natural gas and propane as fuels in other parts of the system. Natural gas and propane was listed as acceptable fuels in Specific Condition No. 2.

The Bureau also revised Specific Condition No. 24 to make the relocation notice consistent with other permits issued for similar sources.

The final action of the Department will be to issue the construction permit as proposed in the Technical Evaluation and Preliminary Determination with the changes discussed above.



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

PERMITTEE:
CleanSoils Inc.
14120 23rd Avenue N.
Minneapolis, MN 55447

Permit Numbers: AC 48-166670
Expiration Date: July 15, 1990
County: Statewide Operation
Project: 60 TPH Portable Rotary
Kiln/Afterburner System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), 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 60 TPH portable rotary kiln/afterburner system. The unit consists of a hopper/screen feed system, a rotary kiln (5'4" diameter x 20' long), knock-out box (400 ft³), quench chamber, Gencor baghouse (2260 ft² of filter area), ID fan (11,500 ACFM), afterburner (6' diameter x 34' Ht.), conveyors, and fuel systems (No. 2 fuel oil, propane, and natural gas).

The unit may operate in the following counties: Alachua, Baker, Bay, Bradford, Calhoun, Citrus, Clay, Columbia, De Soto, Dixie, Duval, Escambia, Franklin, Gadsden, Gulf, Hamilton, Hardee, Hernando, Highlands, Hillsborough, Jackson, Jefferson, Lafayette, Leon, Levy, Liberty, Madison, Manatee, Marion, Nassau, Orange, Osceola, Pasco, Pinellas, Polk, Putnam, Santa Rosa, Sarasota, St. Johns, Sumter, Suwannee, Taylor, Union, Volusia, Wakulla, and Walton.

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 on June 26, 1989.
2. DER letter dated July 13, 1989.
3. Prottox letter dated August 21, 1989.
4. EPA letter dated October 20, 1989.
5. CleanSoils, Inc. letter dated December 27, 1989.

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

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:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

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:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

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 proscribed 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 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.

PERMITTEE:
CleanSoils Inc.

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GENERAL CONDITIONS:

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:

1. The permittee shall furnish the available information listed in Specific Condition No. 24 prior to operating the portable rotary kiln/afterburner system at its initial site. This permit requires compliance with any applicable local (county) regulations.

2. Only No. 2 fuel oil containing a maximum of 0.5% sulfur, natural gas, and propane shall be used as fuel for this unit. Maximum permitted fuel consumption is 22.1 MMBtu/hr for the kiln and 11.0 MMBtu/hr for the afterburner.

3. This unit shall be allowed to operate 8 hours per day, 5 days per week, 20 weeks/yr or 800 hrs/year. The permittee shall maintain a log that shows the unit's operation time during the preceeding 12 months. All required records must be available for inspection at the job site for the unit within 3 working days of a request by the Department.

4. Quench chamber water shall not be discharged to the waters of Florida.

5. Maximum soil charging rate to the unit shall not exceed 60 TPH. The permittee shall have means to determine the feed or production rate on site.

PERMITTEE:
CleanSoils Inc.

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Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

6. Only soils contaminated with virgin (non-recycled) petroleum products and "on-spec" used oil (see Specific Condition No. 7) shall be treated in this unit unless otherwise approved by the Local or District Air Program Administrator. The portable rotary kiln/afterburner system shall neither be used to thermally process materials that are listed in 40 CFR 261.31, 261.32, 261.33 (revised as of July 1, 1988) nor materials that have the hazardous characteristics of corrosivity, reactivity, EP toxicity, and ignitability. Prior to the acceptance of contaminated materials for processing, the permittee shall provide the Department with reasonable assurance that the soil is contaminated with only virgin petroleum products, i.e., certification from the generator that the material is not classified as a hazardous waste pursuant to the federal regulations cited in this specific condition. To obtain approval to treat soils contaminated with other materials, the permittee shall submit soil analysis results and calculations to the Local or District Air Program Administrator which show the impact of the emissions will not exceed the acceptable ambient air concentration (AAC) or violate any permit condition or regulation.

7. The following constituents of the "on-spec" petroleum products that contaminated the soil shall not be exceeded:

<u>Constituent</u>	<u>Allowable Level (max. ppm in oil)</u>
Arsenic	5
Cadmium	2
Chromium	10
Lead	100
<u>Total Halogens</u>	<u>4000*</u>

To demonstrate compliance with Specific Condition No. 7, the petroleum product(s) responsible for contamination of the soil shall be tested for the listed contaminants. Test results shall be sent to the appropriate Department district office and approved local program at least 15 days prior to any soil remediation. This test may be waived by regulatory agencies if the owner or operator of the site can demonstrate that only virgin petroleum products are responsible for contamination of the site.

* If the petroleum product contains more than 1,000 ppm total halogens, the permittee must demonstrate that the product does not contain any halogenated hazardous waste listed in 40 CFR 261, Subpart D, prior to treating the soil.

PERMITTEE:
CleanSoils Inc.

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SPECIFIC CONDITIONS:

8. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient air impact of any toxic pollutant, as determined by the PTPLU 6 model or other DARM approved models, shall not exceed the concentration calculated by the following formula:

$$AAC = \frac{40}{X} \cdot \frac{1}{\text{safety factor}} \quad (\text{OEL})$$

where,

AAC = acceptable ambient concentration

Safety Factor = 100 for category A substances and
50 for category B substances

X = 40 or the hours/week or actual operation,
whichever is larger

OEL - Occupational exposure level such as ACGIH, OSHA,
and NIOSH published standards for toxic materials.

(TWA-TLV) is the threshold limit value (8 hrs/day,
40 hrs/wk) maximum exposure concentration considered
safe for workers by the ACGIH.

Data in the application shows that, for continuous
operation, an emission of 1 gram/sec will have a maximum
ambient impact of 0.01 mg/m³ (8 hr. avg).

$$\text{Maximum Allowable Emissions (g/sec)} = \frac{AAC \text{ mg/m}^3}{0.01}$$

9. Benzene emissions shall not exceed 5.6 lbs/hr. Total VOC emissions shall not exceed 36 lbs/hr. Compliance shall be determined from soil analysis, production rate, and the afterburner destruction efficiency which shall be established by a Method 18, 25, or 25A test (40 CFR 60, Appendix A, revised as of July 1, 1988) or other test method as approved by the Department.

10. Sampling and analysis of the contaminated soil at each site, based on the procedures prescribed in SW-846, shall be conducted prior to remediation. Minimum number of composite samples for

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

analysis for benzene and volatile organic compounds (VOC) at each site prior to remediation shall be as follows:

<u>Soil Quantity (yards³)</u>	<u>No. of Composite Samples</u>
Less than 100	1
100 to 500	3
500 to 1000	5
Over 1000	9

The degree of treatment of the soil and its disposal must comply with the Bureau of Waste Cleanup policy. Presently, this requires that the soil exiting the dryer be sampled on an hourly basis during operation and an analysis of a daily composite sample made up of the hourly samples shall be performed for benzene, toluene, ethyl benzene, and xylene concentration using EPA Method 5030/8020, and total recoverable petroleum hydrocarbon concentration using EPA Method 418.1. Records shall be kept on the date, time, and number of samples taken for each composite sample. Test results shall be sent to the appropriate Department district office and approved local air program within 15 working days of such testing. All soil samples taken at the remediation site and exiting the soil dryer shall be stored in a sealed glass container immediately upon sampling. Disposal of the treated soil must comply with the Bureau of Waste Cleanup policy on remedial action at petroleum contaminated sites.

11. Any analysis required by Specific Condition No. 10 which indicates a potential violation of any condition in this permit shall be reported as soon as feasible to the appropriate Department's District Air Program Administrator and DER approved local air program. An average concentration of benzene above 783 ppm in the soil or total hydrocarbons above 5,000 ppm indicate a violation of this permit. The soil may be decontaminated provided no condition of this permit is violated. This can be accomplished by operating at less than the 60 TPH production rate, or other means with prior approval of the Department. The permittee must propose the method of compliance with this permit.

12. The operation of this source shall not result in the emissions of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-2.600(c)2.

PERMITTEE:
CleanSoils Inc.

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SPECIFIC CONDITIONS:

13. Reasonable precautions shall be used to minimize unconfined emissions of particulate matter generated by this operation (F.A.C. Rule 17-2.610(3)). This includes hauling the soil in covered trucks and keeping the work areas wet where the soil is being removed and treated.

14. The stack sampling facilities must comply with F.A.C. Rule 17-2.700(4).

15. Particulate matter emissions from this process shall neither exceed 0.08 grains/dscf corrected to 50% excess air nor 3.0 lbs/hr. Visible emissions from any part of the process shall not exceed 5% opacity. The exhaust stack for this process must be tested concurrently for particulate matter and visible emissions by EPA Methods 5 and 9 pursuant to 40 CFR 60, Appendix A, revised as of July 1, 1988, within 5 days after placing the unit in commercial operation under this permit and annually thereafter. Operation at each subsequent site requires an EPA Method 9 test to be performed within 3 days of placing the unit in service.

16. This source must be tested at the maximum process weight rate at which the permittee intends to operate. All compliance tests shall meet the requirements listed in F.A.C. Rule 17-2.700. Operation at rates that are more than 10 percent above the tested rate will require the Department to be notified and, within 15 days, the source must be tested for compliance at this higher rate by appropriate test methods. The unit shall not operate above the maximum permitted rate of 60 TPH.

17. When the Department, after investigation, has good reason (such as complaints, increased visible emissions, or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Chapter 17-2, F.A.C., or in this permit is being violated, it may require the owner or operator of the source to conduct compliance tests which identify the nature and quantity of pollutant emissions from the source and to provide a report on the results of said tests to the Department.

18. The appropriate Department district office and, if applicable, the Department approved local air program office, shall be notified in writing at least 15 days in advance of any compliance test to be conducted on this source.

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SPECIFIC CONDITIONS:

19. Pressure drop across the baghouse and temperature of the afterburner shall be recorded continuously during operations. The instruments used to obtain these measurements shall be properly calibrated, maintained, and in operation any time the unit is in service.

20. There shall be no discharge of liquid effluent or contaminated runoff to surface or ground water without prior approval from the Department. Untreated soil removed from the ground shall be stored under waterproof covers and on an impermeable surface.

21. The system shall be properly operated and maintained (F.A.C. Rule 17-2.210(2)). No person shall circumvent any pollution control device or allow the emissions of air pollutants without the applicable air pollution control device operating properly (F.A.C. Rule 17-2.240).

22. All required test reports, except stack tests for PM and VOC, shall be filed with the Department as soon as practical but no later than 15 working days after the last sampling run of each test is completed (F.A.C. Rule 17-2.700 (7)(a), (b) and (c)). Stack test results from PM and VOC shall be submitted within 45 days of the test.

23. The construction shall reasonably conform to the plans and schedule submitted in the application.

24. This unit shall not be operated at any other site until the applicant has requested authorization at the new site. Whenever feasible, the request shall be at least 15 days prior to operation at the new site. The permittee shall notify the Air Program Administrator in the appropriate Department District office and approved local air program that the unit is being relocated. This notification shall provide the permit number of the unit, a copy of the last stack test report, the date of the proposed move, the new site for the unit, and the locations and contamination levels of the soils to be treated. The District shall notify the permittee of any new conditions the unit must meet within 15 days of the receipt of the relocation notice.

Best Available Copy

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
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SPECIFIC CONDITIONS:

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

26. An application for an operation permit must be submitted to the District office where the initial compliance tests were conducted and the Bureau of Air Regulation office 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 (F.A.C. Rule 17-4.220).

Issued this 15 day
of July, 1990

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION**



Dale Twachtmann, Secretary



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: Dale Twachtmann

FROM: Steve Smallwood *St Smallwood*

DATE: January 26, 1990

SUBJ: Approval of Construction Permit No. AC 48-166670
CleanSoils, Inc.

Attached for your approval and signature is a construction permit prepared by the Bureau of Air Regulation for the above mentioned company to construct a portable 60 TPH soil remediation unit for operation in most of the northern half of Florida.

Comments on this source were received from EPA and the applicant during the public notice period. The comments were incorporated into the referenced construction permit.

Day 90, after which this permit will be issued by default, is March 1, 1990.

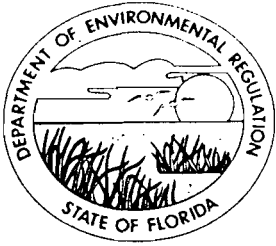
I recommend your approval and signature.

SS/WH/plm

Attachments

RECEIVED
JAN 29 1990

Office of the Secretary



Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

February 10, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John Elford, General Manager
Soil Solutions
P. O. Box 26104
Winston-Salem, NC 27114

Dear Mr. Elford:

Re: Permit Exemption Request for the CleanSoil Process

The Department has reviewed your January 10, 1993, letter requesting that the soil treating unit referred to as the CleanSoil Process be exempted from the permitting requirements of Florida (Chapter 17-4, F.A.C.). As we understand the process, the unit uses steam to vaporize petroleum products from contaminated soil and condenses, or captures, the petroleum products in activated carbon. The activated carbon is regenerated by back flushing with steam from a boiler. The steam or condensate is then passed through oilphillic filters which trap the petroleum product. The oilphillic filters are disposed of in a RCRA permitted facility. Water is recycled; resulting in no discharge.

Our findings are:

1. Treatment of soil by the CleanSoil Process will emit air pollutants. Air pollution emitted during the treatment of contaminated soil is regulated in Florida.
2. The boiler in the CleanSoil Process is a source of air pollution because it burns a fossil fuel.
3. The atmospheric vent for the activated carbon adsorption unit has the potential to emit air pollutants.
4. The treatment of contaminated soil is also regulated by Chapter 17-775, F.A.C., which will require the operator to obtain a general permit from the Bureau of Waste Cleanup.
5. The disposal of contaminated filters are subject to other Department regulations.

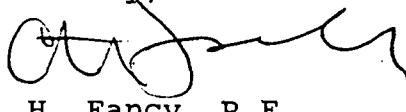
Mr. John Elford
Permit Exemption Request
Page 2

6. Soil thermal treatment processes, a similar operation, are required to be permitted in Florida.

The Department has concluded that the CleanSoil Process will require an air permit prior to operating in Florida. Any permits issued by Florida will require compliance with the applicable restrictions in the Department's regulations. Any air permit issued for this process will require monitoring of the atmospheric vent from the activated carbon adsorption unit to assure no breakthrough of hydrocarbons has occurred. Also, the sulfur content of the No. 2 fuel oil used in the boiler will be limited.

For your convenience, we are enclosing an application for an air permit to construct an air pollution source, a map showing the District offices, and a permit fee schedule. If you wish to operate at a specific site, you should contact the air engineer in the District office having jurisdiction over the site. If you want to operate at several sites in different Districts, please contact the Bureau of Air Regulation office at (904) 488-1344 for guidance. Any questions on general air permitting requirements should be directed to Mr. Preston Lewis of the Bureau of Air Regulation. You should also contact the Bureau of Waste Cleanup at (904) 488-0190 for their requirement on the treatment of contaminated soil.

Sincerely,



C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/WH/plm

Attach: Application
Map
Fee Schedule
Chapter 17-775, F.A.C.
Air Regulations

cc: Tom Conrardy, BWC w/ Soil Solutions' Jan. 10, 1993, letter

P 062 921 967



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	John Elford	
Street and No.	Soil Solutions	
P.O. State and ZIP Code	Winston Salem, NC	
Postage		\$
Certified Fee		
Special Delivery Fee		
Restricted Delivery Fee		
Return Receipt Showing to Whom & Date Delivered		
Return Receipt Showing to Whom, Date, and Addressee's Address		
TOTAL Postage & Fees		\$
Postmark or Date	2-10-93	

PS Form 3800, June 1991

SENDER:

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

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

1. Addressee's Address
2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: John Elford, Gen. Mgr. Soil Solutions PO BOX 26104 Winston-Salem, NC 27114	4a. Article Number P062 921 967
5. Signature (Addressee)	4b. Service Type <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature (Agent) [Signature]	7. Date of Delivery
	8. Addressee's Address (Only if requested and fee is paid)



Check Sheet

Company Name: *Clean Soils*
Permit Number: *AC 48-166670*
PSD Number:
County: *Staten Island*
Permit Engineer:
Others involved:

Application:

- Initial Application
- Incompleteness Letters
- Responses
- Final Application (if applicable)
- Waiver of Department Action
- Department Response

Intent:

- Intent to Issue
- Notice to Public
- Technical Evaluation
- BACT Determination
- Unsigned Permit

Attachments:

-
-
-
- Correspondence with:
 - EPA
 - Park Services
 - County
 - Other

- Proof of Publication
- Petitions - (Related to extensions, hearings, etc.)

Final Determination:

- Final Determination
- Signed Permit
- BACT Determination

Post Permit Correspondence:

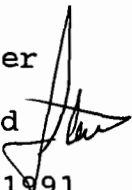
- Extensions
- Amendments/Modifications
- Response from EPA
- Response from County
- Response from Park Services



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum


TO: Carol M. Browner
FROM: Steve Smallwood 
DATE: September 18, 1991
SUBJ: Amendment of Permit
Clean Soils, Inc.

Attached for your approval and signature is a letter that will extend the expiration date of a construction permit for a mobile soil remediation unit. The extension is needed because the permittee has not obtained acceptable compliance test data from a site in Florida for this unit. *

I recommend your approval and signature.

SS/WH/plm

Attachment

* See the attached letter from Robert Wills for an explanation. 



Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 18, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert A. Wills, Ph.D.
Vice President, Engineering
Clean Soils, Inc.
84 2nd Avenue S.E.
New Brighton, MN 55112

Dear Mr. Wills:

Re: AC 48-166670, Mobile Soil Remediation Unit

The Department is in receipt of your August 14, 1991, letter requesting another extension to the expiration date of the permit referenced above. This extension was requested because Clean Soils, Inc. does not have acceptable compliance test data for this unit from a site in Florida. This request is acceptable and the expiration date of permit No. AC 48-166670 is extended from September 15, 1991, to March 15, 1992. Because of recent revisions to Florida regulations, a processing fee may be required for any future amendments of this permit.

A copy of this letter must be attached to the referenced construction permit and shall become a part of the permit.

Sincerely,

Carol M. Browner
Secretary

CMB/WH/plm

Attach: Clean Soils' August 14, 1991, letter



CleanSoils Inc. 84 2nd Avenue S.E., New Brighton, MN 55112 • (612) 639-8811 • FAX (612) 639-8813

August 14, 1991

RECEIVED
AUG 19 1991
Division of Air
Resources Management
Resource Management

Mr. C. F. Fancy
Bureau of Air Quality Management
Florida DER
2600 Blackstone Road
Tallahassee, FL 32399-2400

Re: AC 48-166670

Dear Mr. Fancy:

I would like to request a six (6) month extension of our construction permit. This would move the date of expiration from September 15, 1991 to March 15, 1991.

We have performed a remediation in Florida this year with an associated stack test. However, in conversation with Willard Hanks he said the results were too borderline to issue an operating permit and that we needed to retest. We have since adjusted our unit and retested it in Minnesota with results that would be acceptable by Florida regulations. Since then we have had difficulty in securing a job in Florida due to competition with local soil remediators. We feel we have secured (or are very close to securing) a job in northern Florida. I would expect the performance to occur in October, which would be after our permit expired, however, often projects become delayed and therefore I am requesting the six month period.

If you have any questions or need further clarification, please do not hesitate to call. Our toll-free number is 1-800-279-7645.

Sincerely,

Robert A. Wills, Ph.D.
Vice President, Engineering

RAW:dkd

cc: *A. Hanks*

CleanSoils
84 2nd Ave. S.E., New Brighton, MN 55112



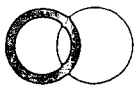
Mr. C.F. Fancy
Bureau of Air Quality Management
Florida DER
2600 Blackstone Road
Tallahassee, FL 32399-2400



4-15-91

Told Bob Wilb DER could not issue an operation permit for this unit based on these results, Cleansoils needs to trouble shoot and re-evaluate the unit. If it can meet Florida's requirements, do a complete retest ^{at} ~~and~~ next job site in Florida.

Willard Hanks



interpoll

April 1, 1991

Mr. Willard Hanks
Bureau of Air Quality Management
F1-DER
2600 Blair Stone Rd.
Twin Towers Office Bldg.
Tallahassee, FL 32301

Dear Mr. Hanks:

Here is the remainder of our stack test results from February 8 and 9, 1991. I apologize for the delay in getting this to you. I received the report the afternoon of March 28 from Interpoll.

I have attached a summary of results and comments with respect to our permit requirements. If you have any questions, please do not hesitate to call. Again our phone number is 1-800-279-7645. My main contact at Interpoll is Kathy Eickstadt. For really technical feedback, I go to Perry Lonnes, Ph.D., President of Interpoll. Their phone number is in the report. I will be submitting our application to "operate" in the near future. I am uncertain of the fee that is needed at that time.

Again, if you have any questions, please do not hesitate to call.

Sincerely,



Robert A. Wills, Ph.D.
Vice President of Engineering

RAW:dkd

cc: report/letter with attachment-
Robert Soich
Hillsborough County, FL
EPA

RECEIVED
APR 4 1991
DER-BAQM

CleanSoils Inc.
(612) 639-8811

Florida Department of Environmental Regulation

	Permit Requirements	Tested 2/8-9/91
Benzene	5.6 lb/Hr	(Max) 0.029 lb/Hr (p. 7)
VOC	36 lb/Hr	11.3 lb/Hr*
Particulate	0.08 gr/dscf @ 50% xs	0.064 gr/dscf (p. 4)
	3.0 lb/Hr	5.4 lb/Hr**
Visible Emissions	<5% opacity	0 (p. 15)

*Memo to AG
PM 2/17/91*

* 213 ppm C (p.4) x 52839 lb/Hr (p A-1) = 11.3 lb/Hr

**On a routine inspection of the baghouse the evening of 2/8/91, dust was found on the exit side of the bags. While no visible emissions were noted on 2/8/91, (Bob Soich of the Hillsborough County EPA was present for all testing 2/8/91) it was determined by Wills that we should replace the bags in the baghouse. This was done between 0800 and 1000 hours 2/9/91. While bags are normally permitted to build a filter layer of dust for two weeks before particulate testing, there were only two hours before testing began. This is the reason for the high values. One can see by the decreases over the days testing that the particulates would level off below the required 3.0 lb/Hrs. Further, we submit stack testing performed the previous year on the same unit. With several months of operation on these bags the average particulate level was 1.8 lb/Hr (see attached).

BEST AVAILABLE COPY

Interpoll Report No. 0-2956
 Clean Soils Inc
 Elm Grove, Wisconsin

Test No. 1
 Rotary Soil Incinerator Stack

Results of Particulate Loading Determinations-----Method 5

	Run 1	Run 2	Run 3
Date of run	02-20-90	02-20-90	02-20-90
Time run start/end.....(HRS)	1050/1214	1250/1415	1450/1611
Static pressure.....(IN.WC)	-0.12	-0.12	-0.12
Cross sectional area (SQ.FT)	32.34	32.34	32.34
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	239.0	252.0	229.0
desiccant.....(GRAMS)	14.0	9.0	6.0
total.....(GRAMS)	253.0	261.0	235.0
Total particulate material..			
.....collected(grams)	0.0570	0.0807	0.0431
Gas meter coefficient.....	0.9972	0.9972	0.9972
Barometric pressure..(IN.HG)	29.79	29.79	29.79
Avg. orif.pres.drop..(IN.WC)	0.73	0.70	0.76
Avg. gas meter temp..(DEG-F)	58.8	59.7	60.3
Volume through gas meter....			
at meter conditions...(CF)	33.74	33.03	34.25
standard conditions.(DSCF)	34.14	33.36	34.56
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.619	.619	.619
Avg.stack gas temp ..(DEG-F)	1430	1371	1349
Volumetric flow rate.....			
actual.....(ACFM)	36796	34856	35197
dry standard.....(DSCFM)	7582	7309	7742
Isokinetic variation.....(%)	96.8	98.2	96.0
Particulate concentration...			
actual.....(GR/ACF)	0.00531	0.00782	0.00423
dry standard.....(GR/DSCF)	0.02576	0.03732	0.01924
Particle mass rate...(LB/HR)	1.67	2.34	1.28

Interpoll Laboratories, Inc.
4500 Ball Road N.E.
Circle Pines, Minnesota 55014-1819

TEL: (612) 786-6020
FAX: (612) 786-7854

RESULTS OF THE FEBRUARY 8 AND 9, 1991
AIR EMISSION PERFORMANCE TEST OF THE
CLEANSOILS INC. PORTABLE CONTAMINATED SOIL
TREATMENT SYSTEM IN TAMPA, FLORIDA

Submitted to:

CLEANSOILS, INC.
84 Second Avenue S.E.
New Brighton, Minnesota 55112

Attention: Bob Wills

Reviewed by:



Daniel J. Despen
Manager
Field Testing Support Group

Report Number 1-3240
March 21, 1991
DD/djd

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3	RESULTS	8
	3.1 Results of Orsat and Moisture Analyses	9
	3.2 Results of Particulate Loading Determinations	12
	3.3 Results of Opacity Observations	14

APPENDICES:

- A - Results of Volumetric Flow Rate Determinations
- B - Location of Test Ports
- C - Field Data Sheets
- D - Interpoll Labs Analytical Data
- E - Process Rate Data
- F - THC Strip Charts
- G - Measurement System Performance Checks
- H - Procedures
- I - Calculation Equations
- J - Sampling Train Calibration Data

ABBREVIATIONS

ACFM	actual cubic feet per minute
cc (ml)	cubic centimeter (milliliter)
DSCFM	standard cubic foot of dry gas per minute
DSML	dry standard milliliter
DEG-F (°F)	degrees Fahrenheit
DIA.	diameter
FP	finished product for plant
FT/SEC	feet per second
g	gram
GPM	gallons per minute
GR/ACF	grains per actual cubic foot
GR/DSCF	grains per dry standard cubic foot
g/dscm	grams per dry standard cubic meter
HP	horsepower
HRS	hours
IN.	inches
IN.HG.	inches of mercury
IN.WC.	inches of water
LB	pound
LB/DSCF	pounds per dry standard cubic foot
LB/HR	pounds per hour
LB/10 ⁶ BTU	pounds per million British Thermal Units heat input
LB/MMBTU	pounds per million British Thermal Units heat input
LTPD	long tons per day
MW	megawatt
mg/DSCM	milligrams per dry standard cubic meter
microns (um)	micrometer
MIN.	minutes
ng	nanograms
ohm-cm	ohm-centimeter
PM	particulate matter
PPH	pounds per hour
PPM	parts per million
ppmC	parts per million carbon
ppm,d	parts per million, dry
ppm,w	parts per million, wet
ppt	parts per trillion
PSI	pounds per square inch
SQ.FT.	square feet
ug	micrograms
v/v	percent by volume
w/w	percent by weight
<	≤ (when following a number)

Standard conditions are defined as 68 °F (20 °C) and 29.92 IN. of mercury pressure.

1 INTRODUCTION

On February 8 and 9, 1991, Interpoll Laboratories personnel conducted an air emission performance test on the No.101 Portable Soil Roasting Unit (SRU 101) owned and operated by CleanSoils, Inc. The unit was located in Tampa, Florida at the time of the test. On-site testing was performed by Mark Kaehler, Curt Mosser and Jeff Bergstrom. Coordination between testing activities and plant operation was provided by Bob Wills of CleanSoils, Inc. The test was witnessed by Bob Soich of the Hillsborough County Environmental Protection Agency.

The SRU 101 system is used to clean soil which has been contaminated with petroleum based products. The system consists of rotary drum dryer followed by a baghouse and afterburner for pollution control. The unit has a maximum rated capacity of 60 TPH. During these tests the unit was processing at an average rate of 8.2 TPH.

Note for low for AO

Particulate evaluations were performed in accordance with EPA Methods 1 - 5, CFR Title 40, Part 60, Appendix A (revised July 1, 1990). A preliminary determination of the gas linear velocity profile was made before the first particulate determination to allow selection of the appropriate nozzle diameter required for isokinetic sample withdrawal. An Interpoll Labs sampling train which meets or exceeds specifications in the above-cited reference was used to extract particulate samples by means of a heated glass-lined probe. Due to the high temperature of the exhaust gas stream (1400 °F) a water-cooled sampling probe was substituted for the standard EPA Method 5 sampling probe and high temperature inconel nozzles were substituted for the standard Method 5 stainless steel nozzles. To minimize radiant heat loss error, the thermocouple used to measure gas temperature was not attached to the water-cooled probe. Wet catch samples were collected in the back half of the Method 5 sampling train and analyzed as per Florida Protocol.

ok

The total hydrocarbon (THC) concentrations were measured simultaneously at the afterburner inlet and outlet in accordance with EPA Method 25A (Ibid). A Ratfisch Model RS55 Heated Total Hydrocarbon Analyzer (Heated Flame Ionization Detector) was used to measure THC concentrations in the exhaust gas stream. The hydrocarbon analyzer was calibrated with zero gas and low, mid and high level calibration gases (propane in nitrogen) prior to and after each testing period. A strip chart recorder was used to record the analyzer response.

At the inlet site the THC analyzer was used to analyze for noncondensable hydrocarbons by extracting a slip stream of sample gas after the last impinger of a Method 5 sampling train. This was done to prevent fouling of the THC analyzer by condensable hydrocarbons. The condensable hydrocarbons were captured in the probe, filter and impinger set of the Method 5 train. The weight of the condensable compounds was then determined in the laboratory and converted to a carbon only basis by analyzing each of the samples for carbon content. A diagram of this sampling system is included in the Procedures appendix of this report and a summary of the necessary calculations can be found in the Calculations appendix.

Benzene, toluene, ethylbenzene, and xylene (BTEX) samples were collected in accordance with EPA Method 18 (Section 7.4 - Absorption Tube Procedure) using 800/200 mg charcoal tubes with analysis by Modified NIOSH Method 1501.

An integrated flue gas sample was extracted simultaneously with each particulate sample using a specially designed gas sampling system. Integrated flue gas samples were collected in 44-liter Tedlar bags housed in a protective aluminum container. After sampling was complete, the bags were sealed and returned to the laboratory for Orsat analysis. Prior to sampling, the Tedlar bags are leak checked at 15 IN.HG. vacuum with an in-line rotameter. Bags with any detectable inleakage are discarded. The Stack site integrated bag samples were also analyzed for propane by GC as

per ASTM procedure.

Testing on the SRU 101 System was conducted from four test ports oriented at 90 degrees on the stack and located 2.96 stack diameters downstream of any flow disturbance and approximately 0.7 diameters upstream of the stack exit. A 24-point traverse was used to collect representative particulate samples. Each traverse point was sampled 2.5 minutes to give a total sampling time of 60 minutes per run. THC, BTEX sampling was conducted using a single point traverse and sampling for 60 minutes. A visible emission determination was performed by Curt Mosser, an EPA-certified reader.

The important results of the test are summarized in Section 2. Detailed results are presented in Section 3. Field data and all other supporting information are presented in the appendices.

2 SUMMARY AND DISCUSSION

The results of the particulate emission compliance test are summarized in Table 1. As will be noted, the particulate concentration averaged 0.064 GR/DSCF and the particulate emission rate averaged 5.4 LB/HR. Opacity was 0%. Total hydrocarbon results are presented in Table 2. The total hydrocarbon concentration averaged 2027 ppmC at the afterburner inlet and 213 ppmC at the stack. The removal efficiency averaged 90.0%. The BTEX results are summarized in Table 3.

No difficulties were encountered in the field or in the laboratory evaluation of the samples. On the basis of this fact and a complete review of the entire data and results, it is our opinion that the results reported herein are accurate and closely reflect the actual values which existed at the time the test was performed.

Table 1. Summary of the Results of the February 9, 1991 Particulate Emission Engineering Test on the Cleansoils, Inc. SRU101 Soil Remediation Unit in Tampa, Florida.

ITEM	Run 1	Run 2	Run 3
Date of test	02-09-91	02-09-91	02-09-91
Time runs were done (HRS)	1235/1356	1425/1620	1707/1817
Process rate (TON/HR)	8.2	8.5	7.8
Volumetric flow			
actual (ACFM)	46322	48194	52111
standard (DSCFM)	9516	10241	10705
Gas temperature (DEG-F)	1401	1408	1431
Moisture content (%V/V)	27.78	24.99	26.63
Gas composition (%V/V, dry)			
carbon dioxide	7.40	6.00	7.10
oxygen	9.90	11.70	9.80
nitrogen	82.70	82.30	83.10
Isokinetic variation (%)	98.4	95.2	99.3
Particulate concentration			
actual (GR/ACF)	.0203	.0109	.00840
standard (GR/DSCF)	.0989	.0511	.0409
Part. emission rate (LB/HR)	8.07	4.49	3.76

Note: Dry + Organic Wet Catch

Table 2 Summary of the Results of the February 8, 1991 Total Hydro-Carbon Determinations on the CleanSoils, Inc. SRU 101 System located in Tampa, Florida.

Test/Run	Time (HRS)	Concentration (ppm,C)		Removal Efficiency %
		Inlet	Stack	
1/1	1222-1323	1150	87	92.4
1/2	1530-1652	2320	279	88.0
1/3	1837-1935	2610	274	89.5
Avg		2027	213	90.0

Table 3 Summary of the February 8, 1991 BTEX Determinations on the CleanSoils, Inc. SRU 101 System located in Tampa, Florida.

Test/Run		Concentration (ppm,d)	Emission Rate (LB/HR)
2/1	Benzene	≤0.027	≤0.0029
	Toluene	≤0.023	≤0.0020
	Ethylbenzene	≤0.020	≤0.0020
	Xylene	≤0.020	≤0.0020
2/2	Benzene	0.40	0.029
	Toluene	0.35	0.030
	Ethylbenzene	≤0.021	≤0.0021
	Xylene	≤0.021	≤0.0021
2/3	Benzene	≤0.027	≤0.0020
	Toluene	≤0.023	≤0.0020
	Ethylbenzene	≤0.020	≤0.0020
	Xylene ≤0.02	≤0.020	≤0.0020

3 RESULTS

The results of all field and laboratory evaluations are presented in this section. Gas composition (Orsat and moisture) are presented first followed by the computer printout of the particulate and opacity results. Preliminary measurements including test port locations are given in the appendices.

The results have been calculated on an IBM PC Computer using programs written in Extended BASIC specifically for source testing calculations. EPA-published equations have been used as the basis of the calculation techniques in these programs.

The particulate emission rate has been calculated using the product of the concentration times flow method.

3.1 Results of Orsat and Moisture Analyses

Test No. 1
 Soil Remediation Unit - Inlet to Afterburner

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

Date of run	Run 1 02-08-91	Run 2 02-08-91	Run 3 02-08-91
Dry basis (orsat)			
carbon dioxide.....	8.20	7.50	8.30
oxygen.....	9.10	9.90	8.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	82.70	82.60	82.80
Wet basis (orsat)			
carbon dioxide.....	4.70	4.76	4.90
oxygen.....	5.22	6.29	5.25
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	47.44	52.44	48.84
water vapor.....	42.64	36.51	41.02
Dry molecular weight.....	29.68	29.60	29.68
Wet molecular weight.....	24.70	25.36	24.89
Specific gravity.....	0.853	0.876	0.860
FO	1.439	1.467	1.446

Test No. 3
 Soil Remediation Unit Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

Date of run	Run 1 02-09-91	Run 2 02-09-91	Run 3 02-09-91
Dry basis (orsat)			
carbon dioxide.....	7.40	6.00	7.10
oxygen.....	9.90	11.70	9.80
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	82.70	82.30	83.10
Wet basis (orsat)			
carbon dioxide.....	5.34	4.50	5.21
oxygen.....	7.15	8.78	7.19
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	59.73	61.73	60.97
water vapor.....	27.78	24.99	26.63
Dry molecular weight.....	29.58	29.43	29.53
Wet molecular weight.....	26.36	26.57	26.46
Specific gravity.....	0.911	0.918	0.914
Water mass flow.....(LB/HR)	10267	9573	10896

3.2 Results of Particulate Loading Determinations

Test No. 3
Soil Remediation Unit Stack

Results of Particulate Loading Determinations-----Method 5

	Run 1	Run 2	Run 3
Date of run	02-09-91	02-09-91	02-09-91
Time run start/end.....(HRS)	1235/1356	1425/1620	1707/1817
Static pressure.....(IN.WC)	-0.08	-0.08	-0.08
Cross sectional area (SQ.FT)	32.34	32.34	32.34
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	280.0	255.0	300.0
desiccant.....(GRAMS)	17.0	13.0	18.0
total.....(GRAMS)	297.0	268.0	318.0
Total particulate material..collected(grams)	0.2334	0.1257	0.1096
Gas meter coefficient.....	0.9942	0.9942	0.9942
Barometric pressure..(IN.HG)	30.00	30.00	30.00
Avg. orif.pres.drop..(IN.WC)	1.19	1.29	1.54
Avg. gas meter temp..(DEF-F)	71.2	72.4	76.8
Volume through gas meter.... at meter conditions...(CF)	36.65	38.25	42.00
standard conditions.(DSCF)	36.41	37.92	41.32
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.620	.620	.620
Avg.stack gas temp ..(DEG-F)	1401	1408	1431
Volumetric flow rate..... actual.....(ACFM)	46322	48194	52111
dry standard.....(DSCFM)	9516	10241	10705
Isokinetic variation.....(%)	98.4	95.2	99.3
Particulate concentration... actual.....(GR/ACF)	0.02031	0.01086	0.00840
dry standard.....(GR/DSCF)	0.09892	0.05115	0.04093
Particle mass rate...(LB/HR)	8.069	4.490	3.755

3.3 Results of Opacity Observations

Test No. 1
Afterburner Stack

Results of Opacity Observations ----- EPA Method 9

PERCENT OPACITY	OPTICAL DENSITY	RELATIVE FREQUENCY (%)
0	0.0000	100.00
5	0.0223	0.00
10	0.0458	0.00
15	0.0706	0.00
20	0.0969	0.00
25	0.1249	0.00
30	0.1549	0.00
35	0.1871	0.00
40	0.2219	0.00
45	0.2596	0.00
50	0.3010	0.00
55	0.3468	0.00
60	0.3979	0.00
65	0.4559	0.00
70	0.5229	0.00
75	0.6021	0.00
80	0.6690	0.00
85	0.8239	0.00
90	1.0000	0.00
95	1.3010	0.00
99	2.0000	0.00

Avg Opac	0.00	Avg OD	0.0000	Time average
----------	------	--------	--------	--------------

Observer: C. Mosser
Cert. Date: 10-17-90
Date of Observation: 02-09-91
Time of Observation: 1430/1625

Note: The Burner was down from 1440-1540 and from 1600-1605.

APPENDIX A

RESULTS OF VOLUMETRIC FLOW RATE DETERMINATIONS

Test No. 2
Soil Remediation Unit Stack

Results of Volumetric Flow Rate Determination-----Method 2

Date of Determination.....	02-08-91
Time of Determination.....(HRS)	1410
Barometric pressure.....(IN.HG)	29.94
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	16
Shape of duct.....	Round
Stack diameter.....(IN)	77
Duct area.....(SQ.FT)	32.34
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.1
Avg. gas temp.....(DEG-F)	1419
Moisture content.....(% V/V)	26.50
Avg. linear velocity.....(FT/SEC)	23.5
Gas density.....(LB/ACF)	.01932
Molecular weight.....(LB/LBMOLE)	29.51
Mass flow of gas.....(LB/HR)	52839
Volumetric flow rate.....	
actual.....(ACFM)	45588
dry standard.....(DSCFM)	9420

Test No. 2
Soil Remediation Unit Stack

Results of Volumetric Flow Rate Determination-----Method 2

Date of Determination.....	02-08-91
Time of Determination.....(HRS)	1443
Barometric pressure.....(IN.HG)	29.94
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	16
Shape of duct.....	Round
Stack diameter.....(IN)	77
Duct area.....(SQ.FT)	32.34
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.08
Avg. gas temp.....(DEG-F)	1443
Moisture content.....(% V/V)	26.50
Avg. linear velocity.....(FT/SEC)	23.6
Gas density.....(LB/ACF)	.01907
Molecular weight.....(LB/LBMOLE)	29.51
Mass flow of gas.....(LB/HR)	52516
Volumetric flow rate.....	
actual.....(ACFM)	45886
dry standard.....(DSCFM)	9362

Test No. 2
Soil Remediation Unit Stack

Results of Volumetric Flow Rate Determination-----Method 2

Date of Determination.....	02-08-91
Time of Determination.....(HRS)	1655
Barometric pressure.....(IN.HG)	29.94
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	16
Shape of duct.....	Round
Stack diameter.....(IN)	77
Duct area.....(SQ.FT)	32.34
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.08
Avg. gas temp.....(DEG-F)	1428
Moisture content.....(% V/V)	26.50
Avg. linear velocity.....(FT/SEC)	22.5
Gas density.....(LB/ACF)	.01923
Molecular weight.....(LB/LBMOLE)	29.51
Mass flow of gas.....(LB/HR)	50350
Volumetric flow rate.....	
actual.....(ACFM)	43647
dry standard.....(DSCFM)	8976

Test No. 3
Soil Remediation Unit Stack

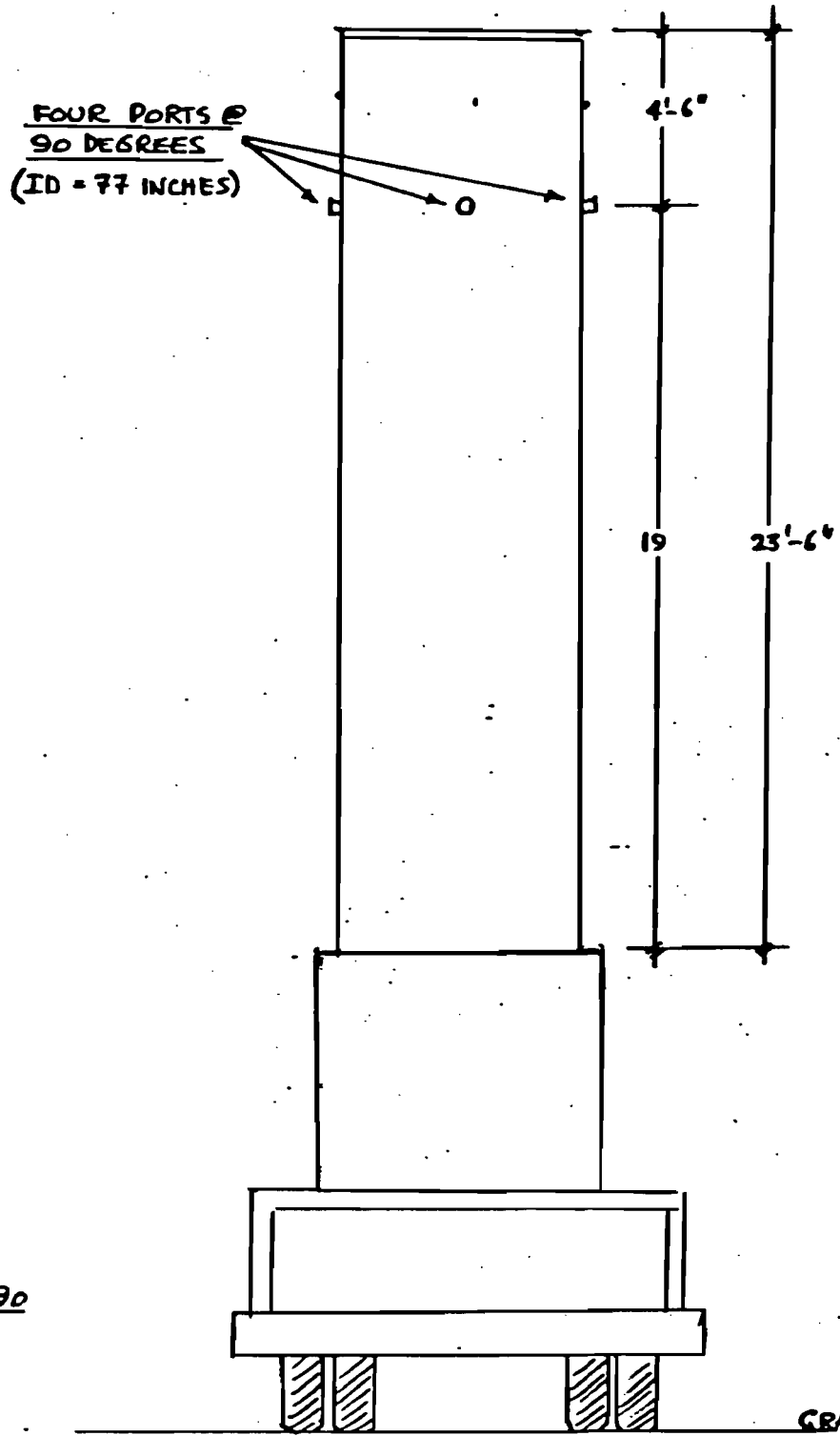
Results of Volumetric Flow Rate Determination-----Method 2

Date of Determination.....	02-09-91
Time of Determination.....(HRS)	1150
Barometric pressure.....(IN.HG)	30
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	77
Duct area.....(SQ.FT)	32.34
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.08
Avg. gas temp.....(DEG-F)	1403
Moisture content.....(% V/V)	27.78
Avg. linear velocity.....(FT/SEC)	23.0
Gas density.....(LB/ACF)	.01945
Molecular weight.....(LB/LBMOLE)	29.58
Mass flow of gas.....(LB/HR)	52009
Volumetric flow rate.....	
actual.....(ACFM)	44564
dry standard.....(DSCFM)	9144

APPENDIX B

LOCATION OF TEST PORTS

CLEAN SOILS
AFTERBURNER STACK



APPENDIX C

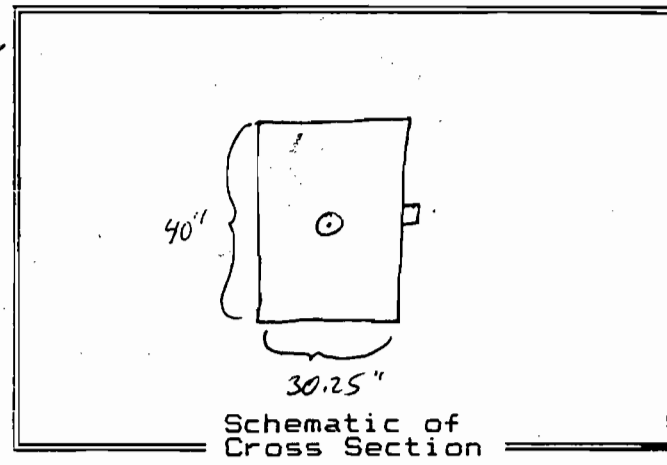
FIELD DATA SHEETS

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INTERPOLLABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Steam Soils / Tampa Bay Fl
 Source Soil Remediation Unit / ^{Apfenburne} Inlet
 Test 1 Run 1,2,3 Date 2-8-91
 Stack dimen. 30.25 X 40 IN.
 Dry bulb NA °F Wet bulb NA °F
 Manometer: Reg. Exp. Elec.
 Barometric pressure 29.94 in Hg
 Static pressure NA in WC
 Operators M. Raehler, C. Mosser
 Pitot No. 21V-4 Cp .84



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: <u>5</u> in.		Time start: _____ hrs	
	<u>1/6</u>	<u>5.04</u>	<u>10.04</u>		
<u>2</u>	<u>3/6</u>	<u>15.12</u>	<u>20.12</u>		
<u>3</u>	<u>5/6</u>	<u>25.21</u>	<u>30.21</u>		
Temp. meas. tool & S/N: <u>PDT-9 / TC</u>				Time end: _____ hrs	

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Clean Soils / Tampa Bay Fl Date 2-8-91 Test 1 Run 1
 Source Soil Remediation Unit / Tinet No. of traverse points 3
 Method - Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac)
 Posttest: 0 cfm at 15 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 2987 Recovery solvent(s)
 acetone _____
 other(s) _____

No. of probe wash bottles: 1
 Sample recovered by: MiKaehler, C. Mosser

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant			
Total			

Integrated Gas Sampling Data:

Bag Pump No. B11 Box No. 26 Bag No. 1
 Bag Material: 5-layer Aluminized Tedlar Size: 44 L
 Pretest leak check: 0 cc/min at 20 in. Hg.
 Time start: 1223 (HRS) Time end: 1323 (HRS)
 Sampling rate: 400 cc/min Operator: MiKaehler
 S/N of O₂ Analyzer used to monitor train outlet: 9

CF-023

Job Clean Soils / Pump #1
Source Soil Remediation Unit / Inlet
Date 2-8-91 Test 1 Run 1

Operator(s) M. Kaehler, C. Mosser
Meter Box No. 9 Gasmeter coef. .9942
 ΔH 1.80 in.WC Bar. press 29.94 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0 cfm at 15 in. Hg.

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F)					Oxygen (%v/v)	Stn. Temp
					Probe	Oven	Impg.	Gas/In	Gas/Out		
	1223	539.60									
3	5	543.22	1.80	8	249	242	43	69	66	10.7	33
3	10	546.86	1.80	10				70	67	10.6	
3	15	550.48	1.80	11				71	67	10.6	
3	20	554.10	1.80	11	256	238	45	73	68	10.7	34
2	25	557.80	1.80	12				74	69	10.6	
2	30	561.51	1.80	11				76	70	10.1	
2	35	565.16	1.80	11	245	255	45	76	70	9.8	34.5
2	40	568.78	1.80	11				77	70	9.8	
1	45	572.42	1.80	11				77	71	9.4	
1	50	576.08	1.80	12	250	250	44	78	72	9.3	33.5
1	55	579.95	1.80	12				78	72	9.8	
1	60	583.42	1.80	12				79	73	9.8	
	(1323)										
	$\theta=60$	$V_m=43.82$	$(\Delta H)_{avg}=1.80$					$(t_m)_{avg}=72$			

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impingers	1438	800	638
Condenser			
Desiccant	1470	1422	48
		Total	68.6

Preliminary results of SO ₂ concentration determination	
V _{std}	= 43.46 DSCF
Moisture	= 42.64 %v/v
SO ₂ , dry	= ppm
SO ₂ , wet	= ppm
LB/MMBtu	=

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Clean Soils / Tampa Bay, FL Date 2-8-91 Test 1 Run 2
 Source Soil Remediation Unit / Afterburner Inlet No. of traverse points 3
 Method Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac)
 Posttest: 0 cfm at 15 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 2988 Recovery solvent(s)
 acetone
 other(s)
 No. of probe wash bottles: 1
 Sample recovered by: M. Kaehler, C. Mosser

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant			
Total			

Integrated Gas Sampling Data:

Bag Pump No. B 11 Box No. 26 Bag No. 2
 Bag Material: 5-layer Aluminized Tedlar Size: 44 L
 Pretest leak check: 0 cc/min at 20 in. Hg.
 Time start: 1525 (HRS) Time end: 1632 (HRS)
 Sampling rate: 400 cc/min Operator: M. Kaehler
 S/N of O₂ Analyzer used to monitor train outlet: 9

CF-023

Job Clean Soils / Tampa Bay Fl
 Source Soil Remediation Unit / Inlet
 Date 2-8-91 Test 1 Run 2

Operator(s) M. Kaehler, C. Mosser
 Meter Box No. 9 Gasmeter coef. .9942
 ΔH 1.80 in.WC Bar. press 29.94 in.Hg

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg.
 Posttest: 0 cfm at 15 in. Hg.

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Drif. Meter (inWC)	VAC. inHg	Temperatures (°F)					Oxygen (%v/v)
					Probe	Oven	Impg.	Gas/In	Gas/Out	
	(1525)	583.70								
3	5	587.31	1.80	8	253	240	42	70	67	10.6
3	10	590.97	1.80	9				71	67	10.3
3	15	594.61	1.80	10				74	68	10.1
3	20	598.34	1.80	10	244	250	44	75	69	10.0
2	25	602.02	1.80	9				77	70	11.3
2	30	605.75	1.80	10				78	71	10.4
2	35	609.49	1.80	10	247	253	45	79	72	11.2
2	40	613.12	1.80	9				79	72	11.4
1	45	616.75	1.80	9.5				80	73	11.2
1	50	620.52	1.80	10				80	73	12.3
1	55	624.20	1.80	10				80	74	12.4
1	60	627.88	1.80	10				80	74	12.3
	(1632)									
	$\theta = 60$	$V_m = 44.18$	$(\Delta H)_{avg} = 1.80$					$(t_m)_{avg} = 74$		

322
325
317
314

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impingers	1300	800	500
Condenser			
Desiccant	1489	1456	33
		Total	533

Preliminary results of SO ₂ concentration determination	
V _{std}	= 43.65 DSCF
Moisture	= 36.51 %v/v
SO ₂ , dry	= ppm
SO ₂ , wet	= ppm
LB/MMBtu	=

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Clean Soils / Tampa Bay, FL Date 2-8-91 Test 1 Run 3
 Source Soil Remediation Unit / Afterburner Inlet No. of traverse points 3
 Method _____ Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac)
 Posttest: 0 cfm at 15 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: _____ Recovery solvent(s)
 _____ acetone _____
 _____ other(s) _____

No. of probe wash bottles: 1
 Sample recovered by: M. Kaehler, C. Mosser

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant			
Total			

Integrated Gas Sampling Data:

Bag Pump No. B11 Box No. 26 Bag No. 3
 Bag Material: 5-layer Aluminized Tedlar Size: 44 L
 Pretest leak check: 0 cc/min at 20 in. Hg.
 Time start: 1837 (HRS) Time end: 1935 (HRS)
 Sampling rate: 400 cc/min Operator: M. Kaehler
 S/N of O₂ Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job Clean Soils / Tampa Bay F1 Operator(s) M. Kaehler, C. Mosser
 Source Soil Remediation Unit F / Inlet Meter Box No. 9 Gasmeter coef. 9942
 Date 2-8-91 Test 1 Run 3 ΔH 1.80 in.WC Bar. press 29.94 in.Hg

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg.
 Posttest: _____ cfm at _____ in. Hg.

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Drif. Meter (inWC)	VAC. inHg	Temperatures (°F)					Oxygen (%v/v)	Steel Temp.
					Probe	Oven	Impg.	Gas/In	Gas/Out		
	(1837)	628.14									
3	5	631.81	1.80	8	245	251	40	61	61	9.8	327
3	10	635.48	1.80	10				64	62	9.4	
3	15	639.15	1.80	10				66	62	9.8	
3	20	642.85	1.80	10	247	255	41	68	63	9.9	321
2	25	646.60	1.80	10.5				69	64	9.6	
2	30	650.28	1.80	10				70	64	9.3	
2	35	654.10	1.80	10	252	249	43	71	65	9.9	325
2	40	657.92	1.80	10				72	66	9.7	
1	45	661.40	1.80	10.5				72	66	9.2	
1	50	665.06	1.80	10.5				72	66	9.1	
1	55	668.72	1.80	10.5				73	66	9.0	
1	60	672.38	1.80	11				73	67	8.6	
	(1935)										
	$\theta = 60$	$V_m = 44.24$	$(\Delta H)_{avg} = 1.80$					$(t_m)_{avg} = 67$			

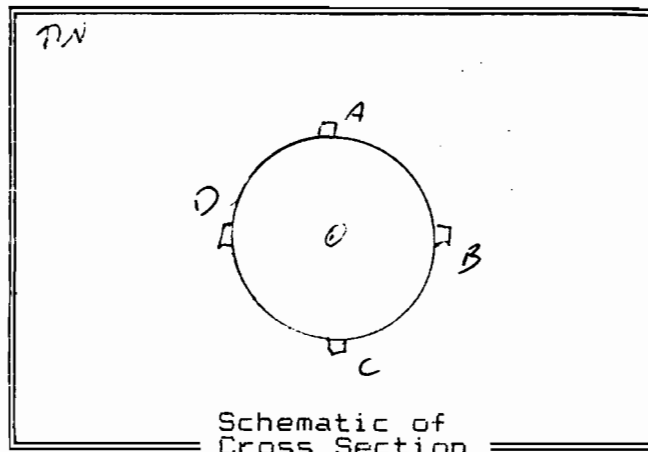
Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impingers	1417	800	617.
Condenser			
Desiccant	1254	1217	37
		Total	654

Preliminary results of SO ₂ concentration determination	
V_{std}	= 44.29 DSCF
Moisture	= 41.02 %v/v
SO ₂ , dry	= ppm
SO ₂ , wet	= ppm
LB/MMBtu	=

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Clean Soils / Tampa Fl
 Source Soil Remediation Unit / Stack
 Test 2 Run 1 Date 2-8-91
 Stack dimen. 77 IN.
 Dry bulb °F Wet bulb °F
 Manometer: Reg. Exp. Elec.
 Barometric pressure 29.97 in Hg
 Static pressure -.10 in WC
 Operators M. Kochler, J. Bergstrom
 Pitot No. WCP Cp .94



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: <u>10</u> in.	Time start: <u>1410</u> hrs	
A - 1	.032	2.46	12.46	.035	1419
2	.105	8.09	18.09	.045	
3	.194	14.94	24.94	.045	
4	.323	24.87	34.87	.050	
B - 1				.040	
2				.040	
3				.050	
4				.045	
C - 1				.035	
2				.045	
3				.050	
4				.050	
D - 1				.040	
2				.050	
3				.055	
4				.050	
Temp. meas. tool & S/N: <u>PDT-9 / TC</u>				Time end: _____ hrs	

Interpoll Laboratories
(612)786-6020

Field Data Sheet For BTX

Job Clean Soils / Tampa Bay, FL
Test Location Soil Remediation Unit
Stack

Date 2-8-91

Operator(s) McKaehler, J. Bergstrom

Test 2 Run 1

Console No. 15

Bar. Pressure 29.94 in. Hg.

δ 1.0033

Pretest Leak Check
(0 cc/min at 12 IN.HG. VAC)

Post Test Leak Check
(0 cc/min at 12 IN.HG. VAC)

Sampling Time (min.)	Sample Volume (CF)	Flow Rate (cc/min)		Vacuum (in. Hg.)	meter Temp		
(1410)	844.000	111111	111111	111111	111111	111111	111111
5	844.191	1000		3	73		
10	844.380	1000		3	74		
15	844.556	980		3	74		
20	844.733	980		5	76		
25	844.915	960		6	78		
30	845.078	940		6	79		
35	845.241	920		6	80		
40	845.404	900		6	80		
45	845.575	880		6.5	82		
50	845.732	880		6.5	83		
55	845.895	880		6.5	84		
60	846.058	880		6.5	86		

(1513) v_m 2.058 CF

t_m 79 °F

$v_{STD} = 2.024$

Interpoll Laboratories
(612)786-6020

Field Data Sheet For BTX

Job CLEAN SOILS
 Test Location AFTERBURNER STACK
 Date 2-8-91
 Operator(s) M.K.
 Test 2 Run 2
 Console No. 15
 Bar. Pressure 29.94 in. Hg.
 γ 1.0033

Pretest Leak Check
 (0 cc/min at 12 IN.HG. VAC)

Post Test Leak Check
 (0 cc/min at 12 IN.HG. VAC)

Sampling Time (min.)	Sample Volume (CF)	Flow Rate (cc/min)		Vacuum (in. Hg.)	Meter Temp		
(1655)	846.161	111111	111111	111111	111111	111111	111111
5	846.321	1000		3	79		
10	846.875	1000		3	79		
15	846.729	970		5	79		
20	846.888	880		5	80		
25	847.047	880		5	80		
30	847.202	880		5	80		
35	847.360	880		5	80		
40	847.521	860		5.5	80		
45	847.671	860		5.5	82		
50	847.827	840		6	83		
55	847.970	820		6	84		
60	848.113	820		6	84		

(1755) v_m 1.952 CF i_m 81 °F

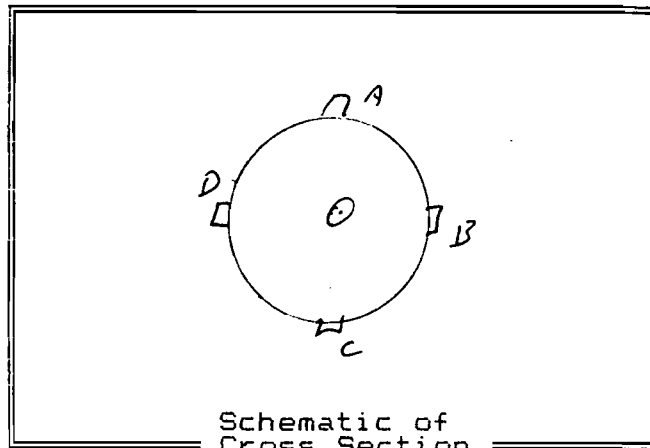
$v_{STD} = 1.913$

Afterburner went down 1708
 Back up 1723

C-11

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Clean Soils / Tampa Fl
 Source Soil Remediation Unit / Stack
 Test 2 Run 3 Date 2-8-91
 Stack dimen. 77 IN.
 Dry bulb _____ °F Wet bulb _____ °F
 Manometer: Reg. Exp. Elec.
 Barometric pressure 29.94 in Hg
 Static pressure - .08 in WC
 Operators M. Kuehler, J. Bergstrom
 Pitot No. WCP Cp .84



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: <u>10</u> in.		Time start: _____ hrs	
A - 1	.032	2.46	12.46	.040	1943
2	.105	8.09	18.09	.045	
3	.194	14.94	24.94	.045	
4	.323	24.87	34.87	.050	
B - 1				.035	
2				.045	
3				.050	
4				.050	
C - 1				.045	
2				.045	
3				.050	
4				.055	
D - 1				.035	
2				.040	
3				.050	
4				.045	
Temp. meas. tool & S/N: <u>PDT-9/TC</u>				Time end: _____ hrs	

Interpoll Laboratories
(612)786-6020

Field Data Sheet For BTX

Job CLEAN SOILS
Test Location AFTER BURNER STACK

Date 2-8-91

Operator(s) M.K.

Test 2 Run 3

Console No. 15

Bar. Pressure 29.94 in. Hg.

γ 1.0033

Pretest Leak Check
(0 cc/min at 12 IN.HG. VAC)

Post Test Leak Check
(0 cc/min at 12 IN.HG. VAC)

Sampling Time (min.)	Sample Volume (CF)	Flow Rate (cc/min)		Vacuum (in. Hg.)	Stack Temp. (°F)	Meter Temp. (°F)	
(2005)	848.137						
5	848.325	1000		3.5		72	
10	848.513	1000		4.5		72	
15	848.680	1000		5.0		72	
20	848.856	940		6.0		72	
25	849.032	920		6.0		74	
30	849.200	920		6.0		74	
35	849.366	900		6.0		76	
40	849.532	900		6.0		78	
45	849.789	900		6.0		78	
50	849.851	880		6.0		79	
55	850.009	860		6.0		80	
60	850.167	860		6.0		80	

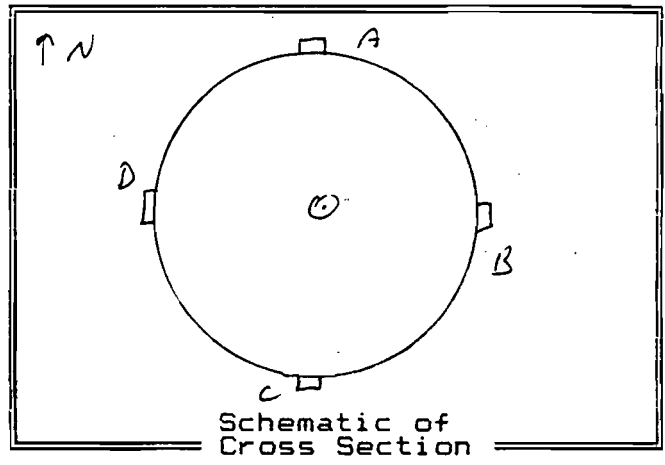
(2105) v_m 2.030 CF

i_m 76 °F

$V_{std} = 2.008$

C-13

Job Clean Soils / Tampa Bay Fl
 Source Soil Remediation Unit / Stack
 Test 3 Run 1,2,3 Date 2-9-91
 Stack dimen. 77 IN.
 Dry bulb °F Wet bulb °F
 Manometer: Reg. Exp. Elec.
 Barometric pressure 30.00 in Hg
 Static pressure -.08 in WC
 Operators M. Kaehler, S. Bergstrom
 Pitot No. WCP Cp .84



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
Port length: 10.0 in.				Time start: 1150 hrs	
B 1	.021	1.61	11.61	.040	
2	.067	5.16	15.16	.045	
3	.118	9.09	19.09	.045	
4	.177	13.63	23.63	.050	
5	.250	19.25	29.25	.050	
6	.356	26.95	36.95	.050	
A 1				.025	
2				.020	
3				.030	
4				.035	
5				.040	
6				.045	
D 1				.050	
2				.050	
3				.045	
4				.060	
5				.050	
6				.045	
C 1				.040	
2				.040	
3				.045	
4				.050	
5				.055	
6				.050	
					1403
Temp. meas. tool & S/N: <u>PDT-9 / TC</u>				Time end: _____ hrs	

R or nothing = reg. manometer; S = expanded; E = electronic S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Clean Soils / Tampa Bag FI Date 2-9-91 Test 3 Run 1
 Source Soil Remediation Unit / stack No. of traverse points 24
 Method 5 Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: { 0.02 cfm at 15 in. Hg. (vac)
 Posttest: { 0 cfm at 2 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1814 Recovery solvent(s)
 acetone _____
 other(s) _____
 No. of probe wash bottles: 1
 Sample recovered by: M. Kaehler, C. Mosser

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	734	498	236
Impinger No. 2	189	145	44
Impinger No. 3			
Condenser			
Desiccant	1477	1460	17
Total			297

Integrated Gas Sampling Data:

Bag Pump No. B11 Box No. 22 Bag No. 1
 Bag Material: 5-layer Aluminized Tedlar Size: 44 L
 Pretest leak check: 0 cc/min at 20 in. Hg.
 Time start: 1235 (HRS) Time end: 1356 (HRS)
 Sampling rate: 400 cc/min Operator: M. Kaehler
 S/N of O₂ Analyzer used to monitor train outlet: 9

CF-023

INTERPOL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Clean Soils / Tampa Bay Fl
 Source Soil Remediation Unit / Stack
 Date 2-9-91 TEST 3 RUN 1

Operator M. Kaehler, J. Bergstrom
 Meter Box No. 9 ^{AMP} 1.80 ^{IN} NC
 Gas meter coeff. .9942

Pitot No. WCP Cp .89
 Bar. Press. 30.00 inHg ^{H₂O} 28 X
 Nozzle No. 2AC-10 Nozzle Dia. .60 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Drifted Meter (inWC)	Obs. Vol. (cf)	VAC. inHg	Temperatures (°F)						Oxygen (xv/v)	
							Stack	Probe	Dryn	Wppg.	Gas/In	Gas/Out		
	(1235)	682.60												
B-6	2.5	684.15	.055	1.36	4.23	4	1402	258	250	42	66	63	9.0	
5	5	685.84	.055	1.36	5.86	4	1402				68	64	8.8	
4	7.5	687.53	.060	1.49	7.57	4.5	1400				70	65	8.5	
3	10	689.20	.055	1.37	9.22	4	1397	255	247	41	70	65	8.5	
2	12.5	690.67	.045	1.12	0.70	3.5	1397				71	66	8.4	
1	15	692.17	.045	1.13	2.20	4	1395				73	66	8.3	
A-6	17.5	693.95	.050	1.25	3.77	4.5	1398	261	243	42	72	66	8.0	
5	20	695.39	.055	1.37	5.42	5	1402				74	67	7.7	
4	22.5	697.11	.060	1.51	7.14	5.5	1400				74	67	7.4	
3	25	698.70	.050	1.25	8.71	5	1403	257	252	44	75	68	7.6	
2	27.5	700.25	.050	1.26	0.29	5	1400				75	68	7.5	
1	30	701.58	.035	.88	1.62	3	1399				75	68	7.9	
D-6	32.5	703.15	.050	1.26	3.19	5	1401	258	249	44	73	68	9.1	
5	35	704.75	.050	1.25	4.77	5	1403				76	69	8.5	
4	37.5	706.11	.035	.88	6.09	3	1405				76	69	8.5	
3	40	707.54	.045	1.13	7.59	4	1407	262	254	46	75	70	9.2	
2	42.5	708.97	.040	1.00	9.00	3.5	1407				76	70	8.2	
1	45	710.20	.030	.75	0.23	3	1405				76	70	8.6	
C-6	47.5	711.75	.050	1.26	1.81	4.5	1404	259	250	47	76	70	8.9	
5	50	713.24	.040	1.01	3.23	3.5	1399				78	71	8.3	
4	52.5	714.85	.050	1.26	4.81	5	1400				79	71	8.3	
3	55	716.33	.045	1.14	6.32	4	1398	254	253	49	79	72	8.2	
2	57.5	717.80	.045	1.14	7.83	4	1398				79	72	8.9	
1	60	719.25	.040	1.01	9.26	3.5	1398				79	72	8.9	
	(1356)													
	θ = 60	V _s = 36.65		^H = 1.19									Avg. = 71.2	

C-16

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Clean Soils / Tampa Bay, FL Date 2-9-91 Test 3 Run 2
 Source Soil Remediation Unit / Stack No. of traverse points 24
 Method 5 Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac)
 Posttest: 0 cfm at 10 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 295B Recovery solvent(s)
 acetone
 other(s)

No. of probe wash bottles: 1
 Sample recovered by: M. Kaehler, C. Mosser

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	735	500	235
Impinger No. 2	211	195	20
Impinger No. 3			
Condenser			
Desiccant	1365	1352	13
Total			268

Integrated Gas Sampling Data:

Bag Pump No. B11 Box No. 22 Bag No. 2
 Bag Material: 5-layer Aluminized Tedlar Size: 44 L
 Pretest leak check: 0 cc/min at 20 in. Hg.
 Time start: 1425 (HRS) Time end: 1620 (HRS)
 Sampling rate: 400 cc/min Operator: M. Kaehler
 S/N of O₂ Analyzer used to monitor train outlet: 9

CF-023

INTERPOLLL LABDRATDRIES EPA METHOD 5 FIELD DATA SHEET

Job Clean Sails / Tampa Bay Fl
 Source Sail Remediation Unit / Stack
 Date 2-9-91 Test 3 Run 2

Operators M. Koehler, J. Bergstrom
 Meter Box No. 7 ^{HP} 1-80 TN WC
 Gas meter coeff. .9942

Pitot No. WCP Cp .84
 Bar. Press. 30.00 inHg ^{H2O} 28 x
 Nozzle No. FAK-10 Nozzle Dia. .620 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Drift Meter (inWC)	Obs. Vol. (cf)	VAC. inHg	Temperatures (°F)						Oxygen (xv/v)	
							Stack	Probe	Oven	Inpg.	Gas/In	Gas/Out		
	(1425)	719.50												
C-6	2.5	720.02	.045	1.13	0.99	4	1403	247	253	45	70	69	9.5	
5	5	722.52	.050	1.25	2.56	4	1402				72	69	9.1	
4	7.5	724.01	.045	1.13	4.06	4	1400		2		74	70	8.8	
3	10	725.52	.045	1.13	5.56	4	1401	255	257	43	75	70	9.3	
2	12.5	726.97	.040	1.00	6.97	3.5	1405				76	71	9.0	
1	15	728.50	.050	1.26	8.55	4.5	1403				77	71	8.4	
D-6	17.5	730.18	.055	1.39	0.22	4.5	1400	263	251	41	68	67	9.9	
5	20	731.71	.045	1.13	1.71	4	1392				69	68	9.8	
4	22.5	733.12	.040	1.00	3.11	3.5	1395				71	68	10.4	
3	25	734.50	.040	1.00	4.52	3.5	1395	258	247	42	72	69	10.1	
2	27.5	735.72	.030	.75	5.74	3	1396				74	69	9.6	
1	30	736.93	.030	.75	6.97	3	1400				74	70	10.1	
A-6	32.5	738.60	.055	1.38	8.62	5	1410	255	249	44	70	69	9.8	
5	35	740.37	.065	1.61	0.40	5.5	1417				73	69	10.5	
4	37.5	742.13	.065	1.61	2.19	5.5	1423				74	70	10.9	
3	40	743.88	.060	1.49	3.91	5.5	1430	260	252	45	75	70	10.4	
2	42.5	745.60	.060	1.50	5.63	5.5	1415				76	71	10.1	
1	45	747.33	.060	1.51	7.36	5.5	1406				77	71	10.8	
B-6	47.5	748.94	.050	1.26	8.94	4.5	1411	253	256	44	78	71	10.3	
5	50	750.64	.060	1.51	0.68	5	1408				78	72	9.4	
4	52.5	752.56	.075	1.88	2.61	7	1420				79	72	9.8	
3	55	754.37	.065	1.62	4.41	6	1431	259	252	42	80	73	9.7	
2	57.5	756.16	.060	1.50	6.14	5.5	1428				80	73	8.9	
1	60	757.75	.050	1.26	7.73	5	1409				80	73	8.7	
	(1620)													
	θ =	V _s = 38.25		^H = 7.29									Avg. = 72.4	

C-18

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Clean Soils / Tampa Bay F-1 Date 2-9-91 Test 3 Run 3
 Source Soil Remediation Unit / Stack No. of traverse points 24
 Method 5 Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac)
 Posttest: (0 cfm at 10 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 2960 Recovery solvent(s)
 acetone _____
 other(s) _____
 No. of probe wash bottles: 1
 Sample recovered by: M. Kachler, C. Mosser

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	730	498	232
Impinger No. 2	261	193	68
Impinger No. 3			
Condenser			
Desiccant	1495	1477	18
Total			318

Integrated Gas Sampling Data:

Bag Pump No. B11 Box No. 22 Bag No. 3
 Bag Material: 5-layer Aluminized Tedlar Size: 44 L
 Pretest leak check: 0 cc/min at 20 in. Hg.
 Time start: 1707 (HRS) Time end: 1817 (HRS)
 Sampling rate: 400 cc/min Operator: M. Kachler
 S/N of O₂ Analyzer used to monitor train outlet: 9

CF-023

INTERPOL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Clean Sails / Tampa Bay, FL
 Source Sail Remediation Unit / Stads
 Date 2-9-91 Test 3 Run 3


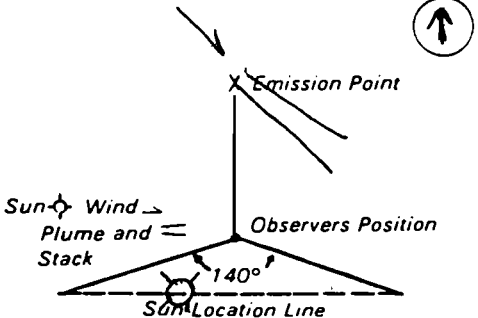
Operators McKaeher J. Bergstrom
 Meter Box No. 5 ^{AMP} 1.80 IN WC
 Gas meter coeff. .9972

Pitot No. WCP Cp .84
 Bar. Press. 30.00 inHg ^{H₂O} 26 x
 Nozzle No. ZNC-10 Nozzle Dia. .620 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Drifted Meter (inWC)	Obs. Vol. (cf)	VAC. inHg	Temperatures (°F)						Oxygen (xv/v)	
							Stack	Probe	Dryn	Inpg.	Gas/In	Gas/Out		
	(1707)	758.03												
B - 6	2.5	760.47	.055	1.44	0.52	5	1410	248	253	44	72	70	9.6	
5	5	762.24	.060	1.57	2.28	5	1413				75	71	9.1	
4	7.5	764.03	.060	1.58	4.05	5.5	1407				77	72	8.4	
3	10	765.84	.065	1.71	5.89	6	1407	250	248	41	78	72	8.0	
2	12.5	767.72	.065	1.72	7.74	6	1403				79	72	7.9	
1	15	769.40	.055	1.45	9.44	5	1416				79	72	7.7	
A - 6	17.5	771.06	.050	1.31	1.05	4.5	1428	253	256	42	80	73	7.4	
5	20	772.77	.055	1.43	2.75	4.5	1441				80	73	7.7	
4	22.5	774.45	.055	1.41	4.43	5	1462				80	73	7.7	
3	25	776.25	.065	1.66	6.25	5.5	1471	254	253	44	81	73	9.2	
2	27.5	777.94	.055	1.42	7.94	5	1452				81	74	8.8	
1	30	779.58	.055	1.43	9.63	5	1441				81	74	8.4	
D - 6	32.5	781.15	.045	1.17	1.22	4.5	1436	261	249	43	81	74	8.4	
5	35	782.83	.055	1.44	2.87	5	1425				81	74	8.4	
4	37.5	784.60	.060	1.57	4.64	5.5	1434				82	74	9.8	
3	40	786.27	.055	1.45	6.34	5.5	1421	255	251	45	82	74	9.5	
2	42.5	787.98	.055	1.46	8.05	5.5	1412				82	75	9.4	
B	45	789.59	.050	1.32	9.68	5	1420				82	75	9.3	
C - 6	47.5	791.40	.060	1.58	1.45	5.5	1428	252	255	46	82	75	9.7	
5	50	793.25	.070	1.83	3.37	7	1437				82	75	10.5	
4	52.5	795.37	.080	2.06	5.40	8	1461				82	75	10.3	
3	55	797.31	.075	1.95	7.37	7.5	1450	257	251	48	82	75	10.0	
2	57.5	799.11	.060	1.57	9.15	6	1432				82	75	9.7	
1	60	800.83	.055	1.44	0.95	5.5	1428				82	75	9.6	
	(1817)													
	θ = 60	V _s = 42.00		^H = 7.54									Avg. = 26.8	

C-20

Visible Emissions Form

SOURCE NAME <i>CLEAN SOILS</i>			OBSERVATION DATE <i>2-9-91</i>				START TIME <i>1430</i>		STOP TIME <i>1625</i>			
ADDRESS			SEC				SEC					
			MIN	0	15	30	45	MIN	0	15	30	45
			1	0	0	0	0	31	0	0	0	0
CITY <i>TAMPA</i>	STATE <i>FLA.</i>	ZIP	2	0	0	0	0	32	0	0	0	0
PHONE	SOURCE ID NUMBER <i>AFTERBURNER STACIL</i>		3	0	0	0	0	33	0	0	0	0
PROCESS EQUIPMENT		OPERATING MODE	4	0	0	0	0	34	0	0	0	0
CONTROL EQUIPMENT <i>BAGHOUSE</i>		OPERATING MODE <i>8-10 ton/hr</i>	5	0	0	0	0	35	0	0	0	0
DESCRIBE EMISSION POINT			6	0	0	0	0	36	0	0	0	0
START <i>NONDETECTABLE</i> STOP <input checked="" type="checkbox"/>			7	0	0	0	0	37	0	0	0	0
HEIGHT ABOVE GROUND LEVEL START <i>35'</i> STOP <input checked="" type="checkbox"/>	HEIGHT RELATIVE TO OBSERVER START <i>100'</i> STOP <input checked="" type="checkbox"/>		8	0	0	0	0	38	0	0	0	0
DISTANCE FROM OBSERVER START <i>75'</i> STOP <input checked="" type="checkbox"/>	DIRECTION FROM OBSERVER START <i>N.E.</i> STOP		9	0	0	0	0	39	0	0	0	0
DESCRIBE EMISSIONS			10	0	0	0	0	40	0	0	0	0
START <i>NONDETECTABLE</i> STOP <input checked="" type="checkbox"/>			11	0	0	0	0	41	0	0	0	0
EMISSION COLOR START <i>NONE</i> STOP <input checked="" type="checkbox"/>	PLUME TYPE: CONTINUOUS <input checked="" type="checkbox"/>		12	0	0	0	0	42	0	0	0	0
FUGITIVE <input type="checkbox"/> INTERMITTENT <input type="checkbox"/>			13	0	0	0	0	43	0	0	0	0
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>	IF WATER DROPLET PLUME: ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>		14	0	0	0	0	44	0	0	0	0
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			15	0	0	0	0	45	0	0	0	0
START <i>STACK EXIT</i> STOP <input checked="" type="checkbox"/>			16	0	0	0	0	46	0	0	0	0
DESCRIBE BACKGROUND			17	0	0	0	0	47	0	0	0	0
START <i>SKY</i> STOP <input checked="" type="checkbox"/>			18	0	0	0	0	48	0	0	0	0
BACKGROUND COLOR START <i>BLUE</i> STOP <input checked="" type="checkbox"/>	SKY CONDITIONS START <i>CLEAR</i> STOP <input checked="" type="checkbox"/>		19	0	0	0	0	49	0	0	0	0
WIND SPEED START <i>10-15</i> STOP <input checked="" type="checkbox"/>	WIND DIRECTION START <i>NW</i> STOP <input checked="" type="checkbox"/>		20	0	0	0	0	50	0	0	0	0
AMBIENT TEMP. START <i>70</i> STOP <i>72</i>	WET BULB TEMP.	RH. percent	21	0	0	0	0	51	0	0	0	0
Source Layout Sketch			22	0	0	0	0	52	0	0	0	0
Draw North Arrow 			23	0	0	0	0	53	0	0	0	0
			24	0	0	0	0	54	0	0	0	0
			25	0	0	0	0	55	0	0	0	0
			26	0	0	0	0	56	0	0	0	0
			27	0	0	0	0	57	0	0	0	0
			28	0	0	0	0	58	0	0	0	0
			29	0	0	0	0	59	0	0	0	0
			30	0	0	0	0	60	0	0	0	0
AVERAGE OPACITY FOR HIGHEST PERIOD <i>0</i>						NUMBER OF READINGS ABOVE 20% WERE <i>0</i>						
RANGE OF OPACITY READINGS						MINIMUM <i>0</i> MAXIMUM <i>0</i>						
OBSERVER'S NAME (PRINT) <i>CURTIS MOSSER</i>												
COMMENTS <i>* BURNER WENT DOWN - 1440 & 1600</i>						OBSERVER'S SIGNATURE <i>Curtis Mosser</i>			DATE <i>2-9-91</i>			
<i>ON LINE - 1540 & 1605</i>						ORGANIZATION <i>INTERPOLL LABS</i>						
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS						CERTIFIED BY <i>ETA/MPCA</i>			DATE <i>10-17-90</i>			
SIGNATURE						VERIFIED BY			DATE			
TITLE						DATE			DATE			

APPENDIX D

INTERPOLL LABS ANALYTICAL DATA

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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Clean Soils
 Team Leader MK
 Date Submitted 2-10-91
 Test No. 3
 Date of Analysis 2-11-91

Source Soil Remediation Unit
 Test Site Inlet to afterburner
 Date of Test 2-8-91
 No. of Runs Completed 3
 Technician R. Eden

Test/Run	Sample Log Number and Type	No. of An.	Buret Readings (ml)			Conc. CO ₂ %v/v Dry	Conc. O ₂ %v/v Dry	F _o
			Zero Pt.	After CO ₂	After O ₂			
111	2323-05 □ B □ F	1	0.00	8.20	17.30	8.20	9.10	1.44
		2	0.00	8.20	17.3	8.20	9.10	1.44
		Avg				8.20	9.10	
112	-06 □ B □ F	1	0.00	7.50	17.40	7.50	9.90	1.47
		2	0.00	7.50	17.40	7.50	9.90	1.47
		Avg				7.50	9.90	
113	-07 □ B □ F	1	0.00	8.30	17.20	8.30	8.90	1.45
		2	0.00	8.30	17.20	8.30	8.90	1.45
		Avg				8.30	8.90	
	□ B □ F	1						
		2						
		Avg						
	□ B □ F	1						
		2						
		Avg						
	□ B □ F	1						
		2						
		Avg						
	□ B □ F	1						
		2						
		Avg						
	□ B □ F	1						
		2						
		Avg						

- Ambient Air QA Check
- Orsat Analyzer System Leak Check
- F_o Within EPA M-3 Guidelines for fuel type.

EPA Method 3 Guidelines
Fuel Type F_o Range

Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

Where $F_o = \frac{20.9 - O_2}{CO_2}$

F=Flask (250 cc all glass)
 B=Tedlar Bag (5-layer)

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Clean Soils Source Soil Remediation Unit
 Team Leader mk Test Site Stack
 Date Submitted 2-10-91 Date of Test 2-9-91
 Test No. 3 No. of Runs Completed 3
 Date of Analysis 2-11-91 Technician R. Edman

Test/Run	Sample Log Number and Type	No. of An.	Buret Readings (ml)			Conc. CO ₂ %v/v Dry	Conc. O ₂ %v/v Dry	F ₀
			Zero Pt.	After CO ₂	After O ₂			
3/1	2323-18 <input checked="" type="checkbox"/> B <input type="checkbox"/> F	1	0.00	7.40	17.30	7.40	9.90	1.49
		2	0.00	7.40	17.30	7.40	9.90	1.49
		Avg	██			7.40	9.90	████
3/2	-22 <input checked="" type="checkbox"/> B <input type="checkbox"/> F	1	0.00	6.00	17.70	6.00	11.70	1.53
		2	0.00	6.00	17.70	6.00	11.70	1.53
		Avg	██			6.00	11.70	████
3/3	-26 <input checked="" type="checkbox"/> B <input type="checkbox"/> F	1	0.00	7.10	16.90	7.10	9.80	1.56
		2	0.00	7.10	16.90	7.10	9.80	1.56
		Avg	██			7.10	9.80	████
	<input type="checkbox"/> B <input type="checkbox"/> F	1						
		2						
		Avg	██					████
	<input type="checkbox"/> B <input type="checkbox"/> F	1						
		2						
		Avg	██					████
	<input type="checkbox"/> B <input type="checkbox"/> F	1						
		2						
		Avg	██					████
	<input type="checkbox"/> B <input type="checkbox"/> F	1						
		2						
		Avg	██					████
	<input type="checkbox"/> B <input type="checkbox"/> F	1						
		2						
		Avg	██					████

Ambient Air QA Check
 Orsat Analyzer System Leak Check
 F₀ Within EPA M-3 Guidelines for fuel type.
 Where $F_0 = \frac{20.9 - O_2}{CO_2}$

EPA Method 3 Guidelines

Fuel Type	F ₀ Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130
D-2	

F=Flask (250 cc all glass)
 B=Tedlar Bag (5-layer)

EPA Method 5 Data Reporting Sheet
Impinger Catch/~~Minnesota~~ Protocol

Job Clean Soils Source Soil Remediation Unit
 Team Leader MK Test Site Stack
 Date Submitted 2-10-91 Date of Test 2-9-91
 Test No. 3 No. of Runs Completed 3
 Date of Analysis 2-13-91 Technician R. Gibson

0	Test <u> </u> Run <u>0</u> Field Blank Log Number <u> </u> Comments <u> </u>	Dish No. <u> </u> Dish Tare Wt. <u> </u> g Dish+Sample Wt. <u> </u> g Sample Wt. <u> </u> g
1	Test <u>3</u> Run <u>1</u> Log Number <u>2323-17</u> Comments <u> </u>	Dish No. <u>68</u> Dish Tare Wt. <u>48.0369</u> g Dish+Sample Wt. <u>48.0546</u> g Sample Wt. <u>0.0177</u> g
2	Test <u>3</u> Run <u>2</u> Log Number <u>-21</u> Comments <u> </u>	Dish No. <u>69</u> Dish Tare Wt. <u>47.9886</u> g Dish+Sample Wt. <u>48.0014</u> g Sample Wt. <u>0.0128</u> g
3	Test <u>3</u> Run <u>3</u> Log Number <u>-25</u> Comments <u> </u>	Dish No. <u>90</u> Dish Tare Wt. <u>49.7417</u> g Dish+Sample Wt. <u>49.7528</u> g Sample Wt. <u>0.0111</u> g
4	Test <u> </u> Run <u> </u> Log Number <u> </u> Comments <u> </u>	Dish No. <u> </u> Dish Tare Wt. <u> </u> g Dish+Sample Wt. <u> </u> g Sample Wt. <u> </u> g
5	Test <u> </u> Run <u> </u> Log Number <u> </u> Comments <u> </u>	Dish No. <u> </u> Dish Tare Wt. <u> </u> g Dish+Sample Wt. <u> </u> g Sample Wt. <u> </u> g

Blank Solvent Wt. 0.003 g

Results:

Field Blk. Run 1 Run 2 Run 3 Run 4 Run 5

	0.0174	0.0125	0.0108	D-3	
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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job Clean Soils Source Soil Remediation Unit
 Team Leader MK Test Site Stack
 Date Submitted 2-10-91 Date of Test 2-9-91
 Test No. 3 No. of Runs Completed 3
 Date of Analysis 2-12-91 Technician R. G. G. G.
 Transport Leakage None ml Solvent Acetone

0	Test <u> </u> Run <u>0</u> Field Blank Log Number <u> </u> Vol. of Solvent <u> </u> ml *Solvent Residue <u>2.0</u> ug/ml	Dish No. <u> </u> Dish Tare Wt. <u> </u> g Dish+Sample Wt. <u> </u> g Sample Wt. <u> </u> g
1	Test <u>3</u> Run <u>1</u> Vol. of Solvent <u>140</u> ml Log Number <u>-15</u> Comments <u> </u>	Dish No. <u>3</u> Dish Tare Wt. <u>57.8073</u> g Dish+Sample Wt. <u>58.0008</u> g Sample Wt. <u>0.1935</u> g
2	Test <u>3</u> Run <u>2</u> Vol. of Solvent <u>120</u> ml Log Number <u>-19</u> Comments <u> </u>	Dish No. <u>7</u> Dish Tare Wt. <u>48.7954</u> g Dish+Sample Wt. <u>48.8859</u> g Sample Wt. <u>0.0905</u> g
3	Test <u>3</u> Run <u>3</u> Vol. of Solvent <u>100</u> ml Log Number <u>-23</u> Comments <u> </u>	Dish No. <u>26</u> Dish Tare Wt. <u>48.3841</u> g Dish+Sample Wt. <u>48.4623</u> g Sample Wt. <u>0.0782</u> g
4	Test <u> </u> Run <u> </u> Vol. of Solvent <u> </u> ml Log Number <u> </u> Comments <u> </u>	Dish No. <u> </u> Dish Tare Wt. <u> </u> g Dish+Sample Wt. <u> </u> g Sample Wt. <u> </u> g
5	Test <u> </u> Run <u> </u> Vol. of Solvent <u> </u> ml Log Number <u> </u> Comments <u> </u>	Dish No. <u> </u> Dish Tare Wt. <u> </u> g Dish+Sample Wt. <u> </u> g Sample Wt. <u> </u> g

*Solvent Residue ug/ml = [(Sample Wt. g) (10⁶)] / Vol. of Sol. ml

EPA-M5 Acetone Residue Blank Spec. { 7.8 ug/ml

Results:

Field Blk. Run 1 Run 2 Run 3 Run 4 Run 5

	0.1932	0.0903	0.0780	D-4	
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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job Clean Soils Source Soil Remediation Unit
 Team Leader MK Test Site Stack
 Date Submitted 2-11-91 Date of Test 2-9-91
 Test No. 3 No. of Runs Completed 3
 Date of Analysis 2-11-91 Technician B. D. Dube

0	Test <u> </u> Run <u>0</u> Field Blank Log Number <u> </u> Comments <u> </u>	Filter No. <u> </u> Filter Type <u> </u> Filter Tare Wt. <u> </u> g Filter+Sample Wt. <u> </u> g Sample Wt. <u> </u> g
1	Test <u>3</u> Run <u>1</u> Log Number <u>-16</u> Comments <u> </u>	Filter No. <u>1814</u> Filter Type <u>4"GF</u> Filter Tare Wt. <u>0.9422</u> g Filter+Sample Wt. <u>0.9650</u> g Sample Wt. <u>0.0228</u> g
2	Test <u>3</u> Run <u>2</u> Log Number <u>-20</u> Comments <u> </u>	Filter No. <u>2958</u> Filter Type <u>4"GF</u> Filter Tare Wt. <u>0.9361</u> g Filter+Sample Wt. <u>0.9590</u> g Sample Wt. <u>0.0229</u> g
3	Test <u>3</u> Run <u>3</u> Log Number <u>-24</u> Comments <u> </u>	Filter No. <u>2960</u> Filter Type <u>4"GF</u> Filter Tare Wt. <u>0.9332</u> g Filter+Sample Wt. <u>0.9540</u> g Sample Wt. <u>0.0208</u> g
4	Test <u> </u> Run <u> </u> Log Number <u> </u> Comments <u> </u>	Filter No. <u> </u> Filter Type <u> </u> Filter Tare Wt. <u> </u> g Filter+Sample Wt. <u> </u> g Sample Wt. <u> </u> g
5	Test <u> </u> Run <u> </u> Log Number <u> </u> Comments <u> </u>	Filter No. <u> </u> Filter Type <u> </u> Filter Tare Wt. <u> </u> g Filter+Sample Wt. <u> </u> g Sample Wt. <u> </u> g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0228	0.0229	0.0208		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.2334	0.1257	0.1096		

EPA Method 18/NIOSH Sampling
Data Reporting Sheet

Job/Project Stack/Clean Soils
Source Soil Remediation Unit
Test Site Stack

Date of Sampling 2-8-91
Analyst KDS
Date of Analysis 2/28/91
Method of Analysis NIOSH 1501

Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-08	Test <u>2</u> Run <u>0</u>	<input type="checkbox"/> C/C Coal	<input type="checkbox"/> 100/50	Benzene	<u>5.0</u>	<u>1.5</u>
		<input checked="" type="checkbox"/> P/C Coal	<input type="checkbox"/> 300/150	Toluene	<u>5.0</u>	<u>1.5</u>
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	<u>5.0</u>	<u>1.5</u>
		<input type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylenes	<u>5.0</u>	<u>1.5</u>
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
			<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.1 Field Blank</u>						

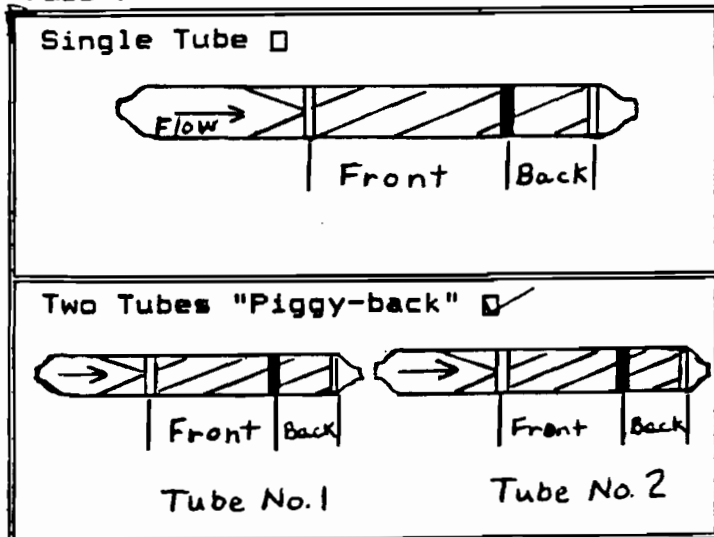
Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-08	Test <u>2</u> Run <u>0</u>	<input type="checkbox"/> C/C Coal	<input type="checkbox"/> 100/50	Benzene	<u>5.0</u>	<u>1.5</u>
		<input checked="" type="checkbox"/> P/C Coal	<input type="checkbox"/> 300/150	Toluene	<u>5.0</u>	<u>1.5</u>
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	<u>5.0</u>	<u>1.5</u>
		<input type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylenes	<u>5.0</u>	<u>1.5</u>
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
			<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.2 Field Blank</u>						

Detection Limits:

Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
<u>Benzene</u>	<u>5.0</u>	<u>1.5</u>
<u>Toluene</u>	<u>5.0</u>	<u>1.5</u>
<u>E-Benzene</u>	<u>5.0</u>	<u>1.5</u>
<u>Xylenes</u>	<u>5.0</u>	<u>1.5</u>

C/C Coal = Coconut Charcoal
P/C Coal = Petroleum Charcoal
S. Gel = Silica Gel

Tube Schematics:



EPA Method 18/NIOSH Sampling
Data Reporting Sheet

Job/Project Stack/Clean Soils Date of Sampling 2-8-91
 Source Soil Remediation Unit Analyst APZ
 Test Site Stack Date of Analysis 2/28/91
 Method of Analysis NIOSH 1501

Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-09	Test <u>2</u> Run <u>1</u>	<input type="checkbox"/> C\C Coal	<input type="checkbox"/> 100/50	Benzene	5.0	1.5
		<input checked="" type="checkbox"/> P\C Coal	<input type="checkbox"/> 300/150	Toluene	5.0	1.5
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	5.0	1.5
		<input type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylenes	5.0	1.5
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
		<input type="checkbox"/>	<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.1</u>						

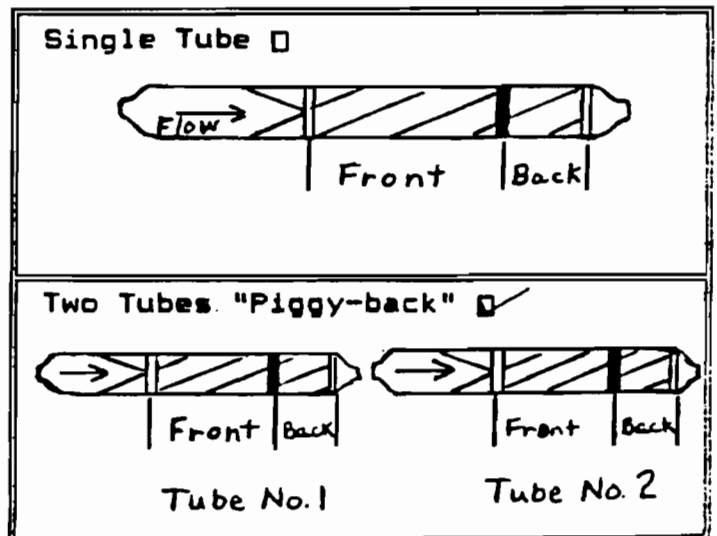
Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-09	Test <u>2</u> Run <u>1</u>	<input type="checkbox"/> C\C Coal	<input type="checkbox"/> 100/50	Benzene	5.0	1.5
		<input checked="" type="checkbox"/> P\C Coal	<input type="checkbox"/> 300/150	Toluene	5.0	1.5
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	5.0	1.5
		<input type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylenes	5.0	1.5
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
		<input type="checkbox"/>	<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.2</u>						

Detection Limits:

Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
<u>Benzene</u>	<u>5.0</u>	<u>1.5</u>
<u>Toluene</u>	<u>5.0</u>	<u>1.5</u>
<u>Ethylbenzene</u>	<u>5.0</u>	<u>1.5</u>
<u>Xylenes</u>	<u>5.0</u>	<u>1.5</u>

C\C Coal = Coconut Charcoal
 P\C Coal = Petroleum Charcoal
 S. Gel = Silica Gel

Tube Schematics:



EPA Method 18/NIOSH Sampling
Data Reporting Sheet

Job/Project Stack/Clean Soils Date of Sampling 2-8-91
 Source Soil Remediation Unit Analyst MS
 Test Site Stack Date of Analysis 2/28/91
 Method of Analysis NIOSH 1501

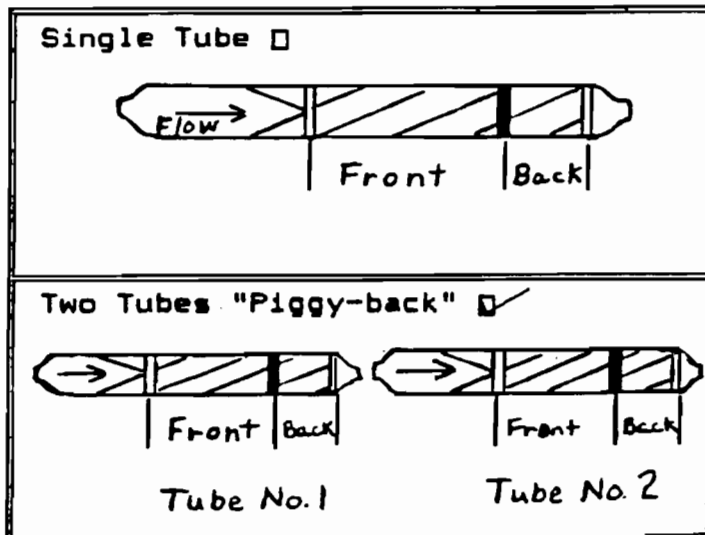
Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-10	Test <u>2</u> Run <u>2</u>	<input type="checkbox"/> C\C Coal	<input type="checkbox"/> 100/50	Benzene	70	51.5
		<input type="checkbox"/> P\C Coal	<input type="checkbox"/> 300/150	Toluene	72	51.5
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	55.0	51.5
		<input type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylene	55.0	51.5
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
		<input type="checkbox"/>	<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.1</u>						

Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-10	Test <u>2</u> Run <u>2</u>	<input type="checkbox"/> C\C Coal	<input type="checkbox"/> 100/50	Benzene	55.0	51.5
		<input checked="" type="checkbox"/> P\C Coal	<input type="checkbox"/> 300/150	Toluene	55.0	51.5
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	55.0	51.5
		<input type="checkbox"/> XAD-2	<input checked="" type="checkbox"/> 800/200	Xylene	55.0	51.5
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
		<input type="checkbox"/>	<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.2</u>						

Detection Limits:

Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
<u>Benzene</u>	5.0	1.5
<u>Toluene</u>	5.0	1.5
<u>E-Benzene</u>	5.0	1.5
<u>Xylenes</u>	5.0	1.5

Tube Schematics:



C\C Coal = Coconut Charcoal
 P\C Coal = Petroleum Charcoal
 S. Gel = Silica Gel

EPA Method 18/NIOSH Sampling
Data Reporting Sheet

Job/Project Stack/Clean Soils Date of Sampling 2-8-91
 Source Soil Remediation Unit Analyst KMS
 Test Site Stack Date of Analysis 2/28/91
 Method of Analysis NIOSH 1501

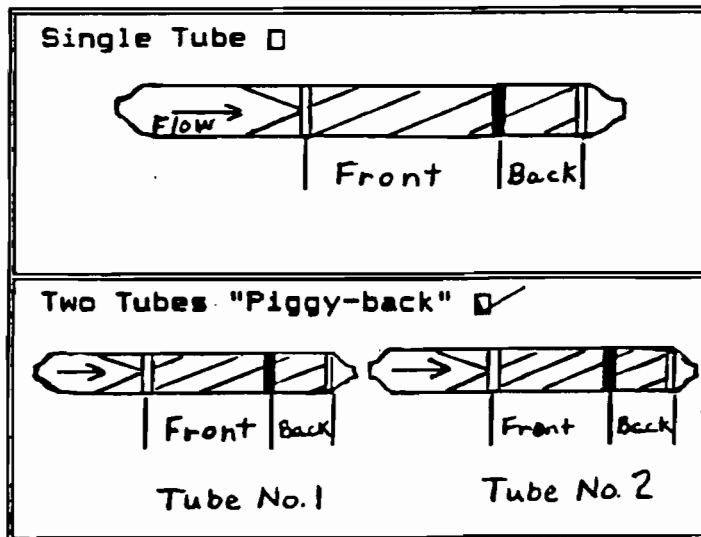
Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-11	Test <u>2</u> Run <u>3</u>	<input type="checkbox"/> C/C Coal	<input type="checkbox"/> 100/50	Benzene	< 5.0	< 1.5
		<input checked="" type="checkbox"/> P/C Coal	<input type="checkbox"/> 300/150	Toluene	< 5.0	< 1.5
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	< 5.0	< 1.5
		<input checked="" type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylenes	< 5.0	< 1.5
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
			<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.1</u>						

Sample Log Number	Test/Run	Sampling Media	Sample Tube Size	Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
2323-11	Test <u>2</u> Run <u>3</u>	<input type="checkbox"/> C/C Coal	<input type="checkbox"/> 100/50	Benzene	< 5.0	< 1.5
		<input checked="" type="checkbox"/> P/C Coal	<input type="checkbox"/> 300/150	Toluene	< 5.0	< 1.5
		<input type="checkbox"/> S. Gel	<input type="checkbox"/> 400/200	Ethylbenzene	< 5.0	< 1.5
		<input checked="" type="checkbox"/> XAD-2	<input type="checkbox"/> 800/200	Xylenes	< 5.0	< 1.5
		<input type="checkbox"/>	<input type="checkbox"/> 1060/240			
			<input type="checkbox"/> 1800/200			
Comments: <u>Tube No.2</u>						

Detection Limits:

Analytes:	Mass Front Section (Total ug)	Mass Back Section (Total ug)
<u>Benzene</u>	<u>5.0</u>	<u>1.5</u>
<u>Toluene</u>	<u>5.0</u>	<u>1.5</u>
<u>E-Benzene</u>	<u>5.0</u>	<u>1.5</u>
<u>Xylenes</u>	<u>5.0</u>	<u>1.5</u>

Tube Schematics:



C/C Coal = Coconut Charcoal
 P/C Coal = Petroleum Charcoal
 S. Gel = Silica Gel

EPA Method 5 Data Reporting Sheet
Impinger Catch/ Probe Wash / Filter Composite

Job Clean Soils Source Afterburner
 Team Leader Mk Test Site Inlet
 Date Submitted 3-15-91 Date of Test 2-8-91
 Test No. 1 No. of Runs Completed 3
 Date of Analysis 3-15-91 Technician B. Decker

0	Test <u>1</u> Run <u>0</u> Field Blank Log Number <u>2323-36</u> Comments _____	Dish No. <u>78</u> Dish Tare Wt. <u>85.5463</u> g Dish+Sample Wt. <u>85.5470</u> g Sample Wt. <u>0.0007</u> g
1	Test <u>1</u> Run <u>1</u> Log Number <u>-37</u> Comments _____	Dish No. <u>82</u> Dish Tare Wt. <u>60.7616</u> g Dish+Sample Wt. <u>60.9960</u> g Sample Wt. <u>0.2344</u> g
2	Test <u>1</u> Run <u>2</u> Log Number <u>-38</u> Comments _____	Dish No. <u>87</u> Dish Tare Wt. <u>73.3499</u> g Dish+Sample Wt. <u>73.6940</u> g Sample Wt. <u>0.3441</u> g
3	Test _____ Run _____ Log Number <u>-39</u> Comments _____	Dish No. <u>88</u> Dish Tare Wt. <u>55.9073</u> g Dish+Sample Wt. <u>56.2714</u> g Sample Wt. <u>0.3641</u> g
4	Test _____ Run _____ Log Number _____ Comments _____	Dish No. _____ Dish Tare Wt. _____ g Dish+Sample Wt. _____ g Sample Wt. _____ g
5	Test _____ Run _____ Log Number _____ Comments _____	Dish No. _____ Dish Tare Wt. _____ g Dish+Sample Wt. _____ g Sample Wt. _____ g

Blank Solvent Wt. 0.0007g

Results:

Field Blk. Run 1 Run 2 Run 3 Run 4 Run 5

	0.2337	0.3484	0.3634	D-10	
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Chain of Custody
Sample Deposition Sheet

Job Clean Soils / Tampa Bay F1 Source Soil Remediation Unit
 Team Leader M. Kaehler Test Site Afterburner Sheet
 Date Submitted _____ Date of Test 2-8-91
 Test No. 1 No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: <input checked="" type="checkbox"/> Acetone <input type="checkbox"/> D.I. Water	<input checked="" type="checkbox"/> As per EPA M-5 <input type="checkbox"/> Other _____	
—	Filter: <input checked="" type="checkbox"/> 4" G.F. <input type="checkbox"/> S.S. Thimble <input type="checkbox"/> 2.5" G.F. <input type="checkbox"/> 47 mm G.F.	<input checked="" type="checkbox"/> As per EPA M-5 <input type="checkbox"/> As per EPA M-17 <input type="checkbox"/> Other _____	
3	Impinger Catch: <input checked="" type="checkbox"/> D.I. Water <input type="checkbox"/> 3% H ₂ O ₂ <input type="checkbox"/> 4MS Hg Only <input type="checkbox"/> 4MS Metals <input type="checkbox"/> 1.0 N NaOH <input type="checkbox"/> Other _____	<input type="checkbox"/> MN Protocol <input type="checkbox"/> WI Protocol <input type="checkbox"/> EPA M-6 or 8 <input type="checkbox"/> Acid Gases <input type="checkbox"/> Formaldehyde <input type="checkbox"/> Metals <input checked="" type="checkbox"/> Other <u>THC</u>	
3	Integrated Gas sample	<input checked="" type="checkbox"/> As per EPA M-3? <input type="checkbox"/> As per EPA M-10 <input checked="" type="checkbox"/> Other <u>Propane + Methane</u>	
—	Oxides of Nitrogen (NO _x)	<input type="checkbox"/> As per EPA M-7A <input type="checkbox"/> Other _____	Date _____ Time (HRS) _____
—	<input type="checkbox"/> Fuel Sample <input type="checkbox"/> Aggregate	<input type="checkbox"/> Attached fuel Form #S-0163RRR	
—	Particle Size	<input type="checkbox"/> X-Ray Sedigraph <input type="checkbox"/> Bahco Method <input type="checkbox"/> Other _____	
—	Audit Samples <input type="checkbox"/> Sulfur Dioxide <input type="checkbox"/> Oxides of Nit. <input type="checkbox"/> Other _____	<input type="checkbox"/> As per EPA M-6 <input type="checkbox"/> As per EPA M-7A <input type="checkbox"/> Other _____	

Source Information

- Type of Source: Boiler Asphalt Plant Incinerator Dryer
 Other Soil Remediation Unit
- Fuel: Coal Wood Gas Oil RDF Other Propane
- Is sample combustible? No Yes
- Does sample need special handling? No Yes If yes, explain

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Chain of Custody
Sample Deposition Sheet

Job Clean Soils / Tampa FI Source Soil Remediation Unit
 Team Leader M. Baehler Test Site Stack
 Date Submitted _____ Date of Test 2-0-91
 Test No. 2 No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
34	Fuel <u>BTX</u> <input type="checkbox"/> Acetone <input type="checkbox"/> D.I. Water	<input type="checkbox"/> As per EPA M-5 <input checked="" type="checkbox"/> Other <u>Re TX</u>	<u>Charcoal Tube with Black Band is Second Tube</u>
—	Filter: <input type="checkbox"/> 4" G.F. <input type="checkbox"/> S.S. Thimble <input type="checkbox"/> 2.5" G.F. <input type="checkbox"/> 47 mm G.F.	<input type="checkbox"/> As per EPA M-5 <input type="checkbox"/> As per EPA M-17 <input type="checkbox"/> Other _____	
—	Impinger Catch: <input type="checkbox"/> D.I. Water <input type="checkbox"/> 3% H ₂ O ₂ <input type="checkbox"/> 4MS Hg Only <input type="checkbox"/> 4MS Metals <input type="checkbox"/> 1.0 N NaOH <input type="checkbox"/> Other _____	<input type="checkbox"/> MN Protocol <input type="checkbox"/> WI Protocol <input type="checkbox"/> EPA M-6 or 8 <input type="checkbox"/> Acid Gases <input type="checkbox"/> Formaldehyde <input type="checkbox"/> Metals <input type="checkbox"/> Other _____	
—	Integrated Gas sample	<input type="checkbox"/> As per EPA M-3 <input type="checkbox"/> As per EPA M-10 <input type="checkbox"/> Other _____	
—	Oxides of Nitrogen (NO _x)	<input type="checkbox"/> As per EPA M-7A <input type="checkbox"/> Other _____	Date _____ Time (HRS) _____
—	<input type="checkbox"/> Fuel Sample <input type="checkbox"/> Aggregate	<input type="checkbox"/> Attached fuel Form #S-0163RRR	
—	Particle Size	<input type="checkbox"/> X-Ray Sedigraph <input type="checkbox"/> Bahco Method <input type="checkbox"/> Other _____	
—	Audit Samples <input type="checkbox"/> Sulfur Dioxide <input type="checkbox"/> Oxides of Nit. <input type="checkbox"/> Other _____	<input type="checkbox"/> As per EPA M-6 <input type="checkbox"/> As per EPA M-7A <input type="checkbox"/> Other _____	

Source Information

- Type of Source: Boiler Asphalt Plant Incinerator Dryer
 Other Soil Remediation Unit
- Fuel: Coal Wood Gas Oil RDF Other Propane
- Is sample combustible? No Yes
- Does sample need special handling? No Yes If yes, explain _____

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Chain of Custody
Sample Deposition Sheet

Job Clean Soils Tampa Bay FL Source Soil Remediation Unit
 Team Leader M. Kachler Test Site Stack
 Date Submitted _____ Date of Test 2-9-91
 Test No. 3 No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
341	Probe Wash: <input checked="" type="checkbox"/> Acetone <input type="checkbox"/> D.I. Water	<input checked="" type="checkbox"/> As per EPA M-5 <input type="checkbox"/> Other _____	
341	Filter: <input checked="" type="checkbox"/> 4" G.F. <input type="checkbox"/> S.S. Thimble <input type="checkbox"/> 2.5" G.F. <input type="checkbox"/> 47 mm G.F.	<input checked="" type="checkbox"/> As per EPA M-5 <input type="checkbox"/> As per EPA M-17 <input type="checkbox"/> Other _____	
341	Impinger Catch: <input checked="" type="checkbox"/> D.I. Water <input type="checkbox"/> 3% H ₂ O ₂ <input type="checkbox"/> 4MS Hg Only <input type="checkbox"/> 4MS Metals <input type="checkbox"/> 1.0 N NaOH <input type="checkbox"/> Other _____	<input type="checkbox"/> MN Protocol <input type="checkbox"/> WI Protocol <input type="checkbox"/> EPA M-6 or 8 <input type="checkbox"/> Acid Gases <input type="checkbox"/> Formaldehyde <input type="checkbox"/> Metals <input checked="" type="checkbox"/> Other <u>Florida Protocol</u>	
3	Integrated Gas sample	<input checked="" type="checkbox"/> As per EPA M-3 <input type="checkbox"/> As per EPA M-10 <input checked="" type="checkbox"/> Other <u>Propane + Methane</u>	
—	Oxides of Nitrogen (NO _x)	<input type="checkbox"/> As per EPA M-7A <input type="checkbox"/> Other _____	Date _____ Time (HRS) _____
—	<input type="checkbox"/> Fuel Sample <input type="checkbox"/> Aggregate	<input type="checkbox"/> Attached fuel Form #S-0163RRR	
—	Particle Size	<input type="checkbox"/> X-Ray Sedigraph <input type="checkbox"/> Bahco Method <input type="checkbox"/> Other _____	
—	Audit Samples <input type="checkbox"/> Sulfur Dioxide <input type="checkbox"/> Oxides of Nit. <input type="checkbox"/> Other _____	<input type="checkbox"/> As per EPA M-6 <input type="checkbox"/> As per EPA M-7A <input type="checkbox"/> Other _____	

Source Information

- Type of Source: Boiler Asphalt Plant Incinerator Dryer
 Other Soil Remediation Unit
- Fuel: Coal Wood Gas Oil RDF Other Propane
- Is sample combustible? No Yes
- Does sample need special handling? No Yes If yes, explain _____

INTERPOLL LABORATORIES, INC.
(612)786-6020

Clean Soils, Inc./Tampa Bay, FL
Laboratory Log No. 2323

Results of Methane & Propane Analysis

Test: 3
Source: Soil Remediation Unit Stack
Sample Type: Integrated Bag Sample

Analyte		Method	Run 1	Run 2	Run 3
(Log No.)			(2323-18)	(2323-22)	(2323-26)
Methane	ppm	GC/FID	10.9	25.0	3.0
Propane	ppm	GC/FID	100	14.9	8.6

INTERPOLL LABORATORIES, INC.
(612)786-6020

Clean Soils, Inc./Tampa Bay, FL
Laboratory Log No. 2323

Results of CHO Analysis

Test: 1
Source: Soil Remediation Unit Stack
Sample Type: M-5 Train Composite

Sample Log No.	Run	Carbon %	Hydrogen %	Oxygen %
2323-36	1	78.80	7.61	10.45
2323-37	2	77.28	7.45	12.22
2323-38	3	79.93	7.23	11.05

APPENDIX E

PROCESS RATE DATA

SRU 101 STACK TEST 2/8/91

<u>TIME</u> START #1	<u>TONS PER</u> <u>HOUR</u>	<u>SOIL TEMP.</u>	<u>AFTERBURNER</u>	<u>PRESSURE</u> <u>DROP</u>
1225	8.5	470	1432	8.25
1245	6.8	530	1434	8.75
1300	10.2	517	1446	8.75
1315	9.3	458	1502	8.75
1330	8.0	386	1532	8.75
1345	6.2	445	1516	8.75
1400	6.6	460	1511	8.9
1415	8.5	476	1518	9.2
1430	8.5	640	1458	9.5
1445	8.5	470	1561	9.2
1500	8.5	302	1527	9.5
1515	8.5	454	1585	9.7
1530	8.5	537	1597	9.5
1545	8.0	620	1546	9.75
1600	8.5	702	1589	9.75
1615	8.0	483	1608	10.0
1630	4.8	511	1501	9.75
1645	5.9	509	1510	9.75
1700	6.9	499	1499	9.75
1715	7.1	AFTERBURNER DOWN	BACK ON LINE	1720
1730	6.1	424	1413	9.5
1745	9.4	557	1505	7.5
1800	8.4	429	1490	7.75
1815	8.2	429	1469	8.0
1830	8.5	437	1459	8.0
1845	8.7	412	1507	8.25
1900	7.5	496	1472	8.25
1915	7.9	592	1462	8.5
1930	6.1	523	1477	8.5
1945	5.6	611	1484	8.5
2000	5.2	509	1495	8.5
2015	8.8	429	1479	8.5
2030	7.5	452	1482	8.5
2045	8.8	324	1471	9.0
2100	7.3	421	1423	9.0
2115	4.3	613	1470	7.5
2130	5.3	614	1445	3.75
2145	6.3	533	1422	1.75
2200	END SOIL	577	1496	1.5

SRU 101 STACK TEST 2/9/91

LOG SHEET

<u>TIME</u>	<u>TONS PER HOUR</u>	<u>SOIL TEMP.</u>	<u>AFTERBURNER TEMP.</u>	<u>PRESSURE DROP</u>
11:00	START SOIL			
11:15	7.8	480	1238	.5
11:30	8.8	453	1286	.5
11:45	7.5	574	1391	1.0
12:00	10.6	569	1411	1.0
12:15	AFTERBURNER DOWN SCANNER FAILURE			
12:30	9.2	423	1281	4.5
12:45	11.4	422	1416	5.5
13:00	12.2	442	1512	6.0
13:15	12.1	421	1491	5.0
13:23	AFTERBURNER DOWN SCANNER FAILURE			
13:30	11.8	418	1400	6.0
13:45	10.3	471	1461	6.0
	AFTERBURNER DOWN SCANNER FAILURE			
14:00	8.7	482	1498	6.25
14:15	9.8	560	1398	5.5
14:30	11.7	569	1374	6.0
14:45	DRIER BURNER PROBLEM (LEAKY FUEL NOZZLE)			
15:25	START SOIL			
15:45	8.8	451	1445	
16:00	9.6	503	1460	
16:15	8.7	512	1438	
16:30	8.9	462	1499	
16:45	9.8	489	1451	
17:00	9.4	496	1462	
17:15	7.1	372	1465	
17:30	9.6	586	1425	
17:45	9.4	581	1431	
18:00	9.1	433	1425	5.0
18:15	13.0	422	1454	6.0

APPENDIX F

THC STRIP CHARTS

T1/R1 0-1000 scale 1222
Afterburner Inlet

30 ppm System Bias 0-100 scale

0 ppm System Bias 0-100 scale

30 ppm 0-100 scale

300 ppm 0-1000 scale

3,000 ppm 0-10,000 scale

0 ppm 0-100 scale

Clean Soils

Tampa Fl

Soil Remediation Unit

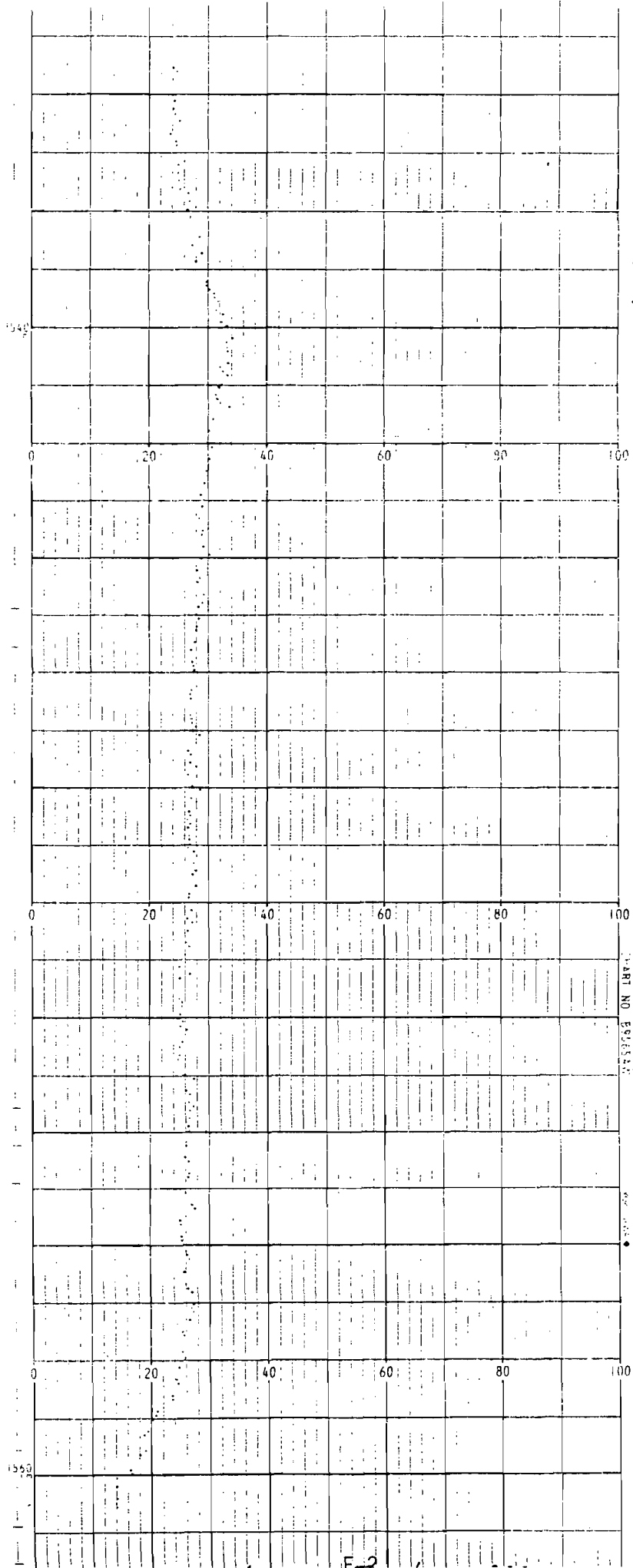
Afterburner Stack + Inlet

Chart Speed 500 mm/hr

Sample Rate 200 mbar

2-8-91

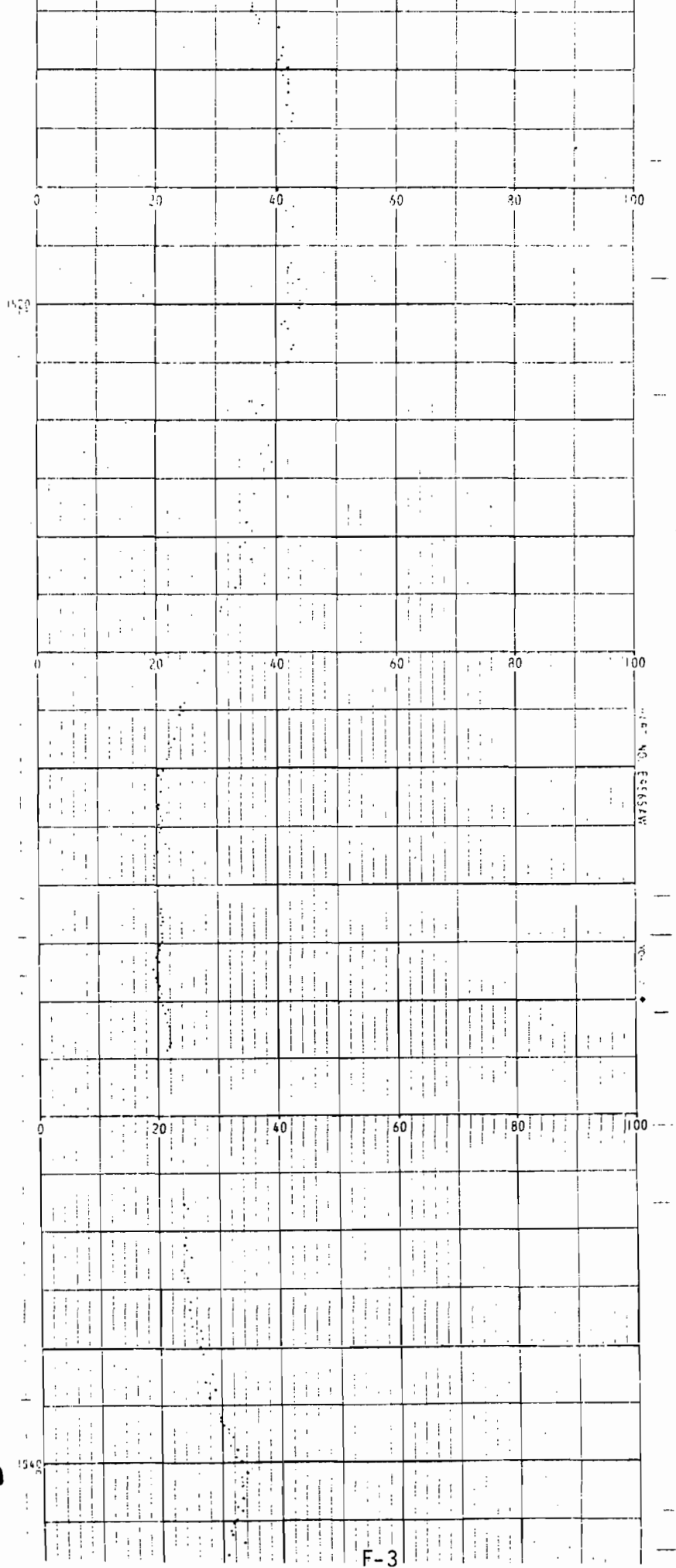
1540cm



PART NO. EST. 22

↑
1222
T1/R1

F-2



1540 cm

0 20 40 60 80 100

T1/R1 1410 Afterburner Stack
30 ppm 0-100 scale

3000 ppm 0-10,000 scale

R.S.
ERC/HC

0 20 40 60 80 100

30 ppm 0-100 scale

300 ppm 0-1000 scale

REC'D
NO. 65554W

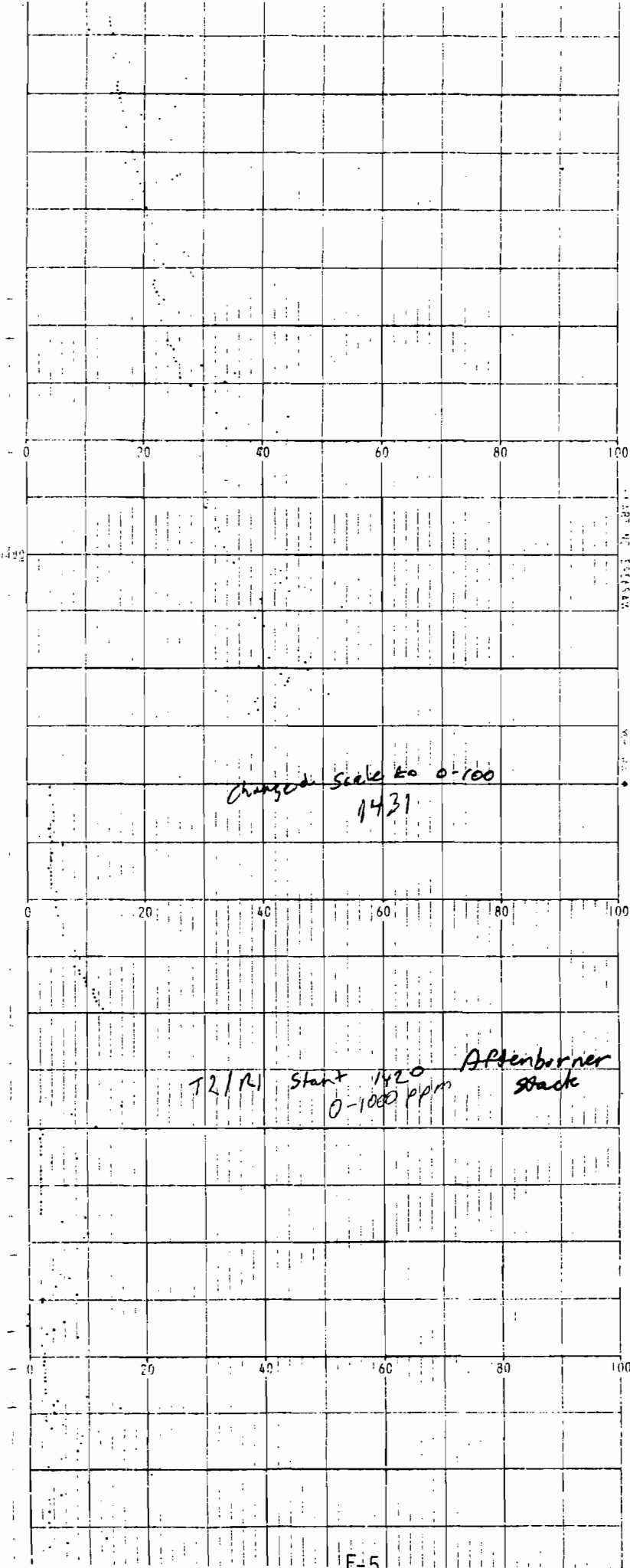
0 ppm 0-100 scale

System Bias
500 ppm 0-1000 scale

End T1/R1 1323 R.S. ERC/HC

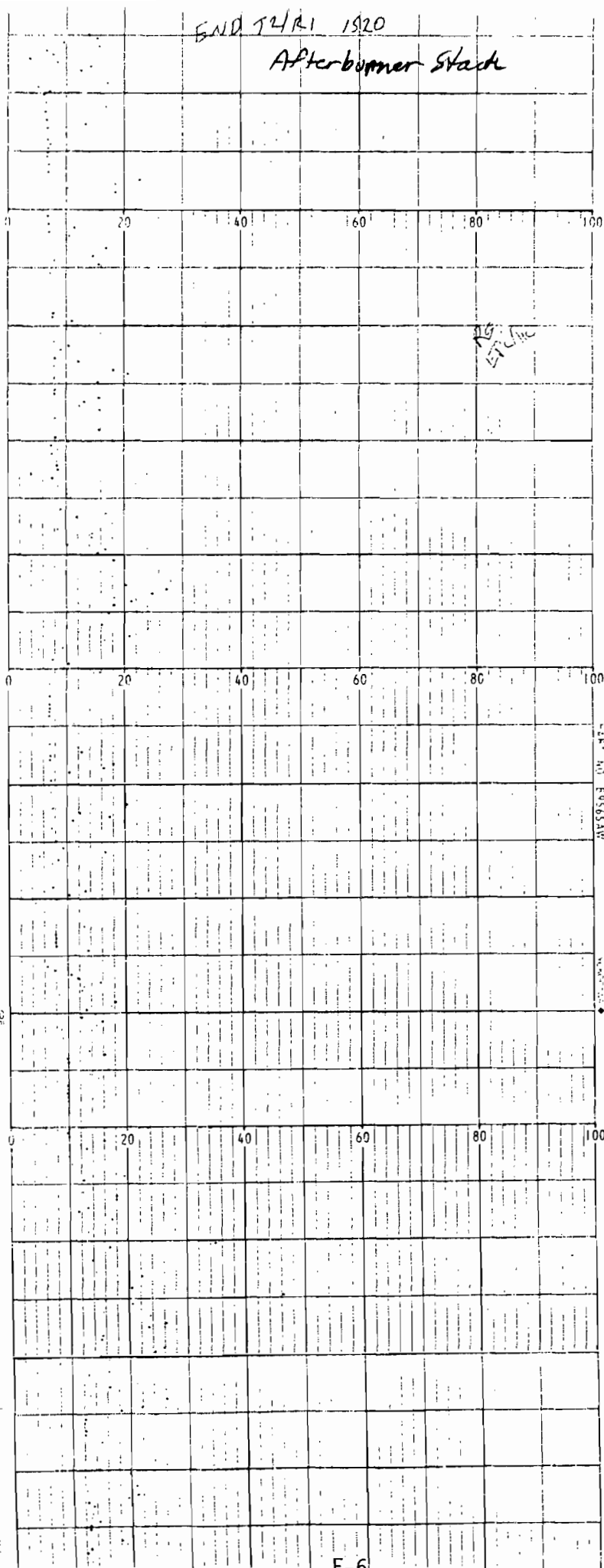
0 20 40 60 80 100

Afterburner Inlet



END JULY 1920

Afterburner Stack



AG 5/1/20



problems
changed to 0-10000 scale
1547

0 20 40 60 80 100

0 20 40 60 80 100

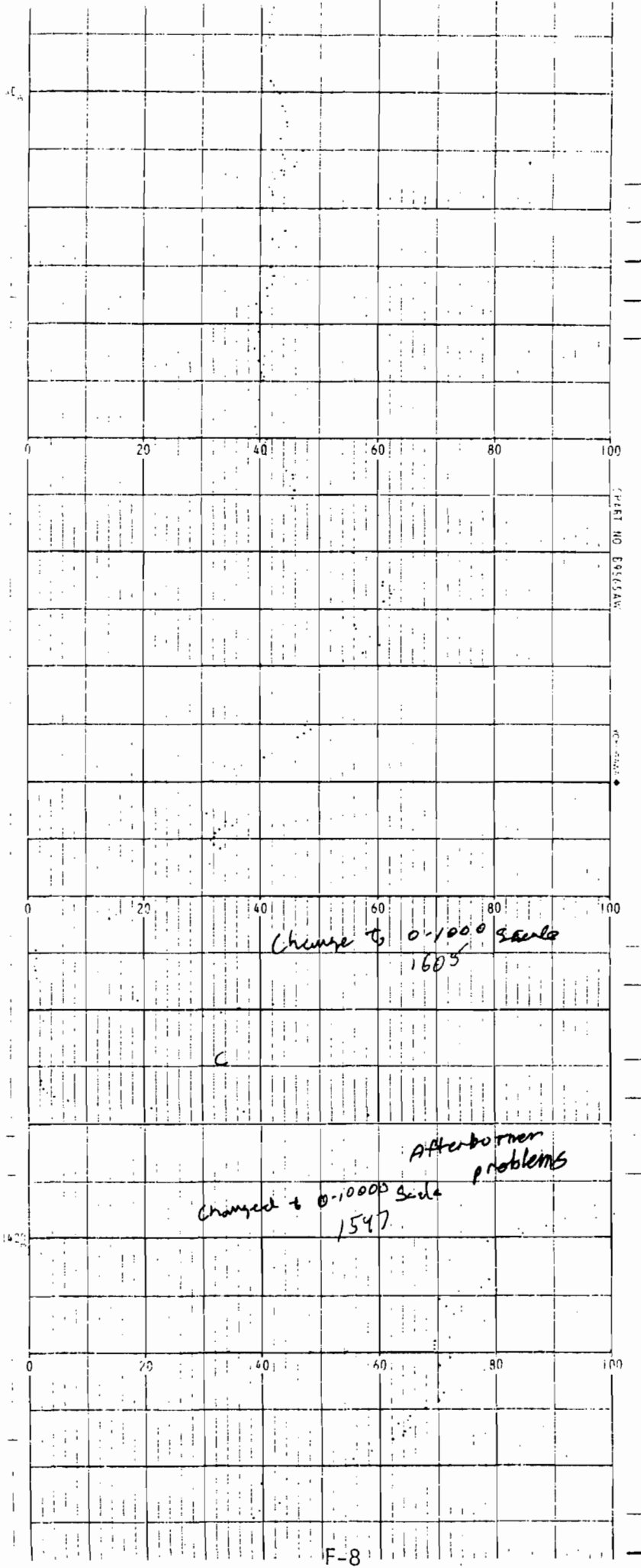
changed range to 0-1,000
1543
Afterburner Inlet

0 20 40 60 80 100

TIR 0-10,000 scale Afterburner Inlet

30 ppm 0-100 scale

END TIR 1520
Afterburner Stack



Change to 0-1000 scale
1605

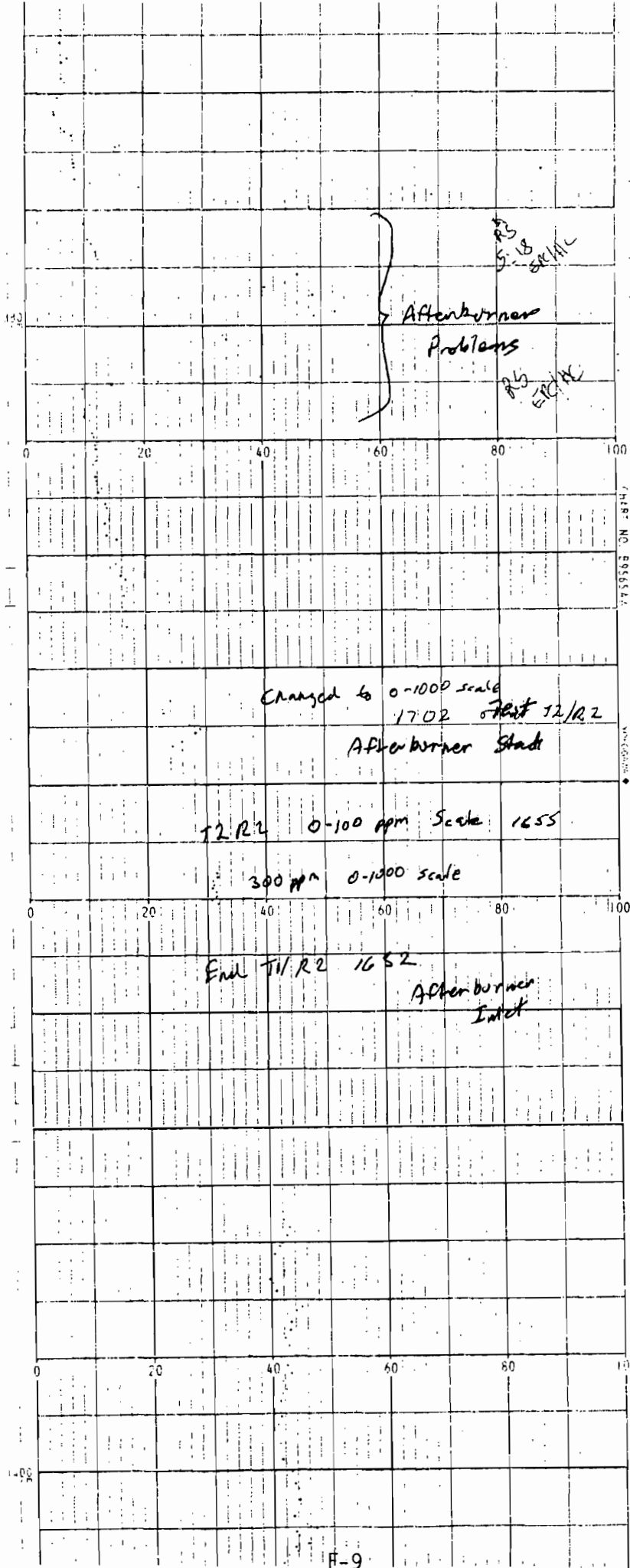
C

Afterburner
problems

Changed to 0-10000 scale
1547

PART NO 8915AW

C-344



HIST. NO. 29555A

1000000

} Afterburner
 Problems

R5
 5-18
 scale

R5
 5-18
 scale

Changed to 0-1000 scale
 1702 of test 12/12/2
 Afterburner Start

12/12/2 0-100 ppm Scale 1655
 300 ppm 0-1000 scale

End 11/12/2 1652
 Afterburner
 Intake

555
P/S
E/11K

0 20 40 60 80 100

13.2

HART N. ESCALIN

0 20 40 60 80 100

Affe-burner went down 1708
Balkon 1723 SGA
0-100ppm

0 20 40 60 80 100

End TL/R2 1810

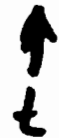
0 20 40 60 80 100

Chart No. 5011A

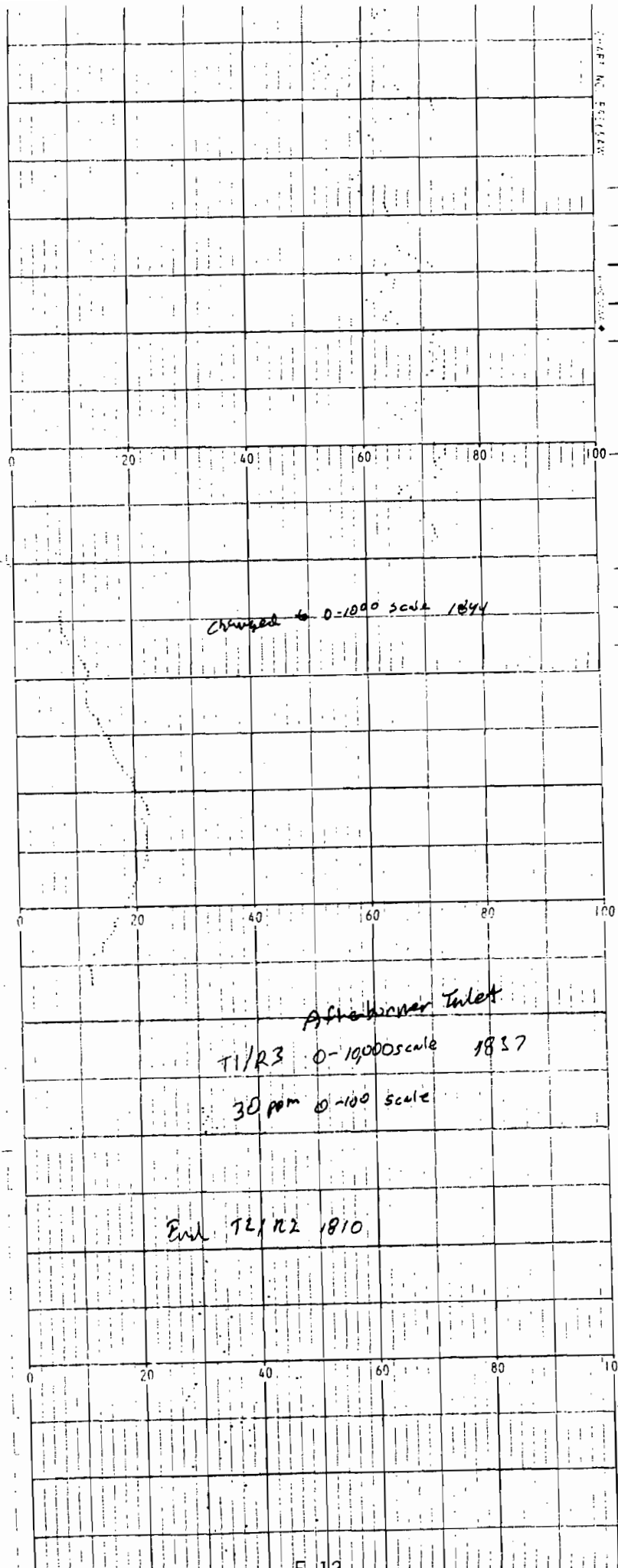
1240

0 20 40 60 80 100

0 20 40 60 80 100



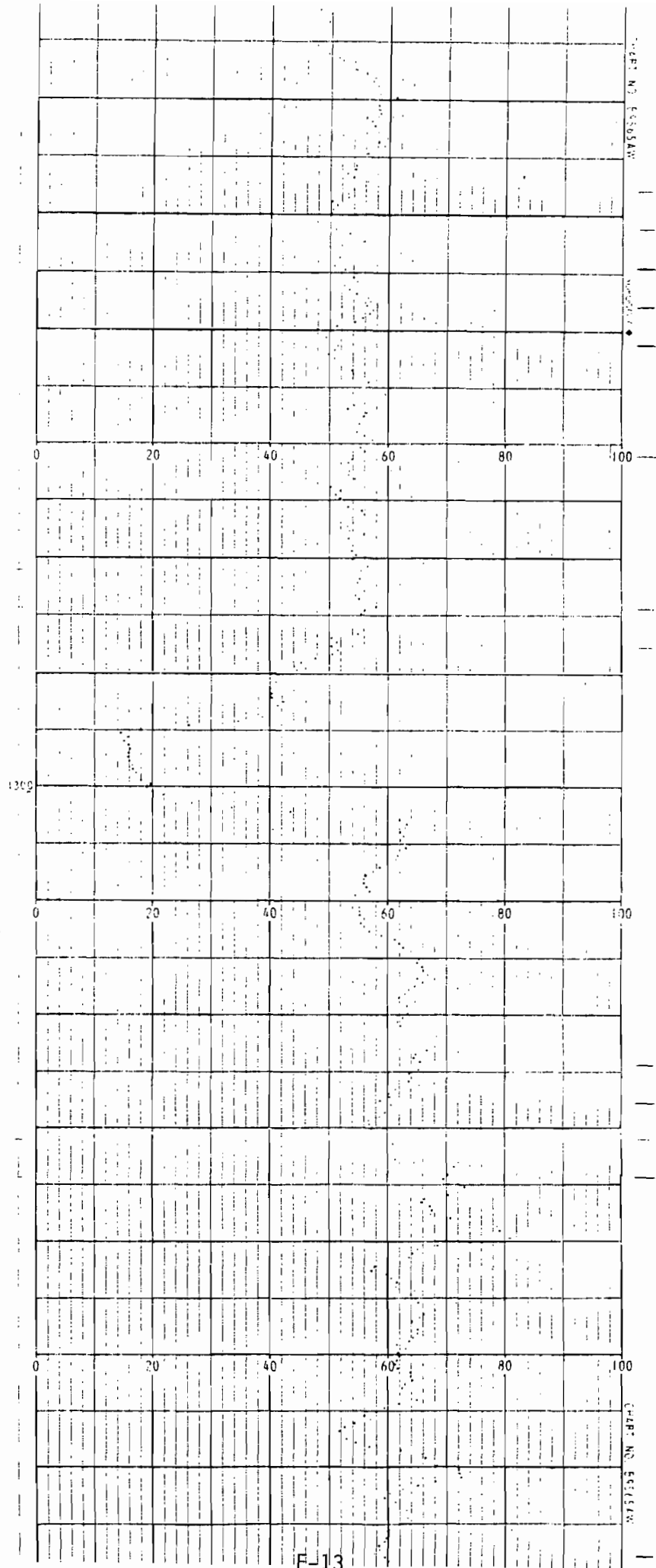
SAFE
AS
EXPLK

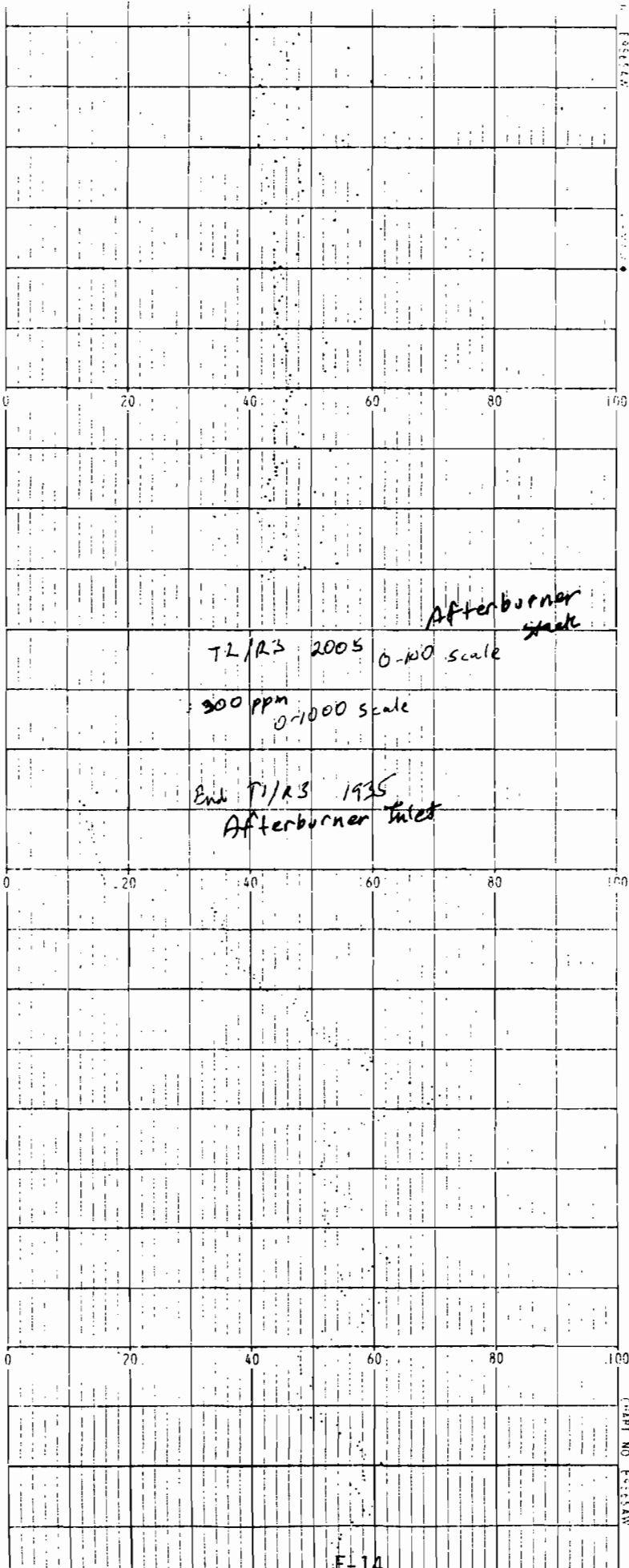


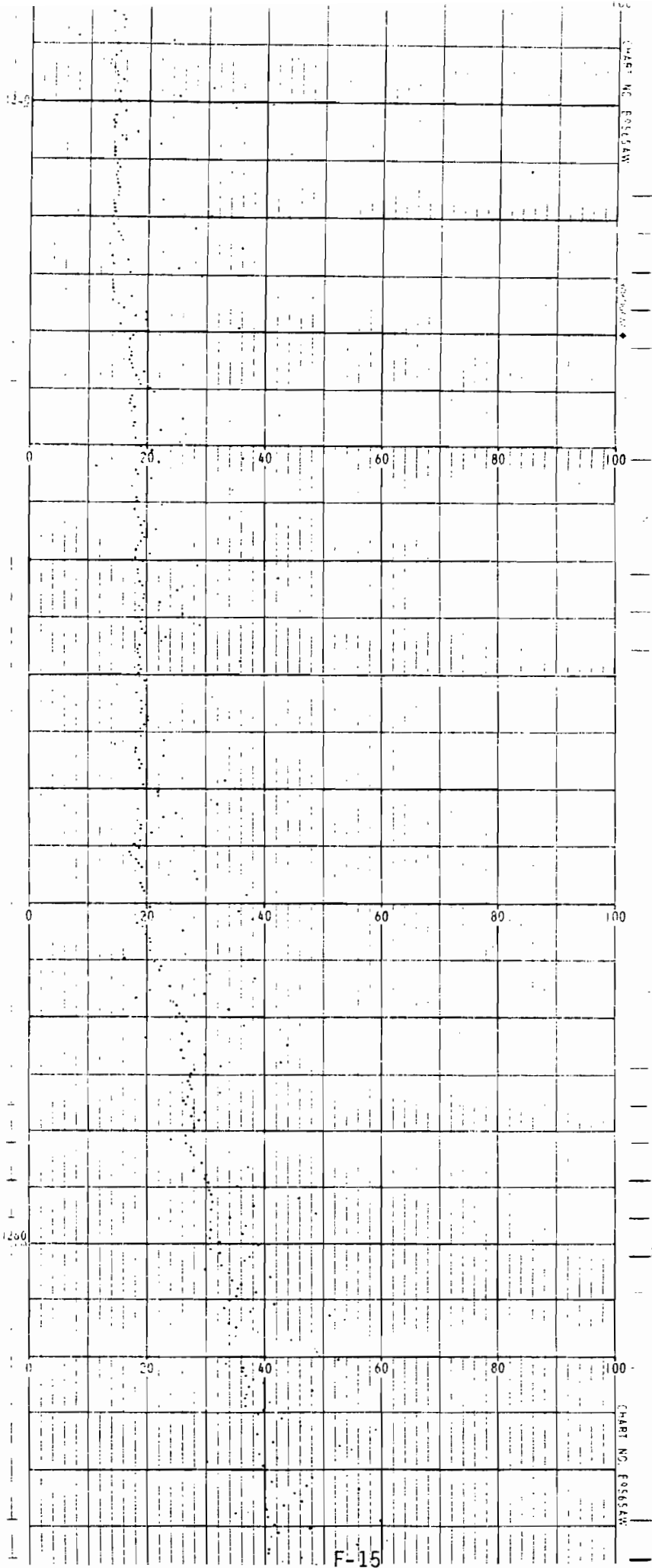
Changed to 0-1000 scale 1844

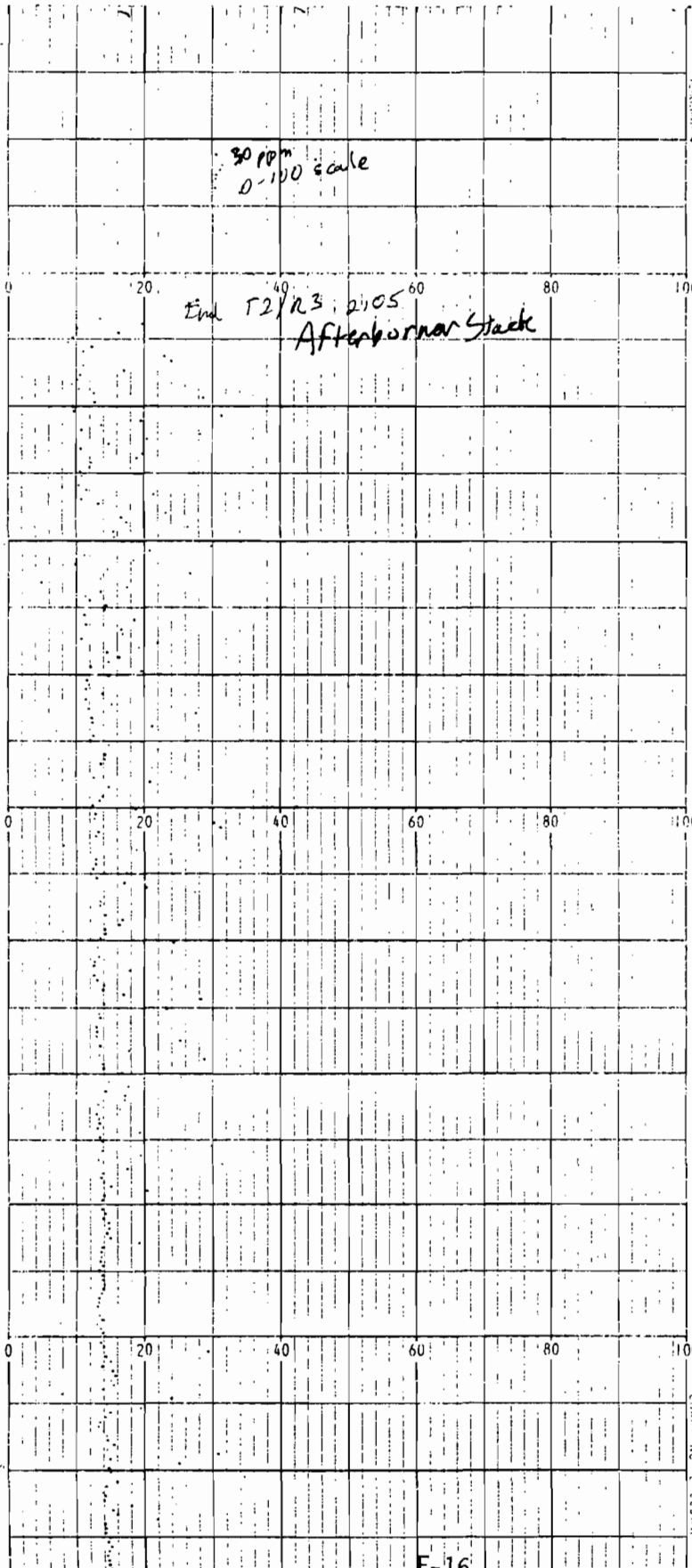
After burner Inlet
T1/R3 0-10000 scale 1837
30 ppm 0-100 scale

Enil T2/R2 1810









APPENDIX G

MEASUREMENT SYSTEM PERFORMANCE CHECKS

INTERPOLL LABORATORIES
EPA Method 25A
Calibration Error Check & Drift Determination

Job Clean Soils

Test 1 Run 123 Date 2-8-91
Operator M. Kaehler

THC Calibration (Low Range):

Time (HRS) 1145

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0	0	0	100	0
Low level	30	28	2	100	2
Mid level	300	297	3	1000	.3
High level	3000	3002	2	10,000	.02

THC Calibration (High Range):

Time (HRS) _____

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0				
Span					

O₂ Calibration:

Time (HRS) _____

***	Cylinder Value (%)	Analyzer Response (%)	Difference (%)	Span Value (%)	Percent of Span
Zero gas	0				
Mid level					
High level					

CO₂ Calibration:

Time (HRS) _____

***	Cylinder Value (%)	Analyzer Response (%)	Difference (%)	Span Value (%)	Percent of Span
Zero gas	0				
Mid level					
High level					

Must be within 2% of the span for each calibration gas

S-420-14

INTERPOLL LABORATORIES
(612) 786-6020

System Bias Check

Job Clean Soils / Tampa Bay FL Source Soil Remediation Unit
 Test 2 Run 1,2,3 Date 2-8-91 Site Stach
 Operator McKachler

Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	1400	Zero gas	0		0	0	100	0
		Upscale	30		30	0	100	0
2	1525	Zero gas	0		1	1	100	1
		Upscale	30		31	1	100	1
3	1820	Zero gas	0		2	2	100	2
		Upscale	30		31	1	100	1
4	2112	Zero gas	0		2	2	100	2
		Upscale	30		31	1	100	1
5		Zero gas	0					
		Upscale						
6		Zero gas	0					
		Upscale						
7		Zero gas	0					
		Upscale						
8		Zero gas	0					
		Upscale						
9		Zero gas	0					
		Upscale						
10		Zero gas	0					
		Upscale						
11		Zero gas	0					
		Upscale						
12		Zero gas	0					
		Upscale						

Must be within 5% of the span for the zero or upscale cal. gas.

S420-11R

INTERPOLL LABORATORIES
(612) 786-6020

System Bias Check

Job Clean Soils / Tampa Bay F1 Source Sod Remediation Unit
 Test 1 Run 1,2,3 Date 2-9-91 Site Inlet Afterburner
 Operator M. Kachler

Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	1200	Zero gas	0		1	1	100	1
		Upscale	30		31	1	100	1
2	1330	Zero gas	0		1	1	1000	.01
		Upscale	300		306	6	1000	.06
3	1635	Zero gas	0		2	2	1000	.02
		Upscale	300		309	9	1000	.09
4	1942	Zero gas	0		4	4	1000	.04
		Upscale	300		307	7	1000	.07
5		Zero gas	0					
		Upscale						
6		Zero gas	0					
		Upscale						
7		Zero gas	0					
		Upscale						
8		Zero gas	0					
		Upscale						
9		Zero gas	0					
		Upscale						
10		Zero gas	0					
		Upscale						
11		Zero gas	0					
		Upscale						
12		Zero gas	0					
		Upscale						

Must be within 5% of the span for the zero or upscale cal. gas.

APPENDIX H

PROCEDURES

Particulate Loading and Emission Rates

The particulate emission rates were determined per EPA Methods 1 - 5, CFR Title 40, Part 60, Appendix A (revised July 1, 1988). In this procedure a preliminary velocity profile of the gases in the flue is obtained by means of a temperature and velocity traverse. On the basis of these values, sampling nozzles of appropriate diameter are selected to allow isokinetic sampling, a necessary prerequisite for obtaining a representative sample.

The sampling train consists of a heated glass-lined sampling probe equipped with a Type S pitot and a thermocouple. The probe is attached to a sampling module which houses the all-glass in line filter holder in a temperature controlled oven. The sampling module also houses the impinger case and a Drierite filled column. The sampling module is connected by means of an umbilical cord to the control module. The control module houses the dry test gas meter, the calibrated orifice, a leakless pump, two inclined manometers, and all controls required for operating the sampling train.

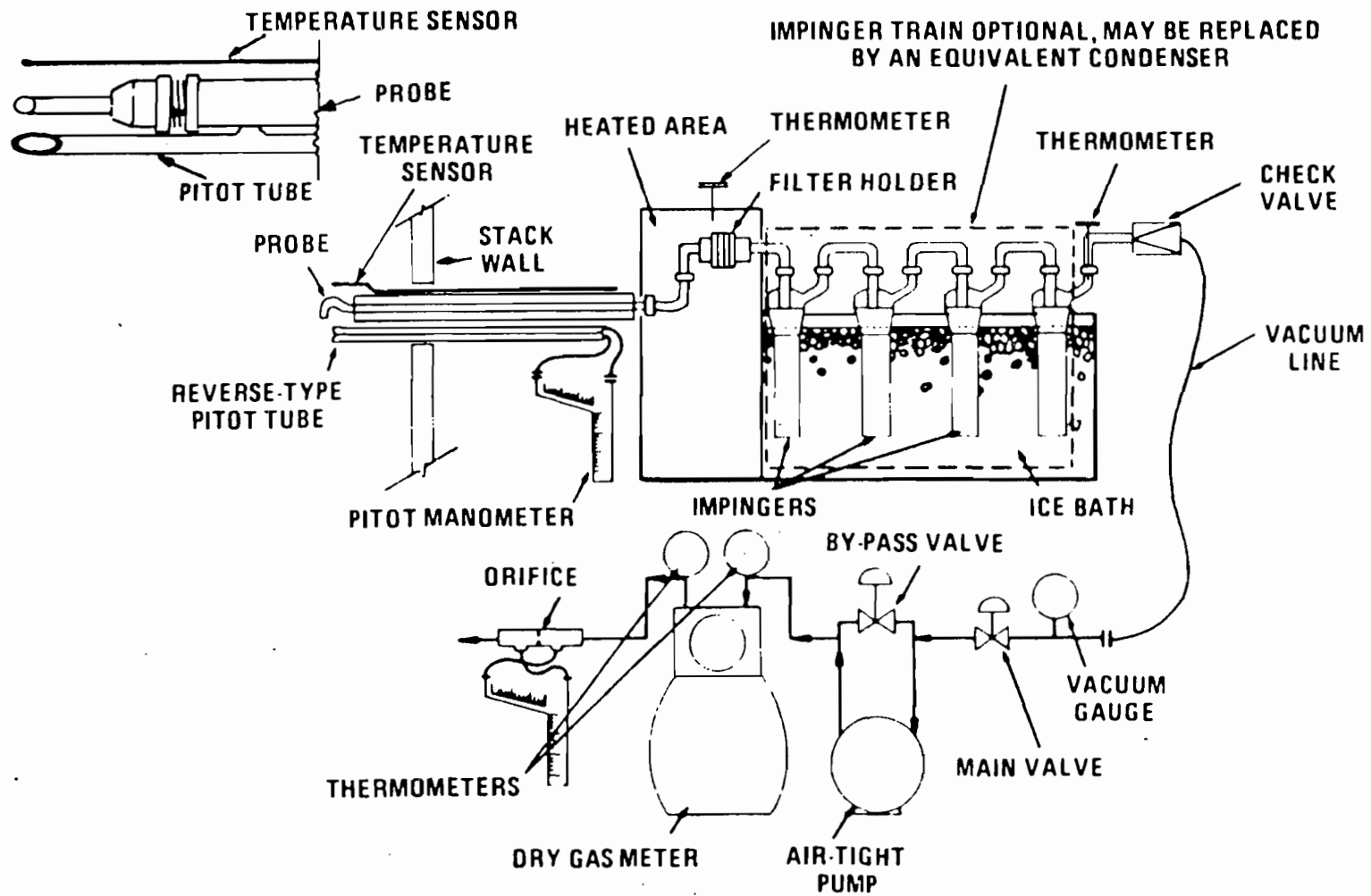
Particulate samples are collected as follows: The sample gas is drawn through the sampling probe isokinetically and passed through a 4-inch diameter Gelman Type A/E glass fiber filter where particulates are removed. The sample gas is then passed through an ice-cooled impinger train and a desiccant-packed column which absorbs remaining moisture. The sample gas then passes through a vacuum pump followed by a dry test gas meter. The gas meter integrates the sample gas flow throughout the course of the test. A calibrated orifice attached to the outlet of the gasmeter provides real time flow rate data.

A representative particulate sample was acquired by sampling for equal periods of time at the centroid of a number of equal area regions in the duct. The sampling rate is adjusted at each test point maintaining isokinetic sampling conditions. Nomographs are used for rapid determination of the sampling rate.

After sampling is complete, the filter is removed and placed in a clean container. The nozzle and inlet side of the filter holder are quantitatively washed with acetone and the washings are stored in a second container. A brush is often used in the cleaning step to help dislodge deposits. The samples are returned to the laboratory where they are logged in and analyzed. The volume of the acetone rinse ("probe wash") is noted and then the rinse is quantitatively transferred to a tared 120 cc porcelain evaporating dish and the acetone evaporated off at 97-105 °F. This temperature is used to prevent condensation of atmospheric moisture due to the cooling effect induced by the evaporation of acetone. The acetone-free sample is then transferred to an oven and dried at 105 °C for 30 minutes, cooled in a desiccator over Drierite, and then weighed to the nearest .01 mg. The filter sample is quantitatively transferred to a 6-inch watch glass and dried in an oven at 105 °C for two hours. The filter and watch glass are then cooled in a desiccator and the filter weighed to the nearest .01 mg. All weighings are performed in a balance room where the relative humidity is hydrostatted to less than 50% relative humidity. Microscopic examination of the samples is performed if any unusual characteristics are observed. The weight of the acetone rinse is corrected for the acetone blank. The Drierite column is weighed on-site and the water collected by Drierite is added to the condensate so that the total amount of absorbed water may be ascertained.

Integrated gas samples for Orsat analysis were collected at a constant flow rate throughout each particulate run. The gas samples were analyzed using an all-glass Orsat analyzer. Standard commercially prepared solutions were used in the Orsat analyzer (sat. KOH for carbon dioxide and reduced methylene blue for oxygen). In addition to the above, the oxygen content of the flue gas was measured at each traverse during the particulate determinations using a Teledyne Model 320P-4 Portable Oxygen Analyzer to sample the effluent from the Method 5 train.

3a P2(7)



Particulate-sampling train.

Condensable Organic Compounds Analysis

Method II-8672

Equipment: Separatory funnel - 500 cc with Teflon stopcock
 Powder funnel - 75 mm ID with a 17 mm stem
 Evaporating dish(es) - 200 cc or 250 cc beaker

Reagents: Diethyl ether - reagent grade
 Chloroform - reagent grade
 Sodium sulfate - (ACS) granular anhydrous
 Toluene - (if 3% hydrogen peroxide is used to collect the
 samples)
 Glass wool (Pyrex microfiber)

PREPARATION

1. Place 1 kg of granular anhydrous sodium sulfate in a shallow tray and heat to 200 °C for at least four hours. Store in a tightly sealed glass container.
2. Place a plug of clean glass wool in the stem of the powder funnel. The plug must be of sufficient size so that it is held snugly in place by its own pressure. Add a one-inch layer of dry sodium sulfate.

SAMPLING

An all-glass impinger assembly is used in the back half of the EPA Method 5 sampling train when an organic wet catch is to be collected. The impinger assembly consists of a modified impinger, a Greenburg Smith impinger followed by another modified impinger. The third impinger should have a temperature measuring device at the outlet upstream of a final impinger or desiccant column to monitor the temperature of the outlet gas stream. Prior to the start of the test, each of the first two impingers should be charged with 100 g of Class I water. The Method 5 train should be operated as provided for in EPA Method 5. Ice should be added to the impinger bath to keep the temperature of the gas at the outlet at or less than 68 °F. After the post test leak check, the impinger train is removed and impinger contents poured into a tared all-glass sample bottle and closed with a Teflon-lined cap. The sample bottle is then weighed and the total condensate calculated by subtraction of the bottle tare weight and the weight of initial water added to the impingers (200 g). A label is affixed and the sample is returned to the laboratory for analysis. The sample should be stored at 4 °C if the analysis is not conducted within 48 hours.

ANALYSIS

I. Organics

Caution! Work in vented hood!!!

A. Organic Blank Determination

1. Pour 125 mL of ethyl ether and 125 mL of chloroform into a tared beaker.
2. Evaporate solvent in hood at 70 °F or less until no solvent remains.
3. Desiccate the sample in dish for two hours.
4. Weigh the sample to nearest 0.1 mg, record and report on Form LSC-036.

B. Organic Sample Determination

1. Test for peroxide in sample ether using KI strips. (If KI strip shows positive, contact your supervisor before proceeding.)
2. Transfer the sample solution quantitatively to a 500 mL separatory funnel. Use the first of three 25 mL chloroform aliquots to rinse the sample container.
3. Extract with three 25 mL portions of chloroform. (Shake and vent to release pressure about 4 to 5 times each.) Allow the phases to separate. (Bottom layer is chloroform.) Draw off the bottom layer, transferring the solvent with a funnel containing a plug of sodium sulfate into a tared beaker. (Do not draw off any of the aqueous layer.)

4. After the three chloroform extractions, use two 25 mL portions of chloroform to rinse the sodium sulfate, collecting the rinses in the same tared beaker as the extracts.
5. Next extract the sample three times with 25 mL aliquots of ethyl ether. (Shake and vent to release pressure about 4 to 5 times each.) Allow the phases to separate. (Top layer is ethyl ether.) Draw off the bottom layer (aqueous) into another separatory funnel taking less than 1 mL of the ethyl ether layer with. Decant the ethyl ether, passing it through sodium sulfate and collecting the ethyl ether in the same tared dish as the chloroform.
6. After the three ethyl ether extractions, take two 25 mL portions of ethyl ether and rinse the sodium sulfate collecting the rinses in the same tared beaker as the extracts.
7. Evaporate the solvents (chloroform and ethyl ether) in the tared beaker in the hood at 70 °F or less until no solvent remains. (Use no heat and have no sources of ignition in the hood when doing this procedure.) Do not evaporate so quickly as to allow evaporative cooling to lower the temperature of the container below the dew point of water, otherwise, water will be condensed out in the container.
8. Desiccate to constant weight (two hours). Record and report the final weight to the nearest 0.1 mg on Form LSC-036.

II. Inorganics

If inorganic residue information is required, the following procedure should be conducted:

A. Inorganic Blank Determination

1. Vent the remaining aqueous phase from the organic extraction in the hood to remove residual organic solvents (usually overnight).
2. Decant the impinger catch into a tared evaporating dish.
3. Evaporate all of the water in the sample in an oven at 100 °C. Take care not to boil to prevent bumping and loss of sample.
4. Cool the dried sample in the desiccator and desiccate until a constant weight is obtained.
5. Report the results to the nearest 0.1 mg on Form LSC-036.

B. Inorganic Sample Determination

Follow steps 1-5 in Section A above.

NOTES

1. For the organics determination, in the rare event that the impinger catch resulted from a Modified Method 6 determination (SO₂), whereby the solution contains dilute hydrogen peroxide (> 3%), do not use ether as an extraction solvent. Substitute toluene for ethyl ether in Section I. (Ether in the presence of peroxide forms explosive hydroperoxide.)
2. In the organics determination, more than three extractions may be required to extract all of the organics. Additional extractions should be performed if the aqueous phase is still cloudy.
3. Special state requirements:
Michigan - Total sample evaporated in tared evaporating dish on steam bath.
Iowa - Organics and inorganics separately, as required.
Wisconsin - Use Method II-8672-WI.
Rest of states - Organics only.

REFERENCES

Proposed Standards of Performance for New Stationary Sources, Federal Register 36(159) Part II, August 1, 1979.

Minnesota Pollution Control Agency, Exhibit C.

METHOD 25A—DETERMINATION OF TOTAL GASEOUS ORGANIC CONCENTRATION USING A FLAME IONIZATION ANALYZER

1. Applicability and Principle

1.1 Applicability. This method applies to the measurement of total gaseous organic concentration of vapors consisting primarily of alkanes, alkenes, and/or arenes (aromatic hydrocarbons). The concentration is expressed in terms of propane (or other appropriate organic calibration gas) or in terms of carbon.

1.2 Principle. A gas sample is extracted from the source through a heated sample line, if necessary, and glass fiber filter to a flame ionization analyzer (FIA). Results are reported as volume concentration equivalents of the calibration gas or as carbon equivalents.

2. Definitions

2.1 Measurement System. The total equipment required for the determination of the gas concentration. The system consists of the following major subsystems:

2.1.1 Sample Interface. That portion of the system that is used for one or more of the following: sample acquisition, sample transportation, sample conditioning, or protection of the analyzer from the effects of the stack effluent.

2.1.2 Organic Analyzer. That portion of the system that senses organic concentration and generates an output proportional to the gas concentration.

2.2 Span Value. The upper limit of a gas concentration measurement range that is

specified for affected source categories in the applicable part of the regulations. The span value is established in the applicable regulation and is usually 1.5 to 2.5 times the applicable emission limit. If no span value is provided, use a span value equivalent to 1.5 to 2.5 times the expected concentration. For convenience, the span value should correspond to 100 percent of the recorder scale.

2.3 Calibration Gas. A known concentration of a gas in an appropriate diluent gas.

2.4 Zero Drift. The difference in the measurement system response to a zero level calibration gas before and after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place.

2.5 Calibration Drift. The difference in the measurement system response to a mid-level calibration gas before and after a stated period of operation during which no unscheduled maintenance, repair or adjustment took place.

2.6 Response Time. The time interval from a step change in pollutant concentration at the inlet to the emission measurement system to the time at which 95 percent of the corresponding final value is reached as displayed on the recorder.

2.7 Calibration Error. The difference between the gas concentration indicated by the measurement system and the known concentration of the calibration gas.

3. Apparatus

A schematic of an acceptable measurement system is shown in Figure 25A-1. The essential components of the measurement system are described below:

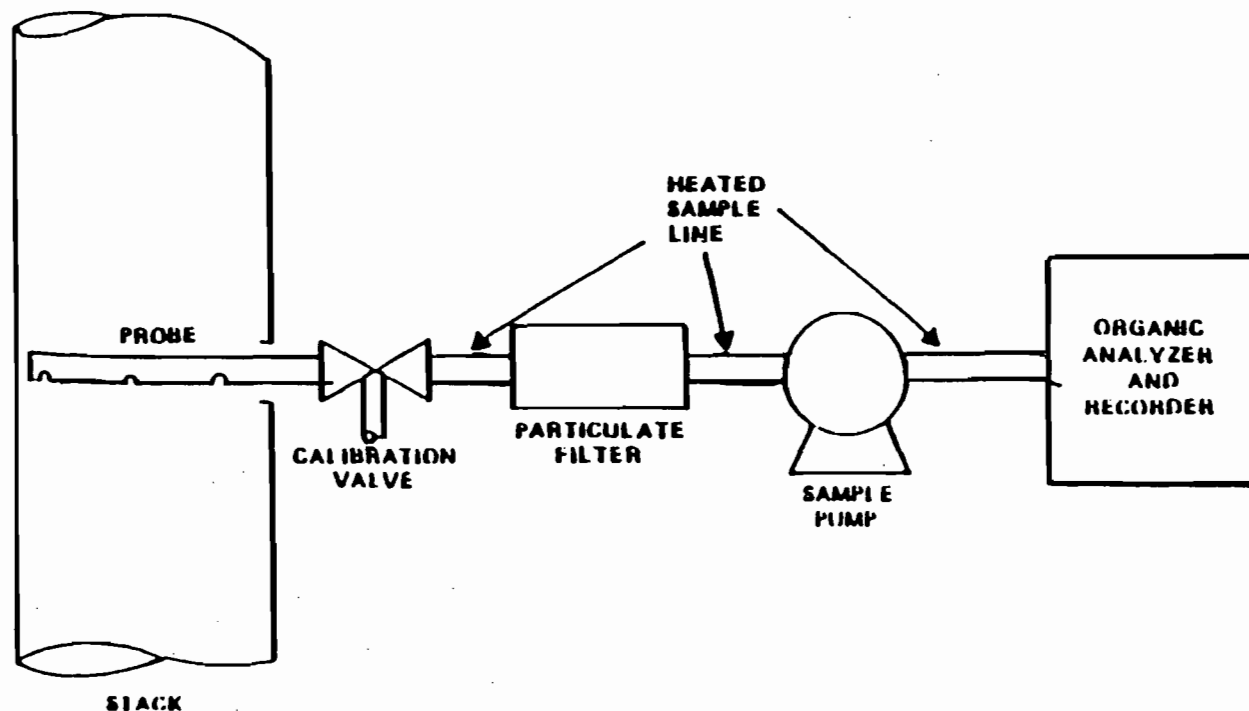


Figure 25A-1. Organic Concentration Measurement System.

3.1 Organic Concentration Analyzer. A flame ionization analyzer (FLA) capable of meeting or exceeding the specifications in this method.

3.2 Sample Probe. Stainless steel, or equivalent, three-hole rake type. Sample holes shall be 4 mm in diameter or smaller and located at 16.7, 50, and 83.3 percent of the equivalent stack diameter. Alternatively, a single opening probe may be used so that a gas sample is collected from the centrally located 10 percent area of the stack cross-section.

3.3 Sample Line. Stainless steel or Teflon[®] tubing to transport the sample gas to the analyzer. The sample line should be heated, if necessary, to prevent condensation in the line.

3.4 Calibration Valve Assembly. A three-way valve assembly to direct the zero and calibration gases to the analyzers is recommended. Other methods, such as quick-connect lines, to route calibration gas to the analyzers are applicable.

3.5 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter should be heated to prevent any condensation.

3.6 Recorder. A strip-chart recorder, analog computer, or digital recorder for recording measurement data. The minimum data recording requirement is one measurement value per minute. Note: This method is often applied in highly explosive areas. Caution and care should be exercised in choice of equipment and installation.

4. Calibration and Other Gases

Gases used for calibrations, fuel, and combustion air (if required) are contained in compressed gas cylinders. Preparation of calibration gases shall be done according to the procedure in Protocol No. 1, listed in Reference 9.2. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ± 2 percent from the certified value. For calibration gas values not generally available (i.e., organics between 1 and 10 percent by volume), alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval of the Administrator.

Calibration gases usually consist of propane in air or nitrogen and are determined in terms of the span value. Organic compounds other than propane can be used following the above guidelines and making the appropriate corrections for response factor.

* Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

4.1 Fuel. A 40 percent H₂/60 percent He or 40 percent H₂/60 percent N₂ gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

4.2 Zero Gas. High purity air with less than 0.1 parts per million by volume (ppmv) of organic material (propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

4.3 Low-level Calibration Gas. An organic calibration gas with a concentration equivalent to 25 to 35 percent of the applicable span value.

4.4 Mid-level Calibration Gas. An organic calibration gas with a concentration equivalent to 45 to 55 percent of the applicable span value.

4.5 High-level Calibration Gas. An organic calibration gas with a concentration equivalent to 80 to 90 percent of the applicable span value.

5. Measurement System Performance Specifications

5.1 Zero Drift. Less than ± 3 percent of the span value.

5.2 Calibration Drift. Less than ± 3 percent of span value.

5.3 Calibration Error. Less than ± 5 percent of the calibration gas value.

6. Pretest Preparations

6.1 Selection of Sampling Site. The location of the sampling site is generally specified by the applicable regulation or purpose of the test; i.e., exhaust stack, inlet line, etc. The sample port shall be located at least 1.5 meters or 2 equivalent diameters upstream of the gas discharge to the atmosphere.

6.2 Location of Sample Probe. Install the sample probe so that the probe is centrally located in the stack, pipe, or duct and is sealed tightly at the stack port connection.

6.3 Measurement System Preparation. Prior to the emission test, assemble the measurement system following the manufacturer's written instructions in preparing the sample interface and the organic analyzer. Make the system operable.

FIA equipment can be calibrated for almost any range of total organics concentrations. For high concentrations of organics (>1.0 percent by volume as propane) modifications to most commonly available analyzers are necessary. One accepted method of equipment modification is to decrease the size of the sample to the analyzer through the use of a smaller diameter sample capillary. Direct and continuous measurement of organic concentration is a necessary consideration when determining any modification design.

6.4 Calibration Error Test. Immediately prior to the test series, (within 2 hours of the start of the test) introduce zero gas and

high-level calibration gas at the calibration valve assembly. Adjust the analyzer output to the appropriate levels, if necessary. Calculate the predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level responses. Then introduce low-level and mid-level calibration gases successively to the measurement system. Record the analyzer responses for low-level and mid-level calibration gases and determine the differences between the measurement system responses and the predicted responses. These differences must be less than 5 percent of the respective calibration gas value. If not, the measurement system is not acceptable and must be replaced or repaired prior to testing. No adjustments to the measurement system shall be conducted after the calibration and before the drift check (Section 7.3). If adjustments are necessary before the completion of the test series, perform the drift checks prior to the required adjustments and repeat the calibration following the adjustments. If multiple electronic ranges are to be used, each additional range must be checked with a mid-level calibration gas to verify the multiplication factor.

6.5 Response Time Test. Introduce zero gas into the measurement system at the calibration valve assembly. When the system output has stabilized, switch quickly to the high-level calibration gas. Record the time from the concentration change to the measurement system response equivalent to 95 percent of the step change. Repeat the test three times and average the results.

7. Emission Measurement Test Procedure

7.1 Organic Measurement. Begin sampling at the start of the test period, recording time and any required process information as appropriate. In particular, note on the recording chart periods of process interruption or cyclic operation.

7.2 Drift Determination. Immediately following the completion of the test period and hourly during the test period, reintroduce the zero and mid-level calibration gases, one at a time, to the measurement system at the calibration valve assembly. (Make no adjustments to the measurement system until after both the zero and calibration drift checks are made.) Record the analyzer response. If the drift values exceed the specified limits, invalidate the test results preceding the check and repeat the test following corrections to the measurement system. Alternatively, recalibrate the test measurement system as in Section 6.4 and report the results using both sets of calibration data (i.e., data determined prior to the test period and data determined following the test period).

8. Organic Concentration Calculations

Determine the average organic concentration in terms of ppmv as propane or other

calibration gas. The average shall be determined by the integration of the output recording over the period specified in the applicable regulation.

If results are required in terms of ppmv as carbon, adjust measured concentrations using Equation 25A-1.

$$C_c = K C_{\text{meas}} \quad \text{Eq. 25A-1}$$

Where:

C_c = Organic concentration as carbon, ppmv.

C_{meas} = Organic concentration as measured, ppmv.

K = Carbon equivalent correction factor,

$K=2$ for ethane.

$K=3$ for propane.

$K=4$ for butane.

K = Appropriate response factor for other organic calibration gases.

9. Bibliography

9.1 Measurement of Volatile Organic Compounds—Guideline Series. U.S. Environmental Protection Agency. Research Triangle Park, NC. Publication No. EPA-450/2-78-041. June 1978. p. 46-54.

9.2 Traceability Protocol for Establishing True Concentrations of Gases Used for Calibration and Audits of Continuous Source Emission Monitors (Protocol No. 1). U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory. Research Triangle Park, NC. June 1978.

9.3 Gasoline Vapor Emission Laboratory Evaluation—Part 2. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, NC. EMB Report No. 75-GAS-6. August 1975.

INTERPOLL LABORATORIES, INC.
Method II-9002DETERMINATION OF TOTAL HYDROCARBON CONCENTRATIONS
IN EXHAUST GAS STREAMS CONTAINING HIGH
LEVELS OF CONDENSIBLE HYDROCARBONS

The wide range of volatility of the constituents in the gas stream at the Inlet to some afterburners requires the use of a specially-configured sampling system to accurately determine the total hydrocarbon concentration. The presence of high molecular weight compounds (high boiling points) has been shown to result in excessive condensation in the heated lines (250 °F) and the heated THC analyzer (250 °F) which causes gross underestimation of the THC concentration as well as severe contamination of the analyzer in several minutes.

For this reason, the concentration of THC at such Inlet test sites is determined using a sampling train consisting of an EPA Method 5 sampling train equipped with a sample tap immediately downstream of the third glass impinger just upstream of the desiccant column. This tap is connected to the sample inlet of a Ratfisch Model RS55 Total Hydrocarbon Analyzer (EPA Method 25A). The Method 5 sampling train is used to condense out and collect the high boiling point hydrocarbons which interfere with the THC analysis. The Method 5 sampling train is operated for 60 minutes as per EPA Method 5 except that a fixed flow rate of 0.75 CFM is employed. After sampling is completed, the train is quantitatively recovered (using methylene chloride for a final rinse). Vacuum grease is not used to eliminate contamination of the recovered hydrocarbon samples. The recovered M5 samples are returned to the laboratory where the wet catch is exhaustively extracted with methylene chloride. This solvent is then used to extract the filter and probe in a Soxhlet extractor. The extract is then dried over sodium sulfate; the methylene chloride evaporated at room temperature; and the total weight of condensed hydrocarbons determined gravimetrically. The carbon equivalent weight is calculated assuming an average composition of carbon of 85% in the condensed hydrocarbons or, if necessary, a carbon content determination can be made on the entire condensate sample by oxygen furnace.

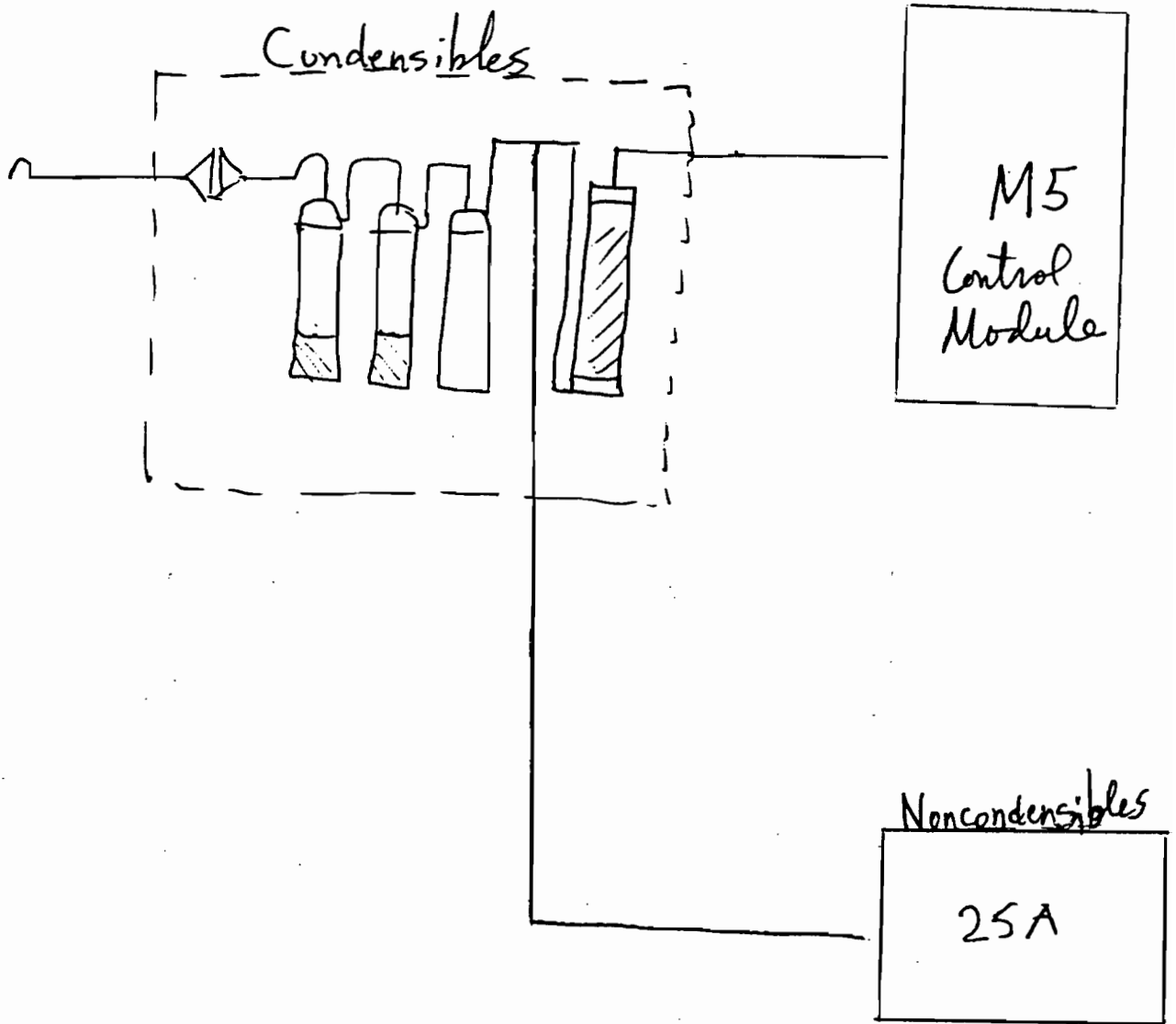
The volume of gas sampled and recorded by the Method 5 dry test meter must be corrected for the volume of sample gas (6.79 DSCF) withdrawn by the THC analyzer which passes through the filter and condensing system but not through the dry test meter. The flow rate of the THC analyzer is determined after the test by reproducing the setting on the analyzer

sampling vacuum regulator (200 mbar) and measuring the resulting flow against a wet test meter (0.113 SCFM).

The concentration of condensible hydrocarbons (as carbon) is then calculated from the recovered weight of hydrocarbons; the estimated carbon content of the samples; and the total dry standard volume of exhaust gas which passed through the Method 5 sampling train.

The concentration of noncondensable hydrocarbons is measured directly with the heated flame ionization detector which is calibrated on-site with propane in air gas standards. The observed concentrations are multiplied by 3 as per Method 25A to convert them to ppmC. The total hydrocarbon concentration is then calculated as the sum of the condensible + noncondensable hydrocarbons.

After burner Inlet



7.4 Adsorption Tube Procedure (Alternative Procedure). It is suggested that the tester refer to the National Institute of Occupational Safety and Health (NIOSH) method for the particular organics to be sampled. The principal interferent will be water vapor. If water vapor is present at concentrations above 3 percent, silica gel should be used in front of the charcoal. Where more than one compound is present in the emissions, then develop relative adsorptive capacity information.

7.4.1 Additional Apparatus. In addition to the equipment listed in the NIOSH method for the particular organic(s) to be sampled, the following items (or equivalent) are suggested.

7.4.1.1 Probe (Optional). Borosilicate glass or stainless steel, approximately 6-mm ID, with a heating system if water condensation is a problem, and a filter (either in-stack or out-stack heated to stack temperature) to remove particulate matter. In most instances, a plug of glass wool is a satisfactory filter.

7.4.1.2 Flexible Tubing. To connect probe to adsorption tubes. Use a material that exhibits minimal sample adsorption.

7.4.1.3 Leakless Sample Pump. Flow controlled, constant rate pump, with a set of limiting (sonic) orifices to provide pumping rates from approximately 10 to 100 cc/min.

7.4.1.4 Bubble-Tube Flowmeter. Volume accuracy within ± 1 percent, to calibrate pump.

7.4.1.5 Stopwatch. To time sampling and pump rate calibration.

7.4.1.6 Adsorption Tubes. Similar to ones specified by NIOSH, except the amounts of adsorbent per primary/backup sections are 800/200 mg for charcoal tubes and 1040/260 mg for silica gel tubes. As an alternative, the tubes may contain a porous polymer adsorbent such as Tenax GC or XAD-2.

7.4.1.7 Barometer. Accurate to 5 mm Hg, to measure atmospheric pressure during sampling and pump calibration.

7.4.1.8 Rotameter. 0 to 100 cc/min, to detect changes in flow rate during sampling.

7.4.2 Sampling and Analysis. It is suggested that the tester follow the sampling and analysis portion of the respective NIOSH method section entitled "Procedure." Calibrate the pump and limiting orifice flow rate through adsorption tubes with the bubble tube flowmeter before sampling. The sample system can be operated as a "recirculating loop" for this operation. Record the ambient temperature and barometric pressure. Then, during sampling, use the ro-

tameter to verify that the pump and orifice sampling rate remains constant.

Use a sample probe, if required, to obtain the sample at the centroid of the duct, or at a point no closer to the walls than 1 m. Minimize the length of flexible tubing between the probe and adsorption tubes. Several adsorption tubes can be connected in series, if the extra adsorptive capacity is needed. Provide the gas sample to the sample system at a pressure sufficient for the limiting orifice to function as a sonic orifice. Record the total time and sample flow rate (or the number of pump strokes), the barometric pressure, and ambient temperature. Obtain a total sample volume commensurate with the expected concentration(s) of the volatile organic(s) present, and recommended sample loading factors (weight sample per weight adsorption media). Laboratory tests prior to actual sampling may be necessary to predetermine this volume. When more than one organic is present in the emissions, then develop relative adsorptive capacity information. If water vapor is present in the sample at concentrations above 2 to 3 percent, the adsorptive capacity may be severely reduced. Operate the gas chromatograph according to the manufacturer's instructions. After establishing optimum conditions, verify and document these conditions during all operations. Analyze the audit samples (see Section 7.4.4.3), then the emission samples. Repeat the analysis of each sample until the relative deviation of two consecutive injections does not exceed 5 percent.

7.4.3 Standards and Calibration. The standards can be prepared according to the respective NIOSH method. Use a minimum of three different standards; select the concentrations to bracket the expected average sample concentration. Perform the calibration before and after each day's sample analyses. Prepare the calibration curve by using the least squares method.

7.4.4 Quality Assurance.

7.4.4.1 Determination of Desorption Efficiency. During the testing program, determine the desorption efficiency in the expected sample concentration range for each batch of adsorption media to be used. Use an internal standard. A minimum desorption efficiency of 50 percent shall be obtained. Repeat the desorption determination until the relative deviation of two consecutive determinations does not exceed 5 percent. Use the average desorption efficiency of these two consecutive determinations for the correction specified in Section 7.4.4.5. If the desorption efficiency of the compound(s) of interest is questionable under actual sampling conditions, use of the Method of Standard Additions may be helpful to determine this value.

7.4.4.2 Determination of Sample Collection Efficiency. For the source samples, ana-

lyze the primary and backup portions of the adsorption tubes separately. If the backup portion exceeds 10 percent of the total amount (primary and backup), repeat the sampling with a larger sampling portion.

7.4.4.3 Analysis Audit. Immediately before the sample analyses, analyze the two audits in accordance with Section 7.4.2. The analysis audit shall agree with the audit concentration within 10 percent.

7.4.4.4 Pump Leak Checks and Volume Flow Rate Checks. Perform both of these checks immediately after sampling with all sampling train components in place. Perform all leak checks according to the manufacturer's instructions, and record the results. Use the bubble-tube flowmeter to measure the pump volume flow rate with the orifice used in the test sampling, and the result. If it has changed by more than 5 but less than 20 percent, calculate an average flow rate for the test. If the flow rate has changed by more than 20 percent, recalibrate the pump and repeat the sampling.

7.4.4.5 Calculations. All calculations can be performed according to the respective NIOSH method. Correct all sample volumes to standard conditions. If a sample dilution system has been used, multiply the results by the appropriate dilution ratio. Correct all results by dividing by the desorption efficiency (decimal value). Report results as ppm by volume, dry basis.

7.5 Reporting of Results. At the completion of the field analysis portion of the study, ensure that the data sheets shown in Figure 18-11 have been completed. Summarize this data on the data sheets shown in Figure 18-15.

8. Bibliography

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3. Dravnieks, A., B. K. Krotoszynski, J. Whitfield, A. O'Donnell, and T. Burgwald. Environmental Science and Technology. 5(12):1200-1222. 1971.

4. Eggertsen, F. T., and F. M. Nelsen. Gas Chromatographic Analysis of Engine Exhaust and Atmosphere. Analytical Chemistry. 30(6): 1040-1043. 1958.

5. Fearheller, W. R., P. J. Marn, D. H. Harris, and D. L. Harris. Technical Manual for Process Sampling Strategies for Organic Materials. U.S. Environmental Protection Agency. Research Triangle Park, NC. Publication No. EPA 600/2-76-122. April 1976. 172 p.

APPENDIX I

CALCULATION EQUATIONS

CALCULATION EQUATIONS

METHOD 2

$$\bar{V}_s = 35.48 C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{T_{s(avg)}}{P_s M_s}}$$

$$Q_{s,d} = 60(1 - B_{ws}) \bar{V}_s A \left(\frac{528}{T_{s(avg)}}\right) \left(\frac{P_s}{29.92}\right)$$

$$Q_a = 60 \bar{V}_s A$$

$$\dot{m}_g = \frac{4.995 Q_{s,d} G_d}{1 - B_{ws}}$$

$$RH^* = 100 (vp_{twb} + 0.0003641 P_s (T_{db} - T_{wb}))/vp_{tdb}$$

$$B_{ws}^* = RH(vp_{tdb})/P_s$$

$$= \frac{4.585 \times 10^{-2} P_s M_s}{T_s (avg)}$$

*Alternate equations for calculating moisture content from wet bulb and dry bulb data.

SYMBOLS

- A = Cross sectional area of stack, SQ. FT.
- A_n = Cross sectional area of nozzle, SQ. FT.
- B_{ws} = Water vapor in gas stream, proportion by volume
- C_p = Pitot tube coefficient, dimensionless
- C_a = Concentration of particulate matter in stack gas, wet basis, GR/ACF
- C_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, GR/DSCF
- EA = Excess air, percent by volume
- γ = Dry test meter correction factor, dimensionless
- G_d = Specific gravity (relative to air), dimensionless
- I = Isokinetic variation, percent by volume
- M_d = Molecular weight of stack gas, dry basis, g/g - mole.
- \dot{m}_g = Mass flow of wet flue gas, LB/HR
- \dot{m}_p = Particulate mass flow, LB/HR
- M_s = Molecular weight of stack gas, wet basis, g/g, mole.
- M_p = Total amount of particulate matter collected, g
- P_{bar} = Atmospheric pressure, IN. HG. (uncompensated)
- P_g = Stack static gas pressure, IN. WC.

- P_s = Absolute pressure of stack gas, IN.HG.
- P_{std} = Standard absolute pressure, 29.92 IN. HG.
- A_a = Actual volumetric stack gas flow rate, ACFM
- $Q_{s,d}$ = Dry volumetric stack gas flow rate corrected to standard conditions, DSCFM
- RH = Relative humidity, %
- T_{db} = Dry bulb temperature of stack gas, °F
- T_{wb} = Wet bulb temperature of stack gas, °F
- $T_m(avg)$ = Absolute average dry gas meter temperature, °R
- $T_s(avg)$ = Absolute average stack temperature, °F
- T_{std} = Standard absolute temperature, 528 °F (68 °F)
- θ = Total sampling time, min.
- V_{lc} = Total volume of liquid collected in impingers and silica gel, ml
- V_m = Volume of gas sample as measured by dry gas meter, CF
- $V_m(std)$ = Volume of gas sample measured by the dry gas meter corrected to standard conditions, DSCF
- $V_w(std)$ = Volume of water vapor in the gas sample corrected to standard conditions, SCF
- \bar{V}_s = Average actual stack gas velocity, FT/SEC
- $v_{P_{tdb}}$ = Vapor pressure at T_{db} , IN. HG.

- $v_{p_{twb}}$ = Vapor pressure at T_{wb} , IN. HG
- $\overline{\Delta H}$ = Average pressure differential across the orifice meter, IN. WC.
- ΔP = Velocity pressure of stack gas, IN. WC.
- γ = Dry test meter correction coefficient, dimensionless
- ρ = Actual gas density, LB/ACF

CALCULATION EQUATIONS

METHOD 3

$$\%EA = \frac{100(\%O_2 -) .5\% CO}{0.264\% N_2 - \%O_2 + 0.5\% CO}$$

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

$$M_s = M_d (I - B_{ws}) + 0.18 B_{ws}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

CALCULATION EQUATIONS

METHOD 5

$$V_{m(\text{std})} = 17.65 V_m \gamma \left(\frac{P_{\text{bar}} + \overline{\Delta H}/13.6}{T_{m(\text{avg})}} \right)$$

$$V_{w(\text{std})} = 0.0472 V_{I_s}$$

$$B_{ws} = \frac{V_{w(\text{std})}}{V_{w(\text{std})} + V_{m(\text{std})}}$$

$$I = 0.0944 \left(\frac{T_{s(\text{avg})} V_{m(\text{std})}}{P_s V_s A_n \theta (I - B_{ws})} \right)$$

$$C_s = \frac{15.43 M_p}{V_{m(\text{std})}}$$

$$C_a = \frac{272.3 M_p P_s}{T_{s(\text{avg})} (V_{w(\text{std})} + V_{m(\text{std})})}$$

$$(\dot{m}_p)_1 = 8.5714 \times 10^{-3} C_s Q_{s,d}$$

$$(\dot{m}_p)_2 = \frac{1.3228 \times 10^{-1} M_p A}{O A_n}$$

$$\dot{m}_p = \frac{(\dot{m}_p)_1 + (\dot{m}_p)_2}{2}$$

SYMBOLS

- A = Cross sectional area of stack, SQ. FT.
- A_n = Cross sectional area of nozzle, SQ. FT.
- B_{ws} = Water vapor in gas stream, proportion by volume
- C_p = Pitot tube coefficient, dimensionless
- C_a = Concentration of particulate matter in stack gas, wet basis, GR/ACF
- C_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, GR/DSCF
- EA = Excess air, percent by volume
- γ = Dry test meter correction factor, dimensionless
- G_d = Specific gravity (relative to air), dimensionless
- I = Isokinetic variation, percent by volume
- M_d = Molecular weight of stack gas, dry basis, g/g - mole.
- \dot{m}_g = Mass flow of wet flue gas, LB/HR
- \dot{m}_p = Particulate mass flow, LB/HR
- M_s = Molecular weight of stack gas, wet basis, g/g, mole.
- M_p = Total amount of particulate matter collected, g
- P_{bar} = Atmospheric pressure, IN. HG. (uncompensated)
- P_g = Stack static gas pressure, IN. WC.

- P_s = Absolute pressure of stack gas, IN.HG.
- P_{std} = Standard absolute pressure, 29.92 IN. HG.
- A_a = Actual volumetric stack gas flow rate, ACFM
- $Q_{s,d}$ = Dry volumetric stack gas flow rate corrected to standard conditions, DSCFM
- RH = Relative humidity, %
- T_{db} = Dry bulb temperature of stack gas, °F
- T_{wb} = Wet bulb temperature of stack gas, °F
- $T_{m(avg)}$ = Absolute average dry gas meter temperature, °R
- $T_s(avg)$ = Absolute average stack temperature, °F
- T_{std} = Standard absolute temperature, 528 °F (68 °F)
- θ = Total sampling time, min.
- V_{lc} = Total volume of liquid collected in impingers and silica gel, ml
- V_m = Volume of gas sample as measured by dry gas meter, CF
- $V_m(std)$ = Volume of gas sample measured by the dry gas meter corrected to standard conditions, DSCF
- $V_w(std)$ = Volume of water vapor in the gas sample corrected to standard conditions, SCF
- \bar{V}_s = Average actual stack gas velocity, FT/SEC
- v_{ptdb} = Vapor pressure at T_{db} , IN. HG.

- $v_{P_{twb}}$ = Vapor pressure at T_{wb} , IN. HG
- $\overline{\Delta H}$ = Average pressure differential across the orifice meter, IN. WC.
- ΔP = Velocity pressure of stack gas, IN. WC.
- γ = Dry test meter correction coefficient, dimensionless
- ρ = Actual gas density, LB/ACF

Method 25A

Total Gaseous Organics Calculation Equations

$$\text{GR C/SCF} = 2.180 \times 10^{-4} \text{ (ppm,w)}$$

$$\text{GR C/DSCF} = 2.180 \times 10^{-4} \text{ (ppm,w)/(1-MC/100)}$$

$$\text{LB C/HR} = 8.5714 \times 10^{-3} \text{ (GR/DSCF) (DSCFM)}$$

where:

GR C/SCF = grains of total gaseous organics as carbon per actual (wet) standard cubic foot

GR C/DSCF = grains of total gaseous organics as carbon per dry standard cubic foot

LB C/HR = pounds of total gaseous organics as carbon emitted hour

Note 1: The Ratfisch Model RS 55 Heated FID Analyzer as normally operated with a heated filter, sample line and heated detector oven gives ppm,w.

Note 2: ppm,C = ppm as carbon = 3(ppm propane)

CLEAN SOILS AFTERBURNER TEST
Summary of THC Calculations

Run	1	2	3
<u>INLET</u>			
Volume of Meter . (DSCF)	42.64	36.51	41.02
Volume of RS55 . (DSCF)	6.80	6.79	6.80
Volume Total . . (DSCF)	49.58	43.31	47.82
Condensibles . . . (g)	0.2337	0.3484	0.3634
Carbon Content . . (%)	78.80	77.28	79.93
Condensibles, as C . (g)	0.1842	0.2692	0.2905
<u>Condensible Hydrocarbons</u>			
Concentration			
. (g C/DSCF)	0.00371	0.00622	0.00607
. (GR C/DSCF)	0.0572	0.0960	0.0937
. (ppm C,d)	262	442	430
<u>Noncondensable Hydrocarbons</u>			
As measured by THC Analyzer			
. (ppm C,d)	885	1881	2181
Total Hydrocarbons			
. (ppm C,d)	1150	2320	2610
<u>OUTLET</u>			
Total Hydrocarbons			
. (ppm C,d)	87	279	274
Destruction Efficiency			
. (%v/v)	92.4	88.0	89.5

INTERPOLL LABORATORIES, INC.
Circle Pines, Minnesota
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DETERMINATION OF THE SAMPLE FLOW RATE
OF THE RATFISCH MODEL RS55
TOTAL HYDROCARBON ANALYZER

Set vacuum bypass flow regulator at setting used during determination.

Setting: 200 mbar

Attach the inlet of the THC Analyzer to the outlet of the small wet test meter (.05 CF/REV) and measure the time for four (4) revolutions or 0.2 CF:

P_b 30.01 IN HG t_a 68 °F

time (τ) = 8 min 49 sec = 8.824 min

$$Q_A = \frac{0.200}{\tau} = \frac{0.200}{(8.824)} = 0.113 \text{ CFM}$$


$$Q_{std} = \frac{17.647 Q_A P_b}{(t_m + 460)} = \frac{0.113}{SCFM}$$

Cleansoils, Inc.
 BTX Calculation

	Test/Run	Mass (ug)	Vstd (DSCF)	Concentration (ppm,d)	Gas Flow (DSCFM)	Mass Rate (LB/HR)
Benzene	2/1	< 5	2.024	< 0.0269	< 5.45E-09	8858 < 0.0029
	2/2	70	1.913	0.3985	8.07E-08	5990 0.0290
	2/3	< 5	2.008	< 0.0271	< 5.49E-09	6066 < 0.0020
Toluene	2/1	< 5	2.024	< 0.0228	< 5.45E-09	6049 < 0.0020
	2/2	72	1.913	0.3475	8.30E-08	5990 0.0298
	2/3	< 5	2.008	< 0.0230	< 5.49E-09	6066 < 0.0020
Xylene	2/1	< 5	2.024	< 0.0198	< 5.45E-09	6049 < 0.0020
	2/2	< 5	1.913	< 0.0209	< 5.76E-09	5990 < 0.0021
	2/3	< 5	2.008	< 0.0200	< 5.49E-09	6066 < 0.0020
Ethyl- Benzene	2/1	< 5	2.024	< 0.0198	< 5.45E-09	6049 < 0.0020
	2/2	< 5	1.913	< 0.0209	< 5.76E-09	5990 < 0.0021
	2/3	< 5	2.008	< 0.0199	< 5.49E-09	6066 < 0.0020

1-3240

CALCULATION EQUATIONS
FOR BENZENE

1. STRUCTURE  C_6H_6

2. MOLECULAR WEIGHT 78.11

3. MASS/VOLUME CONCENTRATION

$$C_{C_6H_6}^{mg/Nm^3} = \frac{m}{1000} \times \frac{1}{V_{STD}/35.31}$$

$$C_{C_6H_6}^{mg/Nm^3} = \frac{0.03531 m}{V_{STD}}$$

where m = total mass of benzene in sample in micrograms (μg).

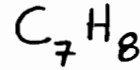
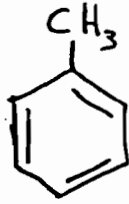
V_{STD} = total volume of air or exhaust gas sampled in DSCF

4. VOLUME/VOLUME CONCENTRATION

$$C_{C_6H_6}^{ppmv} = \left(\frac{mg}{Nm^3} \right) \times \left(\frac{24.054 mL}{78.11 mg} \right) = ppmv$$

$$C_{C_6H_6}^{ppmv} = 0.3080 \left(C_{C_6H_6}^{mg/Nm^3} \right)$$

CALCULATION EQUATIONS FOR TOLUENE

1. STRUCTURE2. MOLECULAR WEIGHT

92.14

3. MASS/VOLUME CONCENTRATION

$$C_{C_7H_8} \text{ mg/Nm}^3 = \frac{m}{1000} \times \frac{1}{V_{STD} / 35.31}$$

$$C_{C_7H_8} \text{ mg/Nm}^3 = \frac{0.03531 m}{V_{std}}$$

where m = total mass of toluene in sample
in micrograms (μg).

V_{std} = total volume of air or exhaust gas
sampled in DSCF

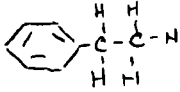
4. VOLUME/VOLUME CONCENTRATION

$$C_{C_7H_8} \text{ ppmv} = \left(\frac{\text{mg}}{\text{Nm}^3} \right) \times \left(\frac{24.054 \text{ mL}}{92.14 \text{ mg}} \right) = \text{ppmv}$$

molar volume

$$C_{C_7H_8} \text{ ppmv} = 0.2611 \left(C_{C_7H_8} \text{ mg/Nm}^3 \right)$$

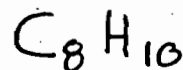
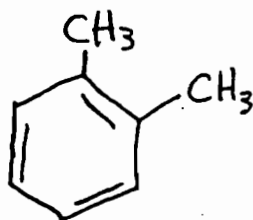
Concentration Calculation Equations for Ethyl benzene

<p>1. Structure:</p>  <p style="margin-left: 150px;">C_8H_{10}</p>	<p>2. Molecular weight:</p> <p style="margin-left: 100px;"><u>106.16</u> g/g-mole</p>
<p>3. Mass/volume Concentration:</p> $C_{ug/Nm^3} = \frac{35.314 \text{ m}}{V_{std}}$ <p>where m = Total mass of <u>Ethyl benzene</u> in sample in micrograms (ug), and</p> <p>Vstd = Total volume of exhaust gas or air sampled in dry standard cubic feet (DSCF).</p>	
<p>4. Volume/volume Concentration:</p> $C_{ppmv}^{C_8H_{10}} = \left(\frac{ug}{Nm^3} \right) \times \left(\frac{24.054 \text{ mL}}{106.16} \right) \times \frac{Nm^3}{10^3 L} = \frac{uL}{L} = ppm$ $C_{ppmv}^{C_8H_{10}} = 2.266 \times 10^{-4} \left(\frac{C_{ug/Nm^3}^{C_8H_{10}}}{C_{ug/Nm^3}} \right)$	
<p>5. Notes:</p>	
<p>Derived by: <u>K. Eickstadt</u></p>	<p>Date: <u>2/91</u></p>

BEST AVAILABLE COPY
CALCULATION EQUATIONS
FOR XYLENE(S)

LATE 5-1-40
BY PL

1. STRUCTURE



2. MOLECULAR WEIGHT

106.17

3. MASS/VOLUME CONCENTRATION

$$C_{C_8H_{10}} \text{ mg/Nm}^3 = \frac{m}{1000} \times \frac{1}{V_{std}/35.31}$$

$$C_{C_8H_{10}} \text{ mg/Nm}^3 = \frac{0.03531 m}{V_{std}}$$

where m = total mass of xylenes in sample
in micrograms (μg)

V_{std} = total volume of air or exhaust gas
sampled in DSCF.

4. VOLUME/VOLUME CONCENTRATION

$$C_{C_8H_{10}} \text{ ppmv} = \left(\frac{\text{mg}}{\text{Nm}^3} \right) \times \left(\frac{\text{molar volume } 24.054 \text{ ml}}{106.17 \text{ mg}} \right) = \text{ppmv}$$

$$C_{C_8H_{10}} \text{ ppmv} = 0.2266 \left(C_{C_8H_{10}} \text{ mg/Nm}^3 \right)$$

APPENDIX J

SAMPLING TRAIN CALIBRATION DATA

Interpoll Laboratories, Inc.

(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: February 25, 1991

Meter Box No. : 9 (Rockwell Dry Test Meter Serial No. 949230)

Date of Last Calibration: January 18, 1991

Calibration Technician: E. Trowbridge

Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
January 25-29, 1991	1-3233	172.86	405.03	232.17	232.17
February 4, 1991	1-3239	406.30	530.43	124.13	356.30
February 8, 1991	1-3240	532.10	800.83	268.73	625.03

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: February 13, 1991

Meter Box Number: 1-S (Rockwell Dry Test Meter Serial No. 69184)

Date of Last Calibration: November 8, 1990

Calibration Technician: E. Trowbridge

Wet Test Meter Number: American Meter AL-17 (0.05 CF/REV)

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
February 6, 1991	1-3239	837.310	843.954	6.644	6.644
February 8, 1991	1-3240	844.00	850.167	6.167	12.811

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

**Nozzle Calibration
Data Sheet**

Date of Calibration: 02-09-91

Nozzle Number INC-10

Technician: M. Kaehler

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	0.620
2	0.620
3	0.619
Average:	0.620

EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job Clean Soils / Tampa Florida

Date 2-8-91

Operator M. Kaehler

Module No. 9

Instructions: Operate the control module at a flow rate equal to ΔH_0 for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.94 in. Hg. $\tau =$.9942 ΔH_0 1.80 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
	(532.10)		
2.5	533.94	65	64
5.0	535.77	68	65
7.5	537.61	69	66
10	539.46	71	66
	$V_m =$	Avg $(t_m) = 66.75$ °F	

Calculate Y_{en} as follows:

$$Y_{en} = \frac{1.786}{\tau V_m} \left[\frac{(t_m + 460)}{P_b} \right]^{0.5}$$

$$Y_{en} = \frac{1.786}{(.9942)(7.36)} \left[\frac{(66.75) + 460}{(29.94)} \right]^{0.5}$$

$$Y_{en} = \underline{1.024}$$

If Y_{en} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job Clean Soils / Tampa Bay F1 Date 2-9-91

Operator M. Kaehler Module No. 9

Instructions: Operate the control module at a flow rate equal to ΔH for 10 minutes before attaching the umbilical. Record the following data:

Bar press 30.00 in. Hg. $\tau =$.9942 $\Delta H =$ 1.80 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
	(672.80)		
2.5	674.64	58	58
5.0	676.49	60	58
7.5	678.35	61	59
10	680.17	63	59
	$V_m = 7.37$	Avg $(t_m) = 59.50$ °F	

Calculate Y_{en} as follows:

$$Y_{en} = \frac{1.786}{\tau V_m} \left[\frac{(t_m + 460)}{P_b} \right]^{0.5}$$

$$Y_{en} = \frac{1.786}{(.9942)(7.37)} \left[\frac{(59.50) + 460}{(30.00)} \right]^{0.5}$$

$$Y_{en} = \underline{1.014}$$

If Y_{en} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

Interpoll Laboratories
(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitot No. WCP-1

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .462 IN.
3. Base to Side B opening plane (P_B) .463 IN.

Alignment:

4. $\alpha_1 < 10^\circ$ 0
5. $\alpha_2 < 10^\circ$ 0
6. $B_1 < 5^\circ$ 10
7. $B_2 < 5^\circ$ 10
8. $Z < .125"$.02
9. $W < .0625"$.02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .760 IN.
11. Pitot to probe sheath 3 IN.
12. Pitot to thermocouple (parallel to probe) _____ IN.
13. Pitot to thermocouple (perpendicular to probe) _____ IN.

Date of Inspection:

12-8-89

Inspected by:

E. J. [Signature]

S-348(1)

Interpoll Laboratories
(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 4-21

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .460 IN.
3. Base to Side B opening plane (P_B) .462 IN.

Alignment:

4. $\alpha_1 < 10^\circ$ 0
5. $\alpha_2 < 10^\circ$ 0
6. $B_1 < 5^\circ$ 1°
7. $B_2 < 5^\circ$ 1°
8. $Z < .125"$.02
9. $W < .0625"$.02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .760 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 IN.
13. Pitot to thermocouple (perpendicular to probe) .76' IN.

Date of Inspection:

12-8-89

Inspected by:



Interpoll Laboratories, Inc.

Temperature Measurement Device
Calibration Sheet

Unit under test: Gordon
 Vendor Gordon
 Model 5310 -K Serial Number PDT # 9
 Range -112 to 1999 °F °F Thermocouple Type K
 Date of Calibration 12/14/90 Technician Duane Ken Hoover

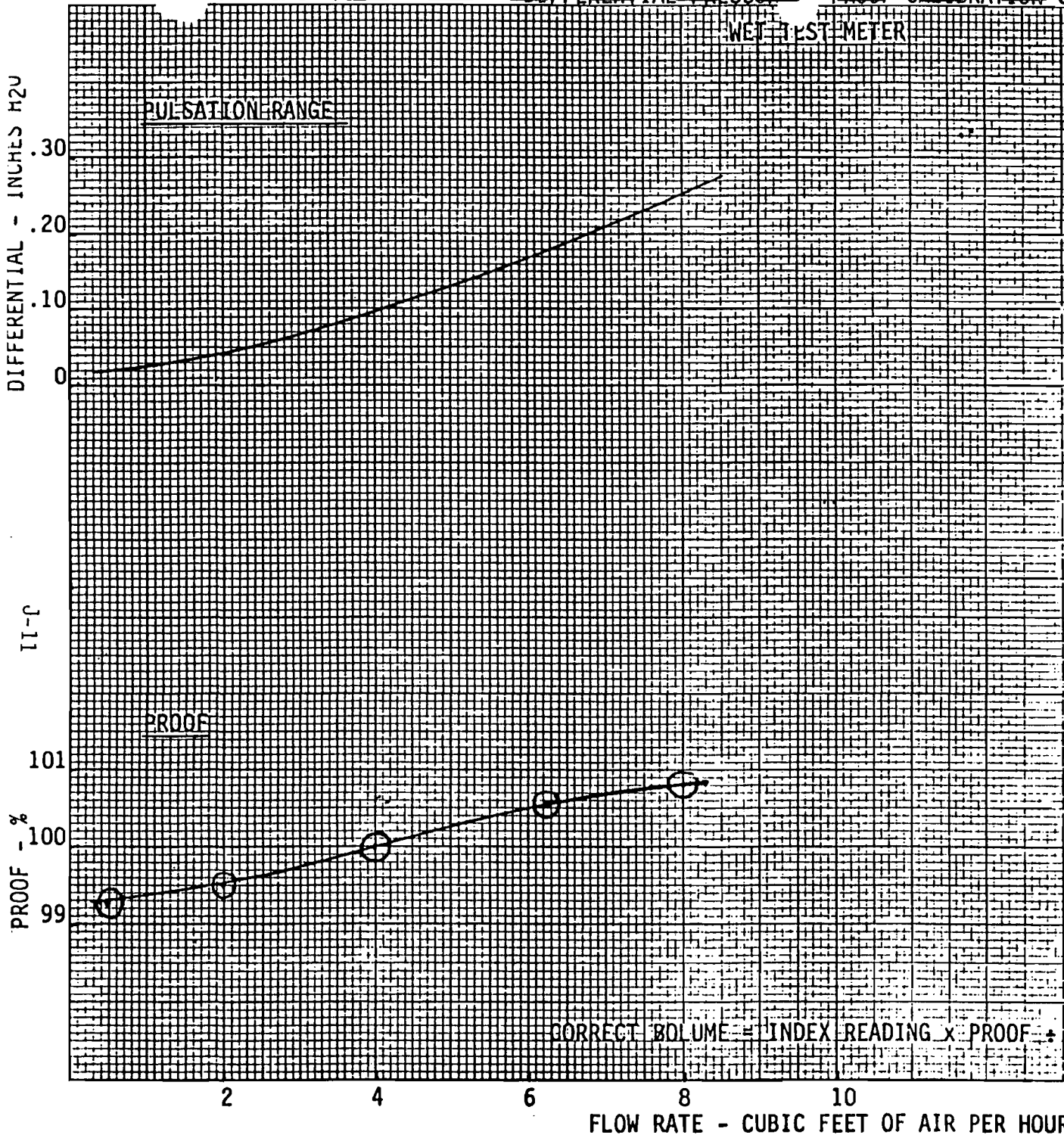
Method of Calibration:

- Comparison against ASTM mercury in glass thermometer using a thermostatted and insulated aluminum block designed to provide uniform temperature. The temperature is adjusted by adjusting the voltage on the block heater cartridge.
- Omega Model CL-300 Type K Thermocouple Simulator which provides 22 precise temperature equivalent millivolt signals. The CL-300 is cold junction compensated. Calibration accuracy is $\pm 0.1\%$ of span (2100 °F) ± 1 degree (for negative temperatures add ± 2 degrees. The CL-300 simulates exactly the millivoltage of a Type K thermocouple at the indicated temperature.

Desired Temp (°F) Nominal	Temperature of Standard or Simulated Temp (°F)	Response of Unit Under Test (°F)	Deviation	
			Δt (°F)	(%)
0		-4.4	4.4	.96
100		92.8	7.2	1.28
200		197	3	.45
300		294	6	.79
400		390	10	1.16
500		489	11	1.14
600		591	9	.85
700		690	10	.86
800		794	6	.48
900		895	5	.37
1000		999	1	.06
1100		1101	1	.06
1200		1204	4	.24
1300		1304	4	.22
1400		1407	7	.38
1500		1503	3	.15
1600		1602	2	.1
1700		1695	5	.23
1800		1792	8	.35
1900		1882	18	.76
2000		1975	25	1.02
2100				
		Averages:	7.12°	.57%

OF = off scale response by unit under test (°F)
 % dev = $100 \Delta t / (460 + t)$

- Unit in tolerance
- Unit was not in tolerance; recalibrated - See new calibration sheet.



Data obtained on an American 5 Ft. Bell Prover, Serial No. 2260. Traceable to the Bureau of Standards. Reference No. 106870, PI-TAPE.

AL-17 American Wet Test Meter
 Serial No. P-718
 Stainless Steel w/Removable Back
 Calibrated with Saturated Air
 Water Temp. 74° F.
 Air Temp. 74° F.
 Inlet Pressure 2" H₂O Constant
 Calibration Rate: 4 CFH Air
 Capacity Rate: 8 CFH Air
 Restricted Outlet for Rate Deviation.

DIFFERENTIAL PRESSURE AND PROOF CALIBRATION CURVES

WET TEST METER

PULSATON RANGE

DIFERENTIAL - INCHES H2O

Calibrated with a 10 Ft. American Bell Prover, Serial No. 3157. Traceable to the Bureau of Standards. Reference No. 106870, PI-TAPE.

AL-20 American Wet Test Meter
 Serial No. P-717
 Stainless Steel w/Removable Back
 Calibrated w/Saturated Air
 Water Temp. 74° F.
 Air Temp. 74° F.
 Inlet Pressure 2" H2O Constant
 Calibration Rate: 60 CFH Per/Hr.
 Capacity Rate: 120 CFH Per/Hr.
 Restricted Outlet for Rate Deviation

PROOF

PROOF - %

$CORRECT\ VOLUME = INDEX\ READING \times PROOF \div 100$

20 40 60 80 100 120

FLOW RATE - CUBIC FEET OF AIR PER HOUR

DAVID BANKS
 AUGUST, 1989

J-12

Data Reporting Sheet

CLIENT: Stack

JOB: Clean Soils, Inc. Tampa Bay, FL.

CLIENT NO: _____

P.O. NO: _____

PROJECT MGR: _____

PHONE: _____

DATE: _____

CONTACT: _____

Soil Remediation Unit Stack

LABORATORY REPORT #: 2323

SAMPLES COLLECTED: 2-9-91

SAMPLES RECEIVED: 2-11-91

SAMPLE ID: _____

T3R1	T3R2	T3R3	
Integrated Gas Sample (Tedlar Bag)			
2323-18	-22	-26	

Report
Invoicing Signature Routing

SAMPLE TYPE: _____

LOG NO: _____

PL
Lab Mgr
Ino Mgr
Org Mgr

PARAMETER	ppm in air UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Methane	ul/L	1.4	3/21/91	GC/FID	x 10.9	x 25.0	x 3.0	
Propane	ul/L	1.0	3/21/91	GC/FID	x 100	x 14.9	x 8.6	

Footnotes:

J-13

In-House Comments:

K.E. Requested analysis 2-21-91 Bag Box #22



GURR & ASSOCIATES, INC.

ENVIRONMENTAL CONSULTANTS

500 South Florida Avenue, Suite 700
Lakeland, Florida 33801
(813) 683-4646 • 1-800-683-GURR
FAX: (813) 688-4426

RECEIVED

January 9, 1991

JAN 11 1991

DER-BAQM

Florida Department of
Environmental Regulation
Bureau of Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Willard Hanks

Gentlemen:

**Mobile Soil Incineration Unit
Permitting
DER Facility No. 298624773
Bay Concrete Site
Tampa, Florida
For Florida Mining and Materials**

Contaminated soil incineration at the above-referenced site is scheduled to begin January 24, 1991. The subcontractor responsible for the on-site soil incineration is CleanSoils, Inc.

CleanSoils, Inc. currently is in possession of a Construction Permit Number AC 4B-166670 for its mobile incineration unit. Stack compliance testing is scheduled with the Hillsborough County Environmental Protection Commission to take place on the first day of unit operation, January 24, 1991.

If you have any questions or require any additional information, please do not hesitate to contact our office.

Very truly yours,

GURR & ASSOCIATES, INC.

Dean H. Myers
Project Engineer

Roger L. Homann
Engineer/Scientist

RLH/vcp/FMM1DER.MSI

Department of Environmental Regulation
Routing and Transmittal Slip

To: (Name, Office, Location)

1. *File*
- 2.
- 3.
- 4.

Remarks:

*Told Dean Myers, Sun (1-800-683-4877)
Analyze soil prior to treatment, keep
results on site + for 3 years,
don't test excessive contaminated
soil without prior approval.*

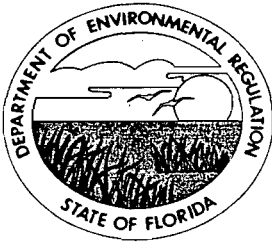
From:

lmb

Date

1-8-91

Phone



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

December 20, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert A. Wills, Ph.D.
Vice President of Engineering
CleanSoils, Inc.
84 2nd Avenue, SE
New Brighton, MN 55112

Dear Mr. Wills:

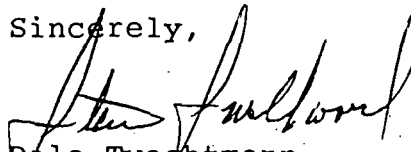
Re: Amendment of Permit No. AC 48-166670

The Department is in receipt of your November 29, 1990, letter requesting the permit to construct a mobile 60 TPH soil remediation unit be extended. The extension is needed because CleanSoils, Inc. has not obtained a contract to clean up a petroleum contaminated site in Florida.

This request is acceptable and the expiration date of construction permit No. AC 48-166670 is extended from December 15, 1990, to September 15, 1991.

A copy of this letter must be filed with the referenced construction permit and shall become a part of that permit.

Sincerely,


Dale Twachtmann
Secretary

DT/plm

Attachment: CleanSoils letter dated November 29, 1990

The logo for CleanSoils Inc. features the word "CleanSoils" in a stylized, bold font. The "C" is large and partially overlaps the "l" in "Clean". The "S" in "Soils" is also large and overlaps the "l" in "Soil". The logo is positioned in the top left corner of the document.

CleanSoils Inc. 84 2nd Avenue S.E., New Brighton, MN 55112 • (612) 639-8811 • FAX (612) 639-8813

November 29, 1990

RECEIVED

DEC 03 1990

DER-BAQM

Mr. C. F. Fancy, Bureau Chief
Bureau of Air Quality Management
Florida DER
2600 Blackstone Rd.
Tallahassee, FL 32399-2400

RE: AC 48-166670

Dear Mr. Fancy:

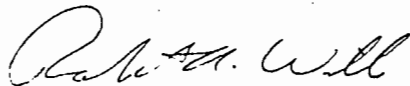
I would like to request a nine (9) month extension of our construction permit. This would move the date of expiration from December 15, 1990 to September 15, 1991.

I make this request based on a conversation yesterday between Jim Ballis, of our office and Willard Hanks, of the Florida DER. Despite our best efforts to obtain a remediation project in Florida, using our technology, we find that we cannot compete with the asphalt companies. Because the asphalters do not use vapor incinerators (afterburners) their operating costs are much lower than ours. However, we feel that with the new chapter 17-775 rules and air quality guidelines, going into effect shortly, we will be more competitive in 1991.

If there are any further questions or if you feel that this extension is not possible please call me immediately. Our toll free number is 1-800-279-7645.

Thank you very much.

Sincerely,

A handwritten signature in cursive script that reads "Robert A. Wills".

Robert A. Wills, PhD
Vice President of Engr.

RAW:fm

cc: W. Nantz
CHF/BA



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: Dale Twachtmann
FROM: Steve Smallwood
DATE: December 20, 1990
SUBJ: Amendment to Construction Permit No. AC 48-166670
CleanSoils, Inc.

Attached for your approval and signature is a letter extending the expiration date of a permit to construct a mobile soil remediation unit. The extension is needed because the permittee has not obtained a contract to clean up a petroleum contaminated site in Florida.

I recommend approval of this amendment.

SS/WH/plm

Attachment

*CHF - OK
I signed for DAT 10/15/90
for 12-20-90*

*Steve
OK to send upstairs*

Clan

P 407 852 940
RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

Sent to Robert A. Wills, Ph.D., Clean	
Street and No. 84 2nd Avenue, SE Soils	
P.O., State and ZIP Code New Brighton, MN 55112	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date Mailed: 12-28-90 Permit: AC 48-166670	

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
 Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. Robert A. Wills, Ph.D. Vice President of Engineering CleanSoils, Inc. 84 2nd Avenue, SE New Brighton, MN 55112	4. Article Number P 407 852 940
5. Signature - Addressee X <i>M. Hagnon</i>	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery 2/3/90	8. Addressee's Address (ONLY if requested and fee paid)

November 29, 1990

RECEIVED

DEC 03 1990

DER-BAQM

Mr. C. F. Fancy, Bureau Chief
Bureau of Air Quality Management
Florida DER
2600 Blackstone Rd.
Tallahassee, FL 32399-2400

RE: AC 48-166670

Dear Mr. Fancy:

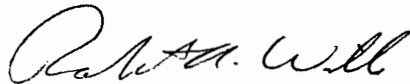
I would like to request a nine (9) month extension of our construction permit. This would move the date of expiration from December 15, 1990 to September 15, 1991.

I make this request based on a conversation yesterday between Jim Ballis, of our office and Willard Hanks, of the Florida DER. Despite our best efforts to obtain a remediation project in Florida, using our technology, we find that we cannot compete with the asphalt companies. Because the asphalters do not use vapor incinerators (afterburners) their operating costs are much lower than ours. However, we feel that with the new chapter 17-775 rules and air quality guidelines, going into effect shortly, we will be more competitive in 1991.

If there are any further questions or if you feel that this extension is not possible please call me immediately. Our toll free number is 1-800-279-7645.

Thank you very much.

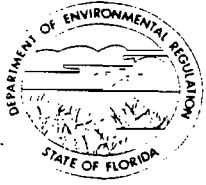
Sincerely,



Robert A. Wills, PhD
Vice President of Engr.

RAW:fm

cc: W. Hanks
CHF/BA



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: Dale Twachtmann

FROM: Steve Smallwood *ctj/janey*

DATE: May 16, 1990

SUBJ: Amendment of Permit No. AC 48-166670
CleanSoils Soil Remediation Unit

Attached for your approval and signature is a letter that will extend the expiration date of a construction permit for a contaminated soil treatment facility that was prepared by the Bureau of Air Regulation.

The extension is not controversial.

I recommend your approval and signature.

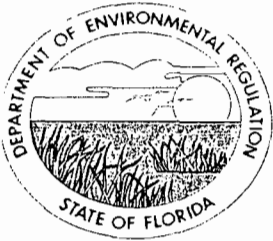
SS/WH/plm

Attachment

RECEIVED

MAY 17 1990

Office of the Secretary



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

May 16, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James K. Poucher, President
CleanSoils, Inc.
14120 23rd Avenue North
Minneapolis, Minnesota 55447

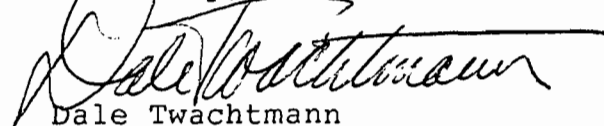
Dear Mr. Poucher:

Re: Amendment of Permit No. AC 48-166670

The Department is in receipt of Mr. Robert Wills' April 26, 1990, letter requesting your permit to construct a portable soil remediation unit be extended. The extension is needed because of delays in completion of a soil remediation project in Milwaukee, Wisconsin. This request is acceptable and the expiration date of permit No. AC 48-166670 is changed from July 15, 1990, to December 15, 1990.

A copy of this letter must be attached to the referenced construction permit and shall become a part of that permit.

Sincerely,



Dale Twachtmann
Secretary

DT/plm

c: Charles Collins, Central District

P 052 482 262

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

PS Form 3800, June 1985

Sent to	James K. Poucher	
Street and No.	Clean Soils, Inc	
P.O., State and ZIP Code	Minneapolis, MN	
Postage		\$
Certified Fee		
Special Delivery Fee		
Restricted Delivery Fee		
Return Receipt showing to whom and Date Delivered		
Return Receipt showing to whom, Date, and Address of Delivery		
TOTAL Postage and Fees		\$
Postmark or Date	AC 48-166670 5-21-90	

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

- 1. Show to whom delivered, date, and addressee's address. (Extra charge)
- 2. Restricted Delivery (Extra charge)

3. Article Addressed to: James K. Poucher, Pres. Clean Soils, Inc. 14120 23rd Ave. N. Minneapolis, MN	4. Article Number P 052 482 262
5. Signature - Address X Kathy Wall	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery 5-24-90	8. Addressee's Address (ONLY if requested and fee paid)



CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, MN 55447
(612) 557-7106

RECEIVED
APR 30 1990
DER-BAQM

April 26, 1990

Mr. C. F. Fancy, Deputy Chief
Bureau of Air Quality Management
Florida DER
Tallahassee, FL 32299-2400

RE: AC 48-166670

Dear Mr. Fancy:

I would like to request a five (5) month extension of our construction permit. This would move its expiration date from July 15, 1990 to December 15, 1990.

The unit that we wish to permit in Florida is presently working a pipeline spill in Milwaukee. At this time the project appears to be expanding well beyond the original estimates of 8,000 cubic yards. We had hoped to finish that project by April 30th but this is not possible now. We also are planning a shake down, after the Milwaukee job, in Minnesota, to take care of needed repairs. This will further delay our arrival in Florida. Finally, we ran into delays with regards to insurance in Florida. Evidently there are problems with carriers not based in Florida. While we have solved the insurance problems we had to work through a carrier other than our usual, and this slowed us up also.

We feel that with the aforementioned delays the timing would be too close to arrive and operate before July 15th.

If this extension is not possible, please call me immediately. Again our toll-free number is 1-800-486-SOIL (7645).

Thank you very much.

Sincerely,

Robert A. Wills, Ph. D.
Vice President of Engineering

RAW:kw

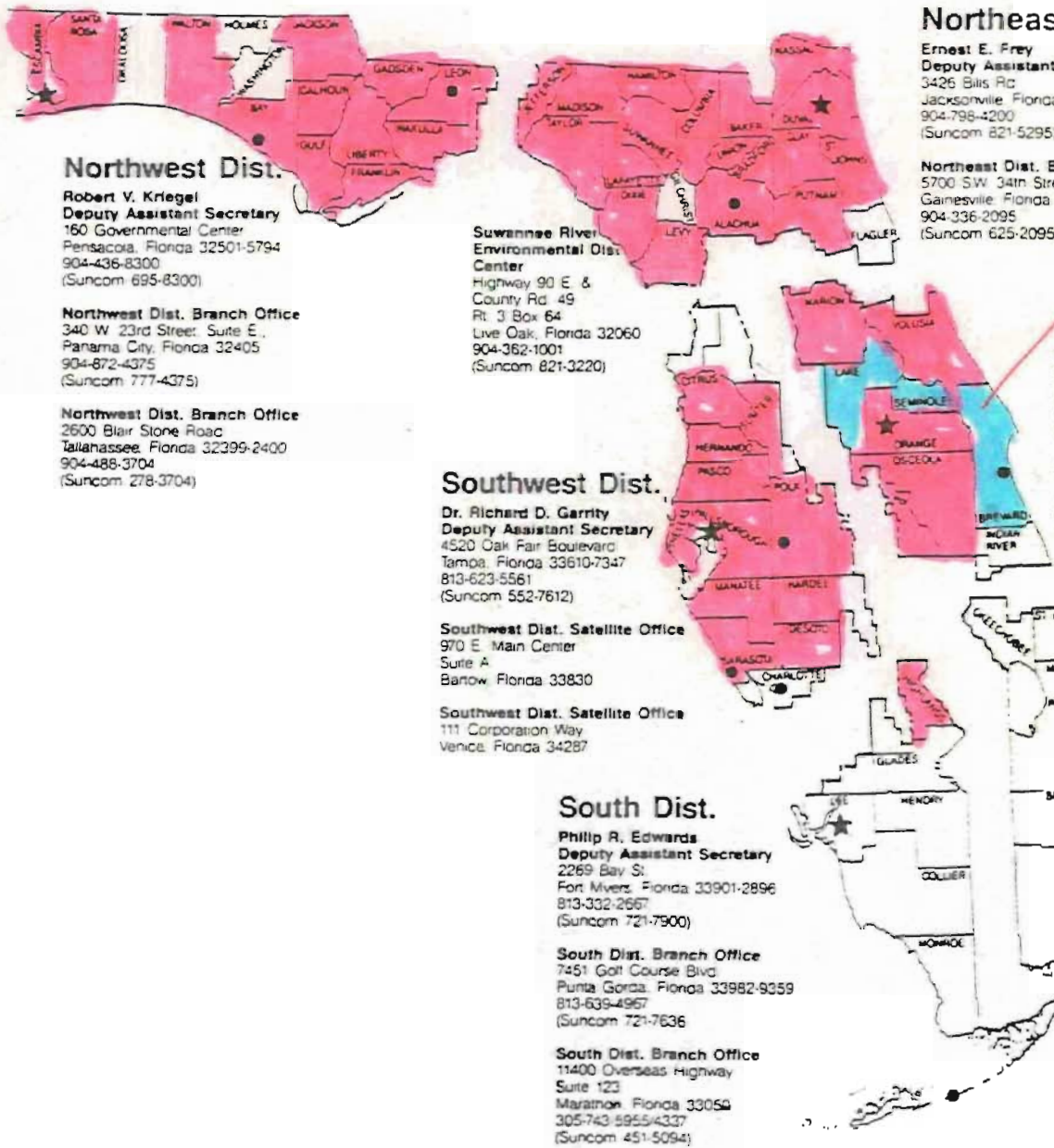
M. Hanks
B. Andrews

Offices of the Florida Department of Environmental Regulation

Dale Twachtmann, Secretary
John Shearer, Assistant Secretary

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(904) 488-4805

3/12/90
Copies checked
is approved to
open



Northwest Dist.

Robert V. Krieger
Deputy Assistant Secretary
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300
(Suncom 695-8300)

Northwest Dist. Branch Office
340 W. 23rd Street, Suite E.,
Panama City, Florida 32405
904-872-4375
(Suncom 777-4375)

Northwest Dist. Branch Office
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-3704
(Suncom 278-3704)

Suwannee River Environmental Dist. Center

Highway 90 E. &
County Rd. 49
Rt. 3 Box 64
Live Oak, Florida 32060
904-362-1001
(Suncom 821-3220)

Southwest Dist.

Dr. Richard D. Garrity
Deputy Assistant Secretary
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
813-623-5561
(Suncom 552-7612)

Southwest Dist. Satellite Office
970 E. Main Center
Suite A
Barrow, Florida 33830

Southwest Dist. Satellite Office
111 Corporation Way
Venice, Florida 34287

South Dist.

Phillip R. Edwards
Deputy Assistant Secretary
2269 Bay St.
Fort Myers, Florida 33901-2896
813-332-2667
(Suncom 721-7900)

South Dist. Branch Office
7451 Golf Course Blvd.
Punta Gorda, Florida 33982-9359
813-639-4967
(Suncom 721-7636)

South Dist. Branch Office
11400 Overseas Highway
Suite 123
Marathon, Florida 33059
305-743-5955/4337
(Suncom 451-5094)

Northeast Dist.

Ernest E. Frey
Deputy Assistant Secretary
3426 Bits Rd.
Jacksonville, Florida 32207
904-798-4200
(Suncom 821-5295)

Northeast Dist. Branch Office
5700 SW 34th Street, Suite 1204
Gainesville, Florida 32608
904-336-2095
(Suncom 625-2095)

Central Dist.

Alex Alexander
Deputy Assistant Secretary
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767
407-894-7555
(Suncom 325-1011)

Central Dist. Satellite Office
13 East Melbourne Ave.
Melbourne, Florida 32901
407-984-4800
(Suncom 350-4800)

Southeast Dist.

Scott Banyon
Deputy Assistant Secretary
1900 S. Congress Ave., Suite A
West Palm Beach, Florida 33406
407-964-9668
(Suncom 221-5005)

Southeast Dist. Branch Office
2745 S.E. Morningside Blvd.
Port St. Lucie, Florida 34952
407-878-3890/335-4310
(Suncom 221-5053)

Environmental Regulation Commission

Robert A. Mandell, Chairman
Post Office Box 3873
Longwood, Florida 32779
407-869-0300

A. L. "Jack" Buford, Vice Chairman
Post Office Box 4245
Tallahassee, Florida 32315
904-385-7202

Phyllis P. Sazinen
1717 Alvarado Court
Longwood, Florida 32779
407-869-7781

Steven B. Gold
1001 13th Avenue East
Bradenton, Florida 34028
813-747-4461

Nancy Roen
1111 South Bayshore Drive
Miami, Florida 33131
305-350-1200

Thomas W. Sansbury
9406 Okeechobee Boulevard
West Palm Beach, Florida 33411
407-790-7921

Joe R. Williams
Post Office Box 100
Live Oak, Florida 32060
904-362-3158

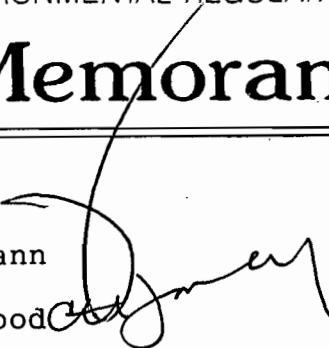


State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: Dale Twachtmann

for FROM: Steve Smallwood 

DATE: March 26, 1990

SUBJ: Amendment of Construction Permit No. AC 48-166670
CleanSoils, Inc.

Attached for your approval and signature is a letter that will amend a waste disposal activity permit to construct a portable soil remediation unit. The unit is permitted to operate in the north half of Florida.

The amendment allows the unit to operate in three counties in central Florida. This amendment is not controversial.

The permittee's request to substitute an annual process limit for an annual operation time limit is being denied. The Bureau of Air Regulation has determined that this is a modification that requires a new permit.

I recommend your approval and signature.

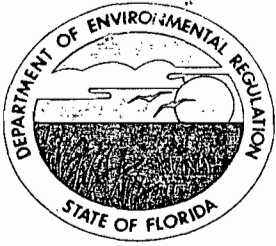
SS/plm

Attachment

RECEIVED

MAR 26 1990

Office of the Secretary



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

March 26, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James K. Poucher, President
CleanSoils, Inc.
14120 23rd Avenue North
Minneapolis, Minnesota 55447

Dear Mr. Poucher:

Re: Amendment of Permit No. AC 48-166670

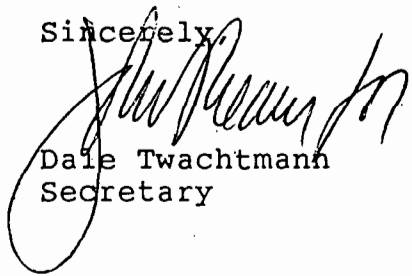
The Department is in receipt of Mr. Robert Wills' February 27, 1990, letter, with its attached proof of publication of the Notice of Intent to Issue in the Orlando Sentinel, that requested the permit to construct CleanSoils' 60 TPH portable soil remediation unit be amended to: (1) authorize operation in Lake, Seminole, and Brevard Counties, and; (2) replace the hours per year restriction in this permit with a limit on the tons per year of contaminated soil processed by that unit.

Your request (1) to operate in Lake, Seminole, and Brevard Counties is approved.

Your request (2) to replace the time limit with a process limit is denied because it could result in an increase in annual pollutant emission. This would be a modification, by definition, and would require a new permit to construct. You may pursue the modification by submitting a new application for permit to construct (modify) to the Department.

A copy of this letter must be filed with the referenced construction permit and shall become a part of that permit.

Sincerely,


Dale Twachtmann
Secretary

DT/plm

cc: Charles Collins, Central District

P 052 482 232

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

PS Form 3800, June 1985

Sent to Mr. James K. Poucher, CleanSoil	
Street and No. 14120 23rd Avenue North	
P.O., State and ZIP Code Minneapolis, Minnesota 55447	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date Mailed: 3-29-90 Permit: AC 48-166670	

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge)
2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. James K. Poucher, President CleanSoils, Inc. 14120 23rd Avenue North Minneapolis, Minnesota 55447	4. Article Number P 052 482 232
5. Signature - Address X <i>Hebra & Warm</i>	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery 4-2-90	8. Addressee's Address (ONLY if requested and fee paid)



CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, MN 55447
(612) 557-7106

RECEIVED
MAR 6 1990
DER-BAQM

February 27, 1990

Mr. C.H. Fancy
Deputy Chief
Bureau of Air Quality Management
Florida DER
Tallahassee, FL 32399-2400

RE: AC48-166670

Dear Mr. Fancy:

As per our earlier discussions, I am requesting that our permit be amended as follows:

1. Include operation in Lake, Seminole and Brevard Counties. The Public Notice of Intent to Issue was published in the Orlando Sentinel, which covers these counties, on February 13, 1990 (see enclosed).
2. The wording on operation time be amended to reflect tonnage. The present permit allows 60 TPH for 800 hours per year, which would total 48,000 tons per year. We would like to be allowed to process 48,000 tons per year not to exceed 60 TPH and in compliance with local ordinances on process operating hours. This does not allow any additional or higher concentration of effluents in any time frame. It does keep us from being penalized for operating at less than 60 TPH.

If this is acceptable would you please notify us.

If you have any further questions or need further information please do not hesitate to call our toll free number 1-800-486-7645.

Sincerely,

Robert A. Wills, Ph.D.
Vice President of Engineering

RAW:dw

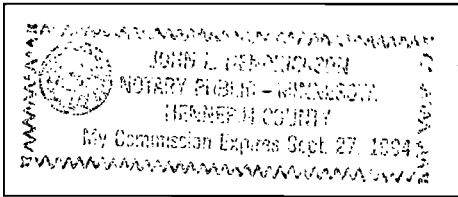
enclosure

Notice of Intent to Issue
The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to CleanSoils Inc., 14120 23rd Avenue North, Minneapolis, MN 55447 for construction a portable 80 TPH soil remediation unit with air pollution controlled by a baghouse and afterburner. The unit will be authorized to operate in any county in Florida. Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations were not required. The unit may emit 1.2 TPY particulate matter, 14.4 TPY VOC, and 2.3 TPY NOx. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment. A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioners shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes. The petition shall contain the following information:
(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the County in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.
If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S. and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.
The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Dept. of Environmental Regulation

AFFIDAVIT OF PUBLICATION

State of Minnesota,
County of Hennepin

Robert A. Wills, Vice President of Engineering of CleanSoils Inc., County of Hennepin, State of Minnesota, being duly sworn, says that on the 13th day of February, 1990, the State of Florida Department of Environmental Regulation Notice of Intent to issue was published in The Orlando Sentinel and that the Notary has viewed the notice in its entirety in said paper.



Notary Stamp

Robert A. Wills

Signature

Subscribed and sworn to before me this 27th
day of February, 1990

John L. Hennelrich
SIGNATURE OF NOTARY PUBLIC

1 LEGAL NOTICES

- Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
Dept. of Environmental Regulation
 - Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Dept. of Environmental Regulation
 - South Florida District
2269 Bay Street
Ft. Myers, Florida 33901-2896
Dept. of Environmental Regulation
 - Northeast District
3428 Bills Road
Jacksonville, Florida 32207
Dept. of Environmental Regulation
 - Central Florida District
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Dept. of Environmental Regulation
 - Southeast Florida District
1900 S. Congress Avenue,
Suite A
West Palm Beach, Florida 33406
Broward County Environmental Quality Control Board
621 South Andrews Avenue
FL Lauderdale, Florida 33310
Dade County Dept. of Environmental Resources Management
Jose Martí Building
801 S.W. 3rd Avenue, 2nd Floor
Miami, Florida 33130
Duval County Dept. of Health, Welfare and Bio-Environmental Services
421 West Church Street, Suite 412
Jacksonville, Florida 32202
Environmental Protection Commission of Hillsborough County
1410 North 21st Street
Tampa, Florida 33605
Palm Beach County Health Dept. Division of Environmental Science and Engineering
901 S. Evernia Street
West Palm Beach, Florida 33402
Pinellas County Department of Environmental Management
315 Court Street
Clearwater, Florida 34816
Sarasota County Environmental Services Department
1301 Cattleman Road
Sarasota, Florida 33582-9631
Orange County Environmental Protection Department
2002 E. Michigan Avenue
Orlando, Florida 32808
- Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.
CL-820 Feb. 13, 1990



CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, MN 55447
(612) 557-7106

RECEIVED
MAR 5 1990
DER DAQU

February 27, 1990

Mr. Willard Hanks
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Fl 32301

RE: AC 48-166670

Dear Willard:

I thought I'd let you know that I've sent the enclosed Notice of Intent to C. Fancy along with a request to amend our permit to allow operation in Lake, Seminole, and Brevard Counties. I also requested that the wording be changed to reflect 48,000 tons to be processed per year rather than 800 hours at 60 TPH. This doesn't penalize us for operating at a lower throughput.

Thank you for passing along my request for an updated list of soil processors in Florida. It doesn't seem to have grown much.

It appears that we've won the contract on a cleanup for the town of Rockledge near Cocoa Beach. I believe that we will be relocating our processor to this site after we finish our present project in Milwaukee. This should allow plenty of time before the July 15, 1990 expiration of the construction permit.

Thanks again for your help. I'm sure I'll be down for part of this Rockledge project. I'll try and stop by your office and say hi.

Sincerely,

Robert A. Wills, Ph.D.
Vice President of Engineering

JKP:dw

enclosure

AFFIDAVIT OF PUBLICATION

State of Minnesota,
County of Hennepin

Robert A. Wills, Vice President of Engineering of CleanSoils Inc., County of Hennepin, State of Minnesota, being duly sworn, says that on the 13th day of February, 1990, the State of Florida Department of Environmental Regulation Notice of Intent to issue was published in The Orlando Sentinel and that the Notary has viewed the notice in its entirety in said paper.



Notary Stamp

Robert A. Wills
Signature

Subscribed and sworn to before me this 27th
day of February, 1990

John S. Hennrich
SIGNATURE OF NOTARY PUBLIC

Regulation
Notice of Intent to Issue
The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to CleanSoils Inc., 14120 23rd Avenue North, Minneapolis, MN 55447 to construction a portable 80 TPH soil remediation unit with air pollution controlled by a baghouse and afterburner. The unit will be authorized to operate in any county in Florida. Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations were not required. The unit may emit 1.2 TPY particulate matter, 14.4 TPY VOC, and 2.3 TPY NOx. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment. A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2900 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes. The petition shall contain the following information:
(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the County in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.
If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28.5.207, F.A.C.
The application is available for public inspection during normal business hours, 8:00 a.m. to 3:00 p.m., Monday through Friday, except legal holidays, at: Department of Environmental Regulation
Bureau of Air Regulation
2900 Blair Stone Road
Tallahassee, Florida 32399-2400
Dept. of Environmental Regulation

LEGAL NOTICES	
Northwest District 180 Governmental Center Pensacola, Florida 32501-5794 Dept. of Environmental Regulation	Southwest District 4520 Oak Fair Boulevard Tampa, Florida 33610-7347 Dept. of Environmental Regulation
South Florida District 2269 Bay Street FL Myers, Florida 33601-2896 Dept. of Environmental Regulation	Northeast District 3428 Bills Road Jacksonville, Florida 32207 Dept. of Environmental Regulation
Central Florida District 3318 Maguire Blvd., Suite 232 Orlando, FL 32803-3767 Dept. of Environmental Regulation	Southeast Florida District 1900 S. Congress Avenue, Suite A West Palm Beach, Florida 33409 Broward County Environmental Quality Control Board 621 South Andrews Avenue FL Lauderdale, Florida 33310 Dade County Dept. of Environmental Resources Management Jose Martí Building 801 S.W. 3rd Avenue, 2nd Floor Miami, Florida 33130 Duval County Dept. of Health, Welfare and Bio-Environmental Services 421 West Church Street, Suite 412 Jacksonville, Florida 32202 Environmental Protection Commission of Hillsborough County 1410 North 21st Street Tampa, Florida 33605 Palm Beach County Health Dept. Division of Environmental Science and Engineering 801 S. Evernia Street West Palm Beach, Florida 33407 Pinellas County Department of Environmental Management 315 Court Street Clearwater, Florida 34616 Sarasota County Environmental Services Department 1301 Cattlemen Road Sarasota, Florida 33582-9631 Orange County Environmental Protection Department 2002 E. Michigan Avenue Orlando, Florida 32808
Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination. CL-820 Feb 13, 1990	

March 1, 1991

Mr. Willard Hanks
Bureau of Air Quality Management
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, FL 32301

RE: Permit # AC 48-166670

Dear Willard:

I have enclosed preliminary information from our stack test performed February 8th and 9th. When Interpoll Laboratories has completed their report, I will forward a copy to you.

In attempting to comply with informational requests specified in 17-2.700(7)(c), we have answered the first six items and items 17, 20 and 21. Items 7 through 16, 18 and 19 will be answered in the report provided by Interpoll.

If you have any further questions, please do not hesitate to call.

Sincerely,



Robert A. Wills, PhD
Vice President of Engineering

Enclosures

cc: Bob Soich
Hillsborough County

RECEIVED
MAR 04 1991

DEL

DER 17-2.700(7)(C) REPORT ON STACK TEST

1. CleanSoils mobile soil remediation unit, SRU-101. Tests were performed at the site of remediation, Bay Concrete, 3121 East Clark Street, Tampa, Florida. The stack from the mobile unit was evaluated as sole source for emissions.
2. Bay Concrete, 3121 East Clark Street, Tampa, Florida
3. CleanSoils Inc., 84 2nd Avenue SE, New Brighton, Minnesota
4. Normal processing of contaminated soils (mobile):
 - Propane fuel (Dryer and Afterburner)
 - 25-30 Ton per hour of soil
 - 15-20 gallons propane/ton soil
 - Typical site - 2,000 tons

Site (Clark St.) processing of contaminated soil
Propane fuel
8-10* ton per hour of soil
30-35* gallon propane/ton soil
148 tons processed during test

*Processing rate and fuel consumption were abnormal due to high moisture content in the soil.

5. The amount of material processed is weighed on a Technetics Model WY11-01-24 belt scale. This provides throughput in tons per hour and accumulated tons across the scale. Fuels are not typically considered with respect to emissions from our unit. Fuel consumption is based on percent change in fuel transporter volume over time.
6. Air pollution equipment
Baghouse:
 - Overall unit is in very good condition. During the stack test the damper was open to 100% throughout the tests.
 - At maximum flow 4.2:1 air to cloth
 - Normal pressure drop (across tube sheet) is 7-10 inch of water (at full damper open) depending on pulse cycle.Afterburner:
 - Overall unit is in very good condition.
 - Normal operation is 1400°F exhaust gas.
 - Fuel usage is dependent on BTU value of contaminants being destructed.
 - This unit ran at 1400°F or higher except for process upsets (noted on attached Log Sheet).

17. The individuals testing the stack gases will be indicated in the Interpoll report. Operators for the SRU-101 during the stack tests were Troy Watling and Ed O'Connor, under the direction of Dr. R. A. Wills, Vice President of Engineering.
20. The emissions standards for this unit according to Florida permit number AC 48-166670 are:

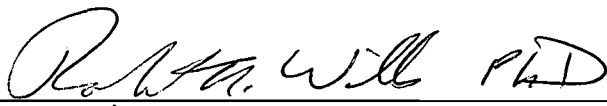
Particulate matter:
 < 0.08 grains/dscf
 < 3.0 lb/hour

Opacity:
 < 5%

VOC's:
 Benzene < 5.6 lb/hour
 Total <36 lb/hour

Test results will be provided in the follow-up Interpoll report.

21. A certificate will be provided on the follow-up data when it is available. The above information is true and correct to the best of my knowledge.

Signed: 
Robert A. Wills, PhD.
Vice President of Engineering

FAX 813 223-9332
TWX 810 876-9134
THORNT LAB TPA

THORNTON LABORATORIES, INC.
1145 EAST CASS STREET
TAMPA, FLORIDA 33601 - 2880
MARINE, ANALYTICAL AND ENVIRONMENTAL SERVICES
HRS #84147 & HRS #E84100

TELEPHONE (813) 223-9702
P.O. BOX 2880

FACSIMILE / TELECOPIER MESSAGE

DATE: 2-6-91

CLIENT: Gurr & Assoc CITY/STATE: Kalifornia

ATTENTION: Dean Myers

TELEFAX NO: _____

FROM: Kaure

SAMPLES OF: Soil

LAB NO. 771550

RESULTS

SAMPLE ID.

Bulk Density 1.17 lb/cu yd or 1.8824g/cc (received)

Moisture (105°C) 22.2 %

Addendum A to Stack Test Results
For CleanSoils Inc., SRU-101
Conducted February 8 and 9, 1991

The following items were approved by Willard Hanks, FL-DER, in a phone conversation with Robert Wills, CleanSoils Inc. on January 22, 1991.

1. Co-current testing of the inlet and outlet gases for the afterburner using Method 25A was not necessary. Alternating between the two sources with a single Ratfisch was acceptable.
2. Opacity need not be monitored co-currently with the running of the particulate tests. Opacity may be monitored during other times of operation.
3. The pressure drop need not be continuously monitored/recorded. Pressure drop data for the baghouse may be read and recorded at 1 (one) minute intervals.

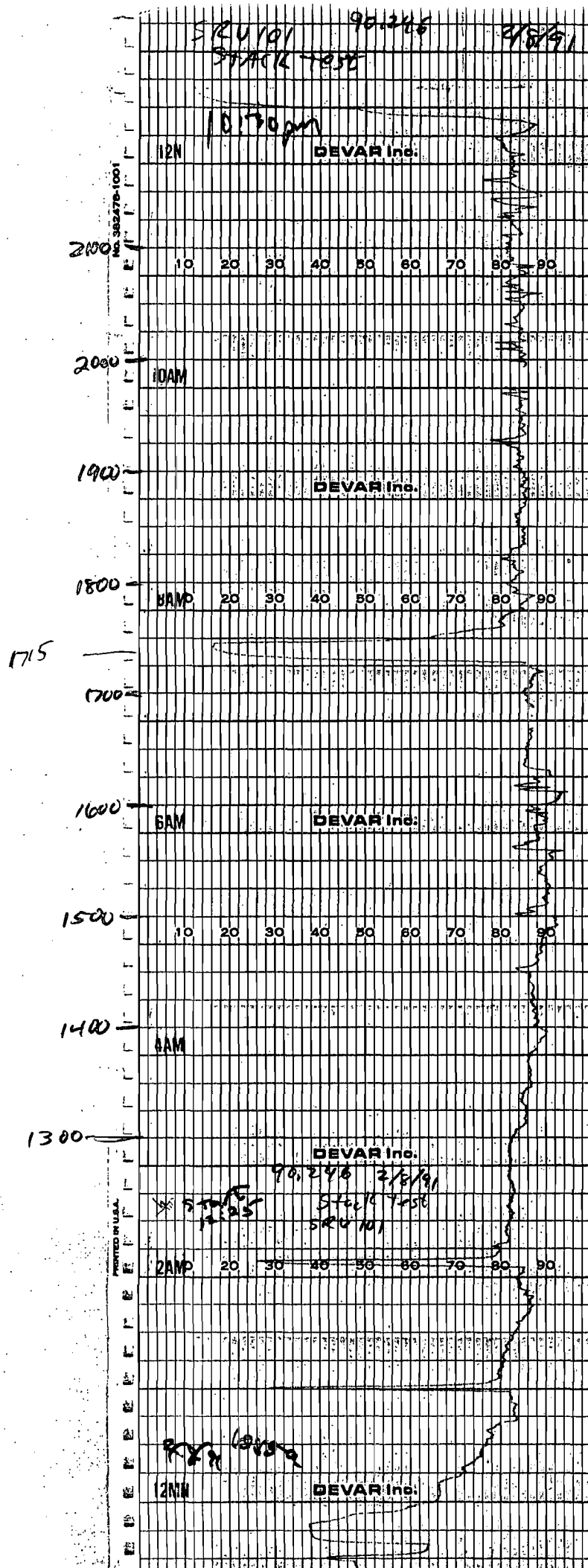
Addendum B to Stack Test Results
For CleanSoils Inc., SRU-101
Conducted February 8 and 9, 1991

Throughput through the SRU-101 was substantially reduced by the moisture content in the soil. Under normal operations, a moisture content of 5%-10% is expected. As seen on the enclosed analytical report, the moisture content was 22.2%.

During the test on February 8, 1991, there was concern that the concentration of contaminants was changing. This was partially confirmed by noting that the afterburner fuel controller steadily decreased from 24% down to as low as 9.5% while still maintaining temperature in excess of 1400°F. Our experience has shown that the fuel in the soil is actually providing the combustion fuel. As "this" fuel increased, the burner backed off to maintain acceptable temperature maximums. This increase was probably due to removing soil for feed material from the outside of the pile toward the center as the day progressed. The center of the piles tend to have higher concentration of both water and contaminants for a variety of reasons.

SRU 101 STACK TEST 2/8/91

<u>TIME</u> START #1	<u>TONS PER</u> <u>HOUR</u>	<u>SOIL TEMP.</u>	<u>AFTERBURNER</u>	<u>PRESSURE</u> <u>DROP</u>
1225	8.5	470	1432	8.25
1245	6.8	530	1434	8.75
1300	10.2	517	1446	8.75
1315	9.3	458	1502	8.75
1330	8.0	386	1532	8.75
1345	6.2	445	1516	8.75
1400	6.6	460	1511	8.9
1415	8.5	476	1518	9.2
1430	8.5	640	1458	9.5
1445	8.5	470	1561	9.2
1500	8.5	302	1527	9.5
1515	8.5	454	1585	9.7
1530	8.5	537	1597	9.5
1545	8.0	620	1546	9.75
1600	8.5	702	1589	9.75
1615	8.0	483	1608	10.0
1630	4.8	511	1501	9.75
1645	5.9	509	1510	9.75
1700	6.9	499	1499	9.75
1715	7.1	AFTERBURNER DOWN - BACK ON LINE 1720		9.5
1730	6.1	424	1413	9.5
1745	9.4	557	1505	7.5
1800	8.4	429	1490	7.75
1815	8.2	429	1469	8.0
1830	8.5	437	1459	8.0
1845	8.7	412	1507	8.25
1900	7.5	496	1472	8.25
1915	7.9	592	1462	8.5
1930	6.1	523	1477	8.5
1945	5.6	611	1484	8.5
2000	5.2	509	1495	8.5
2015	8.8	429	1479	8.5
2030	7.5	452	1482	8.5
2045	8.8	324	1471	9.0
2100	7.3	421	1423	9.0
2115	4.3	613	1470	7.5
2130	5.3	614	1445	3.75
2145	6.3	533	1422	1.75
2200	END SOIL	577	1496	1.5



Scale 0 20 40 60 80
 Top(E) 0 360 720 1080 1440

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SRU 101 STACK TEST

MAGNEHELIC READINGS 2/8/91

	<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>
START #1	1225	8.25	1311	8.75	1446	9.2
	1226	8.5	1312	8.75	1447	9.2
	1227	8.5	1313	8.75	1448	9.2
	1228	8.5	1314	8.75	1449	9.2
	1229	9.2	1315	8.75	1450	9.2
			1316	8.75	1451	9.2
	1230	8.5	1317	8.75	1452	9.2
	1231	8.5	1318	8.75	1453	9.2
	1232	8.5	1319	8.75	1454	9.2
	1233	8.25	1320	8.75	1455	9.2
	1234	8.5	1321	8.75	1456	9.2
	1235	8.5	1322	8.75	1457	9.2
	1236	8.75	1323	8.9	1458	9.2
	1237	8.5	1324	8.8	1459	9.5
	1238	8.5	1325	8.9		
	1239	8.5	STOP/START #2		1500	9.5
	1240	8.5	1415	9.2	1501	9.5
	1241	8.5	1416	9.2	1502	9.5
	1242	8.5	1417	9.2	1503	9.5
	1243	8.25	1418	9.2	1504	9.5
	1244	8.5	1419	9.2	1505	9.5
	1245	8.75	1420	9.5	1506	9.5
	1246	8.75	1421	9.5	1507	9.5
	1247	8.5	1422	9.5	1508	9.5
	1248	8.75	1423	9.5	1509	9.5
	1249	8.75	1424	9.5	1510	9.5
	1250	8.75	1425	9.5	1511	9.5
	1251	8.75	1426	9.5	1512	9.5
	1252	8.75	1427	9.2	1513	9.5
	1253	8.75	1428	9.2	1514	9.5
	1254	8.75	1429	9.2	1515	9.5
	1255	8.75	STOP/START #3			
	1256	8.75	1430	9.2	1516	9.5
	1257	8.75	1431	9.2	1517	9.5
	1258	8.75	1432	9.2	1518	9.5
	1259	8.75	1433	9.2	1519	9.5
			1434	9.2	1520	9.5
	1300	8.75	1435	9.2	1521	9.5
	1301	8.75	1436	9.2	1522	9.5
	1302	8.75	1437	9.2	1523	9.5
	1303	8.75	1438	9.2	1524	9.75
	1304	8.75	1439	9.2	1525	9.75
	1305	8.75	1440	9.2	1526	9.75
	1306	8.75	1441	9.2	1527	9.75
	1307	8.75	1442	9.2	1528	9.5
	1308	8.75	1443	9.2	1529	9.5
	1309	8.75	1444	9.2		
	1310	8.75	1445	9.2	1530	9.5

SRU 101 STACK TEST 2/8/91

<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>
1531	9.5	1621	9.5	1710	9.75
1532	9.5	1622	9.5	1711	9.75
1533	9.75	1623	9.5	1712	9.75
1534	10	1624	9.5	1713	9.75
1535	10	1625	9.5	1714	9.75
1536	9.75	1626	9.5	1715	9.75
1537	10	1627	9.5	1716	9.75
1538	9.75	1628	9.75	1617	9.75
1539	9.75	1629	9.75	1718	9.75
1540	9.75			1719	9.75
1541	9.75	1630	9.75	1720	9.75
1542	9.75	1631	9.75	1721	9.75
1543	9.75	1632	9.75	1723	9.75
1544	9.75	1633	9.75	1724	9.75
1545	9.75	1634	9.75	1725	9.75
1546	9.75	1635	9.75	1726	9.75
1547	9.75	1636	9.75	1727	9.75
1548	9.75	1637	9.75	1728	9.75
1549	9.75	1638	9.75	1729	9.75
1550	9.75	1639	9.75		
1551	9.75	1640	9.75	1730	9.5
1552	9.75	1641	9.75	1731	9.75
1553	9.75	1642	9.75	1732	9.75
1554	9.75	1643	9.75	1733	9.75
1555	9.75	1644	9.75	1734	9.5
1556	9.75	1645	9.75	1735	8.5
1557	9.75	1646	9.75	1736	8.0
1558	9.75	1647	9.75	1737	7.5
1559	9.75	1648	9.75	1738	7.5
		1649	9.75	1739	7.0
1600	9.75	1650	9.75	1740	7.0
1601	9.75	1651	9.75	1741	7.0
1602	9.75	1652	9.75	1742	7.25
1603	9.75	1653	9.75	1743	7.25
1604	9.5	1654	9.75	1744	7.25
1605	9.5	1655	9.75	1745	7.5
1606	9.5	1656	9.75	1746	7.5
1607	9.5	1657	9.75	1747	7.5
1608	9.5	1658	9.75	1748	7.5
1609	9.5	1659	9.75	1749	7.5
1610	9.5			1750	7.5
1611	9.5	1700	1.75	1751	7.5
1612	9.5	1701	9.75	1752	7.75
1613	10	1702	9.75	1753	7.75
1614	10	1703	9.75	1754	7.75
1615	10	1704	9.75	1755	7.75
1616	10	1705	9.75	1756	7.75
1617	10	1706	9.75	1757	7.75
1618	9.75	1707	9.75	1758	7.75
1619	9.5	1708	9.75	1759	7.75
1620	9.5	1709	9.75		

SRU 101 STACK TEST 2/8/91

<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>
1800	7.75	1850	8.25	1939	8.5
1801	7.75	1851	8.25	1940	8.5
1802	7.75	1852	8.25	1941	8.5
1803	7.75	1853	8.25	1942	8.5
1804	7.75	1854	8.25	1943	8.5
1805	7.75	1855	8.25	1944	8.5
1806	8.0	1856	8.25	1945	8.5
1807	8.0	1857	8.25	1946	8.5
1808	8.0	1858	8.25	1947	8.5
1809	8.0	1859	8.25	1948	8.5
1810	8.0			1949	8.5
1811	8.0	1900	8.25	1950	8.5
1812	8.0	1901	8.25	1951	8.75
1813	8.0	1902	8.25	1952	8.75
1814	8.0	1903	8.25	1953	8.75
1815	8.0	1904	8.25	1954	8/75
1816	8.0	1905	8.25	1955	8.75
1817	8.0	1906	8.25	1956	8.75
1818	8.0	1907	8.25	1957	8.75
1819	8.0	1908	8.25	1958	8.5
1820	8.0	1909	8.25	1959	8.5
1821	8.0	1910	8.25		
1822	8.0	1911	8.25	2000	8.5
1823	8.0	1912	8.5	2001	8.5
1824	8.0	1913	8.5	2002	8.5
1825	8.0	1914	8.5	2003	8.5
1826	8.0	1915	8.5	2004	8.5
1827	8.0	1916	8.5	2005	8.5
1828	8.0	1917	8.5	2006	8.5
1829	8.0	1918	8.5	2007	8.5
		1919	8.5	2008	8.5
1830	8.0	1920	8.5	2009	8.5
1831	8.0	1921	8.5	2010	8.5
1832	8.0	1922	8.5	2011	8.5
1833	8.0	1923	8.5	2012	8.5
1834	8.0	1924	8.5	2013	8.5
1835	8.0	1925	8.5	2014	8.5
1836	8.0	1926	8.5	2015	8.5
1837	8.0	1927	8.5	2016	8.5
1838	8.0	1928	8.5	2017	8.5
1839	8.0	1929	8.5	2018	8.5
1840	8.0			2019	8.5
1841	8.0	1930	8.5	2020	8.5
1842	8.25	1931	8.5	2021	8.5
1843	8.25	1932	8.5	2022	8.5
1844	8.25	1933	8.5	2023	8.5
1845	8.25	1934	8.5	2024	8.5
1846	8.25	1935	8.5	2025	8.5
1847	8.25	1936	8.5	2026	8.5
1848	8.25	1937	8.5	2027	8.5
1849	8.25	1938	8.5	2028	8.5

<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>
2029	8.5				
2030	8.5				
2031	8.5				
2032	8.5				
2033	9.0				

SRU 101 STACK TEST 2/9/91

LOG SHEET

<u>TIME</u>	<u>TONS PER HOUR</u>	<u>SOIL TEMP.</u>	<u>AFTERBURNER TEMP.</u>	<u>PRESSURE DROP</u>
11:00	START SOIL			
11:15	7.8	480	1238	.5
11:30	8.8	453	1286	.5
11:45	7.5	574	1391	1.0
12:00	10.6	569	1411	1.0
12:15	AFTERBURNER DOWN SCANNER FAILURE			
12:30	9.2	423	1281	4.5
12:45	11.4	422	1416	5.5
13:00	12.2	442	1512	6.0
13:15	12.1	421	1491	5.0
13:23	AFTERBURNER DOWN SCANNER FAILURE			
13:30	11.8	418	1400	6.0
13:45	10.3	471	1461	6.0
	AFTERBURNER DOWN SCANNER FAILURE			
14:00	8.7	482	1498	6.25
14:15	9.8	560	1398	5.5
14:30	11.7	569	1374	6.0
14:45	DRIER BURNER PROBLEM (LEAKY FUEL NOZZLE)			
15:25	START SOIL			
15:45	8.8	451	1445	
16:00	9.6	503	1460	
16:15	8.7	512	1438	
16:30	8.9	462	1499	
16:45	9.8	489	1451	
17:00	9.4	496	1462	
17:15	7.1	372	1465	
17:30	9.6	586	1425	
17:45	9.4	581	1431	
18:00	9.1	433	1425	5.0
18:15	13.0	422	1454	6.0

90.2466

2/9/91

30 PM 20 30 40 50 60 70 80 90

1900

iUPM

1800

DEVAR Inc.

1700

8 PM 20 30 40 50 60 70 80 90

1600

For Bureau Data

1500

6 PM

DEVAR Inc.

1400

10 20 30 40 50 60 70 80 90

1300

12:00 PM 2/9/91
4 PM

1215

1200

DEVAR Inc.

2 PM 20 30 40 50 60 70 80 90

0 360 720 1080 1440 1800

°F

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SRU 101 STACK TEST
MAGNEHELIC READINGS 2/9/91

START #1	PRESSURE *		PRESSURE		PRESSURE	
	TIME	<u>DROP</u>	TIME	<u>DROP</u>	TIME	<u>DROP</u>
	1235	5.0	1322	5.0	1427	6.5
	1236	5.0	1323	5.0	1428	5.5
	1237	5.0	1324	5.0	1429	5.5
	1238	5.0	1325	5.5		
	1239	5.0	1326	6.0	1430	6.0
	1240	5.0	1327	6.0	1431	6.0
	1241	5.0	1328	6.0	1432	6.0
	1242	5.0	1329	6.0	1433	6.5
	1243	5.0	1330	6.0	1434	6.5
	1244	5.0	1331	6.0	1435	6.5
	1245	5.5	1332	6.0	1436	5.5
	1246	5.5	1333	6.0	1437	4.5
	1247	5.5	1334	6.0	1438	4.5
	1248	5.5	1335	6.0	1439	5.0
	1249	5.5			1440	5.5
	1250	5.5	1336	6.0	1441	6.0
	1251	5.5	1337	6.0	1442	6.0
	1252	5.5	1338	6.5	1443	6.0
	1253	5.5	1339	6.5		
	1254	5.5	1340	4.5		
	1255	5.5	1341	5.5		
	1256	6.0	1342	5.5		
	1257	6.0	1343	5.5		
	1258	6.0	1344	6.0		
	1259	6.0	1345	6.0		
			1346	6.0		
	1300	6.0	1347	6.0		
	1301	6.0	1348	6.0		
	1302	6.0	1349	6.25		
	1303	6.0	1350	6.5		
	1304	6.0	1351	5.5		
	1305	6.0	1352	5.5		
	1306	6.0	1353	5.5		
	1307	6.5	1354	6.0		
	1308	6.5	1355	6.0		
	1309	6.5	1356	6.0		
	1310	5.5	1357	6.0		
	1311	3.5	1358	6.0		
	1312	3.5	1359	6.25		
	1313	4.0				
	1314	4.5	1400	6.25		
	1315	4.5	1420	5.5		
	1316	5.0	1421	5.5		
	1317	5.0	1422	6.0		
	1318	5.0	1423	6.0		
	1319	5.0	1424	6.0		
	1320	5.0	1425	6.0		
	1321	5.0	1426	6.0		
					1500	7.0
					1501	6.0
					1502	5.0
					1503	4.0
					1504	4.5
					1505	5.0
					1506	5.0
					1507	5.0
					1508	5.5
					1509	5.5
					1510	6.0
					1511	6.0
					1512	6.0

* Inches of Water

P = pulsed baghouse

<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>	<u>TIME</u>	<u>PRESSURE DROP</u>
1513	6.0	1602	5.5	1713	5.0
1514	6.0	1603	6.0	1714	5.0
1515	6.0	1604	6.0	1715	5.0
1516	6.0	1605	6.5	1716	5.5
1517	6.0	1606	7.0	1717	5.5
1518	6.0	1607	5.0	1718	5.5
1519	6.0	1608	4.0	1719	5.75
1520	6.0	1609	5.0	1720	6.0
1521	6.5	1610	5.0	1721	6.0
1522	4.5] P	1611	5.5	1722	6.0
1523	4.5	1612	6.0	1723	6.0
1524	5.0	1613	6.0	1724	6.0
1525	5.0	1614	6.0	1725	6.0
1526	5.5	1615	6.0	1726	6.25
1527	6.0	1616	6.5] P	1727	6.5] P
1528	6.0	1617	6.0	1728	6.0] P
1529	6.5] P	1618	4.5] P	1729	4.5] P
		1619	5.0		
1530	4.5] P	1620	5.5	1730	5.0
1531	5.0	1621	6.0	1731	5.25
1532	5.5	1622	6.0	1732	5.5
1533	6.0	1623	6.0	1733	5.5
1534	6.0	1624	6.0	1734	5.75
1535	6.0	1625	6.5] P	1735	5.75
1536	6.0	1626	6.0] P	1736	6.0
1537	6.0	1627	4.5] P	1737	6.0
1538	6.0	1628	5.0	1738	6.25
1539	6.0	1629	5.5	1739	6.25
1540	6.0			1740	6.5] P
1541	6.5	1630	6.0	1741	5.0] P
1542	6.5	1631	6.0	1742	4.5] P
1543	6.5	1632	6.0	1743	5.0
1544	5.0	1633	6.25	1744	5.25
1545	5.0	1634	6.5] P	1745	5.5
1546	6.0	1635	6.0] P	1746	5.75
1547	6.0	1636	5.0] P	1747	6.0
1548	6.0	1637	4.5] P	1748	6.0
1549	6.0	1638	5.5	1749	6.0
1550	6.5] P	1639	5.5	1750	6.25
1551	4.5] P	1640	6.0	1751	6.25
1552	5.0	1641	END	1752	6.5] P
1553	6.0			1753	5.25] P
1554	6.0	START		1754	4.0] P
1555	6.0	1706	6.5] P	1755	4.5
1556	6.0	1707	6.0] P	1756	4.5
1557	6.5] P	1708	5.0] P	1757	4.0
1558	5.5] P	1709	4.0] P	1758	4.5
1559	4.5] P	1710	4.5	1759	4.5
		1711	4.5		
1600	5.0	1712	5.0	1800	4.75
1601	5.5			1801	5.0

<u>TIME</u>	<u>PRESSURE</u> <u>DROP</u>	<u>TIME</u>	<u>PRESSURE</u> <u>DROP</u>	<u>TIME</u>	<u>PRESSURE</u> <u>DROP</u>
START					
1802	5.0				
1803	5.0				
1804	5.0				
1805	5.25				
1806	5.25				
1807	5.25				
1808	5.5				
1809					
1810					
1811					
1812					
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1826					
1827					
1828					
1829					
1830					
1831					
1832					



CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, MN 55447
(612) 557-7106

RECEIVED

December 27, 1989

JAN 2 1990

Mr. Bill Thomas
Florida DER
Twin Towers Office Bldg
2600 Blair Stone Road
Tallahassee, FL 32399-2400

DER-BAQM

RE: DER File No. AC48-166670

Dear Mr. Thomas:

Enclosed are the legal notices published in the Tampa Tribune, Pensacola News Journal, The Florida Times-Union and the Tallahassee Democrat regarding our soil remediation unit. I have also enclosed a list of the counties covered by these newspapers as these do not cover the entire state of Florida.

With respect to the copy of the Technical Evaluation and Preliminary Determination I have very few comments or requests for changes. I will list them by section.

I.D. Paragraph 4

The kiln and afterburner may and will also be fired by natural gas or propane.

III. Paragraph 1

The fuel for the kiln can be natural gas, propane or #2 fuel oil. The fuel for the afterburner can be natural gas or propane.

with respect to the permit:

Page 5, Specific Conditions, #2

Propane, natural gas or propane fuels in the primary (kiln).
These fuels will provide no additional pollutants.

If you have any questions or need any further information, please do not hesitate to call.

Sincerely,

Robert A. Wills, Ph.D.
Manager Process Engineering

cc: Willard Hanks, Florida DER

enclosure

Soil Remediation Specialists

FLORIDA COUNTIES
Covered by CleanSoils Intent to Issue
dated December 13, 1989

ALACHUA
BAKER
BRADFORD
CALHOUN
CITRUS
CLAY
COLUMBIA
DE SOTO
DIXIE
DUVAL
ESCAMBIA
FRANKLIN
GADSEN
GULF
HAMILTON
HARDEE
HERNANDO
HIGHLANDS
HILLSBOROUGH
JACKSON
JEFFERSON
LAFAYETTE
LEON
LIBERTY
MADISON
MANATEE
MARION
NASSAU
ORANGE
OSCEOLA
PASCO
PINELLAS
POLK
PUTNAM
SANTA ROSA
SARASOTA
ST. JOHNS
SUMTER
SUWANNEE
TAYLOR
UNION
VOLUSIA
WAKULLA
WALTON

THE TAMPA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

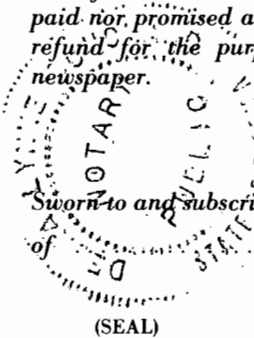
State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared
G. T. Gleason, who on oath says that he is Controller of The Tampa Tribune, a daily
newspaper published at Tampa in Hillsborough County, Florida; that the attached copy
of advertisement being a

LEGAL NOTICE

in the matter of INTENT TO ISSUE
was published in said newspaper in the issues of December 13, 1989

Affiant further says that the said The Tampa Tribune is a newspaper published at
Tampa, in said Hillsborough County, Florida, and that the said newspaper has
heretofore been continuously published in said Hillsborough County, Florida, each day
and has been entered as second class mail matter at the post office in Tampa, in said
Hillsborough County, Florida, for a period of one year next preceding the first publica-
tion of the attached copy of advertisement; and affiant further says that he has neither
paid nor promised any person, firm, or corporation any discount, rebate, commission or
refund for the purpose of securing this advertisement for publication in the said
newspaper.



G. T. Gleason

Sworn to and subscribed before me, this 20 day
December A.D. 1989

Rebecca Lynn Buchanan

Notary Public, State of Florida
My Commission Expires Jan. 6, 1993
Bonded Thru Troy Fain - Insurance Inc.

State of Florida
Department of
Environmental Regulation
Notice of Intent to Issue
The Department of Environ-
mental Regulation hereby
gives notice of its intent to
issue a permit to CleanSoils
Inc., 14120 23rd Avenue North,
Minneapolis, MN 55447, to con-
struct a portable 60 TPH soil
remediation unit with air pollu-
tion controlled by a baghouse
and afterburner. The unit will
be authorized to operate in
any county in Florida. Best
Available Control Technology
(BACT) and Lowest
Achievable Emission Rate
(LAER) determinations were
not required. The unit may
emit 1.2 TPY particulate mat-
ter, 14.4 TPY VOC, and 2.3
TPY NOx. These emissions
will not cause a violation of
any ambient air quality stan-
dard or Prevention of Signifi-
cant Deterioration (PSD)
increment.
A person whose substantial
interests are affected by the
Department's proposed per-
mitting decision may petition
for an administrative proceed-
ing (hearing) in accordance
with Section 120.57, Florida
Statutes. The petition must
contain the information set
forth below and must be filed
(received) in the Office of Gen-
eral Counsel of the Depart-
ment at 2600 Blair Stone Road,
Tallahassee, Florida 32399-
2400, within fourteen (14) days
of publication of this notice.
Petitioner shall mail a copy of
the petition to the applicant at
the address indicated above
at the time of filing. Failure to
file a petition within this time
period shall constitute a waiver
of any right such person
may have to request an ad-
ministrative determination
(hearing) under Section 120.57,
Florida Statutes.
The Petition shall contain
the following information:
(a) The name, address, and
telephone number of each
petitioner, the applicant's
name and address, the Depart-
ment Permit File Number and
the county in which the pro-
ject is proposed;
(b) A statement of how and
when each petitioner received
notice of the Department's ac-
tion or proposed action;
(c) A statement of how each
petitioner's substantial
interests are affected by the
Department's action or pro-
posed action;
(d) A statement of the materi-
al facts disputed by
Petitioner, if any;
(e) A statement of facts
which petitioner contends
warrant reversal or modifica-
tion of the Department's ac-
tion or proposed action;
(f) A statement of which
rules or statutes petitioner
contends require reversal or
modification of the Depart-
ment's action or proposed ac-
tion; and
(g) A statement of the relief
sought by petitioner, stating
precisely the action petitioner
wants the Department to take
with respect to the Depart-
ment's action or proposed ac-
tion.

If a petition is filed, the ad-
ministrative hearing process
is designed to formulate agen-
cy action. Accordingly, the
Department's final action may
be different from the position
taken by it in this Notice. Per-
sons whose substantial
interests will be affected by
any decision of the Depart-
ment with regard to the appli-
cation have the right to
petition to become a party to
the proceeding. The petition
must conform to the require-
ments specified above and be
filed (received) within 14 days
of publication of this notice in
the Office of General Counsel
at the above address of the
Department. Failure to
petition within the allowed
time frame constitutes a waiver
of any right such person
has to request a hearing
under Section 120.57, F.S., and
to participate as a party to
this proceeding. Any
subsequent intervention will
only be at the approval of the
presiding officer upon motion
filed pursuant to Rule 28-5.207,
F.A.C.

The application is available
for public inspection during
normal business hours: 8:00
a.m. to 5:00 p.m., Monday
through Friday, except legal
holidays, at:
Department of
Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida
32399-2400
Dept. of Environmental
Regulation
Northwest District
160 Governmental Center
Pensacola, Florida
32501-5794
Dept. of Environmental
Regulation
Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Dept. of Environmental
Regulation
South Florida District
2269 Bay Street
Ft. Myers, Florida
33901-2896
Dept. of Environmental
Regulation
Northeast District
3426 Bills Road
Jacksonville, Florida 32207
Dept. of Environmental
Regulation
Central Florida District
3319 Maguire Blvd.,
Suite 232
Orlando, Florida 32803-3767
Dept. of Environmental
Regulation
Southeast Florida District
1900 S. Congress Avenue,

Suite A
West Palm Beach,
Florida 33406
Broward County
Environmental Quality
Control Board
621 South Andrews Avenue
Ft. Lauderdale, Florida
33310
Dade County Dept. of
Environmental Resources
Management
Jose Martí Building
801 S.W. 3rd Avenue,
2nd Floor
Miami, Florida 33130
Duval County Dept. of
Health, Welfare and
Bio-Environmental Services
421 West Church Street,
Suite 412
Jacksonville, Florida 32202
Environmental Protection
Commission of Hillsborough
County
1410 North 21st Street
Tampa, Florida 33605
Palm Beach County
Health Dept.
Division of Environmental
Science and Engineering
901 E. Evernia Street
West Palm Beach,
Florida 33402
Pinellas County Department
of Environmental
Management
315 Court Street
Clearwater, Florida 34616
Sarasota County
Environmental Services
Department
1301 Cattleman Road
Sarasota, Florida 33582-9631
Orange County
Environmental Protection
Department
2002 E. Michigan Avenue
Orlando, Florida 32806
Any person may send writ-
ten comments on the pro-
posed action to Mr. Bill Thom-
as at the Department's Tal-
lahassee address. All comments
mailed within 14 days of the
publication of this notice will
be considered in the Depart-
ment's final determination.
5120 12/13/89

PENSACOLA News Journal

PUBLISHED DAILY
PENSACOLA, ESCAMBIA COUNTY, FLORIDA

State of Florida,
County of Escambia.

Before the undersigned authority personally appeared

J. Diane Deal

who on oath says that she is Legal Advertising Supervisor of the Pensacola News Journal, a daily newspaper published at Pensacola in Escambia County, Florida; with general circulation in Escambia, Santa Rosa, Okaloosa and Walton Counties that the attached copy of advertisement, being a NOTICE in the matter of

Intent

in the _____ Court,

was published in said newspaper in the issues of

December 13, 1989

Affiant further say that the said The Pensacola News Journal is a newspaper published at Pensacola, in said Escambia County, Florida, and that the said newspaper has heretofore been continuously published in said Escambia County, Florida, each day and has been entered as second class mail matter at the post office in Pensacola, in said Escambia County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

J. Diane Deal

Sworn to and subscribed before me this

day of Dec A.D., 1989

Patricia J. Lenton
NOTARY PUBLIC.

My Commission Expires October 26, 1991

LEGAL NOTICE LEGAL NOTICE

State of Florida
Department of
Environmental
Regulation
Notice of Intent
to Issue

and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to CleanSoils Inc., 14120 60 TPH soil remediation unit with air pollution controlled by a baghouse and afterburner. The unit will be authorized to operate in any county in Florida. Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations were not required. The unit may emit 1.2 TPY particulate matter, 14.4 TPY VOC, and 2.3 TPY NOx. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to be come a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within (14) days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at: Department of Environmental Regulation Bureau of Air Regulation 2600 Blair Stone Road Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation Northwest District 160 Governmental Center Pensacola, Florida 32501-5794

The Petition shall contain the following information;
(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;

Dept. of Environmental Regulation Central Florida District 3319 Maguire Blvd., Suite 232 Orlando, Florida 32803-3767
Dept. of Environmental Regulation Southeast Florida District

LEGAL NOTICE

1900 S. Congress
Avenue, Suite A
West Palm Beach,
Florida 33406

Broward County Envi-
ronmental Quality
Control Board
621 South Andrews
Avenue
Ft. Lauderdale, Florida
33310

Dade County Dept. of
Environmental
Resources Management
Jose Marti Building
801 S.W. 3rd Avenue,
2nd Floor
Miami, Florida 33130

Duval County Dept. of
Health, Welfare
and Bio-Environmental
Services
421 West Church Street,
Suite 412
Jacksonville, Florida
32202

Environmental Protec-
tion Commission of
Hillsborough County
1410 North 21st Street
Tampa, Florida 33605

Palm Beach County
Health Dept.
Division of
Environmental Science
and Engineering
901 E. Evernia Street
West Palm Beach,
Florida 33402

Pinellas County
Department of
Environmental
Management
315 Court Street
Clearwater, Florida
34616

Sarasota County
Environmental
Services Department
1301 Cattleman Road
Sarasota, Florida
33582-9631

Orange County
Environmental
Protection Department
2002 E. Michigan Avenue
Orlando, Florida 32806

Any person may send
written comments on the
proposed action to Mr.
Bill Thomas at the De-
partment's Tallahassee
address. All comments
mailed within 14 days of
the publication of this
notice will be considered
in the Department's final
determination.

Legal No. 37034 1T
Dec. 13, 1989

Tallahassee Democrat

PUBLISHED DAILY

TALLAHASSEE - LEON - FLORIDA

State of Florida
Department of Environmental Regulation
Notice of Intent To Issue

STATE OF FLORIDA COUNTY OF LEON:

Before the undersigned authority personally appeared Carrie Coons who on oath says that she is Legal Advertising Representative of the Tallahassee Democrat, a daily newspaper published at Tallahassee in Leon County, Florida; that the attached copy of advertising being a Legal Ad in the matter of

State of Florida
Department of Environmental Regulation
in the
Court, was published in said newspaper in the issues of:

December 13, 1989

Affiant further says that the said Tallahassee Democrat is a newspaper published at Tallahassee, in the said Leon County, Florida, and that the said newspaper has heretofore been continuously published in said Leon County, Florida, each day and has been entered as second class mail matter at the post office in Tallahassee, in said Leon County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this publication in the said newspaper.



Carrie Coons,
Legal Advertising Representative

Sworn To And Subscribed Before Me
This

13th Day of December

A.D. 1989



Pat Flowers
Notary Public

Notary Public, State of Florida
My Commission Expires Jan. 31, 1993
Bonded Thru Troy Fain - Insurance Inc.

The Department of Environmental Regulation hereby gives notice of its intent issue a permit to CleanSoils, Inc., 14120 23rd Avenue North, Minneapolis, MN 55447, to construct a portable 60 TPH soil remediation unit with air pollution controlled by a baghouse and afterburner. The unit will be authorized to operate in any county in Florida. Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations were not required. The unit may emit 1.2 TPY particulate matter, 14.4 TPY VOC, and 2.3 TPY NOx. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within the this time period shall constitute a waiver of any right such person may

have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The petition shall contain the following information:

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which Petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S. and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation
Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Dept. of Environmental Regulation
Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Dept. of Environmental Regulation
South Florida District
2269 Bay Street
Ft. Myers, Florida 33901-2896

Dept. of Environmental Regulation
Northeast District
3426 Bills Road
Jacksonville, Florida 32207

Dept. of Environmental Regulation
Central Florida District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3707

Dept. of Environmental Regulation
Southeast Florida District
1900 S. Congress Avenue, Suite A
West Palm Beach, Florida 33406

Broward County Environmental Quality
Control Board
621 South Andrews Avenue
Ft. Lauderdale, Florida 33310

Dade County Dept. of Environmental
Resources Management
Jose Marti Building
801 S.W. 3rd Avenue, 2nd Floor
Miami, Florida 33130

Duval County Dept. of Health, Welfare
and Bio-Environmental Services
421 West Church Street, Suite 412
Jacksonville, Florida 32202

Environmental Protection Commission of
Hillsborough County
1410 North 21st Street
Tampa, Florida 33605

Palm Beach County Health Dept.
Division of Environmental Science
and Engineering
901 E. Evernia Street
West Palm Beach, Florida 33402

Pinellas County Department of
Environmental Management
315 Court Street
Clearwater, Florida 34616

Sarasota County Environmental
Services Department
1301 Cattleman Road
Sarasota, Florida 33582-9631

Orange County Environmental
Protection Department
2002 E. Michigan Avenue
Orlando, Florida 32806

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

December 13, 1989

Ad No. BT640010

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at: Department of Environmental Regulation Bureau of Air Regulation 2600 Blair Stone Road Tallahassee, Florida 32399-2400 Dept. of Environmental Regulation Northwest District 160 Governmental Center Pensacola, Florida 32501-5794 Dept. of Environmental Regulation Southwest District 4520 Oak Fair Boulevard Tampa, Florida 33610-7347 Dept. of Environmental Regulation South Florida District 2269 Bay Street Ft. Myers, Florida 33901-2896 Dept. of Environmental Regulation Northeast District 3426 Bills Road Jacksonville, Florida 32207 Environmental Regulation District Suite 232 903-3767

FLORIDA PUBLISHING COMPANY
Publisher
JACKSONVILLE, DUVAL COUNTY, FLORIDA

STATE OF FLORIDA }
COUNTY OF DUVAL }

Before the undersigned authority personally appeared Pam Lee

who on oath says that he is Retail Advertising Assistant of The Florida Times-Union, a daily newspaper published at Jacksonville in Duval County, Florida; that the attached copy of advertisement, being a

Legal Notice

in the matter of

Notice of Intent

in the Court,

was published in THE FLORIDA TIMES-UNION in the issues of

December 13, 1989

Affiant further says that the said The Florida Times-Union is a newspaper published at Jacksonville, in said Duval County, Florida, and that the said newspaper has heretofore been continuously published in said Duval County, Florida, The Florida Times-Union each day, has been entered as second class mail matter at the postoffice in Jacksonville, in said Duval County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in said newspaper.

Sworn to and subscribed before me this 13th day of December, A.D. 19 89

[Signature]

Notary Public, State of Florida at Large.

My Commission Expires February 26, 1993

[Signature: Pam Lee]

State of Florida Department of Environmental Regulation Notice of Intent to Issue The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to CleanSoils Inc., 14120 23rd, Avenue North, Minneapolis, MN 55447, to construct a portable 60 TPH soil remediation unit with air pollution controlled by a baghouse and afterburner. The unit will be authorized to operate in any county in Florida. Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations were not required. The unit may emit 1.2 TPY particulate matter, 14.4 TPY VOC, and 2.3 TPY NOx. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment. A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below, and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes. The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action. Dept. of Environmental Regulation Southeast Florida District 1900 S. Congress Avenue, Suite A West Palm Beach, Florida 33406 Broward County Environmental Quality Control Board 621 South Andrews Avenue Ft. Lauderdale, Florida 33310 Dade County Dept. of Environmental Resources Management Jose Marti Building 801 S.W. 3rd Avenue, 2nd Floor Miami, Florida 33130 Duval County Dept. of Health, Welfare and Bio-Environmental Services 421 West Church Street, Suite 412 Jacksonville, Florida 32202 Environmental Protection Commission of Hillsborough County 1410 North 21st Street Tampa, Florida 33605 Palm Beach County Health Dept. Division of Environmental Science and Engineering 901 E. Evernia Street West Palm Beach, Florida 33402 Pinellas County Department of Environmental Management 315 Court Street Clearwater, Florida 34616 Sarasota County Environmental Services Department 1301 Cattleman Road Sarasota, Florida 33582-9631 Orange County Environmental Protection Department 2002 E. Michigan Avenue Orlando, Florida 32806 Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination. If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This applies to all soil decont. units

Best Available Copy



ENVIRONMENTAL PROTECTION AGENCY

REGION IV

342 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

RECEIVED

OCT 23 1989

DER-BAQM

Mr. C.H. Fancy, P.E., Chief
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Pursuant to your request for comments on the proposed Environmental Technology Southeast construction permit (file No: AC 160167033) for a portable soil remediation unit dated October 4, 1989, we have the following comments:

Specific Conditions: Item 7 - You provide that the concentration of total Halogens in the contaminated soil shall not exceed 4000 parts per million (ppm). In a November 29, 1985, Federal Register notice (50FR 49175), it is stated that used oil containing more than 1000 ppm of total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in Subpart D of 40 CFR Part 261. The notice goes on to say that persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by showing that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in Appendix VIII of Part 261). Since your permit condition allows the source to automatically burn soil up to the 4000 ppm level without any hazardous waste presumption, we recommend that additional restrictions regarding halogen levels in the soil be added to the permit which triggers the hazardous waste presumption for soils at or above 1000 ppm total Halogens.

Round 11/29/89 FR

2. Specific Conditions: Item 9, 15, and 16 - We recommend that you prescribe in the permit, with regards to the required test methods, the number of test runs and the test run durations. For Method 5 tests, we recommend that you specify the minimum sample volumes.

See 11/22 reference

3. Specific Conditions: Item 9 - You provide that Benzene emissions shall not exceed .48 lbs/hr and that total VOC emissions shall not exceed 37.5 lbs/hr., and prescribe Method 25 as the required test method. We recommend the use of Method 18 instead of Method 25 for determining the amounts of Benzene being emitted. The Method 25 test results for VOC's will be reported as total C (carbon) not as VOC, and as a result you can't specifically

✓

BEST AVAILABLE COPY

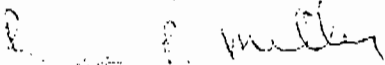
-2-

identify the amount of Benzene being emitted. However, the Method 18 test will provide you with information on the specific compounds being emitted (e.g., Benzene).

4. Specific Conditions: Item 19 - You provide that a differential pressure gauge to measure the pressure drop in the scrubber and a thermocouple to measure temperature in the afterburner shall be installed, and that the readings for both shall be recorded during a compliance test. ~~We recommend~~ that you stipulate in the permit that the scrubber water flowrate also be monitored, and that ~~all parameters (temperature, pressure drop, flowrate) be continuously recorded (not just during compliance test). We also recommend that you stipulate in the permit that all equipment shall be properly maintained and calibrated, and that the monitoring equipment is in operation at all times during operation of the kiln.~~

Thank you for an opportunity to comment on the above package. If you have any questions regarding these comments please contact Stuart Perry of my staff at (404) 347-2864.

Sincerely,



Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides and Toxics
Management Division

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)

Claire Fancy

Initial

Date

2. *Millard*

RECEIVED

Initial

Date

3. *OCT 23 1989*

Initial

Date

4. *DER - BAQM*

Initial

Date

REMARKS:

Called 10/20/89

since this one is on "hold" I didn't make copies of this FAX. It's a little hard to read. He should be getting the original any day now. B. Miller has already signed it

Patty

INFORMATION

Review & Return

Review & File

Initial & Forward

DISPOSITION

Review & Respond

Prepare Response

For My Signature

For Your Signature

Let's Discuss

Set Up Meeting

Investigate & Report

Initial & Forward

Distribute

Concurrence

For Processing

Initial & Return

FROM:

Diane Kraft

DATE

PHONE



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

October 5, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. James K. Poucher, President
CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, Minnesota 55447

Dear Mr. Poucher:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to construct a soil remediation unit for operation throughout Florida.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Bill Thomas of the Bureau of Air Regulation.

Sincerely,

C. H. Fancy, P.E.
Bureau of Air Regulation

CHF/WH/t

Attachments

cc: Gordon Dean, BWC
District Air Program Directors
County Program Air Sections
David Brashears, P.E.
Bruce Miller, EPA

P 938 762 714

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. James K. Poucher, Clean-	
Street and No. 14120 23rd Avenue North	
P.O., State and ZIP Code Minneapolis, Minnesota 55447	
Postage	S
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	S
Postmark or Date Mailed: 10-11-89 Permit: AC 48-166670	

PS Form 3800, June 1985

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. James K. Poucher, President CleanSoils Inc. 14120 23rd Avenue North Minneapolis, Minnesota 55447	4. Article Number P 938 762 714 Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
5. Signature - Address X	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature - Agent X <i>Edward L. Warm</i>	
7. Date of Delivery 10-17-89	

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, Minnesota 55447

DER File No. AC 48-166670

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, CleanSoils Inc., applied on June 26, 1989, to the Department of Environmental Regulation for a permit to construct a portable 60 TPH soil remediation unit for operation throughout Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit is required for the proposed work.

Pursuant to Section 403.815, F.S., and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department, at the address specified within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application(s) have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office in General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such

person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.
Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



C. H. Fancy, P.E.
Bureau of Air Regulation

Copies furnished to:

Gordon Dean, BWC
District Air Program Directors
County Program Air Sections
David Brashears, P.E.
Bruce Miller, EPA

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on 10-11-89.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to
§120.52(9), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.

Gene Deben
Clerk

10-11-89
Date

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to CleanSoils Inc., 14120 23rd Avenue North, Minneapolis, MN 55447, to construct a portable 60 TPH soil remediation unit with air pollution controlled by a baghouse and afterburner. The unit will be authorized to operate in any county in Florida. Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations were not required. The unit may emit 1.2 TPY particulate matter, 14.4 TPY VOC, and 2.3 TPY NO_x. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation
Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Dept. of Environmental Regulation
Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Dept. of Environmental Regulation
South Florida District
2269 Bay Street
Ft. Myers, Florida 33901-2896

Dept. of Environmental Regulation
Northeast District
3426 Bills Road
Jacksonville, Florida 32207

Dept. of Environmental Regulation
Central Florida District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Dept. of Environmental Regulation
Southeast Florida District
1900 S. Congress Avenue, Suite A
West Palm Beach, Florida 33406

Broward County Environmental Quality
Control Board
621 South Andrews Avenue
Ft. Lauderdale, Florida 33310

Dade County Dept. of Environmental
Resources Management
Jose Marti Building
801 S.W. 3rd Avenue, 2nd Floor
Miami, Florida 33130

Duval County Dept. of Health, Welfare
and Bio-Environmental Services
421 West Church Street, Suite 412
Jacksonville, Florida 32202

Environmental Protection Commission of
Hillsborough County
1410 North 21st Street
Tampa, Florida 33605

Palm Beach County Health Dept.
Division of Environmental Science
and Engineering
901 E. Evernia Street
West Palm Beach, Florida 33402

Pinellas County Department of
Environmental Management
315 Court Street
Clearwater, Florida 34616

Sarasota County Environmental
Services Department
1301 Cattleman Road
Sarasota, Florida 33582-9631

Orange County Environmental
Protection Department
2002 E. Michigan Avenue
Orlando, Florida 32806

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

PERMITTEE:

CleanSoils Inc.
14120 23rd Avenue N.
Minneapolis, MN 55447

Permit Numbers: AC 48-166670
Expiration Date: July 15, 1990
County: Statewide Operation
Project: 60 TPH Portable Rotary
Kiln/Afterburner System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), 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 60 TPH portable rotary kiln/afterburner system. The unit consists of a hopper/screen feed system, a rotary kiln (5'4" diameter x 20' long), knock-out box (400 ft³), quench chamber, Gencor baghouse (2260 ft² of filter area), ID fan (11,500 ACFM), afterburner (6' diameter x 34' Ht.), conveyors, and fuel systems (No. 2 fuel oil and propane).

The unit may operate throughout the state (all counties) after transfer of a valid permit to operate that authorizes its use at the new location.

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 Bureau of Air Regulation on June 26, 1989.
2. DER letter dated July 13, 1989.
3. Protox letter dated August 21, 1989.

PERMITTEE:
CleanSoils Inc.
GENERAL CONDITIONS:

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

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:
CleanSoils Inc.
GENERAL CONDITIONS:

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

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:
CleanSoils Inc.
GENERAL CONDITIONS:

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

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 proscribed 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 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.

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

GENERAL CONDITIONS:

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:

1. The permittee shall furnish the available information listed in Specific Condition No. 24 prior to operating the portable rotary kiln/afterburner system at its initial site. This permit requires compliance with any applicable local (county) regulations.

2. Only No. 2 fuel oil containing a maximum of 0.5% sulfur and propane shall be used as fuel for this unit. Maximum permitted fuel oil consumption is 162 GPH (22.1 MMBtu/hr). Maximum permitted propane consumption is 128 GPH (11.0 MMBtu/hr).

3. This unit shall be allowed to operate 8 hours per day, 5 days per week, 20 weeks/yr or 800 hrs/year. The permittee shall maintain a log that shows the unit's operation time during the preceeding 12 months. All required records must be available for inspection at the job site for the unit within 3 working days of a request by the Department.

4. Quench chamber water shall not be discharged to the waters of Florida.

5. Maximum soil charging rate to the unit shall not exceed 60 TPH. The permittee shall have means to determine the feed or production rate on site.

6. Only soils contaminated with virgin (non-recycled) petroleum products and "on-spec" used oil (see Specific Condition No. 7) shall be treated in this unit unless otherwise approved by the Local or District Air Program Administrator. The portable

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

rotary kiln/afterburner system shall neither be used to thermally process materials that are listed in 40 CFR 261.31, 261.32, 261.33 (revised as of July 1, 1988) nor materials that have the hazardous characteristics of corrosivity, reactivity, EP toxicity, and ignitability. Prior to the acceptance of contaminated materials for processing, the permittee shall provide the Department with reasonable assurance that the soil is contaminated with only virgin petroleum products, i.e., certification from the generator that the material is not classified as a hazardous waste pursuant to the federal regulations cited in this specific condition. To obtain approval to treat soils contaminated with other materials, the permittee shall submit soil analysis results and calculations to the Local or District Air Program Administrator which show the impact of the emissions will not exceed the acceptable ambient air concentration (AAC) or violate any permit condition or regulation.

7. The following constituents of the virgin or "on-spec" petroleum products that contaminated the soil shall not be exceeded:

<u>Constituent</u>	<u>Allowable Level (max. ppm in oil)</u>
Arsenic	5
Cadmium	2
Chromium	10
Lead	100
<u>Total Halogens</u>	<u>4000</u>

To demonstrate compliance with Specific Condition No. 7, the petroleum product(s) responsible for contamination of the soil shall be tested for the listed contaminants. Test results shall be sent to the appropriate Department district office and approved local program at least 15 days prior to any soil remediation. This test may be waived by regulatory agencies if the owner or operator of the site can demonstrate that only virgin petroleum products are responsible for contamination of the site.

8. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient air impact of any toxic pollutant, as determined by the PTPLU 6 model or other DER BAQM approved models, shall not exceed the concentration calculated by the following formula:

$$\text{AAC} = \frac{40}{X} \cdot \frac{1}{\text{safety factor}} \cdot (\text{OEL})$$

where,

AAC = acceptable ambient concentration

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

Safety Factor = 100 for category A substances and
50 for category B substances

X = 40 or the hours/week or actual operation,
whichever is larger

OEL - Occupational exposure level such as ACGIH, OSHA,
and NIOSH published standards for toxic materials.

(TWA-TLV) is the threshold limit value (8 hrs/day,
40 hrs/wk) maximum exposure concentration considered
safe for workers by the ACGIH.

Data in the application shows that, for continuous
operation, an emission of 1 gram/sec will have a maximum
ambient impact of 0.01 mg/m³ (8 hr. avg).

Maximum allowable = $\frac{\text{AAC} \text{ mg/m}^3}{0.01}$
Emissions (g/sec)

9. Benzene emissions shall not exceed 5.6 lbs/hr. Total VOC emissions shall not exceed 36 lbs/hr. Compliance shall be determined from soil analysis, production rate, and the afterburner destruction efficiency which shall be established by a Method 25 test (40 CFR 60, Appendix A, revised as of July 1, 1988) or other test method as approved by the Department.

10. Sampling and analysis of the contaminated soil at each site, based on the procedures prescribed in SW-846, shall be conducted prior to remediation. Minimum number of composite samples for analysis for benzene and volatile organic compounds (VOC) at each site prior to remediation shall be as follows:

<u>Soil Quantity (yards³)</u>	<u>No. of Composite Samples</u>
Less than 100	1
100 to 500	3
500 to 1000	5
Over 1000	9

The degree of treatment of the soil and its disposal must comply with the Bureau of Waste Cleanup policy. Presently, this requires that the soil exiting the dryer be sampled on an hourly basis during operation and an analysis of a daily composite sample made up of the hourly samples shall be performed for benzene, toluene, ethyl benzene, and xylenes concentration using EPA Method 5030/8020, and total recoverable petroleum hydrocarbon concentration using EPA Method 418.1. Records shall be kept on

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

the date, time, and number of samples taken for each composite sample. Test results shall be sent to the appropriate Department district office and approved local air program within 15 working days of such testing. All soil samples taken at the remediation site and exiting the soil dryer shall be stored in a sealed glass container immediately upon sampling. Disposal of the treated soil must comply with the Bureau of Waste Cleanup policy on remedial action at petroleum contaminated sites.

11. Any analysis required by Specific Condition No. 10 which indicates a potential violation of any condition in this permit shall be reported as soon as feasible to the appropriate Department's District Air Program Administrator and DER approved local air program. An average concentration of benzene above 783 ppm in the soil or total hydrocarbons above 5,000 ppm indicate a violation of this permit. The soil may be decontaminated provided no condition of this permit is violated. This can be accomplished by operating at less than the 60 TPH production rate, or other means with prior approval of the Department. The permittee must propose the method of compliance with this permit.

12. The operation of this source shall not result in the emissions of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-2.600(c)2. Objectionable odor is defined as any odor present in the outdoor atmosphere which, by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to F.A.C. Rule 17-2.100(131).

13. Reasonable precautions shall be used to minimize unconfined emissions of particulate matter generated by this operation (F.A.C. Rule 17-2.610(3)). This includes hauling the soil in covered trucks and keeping the work areas wet where the soil is being removed and treated.

14. The stack sampling facilities must comply with F.A.C. Rule 17-2.700(4).

15. Particulate matter emissions from this process shall neither exceed 0.08 grains/dscf corrected to 50% excess air nor 3.0 lbs/hr. Visible emissions from any part of the process shall not exceed 5% opacity. The exhaust stack for this process must be tested concurrently for particulate matter and visible emissions by EPA Methods 5 and 9 pursuant to 40 CFR 60, Appendix A, revised as of July 1, 1988, within 5 days after placing the unit in

PERMITTEE:
CleanSoils Inc.

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Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

commercial operation under this permit and annually thereafter. Operating at each subsequent site requires an EPA Method 9 test to be performed within 3 days of placing the unit in service.

16. This source must be tested at the maximum process weight rate at which the permittee intends to operate. Operation at rates that are more than 10 percent above the tested rate will require the Department to be notified and, within 15 days, the source must be tested for compliance at this higher rate by appropriate test methods. The unit shall not operate above the maximum permitted rate of 60 TPH.

17. When the Department, after investigation, has good reason (such as complaints, increased visible emissions, or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Chapter 17-2, F.A.C., or in this permit is being violated, it may require the owner or operator of the source to conduct compliance tests which identify the nature and quantity of pollutant emissions from the source and to provide a report on the results of said tests to the Department.

18. The appropriate Department district office and, if applicable, the Department approved local air program office, shall be notified in writing at least 15 days in advance of any compliance test to be conducted on this source.

19. A differential pressure gauge to measure the pressure drop across the baghouse and a thermocouple to measure the temperature in the afterburner shall be installed on this unit and its readings recorded during any compliance test.

20. There shall be no discharge of liquid effluent or contaminated runoff to surface or ground water without prior approval from the Department. Untreated soil removed from the ground shall be stored under waterproof covers and on an impermeable surface.

21. The system shall be properly operated and maintained (Rule 17-2.210(2), F.A.C.). No person shall circumvent any pollution control device or allow the emissions of air pollutants without the applicable air pollution control device operating properly (Rule 17-2.240, F.A.C.).

22. All required test reports, except stack tests for PM and VOC, shall be filed with the Department as soon as practical but no later than 15 working days after the last sampling run of each test is completed (F.A.C. Rule 17-2.700 (7)(a), (b) and (c)). Stack test results shall be submitted within 45 days of the test.

PERMITTEE:
CleanSoils Inc.

Permit Number: AC 48-166670
Expiration Date: July 15, 1990

SPECIFIC CONDITIONS:

23. The construction shall reasonably conform to the plans and schedule submitted in the application.

24. This unit shall not be operated at any other site until its operation permit is transferred to authorize its use at the new site. At least 15 days prior to relocating the unit, the permittee shall notify the Air Program Administrator in the appropriate Department District office and approved local air program that the unit is being relocated. This notification shall provide the permit number of the unit, a copy of the last stack test report, the date of the proposed move, the new site for the unit, and the locations and contamination levels of the soils to be treated. The unit is permitted to operate in any county in Florida.

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

26. An application for an operation permit must be submitted to the District office where the initial compliance tests were conducted and the Bureau of Air Regulation office 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 (F.A.C. 17-4.220).

Issued this _____ day
of _____, 1989

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION**

Dale Twachtmann, Secretary

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file

CleanSoils Inc.
14120 23rd Avenue North
Minneapolis, MN 55447

FAX TRANSMITTAL

TO: Willard Hanks 8/13/89
Florida DER

LOCATION: Tallahassee, FL

TELEPHONE: 904 488 1344

FAX: (904) 487 4938

FROM: Bob Wills

TELEPHONE: (612) 557-7106

FAX: (612) 557-1593

COMMENTS: Here are the calculations
we discussed

DATE: 9/6/89 TIME: 8:00

NUMBER OF PAGES INCLUDING COVER: 4

1/3

Primary Burner

#2 fuel oil @ 99.6 gal/hr

$$O_2 \text{ resid: } \frac{3.32}{0.5} = \frac{1.66 \text{ lb } O_2}{16 \text{ fuel}}$$

$$N_2 \text{ resid: } \frac{3.3197}{3.32/0.5} = \frac{5.51 \text{ lb } N_2}{16 \text{ fuel}}$$

$$CO_2 \text{ production: } \frac{3.20 \text{ lb } CO_2}{16 \text{ fuel}}$$

$$\frac{1.66 \text{ lb } O_2}{16 \text{ fuel}} \bigg| \frac{16 \cdot \text{mole } O_2}{32 \text{ lb } O_2} = \frac{0.052 \text{ lb. mole } O_2}{16 \text{ fuel}}$$

$$\frac{5.51 \text{ lb } N_2}{16 \text{ fuel}} \bigg| \frac{16 \cdot \text{mole}}{28 \text{ lb}} = 0.197 \frac{\text{lb. mole } N_2}{16 \text{ fuel}}$$

$$\frac{3.20 \text{ lb } CO_2}{16 \text{ fuel}} \bigg| \frac{16 \cdot \text{mole}}{44 \text{ lb}} = 0.073 \frac{\text{lb. mole } CO_2}{16 \text{ fuel}}$$

$$\text{Total} = 0.052 + 0.197 + 0.073 = 0.322 \frac{\text{lb. mole D.G.}}{16 \text{ fuel}}$$

$$\frac{0.322 \text{ lb. mole D.G.}}{16 \text{ fuel}} \bigg| \frac{.7302 \text{ ft}^3 \cdot \text{atm}}{16 \cdot \text{mole } ^\circ R} \bigg| \frac{(460+60)^\circ R}{1 \text{ atm}} = \frac{122.3 \text{ ft}^3}{16 \cdot \text{fuel}}$$

$$\frac{122.26 \text{ ft}^3}{16 \text{ fuel}} \bigg| \frac{99.6 \text{ gal}}{\text{hr}} \bigg| \frac{7.21 \text{ lb}}{\text{gal}} = 87796.9 \frac{\text{ft}^3}{\text{hr}}$$

or 1463 scfm @ 50% XS air

Contaminants in Soil

$$\text{Assume } 5000 \text{ ppm} \approx \frac{5000 \text{ lb \#2 diesel}}{10^6 \text{ lb soil}}$$

$$\frac{5000 \text{ lb \#2}}{10^6 \text{ lb soil}} \Bigg| \frac{60 \text{ ton}}{\text{hr}} \Bigg| \frac{2000 \text{ lb}}{\text{ton}} = \frac{600 \text{ lb \#2}}{\text{hr}}$$

$$\frac{600 \text{ lb \#2}}{\text{hr}} \Bigg| \frac{\text{gal}}{7.21 \text{ lb}} = 83.2 \frac{\text{gal}}{\text{hr}}$$

$$\frac{83.2 \text{ gal/hr}}{X} = \frac{99.6 \text{ gal/hr}}{1463 \text{ scfm}}$$

$$X = 1222 \text{ scfm for contaminants @ } 50\% \text{ X } 5 \text{ air}$$

Afterburner

Propane @ 78.8 gal/hr

$$\text{O}_2 \text{ resid: } \frac{3.918}{0.5} = 1.96 \frac{\text{lb O}_2}{\text{lb prop.}}$$

$$\text{N}_2 \text{ resid: } \frac{12.99}{1.5} = 19.485 \frac{\text{lb N}_2}{\text{lb prop.}}$$

$$\text{CO}_2 \text{ production: } 2.134 \frac{\text{lb CO}_2}{\text{lb prop}}$$

$$\frac{1.96 \text{ lb O}_2}{\text{lb prop.}} \Bigg| \frac{\text{lb.mole}}{32 \text{ lb}} = 0.061$$

$$\frac{19.485 \text{ lb N}_2}{\text{lb prop.}} \Bigg| \frac{\text{lb.mole}}{28 \text{ lb}} = 0.696$$

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3/3

$$\frac{2.134 \text{ lb CO}_2}{\text{lb prop.}} \bigg| \frac{\text{lb. mole}}{44 \text{ lb}} = 0.049$$

$$0.061 + 0.696 + 0.049 = 0.806 \frac{\text{lb. mole D.G.}}{\text{lb propane}}$$

$$\frac{0.806 \text{ lb. mole D.G.}}{\text{lb prop.}} \bigg| \frac{0.7302 \text{ ft}^3 \cdot \text{atm}}{\text{lb. mole } ^\circ\text{R}} \bigg| \frac{(460+60)^\circ\text{R}}{1 \text{ atm}}$$

$$= 306.0 \text{ ft}^3 / \text{lb prop.}$$

$$\frac{306.0 \text{ ft}^3}{\text{lb prop.}} \bigg| \frac{78.7 \text{ gal}}{\text{hr}} \bigg| \frac{4.24 \text{ lb prop.}}{\text{gal prop.}} = 102,109 \text{ ft}^3 / \text{hr}$$

1701 scfm @ 50% XS air

$$1463 + 1222 + 1701 = 4386 \text{ Total scfm dry gas @ 50\% XS air}$$

Data from: Site Clean-up by Incineration,
C. Brunner, HMCR I, Silver Spring
MD, 1988



Prottox Inc.
14120 - 23rd Avenue North
Minneapolis, Minnesota 55447
(612) 557-1292

August 21, 1989

Mr. C.H. Fancy
Deputy Chief
Bureau of Air Quality Management
Florida DER
Tallahassee, FL 32399-2400

RECEIVED

AUG 28 1989

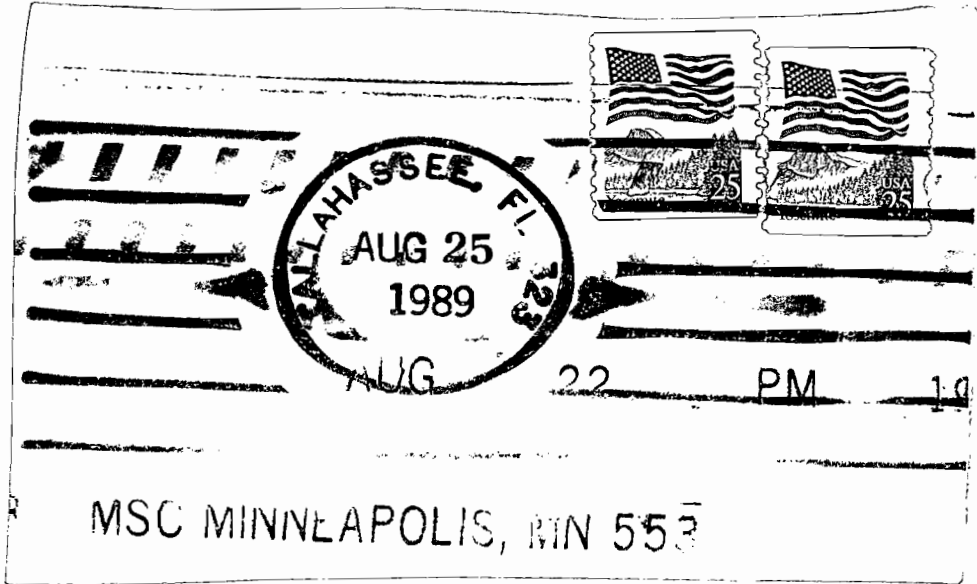
RE: AC48-166670

DER - BAQM

Dear Mr. Fancy:

As per your letter dated July 13, 1989, and a subsequent phone conversation with Mr. Willard Hanks, I would like to submit the following changes in our permit application.

1. Prottox has formed a sister company called CleanSoils. CleanSoils will own and operate the Thermal Desorber. We would appreciate a name change on the permit application.
2. After having had the opportunity to actually see the desorber process uncontaminated soils I would like to change the maximum throughput to 60 tons/hour. Again operating at 800 hours/year. The attached sheets show the updated throughput calculations.
3. In response to the particulate loading (item #2 of your letter), the form requests verification by the fabricator, in lieu of test data, on performance of the baghouse. Gencor listed 0.04 grains/pcf. However, according to 17-2.650(2)(c)12.b, it appears that this is sufficient as we list our baghouse as 99% efficient which exceeds the standard of 98%.
4. In the original application we stated that the soil would be contaminated with approximately 500 ppm (or less) of contamination. This is conservative and after consultation with Gencor I would like to raise this level to 5000 ppm. For soils contaminated at higher levels we are considering soil blending of high and low level contaminated soils to provide an average concentration below 5000 ppm. I have reevaluated the VOC emissions and have provided this in the enclosed sheets.
5. The destruction efficiency of the afterburner is correct at 94%. The application has been corrected. The corrections are enclosed.



MSC MINNEAPOLIS, MIN 553

ProCOX

14120 - 23rd Avenue North
Minneapolis, Minnesota 55447

Mr. C.H. Fancy
Deputy Chief
Bureau of Air Quality Management
Florida ~~DNR~~ DER
Tallahassee, FL 32399-2400

Professional Environmental Services

Mr. C.H. Fancy

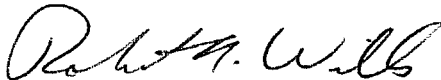
-2-

August 21, 1989

6. Before processing, the soils will be staged at the work site. They will be placed on a plastic pad and covered with plastic to avoid movement through rain run-off, evaporation or movement of the soils by wind entrainment.
7. The stack on the afterburner/process does contain two sample ports for measuring emissions from the unit.
8. The dryer is in fact five feet four inches in diameter and twenty feet long.
9. The design input heat calculations and data were rechecked. The heat content of the #2 fuel oil should be 18940 BTU per pound. Also please note that the afterburner is capable of operating up to 22 million BTU per hour.

I have enclosed the sheets and highlighted those areas that have been changed. If there are further questions do not hesitate to contact me.

Sincerely,



Robert A. Wills, Ph.D.
Manager of Process Engineering

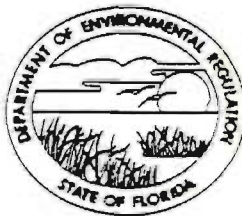
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enclosures

copied: St. Hanks
CHF/BT

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2800 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Soil Treater New¹ Existing¹

APPLICATION TYPE: Construction Operation Modification

COMPANY NAME: CleanSoils Inc. COUNTY: Hennepin

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) Thermal Soil Desorber

SOURCE LOCATION: Street Mobile City

UTM: East North
Latitude ° ' "N Longitude ° ' "W

APPLICANT NAME AND TITLE: James K. Poucher, P.E., President

APPLICANT ADDRESS: 14120 23rd Ave. N., Minneapolis, MN 55447

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Thermal Desorber

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

*Attach letter of authorization

Signed: James K. Poucher

James K. Poucher, P.E., President

Name and Title (Please Type)

(original application 5/26/89)

Date: 8/21/89 Telephone No. (612)557-7106

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

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

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

through the baghouse giving an air to cloth ration of 4.2. The bags are of Nomex and the cleaning system is the pulse jet style. Gencor, the baghouse manufacturer, guarantees less than 0.04 gr/dscf in the exhaust gases from the baghouse.

Dust collected in the baghouse is removed through an auguring system, moving through a rotary airlock. These fines from the baghouse are incorporated back into the clean soil that was conveyed out of the primary treatment unit.

From the baghouse the exhaust gases pass through the afterburner. The afterburner is a six-foot diameter, 30 foot long chamber that is capable of heating the hot exhaust gases to a temperature of 1400°F with a residence time of 0.50 seconds. The burner is capable of producing 22 million BTU/hour. As this afterburner is vertical it also service as the stack. The top of the afterburner is 34 feet from ground level.

As part of an optional configuration a wet scrubber can be used. This unit would accept gases from the quench chamber and exhaust through its own stack.

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		

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

1. Total Process Input Rate (lbs/hr): 20,000 - 120,000

2. Product Weight (lbs/hr): 18,400 - 110,400

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 Emission ² Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Particulates	3.94	1.6	.03 gr/dscf	2.96	7.68 x 10 ⁶	3840	
NOX	6.07	2.25	N/A	N/A	6.07	2,25	
VOC	36.041	14.4	Exempt	----	4.8 x 10 ⁵	240	

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard.

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

Section III C - Potential Emissions (Particulates)

Under particulates there are two sources. One is from the fuel (Number 2 fuel oil) used to fire the dryer. The other are the fines from processing the soils. These fines vary from site to site. An estimate of 8 percent (wt) of the process mass would be fines which would be fugitive if the Air Quality Control equipment was not used. Therefore potential emissions are:

$$\frac{60 \text{ Ton Soil}}{\text{Hr}} \left| \frac{8 \text{ lb Fines}}{100 \text{ lb Soil}} \right| \frac{2000 \text{ lb}}{\text{Ton}} \left| \frac{800 \text{ Hr}}{\text{yr}} \right| = \frac{7.68 \times 10^6 \text{ lb}}{\text{yr}}$$

$$\frac{7.68 \times 10^6}{\text{yr}} \left| \frac{\text{Ton}}{2000 \text{ lb}} \right| = \frac{3840 \text{ T}}{\text{yr}}$$

The particulates from the fuel source are several orders of magnitude smaller than the above and are neglected.

Section III C - Containment (NO_x)

There are three sources of fuel that could create NO_x's in this dual combustion process. The first is from the burning of Number 2 diesel fuel for heating in the dryer. As per AP42 Table 1.3-1 using the Industrial Boilers category and Distillate Oil, the NO emission factor is 20 lb/1000 gallon. Our computer prediction of fuel needs for 60T/Hr of soil with 5 percent moisture is 149.4 gallon/Hr of Number 2 fuel oil (dryer only) and 118.2 gallon/Hr of propane (afterburner only). The second source, the contaminants in the soil are assumed to be virgin petroleum (gasoline and Number 2 fuel oil) at 5000 ppm. The quantity of potential Number 2 fuel oil as a contaminant is:

$$\frac{60 \text{ T}}{\text{Hr}} \times \frac{5000 \text{ lb \#2}}{10^6 \text{ lb Soil}} \times \frac{2000 \text{ lb}}{\text{T}} \times \frac{\text{gal}}{7.21 \text{ lb}} = \frac{83.2 \text{ gal}}{\text{Hr}}$$

This number is added to the combustion fuel for computation:

$$\frac{(149.4 + 83.2) \text{ gal}}{\text{Hr}} \times \frac{20 \text{ lb NO}}{1000 \text{ gal \#2}} = \frac{4.6 \text{ lb NO}}{\text{Hr}}$$

$$\frac{4.6 \text{ lb}}{\text{Hr}} \times \frac{800 \text{ Hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \frac{1.86 \text{ T/yr}}{\text{yr}}$$

The third source is the NO_x for propane, as per AP42 Table 1.5-1, using Industrial Propane, is 12.4 lb NO_x from this source is:

$$\frac{118.2 \text{ gal}}{\text{Hr}} \times \frac{12.4 \text{ lb NO}_x}{1000 \text{ gal}} = \frac{1.47 \text{ lb NO}_x}{\text{Hr}}$$

$$\frac{1.47 \text{ lb}}{\text{Hr}} \times \frac{800 \text{ Hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \frac{0.59 \text{ T NO}_x}{\text{yr}}$$

So totals are $\frac{(1.47 + 4.6) \text{ lb}}{\text{Hr}} = \frac{6.07 \text{ lb}}{\text{Hr}}$

and $(1.86 + 0.59) \text{ T/yr} = 2.25 \text{ T/yr}$

Section III C - Contaminant (VOC) Potential Emissions

There are two sources of fuel that could create VOC's. For these calculations it will be assumed that all the Number 2 fuel oil in the soil is volatilized and not burned (worst case) in the dryer. The dryer burner uses Number 2 fuel oil at 149.4 gal/Hr. The afterburner uses propane at a rate of 118.2 gal/Hr. For the Number 2 fuel oil AP42 Table 1.3-1 lists the VOC emission as 0.2 lb per 1000 gallon (non-methane) and 0.052 lb/1000 gallon (methane). Therefore:

$(0.2 + 0.052)$ lb VOC	149.4 gal #2	=	0.038 lb	Uncombusted #2 fuel Oil from dryer
1000 gal #2	Hr		Hr	
0.038 lb	800 Hr	T	0.015 T	
Hr	yr	2000 lb	yr	

From AP42 Table 1.5-1 the VOC emission rates are 0.25 lb/1000 gal of propane (non-methane) and 0.27 lb/1000 gal of propane (methane).

$(0.25 + 0.27)$ lb VOC	118.2 gal	=	0.061 lb VOC	Uncombusted Organics from after- burner
1000 gal Propane	Hr		Hr	
0.061 lb VOC	800 Hr	Ton	0.025 T	
Hr	yr	2000 lb	yr	

The VOC potential for 5000 ppm of Number 2 fuel oil is:

60 T	2000 lb	5000 lb #2	=	600 lb	VOC's from soil
Hr	T	10^6 lb soil		Hr	
600 lb	800 hr	T	240 T		
Hr	yr	2000 lb	yr		

So total potential VOC's are:

$$\begin{array}{r}
 0.038 \text{ lb/Hr} \\
 0.061 \\
 \hline
 600.0 \\
 600.099 \text{ lb/Hr}
 \end{array}$$

600.1 lb	800 Hr	=	4.8×10^5	lb/yr	or	240.04 T/yr
Hr	yr					

Section III C - VOC Emissions

Assuming that the afterburner is 94% efficient then the VOC emissions would be:

$$\frac{600.1 \text{ lb \#2 VOC's}}{\text{Hr}} \times \frac{1-0.94}{1} = \frac{36.0 \text{ lb}}{\text{Hr}}$$

$$\frac{36.0 \text{ lb \#2 VOC's}}{\text{Hr}} + \frac{0.061 \text{ lb Propane VOC's}}{\text{Hr}} = \frac{36.061 \text{ lb VOC}}{\text{Hr}}$$

$$\frac{36.061 \text{ lb VOC}}{\text{Hr}} \times \frac{800 \text{ hr}}{\text{yr}} \times \frac{\text{Ton}}{2000 \text{ lb}} = \frac{240.04 \text{ T}}{\text{yr}}$$

$$\frac{240.04 \text{ T \#2 VOC}}{\text{yr}} \times \frac{1-0.94}{1} = \frac{14.4 \text{ T/yr}}{\text{yr}}$$

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)
Settling Chamber	particulates	50% (wt)	50	Est/design
Cloth Bag Filter	particulates	99% (wt)	0.3	Est/design
Afterburner	organics	94%	N/A	Estimated

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Primary #2 Fuel Oil	149.4 gal	161.9 gal	22.1
Afterburner	118.2 gal	128 gal	11.0

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

Fuel Analysis: P - Propane No2 - Number 2 Fuel Oil

Percent Sulfur: P-0; No2 - less than 0.5 Percent Ash: P-0; No2 - less than 0.1

Density: P - 4.24; No2 - 7.21 lbs/gal Typical Percent Nitrogen: P-0; No2 less than 0.1

Heat content ~~capacity~~: P-0,251; No2-18940 BTU/lb p - 86,000; No2 - 136,500 BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

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

Annual Average N/A Maximum _____

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

None

Section V (attachment)

1. Anticipated Input Rate: 60 Tons/Hr containing, 5 percent moisture, 100-5000 ppm contaminants.

Product Weight: 57 Tons/Hr containing, 0 percent moisture, <0.1 ppm contaminants.

(In normal operations water would be added to the clean soils loading out, to suppress dust.)

2. The basis for the calculations made in Section III concerning the unit are as follows:

Materials into the processing unit:

Silty-sandy soils, 60 Tons/Hr
 5 percent moisture content
 5000 ppm contamination by Number 2 fuel oil

Burner fuel for dryer - Number 2 fuel oil
 with a Ht of combustion of 136,500 BTU/gal
 Excess air is approximately 25 percent

Maximum air flow is 11,500 cfm or

$$\begin{array}{r|l|l|l}
 11,500 \text{ ft}^3 & 1 \text{ atm} & & \text{lb} \cdot \text{mol} \text{ } ^\circ\text{R} \\
 \hline
 \text{min} & & (350 + 460) \text{ } ^\circ\text{R} & 0.7302 \text{ ft}^3 \cdot \text{atm} \\
 \hline
 \times 60 \text{ min} & 28.9 \text{ lb} & 33,715 \text{ lb} & \\
 \hline
 \text{Hr} & \text{lb} \cdot \text{mol} & = & \text{Hr}
 \end{array}$$

The properties of the Number 2 fuel oil and the propane were taken from Chemical Engineers Handbook by Perry and Chilton, 5th Edition.

Emissions estimates were per AP42 as given in Volume 1 and Supplement A. Tables 1.3-1 and 1.5-1 were used (see attached copies).

The dryer and afterburner were treated as Industrial Boilers using Distillate Oil or Propane. Calculations for emissions both potential (uncontrolled) and estimated real are given in Section III.

*** SCREEN-1.1 MODEL RUN ***
*** DRAFT VERSION XXXXX ***

cleansoils inc

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = 1.000
STACK HEIGHT (M) = 10.40
STK INSIDE DIAM (M) = 1.80
STK EXIT VELOCITY (M/S) = 5.70
STK GAS EXIT TEMP (K) = 1033.00
AMBIENT AIR TEMP (K) = 293.00
RECEPTOR HEIGHT (M) = .00
IOPT (1=URB,2=RUR) = 2
BUILDING HEIGHT (M) = .00
MIN HORIZ BLDG DIM (M) = .00
MAX HORIZ BLDG DIM (M) = .00

BUOY. FLUX = 32.43 M**4/S**3; MOM. FLUX = 7.46 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

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

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
10.	.0000	0	.0	.0	.0	.0	.0	.0	
100.	.2558	6	1.0	1.0	5000.0	88.5	22.7	22.4	NO
200.	7.782	4	20.0	20.1	5000.0	20.5	15.8	8.9	NO
300.	14.49	4	20.0	20.1	5000.0	20.5	22.8	12.5	NO
400.	14.51	4	20.0	20.1	5000.0	20.5	29.7	15.8	NO
500.	12.76	4	20.0	20.1	5000.0	20.5	36.4	18.8	NO
600.	11.26	4	15.0	15.1	4800.0	25.7	43.1	21.9	NO
700.	10.06	4	15.0	15.1	4800.0	25.7	49.5	24.7	NO
800.	8.895	4	15.0	15.1	4800.0	25.7	55.8	27.3	NO
900.	8.296	4	10.0	10.1	3200.0	36.0	62.4	30.6	NO
1000.	7.716	4	10.0	10.1	3200.0	36.0	68.6	33.1	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:
345. **14.92** 4 20.0 20.1 5000.0 20.5 26.0 14.0 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED

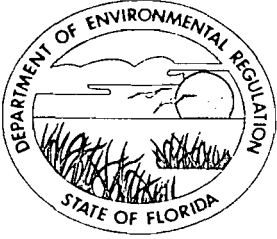
Max 8 hr impact = $\frac{14.92}{1000} \times 0.7 = 0.01 \text{ mg/m}^3$

DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X(3*LB

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	14.92	345.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

July 13, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James K. Poucher, President
Protox Inc.
14120 - 23rd Avenue North
Minneapolis, Minnesota 55447

Dear Mr. Poucher:

Re: File No. AC 48-166670, Thermal Soil Desorber

The Department has made a preliminary review of your application for a permit to construct a Thermal Soil Desorber and operate it throughout this State. Before this application can be processed, we need the following information:

1. Section III B. of the application indicated that the unit would process up to 100,000 lbs/hr (50 TPH) contaminated soil. The emission calculations were based on a 40 TPH input for 800 hrs/year of operation. Please clarify what the maximum input to the unit will be and, if higher than 40 TPH, recalculate the maximum emissions.
2. The particulate matter emission rate listed in Section III C. was based on a concentration of 0.04 grains/dscf. Department regulations restrict this source to an emission of 0.03 grains/dscf if the unit is to be operated in a particulate matter nonattainment area or area of influence (F.A.C. Rule 17-2.650(2)(c)12.). Please clarify what the maximum emissions from this unit will be.
3. We note that the VOC emissions are based on the soil being treated containing 500 PPM virgin petroleum product. As this limit will become a permit restriction, we request that you confirm that this will be the maximum hydrocarbon content of the untreated soil. If your experience in this field leads you to believe higher concentrations in the soil may be encountered, we request you reevaluate the maximum VOC emissions.
4. Section III D. list a destruction efficiency for the afterburner of 92%. The calculations attached to the application used a destruction efficiency of 94%. Please clarify what efficiency is expected and base the VOC emissions on this efficiency.


Mr. James K. Poucher
Page Two
July 13, 1989

5. How will unconfined emissions of the treated soil be minimized during handling and disposal of this material?
6. Does the 6 foot diameter stack for the afterburner contain the two sample ports needed to measure the emissions from the unit (F.A.C. Rule 17-2.700(4))?
7. The attachments to the application list the dryer size as 5'4" dia. x 20' long. The Gencor Industries Inc., letter referred to a 64' x 20' dryer. We assume this is a 5'4" x 20' long dryer. If not, please correct.
8. There were small discrepancies between the proposed and design heat input to the burners for this unit. Any permit issued by the Department will restrict the heat input to the quantities used in the emission calculations. If you plan to operate the burners at their design heat input, please correct these calculations.

Copies of your application will be distributed to other offices having jurisdictions in areas the unit may operate in. We will relay any additional questions they may have on the application to you.

We will resume processing the application after the requested information is submitted. If you have any question on this matter, please write to me or call Willard Hanks at (904)488-1344.

Sincerely,

for 

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/WH/t

cc: David Brashears, P.E.
Air Program Engineers

P 938 762 620

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

PS Form 3800, June 1985

Sent to	
Mr. James K. Poucher, Prottox Inc.	
Street and No. 14120 - 23rd Ave. N.	
P.O., State and ZIP Code Minneapolis, MN 55447	
Postage	S
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	S
Postmark or Date	
Mailed: 7-14-89	
Permit: AC 48-166670	

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. James K. Poucher, President Prottox Inc. 14120 - 23rd Avenue North Minneapolis, Minnesota 55447	4. Article Number P 938 762 620
5. Signature - Address X <i>Web Stevers</i>	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery <i>August 7 - 20 - 89</i>	8. Addressee's Address (ONLY if requested and fee paid)

Protex

Protex Inc.
14120 - 23rd Avenue North
Minneapolis, Minnesota 55447
(612) 557-1292

June 20, 1989

RECEIVED

JUN 26 1989

DER-BAQM

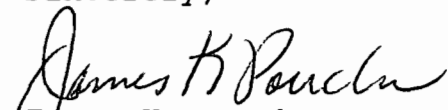
Mr. Willard Hanks
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Fl 32301

Dear Mr. Hanks:

Enclosed is our application to construct an air pollution source and a check for \$200 to cover the application fee.

If you have any questions, please contact Dr. Robert Wills, Manager of Process Engineering or me.

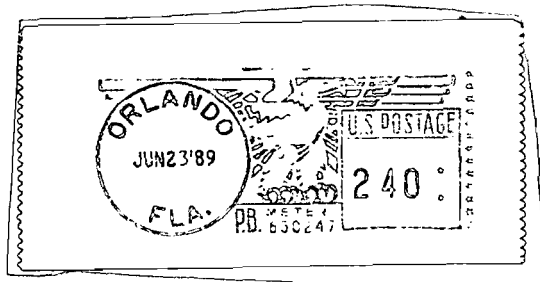
Sincerely,


James K. Poucher, P.E.
President

JKP:ds

enclosures

RECEIVED
DER - MAIL ROOM
1989 JUN 26 PM 1:58



GENCOR INDUSTRIES, INC.

5201 N. ORANGE BLOSSOM TRAIL
ORLANDO, FLORIDA 32810

TO:

MR. WILLARD HANKS
BUREAU OF AIR QUALITY MANAGEMENT
FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

Protox

PROTOX INC.
14120 - 23RD AVENUE, NORTH
MINNEAPOLIS, MN 55447

RIVERSIDE BANK
MINNESOTA CENTER OFFICE
BLOOMINGTON, MN 55435
17-127/910

1757

Two Hundred dollars and NO cents

	DATE	AMOUNT
	6/20/89	***\$200.00**
PAY TO THE ORDER OF:		
Department of Environmental Regulation		

James K. Poucher

Dear Mr. Hanks:

Enclosed is our application to construct an air pollution source and a check for \$200 to cover the application fee.

If you have any questions, please contact Dr. Robert Wills, Manager of Process Engineering or me.

Sincerely,

James K. Poucher
James K. Poucher, P.E.
President

JKP:ds

enclosures

1031

RECEIVED
DER - MAIL ROOM
1989 JUN 26 PM 1:58

PROTOX INC.

1757

INVOICE NO.

DATE

AMOUNT DISCOUNT

NET AMT.

Department of Environmental
Regulation

6/20/89

\$200.00

DATE

CHECK NUMBER

Application fee

Protox

PROTOX INC.

14120 23RD AVENUE, NORTH
MINNEAPOLIS, MN 55447

RIVERSIDE BANK
MINNESOTA CENTER OFFICE
BLOOMINGTON, MN 55435
17-127/910

1757

Two Hundred dollars and NO cents

DATE

AMOUNT

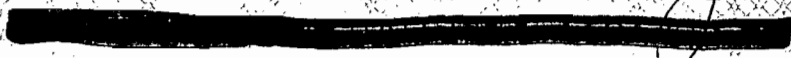
6/20/89

***\$200.00**

PAY
TO THE
ORDER
OF:

Department of Environmental
Regulation

James B. Peucher



PROTOX INC.

1757

	INVOICE NO.	DATE	AMOUNT DISCOUNT	NET AMT.
Department of Environmental Regulation		6/20/89		\$200.00

DATE

CHECK NUMBER

Application fee

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

\$200 pd.
6-26-89
Receipt # 117633

TWIN TOWERS OFFICE BUILDING
2800 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



AC 48-166670

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Soil Treater New¹ Existing¹

APPLICATION TYPE: Construction Operation Modification

COMPANY NAME: Prottox Inc. COUNTY: Hennepin

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) Thermal Soil Desorber

SOURCE LOCATION: Street Mobile City _____

UTM: East _____ North _____

Latitude _____ ° _____ ' _____ "N Longitude _____ ° _____ ' _____ "W

APPLICANT NAME AND TITLE: James K. Poucher, P.E., President

APPLICANT ADDRESS: 14120 23rd Avenue North, Minneapolis, MN 55447

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Prottox Thermal Desorber

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

*Attach letter of authorization

Signed: James K. Poucher
James K. Poucher, P.E., President
Name and Title (Please Type)

Date: 5/26/89 Telephone No. (612) 557-1292

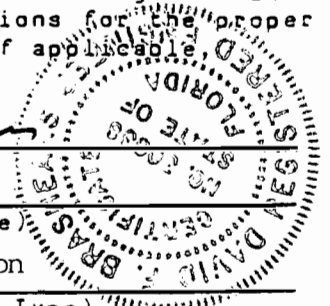
B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

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

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

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 David F. Brashears
David F. Brashears
Name (Please Type)
General Combustion Corporation
Company Name (Please Type)
5201 North Orange Blossom Trail, Orlando, FL
Mailing Address (Please Type)



Florida Registration No. 30038 Date: JUNE 8, 1989 Telephone No. (407) 290-6000

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.

SEE ATTACHED

B. Schedule of project covered in this application (Construction Permit Application Only)
Start of Construction May 1, 1989 Completion of Construction June 30, 1989

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.)

Afterburner - \$83,270
Baghouse - \$87,995
Knock-out - \$5,700

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.
NONE

6. General Description

Protox Inc. is a turnkey remedial action contractor providing engineering design and field services related to investigating and remediating releases of petroleum and hazardous substances in the environment. Protox provides field investigative services to obtain site data for clients, engineering services to develop remedial alternatives and detailed designs, and site remediation services. The company's primary strength is its extensive experience in remedial planning, site cleanup and varied treatment technologies. Environmental services are the company's only business.

DESCRIPTION OF EQUIPMENT

The Protox Thermal Desorption system is a simple process whereby organics on soils are thermally desorbed in a rotating chamber fired by a propane burner. Equipment associated with this heater are the load-in conveyor, load-out conveyor and a variety of air quality control equipment. As seen on the accompanying diagram, soils are taken by a front-end loader and placed into a hopper where they are sifted and broken into a size acceptable for processing. Next, these materials are conveyed up a 60 foot belt to a hopper on top of the primary treatment unit.

The primary treatment unit consists of a rotating drum that is 5 foot 4 inches in diameter and 20 feet long. It is made of a high-alloy carbon steel with internal flights to provide efficient showering of the materials in front of the burner flame. The burner on the unit is 25 million BTU/hour.

The bulk of the treated materials exit the primary combustor via an air lock assembly beneath the primary treatment unit. The treated materials are conveyed via a screw conveyor. This conveyance is versatile and can be used to create a clean soil pile or can be configured so that it will load out directly into end-dump trucks.

The exhaust gases from the primary treatment unit (see attached) are conveyed to a 400 ft³ Knockout Box. A drag slat/screw conveyor at the bottom of the Knockout Box allow the large particulates to be deposited with the clean soils. From the Knockout Box, the hot gases are conveyed through a quench unit which is incorporated into the duct work to the baghouse. The quench keeps the temperature down in the hot gases coming from the Knockout. No waste water is created in this unit as all of the water entering is evaporated.

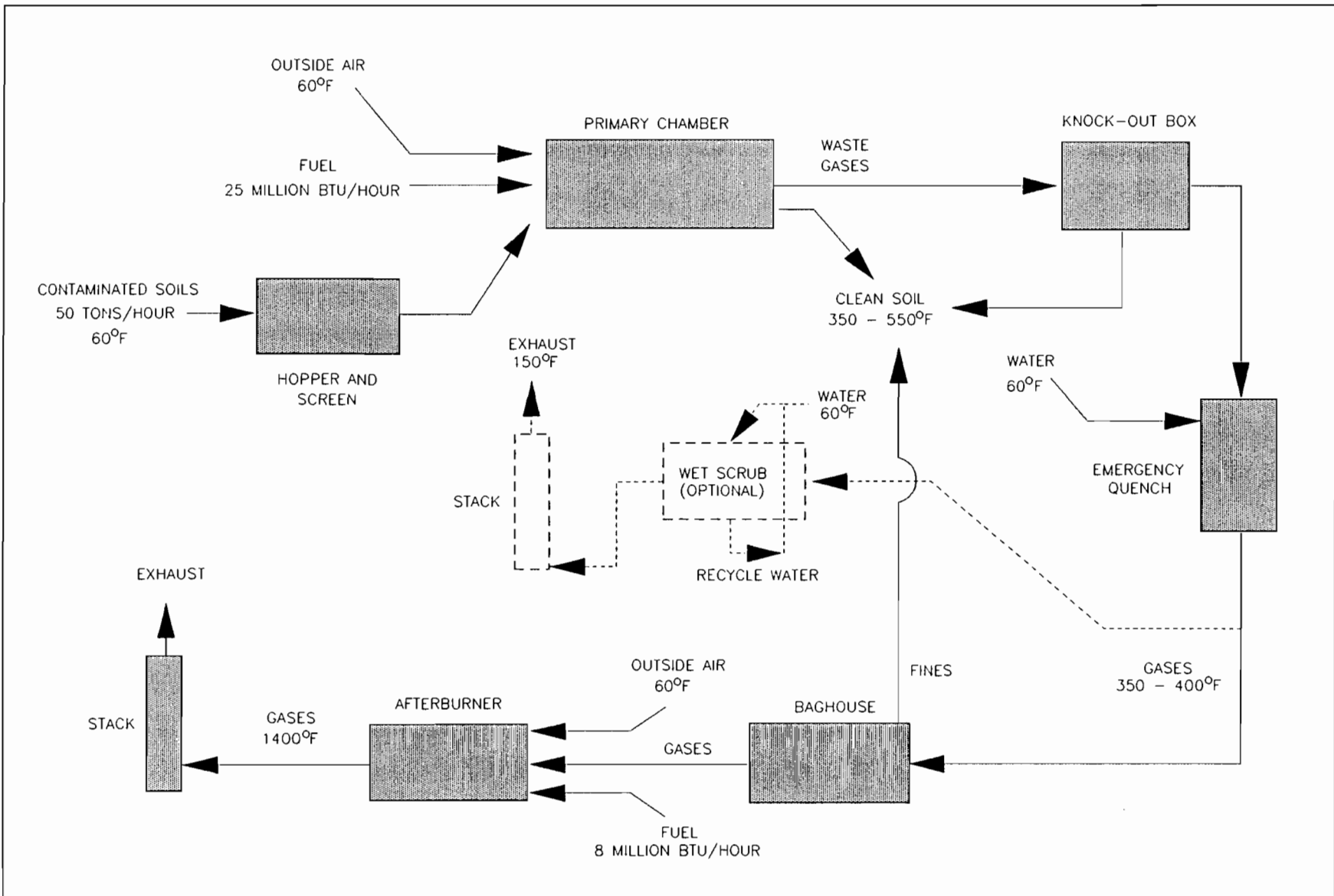
In the present Protox configuration, the gases going from the quench chamber would enter the baghouse (see attached). The baghouse is approximately 12 feet x 16 feet x 8.5 feet. The baghouse has 7-foot bags providing 2260 square feet of filter area. The baghouse is equipped with a 11500 ACFM ID fan. Normal operational conditions would allow approximately 9500 ACFM

through the baghouse giving an air to cloth ratio of 4.2. The bags are of Nomex and the cleaning system is the pulse jet style. Gencor, the baghouse manufacturer, guarantees less than 0.04 gr/dscf in the exhaust gases from the baghouse.

Dust collected in the baghouse is removed through an augering system, moving through a rotary airlock. These fines from the baghouse are incorporated back into the clean soil that was conveyed out of the primary treatment unit.

From the baghouse the exhaust gases pass through the afterburner. The afterburner is a six-foot diameter, 30 foot long chamber that is capable of heating the hot exhaust gases to a temperature of 1400°F with a residence time of 0.50 seconds. The burner is rated at 8 million BTU/hour. As this afterburner is vertical it also serves as the stack. The top of the afterburner is 34 feet from ground level.

As part of an optional configuration a wet scrubber can be used. This unit would accept gases from the quench chamber and exhaust through its own stack.



Prottox

14120 - 23rd Avenue North
 Minneapolis, Minnesota 55447
 (612) 557-1292

PROTOX THERMAL DESORBER
 FLOW DIAGRAM

CLIENT:	
LOCATION:	
DATE: 5/8/89	DRAWN BY: DJF
PROPOSAL: EQUIPMENT	CHECKED BY: RAW



GENCOR INDUSTRIES INC.

5201 N. Orange Blossom Trail • Orlando, Florida 32810
(407)290-6000 • TELEX GENCO 56-4454

May 11, 1989

Dr. Bob Wills
Protox, Inc.
14120 23rd. Avenue N.
Minneapolis, MN 55447

Reference: Proposal 13119 - Revised, May 11, 1989

Dear Dr. Wills:

We are pleased to quote, on your inquiry, one soil remediation unit designed to process soil contaminated by non-recycled distillate oil products to remove these oil products from the soil.

The unit is not an incinerator, but will cause rapid evaporation or destruction of the distillates, leaving a soil at the discharge of the machine, having a total concentration of less than 30 ppb each of benzene, toluene, and xylene when operated in accordance with the operating instructions.

Exhaust gas emissions will be at a rate up to 11,500 CFM, with particulate emissions of less than .04 grains per scf. The unit will be similar to our drawing CM17786A, except as further delineated in this proposal.

More specifically, the unit will consist of:

- A. Drum dryer - 84' x 20' long, high strength steel drum with 6" x 2" riding rings and heat treated trunion rollers. The drum is trunion driven by an electric motor. The drum is complete with flights, including patented General Combustion design.
- B. Genco Astraflame 15 light oil/LP fired burner.
- C. Sound shield sound suppression unit for burner system
- D. Genco Genie dryer/burner electronic control system.
- E. Pulse jet baghouse with 2,260 square feet of cloth area (Nomex bags).
- F. Five ton feed hopper with feeder conveyor and variable speed to convey material to drum.
- G. Five HP air compressor to provide high pressure air for fuel atomization and air actuators on gates.
- H. Discharge screw conveyor to carry material away from the machine, up to 12 feet. Screw connected to one side of "part leg" discharge so that it can be bypassed for larger materials and tonnages.
- I. Weigh scale on feed conveyor with totalizer.
- J. Water spray system to minimize dust from discharge.
- K. Fuel oil pump.
- L. Fuel oil tank, 250 gallon.
- M. Automatic exhaust damper draft control system.

E. Requested permitted equipment operating time: hrs/day 8; days/wk 5; wks/yr 20; if power plant, hrs/yr _____; if seasonal, describe: Not Seasonal

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? yes
a. If yes, has "offset" been applied? no
b. If yes, has "Lowest Achievable Emission Rate" been applied? no
c. If yes, list non-attainment pollutants. Potential particulate, Ozone
2. Does best available control technology (BACT) apply to this source? no
If yes, see Section VI.
3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. no
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? no
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? no
- H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? yes

a. If yes, for what pollutants? Particulates .03g/dscf

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.

F.1.a Exempt as per 17-2.510 (2)(b) and 17-2.510(3)(a) and (b)

F.1.b Exempt as per 17-2.510 (2)(b) and 17-2.510 (3)(a) and (b)

F.2 Not over 100 tons per year.

F.3 Exempt as per 17-2.500 (2)(b)1.

H Exempt as per {VOC- 17-2.650 (1)(c)1.
part.- 17-2.650 (2)(b)1.

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		
N/A				

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

1. Total Process Input Rate (lbs/hr): 20,000 - 100,000

2. Product Weight (lbs/hr): 18,400 - 92,000

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 Emission ² Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Particulates	3.94	1.6	.03 gr/dscf	2.96	5.12 x 10 ⁶	2560	
NOX	3.08	1.2	N/A	N/A	3.08	1.2	
VOC	2.44	0.98	Exempt	-----	3.21 x 10 ⁴	16	

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard.

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

Section III C - Emissions (Particulates)

As per the manufacturers attached statement.

$$\frac{11500 \text{ ft}^3}{\text{min}} \times \frac{0.04 \text{ gr}}{\text{dscf}} \times \frac{1.429 \times 10^{-4} \text{ lb}}{\text{gr}} \times \frac{60 \text{ min}}{\text{Hr}} = \frac{3.94 \text{ lb}}{\text{Hr}}$$

(Intentionally set high)

$$\frac{3.94 \text{ lb}}{\text{Hr}} \times \frac{800 \text{ Hr}}{\text{yr}} \times \frac{\text{Ton}}{2000 \text{ lb}} = \frac{1.58 \text{ Ton}}{\text{yr}}$$

Section III C - Potential Emissions (Particulates)

Under particulates there are two sources. One is from the fuel (Number 2 fuel oil) used to fire the dryer. The other are the fines from processing the soils. These fines vary from site to site. An estimate of 8 percent (wt) of the process mass would be fines which would be fugitive if the Air Quality Control equipment was not used. Therefore potential emissions are:

$$\begin{array}{c|c|c|c|c}
 40 \text{ Ton Soil} & 8 \text{ lb Fines} & 2000 \text{ lb} & 800 \text{ Hr} & 5.12 \times 10^6 \text{ lb} \\
 \hline
 \text{Hr} & 100 \text{ lb Soil} & \text{Ton} & \text{yr} & \text{yr}
 \end{array} =$$

$$\begin{array}{c|c|c|c}
 6400 \text{ lb} & 800 \text{ Hr} & \text{Ton} & 2560 \text{ T} \\
 \hline
 \text{Hr} & \text{yr} & 2000 \text{ lb} & \text{yr}
 \end{array} =$$

The particulates from the fuel source are several orders of magnitude smaller than the above and are neglected.

Section III C - Containment (NO_x)

There are three sources of fuel that could create NO_x's in this dual combustion process. The first is from the burning of Number 2 diesel fuel for heating in the dryer. As per AP42 Table 1.3-1 using the Industrial Boilers category and Distillate Oil, the NO emission factor is 20 lb/1000 gallon. Our computer prediction of fuel needs for 40T/Hr of soil with 5 percent moisture is 99.6 gallon/Hr of Number 2 fuel oil (dryer only) and 78.8 gallon/Hr of propane (afterburner only). The second source, the contaminants in the soil are assumed to be virgin petroleum (gasoline and Number 2 fuel oil) at 100-500 ppm. The quantity of potential Number 2 fuel oil as a contaminant is:

$$\frac{40 \text{ T}}{\text{Hr}} \left| \frac{500 \text{ lb \#2}}{10^6 \text{ lb Soil}} \right| \frac{2000 \text{ lb}}{\text{T}} \left| \frac{\text{gal}}{7.21 \text{ lb}} \right| = \frac{5.5 \text{ gal}}{\text{Hr}}$$

This number is added to the combustion fuel for computation:

$$\frac{(99.6 + 5.5) \text{ gal}}{\text{Hr}} \left| \frac{20 \text{ lb NO}}{1000 \text{ gal \#2}} \right| = \frac{2.1 \text{ lb NO}}{\text{Hr}}$$

$$\frac{2.1 \text{ lb}}{\text{Hr}} \left| \frac{800 \text{ Hr}}{\text{yr}} \right| \frac{\text{T}}{2000 \text{ lb}} = 0.84 \text{ T/yr}$$

The third source is the NO_x for propane, as per AP42 Table 1.5-1, using Industrial Propane, is 12.4 lb NO_x from this source is:

$$\frac{78.8 \text{ gal}}{\text{Hr}} \left| \frac{12.4 \text{ lb NO}_x}{1000 \text{ gal}} \right| = \frac{0.98 \text{ lb NO}_x}{\text{Hr}}$$

$$\frac{0.98 \text{ lb}}{\text{Hr}} \left| \frac{800 \text{ Hr}}{\text{yr}} \right| \frac{\text{T}}{2000 \text{ lb}} = \frac{0.39 \text{ T NO}_x}{\text{yr}}$$

So totals are $(0.98 + 2.1) \text{ lb} = 3.08 \text{ lb/Hr}$
Hr

and $(0.84 + 0.39) \text{ T/yr} = 1.2 \text{ T/yr}$

Section III C - VOC Emissions

Assuming that the afterburner is 94% efficient then the VOC emissions would be:

$$\frac{(40 + 0.025) \text{ lb \#2 VOC's}}{\text{Hr}} \Bigg| \frac{1-0.94}{\text{Hr}} = \frac{2.4 \text{ lb}}{\text{Hr}}$$

$$\frac{2.4 \text{ lb \#2 VOC's}}{\text{Hr}} + \frac{0.041 \text{ lb Propane VOC's}}{\text{Hr}} = \frac{2.44 \text{ lb VOC}}{\text{Hr}}$$

$$\frac{(16 + 0.01) \text{ T \#2 VOC}}{\text{yr}} \Bigg| \frac{1-0.94}{\text{yr}} = 0.96 \text{ T/yr}$$

$$\frac{0.96 \text{ T \#2}}{\text{yr}} + \frac{0.016 \text{ T Propane}}{\text{yr}} = \frac{0.98 \text{ T}}{\text{yr}}$$

See previous page for calculations

Section III C - Contaminant (VOC) Potential Emissions

There are two sources of fuel that could create VOC's. For these calculations it will be assumed that all the Number 2 fuel oil in the soil is volatilized and not burned (worst case) in the dryer. The dryer burner uses Number 2 fuel oil at 99.6 gal/Hr. The afterburner uses propane at a rate of 78.8 gal/Hr. For the Number 2 fuel oil AP42 Table 1.3-1 lists the VOC emission as 0.2 lb per 1000 gallon (non-methane) and 0.052 lb/1000 gallon (methane). Therefore:

$$\frac{(0.2 + 0.052) \text{ lb VOC}}{1000 \text{ gal \#2}} \times \frac{99.6 \text{ gal \#2}}{\text{Hr}} = \frac{0.025 \text{ lb}}{\text{Hr}}$$

$$\frac{0.025 \text{ lb}}{\text{Hr}} \times \frac{800 \text{ Hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \frac{0.01 \text{ T}}{\text{yr}}$$

From AP42 Table 1.5-1 the VOC emission rates are 0.25 lb/1000 gal of propane (non-methane) and 0.27 lb/1000 gal of propane (methane).

$$\frac{(0.25 + 0.27) \text{ lb VOC}}{1000 \text{ gal Propane}} \times \frac{78.8 \text{ gal}}{\text{Hr}} = \frac{0.041 \text{ lb VOC}}{\text{Hr}}$$

$$\frac{0.041 \text{ lb VOC}}{\text{Hr}} \times \frac{800 \text{ Hr}}{\text{yr}} \times \frac{\text{Ton}}{2000 \text{ lb}} = \frac{0.016 \text{ T}}{\text{yr}}$$

The VOC potential for 500 ppm of Number 2 fuel oil is:

$$\frac{40 \text{ T}}{\text{Hr}} \times \frac{2000 \text{ lb}}{\text{T}} \times \frac{500 \text{ lb \#2}}{10^6 \text{ lb soil}} = \frac{40 \text{ lb}}{\text{Hr}}$$

$$\frac{40 \text{ lb}}{\text{Hr}} \times \frac{800 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \frac{16 \text{ T}}{\text{yr}}$$

So total potential VOC's are:

0.025 lb/Hr	0.01 T/yr
0.041	0.016
40.0	16.0
40.066 lb/Hr	16.026 T/yr

$$\frac{40.066 \text{ lb}}{\text{Hr}} \times \frac{800 \text{ Hr}}{\text{yr}} = 3.2 \times 10^4$$

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)
Settling Chamber	particulates	50% (wt)	> 50	Est/design
Cloth Bag Filter	particulates	99% (wt)	> 0.3	Est/design
Afterburner	organics	92%	N/A	Estimated

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Primary #2 Fuel Oil	99.6 gal	161.9 gal	22.1
Afterburner Propane	78.8 gal	128 gal	11.0

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

Fuel Analysis: P - Propane No2 - Number 2 Fuel Oil

Percent Sulfur: P-0; No2 - less than 0.5 Percent Ash: P-0; No2 - less than 0.1

Density: P - 4.24; No2 - 7.21 lbs/gal Typical Percent Nitrogen: P-0; No2 less than 0.0

Heat Capacity: P-20,251; No2-16,960 BTU/lb P - 86,000; No2 - 136,500 BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

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

Annual Average N/A Maximum _____

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

None

NOTE: The afterburner doubles as the stack.

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

Stack Height: 34 ft. Stack Diameter: 6 ft.
 Gas Flow Rate: 24,200 ACFM 4867 DSCFM Gas Exit Temperature: 1400 °F.
 Water Vapor Content: 29.5 (vol) % Velocity: 18.6 FPS

SECTION IV: INCINERATOR INFORMATION

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

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

Yes No

Contaminant	Rate or Concentration
N/A	

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

Yes No

Contaminant	Rate or Concentration
N/A	

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

Contaminant	Rate or Concentration
N/A	

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

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

*Explain method of determining

Section V (attachment)

1. Anticipated Input Rate: 40 Tons/Hr containing, 5 percent moisture, 100-500 ppm contaminants.

Product Weight: 38 Tons/Hr containing, 0 percent moisture, <0.1 ppm contaminants.

(In normal operations water would be added to the clean soils loading out, to suppress dust.)

2. The basis for the calculations made in Section III concerning the unit are as follows:

Materials into the processing unit:

Silty-sandy soils, 40 Tons/Hr
 5 percent moisture content
 500 ppm contamination by Number 2 fuel oil

Burner fuel for dryer - Number 2 fuel oil
 with a Ht of combustion of 136,500 BTU/gal
 Excess air is approximately 25 percent

Maximum air flow is 11,500 cfm or

11,500 ft ³	1 atm		lb · mol °R
min		(350 + 460) °R	0.7302 ft ³ ·atm
x 60 min	28.9 lb	=	33,715 lb
Hr	lb · mol		Hr

The properties of the Number 2 fuel oil and the propane were taken from Chemical Engineers Handbook by Perry and Chilton, 5th Edition.

Emissions estimates were per AP42 as given in Volume 1 and Supplement A. Tables 1.3-1 and 1.5-1 were used (see attached copies).

The dryer and afterburner were treated as Industrial Boilers using Distillate Oil or Propane. Calculations for emissions both potential (uncontrolled) and estimated real are given in Section III.

Section V

Proposed testing and analytical methods to be used are given below along with methods for potential, but thus far, unspecified testing:

Particulates - 40CFR60, Appendix A, Method 5D, p. 611-615. A water cooled probe would be necessary.

NO_x - 40CFR60, Appendix A, Method 7, p. 667-673 (stationary source). Should the DER deem this method inappropriate Method 7E (Instrumental Analyzer Procedure) could be substituted.

VOC - 40CFR60, Appendix A, Method 18, p. 823-852. (Measurement by GC).

Stack Gas Velocity - 40CFR60, Appendix A, Method 2, p. 544-561 (pitot tube).

If needed:

CO₂, O₂, XS Air, Dry Mole. Wt. Analysis - Method 3

Stack Gas Moisture - Method 4

SO₂ Emissions - Method 6

Capacity - Method 9; Alternate Method 17

CO - Method 10

Inorganic Lead - Method 12

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

10. Stack Parameters

- a. Height: ft.
- b. Diameter: ft.
- c. Flow Rate: ACFM
- d. Temperature: °F.
- e. Velocity: FPS

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

1.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:¹
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:²
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:¹
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:²
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:¹
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:²
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:¹
- d. Capital Costs:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:²
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

- 1. Control Device:
- 2. Efficiency:¹
- 3. Capital Cost:
- 4. Useful Life:
- 5. Operating Cost:
- 6. Energy:²
- 7. Maintenance Cost:
- 8. Manufacturer:
- 9. Other locations where employed on similar processes:
- a. (1) Company:
- (2) Mailing Address:
- (3) City:
- (4) State:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

2. Instrumentation, Field and Laboratory

- a. Was instrumentation EPA referenced or its equivalent? [] Yes [] No
- b. Was instrumentation calibrated in accordance with Department procedures?
[] Yes [] No [] Unknown

B. Meteorological Data Used for Air Quality Modeling

- 1. _____ Year(s) of data from _____ / _____ / _____ to _____ / _____ / _____
month day year month day year
- 2. Surface data obtained from (location) _____
- 3. Upper air (mixing height) data obtained from (location) _____
- 4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

- 1. _____ Modified? If yes, attach description.
- 2. _____ Modified? If yes, attach description.
- 3. _____ Modified? If yes, attach description.
- 4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

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

E. Emission Data Used in Modeling

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

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

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

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

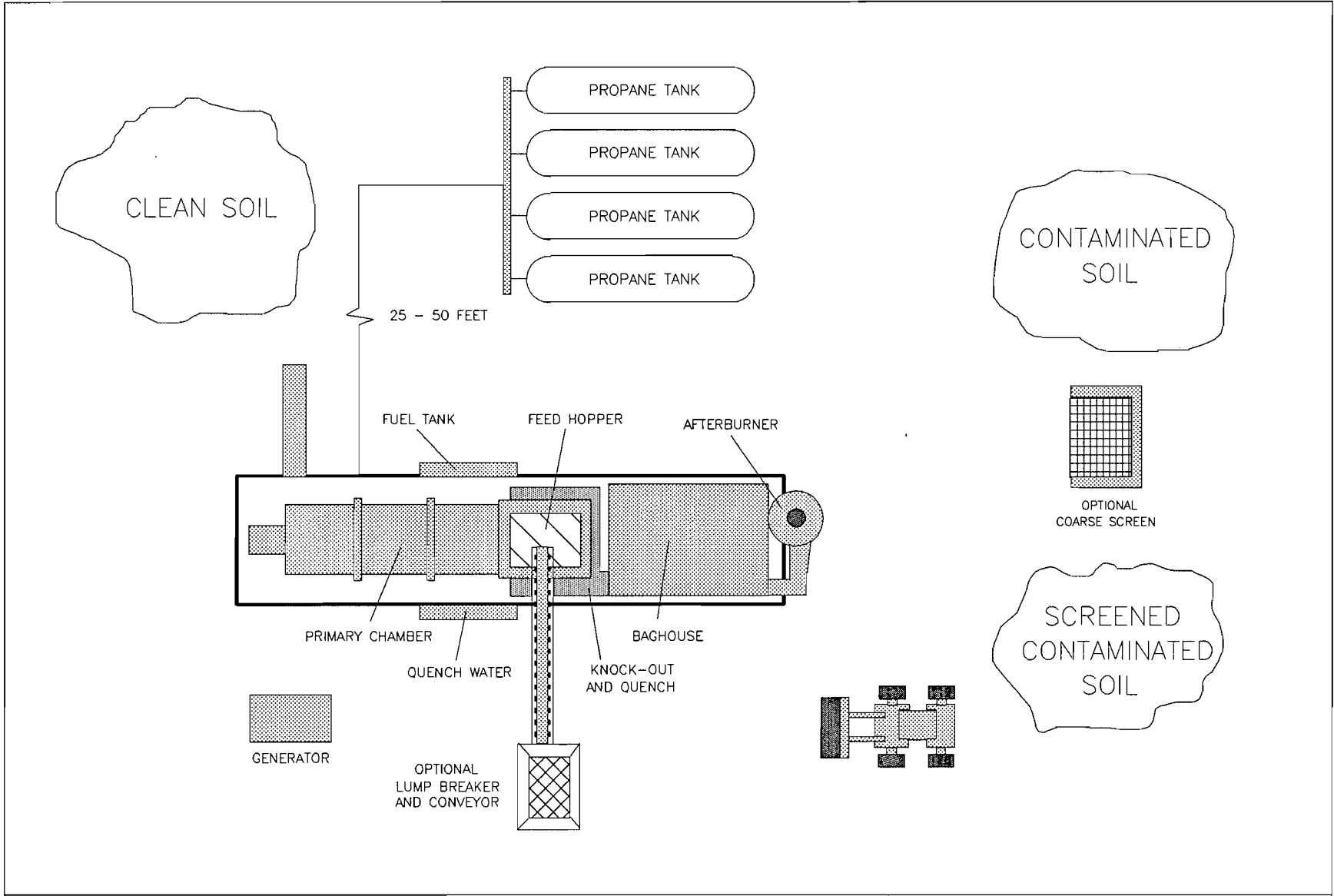
TABLE 1.5-1. EMISSION FACTORS FOR LPG COMBUSTION^a
EMISSION FACTOR RATING: C

Furnace Type and Fuel	Particulates		Sulfur Oxides ^b		Nitrogen Oxides ^c		Carbon Monoxide		Volatile Organics			
	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	Nonmethane		Methane	
	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal	kg/10 ³ l	lb/10 ³ gal
Industrial												
Butane	0.01-0.06	0.10-0.47	0.01S	0.09S	1.58	13.2	0.4	3.3	0.03	0.26	0.03	0.28
Propane	0.01-0.05	0.09-0.44	0.01S	0.09S	1.49	12.4	0.37	3.1	0.03	0.25	0.03	0.27
Domestic/ commercial												
Butane	0.01-0.06	0.10-0.47	0.01S	0.09S	1.13	9.4	0.23	1.9	0.06	0.5	0.03	0.25
Propane	0.01-0.05	0.09-0.44	0.01S	0.09S	1.05	8.8	0.22	1.8	0.06	0.47	0.03	0.24

^a Assumes emissions (except sulfur oxides) are the same, on a heat input basis, as for natural gas combustion.

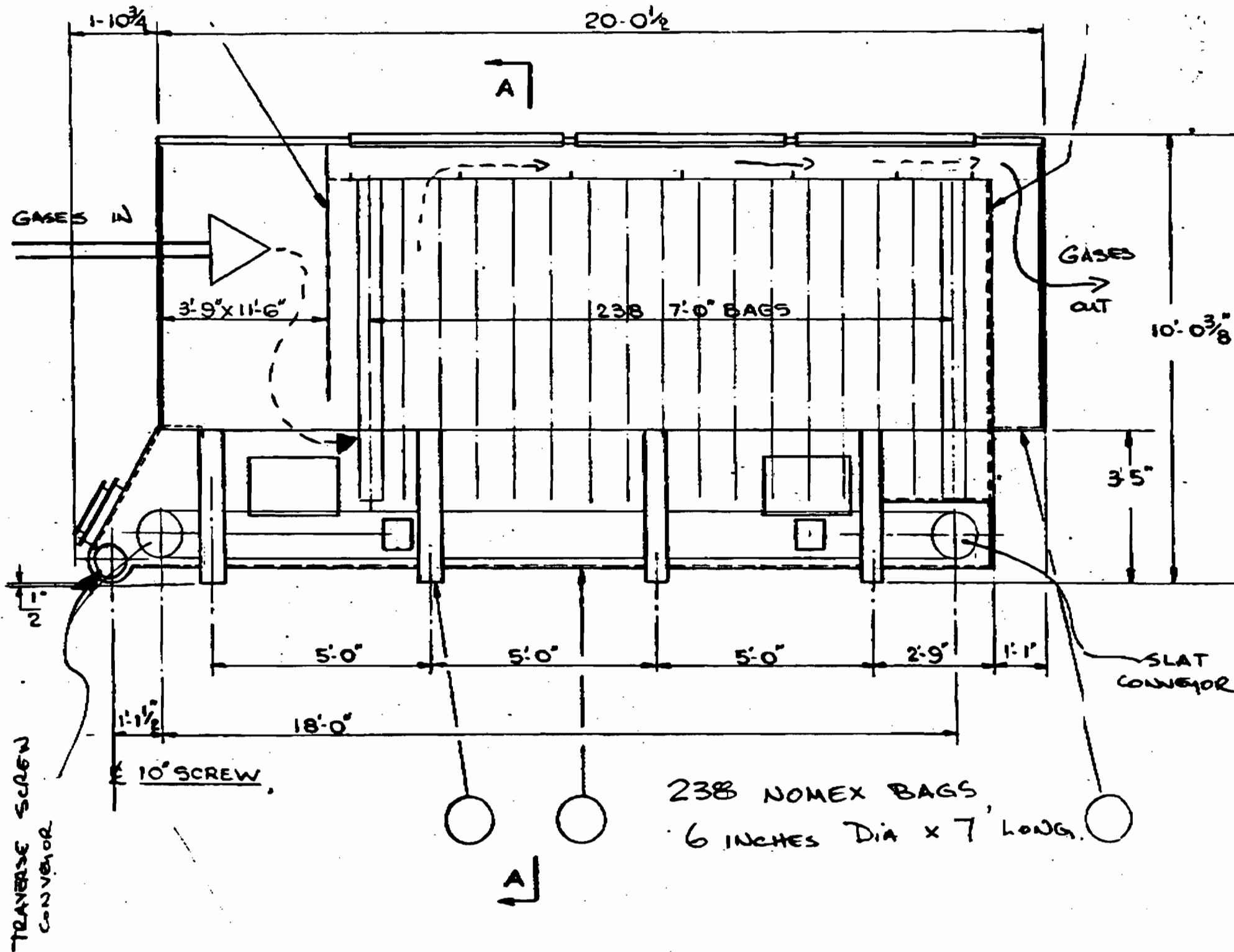
^b Expressed as SO₂. S equals the sulfur content expressed in g/100 m³ gas vapor. For example, if sulfur content is 0.366 g/100m³ (0.16 gr/100ft³) vapor, the SO₂ emission factor would be 0.01 x 0.366 or 0.0037 kg SO₂/10³ liters (0.09 x 0.16 or 0.014 lb of SO₂/1000 gal) butane burned.

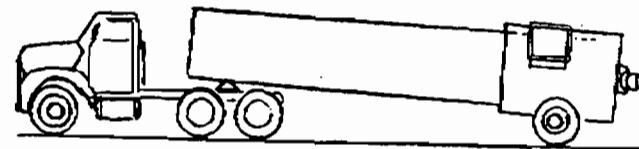
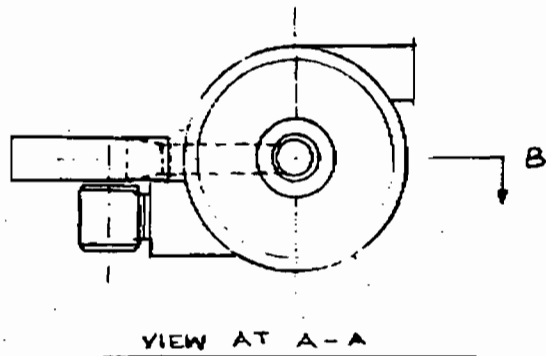
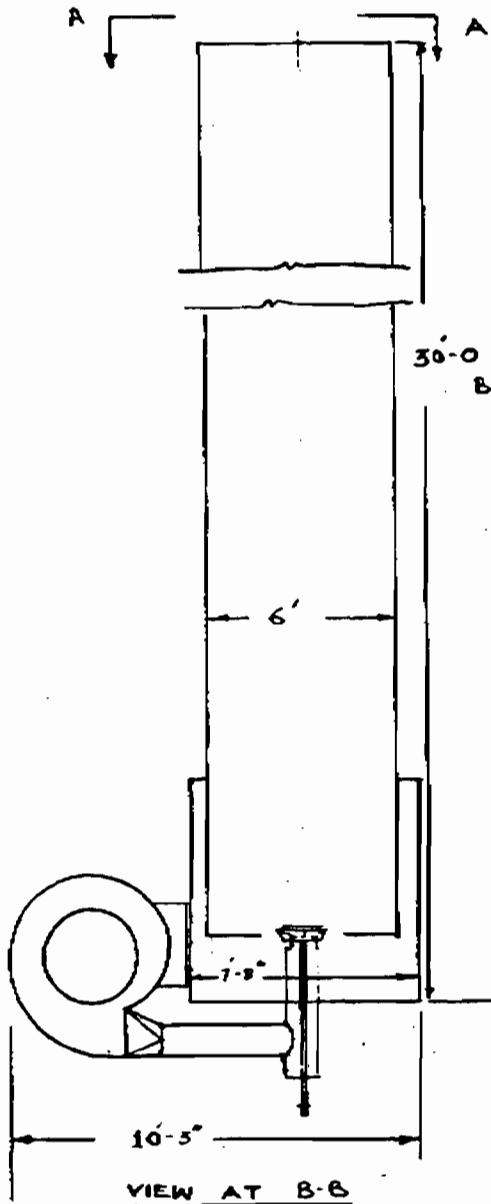
^c Expressed as NO₂.



PROCESSING AREA
PLAN VIEW

CLIENT:			
LOCATION:		MOBILE UNIT	
DATE:	5/30/89	DRAWN BY:	DJF
PROPOSAL:	EQUIPMENT	CHECKED BY:	JKP





MAY 22 1989

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