file

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

FAX TRANSMITTAL

TO: Willard Hanks
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 resid: $\frac{3.32 / 0.5}{} = \frac{1.66 \text{ lb } O_2}{\text{lb fuel}}$

N_2 resid: $\frac{3.3197 / 3.32 / 0.5}{} = \frac{5.51 \text{ lb } N_2}{\text{lb fuel}}$

CO_2 production: $\frac{3.20 \text{ lb } CO_2}{\text{lb fuel}}$

$$\frac{1.66 \text{ lb } O_2}{\text{lb fuel}} \Big| \frac{\text{lb-mole } O_2}{32 \text{ lb } O_2} = \frac{0.052 \text{ lb-mol } O_2}{\text{lb fuel}}$$

$$\frac{5.51 \text{ lb } N_2}{\text{lb fuel}} \Big| \frac{\text{lb-mole}}{28 \text{ lb}} = 0.197 \frac{\text{lb-mol } N_2}{\text{lb fuel}}$$

$$\frac{3.20 \text{ lb } CO_2}{\text{lb fuel}} \Big| \frac{\text{lb-mole}}{44 \text{ lb}} = 0.073 \frac{\text{lb-mol } CO_2}{\text{lb fuel}}$$

Total = $0.052 + 0.197 + 0.073 = 0.322 \frac{\text{lb-mole D.G.}}{\text{lb fuel}}$

$$\frac{0.322 \text{ lb-mole D.G.}}{\text{lb fuel}} \Big| \frac{.7302 \text{ ft}^3 \cdot \text{atm}}{\text{lb-mol } ^\circ R} \Big| \frac{(460+60)^\circ R}{1 \text{ atm}} = \frac{122.3 \text{ ft}^3}{\text{lb-fuel}}$$

$$\frac{122.26 \text{ ft}^3}{\text{lb fuel}} \Big| \frac{99.6 \text{ gal}}{\text{hr}} \Big| \frac{7.21 \text{ lb}}{\text{gal}} = 87796.9 \frac{\text{ft}^3}{\text{hr}}$$

or 1463 scfm @ 50% XS air

Contaminants in Soil

Assume 5000 ppm ≈ $\frac{5000 \text{ lb \#2 diesel}}{10^6 \text{ lb soil}}$

$$\frac{5000 \text{ lb \#2}}{10^6 \text{ lb soil}} \Big| \frac{60 \text{ ton}}{\text{hr}} \Big| \frac{2000 \text{ lb}}{\text{ton}} = \frac{600 \text{ lb \#2}}{\text{hr}}$$

$$\frac{600 \text{ lb \#2}}{\text{hr}} \Big| \frac{\text{gal}}{7.21 \text{ lb}} = 83.2 \frac{\text{gal}}{\text{hr}}$$

$$\frac{83.2 \text{ gal/hr}}{X} = \frac{99.6 \text{ gal/hr}}{1463 \text{ scfm}}$$

$X = 1222$ scfm for contaminants @ 50% X 5 a.r.

Afterburner

Propane @ 78.8 gal / hr

O_2 resid: $\frac{3.918}{0.5} = 1.96 \frac{\text{lb } O_2}{\text{lb prop.}}$

N_2 resid: $\frac{12.99}{1.5} = 19.485 \frac{\text{lb } N_2}{\text{lb prop.}}$

CO_2 production: $2.134 \frac{\text{lb } CO_2}{\text{lb prop}}$

$$\frac{1.96 \text{ lb } O_2}{\text{lb prop.}} \Big| \frac{\text{lb.mole}}{32 \text{ lb}} = 0.061$$

$$\frac{19.485 \text{ lb } N_2}{\text{lb prop.}} \Big| \frac{\text{lb.mole}}{28 \text{ lb}} = 0.696$$

3/3

$$\frac{2.134\ lb\ CO_2}{lb\ prop.} \left| \frac{lb\text{-}mole}{44\ lb} \right. = 0.049$$

$0.061 + 0.696 + 0.049 = 0.806\ \frac{lb\text{-}mol\ D.G.}{lb\ propane}$

$$\frac{0.806\ lb\text{-}mole\ D.G.}{lb\ prop.} \left| \frac{0.7302\ ft^3\text{-}atm}{lb\text{-}mol\ ^\circ R} \right| \frac{(460+60)^\circ R}{1\ atm}$$

$= 306.0\ ft^3/lb\ prop.$

$$\frac{306.0\ ft^3}{lb\ prop} \left| \frac{78.7\ gal}{hr} \right| \frac{4.24\ lb\ prop.}{gal\ prop.} = 102,108\ ft^3/hr$$

1701 scfm @ 50% XS air

$1463 + 1222 + 1701 = 4386$ total scfm dry gas @ 50% XS air

Data from: Site Clean-up by Incineration, C. Brunner, HMCRI, Silver Spring MD, 1988

Protox 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
DER - BAQM

RE: AC48-166670

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.

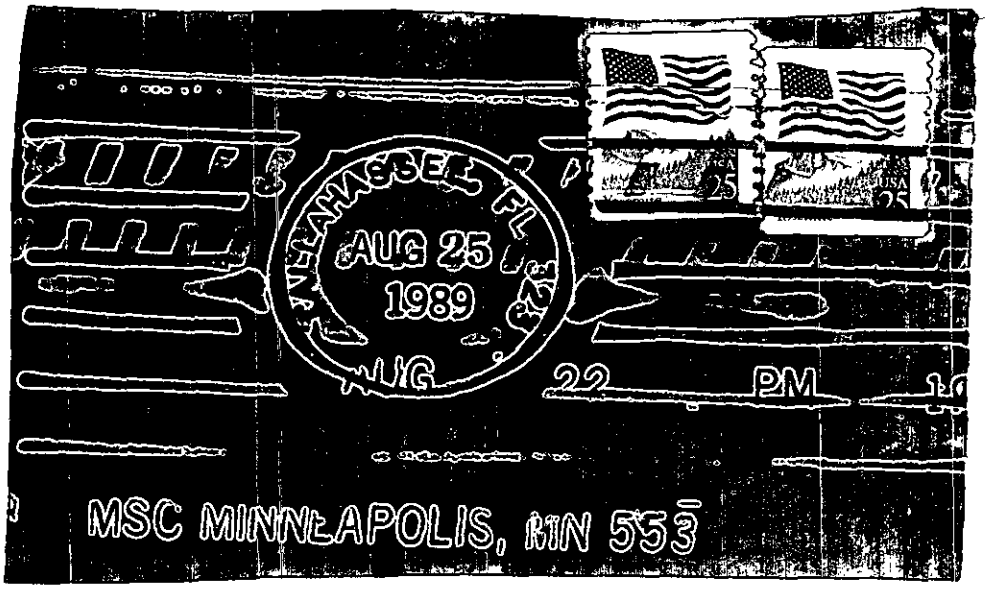
1. Protox has formed a sister company called CleanSoils. CleanSoils will own and operate the Thermal Desorber. We would appreciate a name change on the permit application.

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/dcf. 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.



Protox
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

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

RAW:ds

enclosures
copied: H. Hanke
CHF/BT

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Soil Treater [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] 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)

Date: 8/21/89 Telephone No. (612)557-7106

(original application 5/26/89)

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^{o}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[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Particulates	3.94	1.6	.03 gr/dscf	2.96	7.68×10^6	3840	
NOX	6.07	2.25	N/A	N/A	6.07	2.25	
VOC	36.041	14.4	Exempt	----	4.8×10^5	240	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

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

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 <u>not</u> used. Therefore potential emissions are:

$$\frac{60 \text{ Ton Soil}}{\text{Hr}} \left| \frac{8 \text{ lb Fines}}{100 \text{ lb Soil}} \right| \frac{2000 \text{ lb}}{\text{Ton}} \left| \frac{800 \text{ Hr}}{\text{yr}} \right. = 7.68 \times 10^6 \frac{\text{lb}}{\text{yr}}$$

$$\frac{7.68 \times 10^6}{\text{yr}} \left| \frac{\text{Ton}}{2000 \text{ lb}} \right. = \frac{3840 \text{ T}}{\text{yr}}$$

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:

$$\frac{60\ T}{Hr} \left| \frac{5000\ lb\ \#2}{10^6\ lb\ Soil} \right| \frac{2000\ lb}{T} \left| \frac{gal}{7.21\ lb} \right. = 83.2\ \frac{gal}{Hr}$$

This number is added to the combustion fuel for computation:

$$\frac{(149.4 + 83.2)\ gal}{Hr} \left| \frac{20\ lb\ NO}{1000\ gal\ \#2} \right. = 4.6\ \frac{lb}{Hr}\ NO$$

$$\frac{4.6\ lb}{Hr} \left| \frac{800\ Hr}{yr} \right| \frac{T}{2000\ lb} = 1.86\ T/yr$$

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:

$$\frac{118.2\ gal}{Hr} \left| \frac{12.4\ lb\ NO_X}{1000\ gal} \right. = 1.47\ \frac{lb}{Hr}\ NO_X$$

$$\frac{1.47\ lb}{Hr} \left| \frac{800\ Hr}{yr} \right| \frac{T}{2000\ lb} = 0.59\ \frac{T}{yr}\ NO_X$$

So totals are $(1.47 + 4.6)\ \frac{lb}{Hr} = 6.07\ lb/Hr$

and $(1.86 + 0.59)\ T/yr = 2.25\ T/yr$

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:

$$\frac{(0.2 + 0.052)\ \text{lb VOC}}{1000\ \text{gal \#2}} \left| \frac{149.4\ \text{gal \#2}}{\text{Hr}} \right. = 0.038\ \frac{\text{lb}}{\text{Hr}}$$

$$\frac{0.038\ \text{lb}}{\text{Hr}} \left| \frac{800\ \text{Hr}}{\text{yr}} \right| \frac{\text{T}}{2000\ \text{lb}} = 0.015\ \frac{\text{T}}{\text{yr}}$$

Uncombusted #2 fuel Oil from dryer

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).

$$\frac{(0.25 + 0.27)\ \text{lb VOC}}{1000\ \text{gal Propane}} \left| \frac{118.2\ \text{gal}}{\text{Hr}} \right. = 0.061\ \frac{\text{lb VOC}}{\text{Hr}}$$

$$\frac{0.061\ \text{lb VOC}}{\text{Hr}} \left| \frac{800\ \text{Hr}}{\text{yr}} \right| \frac{\text{Ton}}{2000\ \text{lb}} = 0.025\ \frac{\text{T}}{\text{yr}}$$

Uncombusted Organics from after-burner

The VOC potential for 5000 ppm of Number 2 fuel oil is:

$$\frac{60\ \text{T}}{\text{Hr}} \left| \frac{2000\ \text{lb}}{\text{T}} \right| \frac{5000\ \text{lb \#2}}{10^6\ \text{lb soil}} = \frac{600\ \text{lb}}{\text{Hr}}$$

$$\frac{600\ \text{lb}}{\text{Hr}} \left| \frac{800\ \text{hr}}{\text{yr}} \right| \frac{\text{T}}{2000\ \text{lb}} = 240\ \frac{\text{T}}{\text{yr}}$$

VOC's from soil

So total potential VOC's are:

```
  0.038 lb/Hr
  0.061
600.0
600.099 lb/Hr
```

$$\frac{600.1\ \text{lb}}{\text{Hr}} \left| \frac{800\ \text{Hr}}{\text{yr}} \right. = 4.8 \times 10^5\ \text{lb/yr} \quad \text{or } 240.04\ \text{T/yr}$$

Section III C - VOC Emissions

Assuming that the afterburner is 94% efficient then the VOC emissions would be:

$$\frac{600.1 \text{ lb \#2 VOC's}}{\text{Hr}} \Big| \frac{1-0.94}{} = \frac{36.0 \text{ lb}}{\text{Hr}}$$

$$\frac{36.0 \text{ lb}}{\text{Hr}} \text{ \#2 VOC's} + \frac{0.061 \text{ lb}}{\text{Hr}} \text{ Propane VOC's} = \frac{36.061 \text{ lb VOC}}{\text{Hr}}$$

$$\frac{36.061 \text{ lb VOC}}{\text{Hr}} \Big| \frac{800 \text{ hr}}{\text{yr}} \Big| \frac{\text{Ton}}{2000 \text{ lb}} = \frac{240.04 \text{ T}}{\text{yr}}$$

$$\frac{240.04 \text{ T \#2 VOC}}{\text{yr}} \Big| \frac{1-0.94}{} = 14.4 \text{ T/yr}$$

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 0.0

Heat ~~Capacity~~ content: 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

$$\frac{11{,}500\ ft^3}{min} \left| \frac{1\ atm}{} \right| \frac{}{(350 + 460)^oR} \left| \frac{lb \cdot mol\ ^oR}{0.7302\ ft^3 \cdot atm} \right.$$

$$\times \frac{60\ min}{Hr} \left| \frac{28.9\ lb}{lb \cdot mol} \right. = 33{,}715\ \frac{lb}{Hr}$$

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.

08-31-89
15:58:26

*** SCREEN-1.1 MODEL RUN ***
*** DRAFT VERSION XXXXX ***

cleanscils 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 it 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.

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 discrepencies 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)

Sent to Mr. James K. Poucher, Protox Inc.	
Street and No. 14120 - 23rd Ave. N.	
P.O., State and ZIP Code Minneapolis, MN 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: 7-14-89 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 Protox Inc. 14120 - 23rd Avenue North Minneapolis, Minnesota 55447	4. Article Number P 938 762 620 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Address X Bob Stevens	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery August 7-20-89	

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT