

Department of Environmental Protection

A048-197156

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - SHORT FORM

See Instructions for Form No. 62-210.900(2)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope of this application and the purpose for which this application is being submitted. This section also includes information on the owner or authorized representative of the facility and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application



Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: TPS Technologies Inc.	
2. Site Name: TPS Technologies Inc.	
3. Facility Identification Number: [] Unknown 300RG48014007	
4. Facility Location: Statewide Street Address or Other Locator: City: County: Zip Code:	
5. Relocatable Facility? [x] Yes [] No	6. Existing Permitted Facility? [x] Yes [] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	June 14, 1996
2. Permit Number:	7770140-001-A0

Owner/Authorized Representative

1. Name and Title of Owner/Authorized Representative: David Wall, Environmental Engineer
2. Owner/Authorized Representative Mailing Address: Organization/Firm: TPS Technologies Inc. Street Address: 1964 S. Orange Blossom Trail City: Apopka State: FL Zip Code: 32703
3. Owner/Authorized Representative Telephone Numbers: Telephone: (407) 886-2000 Fax: (407) 886-8300
4. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative* of the facility addressed in this Application for Air Permit. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. Further, I agree to operate and maintain the air pollutant emissions units and air pollution control equipment described in this application so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i>  _____ Signature  _____ Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID	Description of Emissions Unit	Permit Type
S-1	Emission Unit S-1 is the Stack for the entire process.	AO2A

Purpose of Application

This Application for Air Permit is submitted to obtain (check one):

- Initial air operation permit for one or more existing, but previously unpermitted, emissions units.
- Initial air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number: _____

- Air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number: _____

Operation permit to be revised: _____

- Air operation permit renewal.

Operation permit to be renewed: AO48-197156

Application Processing Fee

Check one:

Attached - Amount: \$ 1,500.00

Not Applicable.

Construction/Modification Information

1. Description of Alterations:

2. Date of Commencement of Construction:

Professional Engineer Certification

1. Professional Engineer Name: Registration Number:
2. Professional Engineer Mailing Address: Organization/Firm: Street Address: City: State: Zip Code:
3. Professional Engineer Telephone Numbers: Telephone: () - Fax: () -
4. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> _____ Signature (seal) _____ Date

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact: David Wall, Environmental Engineer
2. Application Contact Mailing Address: Organization/Firm: TPS Technologies Inc. Street Address: 1964 S. Orange Blossom Trail City: Apopka State: FL Zip Code: 32703
3. Application Contact Telephone Numbers: Telephone: (407) 886-2000 Fax: (407) 886-8300

Application Comment

Facility Regulatory Classifications

1. Small Business Stationary Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
2. Title V Source? <input checked="" type="checkbox"/> No
3. Synthetic Non-Title V Source by Virtue of Previous Air Construction Permit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Construction Permit Number/Issue Date: <u>AC48-166606</u>
4. One or More Emission Units Subject to NSPS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Facility Regulatory Classifications Comment (limit to 200 characters)

B. FACILITY SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the facility as a whole. (Supplemental information related to individual emissions units within the facility is provided in Subsection III-B of the form.) Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Facility Plot Plan: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Process Flow Diagram(s): <input checked="" type="checkbox"/> Attached, Document ID: <u>1</u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A and B) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

Type of Emissions Unit Addressed in This Section

Check one:

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Remediation of non-hazardous contaminated soil through a thermal desorption process.	
2. Emissions Unit Identification Number: <input type="checkbox"/> No Corresponding ID <input type="checkbox"/> Unknown 007	
3. Emissions Unit Status Code: A	4. Emissions Unit Major Group SIC Code: 17 & 49
5. Emissions Unit Comment (limit to 500 characters): 	

Emissions Unit Control Equipment

A.

1. Description (limit to 200 characters): Fabric Filter Baghouse
2. Control Device or Method Code: 016

B.

1. Description (limit to 200 characters): Thermal Oxidizer (Afterburner)
2. Control Device or Method Code: 021

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

Emissions Unit Details

1. Initial Startup Date:	
1992	
2. Long-term Reserve Shutdown Date:	
1993	
3. Package Unit:	
Manufacturer: Various	Model Number: SRU
4. Generator Nameplate Rating: MW	
5. Incinerator Information:	
Dwell Temperature:	°F
Dwell Time:	seconds
Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	33	mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:	25 tons/hr	
5. Operating Capacity Comment (limit to 200 characters):		
Item 1. The unit operates at a maximum of 15 MM BTU/hr for the primary burner, and 18 MM BTU/hr for the Afterburner.		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	7,800 hours/year

B. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1. Process Flow Diagram <input checked="" type="checkbox"/> Attached, Document ID: <u> 1 </u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input checked="" type="checkbox"/> Attached, Document ID: <u> 2 </u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input checked="" type="checkbox"/> Attached, Document ID: <u> 3 </u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input checked="" type="checkbox"/> Attached, Document ID: <u> 3 </u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input type="checkbox"/> Not Applicable Unit will be tested when operations are resumed.
6. Procedures for Startup and Shutdown <input checked="" type="checkbox"/> Attached, Document ID: <u> 3 </u> <input type="checkbox"/> Not Applicable
7. Operation and Maintenance Plan <input checked="" type="checkbox"/> Attached, Document ID: <u> 3 </u> <input type="checkbox"/> Not Applicable
8. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

DOCUMENT ID 1

PROCESS FLOW DIAGRAM

DOCUMENT ID 2

FUEL SPECIFICATION

FUEL SPECIFICATION

TPS Technologies Inc. (TPST) currently operates a fixed site soil remediation facility in West Palm Beach, Florida. The West Palm Beach soil remediation unit is similar to the unit being proposed for this permit, and similar stack emissions could be expected. TPST proposes permit language similar to the West Palm Beach facility for fuel specification:

Only LPG, natural gas (NG) or No. 2 fuel oil containing a maximum of 0.5% sulfur (0.35% annual average) shall be used as fuel for the kiln and afterburner. The maximum permitted fuel consumption, equivalent to 37 MMBtu/hr heat input, is 407 GPH LPG, 3,700 CFH NG, or 266 GPH No. 2 fuel oil.

DOCUMENT ID 3

**DESCRIPTION OF CONTROL EQUIPMENT
STACK SAMPLING FACILITIES
PROCEDURES FOR STARTUP AND SHUTDOWN
OPERATIONS AND MAINTENANCE PLAN**

GENERAL PROCESS OVERVIEW

Soil to be processed is brought to the unit and dumped into the SRU Feeder System. The SRU Feeder hopper is shaped such that the dirt falls along the walls of the hopper drum to a live bottom belt conveyor. Once on the belt conveyor, it is conveyed and dropped onto the weigh belt conveyor. The weigh belt weighs the soil and through its instrumentation calculates and totals the amount of soil processed through the unit in tons per hour. After being weighed, it travels into the feed end of the dryer drum. As the drum rotates, the soil is forced to move forward by the angle of the drum with reference to level. The specially designed internal surface of the dryer drum helps move the soil along as it falls through the drum. Hot gases generated by the primary combustion burner travel in the opposite direction of the soil and transfer the heat to the soil. The final discharge temperature of the soil is a function of the retention time in the dryer drum and the effective heat transfer from the primary combustion burner. As the soil comes to the end of the dryer drum, it is pushed into a catch chute leading to a discharge system. The discharge system was designed to accomplish two things; first, to move the cleaned soil out and away from the discharge auger into clean piles, and secondly, to cool the soil to a manageable temperature using water. Soil samples are collected from the clean piles, labeled by date and time, and sent to a State Certified lab for analysis.

The gases generated by the primary combustion burner, including the water vapor, and the petroleum contaminants driven off from the soil, are channeled to the baghouse by a plenum at the feed end of the dryer drum.

An induced draft fan at the clean side of the baghouse provides the negative draft pressure needed to channel the gases and particulate matter up the plenum and into the baghouse. Once in the baghouse, the dust collects on the bags and the hot "cleaned" gases pass through and on to the afterburner chamber. As the dust accumulates on the bags, it is occasionally shaken free with air pulses. The dust falls to the bottom of the baghouse where it is conveyed with augers to the discharge end of the dryer drum and combined with the exiting hot soil. Consequently, there are no byproducts.

The gases, now free of particulate, pass into the afterburner for final combustion. The gas stream is neutralized at a minimum of 1400°F and exit the unit through the exhaust stack.

SRU COMPONENT DESCRIPTION

Baghouse:

The SRU has two (2) flowpaths through the baghouse, one on each side of the dryer drum. They each act as filters for the particulate and dust being entrained in the vapor generated from the hot, contaminated soil. Each baghouse has dimensions of 24 feet long, 9 feet high and 3 feet wide.

When the contaminated soil is heated in the dryer drum, petroleum in the soil is vaporized and mixed with the primary burner's products of combustion. Dust particles become mixed with the gases as the soil is agitated and moisture is driven off. The mixture of dust and vapor is pulled or vacuumed into the baghouse by the negative pressure created from the induced draft fan. Inside the baghouse, the direction of gas flow is such that dust collects on the outside of bags while the vapor passes through the bags and proceeds to the afterburner.

Dust that collects on the bags is shaken off automatically with timed jet pulses of air supplied from an on-board pneumatic system. The system is automatically controlled by two separate electronic circuits (one for each "side" of the baghouse). The dust falls to the bottom of the baghouse where it is collected and moved forward via conveyors to the discharge auger.

Dryer Drum:

The rotary drum, also referred to as the "dryer" is the main component of the SRU because it is the component that processes the contaminated soil.

The drum is approximately 22 feet long with a 5 foot diameter. It is centrally located on the trailer and is supported in four places by rollers, which are hydraulically driven and, in turn, rotate the drum.

The primary combustion burner has direct control of the gas temperature in the drum. Soil temperature is varied with drum tilt, drum rotation and burner output. Soil temperature usually ranges from 600°F to 800°F.

Retention time of soil in the drum can range from 5 - 10 minutes.

Afterburner:

The afterburner and its secondary combustion burner serve as a highly efficient pollution control device. The chamber is cradled between the two baghouses and above the dryer drum. The chamber dimensions are 27 feet long, 4 feet tall and 6 feet wide. The interior is covered with square replaceable ceramic insulation modules. The secondary burner fires into the entrance of the afterburner chamber.

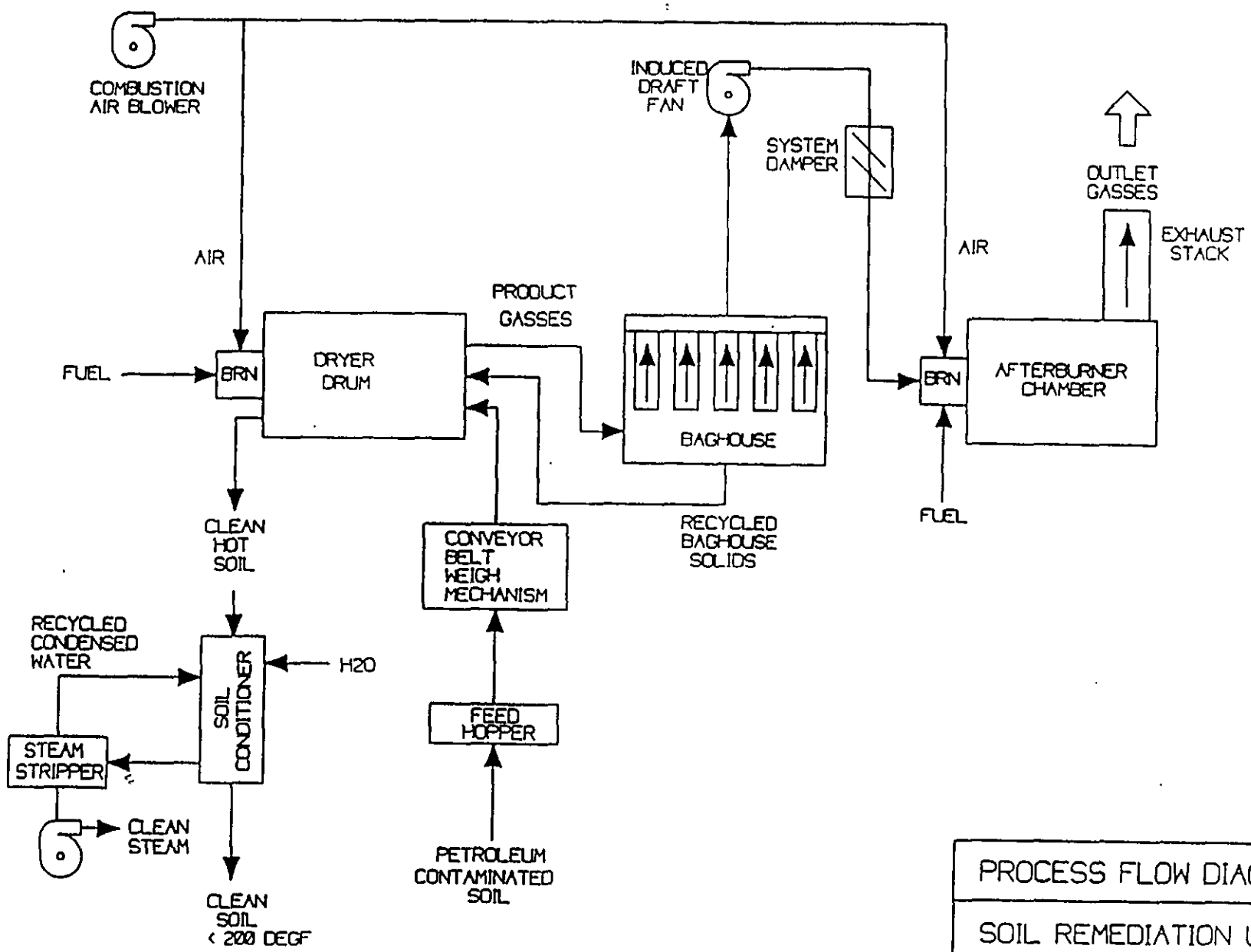
The secondary burner supplies the heat and excess air for the combustion of volatilized petroleum contaminants in the afterburner chamber.

The temperature of the incoming gases from the clean side of the baghouse have little effect on the internal temperature of the afterburner, the primary and direct control of Afterburner temperature is accomplished by varying the input of the fuel and combustion air to the secondary burner.

Inside the afterburner, the petroleum vapors are converted to carbon dioxide and water vapor by maintaining a minimum temperature of 1400°F and a minimum retention time of 0.5 seconds.

Soil Handling

TPS Technologies does not involve itself in the excavation of soil from the ground. We only remediate soil using our thermal process. All excavation and soil preparation is performed by the client or his subcontractor.



PROCESS FLOW DIAGRAM
 SOIL REMEDIATION UNIT
 TPS TECHNOLOGIES INC.
 SRUFLO.DWG 4-94

CONTROLS AND MEASUREMENT DEVICES

Afterburner (AB) and Dryer Drum (DD) Flame:

The dryer drum burner has two ultraviolet flame detectors. The afterburner incorporates one ultraviolet flame detector. These detectors provide a means of monitoring the primary and secondary burner and can detect abnormal operation of the main and pilot burners.

Afterburner (AB) and Dryer Drum (DD) Overtemperature Instrument:

The thermocouple for the AB overtemp instrument is located in the exhaust stack at the end of the AB chamber. The thermocouple for the dryer overtemp is located in the duct leading from the drum to the baghouse. If either of the instruments detect an excessive temperature condition, the "burner interlock" relay will trip off, thereby shutting off the main fuel valves to the respective burner which extinguishes the burner's flame.

Afterburner Temperature Control

This instrument regulates the amount of combustion air supplied to the secondary combustion burner. When an increase in temperature is required, the instrument signals the combustion air control valve to open. A "ratio" regulator provides the correct ratio of fuel-to-air mixture for proper combustion.

The temperature control thermocouple is located in the exhaust stack at the end of the AB chamber.

Flame detection of the afterburner's flame is required. If there is a failure with the ultraviolet detector, the gas supply will automatically shut off.

Drum Temperature Controller:

This instrument regulates the amount of air and fuel to the dryer drum by electrically positioning a control motor which opens and closes both the combustion air and fuel control valves.

The temperature control thermocouple is located in the duct area directly upstream of the baghouse.

Flame detection of the dryer drum flame is required just as in the afterburner above.

Pressure Controller (I.D. Fan)

This instrument controls the amount of desired draft on the dryer drum. Downstream of the I.D. fan and upstream of the AB primary inlet, a damper is modulated to control the amount of gas flow through the drum and baghouse and forced into the afterburner. By controlling this flow, the pressure inside the drum is kept slightly negative. The pressure transducer is located on the breach wall at the discharge end of the dryer drum.

Baghouse Pressure Drop too High:

An indicator will light and an alarm horn will sound if the pressure drop across the baghouse is too high.

Dirt Temperature Alarm Device:

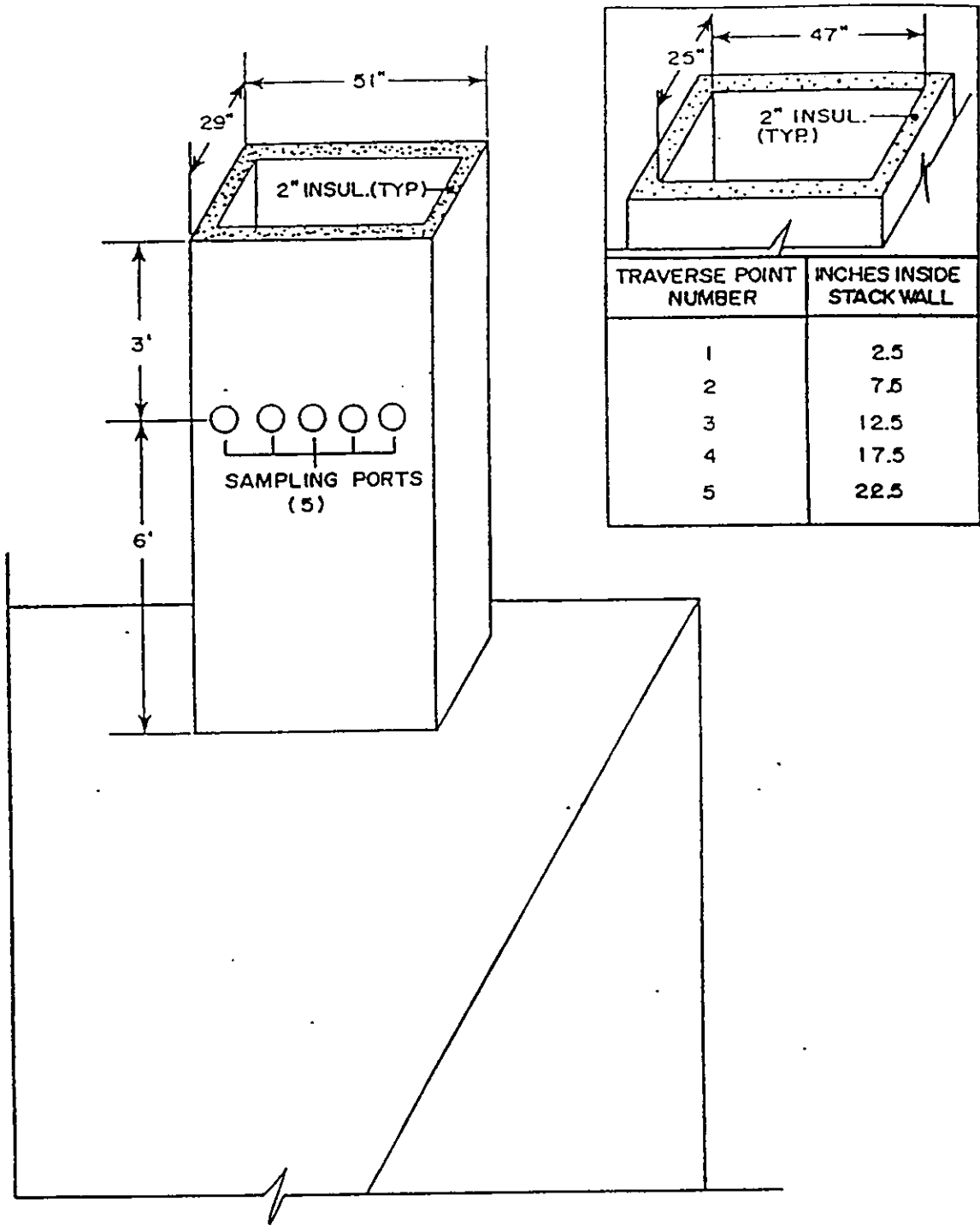
This instrument monitors the temperature of hot, cleaned dirt as it exits the drum. It is located in the collecting chute at the feed end of the discharge auger. The thermocouple sends the temperature to the Honeywell instrument. The instrument is programmed with an acceptable temperature range and will signal an alarm when the dirt temperature is either too high or too low.

Burner System Safety Feature

For safety considerations, the SRU burner systems have been designed to go through a pre-ignition ventilation purge sequence before proceeding to light either the afterburner or the dryer drum burner. In order to start the purge, the following conditions must be met:

- Exhaust Fan and Combustion Blower are on
- Hydraulic Pump is Running
- Exhaust Air Flow is Not Low
- Combustion Air Pressure is Not Low
- Fuel Pressure Not Low or Not High
- Afterburner and Dryer Drum Chambers are Not Over Temperature
- Baghouse Pressure Differential is Normal

Once these parameters are satisfied, the purging of air throughout the entire system begins. This usually takes around three (3) minutes. At the end of the system purge, a light will illuminate stating "purge complete". The afterburner may now be lit and temperature stabilized followed by the dryer drum burner lighting.



**SAMPLING POINT LOCATION
SOIL REMEDIATION UNIT-SRU
TPS TECHNOLOGIES**