

ITEM 6  
MANAGER'S REPORT NO. 15  
COUNCIL MEETING 93/03/08

TO: CITY MANAGER 1993 FEBRUARY 24  
FROM: ACTING CHIEF PUBLIC HEALTH INSPECTOR  
SUBJECT: TICOR TECHNOLOGY LIMITED, 4623 BYRNE ROAD, BURNABY.  
PURPOSE: TO RESPOND TO COUNCIL'S CONCERNS REGARDING APPLICATION  
FILED BY TICOR TECHNOLOGY LIMITED TO THE G.V.R.D. FOR  
AMENDMENT TO THEIR EXISTING AIR EMISSIONS PERMIT  
VA-383.

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RECOMMENDATION:

1. THAT a copy of this report be forwarded to Ms. Lorna Hancock, Executive Director, Health Action Network Society, #202-5262 Rumble Street, Burnaby, B.C. V5J 2B6.

REPORT

1.0 INTRODUCTION

At the regular Council Meeting on 1993 January 04, a report was submitted by the City Manager on the subject issue. Arising from the discussion, Council brought forward various site related questions requiring response from staff.

The following report provides response to Council's concerns regarding the application filed by Ticor Technology Limited to the G.V.R.D. for amendment of their existing G.V.R.D. Air Emissions Permit VA-383.

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2.0 **TICOR'S APPLICATION FOR AMENDMENT TO THE G.V.R.D. AIR EMISSIONS PERMIT VA-383**

In responding to Council's concerns, staff contacted both the G.V.R.D. and the Ministry of Environment, Lands and Parks and were informed as follows:

Containment measures for potential leaks or spills from the site due to the storage of wastes, and the site security pertaining to vandalism and environmental problems are in compliance with the B.C. Special Waste Regulation requirements.

In addition, the B.C. Ministry of Environment, Lands and Parks do require bonding for the storing of such wastes. The Ministry staff have indicated that with their approval of a recent application by Ticor for amendment to their storage permit, there was an increase in bond requirement from \$250,000 to \$313,000 for storing such wastes.

For Council's information, the G.V.R.D. have provided Environmental Health Services staff with their responses to those parties who formally responded to Ticor's application for amendment to their Air Emission Permit VA-383 (see Attachment #1).

Also, on 1993 February 01 a letter was received from the G.V.R.D. (copy under separate cover) advising staff that the above application has been processed. Subsequent to considering comments from interested parties including other factors, the required control measures were determined and an amended Permit has been issued by the Regional District to Ticor Technology Limited. As noted in Attachment #1, interested parties were also informed of the amended permit issuance respectively.

For Council's information, pursuant to the Appeals Section of the G.V.R.D. Air Pollution Bylaw No. 725, any person who considers himself aggrieved by a decision of the Air Quality Director may appeal to the Environmental Appeal Board. The appeal shall be commenced within 21 days after the notice of the decision appealed from is given in a manner required by the B.C. Waste Management Act and in accordance with the practice and procedure defined in the B.C. Environment Management Act.

The deadline for appealing the permit was 1993 February 17. However it is staff's understanding that the chairperson of the Environmental Appeal Board may extend the time for commencing an appeal to the Appeal Board either before or after the time for commencement of the appeal has elapsed.

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Environmental Health Services discussions with the G.V.R.D. staff have revealed that they have not received copies of any appeals to the amended permit (VA-383) approval to date.

### 3.0 CITY OF BURNABY APPROVALS REQUIRED

During the discussion of the previous report at the 1993 January 04 meeting, staff were asked to advise Council of the City procedures and approvals that would be required in connection with the proposed uses if the air emissions permit amendment were granted.

The current operation of Ticor Technology Ltd. at 4623 Byrne Road (M3 Heavy Industrial District zone) is a permitted use under Section 402.1 (10)(d) of the Zoning bylaw, which permits among other things the processing of paints. As part of the processing, an incinerator is used to burn a portion of the paint waste.

Under the proposal advanced by Ticor for the Application for a Permit Amendment under the Waste Management Act, they intend to engage in the thermal destruction and recycling of other materials beside waste paints. Included in the application were "waste inks, resins, oil filter media, fuel filter media, hydrocarbon contaminated soils, and various materials not regulated under the Waste Management Act". The processing of these materials would be capable of approval under various sections of the "Uses Permitted" in the M3 District Schedule, but would be subject to specific evaluation upon application to Planning for a change of use through the Preliminary Plan Approval procedure. This procedure would involve, among other things, circulation of a change of use proposal to the Engineering, Fire and Environmental Health Services Departments, and approval would be subject to satisfaction of the "Conditions of Use" set out in Section 403.2 of the Zoning Bylaw.

Subsequently, arrangements would need to be made through the Licence Office for any necessary adjustments to the business licence, to maintain up-to-date information on the property use classifications and any conditions attached to such use. It would be the responsibility of the business operator to maintain the operation in compliance with the conditions of approval.

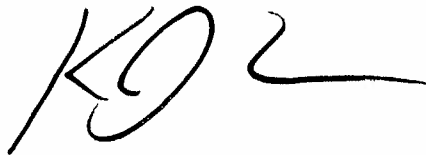
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4.0 CONCLUSION

Environmental Health Services staff have been advised by the G.V.R.D. and the Ministry of Environment, Lands and Parks that the containment measures for spills and the site security requirements against vandalism are in compliance with the B.C. Special Waste regulations. In addition, the Ministry does require bonding for storing wastes such as those at Ticor Technology Limited.

The G.V.R.D., in addition to providing Environmental Health Services with their responses to interested parties who had formally responded to Ticor's application, advised staff that the noted application submitted by Ticor Technology Limited has been approved.

For Council's information, any person who considers himself aggrieved by the decision of the G.V.R.D. Air Quality Director may file an appeal to the Environmental Appeal Board within 21 days after notice of the decision. The deadline for the appeal was 1993 February 17. However, it is staff's understanding that the chairperson of the Environmental Appeal Board may extend the time for commencing an appeal. To date, the G.V.R.D. officials have indicated that they have not received copies of any appeals to their approval of Ticor's Air Emissions Permit VA-383.



K.C. Johnston, C.P.H.I.(C)  
ACTING CHIEF PUBLIC HEALTH INSPECTOR

DD/KCJ/gr.

Attachment

cc: Medical Health Officer  
Director Administrative &  
Community Services  
Director Planning and Building  
Chief Licence Inspector

ATTACHMENT



Greater Vancouver Regional District  
4330 Kingsway, Burnaby, British Columbia, Canada V5H 4G8

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Air Quality and Source Control Department Telephone 604-436-6700 Fax 604-436-6707

January 28, 1993

Health Action Network Society  
#202-5262 Rumble Street  
Burnaby, B.C.  
V5J 2B6

AQ & SC ROUTING

File # File: 632.2.383  
 I.D. # 32540  
 Division \_\_\_\_\_  
 Action Copy \_\_\_\_\_  
 Info. Copy \_\_\_\_\_

Attention: Ms. Lorna Hancock & Ms. Thelma MacAdam

Dear Ms. Hancock & Ms. MacAdam:

On January 4, 1993 you wrote to us concerning an application for a permit amendment by Tigor Technology Limited. Your specific concerns were addressed by way of a letter from Mr. Don Miller of our office dated January 20, 1993. This letter is to advise you that the application has been processed and an amended Permit issued to control the related emissions.

Your comments and other factors were considered in determining the control measures required by this amended Permit.

The amended Permit now includes a limit for dioxins and furans. Also, a number of heavy metal restrictions have been lowered as per the recommendations of a recently completed dispersion modelling report.

The amended Permit authorizes a 20 hour trial burn period for each of the materials nominated in the amendment application (waste inks, fuel filter media, oil filter media, waste paint manufacturing resins, and hydrocarbon contaminated soils). This trial burn period is contingent on the submission of a complete trial burn plan including, but not limited to, thorough analysis of the material to be processed, stack testing protocols, quantity of material to be processed, and dates and times material is to be processed. The trial burn may only proceed after written approval has been received from the Air Quality Director. Any processing of similar materials is prohibited until results of the trial burn have been reviewed and further written approval from the Air Quality Director has been obtained.

If you have any further questions or comments please call Mr. Miller at 436-6890.

Yours truly,

  
 Robert S. Smith  
 Assistant Air Quality Director

RSS/dm



Greater Vancouver Regional District  
4330 Kingsway, Burnaby, British Columbia, Canada V5H 4G8

ITEM	6
MANAGER'S REPORT NO.	15
COUNCIL MEETING	93/03/08

Air Quality and Source Control Department Telephone 604-436-6700 Fax 604-436-6707

January 28, 1993

Society Promoting Environmental Conservation  
2150 Maple Street  
Vancouver, B.C.  
V6J 3T3

Attention: Mr. Dermot Foley

Dear Mr. Foley:

On January 4, 1993 you wrote to us concerning an application for a permit amendment by Ticor Technology Limited. Your specific concerns were addressed by way of a letter from Mr. Don Miller of our office dated January 20, 1993. This letter is to advise you that the application has been processed and an amended Permit issued to control the related emissions.

Your comments and other factors were considered in determining the control measures required by this amended Permit.

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If you have any further questions or comments please call Mr. Miller at 436-6890.

Yours truly,

*Robert S. Smith*  
Robert S. Smith  
Assistant Air Quality Director

RSS/dm

**AQ & SQ ROUTING**

File # 632.2.383  
I.D. # 32539  
Division \_\_\_\_\_  
Action Copy \_\_\_\_\_  
Info. Copy \_\_\_\_\_



Greater Vancouver Regional District  
4330 Kingsway, Burnaby, British Columbia, Canada V5H

ATTACHMENT

ITEM	6
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Air Quality and Source Control Department - Tel (604) 436-6700 Fax (604) 436-6707

January 20, 1993

Health Action Network Society  
#202 - 5262 Rumble Street  
Burnaby, B.C.  
V5J 2B6

**AQ & SC ROUTING**  
 File # File No: 632.2.383  
 I.D. # 32444  
 Division \_\_\_\_\_  
 Action Copy \_\_\_\_\_

Attention: Ms. Lorna Hancock & Ms. Thelma MacAdam

Dear Ms. Hancock & Ms. MacAdam:

Thank you for your letter dated January 4, 1993 regarding Health Action Network's concerns about Ticor Technology Limited. In response to the specific issues raised the following information is provided:

1. A full description of the incinerator, including engineering drawings, have been supplied to the Regional District for review. This was done before the facility first began operation in 1987. These documents are on file at the District's offices and are available for viewing by the public. The materials to be processed are described in general terms in the application due to space considerations. A summary of what is proposed is as follows:

-waste inks are much the same as waste paints, which the company has been successfully processing for over five years. Waste inks typically consist of a solvent such as toluene plus varying amounts of silica, calcium, iron, aluminum, and magnesium, plus smaller concentrations of metals such as titanium, lead, and chromium.

-oil filter media is typically paper or cardboard contaminated with engine or hydraulic oil.

-fuel filter media is usually kaolin clay which will be saturated with the fuel type for which the filter was used. Both oil and fuel filters would likely contain some metals such as iron and chromium.

-waste paint manufacturing resins are considered to be the same as waste paint due to the fact that they are used as ingredients during the production of paint. Their makeup is expected to be the same combination of water or organic solvent and metallic pigments that is found in waste paint.

-hydrocarbon contaminated soils are soils contaminated with a petroleum product as defined in the Waste Management Act, Special Waste Regulation. This would typically mean soils excavated from around leaking underground fuel storage tanks or from accidental fuel spills.

In any event, the company will be required to provide a complete analysis of all proposed feed materials prior to carrying out a trial burn.

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2. The company was required to serve a copy of their application on all businesses and private residences on:

- Byrne Road from Mandeville Avenue to Fraser Park Drive.
- Fraser Park Drive.
- Lowland Drive.
- Mandeville Avenue.
- Tillicum Street.

While it is possible a site may have been missed, at least 50 copies of the application were dispersed throughout the neighbourhood. Not a single written response was received from any of the businesses or residences served.

3. Dispersion modelling carried out by a consultant expert in the field does not predict any adverse environmental or human health effects. This report is available for viewing at the District office.

4. Emissions are monitored continuously for carbon dioxide, carbon monoxide, oxygen and temperature. This monitoring is carried out by the company using their instruments. Stack testing for all parameters listed in Schedule 2 of the Waste Management Act, Special Waste Regulation is required quarterly. Stack testing is normally carried out by an independent consultant although the District also carries out its own testing from time to time. Stack tests carried out by consultants are audited by District personnel.

5. The decision as to whether the changes requested in the company's June 26, 1992 application to amend their emissions Permit are granted rests with the Air Quality Director of the Regional District.

6. District files pertaining to this application are available for viewing by appointment during regular office hours.

If you have any further questions or comments, please call me at 436-6890.

Yours truly,



D.C. Miller,  
Officer,  
Air Quality and Source Control





Greater Vancouver Regional District

4330 Kingsway, Burnaby, British Columbia, Canada V5H 4G

Air Quality and Source Control Department Telephone

General

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**AQ & SC ROUTING**

File # 632 2 383

I.D. # 32445

Division \_\_\_\_\_

Action Copy \_\_\_\_\_

Info. Copy \_\_\_\_\_

January 20, 1993

Society Promoting Environmental Conservation  
2150 Maple Street  
Vancouver, B.C.  
V6J 3T3

Attention: Mr. Dermot Foley

Dear Mr. Foley:

Thank you for your letter of January 4, 1993 regarding the amendment application submitted by Tigor Technology Limited in June, 1992. In response to the specific issues raised in your letter, the following information is provided:

1. The role of the facility would be both as a thermal treatment facility (incinerator) for specific types of special waste and as a recycling facility. For the past five years the facility has been thermally treating and recycling waste paints. The waste paints contain large amounts of metallic oxides (primarily titanium dioxide) which are the main constituents of paint pigments. After thermal treatment the remaining ash is rich in these metallic oxides and the clinker can be crushed, milled and re-used as fillers or pigments in paint.

The amendment application requests that the company be allowed to treat materials other than paint waste. In some cases (such as treatment of hydrocarbon contaminated soils) the treated material will not be recycled in the normal sense, however, the soil could be re-used as fill.

2. Emission Sources 02 and 03 were never commissioned.

3. The company is seeking approval to treat hydrocarbon contaminated soils as defined in the Waste Management Act Special Waste Regulation. This means "soil, sand, gravel, rock or similar naturally occurring material which is only contaminated with a petroleum product including, but not limited to, gasoline, diesel, fuel oil, hydraulic oil and lubricating oil." PCBs have not and will not be authorized as a feed material. An analysis for PCBs is conducted on all incoming feedstocks to ensure their absence.

The origins of the waste feeds are as follows:

- waste paint: autobody shops, paint manufacturers, shipyards, railroads, highways departments, general public.
- waste ink: publishers and graphics services.
- waste paint manufacturing resins: paint manufacturers.

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Jan 25/93

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- oil and fuel filter media: refineries, gas stations, repair shops, railroads, airlines, general public.
- hydrocarbon contaminated soil: excavations around leaking underground storage tanks, fuel spill cleanups, land used for heavy duty mechanical repairs.

The chemical makeup of the waste feeds is as follows:

- waste paint: water or organic solvent (eg. toluene, xylene, methyl ethyl ketone, alcohols) plus an organic or inorganic pigment. Examples of organic pigments are rhodopsin, melanin, and chlorophyll. Examples of inorganic pigments are metallic oxides (iron, titanium, zinc, cobalt, chromium, lead) and metal powder suspensions such as aluminum.
- waste ink: very similar to waste paint.
- waste paint manufacturing resins: typically alkyd and acrylic resins used in the manufacture of paint.
- oil and fuel filter media: oil filters are typically paper or cardboard saturated with lubricating or hydraulic oil. Fuel filters are typically kaolin clay saturated with a fuel (diesel, gasoline, kerosene).
- hydrocarbon contaminated soil: as indicated above.

Halogen content of all feedstocks is restricted to a maximum of 0.5% (5000 ppm). The company has demonstrated through trial burns that the equipment can effectively treat feedstocks with a halogen content up to this level. The average halogen content is much less. Heavy metal oxides (especially titanium dioxide) are the primary ingredients of inorganic paint pigments. Their recovery is the company's main business and their concentration in the feedstocks can range from a few hundred parts per million to several percentages.

"Wastes not regulated under the Waste Management Act" should have read "wastes not regulated under the Waste Management Act Special Waste Regulation." This means materials that are too lightly contaminated to qualify as special waste. Examples are empty paint cans from households, rags or paper contaminated with oil, and sand contaminated with paint chips from the sandblasting of bridges and other structures.

The company has withdrawn its request to use waste solvents as a secondary fuel. If this issue is to be pursued at a later date, another formal application for amendment will be required.

4. The present Permit requires a minimum afterburner temperature of 900° C. Typical operating temperature of the afterburner is 950-1050° C. The CCME document which you refer to is a relatively recent publication which nominates *guidelines* for hazardous waste incinerators. Hazardous waste could mean substances considerably more difficult to destroy than those proposed for the Ticor facility. In any event, extensive stack testing would be required during any test burns and compliance with the Special Waste Regulation Schedule 2 emission standards is imperative. Operation of the facility at the current minimum afterburner temperature has not resulted in any emission compliance problems to date. A review of the minimum afterburner temperature may take place pending the results of proposed trial burns.

The facility is equipped with an afterburning section. Operating temperature is as indicated above and residence time at the maximum permitted flowrate is 2.5 seconds. Calculation methodology is attached.

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The afterburner is equipped with three auxiliary burners of 750,000 BTUs per hour each. The incinerator is equipped with a 3.5 million BTUs per hour primary burner.

The temperature, pressure, and velocity of the exhaust gases at the exit point of the air pollution control equipment are 57° C, 100.4 kPa, and 5.6 m/s respectively. Recent figures for the entrance to the air pollution control equipment are not available.

Particulate emissions are controlled with a cyclone, quench tower, venturi wet scrubber, primary demister and secondary chevron blade scrubber and demister. A baghouse will also be installed by September 1993 to ensure compliance with the more stringent particulate limit specified in the recently amended Special Waste Regulation.

A particle size distribution has not been carried out on this equipment. However, wet scrubbers are effective in removing particulates of all sizes, although the efficiency varies. In any event, the total particulate loading up the stack is less than 20 mg/m<sup>3</sup> of exhaust gases. Presumably a range of particle sizes would be present in the total.

5. The emission limits in the present Permit and in any amended Permit must be at least as stringent as those that appear in Schedule 2 of the Special Waste Regulation. The reference temperatures and pressures are those stated in the Regulation: 11% oxygen and standard conditions of 20° C, 760 mm of mercury and dry basis.

The xylene and toluene limits applied for will not be accepted. The limit for total hydrocarbons specified in the Special Waste Regulation takes precedence.

As noted above, the use of solvents as a fuel is not being pursued at this time.

A limit for dioxins and furans will be included in an amended Permit. The limit will likely be 0.5 ng/m<sup>3</sup>. Also, the Special Waste Regulation specifies a DRE for dioxins and furans of 99.9999%. If waste containing dioxins and/or furans was to be processed, both these standards would have to be met.

Typical sampling time for particulates and other parameters for which an averaging period is not specified in the Special Waste Regulation is approximately two hours.

6. All aspects of the current Special Waste Regulation siting criteria have been met. Ongoing review of the Regulation may result in new siting criteria sometime in the future. The CCME guidelines were published years after the facility opened and are intended for new operations.

7. The company expects to produce about 300 tonnes of ash annually from the treatment of waste paints, inks and resins. This ash, which is rich in titanium dioxide and other metal oxides, is to be recycled into new paint or shipped to a secure and approved landfill in the United States. Treated soils should be eligible for delisting and use as fill material. If not, they will also be shipped to a secure and approved landfill in the United States. The Ministry of Environment, Lands and Parks is responsible for regulating the disposal of solid residues from this facility.

The only liquid discharge is scrubber effluent which is produced at a rate of about 45 litres per minute. This is treated on site to Special Waste Regulation Schedule 1.2 standards and discharged under Permit to the sanitary sewer system.

8. An approved closure plan is a requirement of Tigor's Special Waste Storage Permit issued by the Ministry of Environment, Lands and Parks. Contact the Ministry office in Surrey or the company for a copy.

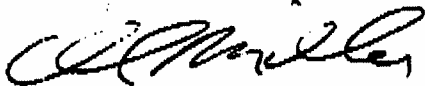
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9. Liability insurance is also a requirement of the Special Waste Storage Permit issued by the Ministry of Environment, Lands and Parks.

10. A bond is also a requirement of the Special Waste Storage Permit issued by the Ministry of Environment, Lands and Parks.

If you have any further questions or comments please call me at 436-6890.

Yours truly,



D.C. Miller, Officer  
Air Quality & Source Control

Attachment

**Afterburner - Residence Time Calculation**

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1 ) Volume of the afterburner

$V_1$ (rectangular)	= $0.62 \times 0.62 \times 3.65$	$V_1 = 1.40 \text{ m}^3$
$V_2$ (rectangular)	= $0.65 \times 0.8 \times 0.68$	$V_2 = 0.35 \text{ m}^3$
$V_3$ (cylinder)	= $\pi \times 0.75^2 \times 2.15$	$V_3 = 3.80 \text{ m}^3$
$V_4$ (cylinder)	= $\pi \times 0.53^2 \times 5.3$	$V_4 = 4.58 \text{ m}^3$

Total volume  $V_1 - V_4 = 10.23 \text{ m}^3$

2 ) Flow rate 40 dscm/min. (20 °C)

3 ) Temperatures

$V_1, V_2, V_3$	-	880 °C	(1 x 0.75 mil. BTU burner)
$V_4$	-	980 °C	(2 x 0.75 mil. BTU burner)

4 ) Flow rate at elevated temperature

$$\frac{P_0 \times F_0}{T_0} = \frac{P \times F}{T}$$

P - pressure (constant)  
 F - flow rate (m<sup>3</sup>/min.)  
 T - temperature (°K)

880 °C

980 °C

$$F_1 = \frac{1153.15}{293.15} \times 40$$

$$F_2 = \frac{1253.15}{293.15} \times 40$$

$$F_1 = 157.35 \text{ m}^3/\text{min.}$$

$$F_2 = 170.99 \text{ m}^3/\text{min.}$$

## 5 ) Residence Time

Afterburner Section 1  $(V_1 + V_2 + V_3)$  880°C

$$T_{R1} = \frac{V_1 + V_2 + V_3}{F_1}$$

$$T_{R1} = \frac{5.55}{157.35}$$

$$T_{R1} = 0.035 \text{ min. or } 2.1 \text{ sec.}$$

Afterburner Section 2  $(V_4)$  980°C

$$T_{R2} = \frac{V_4}{F_2}$$

$$T_{R2} = \frac{4.68}{170.99}$$

$$T_{R2} = 0.027 \text{ min. or } 1.6 \text{ sec.}$$

Total residence time  $T_{R1} + T_{R2} = 3.7 \text{ sec.}$

Residence time at max. permitted flow rate (60 dscm/min.)

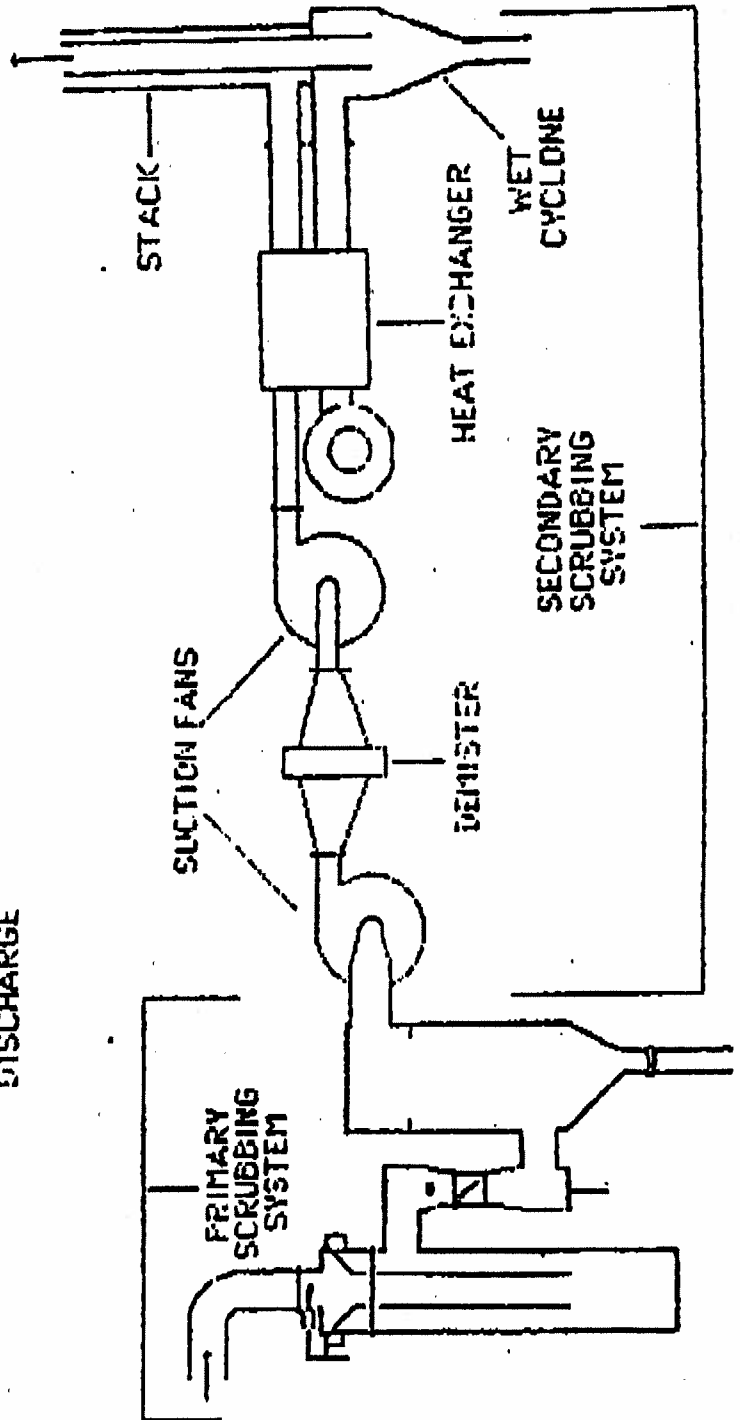
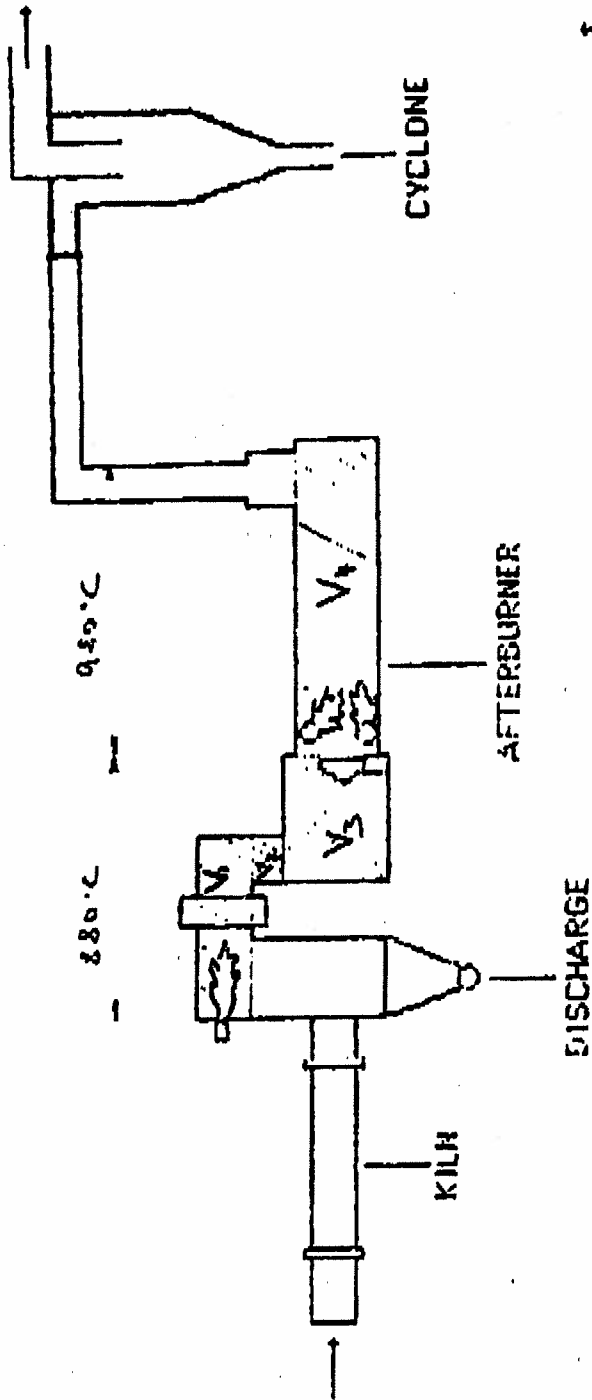
$$T_{R1} = 1.4 \text{ sec.}$$

$$T_{R2} = 1.1 \text{ sec.}$$

$$\text{Total} = 2.5 \text{ sec.}$$

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Flowsteel  
Ticor Thermal Treatment Plan



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