ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM

September 8, 2009

SUBJECT: **Renewal Title V Operating Permit Application**
Pittsburgh Allegheny County Thermal, Ltd.
120 Cecil Way
Pittsburgh, PA 15222

RE: **Operating Permit No. 0044**
Commercial steam generation plant

TO: **Sandra L. Etzel**
Chief Engineer

FROM: **Hafeez A. Ajenifuja.**
Air Quality Engineer

FACILITY DESCRIPTION:

The Pittsburgh Allegheny County Thermal, Ltd., Stanwix Street facility is a commercial steam generation plant located in the city of Pittsburgh, Allegheny County. The facility supplies steam for heating and refrigeration to commercial and institutional sites in that area. The plant is composed of four (4) 150 MMBtu/hr boilers each, with one common stack, which fire natural gas as their primary fuel and have the capacity to fire no. 2 fuel oil in boilers 1 & 4, in lieu of natural gas at times of emergency or natural gas curtailment. The facility also has two (2) above ground #2 fuel oil storage tanks with a capacity of 25,000 gallons each, which have negligible VOCs and HAPs emissions as per US EPA, AP-42, Section 7.1, "Organic Liquid Storage Tanks", 9-97.

The facility will use the two (2) boilers 1 & 4 with #2 fuel oil for a maximum of 500 hours a year, and it is a major source of nitrogen oxides (NO_x) and carbon monoxide emissions (CO), and a minor source of particulate matter (PM), particulate matter < 10 microns in diameter. (PM_{10}), sulfur dioxide (SO_2), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) as defined in section 2101.20 of Article XXI.) The plant is subject to NO_x Reasonable Available Control Technology (NO_x RACT)

A stack test was performed in February 24-27, 2009 on all the four (4) boilers firing both natural gas and No.2 fuel oil. All the four boilers passed the test while firing natural gas, but only boilers 1 & 4 passed the test on all the pollutants while firing fuel oil. Boilers 2 & 3 failed to meet the Particulate Matter emission limit on fuel oil as per the Operating Permit requirement; this is therefore the reason why boilers 2 & 3 are currently not allowed to fire fuel oil. The facility plans to retest #2 and #3 boilers on fuel oil in 2011 which is when the boilers are scheduled to be tested on Natural Gas.

PROCESS DESCRIPTION:

This is a Title V renewal application for Pittsburgh Allegheny County Thermal, Ltd located in the City of Pittsburgh, Allegheny County. The original operating permit was issued on June 26, 2002 and the facility's operations, processes and emissions are still the same as in the original operating permit. The facility's responsible official and contact person's name was change in this renewal permit as requested by the facility because the responsible official and contact person's name in the original permit are no longer with the company.

EMISSION CALCULATION:

Emissions from each of the four (4) boilers and combined emission of all the four (4) boilers firing natural gas are shown below:

Pollutants	Emissions (per boiler)			Combined Emissions	
	Lbs/MMBtu	Lbs/hr	Tons/yr[1]	Lbs/hr	Tons/yr[1]
PM/PM_{10}	0.008	1.20	5.26	4.80	21.02
NO_x	0.22	33	126.5	132.0	506.0
SO_X	0.0006	0.09	0.39	0.36	1.56
CO	0.0823	12.35	54.11	49.4	216.4
VOC	0.0054	0.81	3.54	3.24	14.2

1. A year is defined as any consecutive 12-month period.

Sample Calculation (PM for boiler firing natural gas)

PM: (0.008 lb/MMBRU)*(150 MMBtu/h) = 1.20 lb/hr

(1.20 lbs/hr)* (4 boilers) = 4.80 lbs/hr

(1.20 lb/hr)*(8760 hr/yr)/(2000 lb/ton) = 5.26 tpy

(5.26 tons/yr)* (4 boilers) = 21.04 tpy

Emissions from each of the four (4) boilers and combined emission of all the four (4) boilers firing #2 fuel oil are shown below:

Pollutants	Emissions (per boiler)			Combined Emissions	
	Lbs/MMBtu	Lbs/hr	Tons/yr[c]	Lbs/hr	Tons/yr[c]
PM/PM_{10}	0.015[a]	2.25	0.56	9.0	2.24
NO_x	0.1728[b]	25.92	6.48	103.68	25.92
SO_X	0.5652[b]	84.78	21.20	338.84	84.72
CO	0.0360[b]	5.40	1.35	21.60	5.40
VOC	0.004[b]	0.6	0.15	2.4	0.6

[a]Source: Article XXI §2104.02

[b]Source: US EPA. AP-42, Table 1.3, September 1998. The emission factor unit was in lb/10^3 gal. It was converted to lb/MMBtu by multiplying by heating value

[c] A year is defined as any consecutive 12-month period

Sample Calculation (PM for boiler firing #2 fuel oil)
PM: (0.015 lb/MMBRU)*(150 MMBtu/h) = 2.25 lb/hr
(2.25 lbs/hr)* (4 boilers) = 9.0 lbs/hr
(2.25 lb/hr)*(500 hr/yr)/(2000 lb/ton) = 0.563 tpy

(5.26 tons/yr)* (4 boilers) = 21.04 tpy

RENEWAL OPERATING APPLICATION COMPONENTS:

1. Renewal Permit Application No. 0044 was received on December 29, 2006.

METHOD OF DEMONSTRATING COMPLIANCE:

The facility will demonstrate compliance by complying with the daily recording of fuel type and consumption; maintain fuel certifications from #2 fuel oil suppliers per shipment. Continuous monitoring and recording of flue gas oxygen content and record keeping and recording requirements that include inspection, maintenance and repair data and monthly usage of natural gas and fuel oil. In addition, NOx compliance may be demonstrated by the specified periodic NOx emission tests.

REGULATORY APPLICABILITY:

1. **Article XX1 Requirements for Issuance:**

The requirements of Article XXI, Parts B and C for the issuance of this renewal permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

2. Testing Requirements:

Pursuant to the RACT requirement of §2105.06.b.4.B of Article XXI, the facility will test all four boilers firing natural gas only for NOX emissions every two years (24 consecutive months) according to approved U.S. EPA test methods and Section 2108.02 of Article XXI.

The facility shall also test all four (4) boilers firing fuel oil to demonstrate compliance with the fuel oil NO_X, particulate and SO_2 emissions once every five (5) consecutive years according to approved U.S. EPA test methods and Section 2108.02 of Article XXI.

3. **New Source Performance Standards (NSPS):**

The facility is not subject to NSPS conditions because the boilers no.1 through no.4 were installed in 1982 and 1983, and no modifications or reconstructions have taken place since installation. The applicability date of subpart Db is June 19, 1984; therefore, subpart Db does not apply.

4. **NESHAP and MACT Standards:**

The facility is not subject to any NESHAP requirements

5. **Compliance Assurance Monitoring:**

The Compliance Assurance Monitoring (CAM) rule found in 40 CFR 64 is not applicable to the facility pursuant to §64.2(a)(2), which states "the CAM requirements apply to unit that uses control device to achieve compliance with any such emission limitation or standard". Therefore, since the facility does not have any control device, it is exempt from the CAM requirement.

6. **Reasonable Available Control Technology (RACT)**

The facility is subject to NO_x Reasonable Available Control Technology (NO_x RACT) because it is a major source of NO_x

7. EMISSIONS SUMMARY:

The allowable emission summary for the PACT is given in Table below:

EMISSION SUMMARY

Pollutant	**Annual Emissions (tons/year)**
PM/PM_{10}	**21.04**
NO_X	**506.0**
SO_X	**1.56**
CO	**216.40**
VOC	**14.16**

RECOMMENDATIONS:

All the sources, operations and conditions are still the same as in the original permit. All applicable Federal, State, and County regulations have been addressed in the permit application. I recommend the issuance of the operating permit No. 0044