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BEFORE THE POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

COUNCIL FOR LAND CARE & PLANNING and CITIZENS FOR CLEAN AIR, Appellants, v. SPOKANE COUNTY AIR POLLUTION CONTROL AUTHORITY, and THE CITY OF SPOKANE, Respondents.	PCHB No. 88-23 REVISED FINAL FINDINGS OF FACT CONCLUSIONS OF LAW AND ORDER

Council for Land Care & Planning and Citizens for Clean Air ("Council") filed an appeal contesting the Spokane County Air Pollution Control Authority's March 3, 1988 issuance of an amended Notice to Construct ("permit") to the City of Spokane for an 800-ton-per day solid waste incinerator to be located near the Spokane International Airport, in Washington State. This permit appeal is our PCHB No. 88-23.[1/]

The hearing on the merits was held before the Pollution Control Hearings Board on October 24, 1988 through October 28, 1988, and on November 1, 1988. Present for the Board were: Judith A. Bendor (Presiding), Wick Dufford (Chairman), and Harold S. Zimmerman (Member).

Appellants Council were represented by Attorneys David A. Bricklin and Jean M. Mischel of Bricklin & Gendler (Seattle).

1/ A related appeal, PCHB No. 88-69, Council for Land Care, et al. v. Department of Ecology, was filed and consolidated with this appeal. PCHB No. 88-69 was subsequently dismissed based on the parties' stipulation, following the U.S. Environmental Protection Agency's assertion of jurisdiction over the Prevention of Signification Deterioration permit. Therefore that appeal, related motions filings and a party not currently before us, will not be further addressed in this Order.

Respondent City of Spokane ("City") was represented by Assistant City Attorney Gregory A. Smith and Attorney Thomas H. Wolfendale of Preston, Thorgrimson, Ellis and Holman (Seattle). Spokane County Air Pollution Control Authority was represented by Attorney Stephen C. Miller of Miller and Wainwright (Cheney). Court reporters associated with Gene Barker & Associates recorded the proceedings.

Procedural Background:

A pre-hearing conference had been held on June 27, 1988. As a result a Pre-Hearing Order issued which governed the proceedings, and included a list of legal issues.

On July 1988, respondent City filed a Motion for Summary Judgment and Dismissal. After considering filings and arguments, and prior to the hearing the Board denied the Motion. (This was confirmed by written order January 12, 1989.)

Prior to the hearing briefs were filed. During the hearing, witnesses were sworn and testified. Exhibits were admitted and examined. Counsel made argument.

At the close of appellants' case, all parties agreed that the only remaining legal issues were:

1. Were there violations of WAC 173-434-130(9) as it relates to dioxin/furans and to chloroform?

2. Did the proposed incinerator incorporate "best available control technology" (BACT)?

8. Was there a violation of substantive State Environmental Policy Act ("SEPA") requirements?

14. Is the Board's review de novo, or is its review limited to whether the SCAPCA decision was arbitrary and capricious or clearly contrary to law?

On January 30, 1989, the Board issued Final Findings of Fact, Conclusions of Law and Order in this case. On February 7, 1988, respondent City of Spokane filed a Motion for Reconsideration. On February 16, 1989, respondent Spokane Air Pollution Control Authority filed its reply in support. Appellants Council for Land Care and Planning and Citizens for Clean Air ("Council") filed its reply on February 17, 1989. Council did not oppose respondents' request for clarification of the nitrogen oxides (NO_x) permit limit to: 228 ppmdv7 (3-hour average) and 180 ppmdv7 (annual average). They did oppose changes to the Order's limits on dioxin and furans (as 2378 TCDD) of 4.5 ng/M^3 or the levels emitted as shown in initial monitoring, whichever was less.

Having considered the evidence, records on file and counsel's arguments, the Board issues the following revised Order:

FINDINGS OF FACT

I

Appellants Council for Land Care and Planning and Citizens for Clean Air ("Council") are citizens associations whose members are

aggrieved and have standing to bring this appeal. (Order Denying Summary Judgment.)

II

Respondent Spokane County Air Pollution Control Agency ("SCAPCA") is an activiated air pollution control authority under the terms of the State of Washington Clean Air Act, Chpt. 70.94 RCW. It is empowered to monitor and enforce emission standards for air pollutants and to review and approve new sources of air pollution. SCAPCA has filed copies of its Regulations. The Board takes official notice of the Regulations.

Respondent City of Spokane is a municipal corporation. The City has filed a copy of its Environmental Ordinance. We take official notice of the Ordinance.

III

The proposed 800 ton-per-day incinerator will burn solid wastes collected in Spokane by the City's Department of Solid Waste and private haulers, and outside the City limits by franchised private haulers. These wastes, 282,000 tons in 1986, are currently being disposed in five area landfills. An additional 70,000 tons of waste are being recycled.

Solid wastes generated in the service area are projected to increase to 336,000 tons yearly by the year 2,005. The five landfills currently in operation are projected to reach capacity by the

mid-1990s. The proposed incinerator is designed to reduce the volume of wastes to be landfilled by 70% to 75%, thereby extending the landfills' operational lives by three years. The future solid waste to be landfilled will consist of "nonprocessable wastes" (Finding of Fact V) and incinerator ash residue and bypass.

IV

The incinerator will have two 400-ton capacity boilers. The incinerator will operate 49 weeks per year, 24 hours per day, for a maximum throughput of 274,000 tons. (Three weeks per year are set aside for maintenance.) Approximately 45 to 55 people will operate and maintain the facility. Solid wastes will be received at the facility from 7:00 a.m. to 5:00 p.m.

V

The incinerator facility is estimated to cost from $100 million to $133 million. (The higher figure includes costs for transfer stations as well.)

Trucks will collect the solid waste and combine the wastes at three transfer stations located in the Spokane area. At the incinerator, trucks will first be weighed, after which they will proceed to the receiving area. (Private citizens' wastes will go to a separate area for recycling, weighing and dumping.)

According to the contract between the City and the operator, "unacceptable wastes" are not to be burned. These wastes include hazardous waste (as defined by federal or state statutes and

regulations, e.g. 42 U.S.C. 6901 et. seq., Resource Conservation and Recovery Act; 15 U.S.C. 2601, et. seq., Toxic Substances Control Act, and State definitions of Dangerous or Extremely Hazardous Waste, Chpt. 70-105 RCW and Chpt. 173-303 WAC (as revised from time to time)). Such unacceptable wastes also include explosives, radioactive material, sewage sludge, motor vehicles and their major parts, transformers, and so forth.

The exclusion of unacceptable wastes will be promoted through educational efforts, random inspections of trucks at the transfer stations and at the incinerator, and some degree of observation of the solid waste being dumped at the incinerator itself. Trucks will be checked by a radiation detector. If the device is triggered and the radiation is above specified levels, authorities will be notified. The truck will not be allowed to unload unless and until those authorities grant permission.

Oversize bulky wastes such as refrigerators, large timber ("non-processible wastes") will be removed from the waste stream prior to incineration and sent to landfills. A crane will pick up the remaining solid waste in 2-ton bites, and place it into the refuse hopper for feeding into the combustion chambers.

VI

Recycling.

Spokane area recycling, that is removal of waste prior to incineration followed by re-use, is projected to reach 31% of the

total solid waste generated in the year 2,008. This future recycle rate represents about 130,000 tons yearly. Currently, the Spokane area recycles about 19% of its solid waste, 70,000 tons yearly.

We find that appellants have failed to prove that the level of recycling sought to be achieved in the Spokane area is unreasonable as part of an overall strategy for emission control in connection with municipal waste incineration.

Appellant's evidence in support of higher recycling levels consisted primarily of the experiences/studies of other cities nationally, and those of Seattle and King County in Washington. Such evidence for different locales is not, by itself, probative of what is appropriate in the specific context of the Spokane area.

VII

The wastes that are not recycled or removed will be burned in two 400-ton-per-day capacity dedicated mass-burn incinerators (i.e., ones used exclusively for burning the solid waste). Each unit will be equipped with two natural gas fired auxiliary burners. There will be no prior pre-processing of the waste, such as by shredding, hence the term "mass-burn" incinerator.

During combustion there will be 80% excess air in the combustion zone. Combustion gases will be required to be retained in the combustion zone for a minimum of one second at a minimum temperature of 1800 degrees farenheit. This high temperature is intended to destroy odors and to maximize destruction of organic materials,

thereby lessening emissions of furans and dioxin by destroying precursor compounds. (See Finding of Fact XVI).

VIII

The heat generated will be converted into steam which in turn will be converted into electricity by steam turbine-generator units. Approximately 65% to 70% of the energy contained in the solid waste burned, will be converted into electricity, generating 26 megawatts. Some electricity will be used at the facility, with the majority sold.

IX

The gases produced as a result of the combustion will contain air contaminants ("pollutants"). These gases will travel to the pollution control systems: the acid-gas scrubber ("spray dryers"), and two fabric filters ("baghouses"). The acid gases produced by combustion, including sulfur dioxide (SO_2), hydrogen chloride (HCl), hydrogen fluoride (HF), and sulfuric acid mist, will be controlled by the acid gas scrubbers. Heavier particles in the gases will also be controlled at this stage.

The gases, which have been cooled in the scrubber, will then enter the fabric filter which will remove most of the remaining particulates. (There is also some additional acid gas removal at this stage.) The air pollution control system also will remove trace metals to some degree, including lead, arsenic. These controls also assist in reducing dioxin and furan emissions.

After cooling and removal of air pollutants, the gases will be emitted into the outside air through a 170-foot stack.

X

Emissions Limits:

The first four columns show the permit's air pollutant emissions limitations. The applicant's prediction of the total percent controlled are shown in the last column:

Pollutant	Emission Rate Limitation	Averaging Period	Test Methods	Percent Controlled
PM [Particulate matter]	0.020 gr/dscf @7% O_2	Three 1 hr. tests, hourly average	EPA Methods 1-5 including back half catch excluding sulfates, chlorides and ammonium salts.	95% 99.5%
PM_{10} [10 micron size or less]	0.015 gr/dscf @7% O_2	Three 1 hr. test, hourly average	Washington Dept. of Ecology Method 19.	
SO_2	50 ppmdv @7% O_2 or 80% control	Three 1 hr. tests, hourly average	EPA Methods 1-4A & 6C continuous emission monitor.	70%
HCl	50 ppmdv @7% O_2 or 90% control	Three 1 hr. tests, hourly average	Method subject to approval by the Director. Continuous emission monitor subject to commercial availability.	90%
NO_x	380 ppmdv @7% O_2	3 hr.	EPA Methods 1-4, 7 & 7E	0%
CO	100 ppmdv @7% O_2	8 hr.	EPA Method 1-4 & 10	0%
LEAD	0.001 gr/dscf @7% O_2	Three 1 hr. tests, hourly average	EPA Method 12	95%-96.5%
Fluoride (as HF)	5.4 ppmdv @7% O_2	Three 1 hr. test, hourly average	EPA Method 13B	50%
Opacity	10% Opacity	6 minutes/hr.	Continuous emission monitoring subject to 40 CFR, Part 60, Appendix B, Performance Specification 1.	
	5% Opacity	6 minutes/hr.	Washington Certification Method	
PCDD (as 2,3 7, 8 TCDD)	4.5 ng/NM^3	Three tests 2 hr. minimum	Subject to approval by the Director.	

XI

Emission Monitoring.

The gases to be emitted will be subject to two types of monitoring: initial emission source testing and continuous source testing.

Initial Emission Source Testing:

According to the permit, the owner or operator of the incinerator "shall demonstrate" that the incinerator "is capable of operating in continuing compliance" with emissions limitations, and that emission rates of other listed chemicals element and compounds "are close to the estimated rates" (permit at II.B) Estimated emission rates are those rates specified in the application documents listed in Part I of the permit. The referenced documents include the final Environmental Impact Statement ("EIS") and the Best Available Control Technology Analysis. ("BACT Analysis) Applicants predict the maximum NO_x emissions rates will be 300 ppmdv 7% O_2 annually (381 ppmdv 7% O_2 3-hour basis) for total emissions of 730 tons yearly. (BACT Analysis)

The permit requires that the following pollutants be initially tested for comparison with estimated rates:

Particulate matter (TSP-Total suspended particulates, and PM_{10})
Carbon Monoxide
Hydrogen chloride
Fluorides (as HF)
Nitrogen oxides (as NO_2 - Nitrogen Dioxide)
Sulfur dioxide
Total gaseous nonmethane hydrocarbons

Sulfuric acid mist
Arsenic
Beryllium
Cadmium
Chromium (total)
Chromium (hexavalent)
Lead
Mercury
Nickel
Selenium
Zinc
PCBs [Polychlorinded biphenols]
PAHs [Polyaromatic hydrocarbons]
PCDD/PCDF[1] [PCDD means polychlorinated dibenzo-p-dioxins.]
[PCDF means polychlorinated dibenzo-d-furans.]
[1] Reported as 2,3,7,8
-TCDD toxic equivalent. [tetra-chlorinated dibenzo-dioxin.]
[Parenthesis in the permit.]

The permit requires that a detailed initial testing plan be submitted to SCAPCA for review and approval. The first initial test results are to be filed with SCAPCA within 210 days after the incinerator's start-up. The permit states:

> If the emission rate of any element or compound listed hereinbefore is greater than specified in the application documents listed in Part I, the Director may require that the applicant conduct health effects studies based upon the most current emission data available.

Initial testing for all these pollutants is to continue annually for four years.

XII

Continuous Monitoring.

The following emissions are required to be continuously monitored

during plant operation:

a. Opacity (actual basis)
b. Sulfur dioxide
c. Oxygen
d. Nitrogen Oxides (as NO_2)
e. Hydrochloric acid (when a monitor becomes commercially available).
f. Carbon Monoxide
[parenthesis in the permit.]

The continuous emission monitor recorders are to be placed in locations so as to be frequently observed by plant personnel.

The owner or operator must keep records of all continous emissions monitoring data, and report to SCAPCA by the 30th day of each month following the preceeding month, information as to any excursions (i.e. exceedences) from allowable emission limitations or operating conditions, with an explanation of each excursion.

An operation and maintenance manual for all air pollution control equipment will be developed prior to start-up.

The permit provides for unannounced inspections by local, state, and federal air pollution control agencies.

Ambient air.

XIII

The Spokane area is subject to frequent atmospheric inversions up to a maximum frequency of 83% in the early summer morning hours. Winter inversions occur less frequently, but last longer. Inversions

can significantly diminish dispersion of emitted air pollutants by limiting vertical mixing and concentrating the emissions in a narrower band of air. In the summer mornings, mean vertical mixing heights can be as little as 850 feet above the surface; whereas in the summer afternoons the mixing height can be 8,400 feet.

XIV

National ambient (outside) air quality standards are not alleged to be violated by this plant's operation. Nonetheless, the permit requires the owner or operator to monitor ambient air for a minimum of one year after start-up. SCAPCA will review and approve the ambient monitoring program prior to its implementation.

Emissions

XV

Chloroform.

A wet/dry cooling tower is no longer a part of this proposed incinerator. Rather, an air-cooled condenser will be used. There is no evidence that as so constructed, there will be any emissions of chloroform from the facility.

XVI

Dioxins and Furans.

During the combustion process several chlorinated organic compounds will be formed. Those at issue in this case are polychlorinated dibenzo-p-dioxins ("PCDD" or "dioxins") and

polychlorinated dibenzo-d-furans ("PCDF" or "furans"). Some dioxins and furans are carcinogic, and hence of concern for human health.

The formation of dioxins and furans depends in large measure on incineration conditions and the formation of precursor chemicals. The permit requires that furnace temperatures reach 1800 degree F, and that gases remain at that temperature for at least one second. Under such conditions, precursors to dioxin and furan are largely prevented from forming. In addition, the acid gas scrubber and fabric filters tend to further inhibit dioxin and furan formation, or remove them from the gases.

Nonetheless, dioxins and furans will still be emitted in small quantities into the outside air.

The particular dioxin of greatest concern is called 2378 tetrachlorinated dibenzo-d-dioxin (2378 TCDD), which is a recognized carcinogen. To determine the degree of risk involved, the other forms of dioxin and furans that are emitted are converted mathematically to 2378 TCDD equivalency. 2378 TCDD itself is given the highest rating in terms of health risk among the dioxins and furans.

We find that under all the evidence presented during this proceeding, that the EPA Toxic Equivalent conversion factors used by respondents to convert dioxins and furans into 2378 TCDD, is more

probably than not the correct one, and that that toxic equivalency is a condition of the permit. Hereafter, we will refer to all dioxins and furans collectively as "2378 TCDD".

The permit limits 2378 TCDD equivalent emissions to 4.5ng/NM. Testimony further revealed that this limit is at 7% O_2 using the EPA Toxic Equivalency factors. These were the figures used in the EIS and BACT Analysis.

During the hearing, the City's expert witness testified that 2378 TCDD emissions would likely be only 0.4 ng/NM^3, or one-tenth the permitted level of 4.5ng/NM^3. This predicted emission rate was based on current data from four facilities with comparable air pollution equipment. Based upon this emission rate and EPA Toxicity Equivalency, the expert concluded that emissions would not be injurious to human health or animal life.

We find that appellants have not proven that emissions are likely to be injurious to human health, animal life, or property. However, we also find based on the City's data that the emission rates are likely to be lower than permit levels. The initial testing will reveal what the emissions rates actually are.

XVII

Appellants have not proven that substantial adverse environmental impacts will occur as a result of this project as it is proposed, and as conditioned by SCAPCA's aproval.

NOx

XVIII

As a result of combustion, the Spokane facility will emit oxides of nitrogen (refered to as "NO_x"). NO_x consists in large measure of nitrogen oxide (NO), nitrogen dioxide (NO_2) and nitrogen trioxide (NO_3). The ambient air impact analysis assumed that all NO_x emitted becomes NO_2.

NO_x is a recognized "air contaminant" which the permit requires be both intermittently and continuously monitored.

Ambient Air Quality Standards.

National ambient air quality standards limit NO_2 levels in the background air (on an annual average) to 100 ugm/m^3. The national ambient standards were derived to protect human health. Only one area in the nation currently violates this standard, Los Angeles. Current ambient air quality levels in the Spokane area are 52 ugm/m^3. There is no contention that this facility will cause violation of NO_2 ambient air quality standards.

However, NO_x when combined with sulfur in the outdoor air contributes to the formation of acid deposition. (Acid rain, the popular term, is only one form of acid deposition.) Moreover, under certain meteorological conditions, NO_x can contribute to the formation of smog.

XIX

NO_x is formed during burning when nitrogen combines with oxygen. In the Spokane facility, the source of nitrogen is in the organic solid waste such as yard wastes, and in the air itself.

In the incinerator, burning will occur with considerable surplus air (80%). This increases the formation of NO_x. Typically coal and gas-fueled plants burn with only 10% excess air. Other large power plants operate at 30% or 40% excess air. These lower excess air levels are closer to stoichiametric conditions, or optimal combustion conditions. The Spokane incinerator will operate at the 80% air level due to the solid wastes' uneven quality as a fuel.

XX

After combustion, NO_x emissions created will <u>not</u> be controlled at all by the facility as currently designed. Respondent's City's own evidence concedes that the acid-gas scrubber and fabric bags do not reduce NO_x. To the contrary, the use of excess oxygen during combustion increases NO_x formation.

XXI

New sources of air pollution are required to use all known and available control technology, the best available pollution control technology, to reduce emissions, BACT. This technology-based standard recognizes that it is easier to control emissions from new sources, than it is to require retro-fitting of already existing facilities.

Such controls also provide a greater margin for an area's future growth without unnecessarily jeopardizing the air quality. See, Ellensburg Cement Products, Inc. v. DOE, PCHB Nos. 87-250 and 88-89 (January 17, 1989). The national ambient air quality standards represent the maximum level to be reached while still protecting human health. It is a level that is to avoided, not reached.

XXII

We find that the facility as permitted does not represent all known and available NO_x control technology. Specifically, we find NO_x emissions can be reduced on a consistent basis by 40%.

One method of removing NO_x from flue gases is known as "Thermal de-NO_x", a post-combustion reduction process. It has been used on a commercial scale for over 15 years to reduce NO_x emissions. There are currently over 50 plants nation-wide and 100 world-wide that use Thermal de-NO_x, including boilers at refineries, coke ovens, and power plants.

There are several municipal waste incinerators in California using Thermal de-NO_x: in Commerce, in Stanislas, and in San Marcos. The Commerce facility has been in operation for approximately one year. Tests show NO_x removal rates of 44%. The facility's NO_x emissions are limited to 144 ppm 7% O_2. The San Marcos incinerator's NO_x emissions are limited to 165 ppm 12% CO_2

eight-hour average. The Stanislaus incinerator is limited to 190 ppm 7% O_2 three-hour average and 180 ppm 7% O_2 24-hour average.

Respondents have not provided any persuasive evidence that NO_x removal will adversely affect the incinerator's operation, or cause adverse environmental impacts. Possible ammonia emissions can be limited.

We conclude that the technology is known and available to lower the Spokane incinerator NO_x emissions by 40% to be achieved by emission limits of 228 ppmdv7 (3-hour average) and 180 ppmdv7 (annual average). In so concluding, we are unpersuaded by respondents' contentions that combustion controls represent "all known and available" controls. The key question is: how much of the NO_x produced as a result of combustion is in fact controlled and removed before the gases are emitted into the air. In such formulation, good combustion design and operation is not the end point for examining technology for the control of emissions.

XXIII

Costs.

There are additional capital costs for removing Spokane incinerator NO_x emissions. These are estimated to be $1.7 million, representing a 1.3% to 1.7% increase over the facility's total projected capital cost of $100 million to $133 million. The NO_x capital costs include additional piping, air compressor(s), ammonia storage and so forth. To provide perspective, this NO_x capital cost

increase is equal to the facility's inflation cost increase during a nine-month period in 1988.

Additional labor costs are estimated to be 3/10s of a person over the projected staffing levels of 45 to 55 people. This represents less than a one percent increase in labor. It is estimated additional de-NO_x annual operating costs are projected to be $387,000.

There has been no evidence presented by respondents demonstrating that costs for NO_x removal are a significant economic burden.

XXIV

All known and available removal technology (BACT) will result in 340 tons less NO_x emitted annually into the air, a 40% reduction from the 850 tons allowed in the permit. We conclude that removal of 40%, leaving maximum total NO_x emissions of 510 tons per year is reasonable, both technically and economically. This can be achieved by meeting emission standards of 228 ppmdv7 (3 hours average) and 180 ppmdv7 (annual average).

XXV

Any Conclusion of Law hereinafter determined to be a Finding of Fact is hereby adopted as such.

From these Facts, the Board comes to these:

CONCLUSIONS OF LAW

I

The Board has jurisdiction over these parties and these issues. Chpt. 43.21B RCW. RCW 70.94.025.

II

The hearing is de novo, wherein the Board hears live testimony and receives documentary evidence and decides the case on the merits. (Order Denying Summary Judgment) Appellants have the burden to show that more probably than not, the proposed incinerator violates the Washington Clean Air Act, Chpt. 70.94 RCW, or implementing regulations, or the State Environmental Policy Act.

III

The Washington Clean Air Act authorizes the Notice of Construction process at RCW 70.94.152. That section states that a proposed air contaminant source, in order to be issued a Notice of Construction, has to

> (. . .) be in accord with applicable rules and regulations in force pursuant to this chapter and will provide all known available and reasonable methods of emission control. (. . .) RCW 70.90.152(1)

SCAPCA has parallel provisions at Regulation I, Article V, Sections 5.01A and 5.04(B)(2).

IV

Under the Clean Air Act a new source of air contamination has to meet both emissions standards and the requirement for installing all known available and reasonable controls (i.e. advanced technology). Satisfying the emissions standards limits does not necessarily also satisfy the technology standard. See, Weyerhaeuser v. Southwest Air Pollution Control Authority, 91 Wn.2d 77 (1978); Universal Mechanical Contractors, Inc., et al. v. Puget Sound Air Pollution Control Agency,

PCHB No. 87-56 (August 24, 1987); Gordon Souvenir v. Olympia Air Pollution Control Authority, PCHB No. 88-38 (January 10, 1989); Ellensburg Cement, supra. More controls may be necessary, depending on a case by case analysis of the proposed new source to determine what is "all known available and reasonable" in that instance.

V

The emissions standards for solid waste incinerators are to be found at WAC 173-434-130. Among the emissions at issue in this case are emissions of dioxin/furans and chloroform. There is no numerical emission standard for these contaminants. They are, however, subject to the general limitation imposed by WAC 173-434-130(9) which states that:

> No incinerator owner or operator shall cause or permit air contaminants or water droplets including an air contaminant whose emissions are not otherwise prohibited by this chapter, in such quantities or of such characteristics or duration as is, or is likely to be, injurious to human health, plant or animal life or property, or which unreasonably interferes with use or enjoyment of property, or may cause a public safety hazard.

VI

All known available and reasonable methods of control per RCW 70.94.152 is interpreted by the State of Washington Department of Ecology at WAC 173-403-030(8) to mean "best available control technology" or BACT. BACT is defined in relevant part as:

> (. . .) technology which will result in an emission limitation (including a visible emissions standard) based on the maximum degree of reduction for each air

> pollutant subject to this regulation which would be emitted from any proposed new or modified source which the permitting authority, on a case by case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such sources or modification through application of production processes, available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such air pollutant. (. . .) [Emphasis added.]

For solid waste incinerators, the State has further clarified the BACT requirements at WAC 173-434-100. In particular:

> (1) No incinerator facility shall cause or permit air contaminant emissions in excess of the limits described in this section, as modified by chapter 173-403 WAC if applicable. Further, all solid waste incinerator facilities than are required to file a notice of construction are required to use best available control technology (BACT) as defined at the time of construction which may be determined for some facilities to be more stringent than the emissions limitations of this chapter and may include fuel cleaning or separation.
>
> (2) Whenever more than one regulation applies to the control of air contaminants from a solid waste incineration facility the more stringent regulation, control, or emission limit shall govern. [Emphasis added.]

We conclude that the all known technology requirements (RCW 70.94.152, and SCAPCA Regulation I, Article V at Section 5.04(B)(2)), and the State definition of BACT (WAC 173-403-030(8) and WAC 173-434-100) mean the same thing in the context of this case.

VII

We conclude that the State definition of BACT includes the concept of recycling as one available method, system or technique to reduce air pollution through fuel cleaning or separation. Whether the

recycling level proposed is in fact BACT in any particular situation, is determined on a case-by-case and pollutant-by-pollutant basis, as is true for any BACT analysis.

VIII

Respondent City contends, without citation to legal authority, that State BACT and Federal BACT are the same.

It is clear that when comparing the two, Federal BACT serves as a minimum requirement, a "floor", as the State definition clearly provides:

> In no event shall application of the best available control technology result in emissions of any air pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Part 60 and Part 61. WAC 173-403-030(8).

State BACT requires at least as much pollution reduction as the federal emissions limits and federal BACT. One may look to federal law to determine what that minimum floor is.

IX

The Pollution Control Hearings Board has concluded in another incinerator case involving BACT:

> The technology that is required is one that is "known", and "available", as opposed to newly developed by the applicant. Weyerhaeuser, supra, at 81-82. It also has to be a "reasonable"; i.e., economically and technologically feasible. Id. The mere fact that a system might cost more to install and operate does not mean under the law that it is not

economically feasible. Id., at 85. Universal Mechanical, supra, at 15.[2]

To come within BACT, the technology cannot be experimental, newly developed by applicant. On the other hand, the standard is geared to enducing new technological applications. The technology need not be widely used in the specific sub-industry in order for it to be BACT.

X

We have found that appellants have not proven that there will be any emissions of chloroform. (Finding of Fact XV). Therefore, no violation WAC 173-434-130(9) has been shown as to this contaminant.

XI

We conclude that appellants have not proven in this case that emissions of dioxin and furans will violate WAC 173-434-130(9). (Finding of Fact XVI). In so concluding, we have found that the proper equivalency method is the EPA 2378 TCDD Toxic Equivalency. Nonetheless, emissions may well be below permitted levels. Therefore, we conclude that proper emissions rates are 4.5 ng/NM^3 or the levels emitted as shown in the first two years of initial monitoring, whichever is less. In so concluding, we observe that SCAPCA has review and approval authority over the testing plan, and can require that the testing be done in a manner to demonstrate that the results can be consistently reached.

2/ The incinerator at issue in University Mechanical had a 1,200 pounds-per-hour capacity. If operated 24 hours per day, this would equal about 14 tons daily.

XII

We conclude that the substantive requirements of the State Environmental Policy Act ("SEPA"), Chpt. 43.21B RCW, has not been violated. (Finding of Fact XVII). We were not convinced that the facility proposed would violate any environmental policy enunciated by specific ordinance or regulation so as to require its denial by SCAPCA. RCW 43.21C.060; See, Polygon Corp. v. City of Seattle, 90 Wn.2d 598 (1978); Cougar Mountain Associates v. King County, 111 Wn.2d 742 (1988).

XIII

We conclude that lowering NO_x emissions by 40% can be done through "all known available and reasonable" controls, BACT. (Finding of Fact XXIV). Therefore, to the extent the permit does not require the incinerator to do so, the permit is in violation of Chpt. 70.94 RCW, WAC 173-403-030(8), WAC 173-434-100, and SCAPCA Regulation I, Article V, Sections 5.01(A) and 5.04(B)(2).

XIV

Any Finding of Fact deemed to a Conclusion of Law is hereby adopted as such. From these Conclusions of Law, the Board enters this

ORDER

THEREFORE, it is ordered that the Notice to Construct is AFFIRMED, EXCEPT that dioxin and furan emissions as 2378 TCDD are limited to the lesser of 4.5 ng/NM^3 or the rate emitted as revealed by the first two years of initial monitoring, and that NO_x emissions (as NO_2) are to be reduced by 40% to 228 ppmdv7 (3-hour average), 180 ppmdv7 (annual average). The permit is REMANDED for revision and reissuance in conformance with this Order.

DONE this 23rd day of February, 1989.

POLLUTION CONTROL HEARINGS BOARD

JUDITH A. BENDOR, Presiding

WICK DUFFORD, Chairman

HAROLD S. ZIMMERMAN, Member