

REPUBLIC OF THE PHILIPPINES
HOUSE OF REPRESENTATIVES
Quezon City

SEVENTEENTH CONGRESS
Second Regular Session

House Bill No. **7099**



Introduced by **MAGDALO Party-List Representative**
HON. GARY C. ALEJANO

EXPLANATORY NOTE

Waste management has become a significant issue and has posed serious problems in the country. Evidently, we need an approach that can deal with the worsening problem of waste disposal, which at the same time, can also contribute to the conservation of the environment. This does not only mean that waste must be properly disposed of; but this also requires that waste should be disposed of in a manner such that it would not become a significant environmental burden.

Existing technology permits the incineration of waste as a mode of waste disposal while at the same time, generating much needed electric power. Although there are serious environmental concerns about incineration, advances in emission control designs, along with strict standards and monitoring system, have caused large reduction of pollution in the atmosphere. In Japan, concerns over the health effects of Dioxin and furan emissions from incinerators have been proven to be significantly lessened by advances in emission control designs and very stringent new governmental regulations that have resulted in large reductions in the amount of dioxins and furans emissions.

Incineration reduces the volume of waste very effectively and destroys disease-causing bacteria. This is suitable for use in the country since it is difficult to secure final disposal sites due to our becoming limited land space. It is estimated that when incinerated, waste shall be reduced to approximately one-tenth of its weight and one-twentieth of its volume. More importantly, incinerators can be used for generating electricity or to provide energy in other forms such as generating steam for heating. Such a use is known as waste-to-energy (WTE) or energy recovery.

This bill aims to amend Republic Act No. 8749, otherwise known as the "Clean Air Act of 1999", by repealing the original Section 20 thereof and revising the same to take advantage, promote and/or permit the use of recent advances in waste-to-energy (WTE) technology. Through incineration, the most common waste-to-energy implementation, this bill intends to promote WTE technology.

This technology provides for the safe disposal of waste without harmful emissions to the atmosphere, and at the same time, offers maximum benefits from the recovery of the valuable contents of the wastes from our cities.

In view of the foregoing, the immediate approval of this bill is earnestly sought.


GARY C. ALEJANO
Representative
Magdalo Para sa Pilipino Party-List

REPUBLIC OF THE PHILIPPINES
HOUSE OF REPRESENTATIVES
Quezon City

SEVENTEENTH CONGRESS
Second Regular Session

House Bill No. **7099**

Introduced by **MAGDALO Party-List Representative**
HON. GARY C. ALEJANO

AN ACT
PROMOTING AND PERMITTING THE USE OF WASTE-TO-ENERGY
TECHNOLOGY, AMENDING FOR THIS PURPOSE REPUBLIC ACT NUMBERED
8749, OTHERWISE KNOWN AS THE CLEAN AIR ACT OF 1999

*Be it enacted by the Senate and the House of Representatives of the Philippines in
Congress assembled:*

SECTION 1. Definition of Terms. - Section 5 of Republic Act No. 8749, otherwise
known as "The Clean Air Act of 1999", and herein referred to as the Act, is amended to read as
follows:

"SEC. 5. Definitions. - As used in this Act:

- A. "*Air pollutant*" means any matter found in the atmosphere other than oxygen,
nitrogen, water vapor, carbon dioxide, and the inert gases in their natural or
normal concentrations, that is detrimental to health or the environment,
which includes, but not limited to smoke, dust, soot, cinders, fly ash, solid
particles of any kind, gases, fumes, chemical mists, steam and radioactive
substances;
- B. "*Air pollution*" means any alteration of the physical, chemical and biological
properties of the atmospheric air, or any discharge thereto of any liquid,
gaseous or solid substances that will, or is likely to, create or to render the air
resources of the country harmful, detrimental, or injurious to public health,
safety or welfare or which will adversely affect their utilization for domestic,
commercial, industrial, agricultural, recreational, or other legitimate
purposes;
- C. "*Ambient air quality guideline values*" means the concentration of air over
specified periods classified as short-term and long-term which are intended to
serve as goals or objectives for the protection of health and/or public welfare.
These values shall be used for air quality management purposes such as
determining time trends, evaluating stages of deterioration or enhancement of
the air quality, and in general, used as basis for taking positive action in
preventing, controlling, or abating air pollution;
- D. "*Ambient air quality*" means the general amount of pollution present in a
broad area; and refers to the atmosphere's average purity as distinguished
from discharge measurements taken at the source of pollution;

- 1 E. *"Certificate of Conformity"* means a certificate issued by the Department of
2 Environment and Natural Resources to a vehicle manufacturer/ assembler or
3 importer certifying that a particular new vehicle or vehicle type meets the
4 requirements provided under this Act and its rules and regulations;
5
6 F. *"Department"* means the Department of Environment and Natural Resources;
7
8 G. *"Eco-profile"* means the geographic-based instrument for planners and
9 decision makers which present an evaluation of the environment quality and
10 carrying capacity of an area. It is the result of the integration of primary data
11 and information on natural resources and antropogenic activities on the land
12 which were evaluated by various environmental risk assessment and
13 forecasting methodologies that enable the Department to anticipate the type
14 of development control necessary in the planning area;
15
16 H. *"Emission"* means any air contaminant, pollutant, gas stream or unwanted
17 sound from a known source which is passed into the atmosphere;
18
19 I. *"Greenhouse gases"* means those gases that can potentially or can reasonably
20 be expected to induce global warming, which include carbon dioxide, oxides
21 of nitrogen, chloroflourocarbons, and the like;
22
23 J. *"Hazardous substances"* means those substances which present either: (1)
24 short-term acute hazards such as acute toxicity by ingestion, inhalation, or
25 skin absorption, corrosivity or other skin or eye contact hazard or the risk of
26 fire explosion; or (2) long-term toxicity upon repeated exposure,
27 carcinogenicity (which in some cases result in acute exposure but with a long
28 latent period), resistance to detoxification process such as biodegradation, the
29 potential to pollute underground or surface waters;
30
31 K. *"Infectious waste"* means that portion of medical waste that could transmit an
32 infectious disease;
33
34 L. *"Medical waste"* means the materials generated as a result of patient
35 diagnosis, treatment, or immunization of human beings or animals;
36
37 M. *"Mobile source"* means any vehicle propelled by or through combustion of
38 carbon-based or other fuel, constructed and operated principally for the
39 conveyance of persons or the transportation of property goods;
40
41 N. *"Motor vehicle"* means any vehicle propelled by a gasoline or diesel engine
42 or by any means other than human or animal power, constructed and
43 operated principally for the conveyance of persons or the transportation of
44 property or goods in a public highway or street open to public use;
45
46 O. *"Municipal waste"* means the waste materials generated from communities
47 within a specific locality;
48
49 P. *"New vehicle"* means a vehicle constructed entirely from new parts that has
50 never been sold or registered with the DOTC or with the appropriate agency
51 or authority, and operated on the highways of the Philippines, any foreign
52 state or country;
53
54 Q. *"Octane Rating or the Anti-Knock Index (AKI)"* means the rating of the
55 antiknock characteristics of a grade or type of automotive gasoline as
56 determined by dividing by two (2) the sum of the Research Octane Number
57 (RON), plus the Motor Octane Number (MON); the octane requirement, with

1 respect to automotive gasoline for use in a motor vehicle or a class thereof,
2 whether imported, manufactured, or assembled by a manufacturer, shall refer
3 to the minimum octane rating of such automotive gasoline which such
4 manufacturer recommends for the efficient operation of such motor vehicle,
5 or a substantial portion of such class, without knocking;
6

7 R. *"Ozone Depleting Substances (ODS)"* means those substances that
8 significantly deplete or otherwise modify the ozone layer in a manner that is
9 likely to result in adverse effects of human health and the environment such
10 as, but not limited to, chloroflourocarbons, halons and the like;
11

12 S. *"Persistent Organic Pollutants (POPs)"* means the organic compounds that
13 persist in the environment, bioaccumulate through the food web, and pose a
14 risk of causing adverse effects to human health and the environment. These
15 compounds resist photolytic, chemical and biological degradation, which
16 shall include but not be limited to dioxin, furan, Polychlorinated Biphenyls
17 (PCBs), organochlorine pesticides, such as aldrin, dieldrin, DDT,
18 hexachlorobenzene, lindane, toxaphere and chlordane;
19

20 T. *"Poisonous and toxic fumes"* means any emissions and fumes which are
21 beyond internationally - accepted standards, including but not limited to the
22 World Health Organization (WHO) guideline values;
23

24 U. *"Pollution control device"* means any device or apparatus used to prevent,
25 control or abate the pollution of air caused by emissions from identified
26 pollution sources at levels within the air pollution control standards
27 established by the Department;
28

29 V. *"Pollution control technology"* means the pollution control devices,
30 production process, fuel combustion processes or other means that effectively
31 prevent or reduce emissions or effluent;
32

33
34 W. *"Standard of performance"* means a standard for emissions of air pollutant
35 which reflects the degree of emission limitation achievable through the
36 application of the best system of emission reduction, taking into account the
37 cost of achieving such reduction and any non-air quality health and
38 environmental impact and energy requirement which the Department
39 determines, and adequately demonstrates; and
40

41 X. *"Stationary source"* means any building or immobile structure, facility or
42 installation which emits or may emit any air pollutant;
43

44 **Y. BIOCHEMICAL PROCESS - CONSISTS OF ANAEROBIC**
45 **DIGESTION, HYDROLYSIS, AND FERMENTATION USING**
46 **ENZYMES THAT PRODUCE LOW HEAT IN SLOW REACTION**
47 **TIMES;**
48

49 **Z. BOILER - A CLOSED VESSEL IN WHICH WATER OR OTHER**
50 **FLUID IS HEATED. THE HEATED OR VAPORIZED FLUID EXITS**
51 **THE BOILER FOR USE IN VARIOUS PROCESSES OR HEATING**
52 **APPLICATIONS;**
53

54 **AA. BOTTOM ASH - ONE OF THE RESIDUES GENERATED IN THE**
55 **COMBUSTION OF COAL, GENERALLY-CAPTURED FROM THE**
56 **BOTTOM OF THE FURNACE;**
57

- 1 **BB. BUBBLING FLUIDIZED-BED - A COMBUSTION TECHNOLOGY**
2 **USED TO SUSPEND SOLID FUELS ON UPWARD-BLOWING JETS**
3 **OF AIR DURING THE COMBUSTION PROCESS. THE RESULT IS**
4 **A TURBULENT MIXING OF GAS AND SOLIDS. THE TUMBLING**
5 **ACTION, MUCH LIKE A BUBBLING FLUID, PROVIDES MORE**
6 **EFFECTIVE CHEMICAL REACTIONS AND HEAT TRANSFER;**
7
- 8 **CC. CAUSTIC SODA - USED TO DRIVE CHEMICAL REACTIONS**
9 **AND ALSO FOR THE NEUTRALIZATION OF ACIDIC**
10 **MATERIALS;**
11
- 12 **DD. ECONOMIZER - MECHANICAL DEVICES INTENDED TO**
13 **REDUCE ENERGY CONSUMPTION, OR TO PERFORM ANOTHER**
14 **USEFUL FUNCTION LIKE PREHEATING A FLUID;**
15
- 16 **EE. FABRIC FILTER BAGHOUSE - FABRIC COLLECTORS USE**
17 **FILTRATION TO SEPARATE DUST PARTICULATES FROM**
18 **DUSTY GASES;**
19
- 20 **FF.FLUE GAS - GAS THAT EXITS TO THE ATMOSPHERE VIA A**
21 **FLUE, WHICH IS A PIPE OR CHANNEL FOR CONVEYING**
22 **EXHAUST GASES FROM A FIREPLACE, OVEN, FURNACE,**
23 **BOILER OR STEAM GENERATOR;**
24
- 25 **GG. FLY ASH - ONE OF THE RESIDUES GENERATED IN THE**
26 **COMBUSTION OF COAL. FLY ASH IS GENERALLY CAPTURED**
27 **FROM THE CHIMNEYS OF COAL-FIRED POWER PLANTS;**
28
- 29 **HH. GASIFICATION AND MELTING FURNACE - A FACILITY THAT**
30 **THERMALLY DECOMPOSES WASTE INTO GAS AND CARBIDE**
31 **IN A GASIFICATION FURNACE AND BURNS THESE IN A**
32 **MELTING FURNACE TO CONVERT THEM INTO WASTE GAS**
33 **AND SLAG;**
34
- 35 **II. PARTICULATE MATTER - REFERS TO THE GENERIC TERM**
36 **USED FOR A TYPE OF AIR POLLUTION THAT CONSISTS OF**
37 **COMPLEX AND VARYING MIXTURES OF PARTICLES**
38 **SUSPENDED IN THE AIR;**
39
- 40 **JJ. ROTARY FURNACE TYPE INCINERATORS (ROTARY KILNS) - A**
41 **HORIZONTAL CYLINDRICAL INCINERATOR, THE INNER**
42 **SURFACE OF WHICH IS COVERED WITH REFRACTORY**
43 **MATERIAL THAT IS ROTATED AND WHERE WASTE IS DRIED**
44 **AND BURNT;**
45
- 46 **KK. SELECTIVE CATALYTIC REDUCTION - CATALYTIC**
47 **OXIDATION USING METAL OXIDE CATALYSTS THAT ARE**
48 **PRESENTLY COMMONLY USED FOR REDUCING NO_x**
49 **EMISSIONS;**
50
- 51 **LL. SLAG - THE BY-PRODUCT OF SMELTING ORE TO PURIFY**
52 **METALS;**
53
- 54 **MM. SMELTING - A CHEMICAL REDUCTION USED TO PRODUCE A**
55 **METAL FROM ITS ORE;**
56

1 **NN. SUPERHEATER - A DEVICE THAT HEATS THE STEAM**
2 **GENERATED BY THE BOILER, INCREASING ITS THERMAL**
3 **ENERGY AND DECREASING THE LIKELIHOOD THAT IT WILL**
4 **CONDENSE INSIDE AN ENGINE;**

5
6 **OO. THERMOCHEMICAL TECHNIQUE - CONSISTS OF**
7 **COMBUSTION, GASIFICATION, AND PYROLYSIS THAT**
8 **PRODUCE HIGH HEAT IN FAST REACTION TIMES;**

9
10 **PP.WASTE-TO-ENERGY TECHNOLOGY - REFERS TO:**

11
12 **a. TECHNOLOGY THAT INVOLVES THE CONVERSION OF**
13 **VARIOUS ELEMENTS OF MUNICIPAL SOLID WASTE**
14 **SUCH AS PAPER, PLASTICS, AND WOOD TO GENERATE**
15 **ENERGY BY EITHER THERMOCHEMICAL OR**
16 **BIOCHEMICAL PROCESSES;**

17
18 **b. ANY WASTE TREATMENT THAT IS ABLE TO PRODUCE**
19 **ENERGY FROM A WASTE;**

20
21 **c. TECHNOLOGY WHICH REDUCES OR ELIMINATES**
22 **WASTE THAT OTHERWISE WOULD BE TRANSFERRED**
23 **TO A GREENHOUSE GAS;**

24
25 **QQ. WASTE TREATMENT - ACTIVITIES WHICH SEEK TO ENSURE**
26 **(NECESSITATE) THAT WASTE HAS THE LEAST PRACTICABLE**
27 **IMPACT ON THE ENVIRONMENT."**

28
29 **SEC. 2.** Section 15 of The Act is hereby amended to read as follows:

30
31 "SEC. 15. Air Pollution Research and Development Program.- The Department,
32 in coordination with the Department of Science and Technology (DOST), other agencies,
33 the private sector, the academe, NGO's and PO's, shall establish a National Research and
34 Development Program for the prevention [and], control of air pollution **AS WELL AS**
35 **WASTE-TO-ENERGY TECHNOLOGY UTILIZATION.** The Department shall give
36 special emphasis to research on and the development of improved methods having
37 industry-wide application for the prevention [and], control of air pollution **AND**
38 **WASTE-TO-ENERGY TECHNOLOGY UTILIZATION.**

39
40 Such a research and development program shall develop air quality guideline
41 values and standards in addition to internationally-accepted standards of maintaining
42 environmentally-sound practices in waste treatment. It shall also consider the socio-
43 cultural, political and economic implications of air quality management [and], pollution
44 control **AND WASTE-TO-ENERGY TECHNOLOGY UTILIZATION."**

45
46 **SEC. 3.** Section 15 of The Act is hereby further amended by adding a sub-section to read
47 as follows:

48
49 **SEC. 15-A. WASTE-TO-ENERGY TECHNOLOGY. - PURSUANT TO**
50 **SECTION 15 OF THIS ACT, WASTE-TO-ENERGY TECHNOLOGY IS**
51 **HEREBY PROMOTED WITH THE FOLLOWING OBJECTIVES:**

52
53 **A. REDUCE THE VOLUME OF ORIGINAL WASTE AND AT THE SAME**
54 **TIME PRODUCE ENERGY FROM THE SAME;**

55
56 **B. CONDUCT WASTE STREAM ANALYSIS THAT AVOIDS A SITUATION**
57 **WHERE ASH BECOMES HAZARDOUS WASTE;**

- 1
2 C. TREAT ALL TYPES OF WASTE, INCLUDING HAZARDOUS AND
3 TOXIC MATERIALS, WITHOUT LEAVING BEHIND WASTE
4 RESIDUES AND HARMFUL EMISSIONS TO THE ATMOSPHERE;
5
6 D. RECOVER ALL VALUABLE CONTENTS OF WASTES AT HIGHLY
7 ECONOMIC CONDITIONS;
8
9 E. RECYCLE VALUABLE MATERIALS AND RECOVER MORE ENERGY;
10
11 F. CONTINUOUSLY PROMOTE DEVELOPED TECHNOLOGY THAT
12 PRODUCES NO HARMFUL EMISSIONS OR RESIDUES, COMPLYING
13 WITH THE STANDARDS AND REGULATIONS WHICH PROTECT THE
14 ENVIRONMENT.”
15

16 SEC. 4. The Act is hereby further amended by repealing the original Section 20 of the
17 said Act and amending and revising the same to read as follows:
18

19 "SEC. 20. ALLOWING INCINERATION. – INCINERATION
20 SHALL BE ALLOWED FOR THE TREATMENT OF WASTE,
21 AND IN EFFECT, THE CONVERSION OF SUCH WASTE INTO
22 ENERGY. TO CONTROL AIR POLLUTION, THE INCINERATOR
23 SHALL BE DESIGNED IN SUCH A WAY THAT PRODUCT
24 COMBUSTION GASES SHALL BE PROPERLY TREATED AND
25 HARMFUL EMISSIONS SHALL BE REMOVED BEFORE GASES
26 ARE RELEASED INTO THE ATMOSPHERE. ADVANCED
27 EMISSION CONTROL DESIGN AND STRINGENT
28 REGULATION SHALL ENSURE THAT WASTES ARE DISPOSED
29 OF WITHOUT DETRIMENTAL IMPACT TO THE
30 ENVIRONMENT.
31

32 (1) *INCINERATION AS AN INTERMEDIATE TREATMENT*
33 *TECHNOLOGY.* - INCINERATION SHALL BE GENERALLY
34 USED FOR INTERMEDIATE WASTE MANAGEMENT.
35 COLLECTED DOMESTIC WASTE SHALL BE
36 TRANSPORTED DIRECTLY TO AN INTERMEDIATE
37 TREATMENT FACILITY - THE INCINERATION PLANT.
38 AFTER BEING COLLECTED AND TRANSPORTED, WASTE
39 SHALL BE SUBJECTED TO INTERMEDIATE TREATMENT
40 TO BECOME SUITABLE FOR FINAL DISPOSAL.
41

42 THERE SHALL BE AN ENFORCEMENT REGULATION
43 DETERMINED BY THE DEPARTMENT THAT SHALL
44 DEFINE A STRUCTURAL STANDARD FOR INCINERATION
45 PLANTS FOR DOMESTIC WASTE, IN WHICH, IT SHALL BE
46 REQUIRED TO KEEP COMBUSTION GAS TEMPERATURES
47 ABOVE 800°C FOR INCINERATION, TO KEEP THE
48 TEMPERATURE OF GAS FLOWING IN THE DUST
49 CHAMBER BELOW 200°C AND TO PROVIDE A WASTE GAS
50 TREATMENT FACILITY.
51

52 WASTE INCINERATION SHALL BE CLOSELY RELATED
53 TO THE MEASURES ADOPTED AGAINST HAZARDOUS
54 SUBSTANCES CONTAINED IN WASTE GAS, ESPECIALLY
55 DIOXINS, AND THE RECOVERY OF HEAT (THERMAL
56 RECYCLING) FROM INCINERATION PLANTS. TO REDUCE
57 THE GENERATION OF DIOXIN WITH COMPLETE

HIGHTEMPERATURE COMBUSTION, GASIFICATION AND MELTING FURNACE SHALL BE INTRODUCED. THIS SHALL ENSURE THAT:

- A. THE AMOUNT OF HEAT HELD IN THE WASTE IS UTILIZED TO MELT AND SOLIDIFY ASH AND THEREFORE RENDER THE ASH HARMLESS AND THE MOLTEN SLAG UTILIZED EFFECTIVELY; AND
- B. ONLY A SMALL AMOUNT OF AIR IS REQUIRED FOR COMBUSTION SO THAT HIGH-EFFICIENCY HEAT RECOVERY WITH A SMALL AMOUNT OF EXHAUST GAS IS POSSIBLE.

(2) *MODERN INCINERATION.* - THE INCINERATION PLANT SHALL BE EQUIPPED WITH TWO 200 TID ATMOSPHERIC BUBBLING FLUIDIZED BED (BFB) INCINERATION BOILERS. A BFB UNIT SHALL OPERATE BY COMBINING FUEL AND COMBUSTION AIR IN HOT SAND UNDER VIGOROUS MIXING. THERE SHALL BE BASICALLY THREE ZONES IN THE VERTICALLY ORIENTED INCINERATOR: THE FLUIDIZED BED, THE FREEBOARD AND THE BOILER. AT THE BOTTOM OF THE VESSEL SHALL BE THE DENSE BED, WHERE FLUIDIZING AIR SHALL ENTER THROUGH A HORIZONTAL TUBING GRID (DISTRIBUTOR) JUST ABOVE THE INCINERATOR FLOOR. AT A HIGHER ELEVATION IN THE FLUIDIZED BED, PRIMARY COMBUSTION AIR (APPROXIMATELY 7,550 NM³/H) SHALL BE INJECTED. TEMPERATURE IN THE BED SHALL BE MAINTAINED AT ABOUT 550-630°C, HOT ENOUGH TO DRIVE OFF VOLATILES AND FULLY COMBUST THE MUNICIPAL SOLID WASTE (MSW), WHICH SHALL BE FED AT THE TOP OF THE BED.

IN CASE THE TEMPERATURE RISES ABOVE 630°C, COOLING WATER SPRAYS SHALL BE ACTIVATED AUTOMATICALLY. ASH AND SAND THAT PERIODICALLY MIGRATE DOWNWARD SHALL BE REMOVED AT THE INCINERATOR BOTTOM. SAND SHALL BE SEPARATED FROM THE ASH, GRADED, AND RETURNED TO THE TOP OF THE DENSE BED. EACH INCINERATOR SHALL CONTAIN 57 M' OF SAND (90 T), SOME OF WHICH SHALL BE LOST AS FINES THROUGH FLUE GAS STREAM AND WITH FABRIC FILTERS AT A TEMPERATURE LESS THAN 2000°C.

ABOVE THE DENSE BED SHALL BE A TALL REGION KNOWN AS THE FREEBOARD, WHERE SECONDARY COMBUSTION AIR (APPROXIMATELY 28 800 NM³/H) SHALL BE INJECTED AT SEVERAL LEVELS TO COMPLETELY BURN OFF THE VOLATILES. IN THIS REGION, THE TEMPERATURE RISES STEADILY FROM ABOUT 710°C TO 1030°C (AUTOMATIC COOLING WATER SPRAYS ARE ACTIVATED SHOULD THE TEMPERATURE EXCEED 1070°C), AND GAS VELOCITY IS SUCH THAT A RESIDENCE TIME (AT 850°C) OF AT LEAST TWO SECONDS SHALL BE ACHIEVED, FOR DIOXIN DESTRUCTION. IN ADDITION TO FLY ASH, SOME SAND FINES MAY STILL BE CARRIED BY THE GASES IN THE

1 FREEBOARD, BUT THESE ARE MINIMIZED BY PRUDENT
2 VELOCITY CONTROL.

3
4 ABOVE THE FREEBOARD IS THE BOILER. WITH NO
5 COMBUSTIBLES REMAINING IN THE GAS, AND WITH
6 THE AID OF COOLER AIR INJECTION, TEMPERATURE
7 SHALL DROP RAPIDLY PRIOR TO CONTACT WITH THE
8 BOILER TUBES (APPROXIMATELY 480-580°C). THIS
9 NATURAL CIRCULATION WATER-TUBE BOILER SHALL
10 BE EQUIPPED WITH A SUPERHEATER. STEAM SHALL BE
11 GENERATED AT A MAXIMUM RATE OF 33.3 T/H FROM
12 EACH UNIT, USUALLY AT 3.14 MPA (ABS) AND 300D C.
13 THE HIGH-PRESSURE STEAM SHALL BE ROUTED TO A
14 HIGH-PRESSURE STEAM HEADER, WHILE THE FLUE
15 GASES SHALL EXIT THE BOILER THROUGH AN
16 ECONOMIZER TO A QUICK-QUENCH COOLING TOWER.

- 17
18 (3) *AIR POLLUTION CONTROL SYSTEM.* - FLUE GAS
19 TREATMENT SHALL BEGIN AT THE EXIT OF THE
20 ECONOMIZER, WHERE A WATER SPRAY COOLING
21 TOWER QUICKLY QUENCHES THE GASES TO ISODC,
22 MINIMIZING DIOXIN FORMATION. AT THE ENTRANCE
23 TO THE FABRIC FILTER BAGHOUSE, SLAKED LIME AND
24 POWDERED ACTIVATED CARBON SHALL BE INJECTED
25 INTO THE FLUE GASES TO REMOVE HEAVY METALS,
26 DIOXINS/FURANS AND NON-COMBUSTED ORGANICS,
27 WHILE THE BAGHOUSE SHALL REMOVE
28 PARTICULATES. THE DESIGN GAS TREATMENT RATE IN
29 THE BAGHOUSE SHALL BE ABOUT 75,000 -109,000 NM³/H
30 (DRY).

31
32 ONCE LEAVING THE BAGHOUSE THROUGH AN INDUCED
33 DRAFT FAN, THE FLUE GASES ENTER A WET CAUSTIC
34 SODA SCRUBBING TOWER WHICH SHALL REMOVE ACID
35 GASES (SULPHURIC AND HYDROCHLORIC ACIDS), AT A
36 GAS TREATMENT RATE SIMILAR TO THE BAGHOUSE.

37
38 UPON EXITING THE SCRUBBER, THE FLUE GASES SHALL
39 BE DRIED AND HEATED, BY HEAT EXCHANGE WITH
40 STEAM GENERATED IN THE PLANT, TO 210°C BEFORE
41 ENTERING THE SELECTIVE CATALYTIC REDUCTION
42 (SCR) REACTOR. HERE, AMMONIA SHALL BE INJECTED
43 INTO THE GAS STREAM AS IT PASSES THROUGH A
44 HONEYCOMB CATALYST TO REMOVE NITROGEN
45 OXIDES (NOX).

46
47 FROM THE SELECTIVE CATALYTIC REDUCTION (SCR),
48 FLUE GASES ENTER THE STACK CONTAINING TWO
49 FLUES (ONE FOR EACH INCINERATOR) AND AN
50 ELEVATOR (FOR MAINTENANCE). THE INLET
51 TEMPERATURE TO THE SCR SHALL BE CHOSEN FOR
52 TWO REASONS: TO IMPROVE THE RATE OF CATALYTIC
53 CONVERSION OF NOX (ALTHOUGH A TEMPERATURE OF
54 250-350°C WOULD HAVE BEEN MORE APPROPRIATE);
55 AND TO ENSURE AN INVISIBLE PLUME EMANATING
56 FROM THE STACK.
57

1 (4) ***LAWS AND ORDINANCES RELATED TO POLLUTION.*** - TO
2 TREAT WASTE PROPERLY, IT SHALL BE NECESSARY TO
3 PREVENT SECONDARY POLLUTION FROM WASTE
4 MANAGEMENT FACILITIES. THE TREATMENT OF
5 WASTE MUST THEREFORE COMPLY WITH THE
6 EMISSION STANDARDS, SUCH AS THE NATIONAL
7 EMISSION STANDARDS AND AMBIENT AIR QUALITY
8 STANDARDS, EMISSION STANDARDS INDICATED IN THE
9 IMPLEMENTING RULES AND REGULATIONS OF THE
10 CLEAN AIR ACT OF 1997, AND OTHER EMISSION
11 STANDARDS SET AND MAY BE PRESCRIBED BY THE
12 DEPARTMENT AND/OR BOARD AND/OR THE
13 APPROPRIATE LGU.
14

15 WASTE INCINERATORS, MUST, AS FACILITIES WHICH
16 EMIT SOOT AND SMOKE, COMPLY WITH THE EMISSION
17 STANDARDS RELATED TO DUST, NITROGEN OXIDE AND
18 OTHERS.
19

20 (5) ***MEASURES AGAINST HAZARDOUS SUBSTANCES.*** - WASTE
21 CONTAINS A HAZARDOUS SUBSTANCE AND A
22 HAZARDOUS SUBSTANCE MAY BE UNINTENTIONALLY
23 GENERATED IN THE COURSE OF WASTE MANAGEMENT,
24 WHICH MAY RESULT IN SECONDARY POLLUTION. AS
25 SUCH, IT SHALL BE NECESSARY TO REMOVE
26 HAZARDOUS SUBSTANCES CONTAINED IN WASTE
27 DURING DISPOSAL AND TO PREVENT SECONDARY
28 POLLUTION FROM OCCURRING IN THE TREATMENT
29 PROCESS. MEASURES AGAINST HAZARDOUS
30 SUBSTANCES SHALL REQUIRE VARIOUS
31 TECHNOLOGIES, ADAPTED TO INDIVIDUAL HAZARDOUS
32 SUBSTANCES. SUCH MEASURES INCLUDE THE
33 FOLLOWING:

34 A. WASTE THAT IS EXPLOSIVE, TOXIC OR
35 INFECTIOUS OR THAT MAY BE HARMFUL TO
36 HUMAN HEALTH OR THE LIVING ENVIRONMENT
37 SHALL BE DESIGNATED AS WASTE UNDER
38 SPECIAL CONTROL.

39 B. CONCRETELY, PARTS FROM HOME ELECTRIC
40 APPLIANCES THAT CONTAIN POLYCHLORINATED
41 BIPHENYLS (PCB), SOOT AND DUST GENERATED IN
42 MUNICIPAL WASTE INCINERATORS AND
43 INFECTIOUS WASTE GENERATED IN MEDICAL
44 INSTITUTIONS SHALL BE DESIGNATED AS
45 GENERAL WASTE UNDER SPECIAL CONTROL.

46 C. WASTE PCB, PCB-CONTAMINATED MATTER,
47 WASTE ASBESTOS AND MATTER CONTAINING
48 CONCENTRATED HAZARDOUS SUBSTANCES, SUCH
49 AS MERCURY, THE CRITERIA CONCENTRATIONS
50 OF WHICH EXCEED A CERTAIN VALUE, SHALL BE
51 DESIGNATED AS INDUSTRIAL WASTE UNDER
52 SPECIAL CONTROL.

53 D. COUNTERMEASURE TECHNOLOGIES AGAINST
54 HAZARDOUS SUBSTANCES SHALL BE
55 INTRODUCED, TAKING AS EXAMPLES MERCURY,
56 PCB AND ASBESTOS AS REPRESENTATIVE
57 HAZARDOUS SUBSTANCES CONTAINED IN WASTE;

1 DIOXINS AS SECONDARY POLLUTANT
2 SUBSTANCES GENERATED IN THE WASTE
3 MANAGEMENT PROCESS, AND INFECTIOUS
4 WASTE.

5 E. VARIOUS TECHNOLOGIES SHALL BE USED AS
6 COUNTERMEASURES AGAINST EXHAUST GAS IN
7 ORDER TO CONTROL SULFUR OXIDES, NITROGEN
8 OXIDES, AND OTHER SUBSTANCES THAT ARE
9 GENERATED BY INCINERATION FACILITIES OR TO
10 TREAT DRAIN WATER FROM INCINERATION
11 FACILITIES AND LANDFILL SITES, THUS
12 PREVENTING THE OCCURRENCE OF SECONDARY
13 POLLUTION IN THE WASTE MANAGEMENT
14 SYSTEM.

15
16 IN ORDER FOR THE SITE SELECTION FOR A WASTE
17 MANAGEMENT FACILITY TO BE ACCEPTED BY THE
18 PEOPLE LIVING IN THE AREA, SECONDARY
19 POLLUTION PREVENTION MEASURES, TO BE
20 DETERMINED BY THE DEPARTMENT, SHALL ALSO BE
21 NEEDED TO BE TAKEN. MEASURES AGAINST
22 HAZARDOUS SUBSTANCES SHALL COMPLY WITH ALL
23 LAWS AND ORDINANCES RELATED TO POLLUTION,
24 AS INDICATED IN SECTION 20-D HEREOF.

25
26 (6) *INFECTIOUS WASTE* - FOR INFECTIOUS WASTE, IT SHALL
27 BE REQUIRED TO REMOVE INFECTIOUSNESS WITH AN
28 INCINERATOR AND MELTING FACILITY. IT SHALL ALSO
29 BE MANDATORY TO USE AN INCINERATOR OR A
30 MELTING FACILITY THAT CAN COMPLETELY
31 INCINERATE OR MELT WASTE AND TO PREVENT THE
32 LIVING ENVIRONMENT FROM BEING POLLUTED BY THE
33 EXHAUST GASES OF SUCH FACILITY.

34
35 IN ORDER TO APPROPRIATELY TREAT INFECTIOUS
36 WASTE, A ROTARY KILN TYPE INCINERATOR SHALL BE
37 USED, IN WHICH INFECTIOUS WASTE SHALL BE BURNED
38 TOGETHER WITH OTHER INDUSTRIAL WASTE THAT
39 PLAYS THE ROLE OF COMBUSTION IMPROVER, TO
40 DESTROY INFECTIOUS BACTERIA, TO DETOXYIFY
41 INFECTIOUS WASTE, AND TO REDUCE ITS VOLUME.

42
43 (7) *REINFORCEMENT OF THE RESPONSIBILITY*. - THE WASTE
44 MANAGEMENT ACT, CLEAN AIR ACT AND ITS RELATED
45 LAWS AND ORDINANCES SHALL ACCELERATE THE
46 DEVELOPMENT AND INTRODUCTION OF
47 TECHNOLOGIES RELATED TO THE PROPER
48 TREATMENT OF WASTE BY DEFINING STANDARDS FOR
49 THE INSTALLATION OF TREATMENT FACILITIES FOR
50 GENERAL WASTE AND INDUSTRIAL WASTE TO ENSURE
51 PROPER TREATMENT.

52
53 A CLASSIFICATION OF WASTE THAT MAY INFLICT
54 HARM ON HUMAN HEALTH OR THE LIVING
55 ENVIRONMENT DUE TO HAZARDOUS
56 CHARACTERISTICS SUCH AS EXPLOSIVENESS,
57 TOXICITY AND INFECTIOUSNESS AS SPECIAL

1 MANAGEMENT WASTE SHALL BE PROMOTED FOR THE
2 DEVELOPMENT AND INTRODUCTION OF
3 TECHNOLOGIES FOR THE PROPER TREATMENT OF
4 SPECIAL MANAGEMENT WASTE.

5
6 IN ORDER TO PREPARE A SYSTEM FOR THE PROPER
7 TREATMENT OF WASTE AND TO PREVENT IMPROPER
8 TREATMENT, PROHIBITION OF ANY INCINERATION OF
9 WASTE OTHER THAN INCINERATION ACCORDING TO
10 THE WASTE MANAGEMENT STANDARDS SHALL BE PUT
11 FORWARD."

12
13 **SEC. 5. *Separability Clause.*** - If any provision of this Act shall at any time be found to
14 be unconstitutional or invalid, the remainder thereof not affected by such declaration shall
15 remain in full force and effect.

16
17 **SEC. 6. *Repealing Clause.*** - All laws, decrees, rules or regulations inconsistent with the
18 provisions of this Act are hereby repealed or modified accordingly.

19
20 **SEC. 7. *Effectivity Clause.*** - This Act shall take effect after fifteen (15) days following
21 its complete publication in the Official Gazette or in at least two (2) newspapers of general
22 circulation.

Approved,