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September 7, 1976

Mr. Benard C. Rusche
Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

In the Matter of Philadelphia Electric Company, et al.
(Peach Bottom Atomic Power Station, Units 2 & 3)
Docket Nos. 50-277 and 50-278

Dear Mr. Rusche:

The owners of the Peach Bottom Atomic Power Station, Units 2 and 3, and the York County Industrial Development Authority propose to enter into an agreement the purpose of which is to finance certain portions of the facility designed, inter alia, for the abatement of atmospheric and water pollution. In order to satisfy the technical requirements of Section 1.103-8(g)(2)(i)(b) of the Internal Revenue Income Tax Regulations and the June 15, 1976 tax ruling pursuant to which the financing is to be carried out (a copy of which has already been provided to the Office of the Executive Legal Director), the NRC is requested to certify that the portions of the Station for which certification is sought, as designed, are in the furtherance of the purpose of abating or controlling atmospheric pollutants or contaminants, or water pollution.

For your convenience we have attached a suggested form of such a certificate which you may wish to use.

Inasmuch as such certificate is necessary for the completion of the financing arrangements which will otherwise be completed this week, we request that you give expeditious consideration to this request and issue the certificate no later than September 9, 1976.

We greatly appreciate the cooperation from you and your staff.

Sincerely,

Troy B. Conner, Jr.

Troy B. Conner, Jr.



TBC/pv

PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3
DOCKET NOS. 50-277 and 50-278

CERTIFICATE

I, _____, _____
of The United States Nuclear Regulatory Commission, being duly authorized, certify as follows:

The cooling tower system and the components of the gaseous radwaste system described in the project description contained in Schedule A hereto, which is also contained in the proposed Pollution Control Facilities Agreement between the York County Industrial Development Authority and Atlantic City Electric Company, Delmarva Power & Light Company, Philadelphia Electric Company, and Public Service Electric and Gas Company, are, as designed, in furtherance of the purpose of controlling water pollution and atmospheric pollutants, respectively.

FOR THE NUCLEAR REGULATORY COMMISSION

By: _____

Dated: September __, 1976

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I, _____, hereby certify that _____ is an officer of the Nuclear Regulatory Commission and authorized to execute the above Certificate.

_____

Dated: September __, 1976

SCHEDULE A

# PEACH BOTTOM ATOMIC POWER STATION
# POLLUTION CONTROL PROJECT FACILITIES

A. *General Operation of the Units*

The combined capacity of Units 2 and 3 is approximately 2200 megawatts gross. The Units employ so-called "boiling water reactors" and operate generally as follows:

(1) Heat generated by the reactor in each Unit boils water and produces steam which drives a turbine-generator.

(2) After passing through the turbines, the steam passes to condensers where it is condensed into water ("condensate") for return to the reactors. The condensers are cooled by a flow of cooling water pumped from the Susquehanna River and returned to it *via* the cooling towers discussed hereinafter. The cooling water does not mix with the condensate.

(3) The condensate is returned to the reactors, where the process of boiling to produce steam is repeated.

B. *Pollution Control Facilities*

Descriptions of the specific pollution control facilities (the "Project Facilities") proposed to be financed are as follows:

(1) *Cooling Tower System.* Three mechanical draft towers, each containing eleven cells, are installed and operating.

Two additional mechanical draft towers, containing fourteen cells each, are being installed.

The cooling tower system includes the five towers together with pumps, pump structures, supply pipe, berms, dikes and culverts. The purpose of the cooling tower system is to prevent thermal contamination of the Susquehanna River.

(2) *Gaseous Radwaste System.* The components of the gaseous radwaste system included in the project are the off-gas filters and related hold-up piping.

(3) *Solid Radwaste System.* The components of the solid radwaste system included in the project are the hoppers and conveyors receiving concentrate from the centrifuge.

(4) *Sewage Plant.* The sewage plant is installed as a disposal facility for plant sewage.

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Internal Revenue Service

Department of the Treasury

Washington, DC 20224

SEP 3 1976

Person to Contact: A. L. Woodman

Telephone Number: 202-964-3392

Refer Reply to: T:C:E:A:3

Date: JUN 15 1976

Ballard, Spahr, Andrews
and Ingersoll
1035 Land Title Building
Philadelphia, Pa. 19110

Attn: Sherwin T. McDowell, Esq.
and Frederic L. Ballard,
Jr., Esq.

Re: York County Industrial Development Authority;
Peach Bottom Project

Gentlemen:

This letter replies to your ruling request dated August 7, 1973, as modified and supplemented thereafter, filed on behalf of York County Industrial Development Authority (Authority). The request seeks rulings in respect of the tax-exempt status for Federal income tax purposes of the interest on a proposed industrial development bond issue by the County in the amount of $43,900,000. The bond proceeds would be used to finance the construction and equipment costs of certain facilities (Project) of the nuclear-electric generating plant known as the Peach Bottom Atomic Power Station (Station).

The Station site is located partly in Peach Bottom Township, York County, partly in Drumore Township, Lancaster County, and partly in Fulton Township, Lancaster County, in southeastern Pennsylvania, on the Susquehanna River about 18 miles above its entrance into the Chesapeake Bay. It is about 38 miles northeast of Baltimore and 63 miles southwest of Philadelphia. Construction of the two identical boiling water-type reactor units, Units 2 and 3 and their appurtenances which are involved here, was commenced prior to September 2, 1972. Both Units have a combined generating capability of 2,200 megawatts gross and were placed in service on dates subsequent to the filing of the rulings request. Final Station expenditures have not yet been determined but completion costs are estimated to be about $770 million.

Four public utilities (Companies) hold undivided interests in each of the Units in the following proportions: Philadelphia Electric Company and Public Service Electric and Gas Company - 42.49%; Delmarva Power & Light Company and Atlantic City Electric Company - 7.51%. Responsibility for the construction and operation of the Units has been assigned by the Companies to Philadelphia Electric Company.

The basic question presented is whether interest to be paid on the bond proceeds to be used to acquire the Project facilities itemized hereafter will be excludable from the gross incomes of the bondholders for Federal income tax purposes on the basis that such facilities constitute sewage or solid waste disposal facilities, or air or water pollution control facilities, within the meanings of section 103(c)(4)(E) and (F) of the Internal Revenue Code of 1954 (Code) and the applicable regulations.

The Authority was formed under the Industrial and Commercial Development Authority Law of the Commonwealth of Pennsylvania, 73 P.S. § 371, et seq., which provides for the incorporation of authorities as public instrumentalities of the Commonwealth for the purpose of financing industrial development projects, including pollution control facilities. The members of the governing board of the Authority are appointed by the County Commissioners of York County. Property of the Authority is exempt by statute from taxation within the Commonwealth.

Under the proposed arrangement the Authority would enter into an agreement with the Companies pursuant to which it would issue bonds to finance the Project. The bond proceeds would be placed in a construction fund, from which funds would be disbursed to pay the Project costs or to reimburse the Companies for such costs, including an allowance for funds used during construction. Title to the Project facilities would be acquired by the Authority. Each Company would purchase an undivided interest in the Project corresponding to its interest in the remaining portions of the Units. The aggregate purchase price for all of the Project facilities would be an amount equal to the principal amount of the bonds The source of bond payment would be the several obligations of the Companies in the form of either security or unsecured notes to pay shares of the purchase price. The installments of principal on the obligations would correspond in date and amount to the stated maturities and mandatory sinking fund payments on the bonds. Interest on the obligations would be at the rates and payable at the times corresponding to the interest rates and times of payment on the bonds.

The Project facilities and the estimated costs follow:

| | | |
|---|---|---|
| (1) | Cooling Tower System | - $15,095,000 |
| (2) | Liquid and Solid Radwaste Facilities | - 5,414,000 |
| (3) | Gaseous Radwaste System | - 9,446,000 |
| (4) | Radwaste Building | - 7,764,000 |
| (5) | Sewage Plant | - 313,000 |
| | Subtotal | $38,032,000 |
| | Insubstantial portion | 4,220,000 |
| | Costs of Financing | 648,000 |
| | Total | $43,900,000 |

The rulings requested are:

"(1) The Bonds will be issued by or on behalf of the Commonwealth of Pennsylvania or a political subdivision thereof.

"(2) The Bonds will be industrial development bonds within the meaning of section 103(c)(2) of the Code.

"(3) Substantially all of the proceeds of the Bonds will be used to provide air and water pollution control facilities as defined in section 103 (c)(4)(F) or sewage or solid waste disposal facilities as defined in section 103(c)(4)(E) of the Code.

"(4) The interest paid on the Bonds will be excludible from the gross income of the recipients thereof under section 103(a)(1) of the Code except as provided by section 103(c)(7) of the Code in the case of a bond held by person who is a substantial user of the facilities or a 'related' person as defined in section 103(c)(6)(C) of the Code.

"(5) The Bonds will not be arbitrage bonds within the meaning of section 103(d) of the Code."

The Authority requests that its filing be considered under the existing regulations applicable to section 103(c)(4) of the Code without regard to the proposed amendment to section 1.103-8 (g)(2) of the regulations (40 FR 36371).

In support of its request, the Authority submitted a memorandum setting forth its justifaction for the proposition that the claimed-exempt facilities contained in the request qualify as air or water pollution control facilities for purposes of section 103(c)(4)(F) of the Code.

In sum, the position of the Authority is that the claimed-exempt facilities have in common the fact that all deal with radiation and radioactive materials; that the facilities in question are radioactive waste processing facilities, facilities for emergency prevention of radioactive contaminant release, and external radiation protection facilities; that the radioactive waste processing facilities will be used to process radioactive wastes produced during operation of the Station; that the facilities for the emergency prevention of radioactive contaminant release will prevent radioactive contaminants from escaping to the environment in emergency situations; and that external radiation protection facilities comply with regulations of the Atomic Energy Commission (now Nuclear Regulatory Commission) limiting exposure of individuals to radiation in areas surrounding the Station.

Exceptions are not taken at this point to the foregoing conclusions; they must be discounted to the extent inconsistent with the determinations which follow.

(1) Cooling Tower System:

The Station steam condensers are cooled on the basis of the once-through, or open-cycle, waste heat rejection principle. The claimed-exempt components of the Cooling Water System constitute only that part of the total cooling water installation which handles the heated coolant from the condensers' discharge to its return to the Susquehanna River (River), from which the water is first withdrawn. The complementary portion of the complete facility which provides for the incoming water supply from the intake gates to the inlet side of the condensers is not included in the ruling request.

The normal Station cooling operations are conducted in the following manner:

The River provides the Station cooling water supply at a rate of about 1.5 million gpm and eventually receives back the effluent. The 1.5 mile-wide section of the River at the Station site, known as Conowingo Pond (Pond), is formed by the Holtwood and Conowingo dams located six and eight miles upstream and downstream, respectively. In both the winter and summer seasons, the turbine-condensers are cooled on a cooling tower-assisted, once-through cycle. Under the present design, there are three mechanical draft towers, each measuring 500-ft. x 71-ft. x 53-ft. with 12 cells. In total, the towers have a capacity sufficient to pass a coolant volume up to 876,000 gpm, or about 57% of the full 1.5 million gpm circulating water volume.

The Authority states that the operating licenses for Units 2 and 3 require the use of all available cooling towers; that the Companies interpret this condition as requiring year-round operation of the towers; and that the condition will be complied with as thus interpreted to the extent required.

In winter operation, inlet water at an average design temperature of 35°F. is pumped from the Pond and pressure-circulated through the condensers. The heated effluent at an average design temperature of 55.8°F. is first discharged to a 400-ft. x 700-ft. intermediate collection basin enclosed within earthen dikes. From the basin, the coolant in volumes up to the maximum 876,000 gpm, is passed through the forced-draft towers and discharged into associated cooling ponds, also dike-contained. The cooling ponds lead into the head of a 4,700-ft. long discharge canal that empties into the Pond (River) at a point downstream from the Station site.

On the basis of the 20.8°F. temperature differential between the intake and outlet volumes, and a full-power circulation rate of 1.5 million gpm, the average winter waste heat load required to be shed in passing through the collection basin, cooling towers, cooling ponds, discharge canal, and finally in the form of a thermal dispersion plume in the Pond, would be about 15.6 million Btu/hr., in order for the effluent temperature to equilibrate with the ambient Pond temperature.

In summer operation with an expected 85°F. Pond temperature, the 1.5 million gpm circulating water will leave the condensers at an average design temperature of 105.8°F. With the effluent flow following the same course as outlined above and with the towers in parallel operation, the temperature rise in the subsequently mixed water delivered to the head of the discharge canal (57% through the towers, 43% direct) will be 13°F. On the basis of this 13°F. inlet-outlet temperature differential, the average summer waste heat load necessary to be lost in order to reach thermal equilibrium condition in the Pond would be 9.75 billion Btu/hr.

The claimed-exempt expenditure in the total estimated direct amount $15,295,000 consists of the following items:

Cooling Towers - $4,059,000; Cooling Tower Pumps - $1,158,000

Cooling Tower Pump Structures - $3,026,000; Cooling Tower

Supply Pipe - $666,000; Berms, Dikes and Culverts - $1,664,00

Discharge Structure - $960,000; Electrical Equipment -

$3,562,000.

In order to qualify as pollution control property under section 103(c)(3)(F) of the Code, section 1.103-8(g)(2)(ii) of the regulations provides in part that the facility must serve in whole or in part to abate or control water pollution or contamination by removing, altering, disposing or storing pollutants, contaminants, wastes, or heat. Additionally, section 1.103-8 (g)(2)(iv) provides in part that where property serves to control pollution and for a significant other purpose, only the incremental cost of the facility can be considered to have been incurred for pollution control purposes. Accordingly, if the costs incurred for such a facility would have been incurred without pollution control considerations, the incremental cost would be zero. And if property itself does not serve directly a pollution control purpose in whole or in part, it cannot qualify as an exempt facility except under the provisions of section 1.103-8(a)(3) of the regulations.

Based on the representations of the Authority, and particularly that which relates to the intended year-round operation of the cooling towers in conformity with the terms of the Station' operating licenses, the System components as itemized, with the exception of those designated as "Discharge Structure" and "Electrical Equipment," are considered to come within the purview of section 103(c)(4)(F) of the Code and the existing applicable regulations.

This consideration does not exclude the winter-summer heat balance data supplied by the Authority which indicate that under design conditions, the operation of the cooling towers would seemingly be confined largely to the summer months, and used sparingly, if at all, during the winter periods when apparently, the prevailing ambient conditions could be expected to provide adequate cooling by natural means without tower-assistance. On this point, a pollution control facility for purposes of section 103(c)(4)(F) of the Code is one which prevents or minimizes the direct release of pollutants or contaminants into the environment in the course of normal operations. Hence, a facility does not qualify as a pollution control facility if it operates only on an infrequent or emergency basis. Therefore, if the Cooling Tower System were required to be operated only sporadically, or on an intermittent basis when abnormal ambient conditions might unpredictably prevail, the System could fail the test of the definition of a pollution control facility.

Also taken into consideration is the other extreme. There is some indication that the present Cooling Tower System design is not so fixed and certain that the possibility of required modification is eliminated, i.e., that the adequacy of the present design is assured to the extent that no question exists as to the complete capability of the System to effectively dispose of the Station's large heat-loads throughout the year. The Authority can make no representation that "*** the Units will not at some future date be converted to a closed-cycle method of operation in which water cooled by the existing and possible additional cooling towers is returned to the Units instead of being discharged to the river***."

In this last regard, a closed-loop cooling system does not qualify as a pollution control facility under section 1.103-8 (g)(2)(ii) of the regulations. There is no abatement or control of water pollution where in fact, the heat of a coolant stream is transferred harmlessly to the atmosphere, and the stream is returned for plant reuse.

In sum, however, and accepting the situation as it is presently described, it appears reasonably certain that cooling tower assistance will be required to a greater more than lesser degree during the major part, if not continuously at full capacity throughout the year. Therefore, the cooling towers and the cooling appurtenances including the berms, and dike-enclosed collection basin and cooling ponds, as well as the discharge canal, can be expected reasonably to function in combination for pollution control purposes.

A different conclusion is reached in respect of the "Discharge Structure" and "Electrical Equipment."

The Discharge Structure is substantially a subsurface installation built into the berm forming the foot of the discharge canal. It is of concrete and steel construction with steel gates to allow the water flow in the canal to discharge into the Pond. One port, 15 x 20-ft., is maintained in an open position to permit continuous discharge from the canal bottom to the subsurface of the Pond. In the course of normal operation, discharge is controlled by means of three 13 x 20-ft. movable gates mounted above the open port. By adjusting the opening of these gates, the discharge velocity is maintained at a rate sufficient to produce a large jet of water downstream into the Pond. In addition, there is a concrete spillway over the top of the berm and adjacent to the Structure proper, for use during high water flows.

The Structure does not meet the requirements of section 1.103-8(g)(2)(ii) of the regulations. The spillway is simply a facility incidental to the production function of the Station during periods of abnormal water levels. The Structure itself is nothing more than a means of adjusting the release of the coolant volumes in order that the terminal temperature may be more compatible with that of the Pond, and to diffuse the discharge volumes over a larger dispersion area to minimize the effects of thermal shock. Facilities which only serve to dilute diffuse pollutants or contaminants do not constitute property that abates or controls them by removal, alteration, disposal, or storage. See Rev. Rul. 75-167, 1975-1 C.B. 40.

The Electrical Equipment associated with the Cooling Tower System, which is taken to consist of such items as switch gear, motor control centers and conduit, cannot be considered to be qualified property for purposes of section 103(c)(4)(F) of the Code. Such electrical hardware itself does not operate to abate or control water pollution as required by section 1.103-8(g)(2)(ii) of the regulations. Moreover, the equipment cannot be considered to be property that is functionally related and subordinate to an exempt facility within the provisions of section 1.103-8(a)(3) of the regulations.

In order to qualify under section 1.103-8(a)(3), it is basic that the exempt facility to which the functionally related and subordinate property relates must be identifiable; and in addition, such property must be of a character and size commensurate with the corresponding attributes of the exempt facility. In this instance, the claimed-exempt expenditure for Electrical Equipment in the amount of $3,562,000 is a gross figure that cannot reasonably be associated with the Cooling Tower System expenditures in total. Nor can it be allocated, except in the most generalized way, with the costs of the particular exempt facility components of which the Electrical Equipment costs would necessarily be required to be shown to be a functionally related and subordinate part.

Electrical hardware, for instance, cannot be realistically related to such System components as Berms, Dikes and Culverts, Cooling Towers, or Cooling Tower Supply Pipe. Cooling Tower Pumps and perhaps Cooling Tower Pump Structures are the only likely items of equipment which normally would require electrical hardware support. Yet using comparative costs as a measure, the Electrical Equipment expenditures of $3,562,000 are a disproportionate 85 percent of the combined estimates of $4,184,000 for the Cooling Tower Pumps and Structures. In these circumstances, no commensurability can be found in terms of subordinate character and size as required by section 1.103-8(a)(3) of the regulations.

On the basis of the foregoing, it is concluded in respect of the Cooling Tower System, that the total direct cost in the maximum estimated amount of $10,573,000 representating the claimed exempt Cooling Tower System components with the exception of those attributable to the Discharge Structure and Electrical Equipment, would be expenditures made to provide for water pollution control facilities within the meaning of section 103(c)(4)(F) of the Code and the applicable regulations.

(2) Liquid and Solid Radwaste Systems:

The liquid and solid radioactive waste processing systems are integrated facilities to which all station liquid and solid wastes are routed. The two systems for purposes here are discussed separately.

Based on the engineering drawings and other material provided by the Authority, with particular reference to the Station Final Safety Analysis Report (FSAR) the Liquid Radwaste System may be described in the following manner:

The power generation objective of the System is to collect treat, and process for re-use or disposal all potentially radioactive liquid wastes in a controlled manner in compliance with the established regulatory requirements. The design basis is for a capability to process the liquid waste such that the majority of liquid can be re-used for production purposes. The wastes are first collected in sumps and drain tanks and then transferred to tanks in the Radwaste Building (Item (4) below) for treatment, storage, monitoring and disposal.

Liquid wastes are processed on a batch basis, and after processing may be returned to the condensate system for plant re-use or discharged to the Discharge Canal (Item (1) before) after analysis and dilution with condenser circulating cooling water. In unusual circumstances, packaging of liquid wastes for off-site disposal is also possible.

Those batches in which the conductivity is low (high purity water) are routed to the condensate storage tank for plant re-use after processing. Batches in which radioactivity concentrations are sufficiently low as to allow disposal to the environs and which have a higher conductivity than suitable for re-use in the plant are released into the Discharge Canal. A distribution line is used to provide thorough mixing with condenser effluent circulating water from Units 2 and 3 in order to achieve a low concentration before the combined volumes (wastes and condenser coolant) are returned to the Pond.

More particularly, high purity (low conductivity) liquid wastes originate in the reactor cleanup systems, the residual heat removal systems, equipment drains in the reactor, radwaste and turbine building decantates from resin phase separator tanks and centrifuge effluents. These wastes are automatically pumped to a waste collector tank (25,000 gal.) on a batch basis. In addition, liquid wastes are occasionally transferred to the waste collector tank from the fuel pool systems, the reactor cleanup system, the residual heat removal systems and the floor drain system (to reclaim high purity water).

A waste surge tank (75,000 gal.) is located in the radwaste building and provides surge capacity for infrequently occurring large liquid waste volumes, such as those produced during startup of a Unit. Such water can be transferred to either the waste collector tank or the waste surge tank from the residual heat removal system, the fuel pool, or the reactor cleanup system of either Unit. These low conductivity, high purity wastes collected in the tanks are processed on a batch basis through the waste precoat filter and mixed-bed demineralizer, and then collected in two waste sample tanks (25,000 gal.). Following sampling and analysis, the filtered and de-ionized liquid is normally returned to the condensate storage tank for reuse in the reactor-steam circuit.

Although wastes in the sample tank can be discharged to the environment, or shipped off-site instead of being reused, this appears not to be the normal procedure, and will occur only on an infrequent basis.

Low purity wastes (moderate to high conductivity and general low radioactivity concentration) are collected in floor drain sumps located in the reactor drywell, in the reactor, radwaste, and turbine buildings, and in the pipe tunnel. These wastes (15,400 gal./day ave.) are pumped automatically to a floor drain collector tank (21,000 gal.), in which there is also collected neutralized wastes from the chemical waste tank (500 gal. normal, 4,500 gal. maximum), and relatively small quantities of liquid wastes flowing at infrequent intervals from condensate and refueling storage tank dike sumps. Also located in the radwaste building is a floor drain surge tank (75,000 gal.) which holds comparatively large liquid waste volumes that occur infrequently in the course of special plant operations, such as equipment decontamination.

After collection, the low purity wastes are processed through a pressure-precoat filter and sent to a floor drain sample tank (21,000 gal.). Following sampling and analysis, the liquid is normally discharged through a single line extending from the radwaste building to the circulating water discharge canal (Item (1) above). The wastes, however, are not discharged in a perfunctory manner; the release is on a batch basis and subject to close control and regulation as outlined below.

Prior to discharge, the batch in a particular holding tank (waste sample or floor drain sample) is isolated by valving off the interconnected collection system to prevent the inflow of additional liquids in the sampling and release sequences. After passing through a mixing eductor to provide a uniform composition, and following determination of such factors as the total radioactivity concentration (tritium excluded), the relative purity of the liquid, and the batch volume, a rate of release is calculated which will result in an effluent concentration in the Discharge Canal (after dilution with a known flow of circulating condenser coolant water) equal to the maximum permissible concentration which the Canal can tolerate. The actual flow rate is set at less than the computed batch maximum figure.

To provide for waste release rate control, the discharge line is equipped with two flow meters (high flow and low flow), a radiation monitor and a downstream automatic shut-off valve that activates in the event preset flow or radiation limits are exceeded or if the circulating water dilution volume is interrupted. The wastes are introduced into the canal at a point downstream of the cooling tower discharge with the objective being a good mixture with the condenser coolant water diluent flow through the Canal to the Pond.

The description of the Solid Radwaste System follows.

The integrated Solid Radwaste System handles both wet and dry solid materials which require different handling and packaging methods because of the differences in radioactivity and contamination levels.

The wet solid wastes in slurry form result from the processing of spent demineralizer resins and spent filter materials used in the equipment drain (high purity) and the floor drain (low purity) liquid subsystems noted above. Additionally, wet wastes originate in the three water cleanup systems (reactor, condensate and fuel pool). The slurry is collected in four backwash receiving tanks or in the waste sludge tank from which it is pumped on a batch basis to one of a corresponding number of phase separators.

From the separators and the waste sludge tank, the slurry is piped to centrifuges, from which the supernatant flows by gravity to the liquid waste collector tank, and the de-watered solid material is discharged to a hopper. Drums are positioned under each hopper by remote operation of a conveyor, with the drums gravity-loaded via remote visual observation and operation of the hopper valves. When full and after being vibrated, each drum is moved to the remote capping station for lid placement. Thereafter, the sealed drums are decontaminated and moved by the conveyer system to the shielded temporary retention area to await shipment to an off-site location.

Dry wastes result from operations and maintenance throughout the Station. Typically, such wastes consist of air filters, cleaning rags, paper and plastic coverings, tools, discarded clothing and solid laboratory items. Most of these wastes are of relatively low radioactivity, and collected locally in fiber drums, cartons or boxes, except that where possible, soft compressible wastes are compacted in steel drums for shipment.

All solids are packaged and shipped to a licensed burial site in accordance with applicable governmental requirements. Annual quantities of solid waste attributable to each of the two Units are expected to be on the order of 700 drums of resin and filter materials and 450 drums of dry and compacted waste.

The estimated direct costs of the claimed-exempt components of the Liquid and Solid Radwaste Systems in the total estimated amount of $5,414,000 are shown as follows:

Pumps - $185,000; Tanks - $95,000; Filters and Demineralizers - $30,000; Centrifuges - $18,000; Conveyers and Hoppers - $123,000; Instrumentation - $1,[illegible]0,000; Electrical - $720,000; Miscellaneous Equipment and Piping - $2,653,000.

In consideration of the facts presented in relation to the requirements of section 1.103-8(g)(2) of the regulations, it must be concluded that none of the itemized equipment components of the Liquid Radwaste System qualifies as a water pollution control facility within the meaning of section 103(c)(4)(F) of the Code. This is for the following reasons:

As noted heretofore, in order to come within the provisions of section 1.103-8(g)(2)(ii), a facility must serve in whole or in part to abate or control water pollution or contamination by removing, altering, disposing or storing pollutants, contaminants, wastes, or heat. This means in applicable part here, that the facility must be one which prevents or minimizes in the normal course of operations, the direct and immediate release of pollutants or contaminants to the marine environment. Thus, a polluted or contaminated production stream which is upgraded for re-use in the plant production activity poses no threat to the environment, and the treatment is for the purpose of production, as opposed to the purpose of pollution control.

Recycling is the normal mode of operation with respect to the high purity (low conductivity) waste streams. This is demonstrated by the following statement contained in the Station Final Safety Analysis Report(FSAR) provided by the Authority (pp. 9.2-5, 9.2-6

> "***Low conductivity wastes collected in the Waste Collector Tank (and Waste Surge Tank) are processed on a batch basis through the waste precoat filter and mixed bed demineralizer and then collected in one of the two Waste Sample Tanks***. From a Waste Sample Tank, wastes are normally returned to the condensate storage tank for plant re-use***." (Emphasis added.)

The remainder of the Liquid Radwaste System also fails the test of section 103(c)(4)(F) of the Code, i.e., those facility components which handle and process aqueous wastes of moderate to high activity and generally low radioactive concentrations (low purity water). As discussed in the foregoing parts, the activity of these wastes, even after final in-plant processing, is such that direct discharge into Conowingo Pond is not possible.

In order for the Pond to ultimately tolerate these low purity waste volumes, it is necessary to strike a careful blending balance with the condenser cooling water volumes in the Discharge Canal to attain a final diluted product acceptable to the environment. As described in the FSAR (page 9.2-9):

"***The rate of release of the liquid waste to the discharge canal which will produce a concentration in the canal (after dilution with a known flow of circulating water) equal to the allowable concentration limit is then calculated. A rate of release below the calculated maximum rate is then selected and used for the particular batch of liquid waste to be discharged to the environment***." (Emphasis added.)

It being evident that none of the System components serve to upgrade the quality of the low purity waste water to a level at which it could be directly discharged without adversely affecting the environment, it must necessarily follow that no System component can be considered to come within the provisions of section 1.103-8 (g)(2)(ii) of the regulations. "Dilution" of a pollutant stream does not constitute the removal, alteration, disposal or storage of the pollutant.

Section 1.103-8(f)(2)(ii)(a) provides in part that whether a collection or storage facility qualifies as a solid waste disposal facility depends on all the facts and circumstances, and further, with an exception not applicable here, the section provides that the term does not include facilities for collection, storage, or disposal of liquid waste.

With respect to the wet solid wastes, it is evident from the facts and circumstances of this case that all of the System components upstream of the inlet to the centrifuge hoppers are involved with the handling of higher-activity waste streams in a slurry form, or in a state of fluid suspension, rather than in a solid state. It is only at the point at which the hoppers receive the centrifuge concentrate that the dewatered wastes take on a solid form. Therefore, it is only downstream from this point that the components, i.e., hoppers and conveyors, which process the solidified wastes for final disposal off-site take on the character of solid waste disposal facilities.

Similarly, from the facts and circumstances available in this case, it is also evident that none of the itemized System components operates in the collection, storage, treatment, utilization, processing or final disposal of the low-activity dry wastes which are discarded locally in various production areas throughout the Station.

As stated in the FSAR (page 9.3-2):

"***Certain (dry) solids will be decontaminated by cleaning methods as required to reduce contamination and exposure levels prior to packaging. If cleaning is not practicable or feasible, high level wastes will be packaged and temporarily stored to permit decay. Most wastes, however, will be of relative low radioactivity, handled normally and collected locally in fiber drums, cartons or boxes***." (Insert and emphasis added)

Aside from the evident fact that none of the claimed-exempt components are involved in the collection or final disposal of the dry wastes, the procedure appears to be no more than a routine in-plant housekeeping or maintenance operation. It is recognized that certain precautions must be observed in the handling of these materials because of the potential or actual low-activity levels, but a certain degree of care is required to be exercised in waste handling in any production plant in which toxic materials are involved. This fact and circumstance falls outside the provisions of section 1.103-8(f)(2)(ii)(a) of the regulations.

The cost items identified as "Instrumentation," "Electrical" and "Miscellaneous Equipment and Piping" likewise cannot be found to have been incurred for the purpose of acquiring pollution control facilities within the meaning of section 103(c)(4)(F) of the Code; or for the acquisition of property functionally related and subordinate to such facilities in the context of section 1.103-8(a)(3) of the regulations.

As noted earlier, property which, in itself, serves no pollution control function cannot be considered to qualify as an exempt facility under the "functionally related and subordinate" provision of section 1.103-8(a)(3). Here there are no exempt facilities to which the combined costs of $4,963,000 for these three items can relate in commensurate degree.

Accordingly, with respect to the Solid Radwaste System, and based on the facts outlined in the foregoing parts, it is concluded that $123,000 of the claimed-exempt facility components qualify as "solid waste disposal facilities" within the meaning of the term under section 1.103-8(f)(2)(ii)(a) of the regulations.

(3) Gaseous Radwaste System:

During power operation of the facilities, radioactive materials released to the atmosphere in gaseous effluents include low concentrations of fission-product noble gases (krypton and xenon), halogens (mostly iodines), tritium contained in water vapor, and particulate matter, including both fission products and activated corrosion products.

The primary source of gaseous radwaste is the non-condensible

gases removed from the main condenser by the air ejector. These gases consist of air which has leaked into the condenser, hydrogen and oxygen produced by the radiolytic decomposition of water, and negligible volumes of the radioactive gases referred to above. Other sources include the non-condensible radioactive gases removed from the turbine gland seal condenser and the reactor, the turbine, and the radwaste building ventilation systems. Components of these last-named ventilation systems, however, are not included in the rulings request and accordingly, are not the subject of consideration.

During normal operation, the gaseous effluents from the main condenser are handled by the air ejector off-gas subsystem, and those from the turbine gland seal condenser pass through the gland seal off-gas subsystem. In addition, there are two standby gas treatment systems which are used to filter and discharge gas from either primary containment, if desired, or from either reactor building, and to maintain a negative pressure in the reactor building whenever the normal ventilation system is isolated.

The air ejector off-gas subsystem consists of a catalytic recombiner-compressor train, hold-up line, high efficiency particulate (HEPA) filters, isolation valves, dilution fans and a 500-ft. main off-gas stack. In the normal operational mode, air ejector off-gases are flowed through a jet compressor, preheater, and the hydrogen-oxygen recombiner to the condenser. The off-gases are diluted with steam in the jet compressors for assurance that the mixture is below the flammability limit. The recombiner unit by means of an all-metal platinum/palladium coated catalytic strip reassociates the hydrogen and oxygen into water, which is then removed from the off-gas stream by the condenser, and recycled back into the primary coolant system for reuse.

The air ejector off-gas subsystem is designed to be explosion-proof. The portions of the subsystem from the discharge of the air ejectors to the recombiner outlet, and from the first isolation valves upstream from the holdup pipe inlet lines to the isolation valves downstream from the off-gas filters, are constructed to withstand the static pressures and shock wave forces of explosive proportions. Three dilution fans located at the base of the 500-ft. stack are also safety-oriented. These fans, each with a capacity adequate to provide sufficient dilution air volumes for two-Unit operation, serve to reduce, by dilution, any hydrogen concentrations in the stack. The fans also maintain the required exit velocity of the exhausting gases.

Because the turbine gland seal condenser off-gas subsystem, in serving the turbine steam packing exhauster condenser uses primary system steam, the gases which it handles may be radioactive. Accordingly, these gases are held up for a short period in delay piping before being exhausted into the 500-ft. stack without further treatment. Delay (1 3/4 minutes) is provided by means of a 24-inch diameter pipe located between the turbine packing exhauster and the stack. Normally, this short period of radioactive decay is sufficient to ensure against excessive radioactive discharges.

Each of the two standby gas treatment systems consists of a prefilter and two HEPA filters, one preceding, and one following an activated charcoal adsorber. In addition to functioning when one or both of the ventilation systems are isolated, as noted before, the standby system operate during Station shutdowns and startups to purge the drywell and suppression chambers which are valved off during reactor operation. These systems, unlike the separate waste gas treatment and ventilation systems for each of the Units 2 and 3, are interconnected so that inputs can be accepted from either or both Units. Standby facilities, however, cannot qualify as pollution control facilities, no more than can facilities designed for use only in the event of an emergency. This is because by function and purpose, such facilities are not used in the abatement or control of pollution or contamination on a regular basis in the normal course of production operations.

The Authority's claim of exempt expenditures in the total direct amount of $9,446,000 consists of the following items:

Off-Gas Stack - $1,366,000; Off-Gas Filters - $314,000; Jet Compressor - $33,000; Mechanical Compressor - $101,000; Recombiners - $380,000; Recombiner Enclosure - $3,271,000; Instrumentation - $295,000; Miscellaneous Equipment and Piping - $3,550,000; and Electrical - $136,000.

Based on the facts as outlined, it is concluded that with the exceptions of the item "Off-Gas Filters" and proportioned amount of the item "Piping," none of the claimed-exempt facility components qualify for air pollution control purposes within the meaning of section 103(c)(4)(F) of the Code and the applicable regulations. The reasons are these:

The Off-Gas Stack merely disperses air-diluted off-gases at an elevated altitude, and is not property that abates or controls any pollutants from the off-gas exhaust stream by removing, altering, disposing or storing them. As stated in the FSAR (page 9.4-7) "... tall off-gas stack allows atmospheric dispersion of the effluent to reduce direct radiation exposure rates***." Such a

facility does not qualify as an air pollution control facility within the meaning of section 1.103-8(g) of the regulations. See Rev. Rul. 75-167, supra, page 8 .

The Jet Compressor, Mechanical Compressor and Recombiners are similarly disqualified for purposes of section 103(c)(4)(F) of the Code. These components serve in a production capacity, rather than for purposes of pollution control. They are simply in-line production elements of the air ejector off-gas subsystem by means of which the circulating primary coolant is cleansed by the purging of production-generated off-gases in the main condenser, and plant safety is more adequately assured by the recombination of radiolytic hydrogen and oxygen for reuse as primary coolant make-up.

Moreover, the air ejector subsystem, even with the off-gas bypassing the recombiner-compressor train and being routed directly to the holdup pipe for a short delay is adequate to provide for the radioactive decay of the short-lives activation and fission gases. As stated in the FSAR (page 9.4-5):

"***The air ejector subsystem, even with the off-gas bypassing the recombiner-compressor train and being routed directly to the holdup pipe for a 30 minute holdup time, is adequate to provide for the radioactive decay of the short-lived activation and fission gases***."

The Recombiner Enclosure, located north of the Unit 3 Reactor Building is used to house the recombiner-compressor system. It does not contain the off-gas holdup pipe sections referred to in a later part, which are located in the Turbine Building basement. In respect of the Enclosure, it is to be noted that a building or other similar property that does not, of itself perform a pollution control service, fails to qualify for purposes of section 103(c)(4)(F) of the Code, except as provided by section 1.103-8(a)(3) of the regulations. But in order to qualify under the provisions of section 1.103-8(a)(3), the property must first be functionally related and subordinate to an exempt facility. Because the recombiner-compressor train of the air ejector off-gas subsystem cannot be found to be an exempt facility, the Recombiner Enclosure, perforce, is not a functionally related and subordinate part of such an exempt facility.

The aggregate costs of $3,981,000 corresponding to the items designated "Instrumentation," "Electrical," and "Miscellaneous Equipment and Piping" (exclusive of holdup piping discussed below) cannot be recognized as expenditures made for pollution control purposes for essentially the same reasons and on the same bases as obtained before (Liquid and Solid Radwaste Systems) in respect of similarly designated cost items.

The expenditures related to the item designated as "Off-Gas Filter" in the estimated direct amount of $314,000, and a proportionate amount of "Piping" attributed to the Off-Gas holdup pipe sections in the amount of $118,000 (rounded) are considered to have been used to provide for pollution control facilities. In the absence of a more precise figure, the sum of $118,000 considered attributable to off-gas holdup piping is approximated by applying to the cost of "Miscellaneous Equipment and Piping" ($3,550,000), a factor with numerator and denominator consisting respectively of the "Off-Gas Filter" cost ($314,000) and the total cost of the claimed-exempt components of the Gaseous Radwaste System ($9,446,000).

The reasons that the Off-Gas Filters and Holdup Piping are considered to be in an exempt facility category are these:

The HEPA filters and the holdup piping in the air ejector off-gas subsystem are essential for the control of pollution to the environment, whether or not the subsystem is in use in its entirety. Even with the bypassing of the recombiner-compressor train of the subsystem, the air ejector off-gas stream must be routed to the subsystem's holdup piping and through the filters before being exhausted to the stack. As noted in the FSAR (page 9.4-5):

"***The short-lived fission gases decay to solid daughter products and are removed by the high-efficiency particulate filters which have a design capability to remove 99.97 percent of particulates 0.3 microns in size***."

In similar manner, the holdup piping of the gland seal off-gas subsystem is required for pollution control purposes. The FSAR contains the following statement in point (also page 9.4-5):

"***The gland seal line is a separate line from the air ejector holdup line. A design minimum of 1.75 minute holdup time is provided by a long 24" diameter pipe between the turbine steam packing exhauster and the stack***. The actual configuration of the piping produces a 4 minute holdup for Unit 2 and a 5 minute holdup for Unit 3***."

For the reasons set out in the foregoing, it is determined in respect of the Gaseous Radwaste System, that the total direct cost in the maximum estimated amount of $432,000 representing the estimated cost of the Off-Gas Filter and a proportionate amount of Piping would be expenditures made to provide for air pollution control facilities within the meaning of section 103(c)(4)(F) of the Code and the applicable regulations.

(4) Radwaste Building:

The Authority describes the Building as housing various components of the liquid and solid waste processing systems and the standby gas treatment system (Items (2) and (3) before). From the engineering drawings provided (FSAR Figures 9.2.4a,4b, 4c,4d and 4e), it appears that the Building located between, and constituting an integral part of the two reactor buildings, is a multi-level structure of heavy concrete construction (3-ft. wall thickness) measuring approximately 102-ft. x 123-ft. It appears further, that in addition to housing the claimed-exempt components of the Systems as the Authority states, the Building also houses numerous other facilities and items of equipment directly concerned with the production operations of the Station.

Based on the facts as outlined, it is concluded that the costs of the Radwaste Building shown in the total direct amount of $7,764,000 cannot be considered to have been incurred for purposes of pollution control. Because the Building does not itself serve to control pollution, the claim for exempt expenditures presumably relies upon the "functionally related and subordinate" provisions of section 1.103-8(a)(3) of the regulations. If this be the fact, the reliance is misplaced for the following several reasons.

First, it is incorrect to presuppose that all of the claimed-exempt liquid and solid facility components, qualify as pollution control and solid waste disposal facilities. The fact that for purposes of this ruling this expectation cannot be fulfilled in substantial degree is evident from the conclusions required to be reached in the foregoing parts in respect of Item (2), "Liquid and Solid Radwaste Facilities." To the extent that the claimed-exempt liquid and solid radwaste facilities cannot be recognized as qualified facilities for purposes of sections 103(c)(4)(E) and (F) of the Code, there is a corresponding diminution in the exempt facility base with which the Radwaste Building could be associated in a "functionally related and subordinate" manner.

Second, section 1.103-8(a)(3) of the regulations provides in pertinent part that "***An exempt facility includes any land, buildings or other property functionally related and subordinate to such facility***." (Emphasis added.) This provision does not speak in terms of portions of a building; the reference is to a building that is devoted in its entirety to the service of an exempt facility. That is not the case here.

On the basis of the foregoing, it is determined that none of the claimed-exempt expenditure in the direct amount of $7,764,000 for the item "Radwaste Building" can be considered to come within the provisions of sections 103(c)(4)(E) or (F) of the Code and section 1.103-8(a)(3) of the regulations.

(5) Sewage Plant:

The Authority places the capacity of the Plant at 15,000 gal./day with 36.4 pounds per day of 5-day biological oxygen demand. All digested sewage sludge requiring disposal will be requiring disposal will be removed off-site by an outside contractor and placed in a landfill meeting state standards.

Section 103(c)(4)(E) of the Code provides in part that section 103(c)(1) shall not apply to obligations issued by a State or local governmental unit which are a part of an issue substantially all of the proceeds of which are to be used to provide sewage disposal facilities. Section 1.103-8(a)(2) requires in part that in order to qualify under section 103(c)(4) of the Code as an exempt facility, a facility must serve or be available on a regular basis for general public use, with the exception, however, that sewage disposal facilities will be treated in all events as serving a general public use although they may be part of a nonpublic facility used in the trade or business of a nonexempt user.

This Plant meets the foregoing requirements and accordingly qualifies as an exempt activity within the meaning of section 103(c)(4)(E) of the Code to the extent of the estimated direct cost of $313,000.

Requisite Certification:

Section 1.103-8(g)(2)(i)(b) of the regulations provides that in order to qualify as a pollution control facility, either the governmental agency having jurisdiction in the circumstances has certified that the facility as designed is in the furtherance of the purpose of abating or controlling atmospheric pollutants or contaminants, or water pollution; or the facility is designed to meet or exceed applicable Federal, State, and local requirements for the control of such air pollutants or contaminants, or water pollution in effect at the time the obligations, the proceeds of which are to be used to provide such facilities, are issued.

The Authority in a supplemental submission in support of its ruling request stated: "***No certificates have yet been secured or applied for. It was, however, represented in the ruling request that the units will be designed to meet the environmental requirements of applicable regulatory authorities***."

Rulings:

Based on the information provided and the representations contained in the rulings request as supplemented, submitted on the behalf of York County Industrial Development Authority (Authority), it is further concluded that:

(1) The Bonds which may be issued in the total amount up to $12,774,000 by Authority would be issued by or on behalf of the Commonwealth of Pennsylvania, or a political subdivision thereof, within the meaning of section 103(c)(2) of the Code;

(2) Substantially all of the proceeds of the Bonds would be used to provide sewage or solid waste disposal facilities, or air or water pollution control facilities within the meaning of sections 103(c)(4)(E) or (F) of the Code, and sections 1.103-8(f)(2) or 1.103-8(g)(2) of the regulations;

(3) The interest on the Bonds issued by the Authority in the maximum estimated amount of $12,774,000 consisting of the respective estimated direct costs and an insubstantial portion thereof (not to exceed 10% of the proceeds) of the following Project facility components heretofore identified, namely: (a) Cooling Tower System-$10,573,000 and $1,057,300; (b) Solid Radwaste Facilities-$123,000 and $12,300; (c) Gaseous Radwaste System-$432,000 and $43,200; and (d) Sewage Plant - $313,000 and $31,300; plus an allowance for Costs of Financing in the amount of $188,900 would be excludable from the gross of the recipients thereof for Federal income tax purposes, except with respect to any Bond for any period during which such Bond is held by a substantial user of the facilities financed with Bond proceeds, or a related person, within the meaning of section 103(c)(7) of the Code and section 1.103-11 of the regulations;

(4) Based on representations made, the Bonds would not be arbitrage bonds within the meaning of section 103(d) of the Code;

(5) An item that is treated as an expense under any section of the Code for income tax purposes, is not of a character subject to the allowance for depreciation as provided in section 167 of the Code;

(6) As a condition to the effectiveness of the foregoing rulings, there shall be filed a copy of this letter together with satisfactory evidence of certification as required by section 1.103-8(g)(2)(i)(b) of the regulations with the income tax return for the taxable year in which the transaction covered by these rulings is consummated.

Very truly yours,

John A. Brois

John A. Brois
Chief, Engineering and
Valuation Branch

Enclosure
Copy letter

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

| | | |
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| In the Matter of | ) | |
| | ) | |
| PHILADELPHIA ELECTRIC COMPANY | ) | Docket Nos. 50-277<br>50-278 |
| | ) | |
| (Peach Bottom Atomic Power Station, Units 2 and 3) | ) | |

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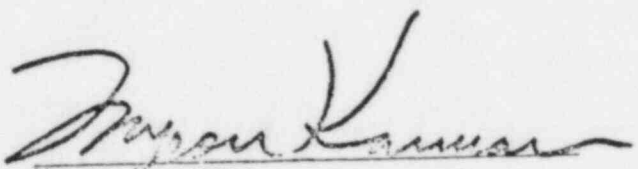

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