PHILADELPHIA ELECTRIC COMPANY
NUCLEAR GROUP HEADQUARTERS
955-65 CHESTERBROOK BLVD.
WAYNE, PA 19087-5691
(215) 640-6000

EPP 3.2

NUCLEAR ENGINEERING & SERVICES DEPARTMENT

June 3, 1992

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

NPDES Permit No. PA0051926

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Limerick Generating Station, Units 1 and 2
Changes to National Pollutant Discharge
Elimination System Permit

Gentlemen:

This letter is being submitted in accordance with the Limerick Generating Station (LGS), Units 1 and 2, Environmental Protection Plan (EPP) Section 3.2, which stipulates that the NRC shall be notified within 30 days following the date of approval of a change to the National Pollutant Discharge Elimination System (NPDES) permit. The EPP also requires that the NRC be notified of any proposed changes to the NPDES permit at the same time the permitting agency is notified.

By letter dated May 15, 1992, to the Pennsylvania Department of Environmental Resources (PA DER), Philadelphia Electric Company (PECo) requested a change to LGS NPDES Permit No. PA0052 26 to permit the addition of a new a chemical additive (i.e., BETZ 860) for use in the secondary cooling water system to aid in cleaning the Unit 1 Residual Heat Removal (RHR) system heat exchanger. In this May 15, 1992 letter, we requested an expeditious review so that we could complete the necessary cleaning operations in order to maintain the current refueling outage schedule for Unit 1. In a letter dated May 20, 1992, the PA DER approved our request to use BETZ 860 to facilitate the cleaning of the Unit 1 RHR heat exchanger.

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Therefore, in accordance with the LGS EPP Section 3.2, the letters requesting and approving this change to the LGS NPDES permit are attached along with the associated BETZ 860 chemical fact sheets. Please note that our letter to the PA DER requesting this change to the NPDES permit was not submitted to the NRC at the same time that the PA DER was notified, as required by the EPP. The delay in notifying the NRC of this proposed change, was the result of an administrative oversight brought about by the urgency of this request. Specifically, there were delays in obtaining the necessary documentation related to the chemical additive for submittal to the NRC.

If you have any questions, please do not hesitate to contact us.

Very truly yours,

G. J. Beck
Manager
Licensing Section

Attachments

cc: T. T. Martin, Administrator, USNRC, Region I (w/ attachment)
T. J. Kenny, USNRC Senior Resident Inspector, LGS (w/ attachment)

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

May 15, 1992

Mr. Sohan L. Garg
Department of Environmental Resources
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA 19428

RE: Limerick Generating Station Approval of Deposit Removal Product Betz 860

Dear Mr. Garg:

Attached is a copy of a letter from Limerick Generating Station requesting permission to use Betz 860. The product will be used for descaling a critical heat exchanger at the station. Due to the size and physical location of the heat exchanger, mechanical cleaning is extremely undesirable.

As indicated in the letter, the expected usage concentration in the heat exchanger is approximately 1500 ppm. A maximum of 350 gallons per day of the chemical will be used and the injection period will be a maximum of 48 hours. Discharge of the chemical will be to the Spray Pond or Cooling Tower. The expected concentration of the chemical at Outfall 001 is less than 100 ppm.

Attached are the product's fact sheets, Material Safety Data Sheet and Aquatic Toxicity data. Please note that a rapid response is extremely critical in order that the current outage schedule can be maintained. It is imperative that the chemical cleaning begin no later than May 20, 1992. Therefore, PaDER approval will be needed by Monday, May 18, 1992.

Since this chemical is a proprietary blend, a confidentiality agreement is being worked on between Betz and PECO. Upon completion of the agreement, someone from Limerick Station will be contacting you with the active ingredients.

If you have any questions concerning this information, please contact Robert M. Matty, Jr. at 841-5177.

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To Sohan Garg	From [illegible]
Co. Conshohocken	Co. PECO
Dept. 27-5775	Phone # 5179
Fax # 27-5775	Fax #

Sincerely,

George M. Morley
Manager
Environmental Affairs

RMM/naa
Attachment

bcc: J. M. Madara, Jr. w/o attach. G. M. Leitch w/o attach.
R. W. Dubiel w/o attach. R. M. Krich w/o attach.
T. J. Jackson w/o attach. G. J. Madsen w/o attach.
[illegible] w/o attach.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

FIELD OPERATIONS - WATER QUALITY MANAGEMENT
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA 19428
215 832-6130

May 20, 1992

Philadelphia Electric Company
2301 Market Street
P.O. Box 8699
Philadelphia, PA 19101

Attention: George M. Morley
Director, Environmental Affairs

Re: IW NPDES Permit No. PA0051926
Limerick Generating Station
Limerick Township
Montgomery County

Dear Mr. Morley:

This is in reference to your letter of May 15, 1992 requesting approval to use chemical additive BETZ 860 to clean U-shaped tubes in the heat exchanger unit at the subject facility.

We have completed our review of the information submitted by you and hereby approve your request to use the requested chemical additive as proposed. The approval is subjected to the following conditions:

1. The approved chemical additive and usage rate are as follows:

Name	Usage Rate (lbs/day)
Betz 860	3200

2. Discharges containing chemical additive to control corrosion, sealing, algae, slime, fouling, oxygen, etc., shall be managed by the permittee to ensure that toxic effects in the receiving stream are prevented. Usage rates shall be limited to the minimum amount necessary to accomplish the intended purposes of chemical addition.

3. Accurate records of usage (name of additive, quantity added, date added) of the approved chemical additive and slow down discharge volumes must be maintained and kept onsite by the permittee.

4. An Outfall 001 samples shall be collected each day and analyzed for Total Iron and dissolved iron. Total Iron shall not exceed 1.5 mg/l and dissolved iron shall not exceed 0.3 mg/l.

In the future, we will be unable to respond to your requests in such a timely manner. Therefore, we strongly suggest future requests be submitted at least two weeks in advance of date you intend to use additional chemicals.

If you have any questions, please contact Sohan Garg of our Permits Section.

Very truly yours,

Joseph A. Feola

JOSEPH A. FEOLA
Regional Water Quality Manager

cc: Limerick Generating Station
Limerick Township
Re 30 (GJC)139.12

BETZ LABORATORIES, INC.

AQUATIC TOXICOLOGY LABORATORY

SOMERTON ROAD•TREVOSE, PA 19047•U.S.A. / TEL:215•355-3300•TELEX: 173 148•FAX #355-2869

BETZ LABORATORIES,INC.
4636 SOMERTON ROAD,TREVOSE,PA.19047

PRODUCT: BETZ 860

11/27/90

AQUATIC TOXICOLOGY

DAPHNIA MAGNA

0% MORTALITY: 1250 MG/L
100% MORTALITY: 5000>MG/L
(HIGHEST CONCENTRATION TESTED)
48 HR. SCR.

FATHEAT MINNOW

0% MORTALITY: 1850 MG/L
(HIGHEST CONCENTRATION TESTED)
96 HR. SCR.

TOXIC EFFECTS OF NEAT PRODUCT PRIMARILY DUE TO ACIDITY OF PRODUCT FORMULATION.DATA SHOWN WAS GENERATED AT pH LEVELS ADJUSTED TO THAT MOST COMMONLY ENCOUNTERED IN TREATMENT WATERS.

Betz *Industrial*

Betz 860 has flash point > 200°F and as such is <u>not</u> classified as DOT combustible. Based on its composition we anticipate that bomb calorimeter results would show "not ignitable".

Betz 860 is not a dispersant or surfactant and we have no reason to suspect any adverse impacts on the ponds clay liner.

Betz 860 is a low sulfur (< 15 ppm as S), low halogen (Cl^- <30 ppm, F^- <30 ppm, BR^- <80 ppm), organic material. Mercury, cadmium, lead, and tin are all less than detectable and we have no reason to suspect their presence. Betz 860 bears DOT classification D002 corrosive (pH, steel) and has a reportable spill quantity of 5,466 gallons which is well more than the total amount present on-site.

Betz regards all the above information as confidential information covered under the terms of our secrecy agreement.

If you require any further information or assistance, please feel free to call.

Very truly yours,

BETZ INDUSTRIAL

Raymond M. Post

Raymond M. Post, P.E.
Product Manager
Power Industry Division

BETZ Industrial

Betz Industrial
1 Quality Way
Trevose, PA 19053-6783
215-355-3300
Fax: 215-953-2473

May 18, 1992

Mr. Steve Dietch
Philadelphia Electric
Limerick Generating Station
Pottstown, PA

Fax (215) 327-1200, Ext. 2721

Reference: Betz 860

Dear Mr. Dietch:

Attached is a product fact sheet, Material Safety Data Sheet, Aquatic Toxicity Sheet, and Materials Compatability list for Betz 860, deposit removal product intended for use in cleaning the RHR exchangers at Limerick. It is my understanding that formal approval to use the product will be forthcoming from Sohan Garg of PA DER in a day or two. Betz 860 is a concentrated form of the DE-1579 used at Perry.

Betz DE-860 is not a chelating agent as defined in Kirk Olamer's Encyclopedia of Chemical Technology. Betz 860 does substantially increase the rate of dissolution of calcium carbonate under moderately acidic conditions.

Betz 860 is a blend of organic acids consisting of only carbon, oxygen, and hydrogen. Common grades of stainless steel (304, 316), all plastics and elastomers resistant to mild organic acids (PVC, CPVC, polyethylene, polypropylene, common FRP resins, Kynar, Teflon, epoxy, saran, natural rubber, buna N (nitrite) SBR and butadiene derivative rubbers, penton, Hypalon, and Tygon) are all suitable for storing or handling Betz 860 in either its undiluted form or at use concentrations. Nylon, red metals, aluminum, and carbon steel should be avoided in handling the concentrated product due to the effect of low pH on these materials. At use concentrations corrosion rates of approximately 25 mpy on carbon steel, 5 mpy on brass, and less than 1 mpy on stainless steel should be anticipated.

Betz 860 is compatible with radwaste and condensate polisher ion exchange resins. Tests conducted in our labs have shown that the product will exchange on and elute off the resin with no loss of resin capacity. Each cubic foot of anion resin will exchange approximately 100 gallons of Betz 860.

Betz Industrial

BETZ DE-1579

Metals Compatibility

Undiluted Product Storage and Handling:

Excellent
304/316 Stainless Steel

Not Recommended
Copper bearing alloys
Carbon steel

Metals Compatibility, 25% Cleaning Strength

Corrosion Rate, 30 hour exposure

Stainless Steel - <1 mpy
Admiralty Brass - 5 mpy
Carbon Steel - 25 mpy

BETZ Industrial

product facts

BETZ® 860
DEPOSIT REMOVAL PRODUCT

- Excellent for removal of calcium carbonat scale from cooling water systems.
- Also effective on calcium phosphate deposits.
- Can clean cooling systems of these deposits on-line eliminating production downtime.

DESCRIPTION AND USE

Betz 860 is a unique trade secreted material designed to remove calcium carbonate and/or calcium phosphate deposits from industrial and power cooling water systems. These deposits, which contribute to lost heat transfer or reduced water velocity, can be removed safely and easily, thus aiding in restoring a cooling system to its normal operating conditions.

Betz 860 is designed as a one-time supplement to normal cooling water system treatment. It is not applicable as a continuous cooling system treatment product.

TREATMENT AND FEEDING REQUIREMENTS

This product is designed to be used in two distinct manners:

1. Recirculating through a cooling water system.
2. Fill and soak for large industrial and power equipment.

The product is not designed for small industrial heat exchangers due to packaging restrictions.

Dosage - Proper treatment levels of Betz 860 depend on the thickness of the calcium carbonate and/or calcium phosphate deposit and the size of the system. Feed of the product is not based on system or equipment water volume. Betz will provide control parameters and monitoring guidelines for specific applications.

Feed Point - Betz 860 should be fed to the cooling tower basin if being utilized in a recirculating cooling system or to the makeup or recirculation pumps if cleaning large individual pieces of equipment (i.e.; power plant condenser).

System Parameters - Betz 860 can be fed to all cooling water systems except those containing galvanized material.

GENERAL PROPERTIES

Appearance	yellow to dark brown liquid
Density 70 °F(21 °C)	9.14 pounds per gallon
Flash Point (closed cup)	>200 °F(93 °C)
Freeze Point	26 °F(-3 °C)
Initial Crystallization	80 °F(27 °C)
pH (undiluted)	1.4
(5% solution)	2.3
Pour Point (ASTM)	31 °F(-1 °C)
Specific Gravity 70 °F(21 °C)	1.098
Viscosity 100 °F(38 °C)	9.0 CPS

PACKAGING INFORMATION

Betz 860 is a liquid material available only in bulk shipment quantities.

SAFETY PRECAUTIONS

Material Safety Data Sheets containing detailed information relative to this product are available upon request.

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BETZ LABORATORIES,INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19053
BETZ MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE (HEALTH/ACCIDENT) 800-877-1940

PRODUCT : BETZ 860
EFFECTIVE DATE 02-16-91
PRINTED: 1-Mar-1991
REVISIONS TO SECTIONS: -;EDIT:APPENDIX

PRODUCT APPLICATION : CHEMICAL CLEANING COMPOUND.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD IS LICTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

TRADE SECRET INGREDIENT(122);NUISANCE DUST;POSSIBLE EYE IPRITANT; PEL:NUISANCE DUST;TLV:NUISANCE DUST. TSRN 125438 - 5214P

TRADE SECRET INGREDIENT(E195);EYE IRRITANT;PEL:NONE;TLV:NONE. TSRN 125438 - 5118P

TRADE SECRET INGREDIENT(222);OXIDIZER;CORROSIVE;PULMONARY DAMAGE;DENTAL EROSION;PEL/TLV:5MG/M3(10MG/M3-STEL). TSRN 125438 - 5238P

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 1.4 ODOR: ACID
FL.PT.(DEG.F): >200 P-M(CC) SP.GR.(70F)OR DENSITY: 1.098
VAPOR PRESSURE (mmHG): 18 VAPOR DENSITY(AIR=1): <1
VISC cps70F: ND %SOLUBILITY(WATER): 100
EVAP.RATE: <1 ETHER=1 APPEARANCE: YELLOW TO DARK BROWN
PHYSICAL STATE: LIQUID FREEZE POINT(DEG.F): 26

-----SECTION 3----------REACTIVITY DATA----------

STABLE.MAY REACT WITH ORGANICS OR ALKALINE MATERIALS.DO NOT CONTAMINATE.BETZ TANK CLEAN-OUT CATEGORY 'D'

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

PRODUCT: BETZ 860

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
SLIGHTLY IRRITATING TO THE SKIN

ACUTE EYE EFFECTS ***
SEVERE IRRITANT TO THE EYES

ACUTE RESPIRATORY EFFECTS *** PRIMARY ROUTE OF EXPOSURE
VAPORS,GASES,MISTS AND/OR AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

CHRONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED EXPOSURE MAY CAUSE LUNG DAMAGE AND/OR MAY CAUSE PRIMARY IRRITANT DERMATITIS.

MEDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

SYMPTOMS OF EXPOSURE ***
INHALATION MAY CAUSE IRRITATION OF RESPIRATORY TRACT;SKIN CONTACT MAY CAUSE ITCHING AND/OR REDNESS.

PRECAUTIONARY STATEMENT BASED ON TESTING RESULTS ***
MAY BE TOXIC IF ORALLY INGESTED OR INHALED.

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

INGESTION***
DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

SPILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL, SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
FLUSH AREA WITH WATER. WET AREA MAY BE SLIPPERY. SPREAD SAND/GRIT.

DISPOSAL INSTRUCTIONS***
WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER TREATMENT FACILITY,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A PERMITTED WASTE TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT
PRODUCT(AS IS)-
INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA: DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

PRODUCT: BETZ 860

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

USE PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTION 1910.132-134. USE RESPIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.

VENTILATION PROTECTION***

ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH DUST/MIST FILTERS.

RECOMMENDED SKIN PROTECTION***

RUBBER GLOVES

WASH OFF AFTER EACH USE.REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***

SPLASH PROOF CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***

KEEP DRUMS & PAILS CLOSED WHEN NOT IN USE.

USE APPROVED CONTAINERS ONLY.STORE IN COOL,WELL-VENTED AREA.CONTACT WITH METALS MAY RELEASE FLAMMABLE HYDROGEN GAS.

HANDLING INSTRUCTIONS***

CONTAINS AN OXIDIZER. AVOID ALL CONTACT WITH REDUCING AGENTS, OILS, GREASES, ORGANICS AND ACIDS.

****

THIS MSDS WAS WRITTEN TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD

****

APPENDIX: REGULATORY INFORMATION

THE CONTENT OF THIS APPENDIX REPRESENTS INFORMATION KNOWN TO BETZ ON THE EFFECTIVE DATE OF THIS MSDS. THIS INFORMATION IS BELIEVED TO BE ACCURATE. ANY CHANGES IN REGULATIONS WILL RESULT IN UPDATED VERSIONS OF THIS DOCUMENT.

...TSCA: ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY

...REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:
5,466 GALLONS DUE TO (222);9,111 GALLONS DUE TO (122)

...RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE IDENTIFICATION NUMBER IS: D002=CORROSIVE (PH,STEEL)

...DOT HAZARD/UN#/ER GUIDE# IS: CORROSIVE TO STEEL UN1760/#60

...CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) MATERIALS: NONE

...SARA SECTION 302 CHEMICALS: TRADE SECRET(222)--INORGANIC ACID ;

...SARA SECTION 313 CHEMICALS: TRADE SECRET(222)--INORGANIC ACID , 2.0-5.0% ;

...SARA SECTION 312 HAZARD CLASS: DELAYED(CHRONIC) AND FIRE

...MICHIGAN CRITICAL MATERIALS: NONE

NFPA/HMIS : HEALTH - 2 ; FIRE - 1 ; REACTIVITY - 0 ; SPECIAL - CORR ; PE - B