

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9102120054 DOC. DATE: 91/02/06 NOTARIZED: NO DOCKET #  
 FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylv 05000387  
 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388

AUTH. NAME AUTHOR AFFILIATION  
 FIELDS, J.S. Pennsylvania Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION  
 LEHMAN, S.J. Pennsylvania, Commonwealth of

SUBJECT: Requests concurrence on proposed plan for descaling Unit 2  
 condenser w/Bentz DE-1579. Scheduling of descaling treatment,  
 planned during refueling outage sheduled to begin 910309.  
 Concurrence requested by 910222.

DISTRIBUTION CODE: C001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 9  
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NOTES: LPDR 1 cy Transcripts. 05000387  
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	NRR/DET/ESGB 8D	1 1	OC/LEMB	1 0
	OGC/HDS2	1 0	REG FILE 01	1 1
	RGN1 DRSS/RPB	1 1		
EXTERNAL:	EG&G SIMPSON, F	2 2	NRC PDR	1 1
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NOTES:		2 2		

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*E/K*  
*cur*



# Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

February 6, 1991

Mr. Stanley J. Lehman  
Water Quality Specialist Supervisor  
Bureau of Water Quality  
Pennsylvania Department of Environmental Resources  
90 East Union Street, 2nd Floor  
Wilkes-Barre, PA 18701-3296

SUSQUEHANNA STEAM ELECTRIC STATION  
DESCALING UNIT II CONDENSER WITH  
BETZ DE-1579  
CCN 741326 FILE R9-8A  
PLE-13825

Dear Mr. Lehman:

As we discussed during our recent telephone conversations, Pennsylvania Power & Light Company has developed a plan to remove scale from the Susquehanna SES Unit II condenser. We request the Pennsylvania Department of Environmental Resources' concurrence for this proposed plan. Scheduling of the descaling treatment is planned during the Unit II refueling outage scheduled to begin March 9, 1991. We request your concurrence by February 22, 1991.

A buildup of calcium carbonate scale on the Unit II condenser occurred between August 29 and September 4, 1990, due a chemical feed pump failure. The result of this pump failure is the loss of approximately 8 Megawatts electrical generation.

There are two treatment options for this descaling activity. These options are:

- o Option one is to isolate Unit II blowdown for a period of 12 hours and maintain a descalant concentration for Betz DE-1579 of approximately 2,000 mg/l (as product) while the station is operating. Sulfuric acid will be injected into the system on a continuous basis to maintain a pH between 5.0 and 5.5. After 12 hours treatment will be discontinued and the pH will rise due to system alkalinity.
- o The second option is to inject descalant into the Circulating Water System for a period of four hours during an outage. With Unit II shut down sufficient DE-1579 will be added to lower the circulating water pH range between 5.0 and 5.5. A maximum concentration of 2,000 mg/l (as product) will be maintained in the system. After four hours while blowdown is still isolated, circulating water will be pumped over the Cooling Tower fill until the pH  $\geq 6.0$ . Sulfuric acid injection will not be needed for this descaling option.

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February 6, 1991

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CCN 741326 PLE-13825

FILE R9-8A

To: Stanley J. Lehman

For either option once pH is verified to be  $\geq 6.0$ , Unit II blowdown will be reopened. With dilution of Unit I blowdown the initial discharge of DE-1579 concentration to the river will be  $\leq 1,000$  mg/l. At this level DE-1579 will not be toxic to Daphnia Magna (0% mortality for 48 hours at 1,000 mg/l or Fathead Minnows 0% mortality for 96 hours at 1,500 mg/l). The concentration of DE-1579 after 21 hours will be approximately 500 mg/l and after 42 hours 250 mg/l.

Option 2 the selected descaling procedure will add Betz DE-1579 to the Unit II Circulatory Water System during the next scheduled outage. Similar descaling activities have occurred at the LaSalle and Perry nuclear plants. Enclosed for your review is a copy of the Betz DE-1579 Material Safety Data Sheet. In addition, enclosed per your request are two approvals, one by the Illinois Environmental Protection Agency and a second by the Ohio Environmental Protection Agency for use of DE-1579 at these two generating stations.

To ensure that the injection pump problem does not occur again, the station has upgraded both the equipment and procedures. The injection equipment has been installed by PP&L and included on station drawings. Previously the equipment was operated by the station's water treatment contractors. Procedures have been written for daily inspections. This equipment will be added to the station's preventative maintenance program.

If you have any questions please call me at (215) 774-7889.

Sincerely yours,



Jerome S. Fields

Sr. Environmental Scientist-Nuclear

jsf/mel2347c(26)

Enclosures

cc: ~~NRC Document Control Desk.~~

NRC Region I

Mr. G. S. Barber, NRC Resident Inspector

Mr. M. C. Thadani, NRC Project Manager

February 28, 1990

**CERTIFIED MAIL**

Mr. Thomas G. McSwiggin, P.E.  
Manager, Permit Section  
Division of Water Pollution Control  
Illinois Environmental Protection Agency  
2200 Churchill Road  
Springfield, Illinois 62706

Subject: Chemical Treatment of Cooling Water  
LaSalle County Generating Station  
NPDES Permit No. IL 0048151

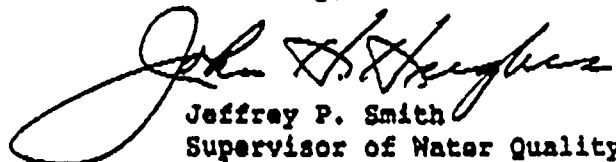
Dear Mr. McSwiggin:

Commonwealth Edison Company hereby notifies the Agency of the following addition of chemical treatment at LaSalle County Station. Due to a problem with calcium carbonate scaling of the condenser tubes, the Unit 2 condenser will be treated with a proprietary chemical for scale removal.

Attached is the Material Safety Data Sheet for this product. Our plan is to fill the Unit 2 condenser with a 25 percent solution of the chemical and circulate it inside the condenser until the reaction with the calcium carbonate is complete. The volume of this condenser is 180,000 cubic feet and the initial pH inside the condenser will be approximately 2.0. After the reaction is complete, we expect the chemical strength of the solution to be approximately 7.5 percent, with a pH of greater than 6.0. The condenser will then be drained using the dewatering pumps at a flowrate of 600 - 800 gpm into the de-icing line which will carry the water to the circulating water pump house. There it will be combined with Unit 1 circulating water flowing at a rate of 484,000 gallons per minute. Discharge concentration of the chemical in the Unit 1 circulating water, therefore, is expected to be, at most, 124 mg/l, which should have no adverse impact on the environment. A complete cleaning may require up to three applications of the chemical.

Since the station anticipates that it will be able to control such scaling in the future, this process should only be necessary one time for each unit. It will be repeated on Unit 1 in 1991. Should you have any further questions, please call Ms. Kathleen Owens of my staff at 312/294-4461.

Sincerely,

  
Jeffrey P. Smith  
Supervisor of Water Quality

7552a  
KMO:JPS:bg  
Attachment

bcc: G. J. Diederich  
P. T. Nottingham  
E. E. White  
M. E. Burgess  
K. M. Owens



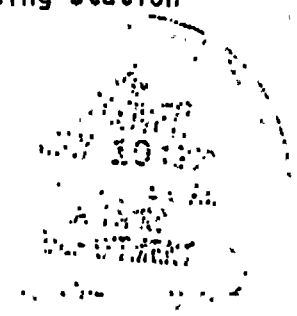
Illinois Environmental Protection Agency • P.O. Box 19276, Springfield, IL 62794-9276

217/782-1696

Commonwealth Edison Company - LaSalle County Generating Station  
Condenser Scale Treatment

May 7, 1990

Mr. Jeffrey P. Smith  
Supervisor of Water Quality  
Commonwealth Edison Company  
P.O. Box 767  
Chicago, Illinois 60690-0767



Dear Mr. Smith:

We have reviewed your February 28, 1990 letter regarding the proposed treatment of condenser tubes at the LaSalle County Station with Betz DE-1579, a proprietary chemical for scale removal. Based on the information in your letter, we find that an NPDES permit modification is not required for this operation. Note that the pH limits of your NPDES permit must be met during the discharge of the product.

This notice of no NPDES permit modification required constitutes final action by the Agency on this submission.

Should you have any questions or comments regarding the above, please contact Tim Kluge at the indicated telephone number.

Very truly yours,

Thomas G. McSwiggin, P.E.  
Manager, Permits Section  
Division of Water Pollution Control

TGM:TRK:smt

cc: Records Unit  
Region 1



State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.  
Columbus, Ohio 43268-0149

Richard F. Celeste  
Governor

June 20, 1989

Re: Cooling Water Additive Request  
Perry Nuclear Power Plant  
OEPA No. 31B00016\*CD  
NPDES No. OH0063461

Raymond M. Post, P.E.  
Engineering Group Leader  
Betz Industrial  
4636 Somerton Road  
Trevose, PA 19047-6783

Dear Mr. Post:

Your request, which was submitted in accordance with Part II of the above referenced NPDES permit, to discharge Betz DE-1579, Betz GCP-109 and Betz GCP-127, cooling water additives, at concentrations of 250 mg/l, 20 mg/l, 30 mg/l respectively to Lake Erie at the above referenced facility is hereby approved.

Please note the approval is given subject to the understanding that these additives are used for cleaning on a temporary basis and are not a part of routine daily operation. We also understand that pH of the final effluent will be controlled within the permit guidelines and that proposed concentrations of the additives Betz DE-1579 and Betz GCP-109 would decrease to 100 mg/l and 0.8 mg/l respectively within 24 hours of discharge.

If you wish to discharge these additives at a greater concentration or use an alternative additive, then a separate approval from Ohio EPA must be acquired prior to the change. If you have any further questions, please contact Swaraj K. Chakrabarti of my staff at (614) 644-2001.

Sincerely,

A handwritten signature in dark ink, appearing to read "John J. Sazawiez".

John J. Sazawiez, P.E.  
Manager, Permits Section  
Division of Water Pollution Control

JJS/SXC/mds  
00898/29

cc: Martin Hilovsky, NRCO  
~~Swaraj K. Chakrabarti~~, DWPC

BETZ LABORATORIES, INC.  
4636 SOMERTON ROAD, TREVOSE, PA. 19047  
BETZ MATERIAL SAFETY DATA SHEET  
24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 215/355-3300

PRODUCT : BETZ DE-1579

(PAGE 1 OF 3)  
EFFECTIVE DATE 09-17-90  
PRINTED: 24-Sep-1990

REVISIONS TO SECTIONS: APPENDIX;EDIT:2,8

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 LISTED. 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 IRRITANT;  
PEL:NUISANCE DUST;TLV:NUISANCE DUST. TSN 125438 - 5214P

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

NITRIC ACID\*\*\*CAS#7697-37-2;OXIDIZER;CORROSIVE;PULMONARY DAMAGE;DENTAL  
EROSION;PEL/TLV:5MG/M3(10MG/M3-STEL).

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

PH: AS IS	(APPROX.)	1.4	ODOR: PUNGENT
FL.PT.(DEG.F):	>200	P-M(CC)	SP.GR.(70F)OR DENSITY: 1.070
VAPOR PRESSURE(mmHG):	36		VAPOR DENSITY(AIR=1): <1
VISC cps70F:	9		%SOLUBILITY(WATER): 100
EVAP.RATE:	<1	ETHER=1	APPEARANCE: COLORLESS TO GREEN
PHYSICAL STATE:	LIQUID		FREEZE POINT(DEG.F): 27

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

STABLE.MAY REACT WITH STRONG OXIDIZERS.DO NOT CONTAMINATE.BETZ TANK  
CLEAN-OUT CATEGORY 'B'

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.



BETZ MATERIAL SAFETY DATA SHEET (PAGE 2 OF 3)

PRODUCT: BETZ DE-1579

-----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. IMMEDIATELY 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



BETZ MATERIAL SAFETY DATA SHEET (PAGE 3 OF 3)

PRODUCT: BETZ DE-1579

-----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\*\*\*

NEOPRENE 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.

PROTECT FROM FREEZING.KEEP DRY

HANDLING INSTRUCTIONS\*\*\*

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

\*\*\*\*\*

THIS MSDS COMPLIES WITH THE OSHA HAZARD COMMUNICATION STANDARD

HAROLD M. HERSH (ENVIRONMENTAL INFORMATION COORDINATOR)

\*\*\*\*\*

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 IN THE TSCA INVENTORY

...REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:

5,611 GALLONS DUE TO NITRIC ACID;11,222 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

...THIS PRODUCT CONTAINS THESE CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO  
CAUSE CANCER OR REPRODUCTIVE TOXICITY: NONE PRESENT IN SIGNIFICANT AMOUNTS

...SARA SECTION 302 CHEMICALS: NITRIC ACID(7697-37-2) ;

...SARA SECTION 313 CHEMICALS: NITRIC ACID(7697-37-2) , 2.0-5.0% ;

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

...MICHIGAN CRITICAL MATERIALS: NONE PRESENT IN SIGNIFICANT AMOUNTS

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

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

PRODUCT: BETZ DE-1579

10/11/90      AQUATIC TOXICOLOGY

DAPHNIA MAGNA

0% MORTALITY: 1000    MG/L  
48 HR. SCR.

FATHEAD MINNOW

0% MORTALITY: 1500    MG/L  
96 HR. SCR.

10/11/90      MAMMALIAN TOXICOLOGY

ORAL LD50 -NO DATA

DERMAL LD50 -NO DATA

SKIN IRRITATION SCORE-NO DATA

EYE IRRITATION SCORE-NO DATA

INHALATION-NO DATA