

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9009120128 DOC.DATE: 90/08/31 NOTARIZED: NO DOCKET #  
 FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387  
 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388  
 AUTH.NAME AUTHOR AFFILIATION  
 FIELDS,J.S. Pennsylvania Power & Light Co.  
 RECIP.NAME RECIPIENT AFFILIATION  
 WILKES,J.J. Pennsylvania, Commonwealth of

SUBJECT: Advises that Clam-Trol (CT-1) being tested to determine use as replacement for chlorine as biocide.

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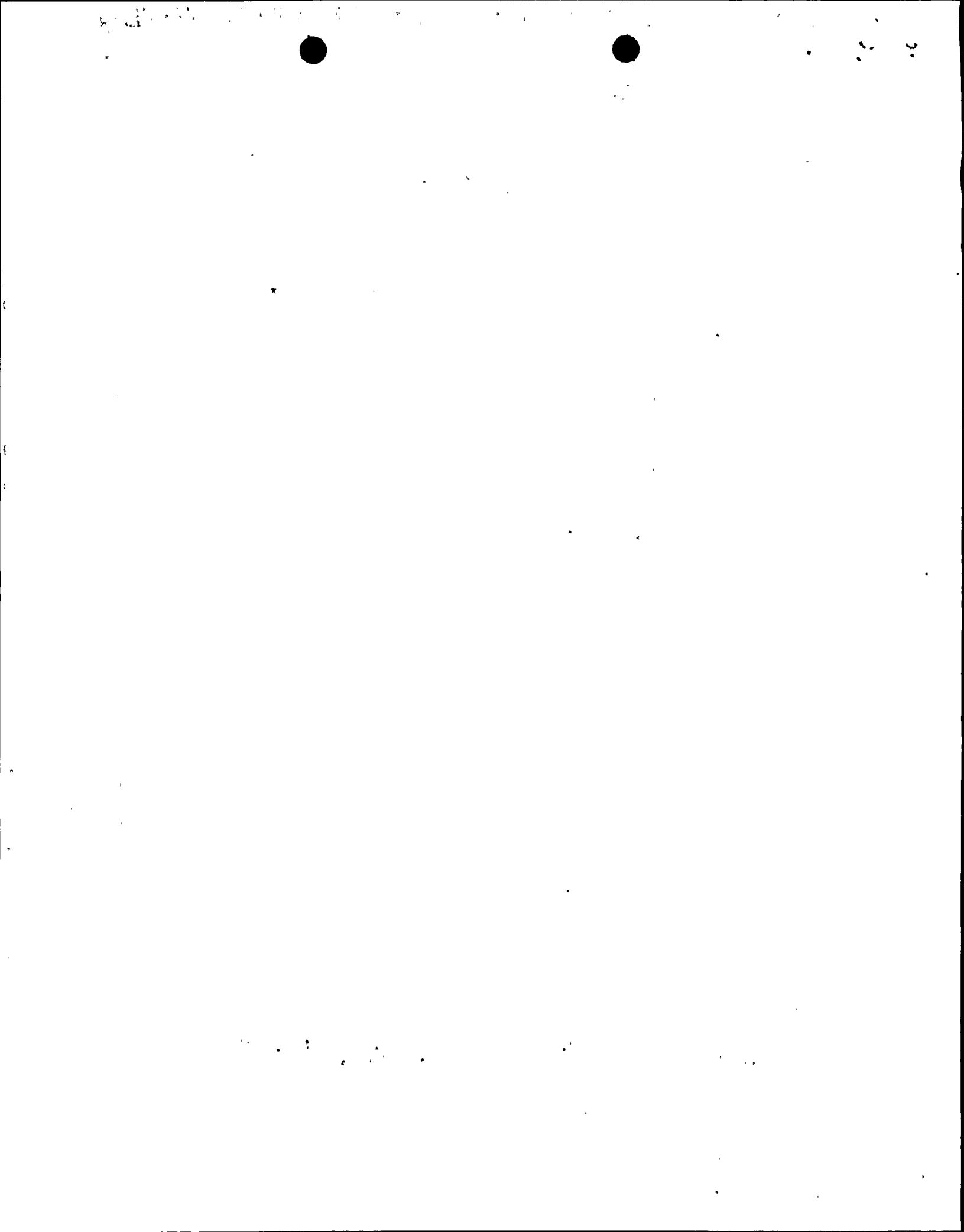
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INTERNAL:	ACRS	6 6	AEOD/DSP/TPAB	1 1
	NRR/DET/ESGB 8D	1 1	OC/LEMB	1 0
	OGC/HDS2	1 0	<u>REG FILE</u> 01	1 1
	RGN1 DRSS/RPB	1 1		
EXTERNAL:	EG&G SIMPSON,F	2 2	NRC PDR	1 1
	NSIC	1 1		
NOTES:		2 2		

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# Pennsylvania Power & Light Company

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

August 31, 1990

Mr. John J. Wilkes, Jr.  
Water Quality Regional Manager  
Bureau of Water Quality Management  
Pennsylvania Department of Environmental Resources  
90 East Union Street, 2nd Floor  
Wilkes-Barre, PA 18701-3296

SUSQUEHANNA STEAM ELECTRIC STATION  
USE OF CLAM-TROL (CT-1) AS A BIOCIDES  
NPDES PERMIT NO. PA 0047325  
CCN 741326 FILE R9-8A  
PLE-12834

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Dear Mr. Wilkes:

Pennsylvania Power & Light Company (PP&L) is planning on testing Clam-Trol (CT-1), a non-oxidizing biocide for microbiological growth control in the Unit 2 circulating and service water systems at the Susquehanna Steam Electric Station. Information was provided to the Pennsylvania Department of Environmental Resources in an application for an NPDES permit. Approval for use was included in NPDES Permit No. PA 0047325, Special Conditions Part C., No. 13, January 22, 1990.

The purpose of testing is to determine if CT-1 can replace chlorine as a biocide and the need for sulfur dioxide as a dechlorinating agent. Concentration range of CT-1 in the circulating water system will be approximately 7 - 10 mg/l. The Unit 2 discharge to the river will be isolated for up to a period of 12 hours. Once discharge is begun, it is estimated that the Unit 2 blowdown concentration will be less than 0.2 mg/l and after dilution with Unit 1 blowdown the discharge concentration to the river will be less than 0.1 mg/l.

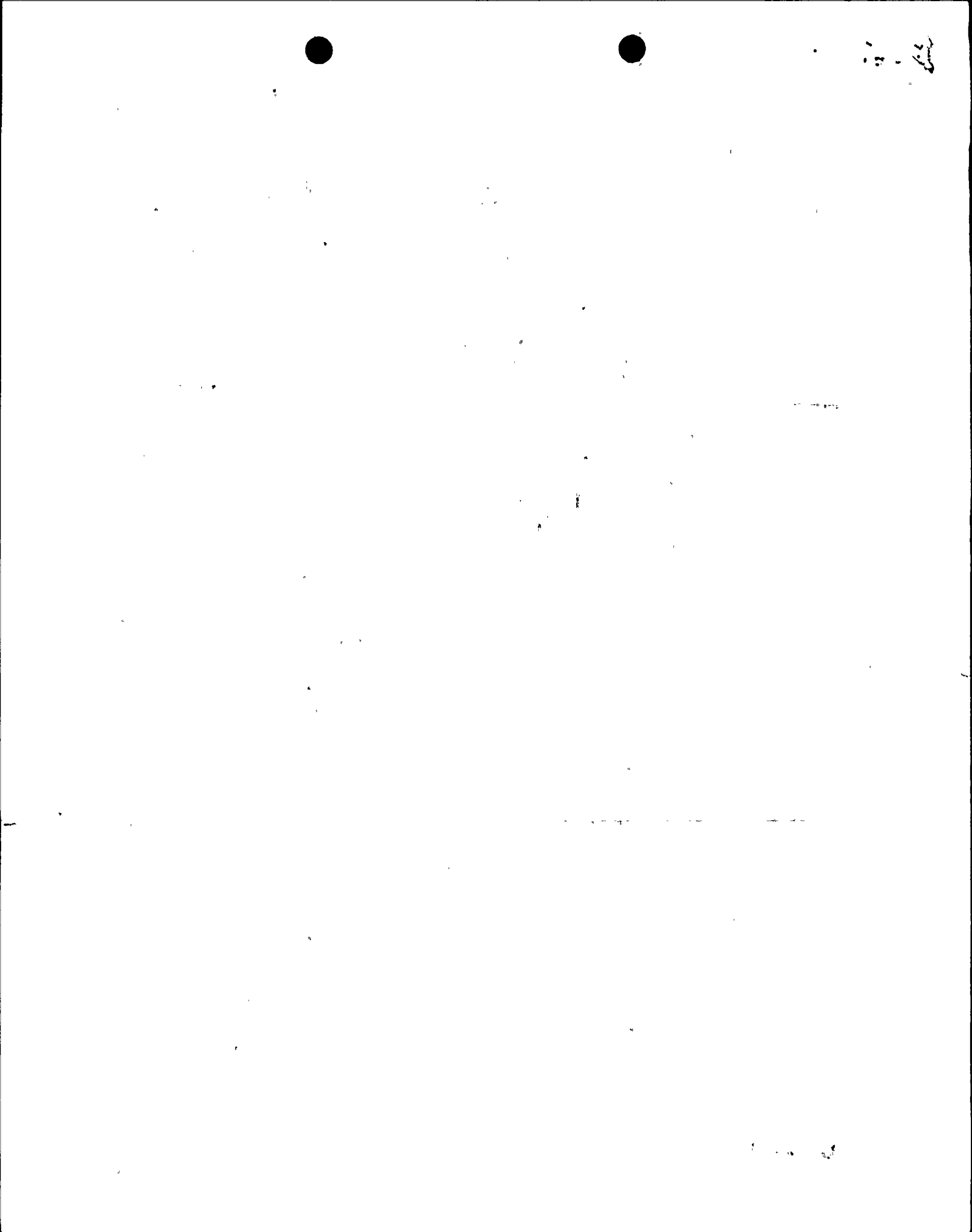
Over a two-month period beginning in mid-September approximately 90 gallons per week will be injected into the Unit 2 circulating and service water systems. The 90 gallons per week is well within the usage rates listed in the NPDES permit. Also, the amount of CT-1 discharged to the river is well below toxicity levels listed in the Material Safety Data Sheets (MSDS).

The original intent for using CT-1 was for control of Asiatic clams (Corbicula). At present Corbicula have been found in the Susquehanna River at PP&L's Sunbury Steam Electric Station in Shamokin Dam approximately 40 miles downstream. This testing will not only determine if chlorine and sulfur dioxide can be replaced, but also initiate a program for clam control.

Similar programs have already been initiated at other generating stations in Pennsylvania. They include Three Mile Island, Beaver Valley, and Peach Bottom.

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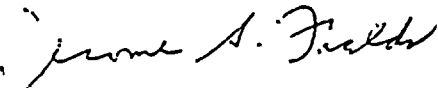
August 31, 1990

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CCN 741326 PLE-12834  
FILE R9-8A  
TO: Mr. John J. Wilkes, Jr.

Enclosed is a copy of the CT-1 MSDS for your review. If you have any questions, please call Jim Wolfer at (717) 542-3981 or me at (215) 770-7889.

Sincerely yours,

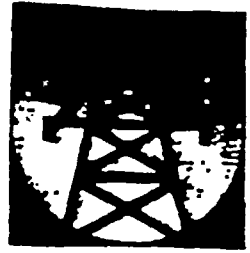


Jerome S. Fields  
Sr. Environmental Scientist-Nuclear

jsf/1th2194c(26)

Enclosure

cc: NRC Document Control Desk  
NRC Region I  
Mr. G. Barber, NRC Sr. Resident Inspector  
Mr. M. Thadani, NRC Project Manager  
P. M. Swardon, PaDER  
S. J. Lehman, PaDER



# product facts

## BETZ CLAM-TROL™ CT-1 MOLLUSCICIDE

- Effectively controls all life stages of freshwater Asiatic clams
- Controls a broad spectrum of microorganisms
- Biodegradable—low environmental impact

### DESCRIPTION AND USE

Clam-trol CT-1\* is a unique blend of active ingredients that controls mollusc infestations in industrial water systems. Asiatic clams, the most common freshwater mollusc problem, block water lines and damage equipment. The results can be higher production and maintenance costs and plant shut-downs.

A low level of Clam-trol CT-1, applied to a system for a short period, affects all life stages present, including established adult populations. See Figure 1. Thereafter, periodic applications of Clam-trol CT-1 inhibit recolonization of the system by larval and juvenile clams that are carried in with the makeup water.

Clam-trol CT-1 is registered for use against molluscs as well as bacterial, fungal, and algal slimes in:

- recirculating and once-through cooling systems
- influent systems for cooling
- auxiliary water and wastewater systems

Clam-trol CT-1 is a blend of organic biocides and contains no heavy metals or EPA priority pollutants.

### TREATMENT AND FEEDING REQUIREMENTS

Adult clams should be physically removed by vacuuming or dredging before the start of a Clam-trol CT-1 program so that dead clams are not carried further into the system.

Your Betz Industrial representative will design a program for your system that controls the infestation problem while minimizing both the cost of the treatment and environmental concerns.

Higher temperatures and longer contact times reduce the amount of Clam-trol CT-1 that is required to achieve effective kills.

Normally, recirculating or closed systems should be laid up for 24–48 hr after the system is charged with an effective amount of product. Typical charge concentrations are 25–50 ppm.

Once-through systems can be effectively treated by 10–30 ppm of product applied continuously over 12–48 hr and repeated two to four times a year. Or, effective control of molluscs and microorganisms can also be achieved in once-through systems using short—0.5–1.0 hr—daily applications of 10–30 ppm.

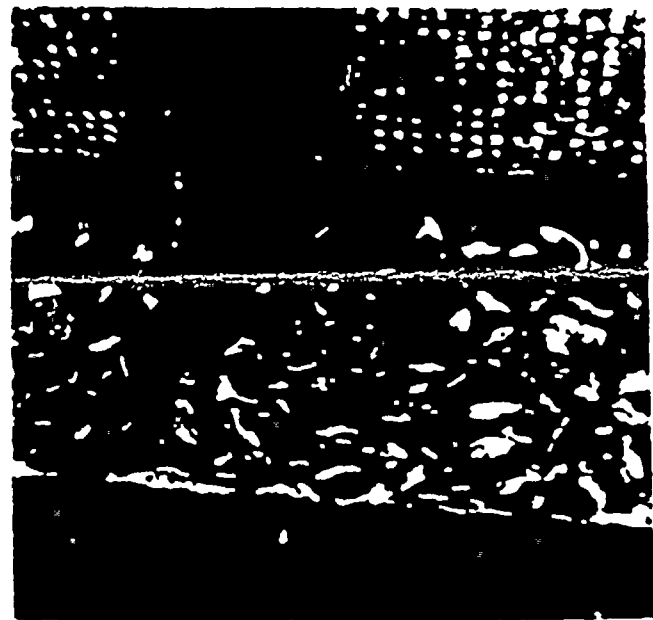


Figure 1. Asiatic clams growing on the plant side of influent screens. Clam-trol CT-1, unlike halogen or screening methods, controls both larval and adult clams.

\*The use of Clam-trol CT-1 for mollusc control is the subject of a pending U.S. patent application.

Segmenting plant-wide applications of Clam-trol CT-1 reduces the amount of product that appears in plant effluent. Clam-trol CT-1 undergoes neutralization and detoxification by natural routes. But your Betz Industrial representative can provide products that accelerate this process. An analytic test procedure is available from Betz that monitors product levels in plant outfall.

Clam-trol CT-1 is compatible with stainless steel, copper alloys, and most common plastics and rubbers. Avoid the use of mild steel, low-density polyethylene, nitrile (Buna N), polyurethane, or Viton in handling the concentrated product. A complete selection of compatible feed equipment is available directly from Betz.

#### GENERAL PROPERTIES

Appearance ..... colorless liquid  
Density at 70 °F (21 °C) .. 8.5 lb/gal (1.02 kg/L)  
Flash Point (closed cup) ..... ≥116 °F (47 °C)  
Freeze Point ..... < -30 °F (-34 °C)  
Initial Crystallization Point ..... < 0 °F (-18 °C)  
pH (undiluted) ..... 5.3  
    (5% solution) ..... 4.9  
Brookfield Viscosity at 70 °F (21 °C) ..... 23 cP  
EPA Registration No. .... 3876-145

#### SAFETY PRECAUTIONS

A Material Safety Data Sheet containing detailed information relative to this product is available upon request.

#### PACKAGING INFORMATION

Clam-trol CT-1 is blended as a liquid and is supplied in 55-gal (208-L), bung-type, nonreturnable lined steel drums. Approximate net weight is 460 lb (208 kg) per drum. In addition, Clam-trol CT-1 is available under BETZ Point Of Feed® and BETZ Semi-Bulk Control™ programs for contracted quantities in certain geographic areas.

BETZ INDUSTRIAL

4636 SOMERTON ROAD TREVOSE, PA 19047

BETZ MATERIAL SAFETY DATA SHEET

24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 215/355-3300

PRODUCT CLAMTRGL CT1

EFFECTIVE DATE 10-31-88

PRINTED: 12/28/88

PRODUCT APPLICATION WATER-BASED MICROBIAL CONTROL AGENT.

-----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 ARE LISTED REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

ETHYLENE GLYCOL\*\*\*CAS#107-21-1; LIVER, KIDNEY AND BLOOD TOXIN; CNS DEPRESSANT; ANIMAL TERATOGEN (HIGH ORAL DOSES); PEL: NONE; TLV: 50PPH (CEILING).

ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE\*\*\*CAS#68424-85-1; CORROSIVE (EYES); PEL NONE; TLV: NONE.

ISOPROPYL ALCOHOL\*\*\* (IPA); CAS#67-63-0; FLAMMABLE LIQUID; CHRONIC OVEREXPOSURE MAY CAUSE LIVER AND KIDNEY TOXICITY; PEL/TLV: 400PPH.

DODECYLGUANIDINE HYDROCHLORIDE\*\*\* (DGH); CAS#13590-97-1; CORROSIVE; PEL: NONE; TLV: NONE.

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

PH: AS IS	(APPROX.) 5.3	ODOR: MILD
FL.PT. (DEG.F): 116	SETA(CC)	SP.GR. (70F) OR DENSITY: 1.022
VAPOR PRESSURE (MMHG): 23		VAPOR DENSITY (AIR=1): >1
VISC @ 70F: 23		% SOLUBILITY (WATER): 100
EVAP. RATE: (1 ETHER=1)		APPEARANCE: COLORLESS
PHYSICAL STATE: LIQUID		FREEZE POINT (DEG.F): <-30

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

STABLE

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.



MATERIAL SAFETY DATA SHEET (PAGE 2 OF 3)

PRODUCT: CLAM'TROL CT1

EFFECTIVE DATE 10-31-

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

CUTE SKIN EFFECTS \*\*\* PRIMARY ROUTE OF EXPOSURE

CORROSIVE TO SKIN.POTENTIAL SKIN SENSITIZER

CUTE EYE EFFECTS \*\*\*

CORROSIVE TO THE EYES

CUTE 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 OVEREXPOSURES MAY CAUSE: TISSUE NECROSIS;BLOOD CELL  
DAMAGE OR IMPAIR BLOOD CELL FUNCTION; REPRODUCTIVE SYSTEM TOXICITY; SKIN  
SENSITIZATION.

MEDICAL CONDITIONS AGGRAVATED \*\*\*

NOT KNOWN

SYMPTOMS OF EXPOSURE \*\*\*

INHALATION OF VAPORS/MISTS/AEROSOLS MAY CAUSE EYE,NOSE,THROAT AND LUNG  
IRRITATION;SKIN CONTACT MAY CAUSE SEVERE IRRITATION OR BURNS.

PRECAUTIONARY STATEMENT BASED ON TESTING RESULTS \*\*\*

MAY BE TOXIC IF ORALLY INGESTED.

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

SKIN CONTACT\*\*\*

REMOVE CLOTHING.WASH AREA WITH LARGE AMOUNTS OF SOAP SOLUTION OR WATER  
FOR 15 MIN.IMMEDIATELY CONTACT PHYSICIAN

EYE CONTACT\*\*\*

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

INHALATION EXPOSURE\*\*\*

REMOVE VICTIM FROM CONTAMINATED AREA.APPLY NECESSARY FIRST AID  
TREATMENT IMMEDIATELY CONTACT A PHYSICIAN.

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  
CONTAMINATED ABSORBENT SHOULD BE CONSIDERED A PESTICIDE AND  
DISPOSED OF IN AN APPROVED PESTICIDE LANDFILL.SEE PRODUCT LABEL  
STORAGE AND DISPOSAL INSTRUCTIONS.

REMOVE IGNITION SOURCES FLUSH AREA WITH WATER.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)-

BURY IN AN APPROVED PESTICIDE FACILITY OR DISPOSE OF IN  
ACCORDANCE WITH LABEL INSTRUCTIONS

FIRE EXTINGUISHING INSTRUCTIONS\*\*\*

FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING  
APPARATUS(FULL FACE-PIECE TYPE).

DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

MATERIAL SAFETY DATA SHEET (PAGE 3 OF 3)

PRODUCT: CLAM'TROL CT1

EFFECTIVE DATE 10-31-88

-----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 ORGANIC VAPOR CARTRIDGES AND DUST/MIST PREFILTERS.  
RECOMMENDED SKIN PROTECTION\*\*\*

GAUNTLET-TYPE RUBBER GLOVES, CHEMICAL RESISTANT APRON  
WASH OFF AFTER EACH USE. REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION\*\*\*  
SPLASH PROOF CHEMICAL GOGGLES. FACE SHIELD

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

STORAGE INSTRUCTIONS\*\*\*

KEEP DRUMS & PAILS CLOSED WHEN NOT IN USE.  
STORE IN COOL VENTILATED LOCATION. STORE AWAY FROM OXIDIZERS

HANDLING INSTRUCTIONS\*\*\*

IMMEDIATELY REMOVE CONTAMINATED CLOTHING, WASH BEFORE REUSE  
COMBUSTIBLE. DO NOT USE AROUND SPARKS OR FLAMES. BOND CONTAINERS DURING FILLING OR DISCHARGE WHEN PERFORMED AT TEMPERATURES AT OR ABOVE THE PRODUCT FLASH POINT.

\*\*\*\*\*  
THIS MSDS COMPLIES WITH THE OSHA HAZARD COMMUNICATION STANDARD  
CAROL 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

..FIFRA(40CFR):EPA REG.NO. 3876- 145

..REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:  
NOT APPLICABLE

..RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE IDENTIFICATION NUMBER IS: D001=IGNITABLE;D002=CORROSIVE

..DOT HAZARD CLASSIFICATION: CORROSIVE TO SKIN.COMBUSTIBLE

..DOT SHIPPING DESIGNATION IS: UN1760 CORROSIVE LIQUID, N.O.S.

.. 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: NONE PRESENT IN SIGNIFICANT AMOUNTS

..SARA SECTION 313 CHEMICALS: ETHYLENE GLYCOL(107-21-1) , 21.0-30.0% ;

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

..MICHIGAN CRITICAL MATERIALS: NONE PRESENT IN SIGNIFICANT AMOUNTS

..NFPA/HHIS : HEALTH - 3 ; FIRE - 2 ; REACTIVITY - 0 ; SPECIAL - CORR ; PE - D

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

2/22/89

PRODUCT: CLAM-TROL CT-1

AQUATIC TOXICOLOGY

RAINBOW TROUT

0% MORTALITY: 10 MG/L  
96 HR. LC50: 14.7 MG/L

DAPHNIA MAGNA

0% MORTALITY: 0.16 MG/L  
48 HR. LC50: 0.4 MG/L

FATHEAD MINNOW

0% MORTALITY: 1.55 MG/L  
96 HR. LC50: 3.0 MG/L

2/22/89

MAMMALIAN TOXICOLOGY

ORAL LD50 -NO DATA

DERMAL LD50 -NO DATA

SKIN IRRITATION SCORE-NO DATA

EYE IRRITATION SCORE-NO DATA

INHALATION-NO DATA