



O-601225
L65-92(07-15)-LP
8F.120

Illinois Power Company
500 South 2nd Street
P.O. Box 511
Decatur, IL 62525-1805

July 15, 1992

Mr. Timothy R. Kluge, P.E.
Manager, Industrial Unit, Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency
Springfield, IL 62794-9276

Mr. Kluge:

Clinton Power Station
Request to Modify NPDES Permit IL0036919

Illinois Power (IP) is requesting herein that the station's NPDES be modified as follows:

Outfall 002: Discharge Flume

- (1) Add to the contributory waste stream listing, an entry authorizing the discharge of impounded stormwater and small spill volumes from the external sodium hypochlorite storage area to the waters of the screenhouse intake bay. Station personnel estimate 1,275 gallons of chlorinated water would be discharged per occasion. These discharges occur intermittently, approximately six times a year. Currently, the rain waters are sampled and analyzed for total residual chlorine prior to being pumped to the storm drains.
- (2) Change the approximate flow value for the (1) main condenser cooling water to 910 million gallons per day and the (2) station service water to 86.4 million gallons per day. These are measured values from plant performance testing and replace the original submitted design conditions.
- (3) Special condition no. 6 limits the time that chlorine may be discharged from the unit's main cooling condenser water system to two hours per day. Throughout this period, instantaneous total residual chlorine (TRC) concentrations in the discharge to Clinton Lake may not exceed 0.2 mg/l. IP is requesting herein that the terms and conditions of this special condition be modified as well as the outfall effluent

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COOL

TRC limitations to reflect both intermittent and continuous chlorination. Clinton Power Station personnel anticipate a need to implement continuous chlorination of the condenser cooling water system to reduce micro and macro biological fouling of system equipment.

- (4) IP also requests special condition no. 6 be modified to authorize the continuous chlorination of the station service water system. IP is concerned about macro biological fouling of the piping and equipment of this system as well.
- (5) Add a special condition which would authorize chemical treatment of the station service water for microbial corrosion control. The chemical treatment would be similar to the treatment currently authorized at outfall 007 (Safe Shutdown Service Water System) in that sodium hypochlorite, sodium bromide (BULAB 6040), sodium bisulfite (BULAB 9602), and dimethylamide (BULAB 8007) would be used and the treatments would be performed at least once-weekly for periods of approximately 24 hours. Unlike the treatment authorized at outfall 007, however, the chemically treated service water system effluent is not directly discharged to waters of the State of Illinois but rather to the seal well of the discharge flume. Consequently, IP believes no TRO or DMAD effluent limitations should be applied to the service water discharge to the seal well.

During normal operation with three main condenser cooling water pumps and two station service water pumps operating, the mixing ratio of condenser cooling water to service water flow is approximately 14 to 1. With two main condenser cooling water pumps operating, the mixing ratio is approximately 10 to 1. When no condenser circulating water pumps are in service (such as during a refueling) the 3.1 mile discharge contains millions of gallons of waters in which the service water discharge would be mixed.

Outfall 002(a): Sewage Treatment Plant Effluent

- (6) Add, to the contributory waste stream listing, one or more entries (as the Agency may deem appropriate) authorizing the discharge of:
 - (a) small batch volumes of two corrosion inhibitor waste solutions drained from equipment as a result of periodic maintenance: NALCOOL (manufactured by the Nalco Company) which is used in the Diesel Generator (DG) cooling system at a maximum concentration of 35,000 ppm (a 3.5% solution), and

CORRSHIELD (manufactured by Betz Laboratories) which is used at a maximum concentration of 250 ppm in the Plant Chilled Water (WO), Turbine Component Cooling Water (WT), Control Room HVAC (VC), Drywell Cooling (VP), and Service Building Cooling (VS) systems; and

- (b) chlorinated service water, also resulting from the periodic maintenance and draining of the Fire Protection (FP) and Component Cooling (CC) water equipment systems; and
- (c) nonhazardous laboratory dry chemicals and chemical solutions.

NALCOOL is an aqueous solution of sodium borates, silicates, nitrates, nitrites, and mercaptobenzothiazole. The solution has a specific gravity of 1.13, a pH ranging from 11.5 to 11.8, and is completely soluble in water. Specific information relative to its regulatory control is identified on the attached Material Safety Data Sheets (MSDS) (Attachment 1).

CORRSHIELD is an aqueous solution of sodium nitrate and sodium molybdate. The solution has a specific gravity of 1.2, a pH of approximately 12.8, and is also completely soluble in water. Specific information relative to its regulatory control is identified on the attached MSDS sheets (Attachment 2).

The corrosion inhibitor solutions are drained from the above systems of the station and are currently being collected in barrels and shipped offsite as non-regulated material for disposal. Intermittent draining of the systems should result in less than 3,000 gallons per year of NALCOOL and less than 1,500 gallons per year of CORRSHIELD. These would be discharged to the building sanitary sewer at a controlled rate so as not to upset the sewage treatment plant. Both solutions are amenable to biological treatment.

The maintenance of equipment in the FP and a small portion of the CC systems of the station also results in the intermittent generation of approximately 14,000 gallons of wastewater per year which consists only of chlorinated service waters. These wastewaters have historically been discharged to the Radwaste Treatment System (outfall 002(b)) or sampled and discharged to outfall 005. Station operating personnel wish to discharge FP water to the sewage treatment plant because it is only chlorinated lake water and puts an unnecessary burden on the station's radwaste treatment

system.

These intermittent corrosion inhibitor and chlorinated service water discharges would not adversely impact or jeopardize the ability of the sewage treatment to comply with the effluent NPDES permit limitations applicable to its discharge.

The dry chemicals and chemical solutions which station personnel wish to periodically discharge to the sewage treatment plant would be those typically found in an analytical laboratory and which (a) should not interfere with or pass through the sewage treatment plant untreated and which (b) are not listed as hazardous wastes. This might include inorganic, nonmetallic salts or elements, and organic acids.

Outfall 002(b): Radwaste Treatment System Effluent

- (7) Add, to the contributory waste stream listing, one or more entries (as the Agency deems necessary) authorizing the discharge of (a) unused laboratory chemicals and/or solutions, and (b) batch volumes of waste sodium pentaborate, NALCOOL, and CORRSIELD solutions to the radwaste treatment system. Station operating personnel would also like to discharge pH-adjusted demineralizer regenerant wastes to the radwaste treatment system. Please keep in mind that the radwaste treatment system consists of filtration, activated carbon adsorption, ion exchange, and mechanical evaporation equipment for treating radioactive wastewaters for reuse as reactor makeup water. Residues from the treatment system are offsite disposed in NRC, DOE, and USEPA-approved facilities.

The dry chemicals and chemical solutions which station personnel wish to periodically discharge to the radwaste system would be those typically found in an analytical laboratory but which, if discharged to another outfall (such as the sewage treatment plant) may interfere or otherwise pass untreated through the outfall. Some of these might also be listed hazardous substances or, as wastes, listed hazardous wastes. However, section 721.103(a)(2)(D)(v) of the Waste Disposal regulations of the IPCB exempt laboratory wastewaters from classification as a hazardous waste provided that the average annual flow does not exceed one percent of the total wastewater flow to the treatment facility. The annual volume of aqueous laboratory wastes which would be discharged to the radwaste system is estimated to be 50,000 gallons per year. This figure includes the demineralized water used to rinse sinks. The design influent flow rate to the radwaste treatment system is approximately 72,000

gallons per day. Station management personnel believe the equipment of the radwaste treatment system is more than adequate for properly treating these laboratory wastewaters.

The batch volumes of sodium pentaborate (1,600 gallons per year), NALCOOL (100 gallons per year), and CORRSIELD (600 gallons per year) solutions resulting from intermittent discharges are due to maintenance and testing of the station. These solutions are currently being discharged either to the radwaste treatment system after sampling or barreled for disposal as previously described for outfall 002(a).

Pretreated (i.e. pH-adjusted) wastewaters resulting from the regeneration of the station's demineralizer systems are currently being discharged to outfall 003. In order to provide greater operating flexibility, IP requests that station personnel be permitted to discharge these wastewaters to the radwaste system to provide a disposal path in the event these wastewaters were to become radiologically contaminated. The rate of intermittent discharge is estimated to be an average of 175 gpd.

Outfall 003: Water Treatment System Wastes

- (8) Add, to the contributory waste stream listing, one or more entries authorizing the discharge of (a) small batch volumes of waste NALCOOL and CORRSIELD solutions from station systems which drain to this outfall and (b) chlorinated service waters resulting from the periodic maintenance of equipment in those systems.

The NALCOOL and CORRSIELD solutions are drained from equipment in the DG, WO, WT, VC, VP and VS systems of the station during maintenance activities. They are currently being disposed by discharging to the radwaste treatment system after sampling or barreled as described in outfall 002(a). Station personnel wish to discharge these solutions to the clarification, filtration, and pH adjustment facilities at this outfall because these nonradioactive waters create an unnecessary burden on the radwaste systems. During maintenance, the volume of these solutions that would be discharged to this outfall is estimated to be 3,000 gallons per discharge. These discharges are expected to occur twice each year for a total discharge of 6,000 gallons per year.

Outfall 004: Transformer Area Oil-Water Separator

- (9) Add, a special condition that would authorize the temporary treatment of diesel generator area oil-water

separator wastewaters (outfall 005) in the transformer area oil-water separator when the outfall 005 separator is out of service for maintenance. Station operating personnel believe this maintenance-related diversion may occur once-per-year. During periods of such diversion, influent flows from the diesel generator area would not be expected to exceed 750 gpm. The transformer area separator was designed to treat an instantaneous peak influent flow rate of 800 gpm.

- (10) Add to the contributory waste stream listing one or more entries authorizing the discharge of system cooling waters and maintenance-related intermittently chlorinated service waters.

System cooling waters are waters that are used to cool the DG, WO, WT, VC, VP and VS systems. These waters contain NALCOOL and CORRSIELD. These waters are currently being discharged to the radwaste treatment system or barreled and shipped off-site as non-hazardous waste. The normal discharge flow rate is 50 gpd. Station personnel wish to discharge these cooling waters to the oil-water separation facilities at this outfall so as to reduce the burden on the Radwaste Treatment Systems and/or to reduce the difficulties associated with barreling and handling a nonhazardous waste.

Outfall 005: Diesel Generator Area Oil-Water Separator

- (11) Add, a special condition that would authorize the temporary treatment of transformer area oil-water separator wastewaters (outfall 004) to the diesel generator area oil-water separator when the outfall 005 separator is out of service for maintenance. Station operating personnel believe this maintenance-related diversion may occur once-per-year. During periods of such diversion, influent flows from the transformer area would not normally be expected to exceed 500 gpm. The separator was designed to treat an instantaneous peak influent flow rate of 750 gpm.

- (12) Add to the contributory waste stream listing one or more entries authorizing the discharge of system cooling waters and maintenance-related intermittently chlorinated service waters.

System cooling waters are waters that are used to cool the DG, WO, WT, VC, VP and VS systems. These waters contain NALCOOL and CORRSIELD. These waters are currently being discharged to the radwaste treatment system or barreled and shipped off-site as non-hazardous waste. The normal discharge flow rate is 50 gpd. Station personnel wish to discharge these

cooling waters to the oil-water separation facilities at this outfall so as to reduce the burden on the Radwaste Treatment Systems and/or to reduce the difficulties associated with barreling and handling a nonhazardous waste.

Outfall 006: Intake Screen Backwash and Screenhouse Sump Discharges

- (13) Add to the contributory waste stream listing, an entry authorizing the discharge of chlorinated warming line waters to the Ultimate Heat Sink (UHS). When lake water temperatures at the screenhouse decrease to 45°F, station personnel divert approximately 98,000 gpm of condenser cooling water flow to the area immediately (<70 feet) in front of the screenhouse. The purpose of routing this water to the area in front of the screenhouse is to prevent freezing. These warming line waters contain chlorine at the same concentration and for the same duration as the condenser cooling water flow (outfall 002).

Outfall 007: Safe Shutdown Service Water System

- (14) Add a special condition which would reflect the continuous discharge of total residual chlorine from this outfall. IP notified the Agency on December 20, 1991, that it was about to initiate routine chlorination of this system to control microbial corrosion.
- (15) Add a special condition which would permanently authorize chemical treatment of the Safe Shutdown (SX) service water system as the Agency originally authorized on June 22, 1990. However, IP is requesting herein that the conditions of this permanent authorization be based upon the experience station operating personnel have gained from the three treatment cycles which have been performed through February of this year.

The first treatment cycle occurred during the period from October 2, 1990 through October 11, 1990. The results of that treatment cycle were transmitted to the Agency on February 22, 1991. The next treatment cycle was performed on three isolated days, those being May 29, 1991; August 7, 1991; and August 13, 1991. The results of those treatments will be transmitted by July 31. The third treatment cycle occurred during the period from February 14 through February 26 of this year. The results of those treatments will also be transmitted by July 31.

The following specific changes to the June 22, 1990

Agency authorization are requested:

- (a) Increase the allowable discharge concentration of dimethylamide (BULAB 8007; the penetrant used to carry the bromine and chlorine through the MIC encrusted tubercle to the underlying microorganisms) to 3.0 mg/l. The current authorization allows only one mg/l of the penetrant in the final composite discharge to the UHS.

Buckman Laboratories and station management personnel believe the chemical conditioning program would be much more effective if injection dosage rates could be increased. Injection dosage rates are currently controlled so that after immediate mixing in the UHS with waters from the untreated system, the concentration of DMAD in the mixture will not exceed 1.0 mg/l. Therefore, when divisions 1 or 2 are being treated the maximum injection dosage rate is 2.0 mg/l.

IP is requesting the Agency consider increasing the allowable DMAD discharge concentration after mixing to 3.0 mg/l. IP bases its request upon the acute toxicity data developed by Buckman Laboratories for the BULAB 8007 chemical presented herein as Attachment 3. The cumulative mortality of fathead minnow exposed to varying concentrations of the penetrant for exposures ranging from 24 to 96 hours are tabulated. The exposure period of relevance to the chemical cleaning of the SX system is 24 hours as the discharge from the treatment of the SX would never exceed this duration at any time. For this exposure duration and at an exposure concentration of 3.2 mg/l five of 20 specimens perished. Therefore, 3.2 mg/l would be the 24-hr LC 25 value. IP believes the selection of such an acute concentration value is not unreasonable or environmentally irresponsible because, in reality, any fish present in the immediate zone of mixing in the UHS could move away.

- (b) Remove the requirement that effluent DMAD (BULAB 8007) concentrations be monitored with a gas chromatograph. IP will assure compliance with the effluent limitation by regulating the injection dosage. This can be done accurately and reliably based upon the earlier treatment applications.
- (c) Allow suspension of the TRO discharge monitoring requirement after several "no detectable" TRO

concentrations are measured and it is known that constant steady state conditions will persist throughout the remainder of the treatment cycle.

- (d) Eliminate the requirement that two circulating water pumps be in service when a chemical treatment of the SX system is being performed. The effect of this requirement is to preclude the treatment of these systems during prolonged station outages such as a refueling.
- (e) Eliminate the requirement that both no. 1 and no. 2 shutdown service water (sx) divisions be in service when either one of these divisions is being treated. Similarly, the requirement that either division 1 or division 2 be in service when division 3 is being treated should also be eliminated.

Station personnel are requesting this modification simply because it is not always necessary to have two divisions of the SX system in service to satisfy Nuclear Regulatory Commission (NRC) requirements. Operating a division when it is not necessary for safety related reasons is burdensome.

IP recognizes that the implication of requesting this modification is that it cannot take advantage of the immediate mixing afforded by the discharge from the second system to the UHS. The injection dosage of the BULAB 8007 would therefore be currently limited to 1.0 mg/l (based upon the June 22, 1990 authorization) if the second division were not in service. If the Agency would authorize a discharge concentration of 3.0 mg/l (as requested in no. 1 above), the corresponding injection dosage would then be 3.0 mg/l.

However, IP would like to be able to take advantage of the mixing afforded by the discharge from the second system to the UHS if the second system must be operated for safety related reasons. Therefore if a second system must be operated, IP personnel would like the authority to increase the injection dosage rate of the BULAB 8007 chemical recognizing the mixing afforded by the untreated discharge and the authorized discharge concentration.

- (f) Eliminate the requirement that treatment program frequencies, durations, monitoring data and environmental assessments be reported for each treatment application within six months. Such a reporting requirement would be very burdensome considering IP is requesting authorization to chemically treat the SX system at least once-monthly.

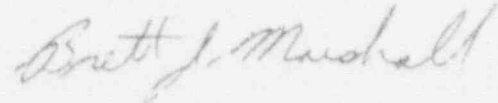
IP would prefer to simply report on our monthly WMP the chemical injection dosage and duration data, as well as the instantaneous maximum TRC concentration measured in the SX system discharge to the lake during the monthly treatment application.

- (g) IP also wishes to notify the Agency of changes in the chemical injection and monitoring points for the SX system treatment program. The exact locations of these points are shown on the enclosed four figures.

Please feel free to call me at 424-6833 if you have questions about this permit modification request you would like to discuss.

Sincerely,

ILLINOIS POWER COMPANY



Brett J. Marshall
Supervisor-Water Pollution
Control

KLUGEPRM.TLD:cam

cc: U. S. NRC Document Control Desk



H - +
F - 0
R - 0
PPE - BE

PRODUCT

NALCOOL 2000 COOLING TREATMENT

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)*

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: NALCOOL 2000 COOLING TREATMENT

DESCRIPTION: An aqueous solution of borates, silicates, nitrates, nitrites and mercaptobenzothiazole

NFPA 704M/EMIS RATINGS: 2/2 HEALTH 0/0 FLAMMABILITY 0/0 REACTIVITY 0 OTHER
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 14 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX. %
Sodium nitrite	7532-00-0	1-5
Sodium mercaptobenzothiazole	2492-26-4	1-5
Sodium tetraborate	1330-43-4	1-5

SECTION 3 PRECAUTIONARY LABEL INFORMATION

WARNING: Harmful or fatal if swallowed in large doses. Contains sodium nitrite. Causes blood system disorders when swallowed. Do not take internally. May cause irritation to skin and eyes. Avoid contact with eyes, and prolonged or repeated contact with skin.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

SECTION 4 FIRST AID INFORMATION

EYES: Flush with water for 15 minutes. Call a physician.
 SKIN: Flush with water for 15 minutes.
 INGESTION: Induce vomiting. Give water. Call a physician at once.

NOTE TO PHYSICIAN: No specific antidote is known. Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCOOL 2000 COOLING TREATMENT

Emergency Telephone Number

Metrol: (312) 920-1510 (24 hours)*

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin

EYE CONTACT: Can cause transient irritation.
SKIN CONTACT: Can cause transient irritation.
INGESTION: Can cause kidney damage. Can be harmful or fatal.

SYMPTOMS OF EXPOSURE: Sodium nitrite. Causes formation of methaemoglobinemia leading to cyanosis and possible death if ingested. Repeated ingestion of small amounts causes blood pressure to drop, rapid pulse, headaches and visual disturbances. Causes central nervous system effects (eg. headaches, tremors, drowsiness and convulsions).

AGGRAVATION OF EXISTING CONDITIONS: Sodium nitrite. Pregnant women are particularly sensitive to methaemoglobinemia.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES: Acute toxicity studies have not been conducted on this product, but acute studies have been conducted on a similar product. The results are shown below.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = 3,362 mg/kg

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):

SKIN IRRITATION INDEX DRAIZE RATING: 0.5/8.0 Minimal irritation

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):

EYE IRRITATION INDEX DRAIZE RATING: 16.7/110.0

CHRONIC TOXICITY RESULTS: Sodium nitrite. Experimental animal studies have shown reproductive effects in the offspring of the treated parents. These effects are non-transmissible. Bacterial assay mutation studies have been positive. Tumorigenic data is equivocal.

Sodium mercaptobenzotriazole. Chronic feeding laboratory animal study of 120 ppm in the diet showed no effects.

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Red	FORM: Liquid	ODOR: None
SOLUBILITY IN WATER:	Completely	
SPECIFIC GRAVITY:	1.13 @ 60 Degrees F	ASTM D-1298
pH (NEAT) =	11.5 - 11.8	ASTM E-70
BOILING POINT:	212 Degrees F @ 760 mm Hg	ASTM D-86

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PRODUCT

NALCOOL 2000 COOLING TREATMENT

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)*

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

(CONTINUED)

FLASH POINT: None

NOTE: These physical properties are typical values for this product.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: None

EXTINGUISHING MEDIA: Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARD: May evolve NOx under fire conditions.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: N-nitrosamines, many are cancer causing agents to laboratory animals, may be formed when certain amines are mixed with nitrous acid, organic or inorganic nitrites or atmospheres with high nitrous oxide concentrations.

Avoid contact with strong acids (eg. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) which can generate heat, splattering or boiling and the release of toxic fumes.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO₂, NOx may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: Respiratory protection is not normally needed since the volatility and toxicity are low.

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a pressure-demand, self-contained breathing apparatus is recommended.

VENTILATION: General ventilation is recommended.

PROTECTIVE EQUIPMENT: Use impermeable gloves and chemical splash goggles (ANSI Z 87.1 requirements) and selection of gloves, goggles, shoes, etc.) when attaching feeding equipment or doing maintenance.

If clothing is contaminated, remove clothing and thoroughly wash the



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCOOL 2000 COOLING TREATMENT

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)*

SECTION 10 PERSONAL PROTECTION EQUIPMENT

(CONTINUED)

affected area. Launder contaminated clothing before reuse.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (312-920-1510)

SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 14.

Large liquid spills: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 14.

DISPOSAL: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, (i.e. D001 through D017) nor is it listed under Subpart D.

As a non-hazardous liquid waste, it should be solidified before disposal to a sanitary landfill. Can be deep-well injected in accordance with local, state and federal regulations.

SECTION 12 ENVIRONMENTAL INFORMATION

If released into the environment, see CERCLA in Section 14.

SECTION 13 TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME/HAZARD CODE - HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

CFM-E NA 9188

CONTAINS

- SODIUM NITRITE

SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:

MATERIAL SAFETY DATA SHEET



PRODUCT

NALCOOL 2000 COOLING TREATMENT

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)*

SECTION 14 REGULATORY INFORMATION

(CONTINUED)

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:

Based on our hazard evaluation, the following ingredients in this product are hazardous and the reasons are shown below.

Sodium nitrite - Chronic human effects (refer to Section 6)

Sodium mercaptobenzothiazole - Sensitizer

Sodium tetraborate = TWA 1 mg/m3 ACGIH/TLV

CEPCLA, 40 CFR 117, 302:

This product contains sodium nitrite, a Reportable Quantity (RQ) substance and if 2,000 pounds of product are released, it requires notification to the NATIONAL RESPONSE CENTER, WASHINGTON, D. C. (1-800-424-8802).

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986

(TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):

This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 and 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS

(40 CFR 370):

Our hazard evaluation has found this product to be hazardous. The product should be reported under the following EPA hazard categories:

- XX Immediate (acute) health hazard
- XX Delayed (chronic) health hazard
- Fire hazard
- Sudden release of pressure hazard
- Reactive hazard

Under Section 311, submittal of MSDS's or a list of product names to the local emergency planning commission, state emergency response commission and local fire department is required after October 17, 1987 if you have:

- 10,000 pounds or more of a hazardous substance, or
- 500 pounds or the threshold planning quantity, whichever is less, of an extremely hazardous substance.

After October 17, 1989, MSDS(s), or a list of product names for



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCOOL 2000 COOLING TREATMENT

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)*

SECTION 14 REGULATORY INFORMATION

(CONTINUED)

all hazardous substances between zero (0) and 10,000 pounds, not previously reported, must be submitted.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):

This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
If this product besides a waste, it does not meet the criteria of a hazardous waste.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 (formerly Sec. 307), 40 CFR 116 (formerly Sec. 311):

This product contains the following ingredient(s) covered by the Clean Water Act:

Sodium nitrite - Section 311

CLEAN AIR ACT, 40 CFR 60, Section 111, 40 CFR 61, Section 112:

This product does not contain ingredients covered by the Clean Air Act.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

This product complies with the MSDS and labeling requirements of the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

MICHIGAN CRITICAL MATERIALS:

This product does not contain ingredients listed on the Michigan Critical Materials Register.

STATE RIGHT TO KNOW LAWS:

The following state(s) identify the ingredient(s) shown below as hazardous:

Massachusetts, New Jersey - Sodium nitrate
California, Illinois - Sodium nitrite

Regulated in those states using the TLV for sodium tetraborate as a

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

(PAGE 1 OF 3)
EFFECTIVE DATE 12-13-89
PRINTED: 15-Dec-1989

PRODUCT : CORR-SHIELD 736

REVISIONS TO SECTIONS: APPENDIX

PRODUCT APPLICATION : WATER-BASED CORROSION INHIBITOR.

-----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.

SODIUM NITRITE***;CAS#7632-00-0;OXIDIZER;POTENTIAL BLOOD TOXIN;TOXIC(ORAL INGESTION);PEL:NONE;TLV:NONE.

SODIUM MOLYBDATE***(MOLYBDIC ACID, DISODIUM SALT);CAS#7631-95-0;POSSIBLE RESPIRATORY IRRITANT;PEL:5MG/M3(AS MO);TLV:5MG/M3(AS MO).

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

AS IS (APPROX.) 12.8 ODOR: MILD
BOILING PT.(DEG.F): >200 SETA(CC) SP.GR.(70F)OR DENSITY: 1.184
VAPOR PRESSURE(mmHG): ND VAPOR DENSITY(AIR=1): ND
SC cps70F: 4.2 %SOLUBILITY(WATER): 100
AP.RATE: <1 ETHER=1 APPEARANCE: YELLOW
PHYSICAL STATE: LIQUID FREEZE POINT(DEG.F): 14

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

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

HEAT OF COMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

BETZ MATERIAL SAFETY DATA SHEET (PAGE 2 OF 3)

PRODUCT: CORR-SHIELD 736

-----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 ***

MISTS/AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

CHRONIC EFFECTS OF OVEREXPOSURE***

PROLONGED OR REPEATED EXPOSURES MAY CAUSE BLOOD CELL DAMAGE OR IMPAIR BLOOD CELL FUNCTION.

MEDICAL CONDITIONS AGGRAVATED ***

NOT KNOWN

SYMPTOMS OF EXPOSURE ***

MAY CAUSE REDNESS OR ITCHING OF SKIN.

1
PRECAUTIONARY STATEMENT BASED ON TESTING RESULTS ***

MAY BE TOXIC IF ORALLY INGESTED.

-----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. IMMEDIATE CONTACT PHYSICIAN. DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

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

PILL 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: FLOOD WITH WATER. USE OF CO₂ OR FOAM MAY NOT BE EFFECTIVE.

BETZ MATERIAL SAFETY DATA SHEET (PAGE 3 OF 3)

PRODUCT: CORR-SHIELD 736

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.

DO NOT FREEZE. IF FROZEN, THAW AND MIX COMPLETELY PRIOR TO USE

HANDLING INSTRUCTIONS***

CONTAINS AN OXIDIZER. AVOID ALL CONTACT WITH REDUCING AGENTS,
OILS, GREASES, ORGANICS AND ACIDS. DO NOT ALLOW TO DRY.

THIS MSDS COMPLIES WITH THE OSHA HAZARD COMMUNICATION STANDARD
ROLF 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.
FUTURE 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:

1 GALLONS DUE TO SODIUM NITRITE

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

.DOT HAZARD/UN# / ER GUIDE# IS: ORM-E (WHEN CONTAINER > RQ) NA9188 / 31

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

.SARA SECTION 302 CHEMICALS: NONE PRESENT IN SIGNIFICANT AMOUNTS

.SARA SECTION 313 CHEMICALS: NONE PRESENT IN SIGNIFICANT AMOUNTS

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

.MICHIGAN CRITICAL MATERIALS: NONE PRESENT IN SIGNIFICANT AMOUNTS

PA/HMIS : HEALTH - 2 ; FIRE - 1 ; REACTIVITY - 0 ; SPECIAL - ALK ; PE - B

Acute Toxicity of Bulab 8007 to Fathead Minnows

Concentration (ppm)	N	Cumulative Mortality			
		24 H	48 H	72 H	96 H
Control	20	0	0	0	1
0.32	20	0	0	0	0
0.56	20	0	0	0	0
1.0	20	0	0	0	0
1.8	20	1	1	2	2
3.2	20	5	6	6	6
5.6	20	6	9	10	10
10.0	20	20	-	-	-
LC50		N/A	4.7	4.4	4.4
95% Lower Limit			5.7	5.5	5.5
95% Upper Limit			3.9	3.6	3.6

Calculation Method: Probit analysis using 1.8, 3.2 5.6 and 10.0 ppm

The LC50 at 24 hours was not calculated for this study. However, based on the data and reviewing how the other LC50's were calculated it appears the 24 hour LC50 would be approximately 5.7 ppm.

IVY085A & IVY085B
ECCS HPCS PUMP ROOM
COIL CABINET 1A & 1B
K-2902

IDG13A
DIESEL GEN IC
K-2801

IVH075C
SSW PUMP ROOM IC
COIL CABINET
K-2902

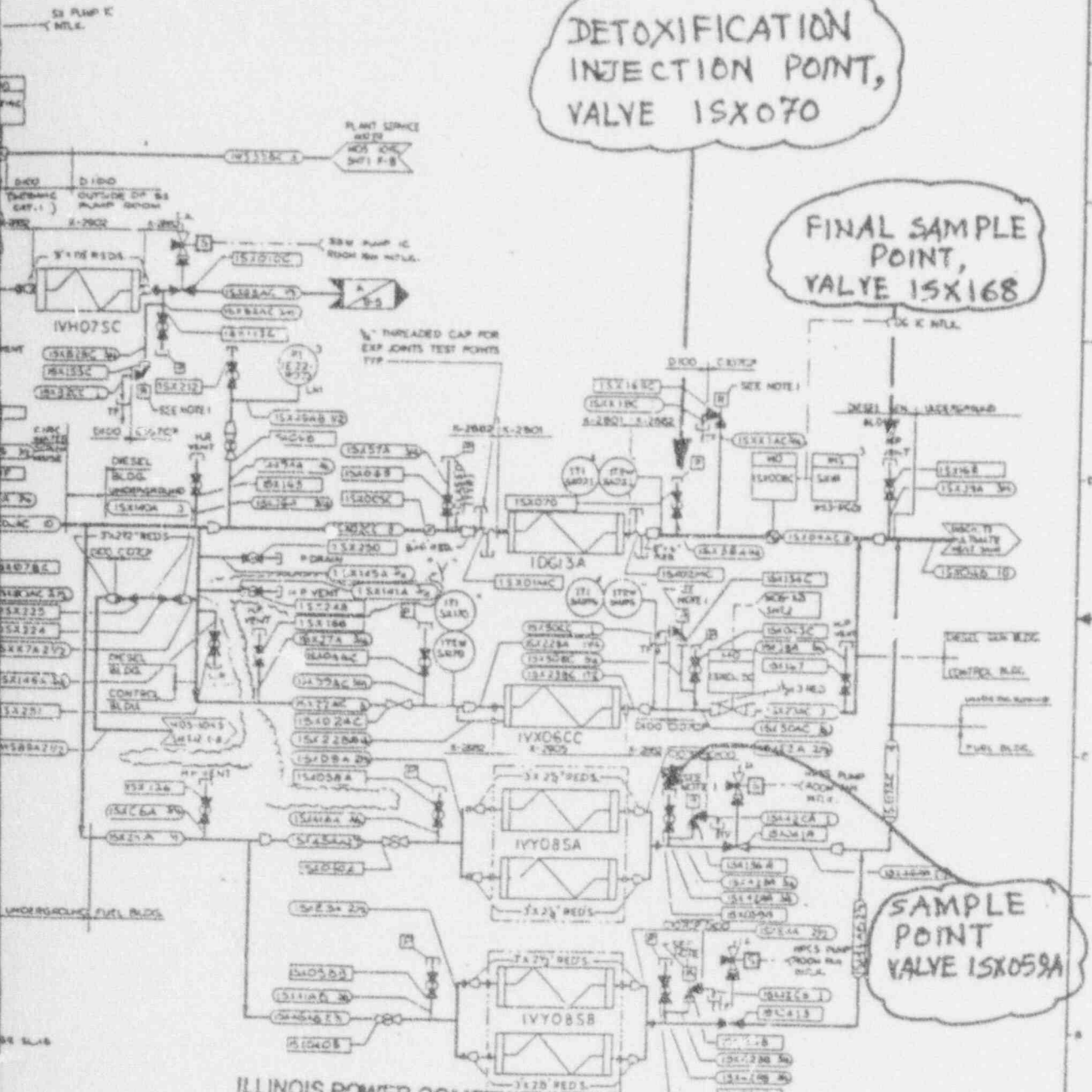
SI
APERTURE
CARD

Also Available On
Aperture Card

DETOXIFICATION
INJECTION POINT,
VALVE 1SX070

FINAL SAMPLE
POINT,
VALVE 1SX168

SAMPLE
POINT
VALVE 1SX059A



ILLINOIS POWER COMPANY
DOCUMENT CONTROL

MAR 21 1992

FOR REFERENCE
CLINTON POWER STATION

NUCLEAR SAFETY RELATED
ITEMS ARE SHOWN ON THIS DRAWING
UNLESS OTHERWISE NOTED SHEET NUMBER 5 DESIGN
EQUIPMENT, VALVE, OR INSTRUMENT LIST, 1

NOTE

THE P&ID'S DIAGRAMS FOR THE ECCS
FUNCTION SYMBOLS ARE SHOWN ON DRAWING 110-2052
UNLESS OTHERWISE NOTED SHEET NUMBER 5 DESIGN
REFERENCE ARE SHOWN IN THE FUNCTION SYMBOLS.

SX DIVISION 3



P&ID SHUTDOWN SERVICE
WATER (SX)
CLINTON POWER STATION
UNIT 1
ILLINOIS POWER COMPANY
CLINTON, ILLINOIS

SARGENT & LUNDY	
ISSUED NO.	REV.
MOS-1052	Y
SHEET 3 OF 4	

9207290006-01

2501-SOW

ISX0FA SHUTDOWN SERVICE WATER PUMP 1A K-2828

OVG075A HYDROGEN RECOMBINER ROOM 1A COIL CABINET K-2902

ISX0FA SHUTDOWN SERVICE WATER STRAINER 1A K-2880

OVC13CA CONTROL ROOM SYSTEM CHILLER K-2905

OVG055A 15GT ROOM 1A COIL CABINET K-2902

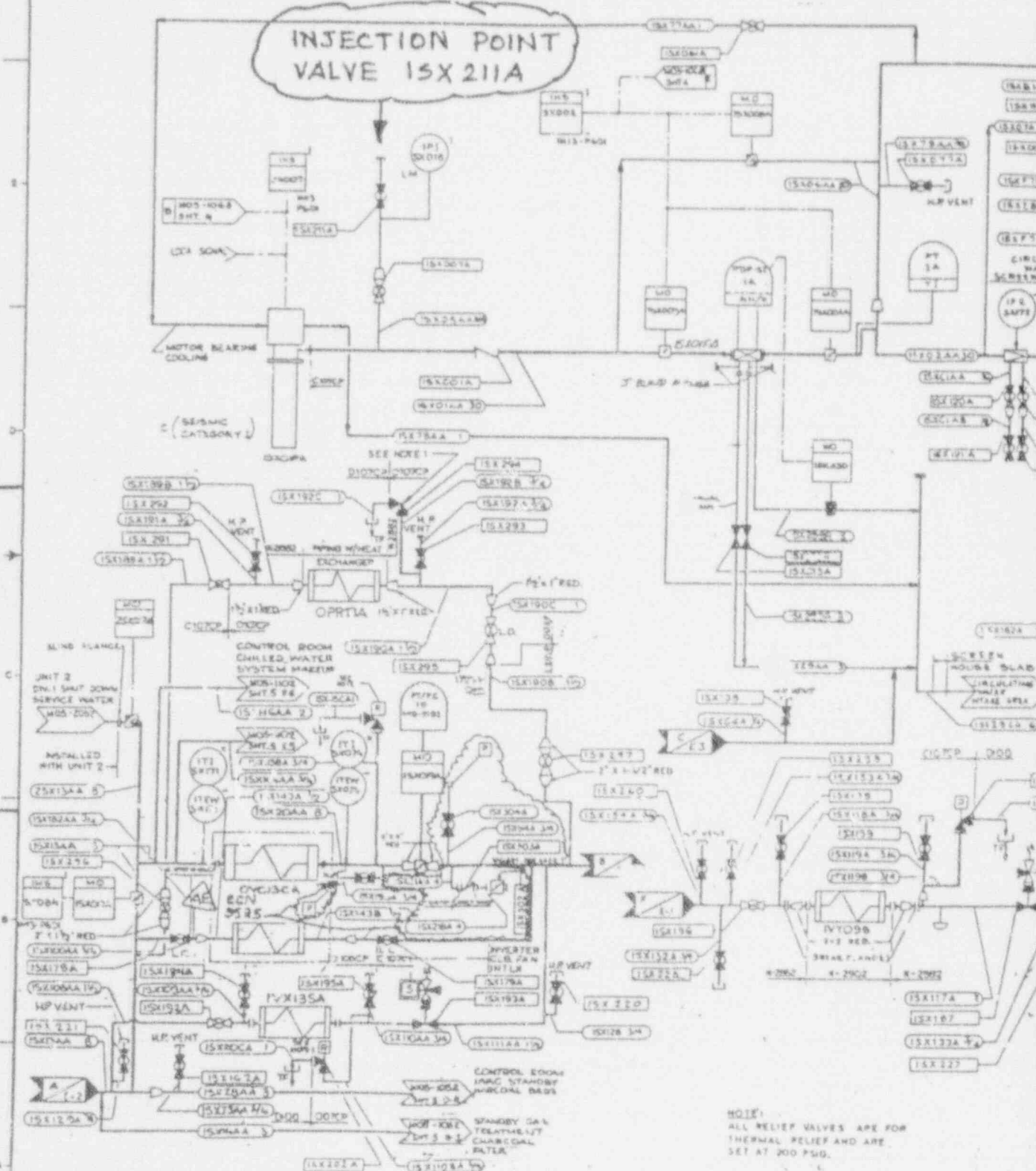
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IVY095 NSIV LEAKAGE ROOM COIL CABINET K-2902

OPR13A SOTS EXHAUST HI-RANGE RADIATION MONITOR COOLER K-2882

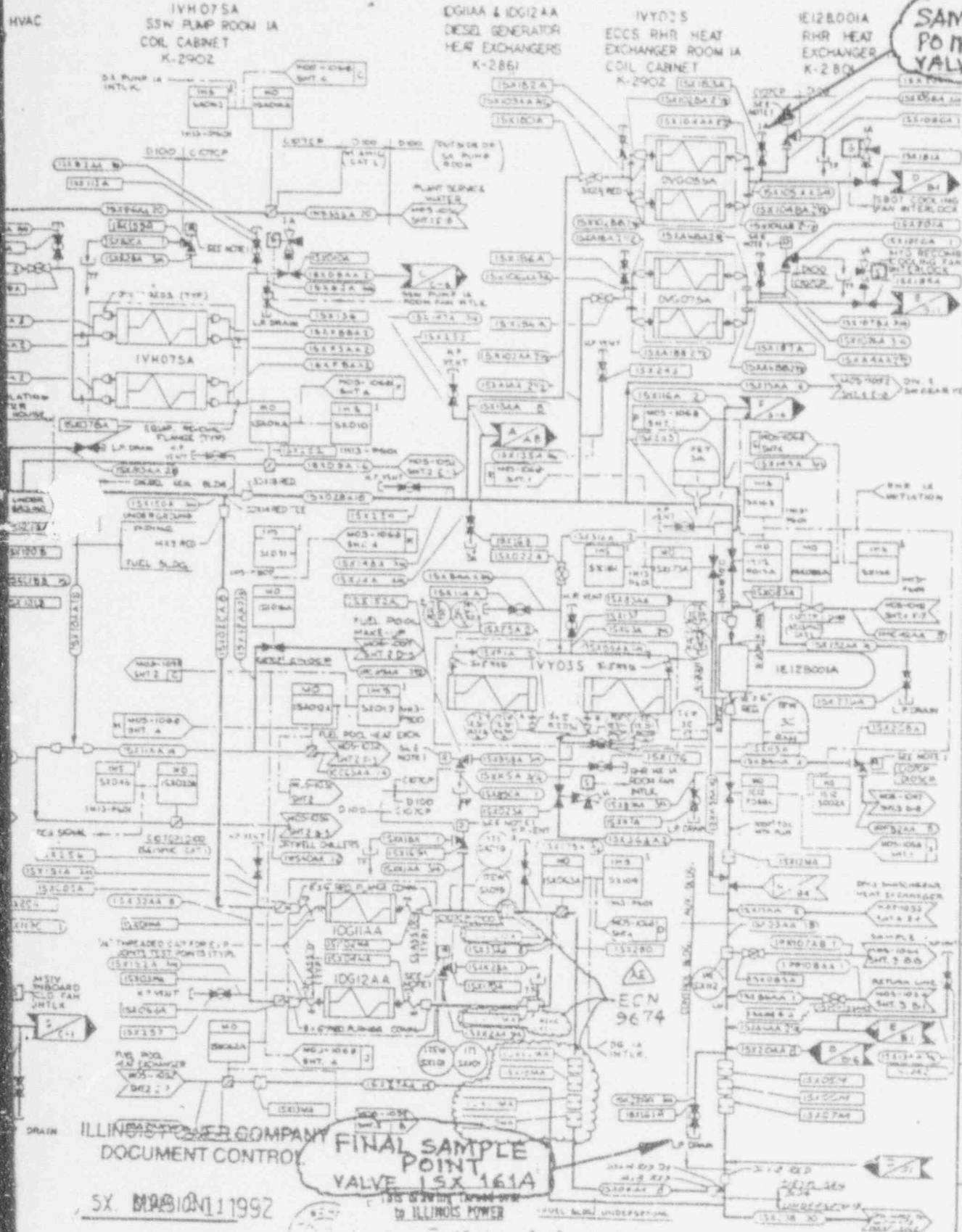
INJECTION POINT VALVE 15X211A

SX DIVISION 1



NOTE:
ALL RELIEF VALVES ARE FOR THERMAL RELIEF AND ARE SET AT 200 PSIG.

NO.	DATE	REVISION	APPROVED	APPROVED	REVISION	NO.	DATE	REVISION	APPROVED	APPROVED
1	10-15-88	REVISED	[Signature]	[Signature]	REVISION 1	1	10-15-88	REVISED	[Signature]	[Signature]
2	11-11-88	REVISED	[Signature]	[Signature]	REVISION 2	2	11-11-88	REVISED	[Signature]	[Signature]
3	12-18-88	REVISED	[Signature]	[Signature]	REVISION 3	3	12-18-88	REVISED	[Signature]	[Signature]
4	1-15-89	REVISED	[Signature]	[Signature]	REVISION 4	4	1-15-89	REVISED	[Signature]	[Signature]



SAMPLE POINT VALVE 1SX183A

SI APERTURE CARD

Also Available On Aperture Card

920729006-02

FINAL SAMPLE VALVE 1SX161A

ILLINOIS POWER COMPANY DOCUMENT CONTROL

SX. DESIGN 11992

NUCLEAR SAFETY RELATED

ITEMS ARE SHOWN ON THIS DRAWING FOR SAFT CLASSIFICATION AS SHOWN IN DRAWING TITLE OR INSTRUMENT LIST.

NOTE: THE P&ID IS SUBJECT TO THE U.S. FUNCTION SYMBOLS FOR THE U.S. UNLESS OTHERWISE NOTED. UNLESS OTHERWISE NOTED, UNLESS OTHERWISE NOTED, UNLESS OTHERWISE NOTED.

FOR REFERENCE CLINTON POWER STATION

NO.	REVISION	PURPOSE	DATE
1		FOR CONSTRUCTION SPEC. & ISS. FOR HOV-20, DCA 21147 31	
2		FOR CONSTRUCTION SPEC. & ISS. FOR HOV-20, DCA 21147 31	
3		FOR CONSTRUCTION SPEC. & ISS. FOR HOV-20, DCA 21147 31	
4		FOR CONSTRUCTION SPEC. & ISS. FOR HOV-20, DCA 21147 31	
5		FOR CONSTRUCTION SPEC. & ISS. FOR HOV-20, DCA 21147 31	



P&ID SHUTDOWN SERVICE WATER (SX) CLINTON POWER STATION UNIT 1 ILLINOIS POWER COMPANY CLINTON ILLINOIS

SARGENT & LUNDY
MOS-1052
AE

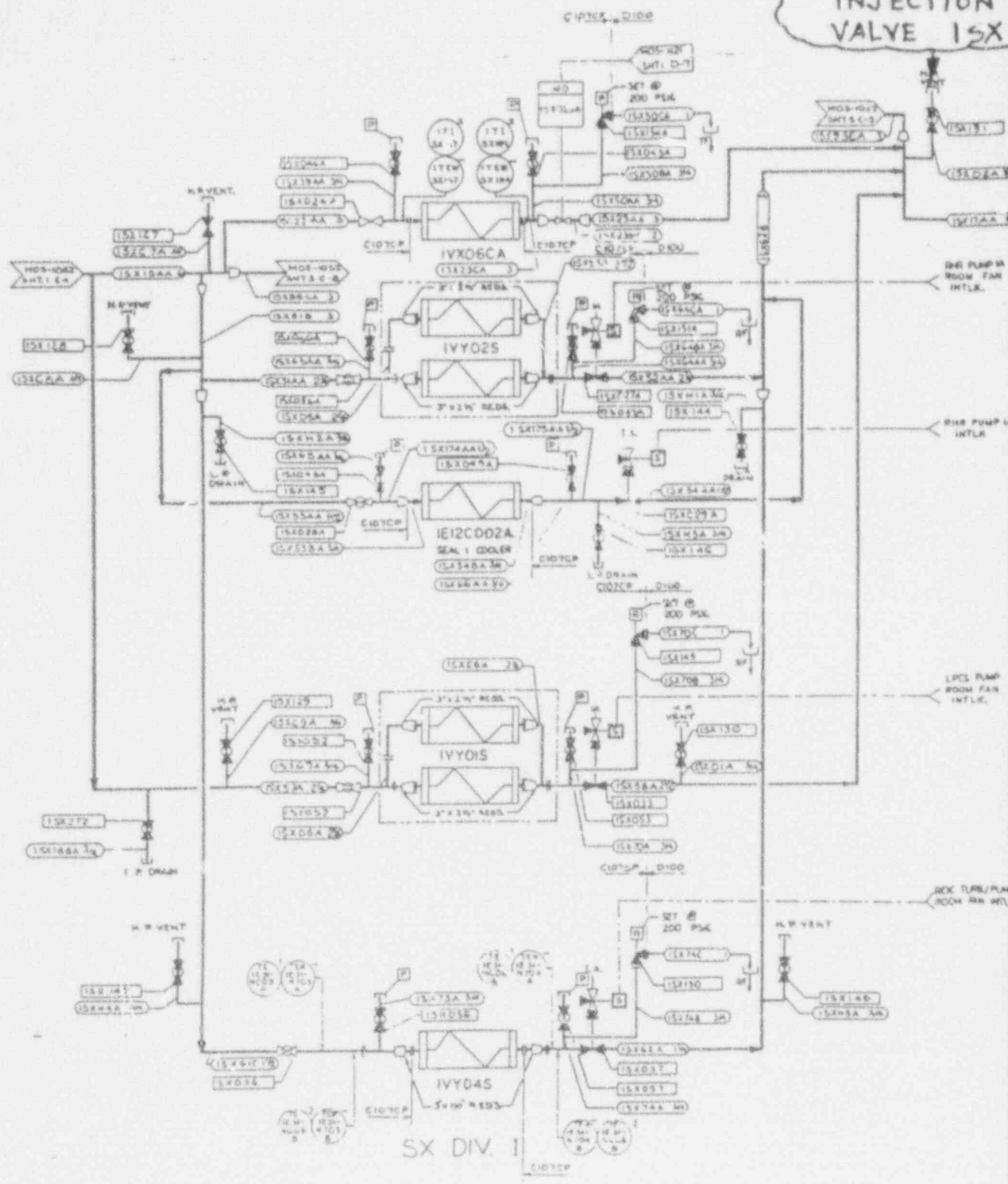
2901-90H

IVX06CA
DN 1 SWITCHGEAR
HEAT REMOVAL
CONDENSING UNIT
K-2905

IVY025, IVY065 & IVY075
ECCS RHR 1A 1B & 1C
PUMP ROOM COIL CABNETS
K-2902

IE12C002A, IE20002B & IE20002C
RHR PUMP SEAL COOLERS
1A, 1B & 1C
K-2801

SX DIVISION
DETOXIFICATION
INJECTION
VALVE 1SX



SX DIVISIONS 1 AND 2

FINAL ALPHA - NUMERICAL REVISION WAS REV. 0 1-0-75

REV	DATE	BY	CHKD	DESCRIPTION	REVISION	DATE	BY	CHKD	DESCRIPTION
1	11/15/74	J. J. [unclear]	[unclear]	FOR CONSTRUCTION BY - 1200 - FOR - 1215 - UNCORRECTED -					
2	12/10/74	[unclear]	[unclear]	FOR CONSTRUCTION BY - 1200 - FOR - 1215 - UNCORRECTED -					
3	1/10/75	[unclear]	[unclear]	FOR CONSTRUCTION BY - 1200 - FOR - 1215 - UNCORRECTED -					

1
TION
POINT
31

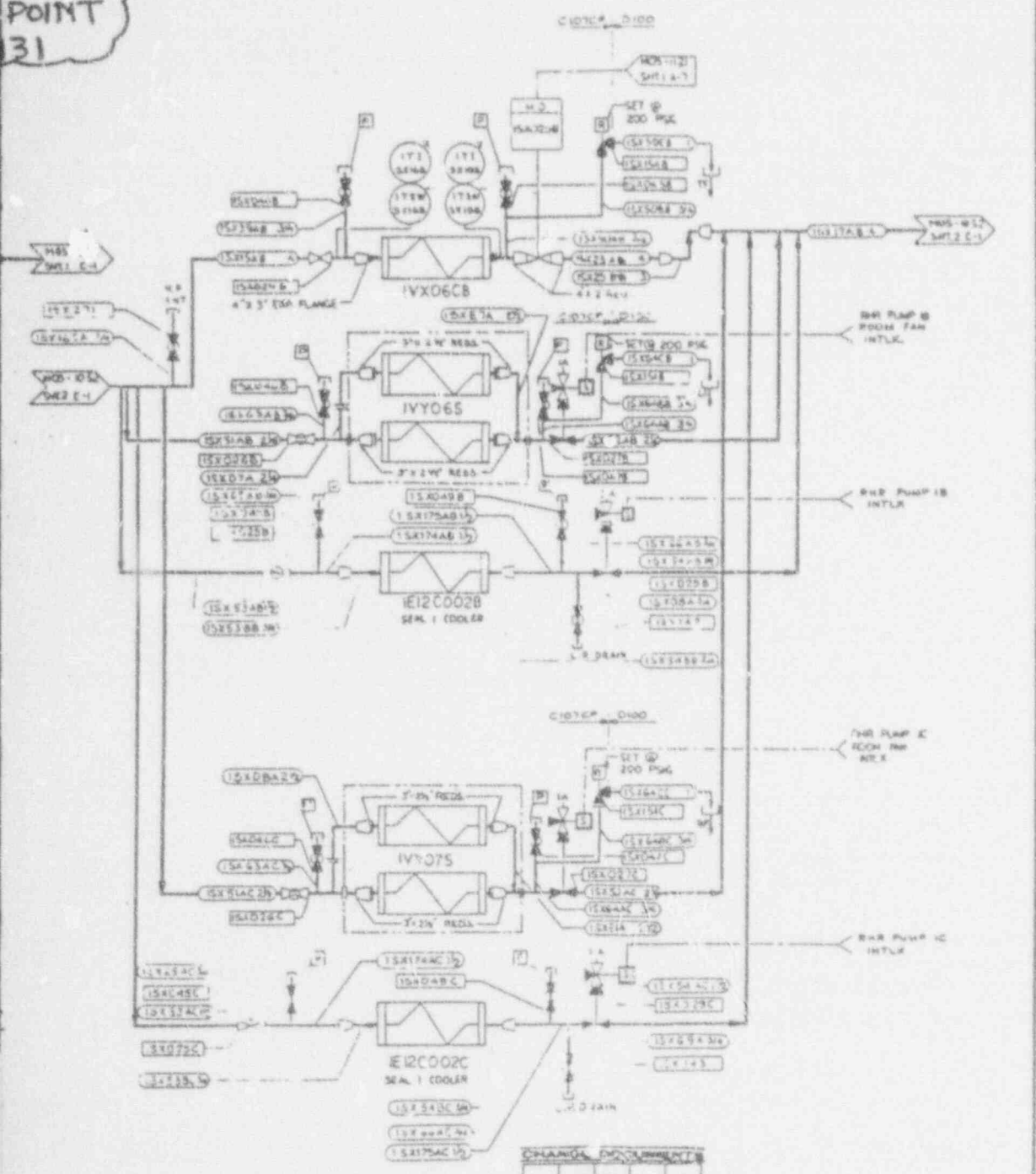
IVX06CB
DIV. 2 SWITCHGEAR
HEAT REMOVAL
CONDENSING UNIT
K-2905

IVY015
ECCS LPCS PUMP ROOM
COIL CABINET
K-2902

IVY045
ECCS RCIC PUMP
ROOM COIL CABINET
K-2902

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ILLINOIS POWER COMPANY
DOCUMENT CONTROL

MAR 21 1992

SX DIV. 2

FOR REFERENCE
CLINTON POWER STATION

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to ILLINOIS POWER

NUCLEAR SAFETY RELATED
DRAWING - DO NOT REMOVE OR DESTROY
DRAWING IDENTIFICATION AND NUMBERING
DRAWING TITLE OR INSTRUMENT LIST

920729006-03

REVISION	PURPOSE	DATE
1	REVISION K-2905 AND K-2902 INCORPORATED	
2	FOR UPDATE AND REVISIONS	



SCALE	DATE	BY	CHKD
NONE			
INCHES			
METERS			

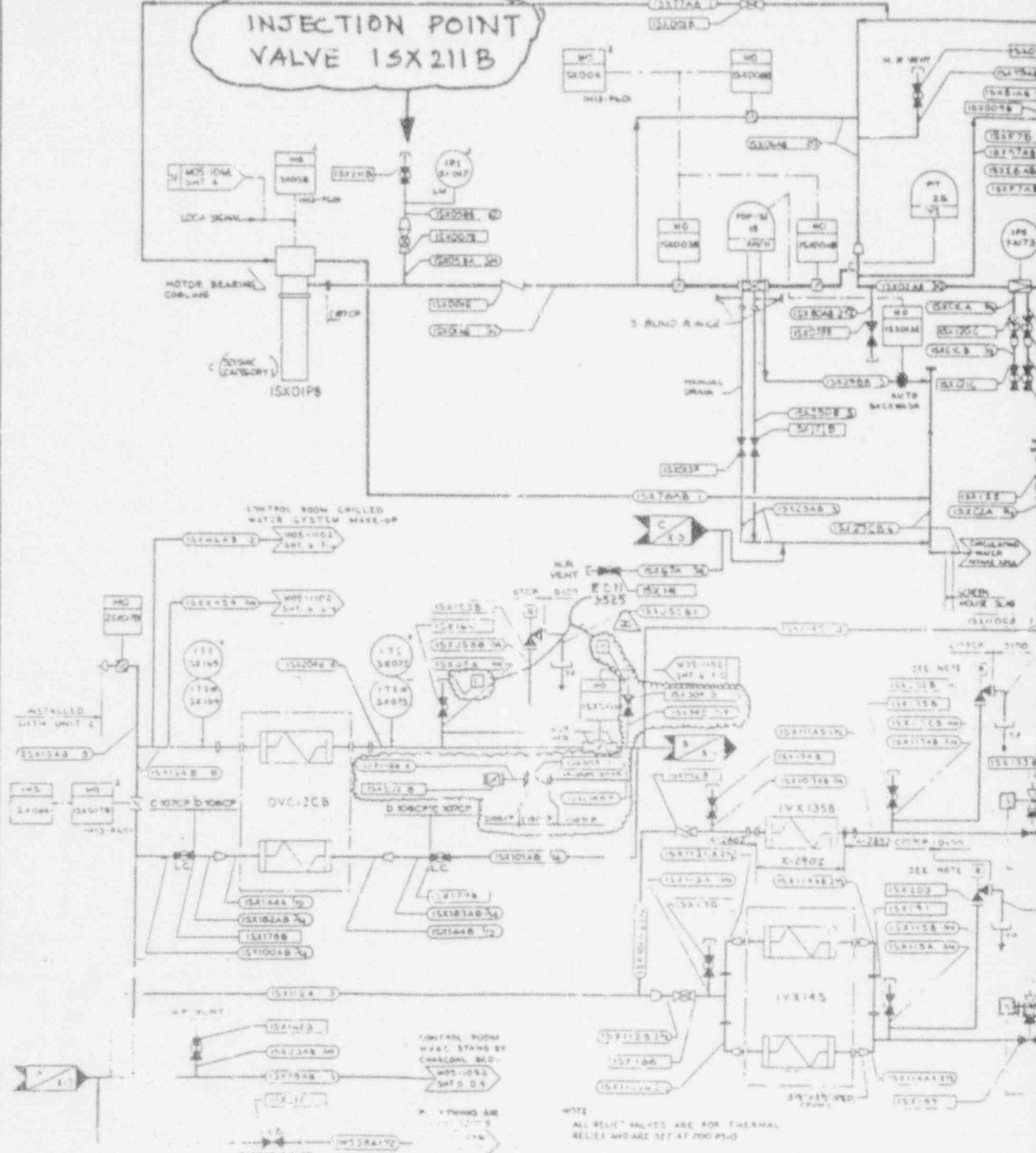
P&ID SHUT-DOWN SERVICE
WATER ON
CLINTON POWER STATION UNIT 1

TARGET A LIBRARY

2501-501V
 1E/2B001B REHEAT EXCHANGER 1B K-2801
 1VX135B INVERTER ROOM 1B COIL CABINET K-2902
 1SX0PB SHUTDOWN SERVICE WATER PUMP 1B K-2828
 1VX145 DIVISION 2 INVERTER ROOM COIL CABINET K-2902
 1DG11AB & 1DG12AB DIESEL GEN. 1B HEAT EXCHANGER 1B K-2861
 1SX0PB SHUTDOWN SERVICE WATER STRAINER 1B K-2880
 1VX145 55GT ROOM 1B COIL CABINET K-2902
 1VX145B HYDROGEN RECOMBINER ROOM 1B COIL CABINET K-2902
 1OVC15CB CONTROL ROOM HVAC SYSTEM CHILLER K-2905
 1SSW COL

INJECTION POINT VALVE 1SX211B

SX DIVISION 2



NOTE: ALL RELIEF VALVES ARE FOR THERMAL RELIEF AND ARE SET AT 2000 PSIG

REV	DATE	BY	APP	DESCRIPTION	REV	DATE	BY	APP	DESCRIPTION
1	10/15/78	J. W. H.	ENGR	FOR 20-2902-1000 SPEC. FOR 1SX211B VALVE	1	10/15/78	J. W. H.	ENGR	FOR 20-2902-1000 SPEC. FOR 1SX211B VALVE
2	11/15/78	J. W. H.	ENGR	FOR 20-2902-1000 SPEC. FOR 1SX211B VALVE	2	11/15/78	J. W. H.	ENGR	FOR 20-2902-1000 SPEC. FOR 1SX211B VALVE
3	12/15/78	J. W. H.	ENGR	FOR 20-2902-1000 SPEC. FOR 1SX211B VALVE	3	12/15/78	J. W. H.	ENGR	FOR 20-2902-1000 SPEC. FOR 1SX211B VALVE

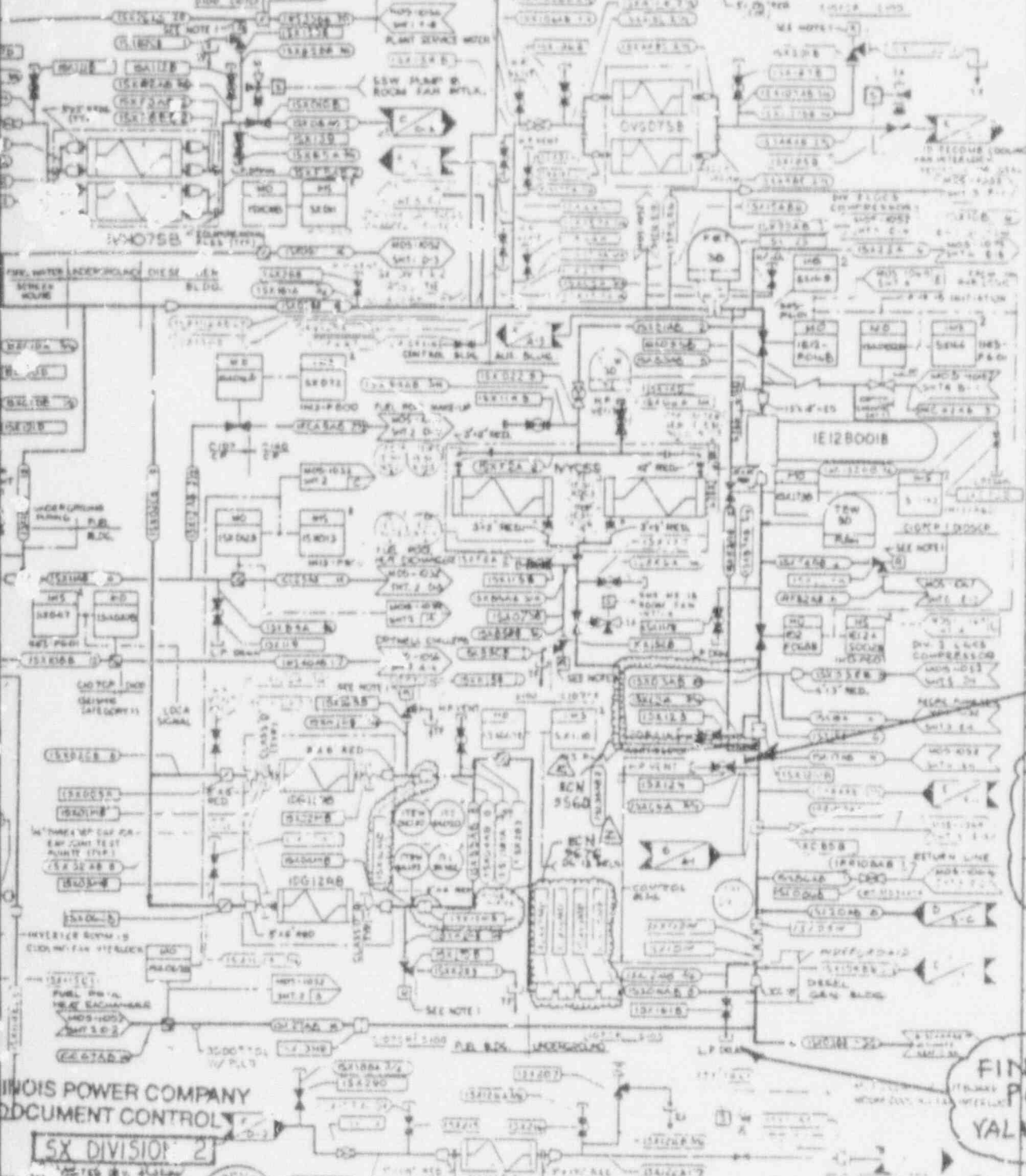
VH075B
PUMP ROOM 18
CABINET
-2902
10A
PAGE OUTBOARD
PHIL CABINET
-2902

IVY055
ECCS RHR HEAT
EXCHANGER ROOM 18
COR. CABINET
K-2902

SAMPLE POINT
VALVE 15X183B

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DETOXIFICATION
INJECTION
POINT
VALVE 15X124

FINAL SAMPLE
POINT
VALVE 15X161B

ILLINOIS POWER COMPANY
DOCUMENT CONTROL

5X DIVISION 2

NUCLEAR SAFETY RELATED
ITEMS ARE SHOWN ON THIS DRAWING
(JOB SAFETY CLASSIFICATION SEE FORM
POLARITY: W, A, OR INSTRUMENT LETTERS)

This drawing turned over
to ILLINOIS POWER

FOR REFERENCE
COVER STATION

ON RECONSTRUCTION SPEC. & 2052 P&ID 1100A
ECCS RHR HEAT EXCHANGER ROOM 18
COR. CABINET K-2902
DRAWN BY: J. W. BROWN
CHECKED BY: J. W. BROWN
DATE: 11/15/70
SCALE: AS SHOWN
REVISIONS:
1. REVISED TO ACCORDANCE WITH 1100A
NUMBER TO 4800000000 1100A 11/15/70



PAID SHUTDOWN SERVICE
WATER (5X)
CLINTON POWER STATION
UNIT 1
ILLINOIS POWER COMPANY
CLINTON ILLINOIS

SAMBERT & LINDBY
DRAWING NO. 105-1052
SHEET 2 OF

920129006-04