NMC
Committed to Nuclear Excellence

Point Beach Nuclear Plant
Operated by Nuclear Management Company, LLC

NRC 2003-0050 10 CFR 50.90

May 30, 2003

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

DOCKETS 50-266 AND 50-301
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2
SUPPLEMENT 2 TO LICENSE AMENDMENT REQUEST 229
TECHNICAL SPECIFICATION LCO 3.5.2, ECCS – OPERATING,
AND LCO 3.5.3, ECCS – SHUTDOWN

Reference: (1) Letter from NMC to NRC dated September 12, 2002
(2) Letter from NMC to NRC dated March 27, 2003

In reference (1), Nuclear Management Company, LLC (NMC), submitted a request for an amendment to the Technical Specifications (TS), in accordance with the provisions of 10 CFR 50.90, for Point Beach Nuclear Plant (PBNP), Units 1 and 2. The purpose of the proposed amendment was to revise TS 3.5.2, ECCS – Operating, and TS 3.5.3, ECCS – Shutdown, to add a surveillance to verify the emergency core cooling system (ECCS) piping is full of water every 31 days. This proposed amendment was consistent with NUREG-1431, *Standard Technical Specifications, Westinghouse Plants*, Revision 2. Supplement 1 to the original submittal was provided in Reference (2). Based on a potential for incorrectly interpreting the originally proposed requirement, that supplement proposed clarifying changes to the TS Bases.

During a conference call between the Nuclear Regulatory Commission (NRC) and NMC on May 15, 2003, NRC staff requested additional information regarding aspects of the proposed amendment. Attachment I to this letter provides our response to the staff's questions. The Bases for the proposed TS were enhanced to incorporate aspects of the additional information being provided. Attachment II provides the revised TS Bases. The originally proposed TS is unchanged. Enclosures (a), (b) and (c) provide supporting information for the staff's questions.

NMC requests approval of the proposed license amendment by November 2003, with the amendment being implemented within 45 days. The approval date was administratively selected to allow for NRC review but the plant does not require this amendment to allow continued safe full power operation.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Wisconsin Official.

A001

I declare under penalty of perjury that the foregoing is true and correct.
Executed on May 30, 2003.

A. J. Cayia
Site Vice President

JG/kmd

Attachments: I Response to Request for Additional Information
II Revised Technical Specification Bases Pages

Enclosures: (a) Westinghouse Electric Company, Nuclear Safety Advisory Letter NSAL-02-6
(b) PBNP Piping and Isometric Drawings, Auxiliary Coolant System
(c) PBNP RHR Pump Assembly Drawing

cc: (w/o enclosures)
Project Manager, Point Beach Nuclear Plant, NRR, USNRC
Regional Administrator, Region III, USNRC
NRC Resident Inspector - Point Beach Nuclear Plant
PSCW

ATTACHMENT I

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST 229, SUPPLEMENT 2

TECHNICAL SPECIFICATION LCO 3.5.2, ECCS – OPERATING, AND

LCO 3.5.3, ECCS – SHUTDOWN

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

1.0 RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

License Amendment Request (LAR) 229 was made pursuant to 10 CFR 50.90 to modify Technical Specification (TS) 3.5.2, ECCS – Operating and TS 3.5.3, ECCS – Shutdown, to add a surveillance to require verification that the Emergency Core Cooling System (ECCS) piping is full of water every 31 days.

The following information is provided in response to the Nuclear Regulatory Commission staff's request for additional information during a telephone conference on May 15, 2003. The staff's questions pertained to Supplement 1 to LAR 229, dated March 27, 2003. The questions are restated with NMC's response following.

NRC Question 1. Residual Heat Removal (RHR) pumps

In page 4 of Attachment 1, you stated that RHR (residual heat removal) pump casings do not need to be vented because they are at system low points and because of their configuration. What is the location of the high point vents with the capability of venting the RHR pumps? Do you have any diagrams and/or information that will help us to understand the venting system?

NMC Response

Enclosures (b) and (c) to the letter transmitting this response provide Piping and Isometric Drawings of the Point Beach Nuclear Plant (PBNP) Auxiliary Coolant System and a RHR pump assembly drawing. The RHR pump casings are at the system low point and their configuration is such that gases are unlikely to collect there. The enclosed drawings show how the discharge volute of the RHR pump provides a direct path from the pump casing to the discharge piping. Gases that may come out of solution within the pump casing will likely rise up out of the casing and flow into the discharge piping due to the system configuration. The high point vents on the discharge piping are located to facilitate removal of this gas. Venting the accessible ECCS piping outside containment will minimize any voids and pockets of entrained gases.

NRC Question 2. "Nominal Amount" of noncondensible gas

In page 4 of Attachment 1, you mentioned that pumping a "nominal amount" of noncondensible gas into the reactor after a SI (safety injection) signal or during shutdown does not significantly affect ECCS (emergency core cooling system) performance. Please define "nominal amount" of gas, address the location of the gas, and provide the basis for your conclusion.

NMC Response

The term "nominal amount" of noncondensible gas is not quantitatively defined. Rather, it is qualitatively defined as an amount of gas that is insufficient to jeopardize operation of the ECCS. A "nominal amount" of noncondensible gas would be expected to accumulate in the ECCS piping under normal plant operation between periodic venting of the system.

Enclosure (a) to the letter transmitting this response contains information regarding the likelihood of nitrogen release and entrainment in RHR piping adversely impacting system performance. Although assessed for MODE 6 reactor operation, the conclusion in that document is that RHR pump operability will not be affected by nitrogen entrained in SI accumulator discharge water. The system is tolerant of small amounts of entrained gases and the ability of the RHR pumps to provide shutdown cooling will not be affected.

Long term plant operating experience at PBNP has shown that, under normal conditions, the ordinary buildup of any gases in the ECCS system has not been sufficient to significantly affect ECCS operation. In the past, the system has been maintained in a standby mode for long periods without appreciable gas buildup (and without venting of ECCS piping). The resistance to gas accumulation in PBNP's ECCS is aided by the static head of water provided by the refueling water storage tank, which helps minimize the release of gas from solution.

Since normal standby operation does not result in buildup of excessive amounts of gas in the PBNP ECCS, periodic venting of the system is sufficient to maintain system operability without the need for quantitative measuring of gas volumes.

The proposed surveillance is only intended to ensure system operability under normal standby operation. Unlike the nominal amounts of gas that may accumulate in ECCS piping under normal conditions, operation with degraded equipment (e.g., excessive back leakage from SI accumulator check valves) introduces a potential for excessive gas buildup in a relatively short time period. Although periodic venting of the ECCS may provide an additional method of monitoring and early detection of such degradation, this surveillance is not intended for such a purpose because the 31 day periodicity of this venting is not frequent enough to identify excessive gas buildup in a timely manner. Degradation that could cause excessive gas buildup within a shorter time period than the 31 day frequency of the proposed TS (e.g., unusual decreasing levels in the SI accumulators) is more appropriately addressed via other means available as part of the PBNP corrective action process. The intent of the proposed TS is only to prevent slow, long-term gas buildup from accumulating in sufficient quantities to adversely impact pump and system operability. Periodic venting of the ECCS minimizes such gas accumulation.

Qualitative evaluation of the amount of gas vented (e.g., two seconds of venting prior to achieving a clear stream of water) is adequate for concluding that ECCS operability has not been compromised. Additionally, processes and procedures are in place (including the corrective action process) to ensure that large amounts of gas encountered during venting would be appropriately evaluated for their impact on system operability.

The proposed Bases for TS 3.5.2, ECCS – Operating, have been enhanced to incorporate the substance of the above information. The following changes are provided to the initially proposed Bases (additions shown underlined in context; deletions in strikethrough).

SR 3.5.2.2

The ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the ~~SI~~ <u>ECCS</u> pumps and accessible portions of ECCS suction piping, including cross-connect piping to RHR, free of gas quantities <u>that could jeopardize ECCS operability</u> ~~sufficient to render the SI pump inoperable~~, ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. <u>This is accomplished by venting the SI pumps and accessible portions of ECCS suction piping.</u> Performance of this SR also includes venting accessible portions of the piping from the ECCS pumps to the RCS. This will also prevent pump cavitation and minimize pumping noncondensible gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SI signal or during shutdown cooling. The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the procedural controls governing system operation.

The revised TS Bases more clearly delineate that periodic venting of the SI pumps and accessible portions of the ECCS piping is sufficient to demonstrate that the ECCS is sufficiently full of water to assure operability and thereby satisfy the surveillance requirement.

The installed vents in the ECCS system that are accessible from outside the containment structure provide adequate means for venting to ensure that the ECCS piping is sufficiently full of water to maintain ECCS operability. As described in Enclosure (a) to the letter transmitting this response, pumping of nominal amounts of noncondensible gas into the reactor vessel following an SI signal or during shutdown cooling does not significantly affect system performance.

2.0 ENVIRONMENTAL EVALUATION

No changes to the initially proposed TS result from this additional information. Furthermore, NMC has determined that this supplement does not involve a significant hazards consideration, authorize a significant change in the types or total amounts of effluent release, or result in any significant increase in individual or cumulative occupational radiation exposure. Therefore, we conclude that the proposed amendment meets the categorical exclusion requirements of 10 CFR 51.22(c)(9) and that an environmental impact appraisal need not be prepared.

ATTACHMENT II

REVISED TECHNICAL SPECIFICATION BASES PAGES

LICENSE AMENDMENT REQUEST 229, SUPPLEMENT 2

TECHNICAL SPECIFICATION LCO 3.5.2, ECCS – OPERATING, AND

LCO 3.5.3, ECCS – SHUTDOWN

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

BASES

ACTIONS (continued)

An event accompanied by a loss of offsite power and the failure of an EDG can disable one ECCS train until power is restored. A reliability analysis (Ref. 5) has shown that the impact of having one full ECCS train inoperable is sufficiently small to justify continued operation for 72 hours.

With more than one component inoperable such that both ECCS trains are not available, the facility is in a condition outside design and licensing basis. Therefore, LCO 3.0.3 must be immediately entered.

B.1 and B.2

If the inoperable trains cannot be returned to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours and MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an actuation signal is allowed to be in a non-accident position provided the valve will automatically reposition within the proper stroke time. This Surveillance does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned are in the correct position. The 31 day Frequency is appropriate because the valves are operated under administrative control, and an improper valve position would only affect a single train. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.2.2

The ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the ECCS pumps and accessible portions of ECCS suction piping, including cross-connect piping to RHR, free of gas quantities that could jeopardize ECCS operability, ensures that the system will perform properly, injecting its full capacity into the RCS

BASES

SURVEILLANCE REQUIREMENTS (continued)

upon demand. This is accomplished by venting the SI pumps and accessible portions of ECCS suction piping. Performance of this SR also includes venting accessible portions of the piping from the ECCS pumps to the RCS. This will also prevent pump cavitation and minimize pumping noncondensible gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SI signal or during shutdown cooling. The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the procedural controls governing system operation.

SR 3.5.2.3

Periodic surveillance testing of ECCS pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME Code. This type of testing may be accomplished by measuring the pump developed head at only one point of the pump characteristic curve. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the plant safety analysis. SRs are specified in the Inservice Testing Program, which implements the requirements of the ASME OM Code, providing the activities and Frequencies necessary to satisfy the requirements.

SR 3.5.2.4 and SR 3.5.2.5

These Surveillances demonstrate that each automatic ECCS valve actuates to the required position on an actual or simulated SI signal and that each ECCS pump starts on receipt of an actual or simulated SI signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The 18 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for unplanned plant transients if the Surveillances were performed with the reactor at power. The 18 month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment. The actuation logic is tested as part of ESF Actuation System testing, and equipment performance is monitored as part of the Inservice Testing Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)	SR 3.5.2.6 Periodic inspections of the containment sump suction inlet ensure that it is unrestricted and stays in proper operating condition. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, and on the need to have access to the location. This Frequency has been found to be sufficient to detect abnormal degradation and is confirmed by operating experience.
REFERENCES	1. FSAR, Section 6.1.1. 2. 10 CFR 50.46. 3. FSAR, Section 6.2.1. 4. FSAR, Chapter 14, "Accident Analysis." 5. NRC Memorandum to V. Stello, Jr., from R.L. Baer, "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.

ENCLOSURES

to

NRC 2003-0050

(a). Westinghouse Electric Company, Nuclear Safety Advisory Letter NSAL-02-6, Nitrogen Release to RHR During SI Accumulator Low Pressure Blowdown Tests, Dated 4/8/02

(b). PBNP Piping and Isometric Drawings, Auxiliary Coolant System (9 pages)

(c). PBNP RHR Pump Assembly Drawing

Nuclear Safety Advisory Letter

Westinghouse Electric Company

This is a notification of a recently identified potential safety issue pertaining to basic components supplied by Westinghouse.
This information is being provided to you so that a review of this issue can be conducted by you to determine if any action is required.

P.O. Box 355, Pittsburgh, PA 15230

Subject: Nitrogen Release to RHR During SI Accumulator Low Pressure Blowdown Tests	**Number:** NSAL-02-6
Basic Component: RHR Pump	**Date:** 4/8/02

Plants: D. C. Cook Units 1 and 2, Comanche Peak Units 1 and 2, Millstone 3, Farley Units 1 and 2, Vogtle Units 1 and 2, South Texas Units 1 and 2, Virgil Summer

Substantial Safety Hazard or Failure to Comply Pursuant to 10 CFR 21.21(a)	Yes ☐ No ☐
Transfer of Information Pursuant to 10 CFR 21.21(b)	Yes ☐
Advisory Information Pursuant to 10 CFR 21.21(d)(2)	Yes ☒

References: OE12618, OE10468

SUMMARY

Many plants verify the operability of the safety injection accumulator discharge check valves by a low pressure blowdown test designed to stroke the check valves to the full open position.

Recently, two operating event reports (OE12618 and OE10468) were issued to address nitrogen introduction into the RCS during these tests. The reports concluded that the nitrogen came out of solution from the water that was injected during the test. When the test is performed with fuel in the core, the risk to RHR pump operability for shutdown cooling may represent a safety concern.

In response to the recent operating reports, Westinghouse has examined the likelihood of nitrogen release and entrainment into the RHR suction piping and has concluded that performing this test in MODE 6 with the reactor vessel head removed does not pose a significant risk to RHR pump operability for shutdown cooling with fuel in the core.

Additional information, if required, may be obtained from the originator. Telephone (412) 374-4139.

Originator: S. R. Swantner,
Systems and Equipment Engineering

H. A. Sepp, Manager
Regulatory & Licensing Engineering

Official record electronically approved in EDMS 2000

ISSUE DESCRIPTION

The NRC requires plants to verify safety injection accumulator discharge check valve operability by either valve disassembly or full flow testing. Many plants verify the operability of the check valves by a low pressure blowdown test designed to stroke the check valves to the full open position. Westinghouse has provided engineering reports and safety evaluations for several plants in the development of such tests.

Two operating event reports (OE12618 and OE10468) were issued by INPO to address nitrogen introduction into the RCS during these tests. Both plants concluded that the nitrogen came out of solution from the water that was injected during the test. Nitrogen release into the RCS by this mechanism was not considered in any of the engineering and safety evaluations performed by Westinghouse.

TECHNICAL EVALUATION

Westinghouse has evaluated the potential impact on RHR operability of nitrogen being released into the RCS during a low pressure (125 psig) blowdown test performed in Mode 6 with the reactor vessel head removed and the reactor cavity flooded. The evaluation assumed that sufficient time was allowed for the nitrogen content in the water to come into equilibrium at the test pressure. The Westinghouse evaluation used test and system parameters for a reference plant. Although parameters would be plant specific, conditions are expected to be similar for other affected plants. The Westinghouse evaluation determined that there are four lines of defense which protect the nitrogen from adversely impacting the RHR system. These lines of defense are described below along with the results and conclusions of the evaluation.

The first line of defense is the fact that most of the nitrogen which enters the reactor vessel will be transported into the reactor cavity as opposed to entering the RCS hot leg. Each safety injection accumulator discharges into a separate reactor coolant system cold leg. The flow then enters the reactor vessel downcomer and flows upward through the vessel. The vast majority of nitrogen released from solution is expected to flow up through the reactor vessel and into the reactor cavity during the test. This is due to the fact that the nitrogen is distributed throughout the entire reactor vessel flow stream. Therefore, most of the flow is from the reactor vessel into the reactor cavity since the accumulator flow rate is typically greater than the RHR flow rate. Only the flow supplied to the RHR pump enters the hot leg, the remainder of the flow enters the reactor cavity. The maximum nitrogen entrained in the vessel flow rate after mixing with the RHRS flow (3000 gpm) is 11% by volume. This is higher than the recommended limits (3%) published in NUREG/CR-2792. However, only a small fraction of this has the potential for entering the RCS hot leg.

The second line of defense is the fact that not all of the nitrogen entrained in the water which enters the RCS hot leg will enter the RHR intake pipe. The RHR intake pipe is typically located several feet down stream of the hot leg inlet. In addition, the RHR intake is located on the lower half of the hot leg. As the water flows in the hot leg toward the RHR intake pipe, the nitrogen bubbles will rise to the top of the hot leg. The ability of the flow stream to transport bubbles which collect at the top of the hot leg is predicted by the flow stream Froude number. The Froude number provides an indication of the magnitude of the inertial force relative to the gravitational force in the flow stream. The flow characteristics (Froude No. much less than 1) of the hot leg are such that nitrogen will collect in the top of the hot leg and not be carried along with the flow stream. The flow velocity in the hot leg is less than 2 ft/sec with only the RHR pump operating (not a Reactor Coolant Pump). The transport time of the fluid from the vessel outlet to the RHR intake is several seconds. Therefore, only nitrogen bubbles which are very small (diameter < 0.014 inch) have the potential to be carried into the RHR intake. Bubbles of larger size will have adequate time to rise to the upper half of the hot leg and collect at the top of the hot leg. Thus the hot leg acts as a buffer to collect nitrogen bubbles which enter the hot leg and excludes them from entering the RHR intake. Therefore, the percent volume of nitrogen entrained in the fluid will be reduced as the fluid travels down the hot leg. In addition, the hot leg vents to the steam generator and reactor vessel. The RHR intake is from the lower half of the hot leg. Therefore, the hot leg cannot be filled with nitrogen, such that it is forced into the RHR intake. This prevents any large bubbles of nitrogen from being drawn into the RHR intake.

The third line of defense is the fact that the hot leg limits the size of the bubble which can enter the RHR intake to a very small size. This significantly reduces the potential adverse impact on the RHR pump. Very small bubbles will be transported with the flow stream and would tend to cushion the flow rather than starve, or bind the flow through, the RHR pump.

The fourth line of defense is the fact that the flow characteristics (Froude No. >1) of the RHR intake flow rate (3000 gpm) are such that any nitrogen bubbles entrained in the intake flow rate will be carried along with the flow stream and will not collect at local high points. This eliminates the potential for any entrained air to have an adverse effect on the pump or system.

SAFETY SIGNIFICANCE

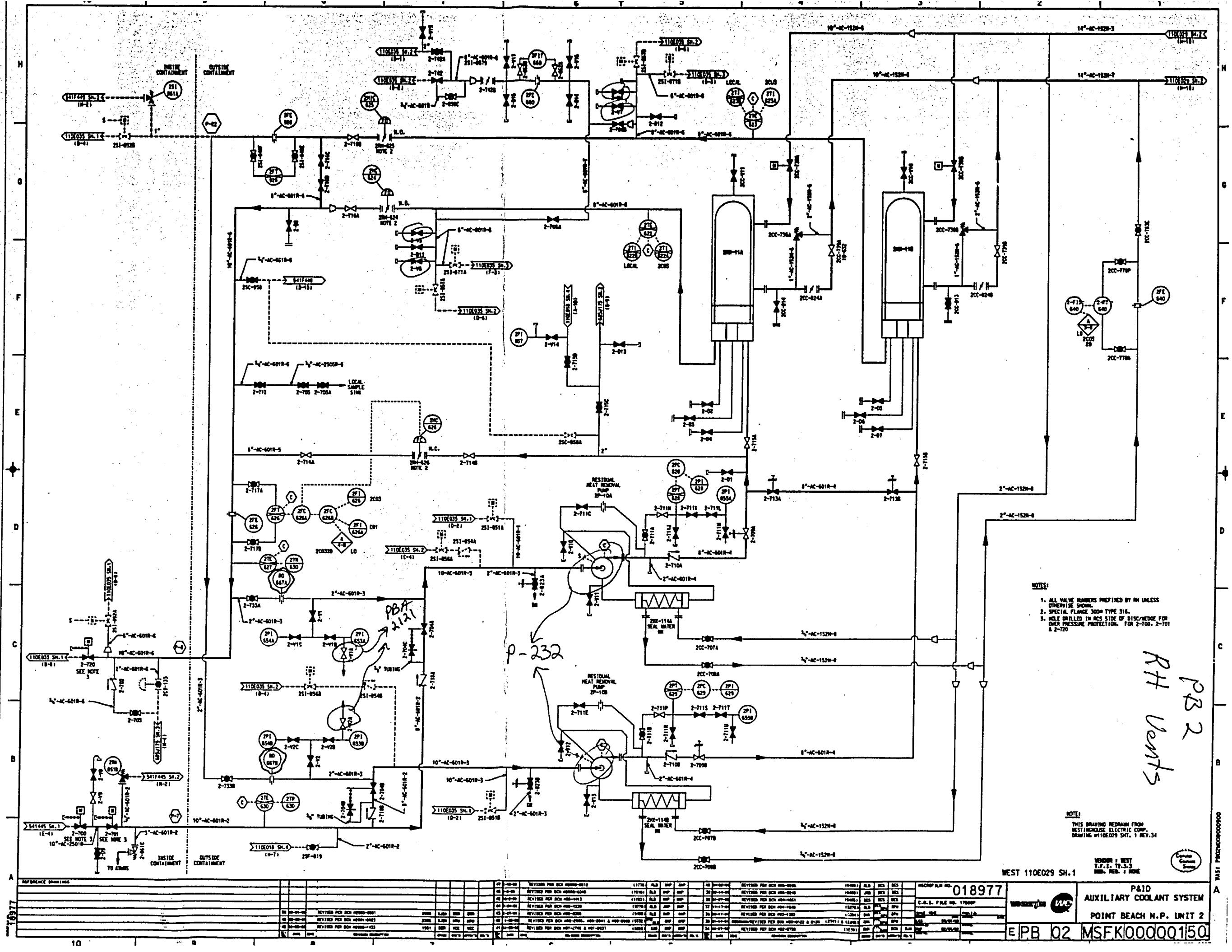
A potential safety concern may exist if the nitrogen released into the RCS during a low pressure blowdown test limits RHR pump operability so as to affect shutdown cooling required while fuel is in the core. The above evaluation concludes that RHR pump operability will not be affected by the nitrogen entrained in the accumulator discharge water. Therefore, the ability of the RHR pumps to provide shutdown cooling will not be affected.

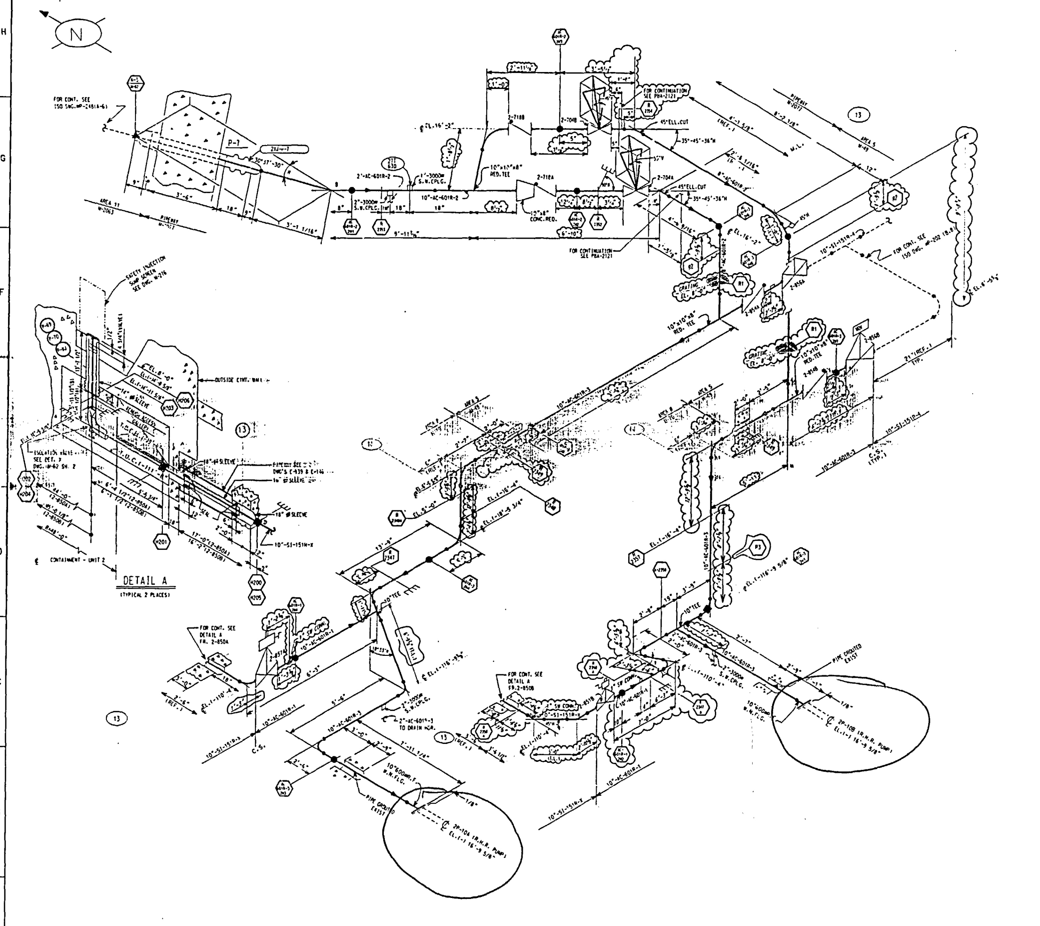
NRC AWARENESS

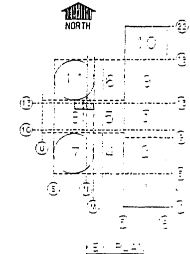
The NRC has not been made aware of this issue.

RECOMMENDED ACTIONS

This NSAL is applicable to plants which verify operability of the safety injection accumulator check valves by a low pressure blow down test performed in MODE 6 with the reactor vessel head removed with fuel in the reactor core. Affected plants should review their test procedures and configuration and evaluate the impact on shutdown core cooling imposed by the test.


INSIDE CONTAINMENT
OUTSIDE CONTAINMENT
RESIDUAL HEAT REMOVAL PUMP 2P-10A
RESIDUAL HEAT REMOVAL PUMP 2P-10B
SEAL WATER
LOCAL SAMPLE SINK
TO ARMS
NOTES:
1. ALL VALVE NUMBERS PREFIXED BY RH UNLESS OTHERWISE SHOWN.
2. SPECIAL FLANGE 300# TYPE 316.
3. HOLE DRILLED IN RCS SIDE OF DISC/WEDGE FOR OVER PRESSURE PROTECTION. FOR 2-700, 2-701 & 2-720
NOTE:
THIS DRAWING REDRAWN FROM WESTINGHOUSE ELECTRIC CORP. DRAWING #110E029 SHT. 1 REV.34
WEST 110E029 SH.1
018977
P&ID
AUXILIARY COOLANT SYSTEM
POINT BEACH N.P. UNIT 2
E PB 02 MSFK00000150
PBA 2121
P-232
PB 2
RH Vents





NOTES:

FOR "OPERATING" AND "DESIGN" TEMPERATURES & PRESSURES, AND ANALYSIS & VALVE INFORMATION, SEE ACCESSION REPORT PDGS-002 .

ALL ELEVATIONS ARE TO BE USED AS REFERENCE ONLY.

LEGEND

■	RIGID/GRAVITY RESTRAINT
●	SPRING HANGER (C=CONSTANT, V=VARIABLE
▲	ANCHOR
═	GUIDE
⊣	RESTRAINT
⊣▯⊢	SNUBBER

AS-BUILT PER IEB-79-14 RECONCILIATION PROGRAM.

(OUTSIDE CONTAINMENT)

VENDOR : BECH
T.F.I. 15.3
MOD. REQ. : NONE

BECH 10447 P-232

REFERENCE DRAWINGS

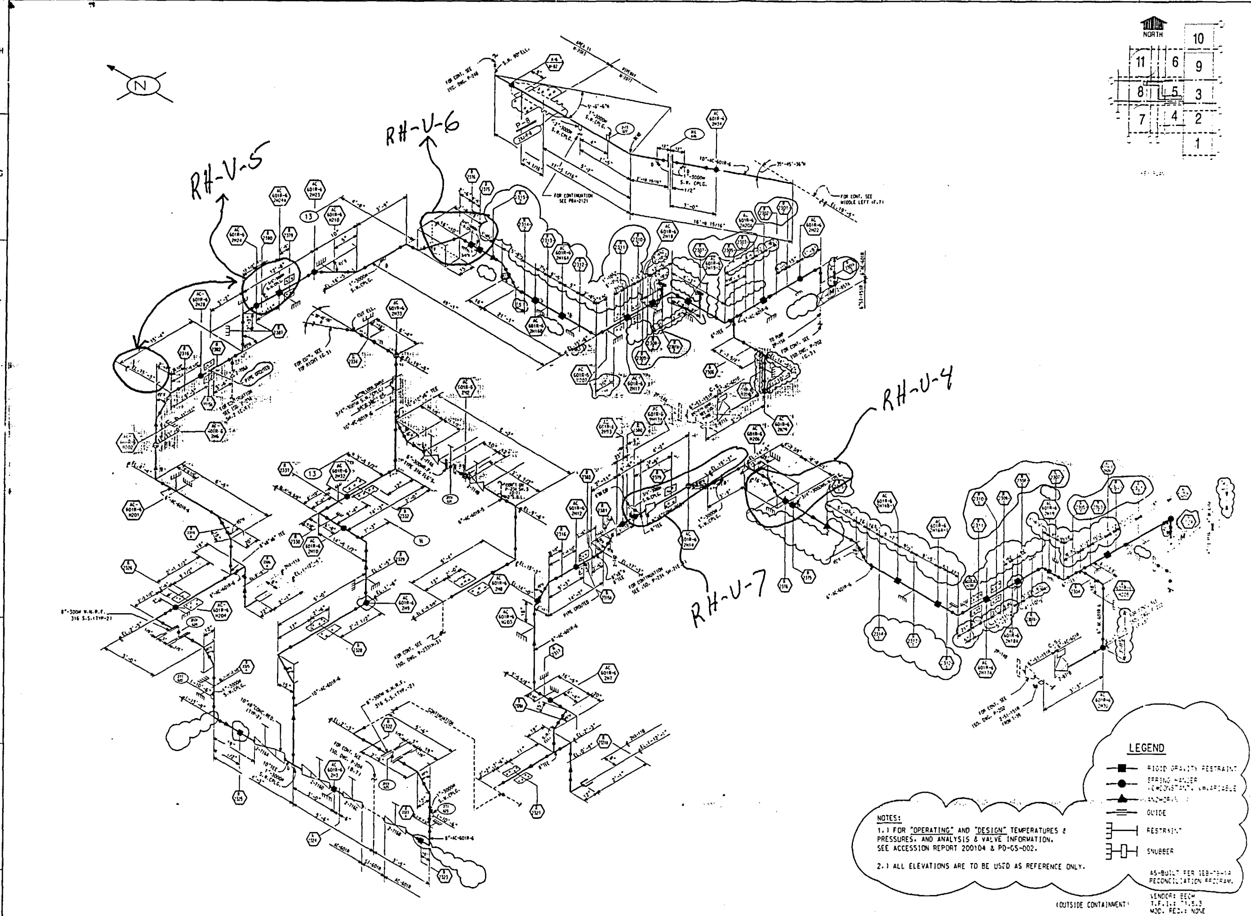
MICROFILM NO. 152351

CGS NO. 58276

AUXILIARY COOLING SYSTEM
PENET. P-7 TO RHR PUMP
2P-10A & B SUCTION
AC-601R-1, 2 &3 (OUTSIDE CTMT)
POINT BEACH N.P. UNIT 2

EPB 02 MSIL 133 005 07

25-JUL-2002



NOTES:

1.) FOR "OPERATING" AND "DESIGN" TEMPERATURES & PRESSURES, AND ANALYSIS & VALVE INFORMATION, SEE ACCESSION REPORT 200104 & PD-GS-002.

2.) ALL ELEVATIONS ARE TO BE USED AS REFERENCE ONLY.

LEGEND

- RIGID GRAVITY RESTRAINT
- SPRING HANGER (C=CONSTANT, V=VARIABLE)
- ANCHOR
- GUIDE
- RESTRAINT
- SNUBBER

AS-BUILT FOR IEB-79-14 RECONCILIATION PROGRAM.

VENDOR: BECH
T.F.I.: 71.5.3
MOD. REQ.: NONE

BECH 10447 P-234 SH.1

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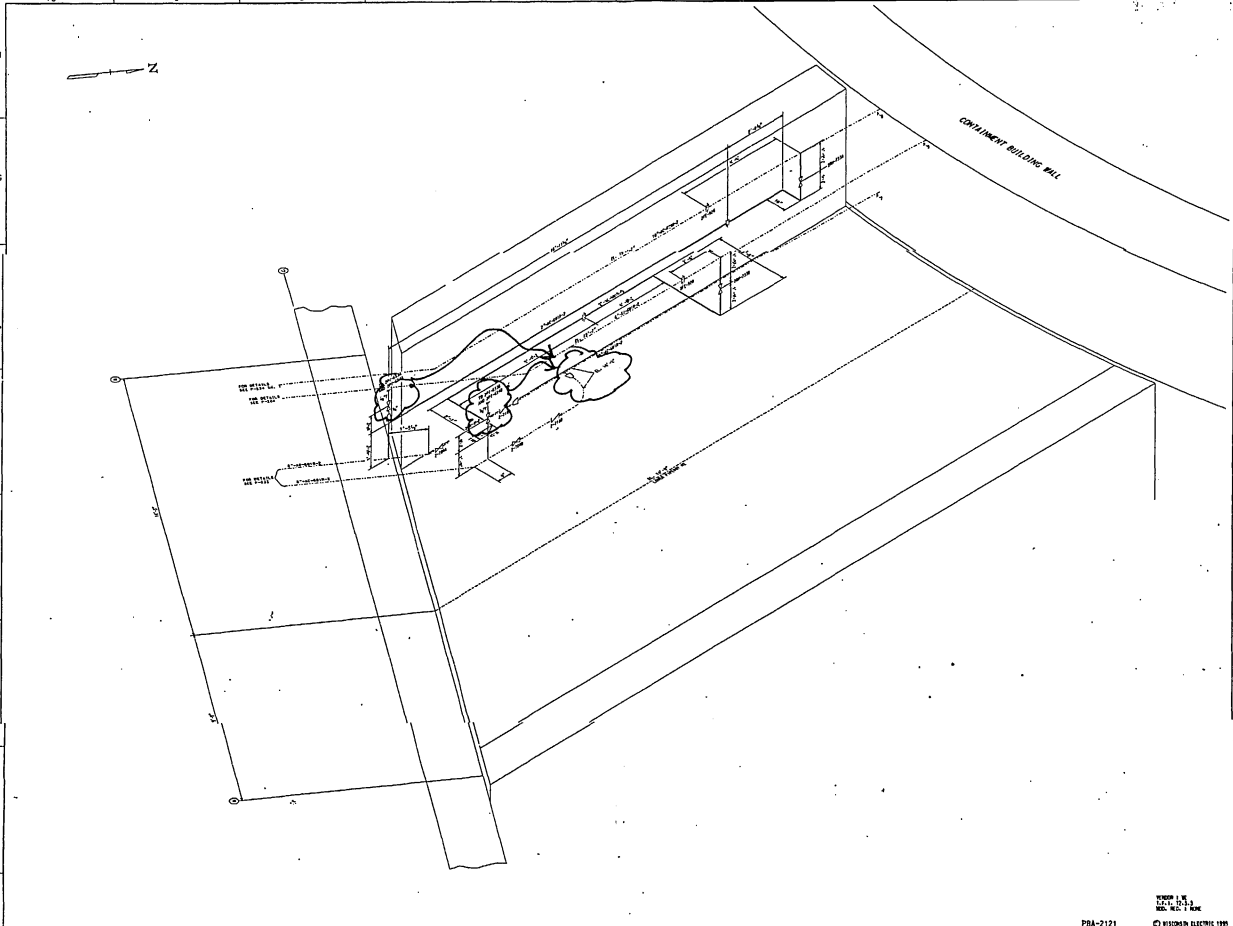
MICROFILM NO. 152353

AUXILIARY COOLING SYSTEM
RESIDUAL HEAT EXCHANGER

[redacted]



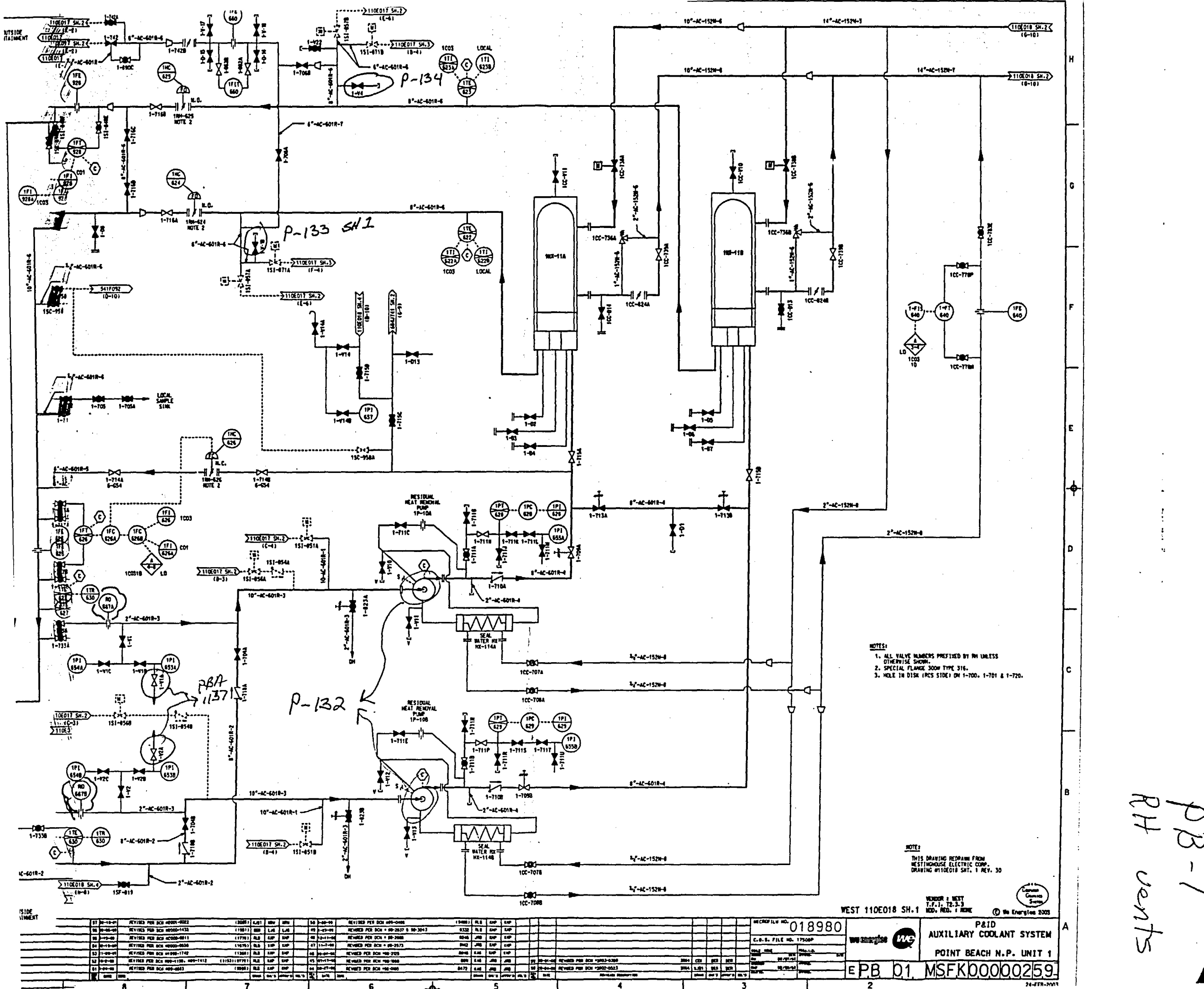
VENDOR : WE
T.F.I. 72.3.9
MOD. REQ. : NONE

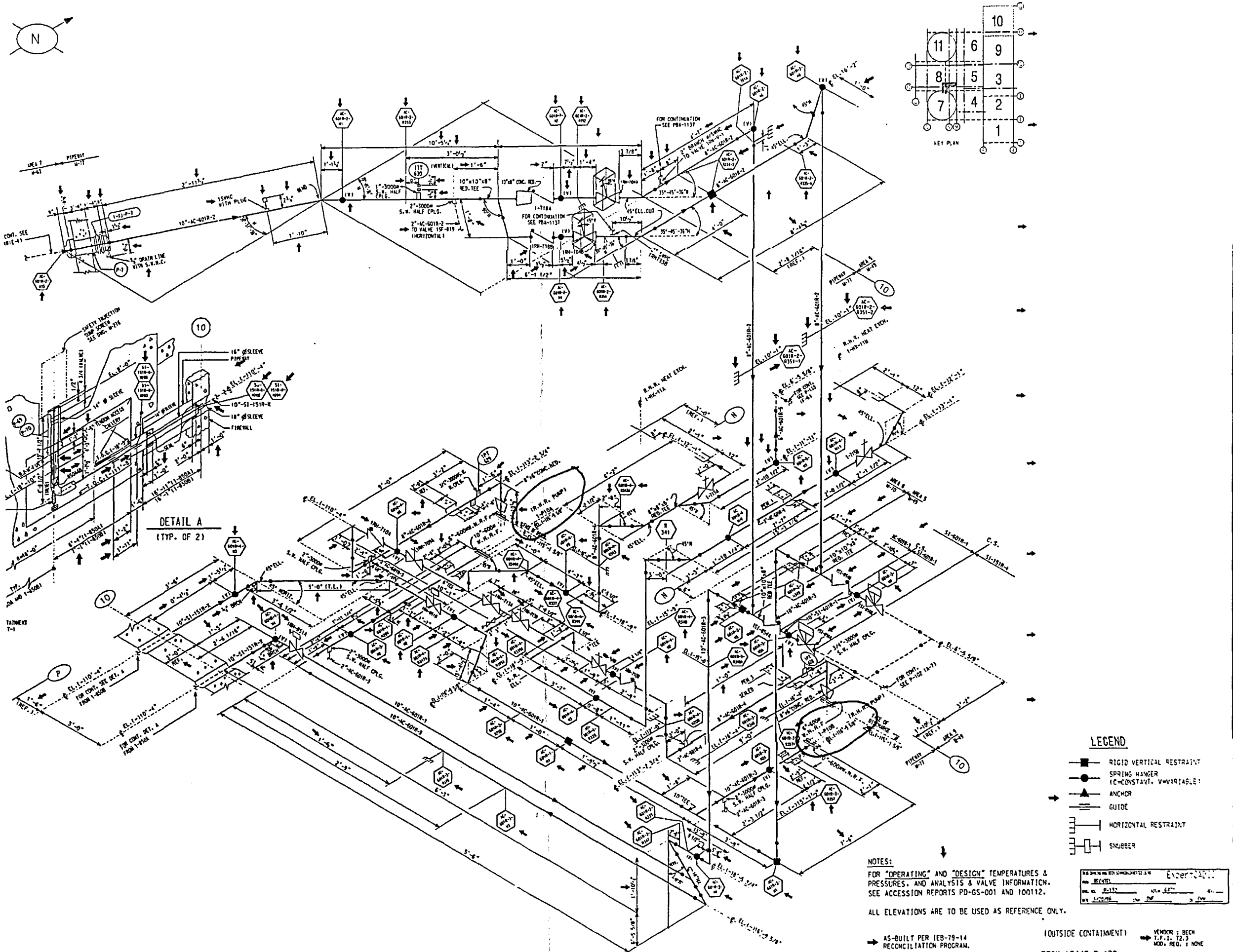
PBA-2121

MICROFILM NO.	300308
WISCONSIN ELECTRIC	
CGS NO.	56981
PIPING ISOMETRIC 2-P10A & B RHR PUMP BY-PASS	
POINT BEACH NUCLEAR PLANT UNIT 2	
SCALE	NONE

E PB 02 MRHL 183018 0J

03-15-96


P-134
P-133 SH1
P-132
PBA 11371
RESIDUAL HEAT REMOVAL PUMP 1P-10A
RESIDUAL HEAT REMOVAL PUMP 1P-10B
SEAL WATER HX HX-114A
SEAL WATER HX HX-114B
HX-11A
HX-11B
LOCAL SAMPLE SINK
NOTES:
1. ALL VALVE NUMBERS PREFIXED BY RH UNLESS OTHERWISE SHOWN.
2. SPECIAL FLANGE 300# TYPE 316.
3. HOLE IN DISK (RCS SIDE) ON 1-700, 1-701 & 1-720.
NOTE:
THIS DRAWING REDRAWN FROM WESTINGHOUSE ELECTRIC CORP. DRAWING #110E018 SHT. 1 REV. 30
WEST 110E018 SH.1
VENDOR : WEST
T.F.I. T2.3.3
MOD. REQ. : NONE
© We Energies 2003
MICROFILM NO. 018980
P&ID
AUXILIARY COOLANT SYSTEM
POINT BEACH N.P. UNIT 1
E PB 01 MSFK00000259
PB-1
RH vents



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08	10-03-90	REVISED PER DCN #90-0617	J268	SPD	PPL	JGL

MICROFILM NO. 152449

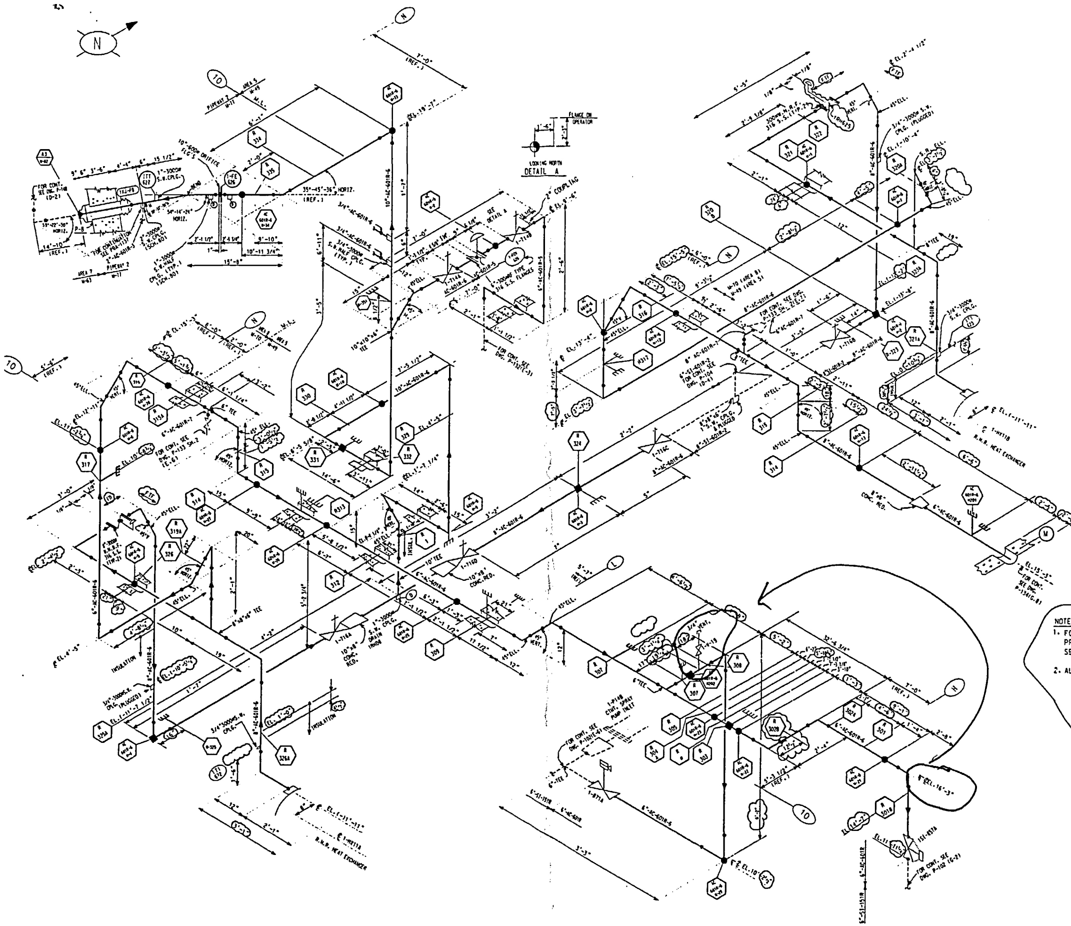
WISCONSIN ELECTRIC

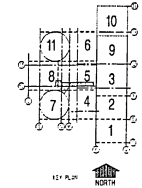
CGS NO. 58282

AUXILIARY COOLANT SYSTEM TO RHR PUMPS P10A & B SUCTION AND DISCHARGE OUTSIDE CONTAINMENT

POINT BEACH N.P. UNIT #1

EPB 01 MRHL 183 001 10





NOTES:

1. FOR "OPERATING" AND "DESIGN" TEMPERATURES & PRESSURES, AND ANALYSIS & VALVE INFORMATION, SEE ACCESSION REPORT 200104 & PD-GS-001.
2. ALL ELEVATIONS ARE TO BE USED AS REFERENCE ONLY.

LEGEND

- RIGID/GRAVITY RESTRAINT
- SPRING HANGER (C=CONSTANT, V=VARIABLE)
- ANCHOR
- GUIDE
- RESTRAINT
- SNUBBER

AS-BUILT PER IEB-79-14 RECONCILIATION PROGRAM.

THIS DRAWING HAS BEEN SCANNED/CONVERTED USING ExpertCADIC
BECHTEL
DWG. NO. P-133 SH.1 — 6471
3/26/96 — DWF — EWM

(OUTSIDE CONTAINMENT)

VENDOR : BECH
T.F.I. T5.3
MOD. REQ. : NONE

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REV	DATE	REVISION DESCRIPTION				
13	07-27-02	REVISED PER DCN # 2001-2756	2065			
12	5-17-00	REVISED PER DCN #2000-0422	1778	RLB	EMP	EMP
11	08-26-97	REVISED PER DCN #97-2004	6114	EMP	SEV	
10	04-24-96	CONVERTED AND REVISED PER DCN #96-0546	6471	SPS	DES	DES
09	12-10-92	REVISED PER DCN #92-1187	2032			DCH

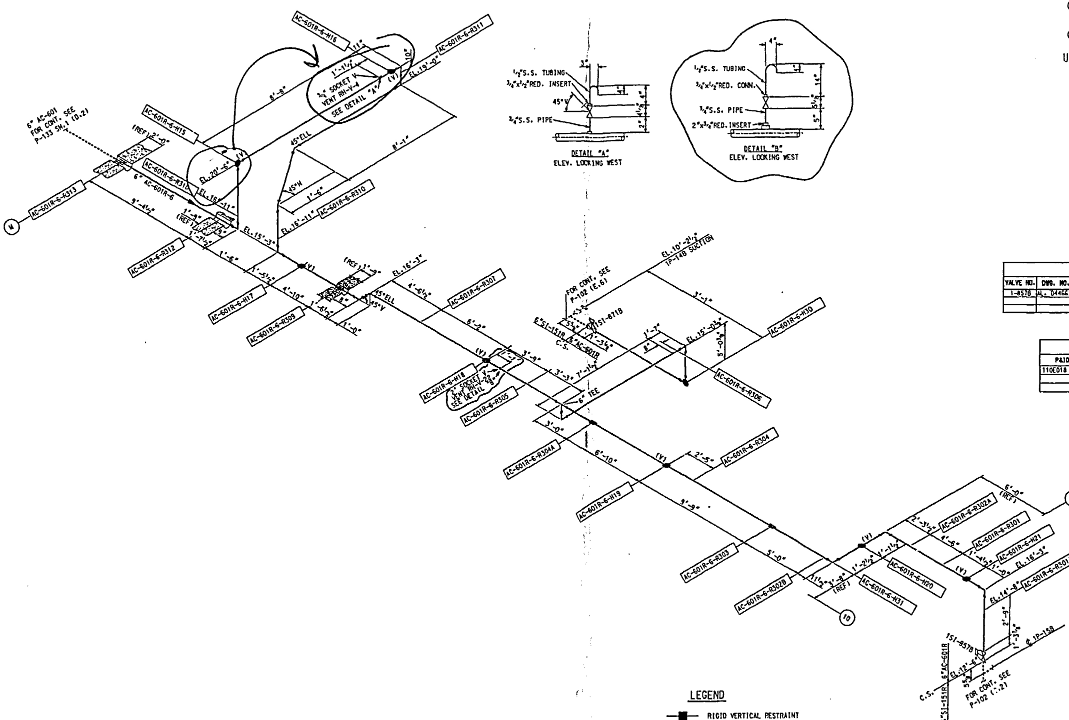
MICROFILM NO. 152450

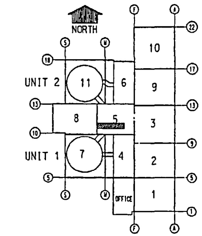
CGS NO. 58283

RHR HEAT EXCHANGER DISCHARGE AND BYPASS -601R-5-6 OUTSIDE CONTAINMENT
P-133 SH.1
POINT BEACH N.P. UNIT #1

EPB 01 MRHL 183002 13

22-JUL-2002





KEY PLAN

VALVE INFO						
VALVE NO.	DWG. NO.	VALVE WT/LB.	VALVE OPER WT/LB.	VALVE LENGTH IN.	VALVE STEM LENGTH	OPERATOR ORIENT.
1-857B	AL. D44663	250	185	15 5/8"	———	HORIZONTAL

REFERENCE DRAWINGS					
P&ID	REV.	AREA DWGS.	REV.	FABRICATION ISO	REV.
110E018 SH.1	6	M-49	9	6"AC-601R-6-8	4

LEGEND

- RIGID VERTICAL RESTRAINT
- SPRING HANGER (C=CONSTANT, V=VARIABLE)
- ANCHOR
- GUIDE
- HORIZONTAL RESTRAINT
- SNUBBER

NOTES:

FOR "OPERATING" AND "DESIGN" TEMPERATURES & PRESSURES, AND ANALYSIS & VALVE INFORMATION, SEE ACCESSION REPORT PD-GS-001.

ALL ELEVATIONS ARE TO BE USED AS REFERENCE ONLY.

AS-BUILT PER IEB-79-14 RECONCILIATION PROGRAM. WALKDOWN DRAWING FILED IN ACCESSION REPORT 200104.

VENDOR : BECH
T.F.I. T2.3.3
MOD. REQ. : 83-097

BECHTEL
SAN FRANCISCO

WISCONSIN ELECTRIC POWER COMPANY
POINT BEACH NUCLEAR PLANT

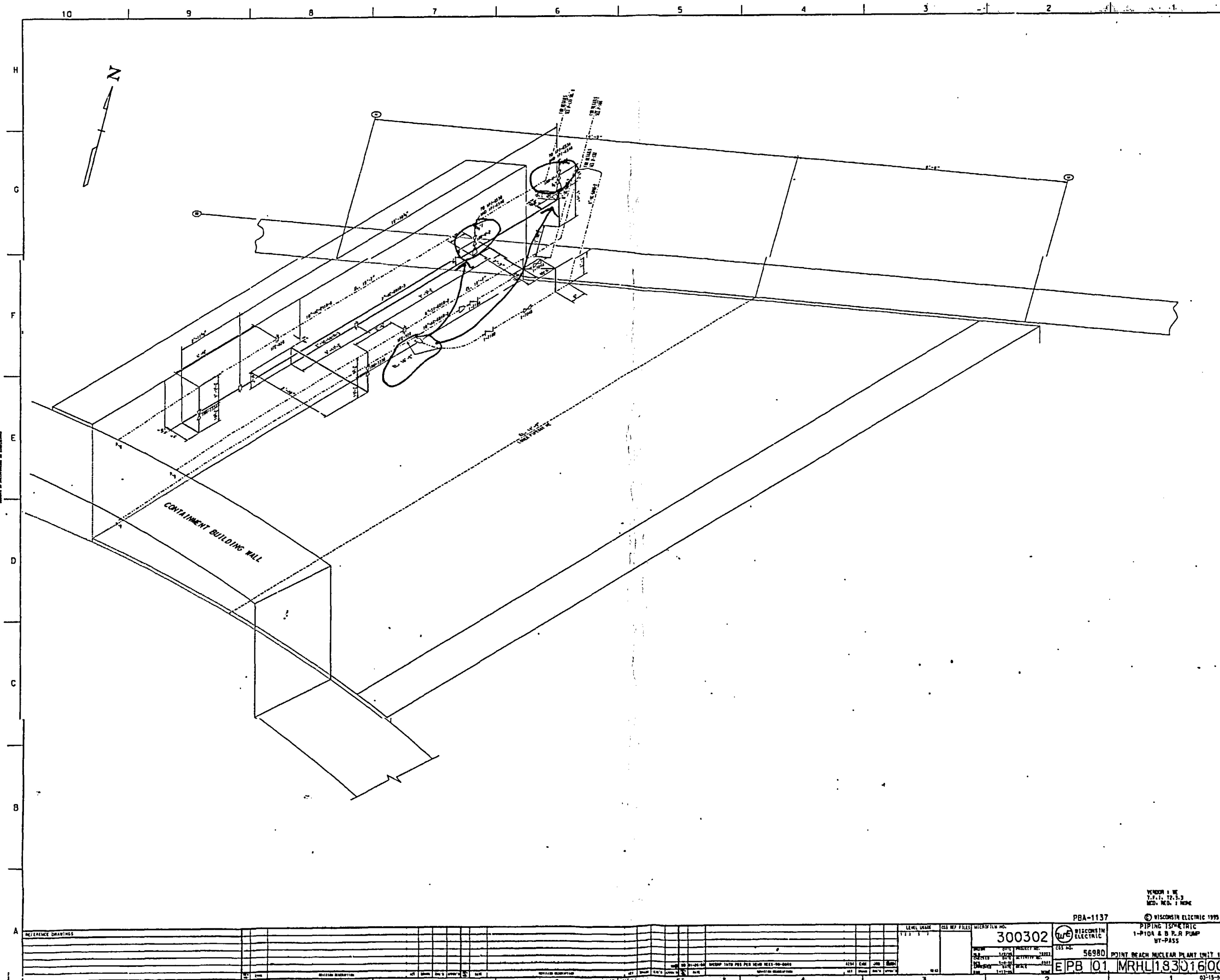
RHR HEAT EXCHANGER
DISCHARGE AND BY-PASS
AC-601R-6 UNIT 1

CCS FILE 71742

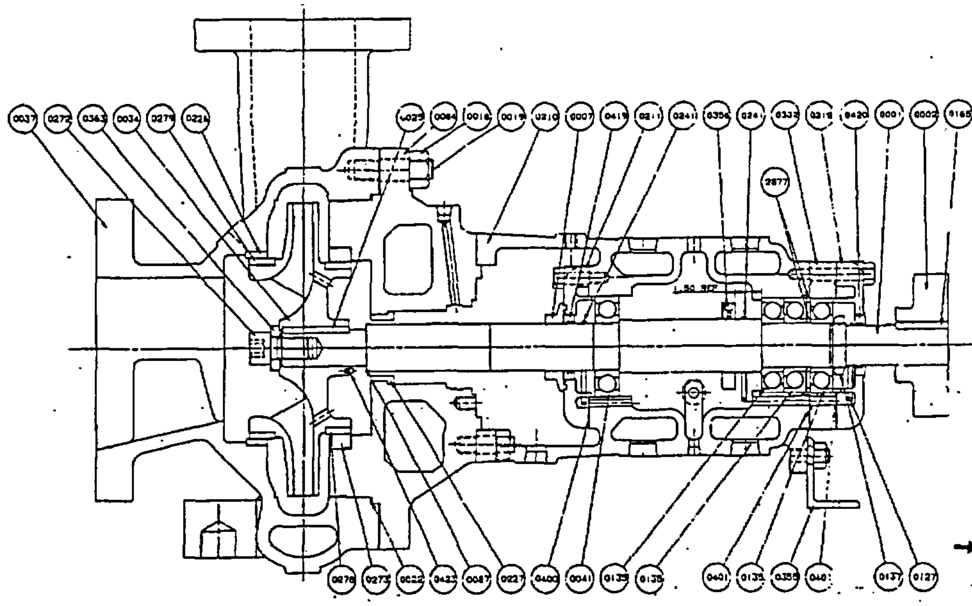
152451 PB 01 MRHL 183 003 07

10447 P-134

30-OCT-2002



CONTAINMENT BUILDING WALL
VENDOR : WE
T.F.I. T2.3.3
MCD. REQ. : NONE
PBA-1137
PIPING ISOMETRIC
1-P10A & B R.R PUMP
BY-PASS
MICROFILM NO.
300302
WISCONSIN ELECTRIC
CDS NO.
56980
POINT BEACH NUCLEAR PLANT UNIT 1
E PB 01 MRHL 183 016 00
03-15-96



REVISIONS	ZONE
1 DELETED ITEM #258. ADDED ITEM #2877, & #2878	
DATED MD. CKD.	
2 ORDER NUMBER NRG4686 ADDED	
DATED 10/90 MD. AM CKD.	
3 ITEM NUMBER 0018 ADDED.	
DATE 01/9 MD. AM CKD.	
4 BALL BRGS REVISED & DIMENSION 1.50 REF. ADDED PART NUMBER 1278 DELETED	
DATED 03/91 MD. AM CKD.	
5 PART # 2878 WAS DELETED NOT PART # 1278	
DATED 3/91 MD. AM CKD.	

W.E. REVISIONS			
REV	DATE	DESCRIPTION	
	9/97	INC TO PDS Per memo PS-DWG-97-014	SAW

CAD

CUSTOMER: WISCONSIN ELECTRIC POWER
LOCATION: TWO RIVERS, WISCONSIN
CONTRACTOR:
P.O. NO. 162773
ITEM NO. 0018
SERVICE: RESIDUAL HEAT REMOVAL

OUR NUMBER: NRG4686/P-45250
PUMP S/N: 43818-16/17/18

SIZE/TYPE: 6FL SVCR STGS. 1

NO.	PART NAME
0001	PUMP SHAFT
0002	FLEXIBLE CPLG.
0007	DEFLECTOR RING RADIAL
0016	CASE NUT
0019	CASE STUD
0022	HEAD GASKET
0025	IMPELLER KEY
0034	IMPELLER
0037	CASE
0041	BALL BRG (RADIAL)

NO.	PART NAME
0084	HEAD
0087	SHAFT SHOULDER GASKET
0127	OILING RING THRUST
0135	BALL BRG. (THRUST)
0137	BALL BRG. LOCKNUT & WASHER
0165	CPLG. KEY
0210	BRG. HSG.
0211	BRG. HSG. COVER (RADIAL)
0212	BRG. HSG. COVER (THRUST)
0226	CASE WRG. RING

NO.	PART NAME
0227	PACKING BOX BUSHING
0241	OILING RING RADIAL
0272	IMPELLER CAP SCREW
0273	HEAD WRG. RING
0278	IMPELLER WRG. RING HEAD SIDE
0279	IMPELLER WRG. RING CASE SIDE
0332	SPACER, BRG HSG
0355	BRG. HSG. BRACKET
0356	RETAINER OIL RING

NO.	PART NAME
0363	IMPELLER WASHER
0400	COVER GASKET (RADIAL)
0401	COVER GASKET (THRUST)
0419	OIL BAFFLE RADIAL
0420	OIL BAFFLE THRUST
0423	SHAFT SLEEVE DRIVE PIN
2877	SPACER SET, BALL BRG.

PACIFIC PUMPS DIVISION
DRESSER INDUSTRIES, INC.

TITLE
PUMP ASSEMBLY

DWN LF	CERTIFIED		DATE 6-23-90	
CKD	SIZE	PRODUCT. ENG. DWG. NO 500-P45250	SHEET	REV
SCALE				

W.E.P.CO. MICRO/OEM NO.	W.E.P.CO. DRAWING NO
309783	PB 31 M RHG 195 004 06