Kewaunee Nuclear Power Plant
N490 Highway 42
Kewaunee, WI 54216-9511
920.388.2560

Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241
920.755.2321

NMC
Committed to Nuclear Excellence

Kewaunee / Point Beach Nuclear
Operated by Nuclear Management Company, LLC

NRC 2002-013

10 CFR 50.73

February 04, 2002

Document Control Desk
U.S. NUCLEAR REGULATORY COMMISSION
Mail Station P1-137
Washington DC 20555

Ladies/Gentlemen:

Docket Numbers 50-266 And 50-301
Point Beach Nuclear Plant, Units 1 and 2
Licensee Event Report 266/2001-006-00
Appendix R Requirements Not Satisfied For Unanalyzed
Fire Induced Damage To The Auxiliary Feedwater System

Enclosed is Licensee Event Report 266/2001-006-00 for the Point Beach Nuclear Plant, Units 1 and 2. The subject condition was determined to be reportable under 10 CFR 50.73(a)(2)(ii)(B) as; "An event or condition that results in the nuclear power plant being in an unanalyzed condition that had the potential to significantly degrade plant safety." This LER discusses the identification of several Appendix R safe shutdown fire scenarios involving the loss of instrument air and potential damage to the auxiliary feed water pumps that were not previously analyzed. These conditions had the potential to degrade the ability of the auxiliary feed water system to provide adequate steam generator inventory control.

Corrective actions, completed and proposed, have been identified in the attached report. New commitments have been identified in italics.

If you have any questions concerning the information provided in this report, please contact Mr. C. W. Krause at (920) 755-6809.

Sincerely,

Tom Taylor
Plant Manager

Enclosure

cc: NRC Resident Inspector
NRC Regional Administrator
PSCW
INPO Support Services

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
POINT BEACH NUCLEAR PLANT UNIT 1	05000266	1 OF 7

TITLE (4)
Appendix R Requirements Not Satisfied for Unanalyzed Fire Induced Damage to the Auxiliary Feedwater System

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Point Beach Unit 2	05000-301
12	05	2001	2001	- 006 -	00	02	04	2002	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check all that apply) (11)							
POWER LEVEL (10)		20.2201(b)		20.2203(a)(3)(ii)	X	50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)	
		20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)	
		20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)	
		20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)	
		20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)			
		20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)			
		20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)			
		20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)			
		20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Charles Wm. Krause, Senior Regulatory Compliance Engineer	(920) 755-6809

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e. approximately 15 single-spaced typewritten lines) (16)

While conducting reviews of possible impacts on the auxiliary feedwater system (AFWS) for loss of instrument air, Point Beach Nuclear Plant engineers identified several previously unanalyzed 10 CFR 50, Appendix R safe shutdown equipment concerns. Specifically, a review of the availability of the motor-driven AFWS pumps (MDAFP) following an Appendix R design basis fire with a coincident loss of instrument air identified potential concerns with meeting Appendix R performance requirements. Four specific fire areas were affected. These fire areas are the Central Area of the 26' Primary Auxiliary Building (PAB), the safety injection and containment spray pump room, north AFW pump area, and south AFW pump area. In each of these fire areas, a MDAFP is relied upon as the means of getting feed water to at least one steam generator for at least one of the units. AFW flow to a minimum of one steam generator per affected unit is necessary to support the Appendix R performance objective of reactor coolant system (RCS) heat removal. This discovery was reported as an unanalyzed condition that had the potential to significantly degrade plant safety. Upon identification of this condition, compensatory fire rounds were initiated in the affected fire zones. An analysis of the conditions in these fire areas established that except for the AFWS pump room fires, alternative means are available to assure the availability of AFW flow. For Appendix R fires in the AFWS

Pump Room, plant modifications will be necessary to assure minimum AFW pump recirculation flow.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Point Beach Nuclear Plant Unit 1	05000266	2001	- 006 -	00	2 OF 7

TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

Event Description:

This condition was found while reviewing postulated scenarios involving the loss of the instrument air (IA) system {LD} and the potential impacts on the auxiliary feedwater system (AFWS) {BA} (See Licensee Event Report 2666/2001-005-00). During this review, station fire protection engineers identified a previously unanalyzed 10 CFR 50, Appendix R safe shutdown equipment concern. Specifically, they identified the potential to lose the availability of the motor-driven AFWS pumps (MDAFP) {P}. This condition could occur following an Appendix R safe shutdown fire with a coincident loss of offsite power for design basis fires in fire areas A01-B, A02, A23N, and A23S. These areas are the central area of the 26' Primary Auxiliary Building (PAB) {NF}, the safety injection {BQ} and containment spray {BE} pump room, north AFW pump area and south AFW pump area, respectively. For a fire in each of these areas, a MDAFP is relied upon to feed at least one steam generator {SG} for at least one of the units. The availability of AFW flow to a minimum of one steam generator per affected unit is necessary to support the Appendix R performance objective of reactor coolant system (RCS) {AB} heat removal.

The Appendix R Safe Shutdown Analysis (SSA) credits the availability of the motor-driven AFWS pumps for certain fire events. The availability of the pumps was based on an assumption that both reactors are tripped at the onset of a fire. This trip would automatically start both pumps and open all discharge valves {V}. The existing analysis showed that anytime one of the pumps was relied upon, at least one of the associated discharge valves remained open. The previously unanalyzed concern discussed in this report is for the condition in which only one unit trips at the beginning of a fire event. Should this occur, it is possible that the AFWS discharge valve of the tripped unit will not open due to fire damage and the operating unit's discharge valves would remain closed as expected. If IA then fails (as is assumed for an Appendix R event), the AFW pump recirculation isolation valve will also close. The running pump could then be damaged in a relatively short period as a result of running a pump without a flow path. It should be noted that these sequences are time sensitive. A loss of IA will also result in the trip of the previously unaffected operating unit. The scenarios assume; however, that the damage to the available MDAFP occurs before the second unit trips and its AFW discharge valves open.

This event was the subject of an ENS notification (EN# 38541) pursuant to 10 CFR 50.72(b)(3)(ii)(B) for an event or condition that results in the nuclear power plant being in an unanalyzed condition that had the potential to significantly degrade plant safety. The unanalyzed condition is the failure to meet the Appendix R performance requirement of 10 CFR 50, Appendix R III.L.2.c to provide for adequate decay heat removal in the event of a plant fire in the specified fire areas.

Cause:

This is an old design issue associated with the original Appendix R assumptions. The availability of the AFWS pumps to meet the Appendix R performance criteria for decay heat removal was based on an assumption that both reactors are tripped at the onset of a fire in the Fire Zones listed above. With a dual unit trip, both motor driven AFWS pumps would automatically start and the discharge valves associated with both pumps would open. The analysis confirmed that anytime one of the pumps was relied upon, at least one of the associated discharge valves would open before cables associated with the discharge valves were damaged. However, as noted in the Event Description, scenarios can be hypothesized that do not support this assumption. Combining failure due to fire-induced damage of an AFWS discharge valve to open for the running pump along with a loss of instrument air (causing the recirculation AOV to shut) results in the potential for this event. (The vulnerability of AFWS operations to the failure of IA was identified and discussed in LER 266/2001-005-00 dated January 28, 2002.) This event was discovered by NMC personnel during a self-initiated review of certain Appendix R assumptions. It would not have been identified during normal surveillance activities.

Corrective Actions:

- Hourly fire rounds have been initiated in fire zones 187, 151, 237 and 304. This action provides additional assurance that the plant staff would identify an incipient fire condition and have adequate time to respond and mitigate the condition prior to fire induced damage leading to potential AFWS pump damage.

- *Modifications are planned to provide alternate air or nitrogen supply to the AFWS recirculation isolation valve operators.*

- *A modification is also planned to prevent failure of control cables associated with the "B" Train MDAFP minimum recirculation valve due to a fire in Fire Area A23S (south side of the AFW Pump Room). Fire induced damage to these control cables could result in this valve closing regardless of the availability of IA or backup nitrogen.*

- In response to a related issue (CR 01-3633), procedure FOP-1.2, "Potential Fire Affected Safe Shutdown Components", has been revised to provide improved guidance for the establishment of AFW flow via manual action in Fire Area A01-B. This revision was performed to clarify the manual actions required to ensure the establishment of flow from two AFW pumps when required.

Component and System Description:

The following component and system description is derived from Section 10.2 of the PBNP FSAR. The auxiliary feedwater system consists of two electric motor-driven pumps, two steam turbine-driven pumps, pump suction and discharge piping, and the controls and instrumentation necessary for operation of the system. A diagram of the major AFWS flow paths is provided on the last page of this LER. Redundancy is provided by use of two pumping systems, two different sources of power for the pumps, and two sources of water supply to the pumps. The system is categorized as seismic Class I and is designed to ensure that a single failure will not obstruct the system function.

One AFWS water source uses a steam turbine-driven pump for each unit with the steam capable of being supplied from either or both steam generators. This system is capable of supplying 400 gpm of feedwater to a unit, or 200 gpm to each steam generator through normally throttled motor-operated valves (MOVs). The feedwater flow rate from the turbine-driven auxiliary feedwater pump depends on the throttle position of these MOVs. Each pump has an AOV controlled recirculation line back to the condensate storage tanks to ensure minimum flow to dissipate pump heat. The pump drive is a single-stage turbine, capable of quick starts from cold standby and is directly connected to the pump. The turbine is started by opening either one or both of the isolation valves between the turbine supply steam header and the main steam lines upstream of the main steam isolation valves. The turbine and pump are normally cooled by service water with an alternate source of cooling water from the firewater system.

The other AFW source is common to both units and uses two similar motor-driven pumps each capable of obtaining its electrical power from the plant emergency diesel generators. Each pump has a capacity of 200 gpm with one pump capable of supplying the A steam generator in either or both units through an AOV back-pressure control valve and normally closed MOVs and with the other pump capable of supplying the B steam generator in either or both units through an AOV back-pressure control valve and normally closed MOVs.

Both back-pressure control valves fail open when instrument air to the valves is lost. The valves are provided with a backup nitrogen supply to provide pneumatic pressure in the event of a loss of instrument air. This backup supply assures that the valves do not move to the full open position which combined with low steam generator pressures may cause the pump motor to trip on time over-current due to high flow conditions. Each pump has a controlled recirculation line back to the condensate storage tanks to ensure minimum flow to prevent hydraulic instabilities and dissipate pump heat. The discharge headers also provide piping, valves, and tanks for chemical additions to any steam generator. The pump bearings are ring lubricated and bearing oil is cooled by service water.

The water supply source for the auxiliary feedwater system is redundant. The normal source is by gravity feed from two

nominal capacity 45,000 gallon condensate storage tanks while the safety-related supply is taken from the plant service water system whose pumps are powered from the diesel generators if station power is lost.

Safety Assessment:

The defense-in-depth approach to Point Beach Nuclear Plant's Fire Protection Program, which includes both fire detection and suppression provisions, would mitigate the significance of this condition and provide a high likelihood that the postulated in-plant fires would be controlled adequately and the safe shutdown equipment would remain available. Each of the fire areas of concern is protected by photoelectric fire detection systems, which ensure a prompt response to a developing fire condition. In addition, Fire Area A02 is protected with a wet pipe sprinkler system and A23N and A23S with a Halon fire suppression system, which further mitigate the spread of any fire in those areas. The hourly fire rounds, which have been implemented in the affected fire zones as a compensatory measure, provide additional assurance that conditions leading to a potential in-plant fire are even less likely to occur.

As noted in the event description, there are four Fire Areas (FA) of concern where the motor driven AFW pumps (MDAFP) are credited in the Safe Shutdown Analysis (SSA) for providing AFW to the steam generators. They are the SI Pump Room (FA A02/ FZ 151), the Central PAB (FA A01-B/FZs 187 & 237) and the north and south areas of the AFW Pump Room (FA A23N and A23S/FZ 304). The following is an assessment of each FA:

SI Pump Room (FA A02/FZ 151)

The SSA credits control room operation of the motor-driven AFW pumps for Unit 1 for a fire in this area. Cables for both MDAFP discharge valves (AF 4021 and AF 4023) for Unit 1 steam generators are located in this area. Therefore, the valves are assumed to not open on a pump start. There are numerous control and power cables for Unit 1 routed in this area; therefore it is reasonable to assume a Unit 1 trip will occur. There are minimal Unit 2 cables routed in the area, so a Unit 2 trip may not occur. Power cables from the safeguard busses to three of the four air compressors, which supply the IA header, are routed in the area. The remaining air compressor would be expected to supply adequate air unless a failure of the piping was to occur. An IA header is routed through the area, but is located directly above a large ventilation duct and is fully covered by the area water sprinkler system. It is unlikely, that the header would fail, but for purposes of this analysis, this is assumed to occur.

Therefore, although unlikely, it is possible that the Unit 1 MDAFP discharge valves AF-4021 and AF-4023 could fail while in the closed position. The Unit 2 discharge valves (AF-4020 and AF-4022) could remain closed and both MDAFPs would have started on a Unit 1 trip. Then if IA fails such that the recirculation valves, AF-4007 and AF-4014, fail close before Unit 2 trips and opens its discharge valves AF-4020 and AF-4022, both MDAFPs will be damaged. Although not credited in the original analysis, the Unit 1 Turbine Driven AFP remains available by manually aligning the associated steam supply and discharge valves. The turbine pump was previously not credited because the electric pumps were thought to be available from the Control Room.

Manual starting of the Turbine Driven AFPs will require over-riding the suction pressure trip and manually opening the steam supply valves. While these steps are not specifically addressed in the current fire protection procedural guidance for this area, over-riding the suction pressure trip is specifically covered in the existing turbine driven AFW pump operating instruction (OI 62B). Upon recognizing the failure of the MDAFP, the operators would be expected to immediately assess the condition of the turbine driven AFPs and manually start the pump(s). Current time lines indicate that operations would attempt to establish AFW flow within 15-30 minutes. These manual actions can be accomplished in a relatively short time and the steam generators can remain without flow for up to 45 minutes per current calculations. Therefore, we believe there is sufficient time for operations to recover and establish flow to the steam generators to meet the Appendix R performance goals. Thus, there is no safety concern for a fire in this fire area.

Central PAB (FA A01-B/FZs 187 & 237)

This Fire Area contains two Fire Zones consisting of the Monitor Tank Room (FZ 187) on the 26-foot level and the CCW Hx & Boric Acid Tank Room (FZ 237) on the 46-foot level. The control cables for all four discharge valves for the MDAFP (AF-4020, 4021, 4022 and 4023) are routed through the east end of FZ 187 but not in FZ 237. The motor-control centers for valves AF-4020 and AF-4021 are located in the east end of FZ 187. Normal instrument cables for both Units are routed through FZ 187 in the Northeast corner for Unit 2 and Southeast corner for Unit 1. Instrument air headers are located on the east wall and in the overheads. Concurrent failure of the instrument cables (resulting in a SI signal or simulating low steam generator level), the discharge valve control cables (with the valves in the closed position) and the IA headers (resulting in closure of the recirculation valves AF-4007 and AF-4014) could damage the MDAFPs.

Originally the PBNP SSA assumed normal instrumentation was lost for a fire in either fire zone 187 or 237 and decay heat was removed by directing flow from the "B" MDAFP to the "B" steam generators. Instrumentation to accomplish this is provided by the alternate red instrumentation. As described previously, a fire in Fire Zone 187 could render both MDAFPs inoperable. Consequently, a fire in Fire Zone 187 requires use of the steam driven AFW pumps (1/2P-029), which remain available via manual action. The feasibility of performing the manual action necessary to open these valves has been investigated and determined acceptable in the FPTE-012, "Technical Evaluation of PBNPs Manual Action Report."

Fire Zones 187 (26' PAB) and 237 (46' PAB) are part of the same fire area; however, fire spread between these zones is unlikely. Fire Zones 187 and 237 are separated by a 3-hour fire-rated floor with an open stairwell at the Southwest edge of FZ 237. There are no significant combustible materials located close to the stairwell in FZ 237. There are two open entrances through the west wall of FZ 237 to an adjacent Fire Area. One opening is located next to the stairwell opening and the other is in the northwest corner of FZ 237, over 30' from the stairwell. The opening located remotely from the stairwell allows entry into FZ 237 from the adjacent Fire Area to perform manual actions on the Turbine Driven AFP steam supply valves. Thus, there is reasonable assurance that manual action to open the steam supply valves is feasible for a fire in FZ 187.

A PRA assessment has determined that the safety significance of a fire in FZ 187 is considered very low because of the availability of the Turbine Driven AFW pumps via manual actions.

The original SSA for a fire in Fire Zone 237 did not credit the steam driven AFW pumps and assumed both MDAFPs and their associated discharge valves were available. However, due to instrumentation losses, only the "B" MDAFW pump was credited in the analysis and procedures. This was an incorrect assumption in the SSA since a single MDAFP would not have provided adequate decay heat removal flow for both units. PRA fire modeling and the manual actions discussed in FPTE-012 demonstrates that either the Unit 1 or Unit 2 turbine driven AFW pump, steam supply valves will remain available for a fire in Fire Zone 237. Therefore, adequate AFW flow is available to each Unit resulting in very low safety significance.

AFW Pump Room (FA A23N and A23S/FZ 304)

The AFW Pump Room is a single room, which contains two separate fire areas. Fire Area A23N comprises the north half of the room and A23S the south, hereafter referred to as the north and south side of the room. Fire Area A23N contains the Unit 2 turbine driven and "B" MDAFP, pumps 2P-029 and P-038B, respectively. Fire Area A23S contains the Unit 1 turbine driven and "A" MDAFP, pumps 1P-029 and P-038A, respectively.

The SSA credits manually aligning the "A" MDAFP for Unit 2 for a North side fire and manually aligning the "B" MDAFP for Unit 1 for a South side fire. Power cables for all four discharge valves (AF-4020, 4021, 4022 and 4023) are routed in this room. One discharge valve will remain free of fire damage for either a South side or a North side fire.

There are numerous control and power cables for both Units routed in this room. Generally speaking the Unit 2 cables are routed in the North section and Unit 1 cables are routed in the South section. While there are several exceptions to this, there is enough separation that a fire can be hypothesized that trips only one unit. Power cables from the safeguard busses to all four air compressors, which supply the IA header, are routed in the room. The IA headers in the room are carbon steel; however, branch lines off of the header are copper.

For a south side fire the "B" MDAFP is relied upon to provide feed water flow to the Unit 1A steam generator via the AFW cross-connect valves (AF-43 and AF-30). Feed water flow via this discharge path requires manual valve alignment; therefore, this path is not available automatically. The normal discharge paths for this pump are through valves AF-04020 and AF-04021, which feed the Unit 2B and Unit 1B steam generators, respectively. The Unit 2 steam generator 2B AFW supply valve (AF-04020) remains free of fire damage, but does not open with a Unit 1 trip. Thus, the fire of concern was one that damages the power and control cables to valve AF-04021, leaving both of the normal discharge valves closed and the pump running. Should the AFWS recirculation valve AF-4014 close, the pump will be left without a flow path. Since the control cables that could close the "B" MDAFP recirculation valve (AF-4014) are located on the south side, there is an additional concern for fire-induced damage causing that recirculation valve to close. For a fire starting in this vicinity, it is possible that the valves for the "B" MDAFP are failed closed and the pump starts on the Unit 1 Trip, thus potentially damaging the pump for a fire in the south side of the room.

For a North side fire the "A" MDAFP is relied upon. The Unit 1 steam generator 1A discharge valve (AF-04023) remains free of fire damage. Thus, the fire of concern will be one that damages the power supply to steam generator 2A discharge valve (AF-4022). Should the "A" MDAFP recirculation valve close (AF-04007), the pump will be left without a flow path. In this fire scenario AF-4022 fails while in the closed position, valve AF-4007 fails close on loss of IA, AF-4023 remains closed because Unit 1 does not trip and the "A MDAFP starts on a unit 2 trip. This could potentially damage the pump for a fire in the north side.

In summary, our engineering review has determined that if only one Unit is tripped (either automatically or manually) as a result of a room fire, it is possible that fire damage to equipment resulting from the fire event originating in specific areas of the room, could cause damage to both MDAFPs. It should be noted that the AFW pump room is provided with a dedicated, automatic initiating Halon suppression system. In addition the combustible loading in the room is considered to be low. A PRA assessment has determined that the probability of having a fire of sufficient intensity to result in the failures discussed above is considered low.

Since these previously unanalyzed Appendix R fire conditions have been assessed and the potential for a significant degradation of safety is unlikely given the compensatory measures we have taken, we have concluded that the impact on the health and safety of the public and the plant staff of this previously unanalyzed condition was minimal. We have determined that the complete loss of the safety function of the AFWS would have required the Appendix R fire to initiate, in the correct sequence, multiple failures. Nonetheless, we are conservatively declaring this condition as meeting the criteria for a potential safety system functional failure.

Similar Occurrences:

A review of recent LERs (past two years) identified the following related event:

LER NUMBER	Title
266/2001-005-00	PRA Assessment of Auxiliary Feedwater System Reveals Procedural Inadequacy Related to Loss of Instrument Air

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Point Beach Nuclear Plant Unit 1	05000266	2001	- 006 -	00	7 OF 7

TEXT *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

Figure 1-1
AFW System - Major Flow Paths