



Wisconsin Electric POWER COMPANY
231 W. MICHIGAN, P.O. BOX 2046, MILWAUKEE, WI 53201

January 21, 1983

Mr. J. G. Keppler, Regional Administrator
Office of Inspection and Enforcement,
Region III
U. S. NUCLEAR REGULATORY COMMISSION
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

DOCKET NOS. 50-266 AND 50-301
REPLY TO INSPECTION REPORT
NOS. 50-266/82-17 AND 50-301/82-17
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

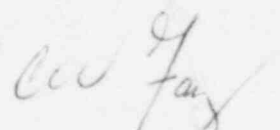
Enclosed is our response to Inspection Report Nos. 50-266/82-17 and 50-301/82-17 which were forwarded by letter dated November 30, 1982.

As noted in the attached discussion of each item, we disagree with some of the findings and provide the basis for our position. We concur with some Items of Noncompliance; for these items we have stated corrective action to be taken, corrective steps taken to avoid further items of noncompliance, and dates when action will be completed. In addition, we plan to undertake further action in areas where we believe violations or noncompliances did not occur but where such actions would enhance our fire protection program.

Some of the findings appear to result from the inability to produce documentation at the time of the inspection which was subsequently determined to be available. We are taking action related to the management of the fire protection program in the plant which we believe will minimize such problems in the future.

Very truly yours,

8305170252 830509
PDR ADDCK 05000266
Q PDR


Vice President-Nuclear Power

C. W. Fay

Enclosures

Copy to NRC Resident Inspector

JAN 24 1983

RESPONSE TO INSPECTION REPORT NOS.
50-266/82-17 (DETP) AND 50-301/82-17 (DETP)

Violation 1, Item a(1)

Noncompliance 2.b(1) (82-17-01A, Fire Pump Testing)

We do not agree with the NRC opinion that Violation 1, Item a(1), is a violation of Technical Specification 15.4.15 or 10 CFR 50, Appendix B, Criterion XI. With respect to Noncompliance 82-17-01A, we do not concur with the NRC opinion that our tests have not met National Fire Protection Association (NFPA) standards. Further, we feel the test results indicate adequate pump performance rather than mechanical malfunction.

Technical Specification test TS-19, "Annual Fire Pump Capacity Test", does not need to measure the performance parameters stated in Violation 1, Item a(1), or Noncompliance 82-17-01A to comply with the NFPA standards for annual performance testing.

NFPA (1976), Chapter 11, Section 6.2, entitled "Field Acceptance Test", states in part "Upon completion of the entire fire pump installation, an operating test shall be made...All applicable provisions of 12-1 shall be followed." NFPA (1976), Chapter 12, Section 1, is entitled "Field Acceptance Test". This term is understood to mean a test performed following initial installation of a pump to ensure acceptability. Our understanding is reinforced by NFPA 20 (1976), Chapter 12, Section 11, which states "The pump manufacturer shall have an engineer present at the field acceptance tests when requested by the installing contractor." Additional substantiation of the intent of Field Acceptance Test is obtained from NFPA 20 (1980), Chapter 11, Section 2.1, which states "The acceptance test of the pump installation shall be the responsibility of the installing contractor. Field acceptance test of the entire fire pump assembly shall be performed by the pump manufacturer or his qualified representative prior to acceptance of the installation by the owner." The licensee agrees that all the pump operating parameters discussed in Noncompliance 82-17-01A are applicable to the Field Acceptance Test, however, the licensee does not agree that all these performance test parameters need apply to periodic performance tests performed on a routine basis.

The intent of our annual test has been to demonstrate pump capacities are acceptable. Thus, we believe that the appropriate code is NFPA 20 (1976), Chapter 12, Section 3.1, entitled "Yearly Test". It does not state any specific test performance parameters to be obtained except "A yearly test shall be made at full capacity and over to make sure neither pump nor suction pipe is obstructed." NFPA 20 (1980), Chapter 11, Section 3.1, under the title "Annual Fire Pump Tests", states "An annual test of the fire pump assembly shall be performed to determine its ability to continue to attain satisfactory performance at peak loads."

It appears that the NRC may be applying the Field Acceptance Test requirement in this violation rather than the more appropriate annual test requirement.

Included in Attachment 2 are pump curves for the plant fire pumps. These curves show the manufacturer's curves, ASME Section XI pump performance limits (using the manufacturer's curves as baseline), and actual test data for 1978, 1979, 1980, 1981, and 1982. Of the 36 data points taken, only three fell outside the ASME limits and in directions which indicate no particular trend. Significant indication does not exist to suspect mechanical malfunction of the fire pumps or to believe they would not perform at 150% rated capacity.

We wish to point out that our pump capacity test, as presently performed, utilizes our fire system test facilities to their maximum capacity. It is impossible to generate test flows greater than those now attained with our existing test facilities. In addition, our highest flow test points are greater than the largest single expected fire flow given in the Fire Hazards Analysis.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

Although we believe test TS-19 to be adequate, we will revise the test to include additional performance data. This is consistent with our policy to make changes which we believe will enhance our operation. Additional data to be collected will be measured suction lift, diesel pump shutoff pressure, diesel engine speed, and electric pump motor current draw. An additional section specifying proper analysis techniques will be included. Appropriate changes to TS-19 will be made by January 31, 1983.

Noncompliance 2.b(2) (82-17-01B, Fire Signalling System Testing)

We acknowledge that TS-7 (Monthly Diesel Fire Pump Functional Test), TS-17 (Annual Testing of Diesel Room Sprinkler Valves), TS-19 (Annual Fire Fire Pump Capacity Test), and TS-26 (Fire Main Flow Test) do not explicitly incorporate documented verification of alarm annunciation.

We disagree, however, with an interpretation of 10 CFR 50, Appendix B, Criterion XI, that it is always required to test annunciation actuation. Criterion XI states in part "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service..." For systems and equipment whose singular intent is to generate alarms then, of course, alarm annunciation must be verified. However, for systems and equipment which generate alarm annunciation subsequent to

actuation and which are of an informational nature, then the generation of the alarm does not impact the satisfactory or unsatisfactory performance of the system or equipment to carry out its intended function.

An example may best illustrate our position. The required performance of a smoke detector system is to generate an alarm. An operability test is then one which verifies the generation and receipt of alarms. A sprinkler system, on the other hand, would have the required performance to deliver water. Operability of the sprinkler system would be demonstrated by valve position and satisfactory nozzles appearance. The generation of a flow alarm, or the failure to do so, does not affect system performance in any manner.

For Point Beach Nuclear Plant systems where alarm annunciation is a part of operability assessment, alarm verification is being done as part of the operability test.

CORRECTIVE ACTION/ACTION REQUIRED TO PREVENT RECURRENCE

A review of our fire protection tests will be done to identify informational alarms. Where informational alarms exist and can be expediently tested these alarms will be verified. This review will be complete by April 30, 1983.

Violation 1, Item a(2)

Noncompliance 2.b(3) (82-17-01C, Fire Detection System Testing)

(a) Verification of Control Room Alarm

The acceptance criteria for TS-16 is stated in the discussion section. To be specific, Section 1.0 reads in part "This should cause an alarm in the control room (emphasis added) and when the can is removed, the neon light on the smoke detector should be lit."

TS-16, Revision 1, contains a blank for initials following each detector location. This blank would be initialed upon satisfactory testing of the detector. Unsatisfactory detector performance would result in no signature/initial and a note in the "Remarks" section.

Consequently, we disagree with the NRC finding that our procedure TS-16 did not include demonstration of the control room annunciation.

(b) Verification of Local Zone Indicating Unit Alarm Annunciation

This statement is confusing because the tests which were audited during the inspection did not apply to a local zone configuration smoke detector system; as such, no local alarm annunciation was involved. The closest approximation to local annunciation was a small red indicating light on each detector. This was verified operable during the test by an appropriate initial for each detector. The acceptance criteria are stated in the "Discussion" section, it being "...the neon light on the smoke detector should be lit."

It is our speculation that the NRC inspectors were visualizing, in their minds, the other fire detection system being installed (which does have zones) rather than the system for which the procedures that they were reviewing were written.

(c) Testing of Detector Sensitivity

The detectors were tested on a periodic basis using freon. We agree that our test method did not adequately test detector sensitivity.

(d) Testing of Supervisory Circuitry Between the Control Room and the Zone Indicating Units or Between the Zone Indicating Units and the Detector Transmitter

As previously stated, there were no zone indicating units on the detection system, thus, none could be tested. The supervisory circuit was tested at the time of each detector functional test. The alarm and supervisory wiring was common from the detector unit into the central alarm panel located in the control room. The separation of alarm and supervisory circuits took place in control at the central detector panel. A main control board alarm window was unique to the trouble circuit. It is the practice at Point Beach to note the failure to receive such an alarm when testing is in progress. Thus, the supervisory circuit was tested during each alarm test and verification consisted of noting the failure to receive an expected annunciator.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

The smoke detector system now in operation is a fixed sensitivity photoelectric detector system which utilizes local zone panels and an indicating panel in the control room. Functional testing of this system will meet appropriate applicable NFPA standards. Detector sensitivity testing of this system is not required.

Violation 1, Item a(3)

Operability Surveillance Testing/Inspection Procedure for Fire Doors

This finding states that there was "no surveillance testing inspection procedure established to assure operability of fire doors protecting safety-related areas". We note that Technical Specification 15.4.15.E requires a visual inspection of fire barrier penetration fire seals; fire barriers, including fire doors, have been inspected on the frequency specified in the Technical Specification. These inspections have been appropriately documented.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In order to enhance our fire protection program, we have prepared a semiannual maintenance surveillance procedure (PC-70, Part I) to assure safe shutdown area fire door operability. This procedure documents a check for the defeat of the hold-open feature, verifies proper latch and closer operation, performs a general door hardware inspection, verifies freedom of operation, and also verifies any associated computer alarms.

Surveillance procedure (PC-70, Part I) also states "Operations personnel should lubricate or perform minor repairs to upkeep doors during performance of this periodic checklist. Should maintenance beyond the scope of Operations be required, a maintenance request should be submitted and noted."

Violation 1, Item b

Noncompliance 2.b(4) (82-17-01D, Test Acceptance Criteria)

We believe the NRC finding to be incorrect in stating that "no acceptance criteria" exists for many of our Technical Specification required tests. We acknowledge that some acceptance criteria were not explicitly stated in the procedure body but these are exceptions to the norm. In addition, for tests where engineering review of test data was required to determine acceptable performance or operability, these reviews were performed and results documented.

At Point Beach, an individual's initials following the action steps of procedures are accepted as satisfactory indication that the procedural step was successfully completed. For example, the first step in TS-7, "Monthly Diesel Fire Pump Functional Test", states "Check oil level between "H" and "L" on dipstick." An operator's initials in the appropriately

identified blank indicates appropriate completion of the procedural step, thereby successfully demonstrating an operationally acceptable level of oil in the diesel engine.

We feel some of the misunderstanding may be due to the fact that, in many of the cases, acceptance criteria are not extremely obvious but are included in the test as action steps. However, this is a question of style of test preparation, not a lack of acceptance criteria. Test data were reviewed in cases where equipment performance or operability had to be determined, and documentation of such reviews are represented by the Fire Protection Supervisor review initial on the procedure itself.

Also, the Point Beach approach to acceptable test performance has been one of exception. Normal or expected conditions or results may not be identified in any special way whereas unsatisfactory or off-normal conditions are explicitly identified.

To address the specific tests of Noncompliance 82-17-01D the following is presented:

a. TS-7 (Monthly Diesel Fire Pump Functional Test)

In order to fulfill the NFPA 20 (1980) and Technical Specification 15.4.15 requirements, 12 parameters must be measured and fall within specific limits. All 12 are checked or measured in the test. Of these 12, eight have acceptance criteria stated. For example:

	<u>Initials</u>
10. Oil pressure should be between 30 psig and 70 psig. _____ psig	_____
Water temperature should be between 140°F and 17°F. _____ °F	_____
2. Check water level between cap and 1-1/2" below cap. _____	_____

b. TS-13 (Monthly Fire Equipment Surveillance)

We would like to point out that only certain portions of this test involve surveillance testing of Technical Specification required equipment which is conspicuously identified on the test procedure by double asterisks. Only these hose reels need to conform to Technical Specification surveillance standards. The equipment which is Technical Specification related are certain hose reel stations and an example of the surveillance criteria is shown below.

Please note that four of the five items listed have acceptance criteria stated implicitly if not explicitly.

TS-13
Page 2

CONDITIONS NORMAL
INITIALS

**HR-47

FP-246 shut _____ Hose in place _____
Cover installed _____
Nozzel shut _____ Condition _____

c. TS-16 (Bimonthly Fire Detector Testing)

The discussion section of TS-16 states "This should cause an alarm in the control room and when the can is removed, the neon light on the smoke detector should be lit."

Page 4

The sign-off section consists of:

Room Protected	Location of Detector	Signature	Date
_____	_____	_____	_____

for each Technical Specification required detector. We believe the discussion section states the expected action and a signature verifies the expected action has occurred.

d. TS-17 (Annual Testing of Diesel Room Sprinkler Valves)

We believe that, upon understanding the Point Beach system of procedure performance, the acceptance criteria for TS-17 is very explicit. As stated before, the practice at Point Beach has been to identify unacceptable performance. When acceptable performance is achieved it is indicated by exception, i.e., no comment and in most cases initials or signatures are used to indicate completion of a procedural step.

Because of system changes, TS-17 no longer exists in the format it did at the time of the NRC audit. However, to clarify our point, we have included portions of the test as it previously existed.

1.0 PURPOSE

- 1.1 Verify operability of motor-operated valves supplying sprinklers in the emergency diesel rooms.
- 1.2 Inspect for system integrity in sprinkler system for the emergency diesel rooms.

2.0 PROCEDURE

- 2.3 Give MOV-3742 an open signal.
 - 2.3.1 Ensure MOV-3742 travels full open.
 - 2.3.2 Close MOV-3742.
- 2.6 Inspect sprinkler piping and nozzles. Observe for the following:
 - 2.6.1 Observe for structural integrity, i.e., no physical damage, hangers intact, etc. of all the sprinkler piping.

Piping OK _____
 - 2.6.2 Observe all nozzles for plugging.

Nozzles OK _____

e. TS-19 (Annual Fire Pump Capacity Test)

Appendix "B" of 10 CFR 50 is not solely the QA program which governs Point Beach. The NRC has accepted the Point Beach QA program found in Section 1 of the FSAR which incorporates QA philosophy in addition to that of Appendix "B" of 10 CFR 50.

The test in question does not have any stated acceptance criteria because it is written utilizing the philosophy of Section 1.8.5 of the Point Beach Nuclear Plant FSAR which states "Supervisors may direct that data be taken without the data taker being cognizant of the acceptance criteria when it is considered that forehand knowledge of the acceptance criteria may prejudice results. The supervisor is then responsible to verify conformance."

Acceptable performance of the fire pumps was documented in a memorandum dated July 10, 1981 following the reduction and analysis of test data. Thus, we believe test results have been evaluated to assure equipment operability and that this evaluation and operability have been documented.

f. TS-20 (Annual Fire System Automatic System Valve Actuation)

Selected portions of TS-20 are included below; they demonstrate that acceptance criteria are included in the test.

1.0 PURPOSE

- 1.1 To ensure that the automatic fire protection valves function properly.
- 1.2 To ensure that appropriate alarms are received.

2.0 TEST REQUIREMENTS

- 2.1 Actuation alarms are received when valves operate.
- 2.2 A trouble alarm is received when air pressure is low.
- 2.3 Deluge valves trip within 45 seconds of having heat applied to the HAD. Do not keep heat lamp on HAD longer than 45 seconds.
- 2.4 Deluge valves trip when the remote actuation switch is operated in the control room.
- 2.5 Deluge valves trip when the manual "T" handle is pulled.

8.0 TEST PROCEDURE

Initials

8.1 <u>#1 & #2 Warehouse</u>		<u>#1</u>	<u>#2</u>
8.1.1	Open the test valve in the north end of the building about 15' above the floor.	_____	_____
8.1.2	Log the pressure at which the automatic valve opened.	_____	_____
8.1.3	Log elapsed time since opening the test valve.	_____	_____
8.1.4	Actuation alarm.	_____	_____
8.1.5	Close the test valve.	_____	_____

8.1.6 Close the post indicator valve to the warehouse and drain the system. Reset the automatic valve and open the post indicator valve.

8.1.7 Test #1 warehouse. Sat. _____ Unsat. _____

8.1.8 Test #2 warehouse. Sat. _____ Unsat. _____

8.4 Fuel Oil Tank East DV-3728

CAUTION: ASSURE THAT THE MANUAL ISOLATION VALVE IS CLOSED (FP-134).

8.4.1 Pull the manual trip handle and note the actuation alarm. _____

8.4.2 Reset the weight only. _____

8.4.3 Apply heat to the test HAD along side the tank. Measure and log the elapsed time. Remove heat. Turn off lamp.
Time _____

8.4.4 Reset the weight. _____

8.4.5 Operate the switch in the control room for DV-3728, fuel oil tank east and return the switch to normal. Note operation. _____

8.4.6 Loosen a plug in the HAD system junction block. Note the trouble alarms received. _____

8.4.7 Remote _____
Light _____
Horn _____

8.4.8 Tighten the plug. _____

8.4.9 Relatch the valve and reset the weight as soon as possible. _____

CAUTION: DO NOT OPEN THE ISOLATION VALVE.

8.4.10 Test Sat. _____ Unsat. _____

g. TS-25 (Alarm Valve Tests, Drain Tests, and Miscellaneous)

Selected portions of TS-25 are included below; they demonstrate that acceptance criteria are included in the test.

2.0 TEST REQUIREMENTS

- 2.1 Within 30 seconds of opening an inspector's test connection, an alarm should be received in the control room.
- 2.2 When a 1½" or 2" drain valve is opened, there should be a minimal drop on the installed pressure gauge for deluge valves.
- 2.3 When a 2" drain valve is opened, there should be no detectable pressure drop across an alarm valve.

8.0 TEST PROCEDURE

Checkoff

NOTE 1: LOG ALL DATA ON DATA SHEET ATTACHED. TEST PROCEDURE ASSUMES THAT SYSTEM IS IN ITS NORMAL CONDITION.

NOTE 2: ARRANGEMENTS MUST BE MADE WITH SOMEONE IN THE CONTROL ROOM TO PASS THE WORD WHEN AN ALARM IS RECEIVED. A CHECK SHOULD BE MADE BEFORE EACH ALARM VALVE IS TESTED AND IF THERE IS ANY UNCLEARED ALARM ON THE FIRE ALARM PANEL THE RELAYS FOR THOSE ALARMS SHOULD BE TEMPORARILY PULLED SO THAT THE ALARM TO BE TESTED CAN BE RECEIVED.

8.1 Ready Stores Mezzanine, PS-3735

- 8.1.1 Verify special sprinkler head fitting installed at end of inspector's test connection. _____
- 8.1.2 Open the inspector's test connection valve to the fully open position and measure the elapsed time until the word is passed that the alarm was received in control. _____
- 8.1.3 Close the inspector's test connection valve. Alarm should reset itself. _____
- 8.1.4 Open the 2" drain valve on the alarm valve full open and then close it. _____

DATA SHEET FOR TS-25

<u>ALARM VALVES</u>	<u>LOCATION</u>	<u>ALARM ELAPSED TIME</u>	<u>DRAIN TEST</u>
PS-3735	Ready stores area and mezzanine	_____	_____
PS-3737	Unit 1 turbine building intermediate	_____	_____
PS-3939	Unit 1 turbne building ground	_____	_____
	Unit 1 hotwell spray	_____	_____
	Unit 2 hotwell spray	_____	_____
PS-3732	Oil storage tank room	_____	_____
PS-3740	Unit 2 turbine building ground	_____	_____
PS-3738	Unit 2 turbine building intermediate	_____	_____
PS-3733	Boiler room	_____	_____
PS-3734	Day tank rooms	_____	_____
FS-3718	F16 charcoal filter alarm	_____	_____
SV-4883	3D fire curtain	_____	_____
SV-4884	4D fire curtain	_____	_____
1DV-3700	1X01 AØ	_____	_____
1DV-3701	1X01 BØ	_____	_____
1DV-3702	1X01 CØ	_____	_____
1DV-3703	1X02	_____	_____
DV-3709	Wall Spray	_____	_____
1DV-3704	Hydrogen seal oil system	_____	_____
1DV-3705	Lube oil reservoir	_____	_____
2DV-3705	Lube oil reservoir	_____	_____
2DV-3704	Hydrogen seal oil system	_____	_____
2DV-3700	2X02	_____	_____
2DV-3701	2X01 CØ	_____	_____
2DV-3702	2X01 BØ	_____	_____
2DV-3703	2X01 AØ	_____	_____
DV-3727	Fuel oil tank - east	_____	_____
DV-3728	Fuel oil tank - west	_____	_____
DV-3707	1&2X04	_____	_____
DV-3708	#1 warehouse	_____	_____
DV-3753	#2 warehouse	_____	_____

TEST CONDUCTED BY _____

DATA ANALYZED BY _____

DATE _____

h. TS-26 (Fire Main Flow Test)

This particular test is one which requires data reduction and analysis to assure satisfactory system operability. To verify the analysis is completed, Page 6 contains the following sign-off:

Test Performed By _____

Calculations Performed By _____

Calculation Compared to

Previous Year's Data _____

Fire Protection Supervisor _____

Date _____

Our acceptance criteria and techniques for the analysis are contained in Appendix A of TS-26.

1.0 HYDRAULIC PERFORMANCE CURVE ANALYSIS

- 1.1 The curve determines the maximum performance which can be expected of the system. Pressure-flow points lying under the curve can be obtained; points above the curve cannot. Section 11, Chapter 5 of the Fire Protection Handbook discusses hydraulic performance curves.
- 1.2 If the slope of the curve remains the same from year to year it indicates no piping degradation is occurring. If, however, the slope of the curve increases system degradation is indicated. The magnitude of changes in slope from year to year indicate the rate at which the piping system is deteriorating.

2.0 "C" VALUE ANALYSIS

The factor "C" is the Hazen-Williams coefficient and is indicative of the condition of the pipe. "C" will decrease as the pipe deteriorates and wears with time. A decrease of up to 10 between years is acceptable. If "C" decreases by more than 10, the cause should be determined.

Further analysis should include a review of all "C" factors from past years to identify any trend which may be occurring.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

1. The surveillance tests will be reviewed and portions of tests which apply to non-Technical Specification equipment and systems will be placed in non-Technical Specification tests. This will be accomplished following NRC approval of our proposed revised Fire Protection Technical Specifications, Sections 15.3.14 and 15.4.15, which will be submitted in the near future.
2. We will review all fire protection Technical Specification test items to assure appropriate acceptance criteria or acceptability limits are present where they are required to satisfy the intent of the procedure and are consistent with both our accepted QA program and the Point Beach test procedure philosophy. This will be completed by April 30, 1983.

Violation 2

Noncompliance 2.b(5) (82-17-02, Fire Door Limiting Condition for Operation)

Diesel Generator Room Door

We acknowledge that the west door between the diesel generators was found in the open position without a fire watch posted. Although this door was equipped with an automatic hold-open device which used a fusible link to ensure closure in the event of a fire, there was a mechanical interference problem with the door sweep and the floor which caused the door to stick partially open.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

1. The door sweep has been modified to eliminate door-floor interference.
2. A maintenance surveillance procedure has been implemented to provide for identification and repair of safe shutdown fire door malfunctions. (See response to Violation 1, Item a(3), for further information.)
3. The automatic hold-open feature has been defeated and the fusible link removed.
4. This door, along with all other safe shutdown area fire doors, has been painted red to enhance conspicuous marking. This is intended to provide heightened personnel awareness that a fire door is in use. (The painting is consistent with security requirements.)

5. A modification is in progress to utilize the plant security computer to monitor the open/close status of all safe shutdown area fire doors. Most of these doors now have their status monitored but others require additional hardware and/or security computer software modification. Such changes will be accomplished in a timely manner.

Items 1 through 4 have been completed.

Facade Stairwell Door

This door is one of many in the plant which is not a safe shutdown area fire barrier. These doors are considered to be industrial safety fire doors; as such, they are not subject to Technical Specification grade surveillance. We acknowledge that the door in question did have a malfunctioning latch mechanism which has since been repaired. We recognize that this door, along with others in its classification, are important to the overall industrial safety of our facility and employees.

CORRECTIVE ACTION

1. A maintenance request was submitted and the latching mechanism repaired.
2. Industrial safety fire doors will have a maintenance inspection performed annually in addition to the current system of priority attention when needed. The inspection will be identified on the Operation's computerized call-up program and will be completed by August 31, 1983.

Unresolved Item 2.c(1) (82-17-03, Fire Door Closure Devices)

The following steps have been taken to assure that automatic fire doors will close in case of fire and to preclude the use of foreign materials on fusible links:

1. All safe shutdown area fire doors have had their fusible links removed thereby effectively defeating the hold-open feature.
2. The semiannual maintenance surveillance procedure will ensure the fusible links are not inadvertently replaced on the safe shutdown area fire doors.
3. The annual maintenance surveillance procedure which will be performed on industrial safety fire doors will identify any unsatisfactory fusible links and facilitate their replacement with appropriately clean fusible links.

4. A memorandum will be issued to all plant personnel explaining the problems caused by the use of fusible links which may have foreign material on them.

Unresolved Item 2.c(2) (82-17-04, Fire Door Degradation)

Representatives of Steelcraft Manufacturing Company, manufacturer of the fire doors, and Underwriter's Laboratories have inspected fire doors at Point Beach Nuclear Plant which are equipped with the security appurtenances in question. They have approved the fire rating of these doors as presently equipped (see Attachment 7). We believe no further action is required on this item.

Unresolved Item 2.c(3) (82-17-05, Fire Door Ratings)

The door manufacturer, Steelcraft Manufacturing Company, has been contacted regarding labelling and fire resistance ratings of fire doors. The fire door manufacturer produces several various sizes and models of doors. A particular model can be provided with or without a fire resistance rating label and with any of the listed fire resistance ratings up to the maximum rating for which that model door has been tested. The rating label which is provided with the door corresponds to the specification of the purchases. Thus, the identical model door can be provided with no label or with A, B, C, D, or E labels provided it has passed the "A" rating fire resistance test (B, C, D, and E are all less severe ratings). The two doors in question are of the 18-gauge style manufactured by Steelcraft and are identical in construction (see Attachment 3). Original specifications called for a "B" rated door on the battery room and "A" rated door between the diesel generator rooms and the doors were supplied with the appropriate labels. The doors are in fact the identical model and both are physically capable of providing a three-hour fire resistance.

We believe no further action is required on this item.

Unresolved Item 2.c(4) (82-17-06, Dual Purpose Bullet Resistant Fire Doors)

The manufacturer of these doors, Chicago Bulletproof Equipment Company, has been contacted regarding the dual purpose rating of the doors. A letter from the manufacturer certifying the dual purpose listing of these doors by Underwriter's Laboratories is enclosed as Attachment 4.

We believe no further action is required on this item.

Violation 3, Item a

Noncompliance Item 3.b(1) (82-17-07A, Contractor Training)

Our transmittal dated November 7, 1977 states, in response to 1.0.D(5) of Attachment 1, "An item of this orientation is basic fire protection which reviews the individual's responsibility in the event of a fire emergency."

At the time of the inspection, the Fire Protection Supervisor had not recently reviewed the General Employee Training Program specifically checking for compliance with our November 7, 1977 submittal. Since that time, we have determined the training is given as part of the General Employee Training received by all contractor personnel prior to receiving their security clearance. Specifically, contractors are directed to call Control if they should observe a fire, specifying the nature and location of the fire. An example of the sound of the fire alarm is given, with instructions that contractors may be required to evacuate the area. Instructions are given not to use elevators in the event of a fire emergency. It is our philosophy that the most important aspect of protection for a fire in progress is the early notification of the fire brigade. We do not train contractors or general plant personnel in fire fighting techniques and, therefore, our lines of defense are directed at the fire brigade.

We are, thus, meeting our commitment to train contractors on their responsibilities during fire emergencies.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In order to ensure contractor performance with respect to plant fire protection matters rather than just a fire emergency as committed to in our November 7, 1977 transmittal, we will prepare a more detailed training program for contractor supervisory personnel. This training will include indoctrination to administrative procedures regarding combustibles control, transient fire loadings, and ignition control permit authorization.

The administrative procedures required as base documents for this training and the training itself shall be in place by December 31, 1983.

Violation 3, Item b

Noncompliance Item 3.b(2) (82-17-07E, Spill Training)

We do not agree with the NRC conclusion that "no procedures" for handling leaks and spills of flammable materials existed and "no training" took place on these procedures.

Emergency Operating Procedure EOP-12A, Part 5 of the Wisconsin Electric Safety Manual, and Operations Standing Order, PBNP 4.12.47, specifically deal with flammable liquid hazards and appropriate handling of leaks and spills albeit the emphasis is very heavily slanting toward environmental protection. Also available in the plant videotape library is a presentation describing flammability of liquids and gases and the basics of combustion.

All plant personnel receive copies of the Wisconsin Electric Safety Manual at the start of employment. All fire brigade members who enter employment at the Auxiliary Operator Trainee position receive training on EOP's and view the videotape describing the flammability of liquids and gases. Fire brigade members receive annual retraining on EOP's and the flammable liquids videotape.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In order to improve our fire protection program we will do the following:

1. Consolidate the information from the procedures referred to above in a single administrative procedure governing handling of leaks and spills of flammable materials.
2. Review and modify as necessary the procedure referenced in 1 above to ensure it is appropriate for conditions presently existing at Point Beach Nuclear Plant.
3. Train and periodically retrain all fire brigade members, plant supervisory personnel, and contractor supervisory personnel on the procedure governing the handling of flammable materials leaks and spills.
4. Document the training given on the procedure governing the handling of flammable materials leaks and spills.

The program consisting of Items 1 through 4 will be complete by December 31, 1983.

Violation 3, Item c

Noncompliance Item 3.b(3) (82-17-07C, Combustible Control Tours)

We agree that limited documentation presently exists of plant tours which were conducted to identify the improper use and/or storage of combustibles in safety-related areas. However, we disagree with the implication that plant tours were not being made when in fact they were.

Plant tours are made by supervisory personnel knowledgeable in nuclear power plant operations and fire protection. As such, these individuals are well qualified to identify improper storage as opposed to operational placement, safety-related versus non-safety-related areas, and minimal quantities as opposed to excess quantities of combustibles. Documentation at the plant shows that previous outside inspections, including those performed by the NRC, have found Point Beach housekeeping to be above average.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In order to provide improved documentation with respect to the use and improper storage of combustibles in safe shutdown areas we will do the following:

1. The Fire Protection Supervisor and/or Duty Shift Supervisor will periodically conduct and document combustible control tours.
2. Plant management will continue to conduct, but not necessarily document, independent combustible control tours.
3. An administrative procedure shall be prepared which reflects Items 1 and 2 above.

Items 1 through 3 will be completed by April 30, 1983.

Violation 3, Item d

Noncompliance Item 3.b(4) (82-17-07D, Combustibles Controls)

We agree that combustibles within a given plant area should be minimized. The limitations on combustibles will be determined by the work activity in any plant area. Safety-related areas are of particular concern.

We do not feel the listing of examples under Noncompliance 82-17-07D (Page 15) dated November 30, 1982, accurately reflects the overall conditions associated with each item listed. In order to clarify the issue, and also to resolve each item, the licensee has enclosed as Attachment 1 the list from Page 15 of the NRC audit and has included additional pertinent information.

We agree that "trash" combustibles should be removed from plant areas in an expedient manner. We wish to point out that some working materials, even though they are combustible,

may be required in a given plant area for lengthy periods of time, particularly when major modifications, such as those involved with TMI requirements and fire protection system upgrading, are underway. We agree that such combustible loadings should not exceed acceptable limits unless special precautions are taken.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

We propose at this time to update our response of November 7, 1977 to Attachment 3, Item c, to read "Point Beach Nuclear Plant policy and practice shall ensure the removal of all trash combustibles from the area following the completion of the activity or at the end of each work shift, whichever is sooner. Combustibles in the area which are not trash shall be allowed to remain until the end of the work activity so long as they conform to transient fire loading evaluations."

To ensure that trash combustibles are promptly removed from plant areas and to ensure that transient fire loading is not excessive, with special emphasis on safe shutdown areas, the licensee will do the following:

1. Have plant personnel conduct combustibles tours as outlined in the response to Noncompliance 82-17-07C, with implementation by April 30, 1983.
2. Place in operation a transient fire loading evaluation program as described in the response to Noncompliance 82-17-07E, with implementation by June 30, 1983.
3. Provide training on the new fire protection administrative and functional procedures to fire brigade members and plant work group supervisors, with completion by December 31, 1983.

Violation 3, Item e

Noncompliance Item 3.b(5) (82-17-07E, Work Review for Fire Hazards

a. Transient Fire Loads - Maintenance Requests

Following our submittal of November 7, 1977, the maintenance request (MR) form was modified to include a checkoff addressing assessment of special fire hazards and precautions which might be required. This checkoff was included in the "Action by Maintenance/I&C's" section. During a recent revision of the MR form, the fire hazards checkoff was inadvertently removed and, thus, was not being completed.

Noncompliance 82-17-07E suggests that fire brigade leaders or assistant brigade leaders would be more qualified than Maintenance/I&C supervisors to review maintenance requests for hazards due to transient fire loads. Although brigade leaders and assistants are qualified fire brigade members, they may not be intimately familiar with all maintenance practices, procedures, and materials. For this reason, we believe specific work group supervisors are better able to assess combustible hazards which may occur.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

To ensure the appropriate review with respect to transient fire loads, we propose the following:

1. Initiate a change to the MR form and governing administrative procedure to include checkoffs indicating the need to consider special fire hazards and precautions.
2. Initiate changes to administrative procedures PBNP 3.5 and PBNP 3.6.2, Superintendent - Maintenance and Construction and Superintendent - I&C, explaining their roles in MR transient fire load assessment.
3. Initiate a change to administrative procedure PBNP 3.31, Fire Protection Organizations, clarifying the Fire Protection Supervisor's role in MR transient fire load assessment.
4. Train appropriate plant personnel on the administrative procedure changes made according to 1, 2, and 3 by September 30, 1983.

Items 1, 2, and 3 shall be accomplished by March 31, 1983.

b. Transient Fire Loads - Modifications

We agree that some work being performed at the plant is not followed by plant maintenance group supervisors or plant technical staff supervisors. This has happened because the large amount of backfit work required by TMI commitments has exceeded the capacity of the plant staff. All Contractors who do work on site are under the supervision of Wisconsin Electric liaison personnel, however.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In order to ensure that modification work is properly evaluated with respect to transient fire loads, the licensee will do the following:

1. Use transient fire load procedures, combustibles control procedures, ignition control procedures, and other administrative fire procedures to ensure modification work is being properly evaluated, monitored, and performed with respect to fire protection.
2. Train work group supervisors and Wisconsin Electric liaison personnel on the administrative procedures referred to in 1.

Items 1 and 2 shall be completed by October 30, 1983.

Violation 3, Item f

Noncompliance 3.b(6) (82-17-07F, Hot Work Authorization)

The licensee agrees that supervisory personnel other than fire brigade chiefs or assistant fire brigade chiefs are allowed to authorize ignition control permits. We feel that the line supervisory personnel at Point Beach are sufficiently responsible to authorize ignition control permits. This situation is necessary due to the large amount of work presently being performed at the plant.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

We propose at this time to update the response to Attachment 4, Item 2A, of our November 7, 1977 submittal to read "Supervisory personnel who have received appropriate fire protection training and have been approved by the Fire Protection Supervisor may authorize the issuance of an ignition control permit. A fire chief or assistant fire chief must approve the ignition control permit prior to the commencement of work."

The training referred to above will consist of the following:

1. Completion of the contractor supervisory personnel training referred to in the response to Noncompliance 82-17-07A.
2. Completion of training regarding general and plant specific basic fire prevention and extinguishment.

Items 1 and 2 shall be completed by August 31, 1983.

Violation 3, Item g

Noncompliance 3.b(7) (82-17-07G, Fire Fighting Strategies)

We have specific fire fighting strategies (Fire Emergency Plans, FEP's) for the control room, cable spreading room, vital switchgear room, and diesel generator room. These plans include identification of combustibles in each area, identification and applicability of extinguishing agents in each area, fire attack tactics, identification of specific hazards which may exist, identification of specific equipment located within the area, and procedural instructions for fire brigade and operating personnel.

Fire fighting strategies for areas or equipment not addressed in FEP's are dealt with in Fire Attack Plans (FAP's). The FAP's delineate strategies to be used in fighting different classes of fires and fires which could occur in equipment unique to power plants. The information in FAP's include precautions associated with that class fire and, where applicable, the equipment involved, basic fire fighting tactics that apply, specific extinguishment methods, and guidance to operating personnel.

Our records show that the NRC found our FEP's and FAP's satisfactory fire fighting strategies in July 1979. Specifically, documentation from the NRC Office of Inspection and Enforcement referring to an audit conducted June 26 and 27, 1979. Item 3.e states "The inspector reviewed the licensee's fire fighting procedures and attack plan and found that they adequately specify actions to be taken by the fire brigade, coordination of efforts with the Two Creeks Volunteer Fire Department, and actions to be taken by the plant superintendent, security guards, plant operators, and general plant employees."

Based on the findings of the 1982 NRC audit and substantiated by our own triennial fire protection audit, as performed by Professional Loss Control, Inc., we agree that additional fire fighting strategies should be developed for other plant areas.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

We will prepare specific fire fighting strategies (FEP's) for plant safe shutdown areas which do not now have FEP's. In addition, existing FEP's will be reviewed and updated if necessary. We will complete these actions by June 30, 1984. All fire brigade members will receive training on new and updated FEP's when they become available.

Violation 3, Item h

Noncompliance 3.b(8) (82-17-07H, Valve Position Control)

The administrative control mechanism used to verify the position of a critical manually operated valve in the fire protection system is the checklist in Technical Specification test TS-23, Monthly Valve Lineup Verification. This checklist specifies the position each valve should be in. TS-23 is performed monthly. The NRC auditors found valve FP-20 in the proper open position but without a "red lock" affixed. A review of TS-23 shows that through some oversight valve FP-20 was not specifically identified to have a "red lock" affixed as were other critical valves in the fire protection system.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

Technical Specification test TS-23 has been reviewed and modified as required to include a verification that red locks are installed on all critical valves in the fire protection system, including FP-20.

Violation 3, Item i

Noncompliance 3.b(9) (82-17-07I, Offsite Fire Department Drills)

When the fire brigade training and drill program was established in 1978, the fire year was determined to begin on June 1 and end on May 31 of the next year. As the work load increased on the plant staff, this particular system proved to be cumbersome, particularly for record retention, retrieval, and review. Thus, in 1981 the fire protection year was extended six months to coincide with the calendar year. The coincident change in our records retention, retrieval, and review system masked the fact that a drill with the Two Creeks Volunteer Fire Department had not been done during calendar 1980. To date, in approximately 4-1/2 years of required compliance, there have been four drills with the Two Creeks Volunteer Fire Department.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In order to ensure continued compliance, and to facilitate records retention, retrieval, and review of this compliance, the licensee will do the following:

1. Adjust the fire protection calendar to coincide with the calendar year. (Already complete.)

2. Prepare a computer program to tabulate and review individual and crew fire training records. This system will record training, drill, and fire brigade meeting attendance for individual fire brigade members, compare it with requirements, and uniquely identify incomplete or tardy items. (Already complete.)
3. Computerize crew (fire brigade) records and requirements. This will encompass drills with the Two Creeks Volunteer Fire Department and will be complete by August 31, 1983.

Violation 3, Item j

Noncompliance 3.b(10) (82-17-07J, Fire Brigade Training)

We agree that (1) Crew C failed to conduct a fire drill during the first quarter of 1982 and (2) fire brigade members had not attended a brigade meeting during the second quarter of 1982.

Failure to conduct this particular training and the Crew C drill on a timely basis occurred during the first half of 1982 because of the unusual work load resulting from an acute personnel shortage necessitated by the need to augment the licensed staff. As a result, the required review failed to recognize the training and drill deficiencies on a timely basis. At the time, records of fire training, drills, and compliance were kept manually in written copy. This system was very labor intensive and time consuming. The review process to ensure timely compliance was even more difficult.

We assess the lack of a fire drill and untimely completion of fire brigade meetings to have been caused by an inefficient records retention, retrieval, and review system coupled with a temporary shortage of qualified personnel.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

We would note that the requirements for brigade fire drills is two-pronged. Along with providing crew drills, they provide individual fire fighter drill compliance. Each fire fighter is required to have two drills per calendar year; this has been accomplished for 1982. For 1982, 21 brigade drills were required; only the one identified by the NRC was missed.

All regular fire brigade members attended the second quarter brigade meeting of 1982 by July 24, 1982. Staff and security fire brigade members attended sometime later.

In order to prevent future difficulties involving the fire fighting recordkeeping system we will do the following:

1. Develop a computerized records retention, retrieval, and review system for individual fire brigade member qualification requirements. (Already completed.)
2. Develop a computerized record retention, retrieval, and review system for crew fire drill requirements by August 31, 1983.

Unresolved Item 3.c (82-17-08, Quality Assurance Audits)

The fire protection program at Point Beach is audited on an annual basis by both the Wisconsin Electric Quality Assurance Division (QAD) and the Wisconsin Electric System Fire Protection Officer (SFPO). In the past, these audits have been conducted independent of one another. The scope of the QAD audits, those referenced in unresolved item 82-17-08, were based primarily on administrative control of procurement, modification requests, and maintenance requests. The scope of the audits conducted by the SFPO are technically oriented to verify adherence to Technical Specification and regulatory requirements and commitments. In addition, an audit is conducted every three years by an outside independent fire protection consultant. We believe this method of auditing assures that all aspects of the fire protection system are being audited on at least a yearly basis by appropriately trained and qualified personnel.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

In response to the request to broaden the scope of the QA audits and to increase auditor fire protection qualifications, the following action will be implemented:

1. Future annual audits will be conducted on a joint basis by QAD and SFPO.
2. The QAD auditor will be a qualified lead auditor. The SFPO will be familiar with technical requirements of the fire protection program and meet the requirements of membership for the Society of Fire Protection Engineers.

It is our belief that the two personnel will compliment each other and will assure that a complete review of the fire protection program will be accomplished. A triennial audit of the fire protection system by an independent outside consultant accompanied by the SFPO and QAD representative will verify the adequacy of this approach.

Unresolved Item 4.b (82-17-09, Fire Extinguishers)

Two pressurized water fire extinguishers are located in the control room and are available for any fire emergency which should arise. The two extinguishers were placed in the control room in order to comply with the 1979 NRC Fire Protection Safety Evaluation Report recommendation. Obviously, these extinguishers are intended for use on Class "A" fires. We also know that fires which involve insulation and cabling require water application to effect total extinguishment of a deep-seated fire and to cool hot embers. It is, thus, prudent practice to have pressurized water extinguishers available should the need for them arise.

We do not feel that the use of a pressurized water fire extinguisher equipped with a standard nozzle on an electrical fire in the control room presents any significant shock hazard to the operator for the following reasons.

Control room personnel are trained fire brigade members aware of the electric shock hazard associated with water application to energized electrical equipment and would make every effort to deenergize equipment prior to water application. Being trained fire fighters, our brigade members know that straight stream application of water to energized electrical equipment is the most hazardous. Should the need occur to apply water to energized equipment, they would use methods which provide themselves maximum protection, such as partially placing a thumb over the nozzle, deflection of stream against a nearby wall, or interfering object; i.e., any method which would break the straight stream.

The pressurized water extinguisher itself, although not recommended for Class "C" fires, is inherently quite safe. The table in Attachment 5, taken from the NFPA Fire Protection Handbook has been included for your information. We have indicated the conditions which would most likely be encountered in the Point Beach control room. An explanatory paragraph from the same source is included. Thus, it can be seen that as long as a distance of 1.6' is maintained less than 1 milliamp (ma) of current should be transmitted. It is generally held that 3 ma of current is the lower threshold of feeling for most people.

Ontario Hydro Research Division conducted a test in 1958 on the electrical conductivity of hose streams. Portions of their data are included for your information in Attachment 6. Point Beach extinguishers have approximately 1/4" nozzle tips and are charged to 100 psig. Using the Ontario Hydro data for 1/2" tips at that pressure it can be seen that, at a distance of 5' a potential of 2,880 volts would have to be encountered in order to generate 3 ma of current to the operator. Voltages

of this magnitude are not generally encountered in the control room. Applying a 1/2" steam, at 100 psi, at 5' to a 600 volt differential produces only a 0.5 ma current. Again, 3 ma is the lower threshold of feeling.

An additional safety factor is induced at Point Beach because all pressurized water extinguishers are charged with deionized water.

CORRECTIVE ACTION/ACTION TO PREVENT RECURRENCE

We wish to update our correspondence of January 13, 1979 to delete any reference to deflector-type nozzles.

We do not plan to modify deployment of our pressurized water extinguishers in the control room.

ATTACHMENT 1
(82-17-07D)

Item a - Dry Ion Exchange Resin, El. 44' Spent Fuel Pit Building

Additional Information

This area of the plant is not a safe shutdown area nor is it a safety-related area. The storage volume limit is determined by practical industrial safety.

Resolution

This is not a safe shutdown area, there is no ready ignition source and personnel activity in this area is minimal. We plan no further action at this time. Should conditions change we would reevaluate the situation.

Item b - "Point Beach Hilton"

Additional Information

This enclosure retains enough heat to prevent the steam generator instrument lines from freezing during the winter thus it was necessary to allow continued plant operation. We are sure that fire retardant lumber was used but concur the markings are not discernible.

Resolution

Electric heat tracing is being installed on the instrument lines and the enclosure will be removed.

Item c - Wood Planking & Scaffolding at Component Cooling Water Heat Exchanger Area

Additional Information

This was not a storage area rather an ongoing TMI backfit modification. The scaffolding supports are steel with only the planking being wood.

Resolution

Any unnecessary lumber has been removed, and upon completion of work, all scaffold material will be removed.

Item d - Ll. 52' Service Elevation Wood

Additional Information

This is a nonsafety related area.

Resolution

Scrap and trash material has been removed.

Item e - Spray Paints, Solvents, Lubricants

Additional Information

No comment.

Resolution

The material in question has been properly stored or removed.

Item f - One Piece of Plywood

Additional Information

No comment.

Resolution

The one piece of wood has been removed.

Item g - RHR Pump Area, El. 19'

Additional Information

Some materials were in this area because a decontamination effort was taking place.

Resolution

The area has been cleaned up.

Item h - Combustibles in Auxiliary Feedwater Pump Room

Additional Information

The scaffold, planks and ladder were part of ongoing TMI backfit modification work.

Resolution

The area has been inspected and unnecessary combustibles removed. The other material will be removed upon completion of the work.

Item i - A Wood Stool Under A Diesel Day Tank

Additional Information

No comment.

Resolution

The wood stool has been removed.

Item j - Wooden Ladders

Additional Information

Ladders have been stored in specific areas throughout the lifetime of the plant. They were in place at the time our Safety Evaluation Report was conducted and were not considered significant enough to have been mentioned in the area combustibles loading assessments.

Resolution

None required.

Item h - Vehicle Parking Near Diesel Generator Rooms

Additional Information

No comment.

Resolution

A rectangular area adjacent to the diesel generator rooms has been designated a no parking area. Yellow lettering and yellow cross hatching on the asphalt conspicuously denote the area as "No Parking" along with signs to that same effect.

PEEL ESS PUMP
HYDRODYNAMIC DIVISION

CURVE NO 25945
PUMP TYPE 16 MC
SIZE 1 1/2" x 10" x 29' 9 1/2"
WATER 2526221 STAGE 3
IMPELLER NO 2626156
PUMP NO 23118 NO. 788804

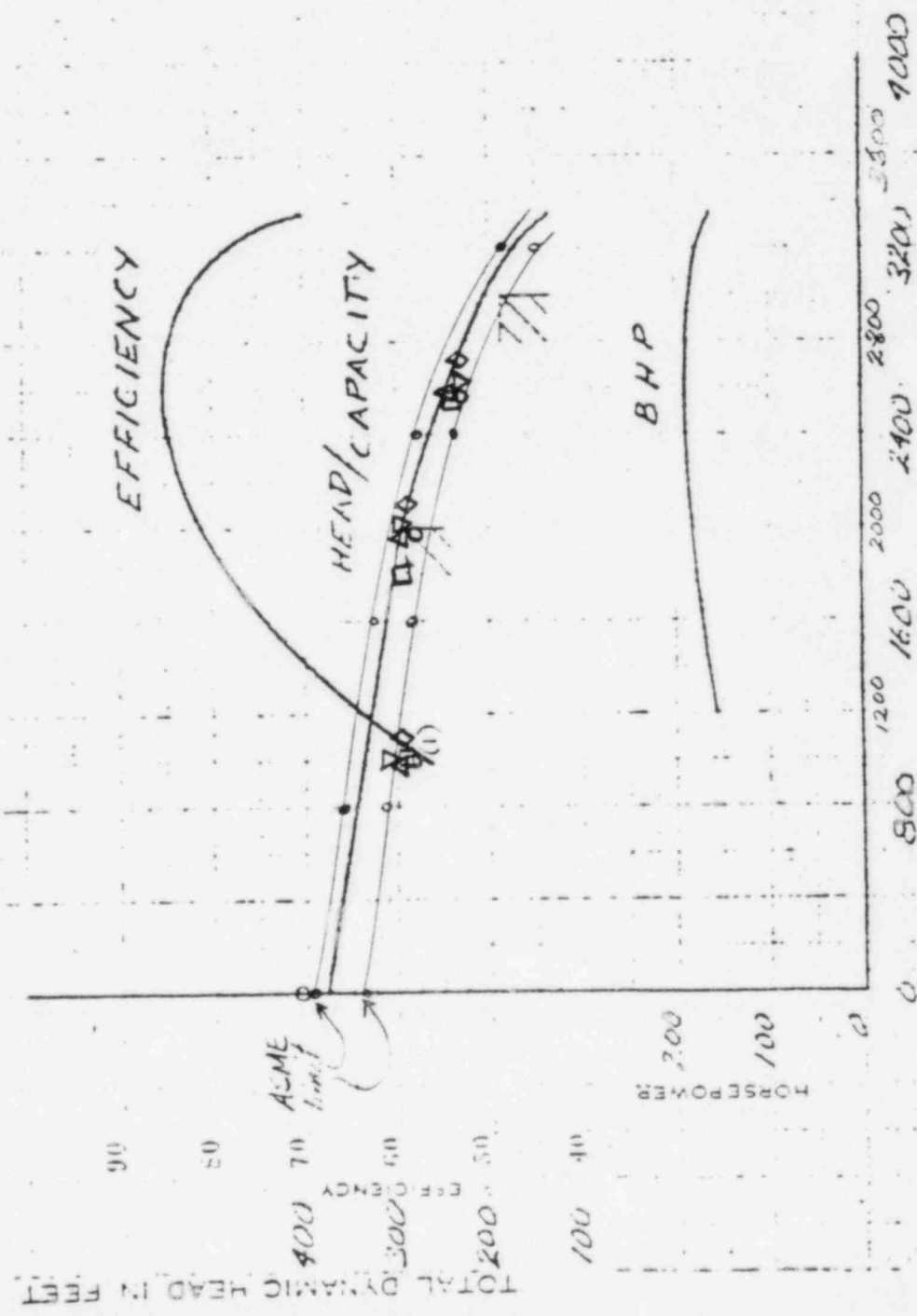
Los Angeles, Calif. Indianapolis, Ind.

TECHTEL CORP.

1-35 B

3 IMPELLERS @ 1 1/8" x 11 3/32" DIA.

Note - total developed head includes 15' of suction lift



EFFICIENCY

HEAD/CAPACITY

BHP

90

80

70

60

50

40

30

20

10

0

1200

1600

2000

2400

2800

3200

3600

4000

4400

4800

5200

5600

6000

6400

6800

7200

7600

8000

8400

8800

9200

9600

10000

10400

10800

11200

11600

12000

12400

12800

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40800

41200

41600

42000

42400

42800

43200

43600

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58400

58800

59200

59600

60000

60400

60800

61200

61600

62000

62400

62800

63200

63600

64000

64400

64800

65200

65600

66000

66400

66800

67200

67600

68000

68400

68800

69200

69600

70000

70400

70800

71200

71600

72000

72400

72800

73200

73600

74000

74400

74800

75200

75600

76000

76400

76800

77200

77600

78000

78400

78800

79200

79600

80000

80400

80800

81200

81600

82000

82400

82800

83200

83600

84000

84400

84800

85200

85600

86000

86400

86800

87200

87600

88000

88400

88800

89200

89600

90000

90400

90800

91200

91600

92000

92400

92800

93200

93600

94000

94400

94800

95200

95600

96000

96400

96800

97200

97600

98000

98400

98800

99200

99600

100000

100400

100800

101200

101600

102000

102400

102800

103200

103600

104000

104400

104800

105200

105600

106000

106400

106800

107200

107600

108000

108400

108800

109200

109600

110000

110400

110800

111200

111600

112000

112400

112800

113200

BERL S PUMP

HYDRODYNAMIC DIVISION

Los Angeles 31, Calif. - Indianapolis 16, Ind.

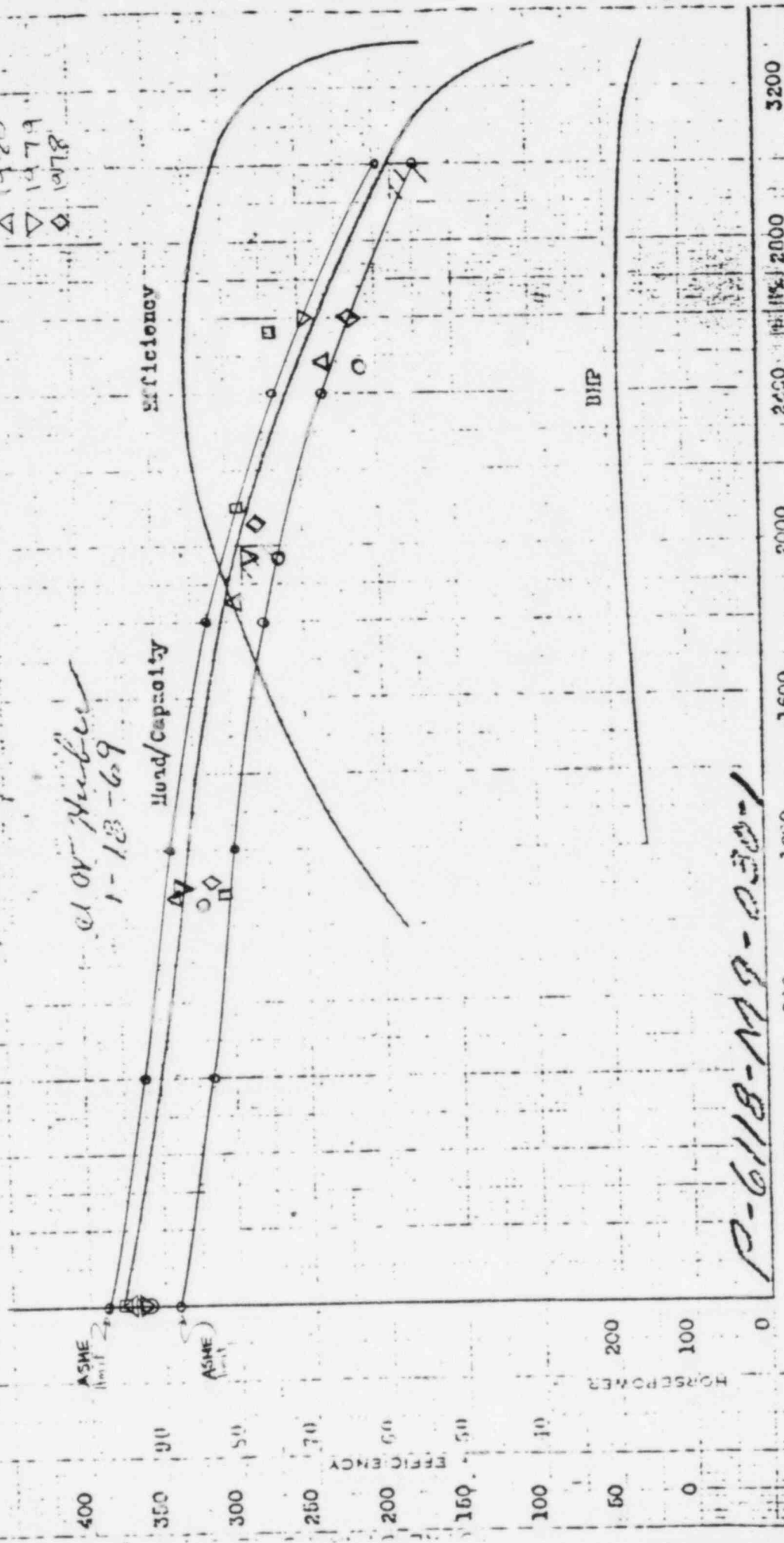
Hochtech Corporation
Wisconsin - Michigan Power Company

CONV NO. 2394426
SAMP. NO. 16 LC
COLUM. 10" x 1 1/2" x 23'-9 1/2"
FLOW 7626821 STAGE 3
SERIAL 1770 PAPER LITH NO. 202C756
DATE NO. 323117 S/N NO. 70379-V

Impeller Diameter - 5 @ 11 x 11 7/8
 ○ 1981
 □ 1920
 △ 1979
 ◇ 1978

1-35-A
1-13-69

Note - total developed
head includes 15'
of suction lift



P-6118-179-030-1

GALLONS PER MINUTE

FROM TEST NO. 132324

BY J.M.

FORM 1-1

HYDRAULIC PERFORMANCE WARRANTY
 MAR 12 1967
 POWER DIV. S.F.
 1. Properly installed and maintained.
 2. Properly selected and sized.
 3. Properly installed and maintained.
 4. Properly selected and sized.

FIRE DOOR SELECTION GUIDE

This chart is intended only for general usage in the selection of Fire Doors and Frames. It should be used in conjunction with Local and State Building Codes.

DOOR LOCATION	PROTECTION REQUIRED	TYPE OF EXPOSURE	DOOR TYPE REQUIRED	RECOMMENDED STEELCRAFT DOORS
Apartment Suite Entrances	3/4 or 1/3 Hour	Moderate	F	L18, L20—1-3/4"
Automotive Dealer Show Room To Garage	3 Hour	Extreme	F	L18—1-3/4"
Boiler Rooms	3 Hour	Extreme	F	L18—1-3/4"
Chemical Lab. Rooms	1-1/2 Hour	Severe	F, V	L18, L20—1-3/4"
Corridors (Fire)	1-1/2 Hour	Severe	F, V	L18—1-3/4"
Corridors (Smoke)	3/4 or 1/3 Hour	Moderate	F, V, N, G, FG2, FG3	L18, L20—1-3/4", S16—1-3/4"
Doors Between Factory & Office	1-1/2 Hour	Severe	F, V	L18, L16—1-3/4"
Electrical Equipment	3 Hour	Extreme	F	L18, L20—1-3/4"
Elevator Equipment	1-1/2 Hour	Moderate	F, V	L18—1-3/4"
Exits Between Buildings	3 Hour	Extreme	F	L16, L18—1-3/4"
Exits To Exterior Fire Escapes	3/4 Hour	Moderate	F	L18, L20—1-3/4"
Furnace Room in Multiple Family Dwellings	1-1/2 Hour	Severe	F, V	L20—1-3/8", L20—1-3/4"
Garage To House	3/4 Hour	Moderate	F	L20—1-3/8"
Garage To Apartment	1-1/2 Hour	Severe	F, V	L18, L20—1-3/4"
Hospital Laboratories	1-1/2 Hour	Severe	F, V	L18, L20—1-3/4"
Hospital Patient Rooms	3/4 or 1/3 Hour	Moderate	F, V, N, G	L18—1-3/4"
Kitchen Area	1-1/2 Hour	Severe	F, V	L18—1-3/4"
Legal Document Storage	3 Hour	Extreme	F	L20—1-3/8", L18—1-3/4"
Paint Rooms	3 Hour	Extreme	F	L20—1-3/8", L18—1-3/4"
Room Partitions	3/4 or 1/3 Hour	Moderate	F, V, G	L20—1-3/8"
Stairwells	1-1/2 Hour	Severe	F, V	L18—1-3/4", T-18, T-20—1-3/4"
Storage Closets	3/4 Hour	Moderate	F	L20—1-3/8"
Storage Closets	1-1/2 Hour	Severe	F	L18, L20—1-3/4"
Warehouses	3 Hour	Extreme	F	L18, L16—1-3/4"

NOTE: LF20, LF18 and LF16 edge seam filled doors and L20 Textured doors may be substituted for similar gage doors shown above when specified.

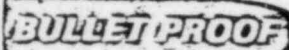
F = FLUSH PANEL
 V = VISION LIGHT
 N = NARROW LIGHT
 G = HALF-GLASS LIGHT
 FG2 = TWO GLASS LIGHTS
 FG3 = THREE GLASS LIGHTS



STEELCRAFT®

FLUSH SINGLE DOORS	FLUSH PAIRS OF DOORS	STILE & RAIL DOORS (S16)
<div data-bbox="477 293 555 463" data-label="Image"> </div> <div data-bbox="313 542 649 632" data-label="Text"> <p>L20-8 LT20-8 LF20-8 Max. Size and Rating. 3472 UL ABCDE</p> </div> <div data-bbox="310 700 644 789" data-label="Text"> <p>L20-4 LT20-4 LF20-4 Max. Size and Rating 3872 UL A 4080 UL BCDE</p> </div> <div data-bbox="310 857 643 921" data-label="Text"> <p>L18-4 LF18-4 Max. Size and Rating 40100 UL ABCDE</p> </div> <div data-bbox="308 989 643 1053" data-label="Text"> <p>L16-4 LF16-4 Max. Size and Rating 40100 UL ABCDE</p> </div> <div data-bbox="306 1121 734 1229" data-label="Text"> <p>T20-4 T18-4 TF20-4 TF18-4 Max. Size and Rating 4072 UL BCDE Doors have 250° temp. rating</p> </div> <div data-bbox="435 1236 688 1319" data-label="Text"> <p>Doors are limited to flush, vision lite and narrow lite types.</p> </div> <div data-bbox="290 1517 443 1544" data-label="Text"> <p>DUTCH DOOR</p> </div> <div data-bbox="461 1447 537 1621" data-label="Image"> </div> <div data-bbox="313 1693 646 1755" data-label="Text"> <p>L18-4 L16-4 Max. Size and Rating 4072 UL ABCDE</p> </div> <div data-bbox="306 1876 535 1934" data-label="Text"> <p>-8 = 1-3/8" thick doors. -4 = 1-3/4" thick doors.</p> </div>	<div data-bbox="987 293 1136 463" data-label="Image"> </div> <div data-bbox="839 536 1190 617" data-label="Text"> <p>L20-8 LT20-8 LF20-8 Pairs are not permitted</p> </div> <div data-bbox="839 663 1234 755" data-label="Text"> <p>L20-4 LT20-4 LF20-4 Max. Size and Rating 8072 UL BCDE *8072 UL B without astragal</p> </div> <div data-bbox="839 823 1278 936" data-label="Text"> <p>L18-4 LF18-4 Max. Size and Rating 8080 UL ABCDE †8080 UL BCDE without astragal *8072 UL B without astragal</p> </div> <div data-bbox="836 1006 1230 1095" data-label="Text"> <p>L16-4 LF16-4 Max. Size and Rating 8080 UL ABCDE *8072 UL B without astragal</p> </div> <div data-bbox="834 1142 1245 1334" data-label="Text"> <p>T20-4 T18-4 TF20-4 TF18-4 Max. Size and Rating 8072 UL BCDE Doors have 250° temp. rating Doors are limited to flush, vision lite and narrow lite types.</p> </div> <div data-bbox="842 1461 1245 1517" data-label="Text"> <p>†8080 doors without astragal must use (2) vert. rod fire exit devices.</p> </div> <div data-bbox="842 1570 1213 1681" data-label="Text"> <p>*8072 doors without astragal must use automatic flush bolts (inactive leaf) and single point lock (active leaf). Must also use coordinating device.</p> </div> <div data-bbox="846 1727 1162 1787" data-label="Text"> <p>See Note 9 at right for manually-operated flush or surface bolts.</p> </div>	<div data-bbox="1445 293 1526 463" data-label="Image"> </div> <div data-bbox="1442 476 1539 504" data-label="Text"> <p>SINGLE</p> </div> <div data-bbox="1367 540 1588 600" data-label="Text"> <p>Max. Size and Rating 4080 UL C & E</p> </div> <div data-bbox="1401 825 1559 1000" data-label="Image"> </div> <div data-bbox="1450 1021 1520 1049" data-label="Text"> <p>PAIR</p> </div> <div data-bbox="1370 1119 1591 1181" data-label="Text"> <p>Max. Size and Rating 8080 UL C & E</p> </div> <div data-bbox="1360 1344 1578 1376" data-label="Text"> <p>Panels not permitted</p> </div> <div data-bbox="1360 1398 1601 1481" data-label="Text"> <p>1296 square inches per lite. Neither dimension may exceed 54".</p> </div> <div data-bbox="1359 1517 1606 1576" data-label="Text"> <p>FG2 doors shown above. FG3 doors also available.</p> </div>

SEE NEXT PAGE FOR EXAC



CHICAGO BULLET PROOF EQUIP. CO.

2250 WESTERN AVE.
PARK FOREST, IL 60466 U.S.A.
PH 312/481-3400
TLX 255194

Date: 28 July 1978

Utility: Wisconsin Electric Power Company

Generating Station: Point Beach Nuclear Power Plant

Architect/Engineer: WEP Co.

Chicago Bullet Proof Equipment's Job #78077 & 78146

Customer Name and P.O. # WEP Co. A-04590-S & A-07039-S

Chicago Bullet Proof Equipment Co. (CBP) certifies that we have manufactured the following bullet resistive equipment in accordance with the owner's plans and specifications:

78077 / A-04590-S

- A) Door and Frame Assembly for Cable Spreading Room.
- B) Partition for east wall of Control Room consisting of a vision panel and wall armor modules.
- C) Partitions (2) for north and south walls of Control Room consisting of wall armor, vision panels, and Door/Frame Assemblies (Nos. 61 & 65).

Note that three subject Door/Frame Assemblies are also listed by Underwriters' Laboratories, Inc. for the 3-hour fire and hose stream test, as well as being bullet resistive. Labels for these products are affixed to the hingeside edge of door.

78146 / A-07039-S

- A) Two (2) Door/Frame Assemblies (Nos. 17 & 25) for Central Alarm Station.

Note that three subject Door/Frame Assemblies are also listed by Underwriters' Laboratories, Inc. for the 3-hour fire and hose stream test, as well as being bullet resistive. Labels for these products are affixed to the hingeside edge of door.

In addition, Chicago Bullet Proof Equipment Co. certifies that the bullet resistive equipment described above successfully defeats the threat of the High Power Rifle as defined in Underwriters' Laboratories, Inc. Standard for Safety UL 752. The High Power Rifle as defined in UL 752 is a .30-06 Springfield Rifle using 220 grain soft point ammunition and developing a velocity of 2410 FPS and an energy of 2830 Ft.-lbs. at the muzzle. For further test parameters and description refer to UL Standard 752.

An Underwriters' Laboratories listing tag appears on each unit that CBP manufactures. The information on each label includes the type of equipment, model number, ballistic rating and manufacturer's control number. The appearance of the listing tag signifies that samples of the product have been submitted to Underwriters' Laboratories and found to comply with the UL Standard. In addition, CBP is required by UL to subscribe to the UL Follow-Up Service to insure our continued compliance with the standard requirements and correct any deficiencies. The service includes periodic factory examinations by UL representatives, as well as destructive testing of selected samples from both the factory and open market.

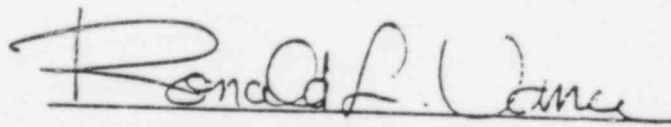
The relation between the Underwriters' Standard and the United States Nuclear Regulatory Commission requirements is stated in the Federal Register, Volume 42, Number 37, Thursday, February 24, 1977. Title 10, Part 73 contains the following comments:

(6) "The proposed rule used the term "Bullet Penetration Resistance." Comments indicated a need for a clear meaning, since the meaning of "Bullet Penetration Resistance" was covered in the term "Bullet Resisting" defined and used by the Underwriters' Laboratories (UL Standard UL 752), the rule set forth below was changed to use the term "Bullet Resisting" and a new definition has been added in 73.2 to correspond to the definition of "Bullet Resisting" used by the Standard 752.

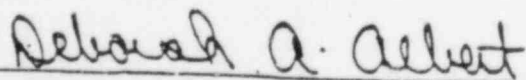
"73.2 Definitions -

(9) "Bullet Resisting" means protection against complete penetration, passage of fragments of projectiles, and spalling (fragmentation of the protected material that can cause injury to a person standing directly behind the bullet resisting barrier)."

As a further explanation, the NRC's NuReg 0220 Acceptance Criterion 3.1.5.A. specifies UL's High Power Rifle (HPR) ballistic level as the performance standard required. Therefore, based upon the above, the units found to be in compliance with the UL 752 High Power Rifle category would also be in compliance with the NRC Regulations. This takes into consideration all parameters of the test, including the type of weapon, ammunition, muzzle velocity and tolerances for both velocities and spalling.


 CHICAGO BULLET PROOF EQUIPMENT COMPANY

Subscribed and sworn to me this,
28th day of July,
 1978



Notary Public

ATTACHMENT 5

The results of tests made in 1934 for the Fire Brigade of Paris, France, present what is perhaps the most comprehensive guidance (see Table 13-1C). The distances given in Table 13-1C are based on preventing the transmission of 1 ma (milliampere) current to a fire fighter in contact with a nozzle or hose. The tests covered only voltages to ground ranging from 115 to 150,000 V and the groupings of the voltages do not correspond to current standard U. S. voltages. The maximum size of the nozzle used in the tests is non-standard in the United States.

TABLE 13-1C

MINIMUM SAFE DISTANCES BETWEEN HOSE NOZZLES &
LIVE ELECTRICAL EQUIPMENT RECOMMENDED FOR THE PARIS, FRANCE, FIRE BRIGADE

Voltage to Ground	Voltage Between Conductors	Safe Distance (Feet)		
		Diameter of Nozzle Orifice		
		1/4 in.*	3/4 in.*	1-1/4 in.*
115	230	1.6	3.3	6.6
460	480	2.5	9.8	16.4
3,000	5,195	6.6	16.4	32.8
6,000	10,395	8.2	19.7	39.4
12,000	20,785	9.8	21.4	49.2
60,000	103,820	14.8	39.4	72.2
150,000	259,800	19.7	49.2	82.0

*Figures rounded off from metric scale.

TABLE I
FIRE HOSE STREAMS NEAR LOW VOLTAGE
ELECTRICAL CIRCUITS
CURRENT IN HOSE STREAM AT NOZZLE DISTANCE
OF FIVE FEET
CURRENT IN MILLIAMPERES

TIP SIZE IN INCHES	VOLTS TO GROUND	30 PSI	50 PSI	100 PSI
1/2	125	0	0	0
	250	0	0	0
	600	0.65	0.55	0.50
5/8	125	0	0	0
	250	0	0	0.4
	600	1.0	1.0	0.90
3/4	125	0	0	0
	250	0.7	0.6	0.55
	600	1.5	1.4	1.2
7/8	125	0.45	0.4	0.4
	250	0.9	0.8	0.75
	600	1.9	1.8	1.6
1	125	0.5	0.5	0.4
	250	1.1	1.0	0.85
	600	2.2	2.0	1.8
1 1/8	125	0.55	0.50	0.45
	250	1.2	1.1	0.9
	600	2.4	2.2	1.9
1 1/4	125	0.7	0.6	0.35
	250	1.5	1.3	0.75
	600	3.0	2.6	2.2

FIRE HOSE STREAMS NEAR LIVE ELECTRICAL APPARATUS

TIP SIZE IN INCHES	DISTANCE IN FEET	KV FOR 3 MA CURRENT		
		30 PSI	50 PSI	100 PSI
1/2	5	2.6	2.88	2.88
	10	11.2	17.0	17.6
	15	37.0**	40.0**	40.0**
	20			
5/8	5	1.6	1.6	1.7
	10	3.84	3.84	3.84
	15	26.0	15.0	7.0
	20	130.0**	58.0	18.0
	25	130.0**	130.0**	90.0
3/4	5	1.06	1.18	1.3
	10	2.6	2.6	2.9
	15	6.4	6.4	5.2
	20	41.0	19.0	12.0
	25			27.0
7/8	5	0.86	0.86	0.98
	10	1.8	2.08	2.16
	15	4.5	4.5	4.5
	20	15.0	11.2	6.7
	25			12.7
	30		50.0	32.0
1	5	0.66	0.66	0.86
	10	1.4	1.6	1.8
	15	2.6	2.6	3.0
	20	5.2	4.5	4.5
	25	26.3	7.1	6.4
	30		12.0	9.0
1 1/8	5	0.66	0.66	0.76
	10	1.3	1.42	1.8
	15	2.2	2.6	2.8
	20	3.0	3.0	4.3
	25	4.5	4.5	5.65
	30			
1 1/4	5	0.5	0.58	0.66
	10	1.04	1.2	1.4
	15	1.8	2.2	2.2
	20	2.8	2.8	3.7
	25	4.3		5.05
	30			

** CURRENT LESS THAN 3 MILLIAMPERES

FILE
P.O. B12733-8

September 1, 1982

The Steelcraft Manufacturing Co.
9017 Blue Ash Road
Cincinnati, OH 45242

Subject: Field Inspection of Fire Doors And Frames
At Point Beach Nuclear Power Plant,
Two Rivers, WI

Gentlemen:

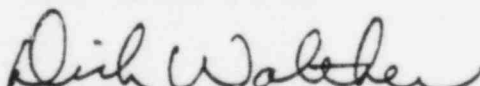
Based on your request dated April 26, 1982, a field inspection of the subject units was performed by our Appleton inspector on July 6 and August 23, 1982. Our inspector was accompanied during the inspection by your representative Mr. G. Battista, and Mr. Mike Kaminski.

Our inspection revealed that the doors and frames complied with our requirements and our Listing Mark was applied to the product.


As agreed on by all parties involved we will invoice Wisconsin Electric Power Co. for the cost involved in this inspection.

Thank you for your cooperation.

Very truly yours,


DICK WALTHER
Engineering Associate
Follow-Up Services

Reviewed by:


ED SCHRAND
Engineering Team Leader
Follow-Up Services

cc: Wisconsin Electric Power Co.
Milwaukee, WI
Attn: Mr. M. Kaminski