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Michael J. Colomb
Site Vice President

JAFP-12-0135
November 27, 2012

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

SUBJECT: Flooding Walkdown Report - Entergy's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

REFERENCES:
1. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 12, 2012 (ML12053A340)
2. Entergy Nuclear Operations, Inc, Response to NRC Request for Information (RFI) Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendations 2.1 and 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated June 8, 2012, JAFP-12-0063

Dear Sir or Madam:

On March 12, 2012, the NRC issued Reference 1 requesting information to support the evaluation of the NRC staff recommendations for the Near-Term Task Force (NTTF) review of the accident at the Fukushima Dai-ichi nuclear facility. Enclosure 4 of Reference 1 contains specific requested actions, requested information, and required responses associated with Recommendation 2.3 for flooding walkdowns. Entergy Nuclear Operations, Inc (Entergy) confirmed in Reference 2 that it would use the flooding walkdown procedure (Nuclear Energy Institute 12-07, Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features) as endorsed by the NRC as the basis to conduct the walkdowns and develop the needed information at the James A. FitzPatrick Nuclear Power Plant (JAF).

Pursuant to Required Response 2 of Reference 1, Enclosure 4, Entergy is providing the Flooding Walkdown Report for JAF in Attachment 1.

The new commitment contained in this submittal is contained in Attachment 2.

Should you have any questions concerning the contents of this letter, please contact Mr. Chris Adner, Licensing Manager, at (315) 349-6766.

I declare under penalty of perjury that the foregoing is true and correct; executed on November 27, 2012.

Sincerely,

Michael J. Colomb
Site Vice President

MPC/CA/kp

Attachments: 1. James A. FitzPatrick Nuclear Power Plant Flooding Walkdown Report, JAF-RPT-12-00016
2. List of Regulatory Commitments

cc: Regional Administrator, Region I
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Attachment 1

JAFP-12-0135

James A. FitzPatrick Nuclear Power Plant
Flooding Walkdown Report

Entergy

ENTERGY NUCLEAR
Engineering Report Cover Sheet

Engineering Report Title:

Flooding Walkdown Submittal Report for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Flooding

Engineering Report Type:

New ☒ Revision ☐ Cancelled ☐ Superseded ☐

Applicable Site(s)

IP1	☐	IP2	☐	IP3	☐	JAF	☒	PNPS	☐	VY	☐	WPO	☐
ANO1	☐	ANO2	☐	ECH	☐	GGNS	☐	RBS	☐	WF3	☐	PLP	☐

EC No. 41160

Report Origin: ☒ Entergy ☐ Vendor

Vendor Document No.: JAF-RPT-12-00016

(6) **Quality-Related:** ☐ Yes ☒ No

Prepared by: Enercon — Date: _____
Responsible Engineer (Print Name/Sign)

Design Verified/ N/A — Date: _____
Design Verifier (if required) (Print Name/Sign)

Reviewed by: CHRIS SAWATZKE / Chris Sawatzke — Date: 11-21-12
Reviewer (Print Name/Sign)

Reviewed by*: N/A — Date: _____
ANII (if required) (Print Name/Sign)

Approved by: _____ — Date: 11/21/12
Supervisor (Print Name/Sign)
VINCENT P. BACANSKAS

ENGINEERING REPORT
JAMES A. FITZPATRICK NUCLEAR POWER STATION
WALKDOWN SUBMITTAL REPORT FOR
RESOLUTION OF FUKUSHIMA NEAR TERM TASK FORCE
RECOMMENDATION 2.3: FLOODING

Prepared By: _____ Date: 11/16/12
Donald Hoolahan (Enercon Services)

Reviewed By: _____ Date: 11/16/12
Paul Hansen (Enercon Services)

Peer Reviewed By: _____ Date: 11-16-12
Atwood A. Browning (Enercon Services)

Approved By: _____ Date: 11-16-12
Tom Xhelo (Enercon Services)

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1.0 SCOPE AND OBJECTIVE

This report was developed to provide information requested by the United States Nuclear Regulatory Commission (NRC) pursuant to Title 10 of the Code of Federal Regulations, Section 50.54(f) on March 12, 2012 for the James A. Fitzpatrick Nuclear Station (JAF). In response to the NRC request, Entergy performed walkdowns to verify that plant features credited in the current licensing basis (CLB) for protection and mitigation from external flood events are available, functional, and properly maintained. The walkdowns were performed to verify that structures, systems, and components (SSCs), portable flood mitigation equipment, and the procedures needed to install and or operate them during a flood are acceptable and capable of performing their design function as credited in the CLB.

This report presents the findings of the flooding walkdown inspections completed at the JAF Nuclear Station. The walkdowns were completed in accordance with the United States Nuclear Regulatory Commission (NRC) endorsed guidance of NEI 12-07, Rev. 0A, Guidelines for Performing Verification of Plant Flood Protection Features, dated May 31, 2012 and Entergy Nuclear procedure EN-DC-170 that was developed to provide instructions for implementation of the NRC endorsed guidelines. The walkdowns completed at JAF were performed to verify that the structures, systems, and components (SSCs) credited for flood protection are capable of performing their design function as described in the CLB. The walkdowns were also used to verify that plant modifications implemented since original construction, such as changes to topography, do not adversely affect flooding protection.

This report identifies the flooding hazards that comprise the CLB and the protection and mitigation features that are credited with preventing the ingress of external water into SSCs important to safety at JAF. The effectiveness of the flood protection features is evaluated against a set of acceptance criteria. Results of the walkdowns, including key findings, available physical margin, and any identified degraded, or nonconforming conditions are addressed and a description of the actions taken or planned to address these conditions is provided.

2.0 DESIGN BASIS FLOOD HAZARD LEVEL

2.1 Flood Hazards Identified

Of obvious concern for flooding (due to its proximity) is Lake Ontario. High lake water levels are of concern at the screenwell building and at the shore line.

As discussed in the JAF Final Safety Analysis Report (FSAR), the plant is on a slight topographic high. As such, precipitation falling on the site is discharged to Lake Ontario via intermittent streams. In general, the terrain in the area naturally slopes towards Lake Ontario. Roof drains are routed to the lake via the storm drain system. Thus, heavy rain is not a flooding concern for the JAF site.

2.1.1 Lake Ontario

From the JAF FSAR Section 2.4.3.2, the probable maximum setup of Lake Ontario at the JAF site was determined to be 4.1 ft. above mean lake water level based on a two dimensional time dependent mathematical model. According to the storm study for the R. E. Ginna Plant (Docket No. 50-244- 5), the maximum probable rainfall on Lake Ontario as a whole is 0.35 ft. The original design basis maximum flood level in the screenwell was obtained by adding the maximum probable short term rise in lake level (4.1 ft.) and maximum probable rainfall on the lake (0.35 ft.) to the maximum controlled water level (el. 248.0 ft.) resulting in a screenwell flood level of el. 252.5 ft. A later evaluation considered a maximum lake level elevation of 250 ft. (see Section 2.4). This evaluation assessed the effects of a ten thousand year storm and resulted in a revised design basis screenwell flood level of elevation 255 ft. Based on this flood level, the IPEEE (Ref. 10.5) states that the equipment in the lower portions of the screenwell area, and in particular the circulating water pumps and the normal SW pumps, could be affected by a flood.

From the FSAR, Section 2.4.3.7, the average ground elevation outside the screenhouse is 272.0 ft. Concerning the flooding of the exterior access of the power plant, the maximum wave runup (7.5 ft.), the maximum wind setup (4.1 ft.), and the maximum rainfall of (0.35 ft.) were added to the maximum controlled still water level (248 ft.) resulting in a maximum probable flood level of elevation 260 ft. at the JAF site. The site grade elevation (272.0 ft.) is well above the probable coincident maximum flood level of 260 ft. at the site with a freeboard of 12 ft. Consideration of a maximum lake level of elevation 250 ft. would still result in a flood level of 262 ft. with approximately 10 ft. of freeboard.

2.1.2 Maximum Probable Rainfall

From the JAF Individual Plant Examination for External Events (IPEEE Ref. 10.5), roof and storm drainage at the site was designed on the basis of probable maximum precipitation criteria derived from HMP 33 (Ref. 10.8). In particular, roof drainage was designed assuming rainfall intensities of 3.5 in/hour and 4.0 in/hour for 10-minute durations. Storm drainage was designed assuming a 4.27 in/hour rain intensity.

Probable Maximum Precipitation (PMP) data published by the National Weather Service calls for higher rainfall intensities over shorter time intervals and smaller areas than had previously been considered in the original licensing basis. This could result in higher site flooding levels and greater roof ponding loads than had been used in design bases. Concern over this issue led the NRC to characterize the potential problem as Generic Issue 103. This generic issue was resolved by application of the new PMP criteria to JAF as listed below:

- 4.6 in/hour for a 6-hour duration
- 16 in/hour for a 1-hour duration
- 24.3 in/hour for a 30-minute duration
- 34.2 in/hour for a 15-minute duration
- 65.3 in/hour for a 5-minute duration

Although these values exceed the design values, it is noted in the IPEEE that while the capacity of the drainage systems is limited by the flow of water into the drains at low water levels, at higher roof water levels drainage capacity increases. Consequently, it is predicted that PMP rates will not cause such an accumulation of water on the roofs so as to overload them. The IPEEE also states that hydraulic calculations performed using PMPs show the 50 lb/ft^2 load capacity of the Reactor Building roof will be exceeded only if two of three drains on one side of the roof are blocked and, as a result, the depth of water on the roof exceeds 9.6 in. The IPEEE concludes that the undersized roof drainage on the Reactor and Turbine Buildings will not pose a significant risk. Accordingly, it was judged that Generic Issue 103 was resolved for JAF (Ref. 10.5).

2.1.3 Ground Water Ingress

The annular space around the building is provided with a circumferential drain at the base of the Reactor Building to collect groundwater and maintain the sand backfill in an unsubmerged condition. Discharge is accomplished by two pumps, one active and one spare, which discharge into the Yard Drainage System which conducts the water to the lake.

2.1.4 Non-Governing Mechanisms

Flood mechanisms common at other sites that are not applicable to JAF include the following:

- Dam Failures
- Ice Blockage
- Tsunami
- Hurricane

2.2 Assumptions

There are no key assumptions in the design basis flood hazards.

2.3 Methodology

The design basis flooding hazard was developed considering both PMP and Lake Ontario.

2.4 Non Conformance

2.4.1 Lake Ontario Shore Flood Level

As stated in the JAF FSAR Section 2.4.3.5, regulation of Lake Ontario was implemented in April, 1960 at the direction of the International Joint Commission (IJC). One of the primary objectives of the plan of regulation is that the monthly mean level of Lake Ontario shall not exceed elevation 248. The plan of regulation is based upon historic norms for the period 1860 to 1954. Since regulation began, transient conditions in excess of historic norms have caused monthly mean lake level to exceed elevation 248 on a few separate occasions, each of three to four months duration. In each case, levels were lower than would have been experienced under natural control. The highest monthly mean lake level experienced since regulation began was elevation 249.1 in May 1973.

The original FSAR concluded that the all-time monthly mean high water level, or any other level above elevation 248 would be experienced only if regulation were suspended and Lake Ontario were to revert to natural control; and that it was proper to assume that the maximum storm occurs when the lake stage is at elevation 248, the maximum controlled still water level. Since it has been shown that input in excess of historic norms can occur and can cause lake level to exceed elevation 248 on rare occasions, an additional evaluation was performed. This evaluation concluded that no condition adverse to safety exists with a maximum lake level at or below elevation 250.

As discussed in Section 2.1.1, both the 248 ft. and 250 ft. still water level numbers are referenced in the FSAR Section 2.4.3.7. When wave runup, wind setup, and maximum rainfall are added, maximum levels at the shore are calculated as 260 ft. and 262 ft. Although two different still water level numbers are referenced, it is more conservative to use the higher number resulting in a shore flood level of 262 ft.

3.0 EXTERNAL FLOOD PROTECTION AND MITIGATION FEATURES

3.1 Flooding Licensing Basis

Flooding events were considered for all modes of plant operation. Flood contributors include the following:

- Local Intense Precipitation
- Seiche
- Wind-Generated Waves
- Wind Setup
- Combinations of the above
- Ground Water at the Reactor Building

3.2 Flood Duration

Sustained winds are a key contributor to lake level changes and wave formation. FSAR Section 2.4.3.4 states that the portion of a storm with average hourly winds greater than 50 mph was taken to be the critical portion of the storm for wave formation. The duration of winds 50 mph and greater is 23 hrs.

Maximum probable rainfall has the following impacts on flooding:

- Contributor to Lake Level
- Causes Flow in the Roof Drain Systems
- Creates Intermittent Streams of Runoff to the Lake

Precipitation rates and durations are discussed above in Section 2.1.2.

3.3 Flood Protection Features

3.3.1 Ground Water Drainage

There are no perennial streams located on the JAF site. Precipitation falling on the site is discharged to Lake Ontario via intermittent streams. Although numerous yard drains exist, no credit is taken for these features in the licensing basis.

3.3.2 Roof Drains

Roof drains are collected and discharged by gravity to the storm sewer.

3.3.3 Ground Water at Reactor Building

The annular space between the exterior wall of the Reactor Building and the surrounding rock is backfilled with a uniform sand material placed under controlled conditions to prevent excessive compaction. This material and method of placement ensures the free movement of the Reactor Building with respect to the surrounding rock during all seismic disturbances. To ensure the maintenance of this material in its as-placed condition, the annular space around the building is provided with a circumferential drain at the base of the Reactor Building to collect groundwater and maintain the sand in an unsubmerged condition. Drainage is accomplished by two perimeter drain pumps, one active and one spare, which discharge into the Yard Drainage System which conducts the water to the lake.

3.3.4 Reactor Building and Conduit Seals

The Reactor Building is a poured-in-place reinforced concrete structure up to the refueling floor. Pre-formed water stops are incorporated in all construction joints below grade for watertightness.

Conduits that penetrate the Reactor Building below grade are sealed to prevent ground water intrusion into the building.

3.4 Procedures

The site severe weather procedure requires that adequate dewatering pumps, sandbags, and personnel to assist be available and prestaged.

The procedure does not provide specific flood levels that trigger these actions, and the use of sandbags and dewatering pumps is not part of the flood protection CLB.

3.5 Adverse Weather

There are no adverse weather conditions concurrent with any flood protection features and associated actions as part of the CLB.

4.0 INTERNAL WARNING SYSTEMS

4.1 Perimeter Drain Pump Pit High Level

Perimeter Drain Pumps 75P-4A and 75P-4B (one primary and one standby) ensure that the annular space around the building remains dry. A circumferential drain at the base of the Reactor Building collects groundwater that these pumps discharge to the storm sewer system. Failure of the primary pump would result in operation of the standby pump. Failure of both pumps would result in high level that triggers a control room alarm, “09-6-1-1 PERIMETER DRN PMP TROUBLE”. There are no automatic actions associated with this alarm. Manual actions involve troubleshooting and restoring pumps to operability.

In addition to the alarm discussed above, pump performance is monitored by the Chemistry Department. Data is reviewed for pump run time and total flow volume on a weekly basis.

5.0 EFFECTIVENESS OF FLOOD PROTECTION SYSTEMS

5.1 Acceptance Criteria

Acceptance criteria were established to allow verification that each feature was available and functional. The criteria varied based on the type of feature as discussed below.

5.1.1 Manhole Conduit Seals

Manhole 1 conduit seals were inspected to the following acceptance criteria:

- Seals show no sign of damage that would prevent them from performing their function
- Manhole sump pump functions when required with no signs of damage that could prevent operation.

The conduit seals and sump pump were evaluated by general visual inspection from within the manhole. Each conduit that routes to the Reactor Building was visually inspected, and photographs were taken from multiple angles. The sump pump and power source were also visually inspected and photographed.

5.1.2 Yard Areas

The yard areas were inspected to the following acceptance criteria:

- No topography changes, including security barrier installations, that adversely affect the site drainage plan
- Verify that there are no added structures, security barriers, fences, etc., not shown on design drawings

The site yard areas were separated into four quadrants for convenience. Natural drain paths and intermittent streams were followed to their discharge point at the lake noting any features of interest.

5.1.3 Perimeter Drain Pumps

The acceptance criteria for the perimeter drain pumps included the following:

- No sign of damage that could prevent function
- Overall physical condition of pump and parts acceptable

It should be noted that the perimeter drain pump pit is a confined space. As such, it was considered a restricted access area by the plant safety department, and a walkdown and inspection was not performed. See Section 7.5 for additional detail.

5.1.4 Screenwell Building

The screenwell building was inspected to the following acceptance criteria:

- No damage to integrity of slab at 255’ elevation
- All safety related equipment mounted above the floor elevation

The Screenwell Building walkdown focused on the 255’ elevation (design basis flood level for the screenwell building). The slabs that make up this elevation were visually inspected for any structural issues. Safety related equipment location above this elevation was also confirmed.

5.1.5 Shoreline Headwalls

The shoreline headwalls were inspected to the following acceptance criteria:

- Free from obstructions and blockages
- No scouring or undermining
- Discharge pipe above shore line rock
- Discharge pipe diameter matches drawings

The walkdown of these features included a visual inspection and photographs of the shoreline and features along with dimensional verification of the discharge pipe size.

5.1.6 Roof Drains

Roof drains were inspected to the following acceptance criteria:

- Drain is in good condition with no signs of degradation
- No foreign material obstructions in the drain path

The drain walkdowns included general visual inspections and photographs from multiple angles.

5.2 Discussion

This section addresses the overall effectiveness of the plant's flood protection features to perform their credited functions during a variety of site conditions. Key questions being addressed include:

- Is the barrier system available?
- Is the barrier system functional?
- Are operator actions feasible?
- Could other existing plant equipment, structures, and procedures mitigate the effects of an external flood under a variety of plant configurations?
- Are there additional existing plant structures, systems, components, and procedures that are not part of the flooding CLB and that could be used to mitigate an external flood.

5.2.1 Manhole Conduit Seals

Manhole 1 contains eight conduits that are routed below grade to the Reactor Building. The conduits are internally sealed at the manhole to prevent water intrusion into the Reactor Building. The conduit seals are available and functional though the material condition requires further evaluation (see Walkdown Results Section below).

By design, the sump pump in Manhole 1 (Section 5.1.1) prevents the water level from reaching the elevation of the conduit seals. Should this sump pump fail, a temporary

pump could be used to maintain the water level in Manhole 1 below the level of the conduit seals. The existing Manhole 1 sump pump and the use of a temporary pump are not part of the flooding CLB.

5.2.2 Yard Areas

From the FSAR Section 12.3.1, the yard grade surrounding the Reactor Building structure is at elevation 271 ft. - 6 in. As discussed in the FSAR Section 2.4.1, precipitation falling on the site is discharged to Lake Ontario via intermittent streams. These streams are available and functional.

In addition to the intermittent streams, a series of catch basins are located throughout the plant yard area that channel rain water into a storm sewer (also known as storm drains) system. However, yard area rainwater collection into this storm sewer system is not discussed in the CLB.

5.2.3 Perimeter Drain Pumps

The FSAR Section 12.3.1 discusses these pumps and their function to maintain the backfill around the Reactor Building in an unsubmerged state. The perimeter drain pump pit was considered a restricted access area, thus a walkdown and inspection was not performed. However, the feature is considered available and functional based on no high level alarm existing for the perimeter drain sump. In addition, pump performance is monitored on a weekly basis by the plant chemistry department as part of the tritium detection program.

The pumps operate automatically based on level switches. No operator actions are required except for responding to any high level alarms. Should the sump pumps fail, a temporary pump could be used to maintain the water level in the perimeter drain sump below the high level alarm. Use of a temporary pump is not part of the flooding CLB.

5.2.4 Screenwell Building

As discussed in the FSAR Section 2.4.3.2, the maximum probable flood level at the screenwell is elevation 255 ft. This flood level coincides with the top of the floor slab at this level. This barrier is available and functional with no operator actions required.

There are no other existing plant equipment, structures, or procedures that could mitigate the effects of an external flood at the screenwell house. Existing procedures focus on loss of level at the intake or high differential level across the screens. No procedures related to high level conditions in the screenwell were found to exist.

5.2.5 Shoreline Headwalls

The headwalls at the shoreline are where water from the site is discharged into Lake Ontario. The elevation difference between the site yard areas and the lake flood level acts to provide a natural flood barrier. This barrier is available and functional. No operator action is required.

There are no other existing plant equipment, structures, or procedures that could mitigate the effects of an external flood at the shoreline nor are any required. The elevation difference is sufficient to prevent high lake level flooding from impacting the site.

5.2.6 Roof Drains

The Turbine and Reactor Building roof drains discharge rain water to the storm sewer system. These systems are available and functional. No operator actions are required.

There are no other existing plant equipment, structures, or procedures that could mitigate the effects of the maximum probable precipitation and the impact on roof structures. The IPEEE evaluated the roof drains and concluded that maximum probable precipitation events do not pose a significant risk.

6.0 IMPLEMENTATION OF WALKDOWNS

6.1 NEI 12-07 Guidance

The verification walkdowns were performed in accordance with the NRC endorsed guidance of NEI 12-07, Rev. 0A, “Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features” dated May 31, 2012, and Entergy Nuclear procedure EN-DC-170 that was developed to provide instructions for implementation of the NRC endorsed guidelines. Additional guidance for implementation was also obtained from the Flooding Walkdown Frequently Asked Questions (FAQs) and NRC responses, which are based on discussions between NEI and the NRC.

The basis for establishing the walkdown scope and the flood protection features included the preparation of a walkdown list in accordance with the guidance provided in Section 4 of NEI 12-07. As part of this preparation, the CLB was reviewed to determine the flood protection features and actions that are necessary to prevent an external flooding event at the site from adversely impacting safety-related SSCs. In addition to the identification of passive and active protection features, existing site and Entergy corporate procedures were reviewed to determine if any procedures were necessary to ensure existing flood protection features would be functional in the event of a flood at the site.

Walkdown packages were prepared in accordance with the guidance provided in NEI Section 5.2 and the walkdown team personnel were selected based on the requirements provided in Section 5.3 of NEI 12-07.

Prior to each walkdown, a pre-job brief was conducted. Walkdown results were documented in accordance with the recommendations of Section 7 of NEI 12-07 on the Flooding Walkdown Record Form provided in Attachment 9.3 of EN-DC-170. The walkdown record form provided in Attachment 9.3 is consistent with the record form template provided in Appendix B of NEI 12-07.

6.2 Team Organization

Consistent with Section 5.3 of NEI 12-07, the JAF flooding walkdown team consisted of three members with complimentary background and skills.

The walkdown team was supplemented as required by plant maintenance personnel.

6.3 Training Approach

Consistent with Section 5.3 of NEI 12-07 and Section 4.1 of EN-DC-170, personnel selected to perform walkdown inspection activities were experienced and knowledgeable of the site CLB. Personnel were also trained to perform the visual inspections and met the knowledge requirements specified in EN-DC-170 and Appendix C of NEI 12-07. Team members associated with the flooding walkdowns also satisfactorily completed the NANTEL Generic Verification Walkdowns of Plant Flood Protection Features lesson and were knowledgeable of the 10 CFR 50.54(f) letter dated March 12, 2012.

Plant maintenance personnel who supplemented the walkdown teams did not need to be qualified to the aforementioned requirements.

7.0 WALKDOWN RESULTS

Features inspected via walkdown fall into the categories as listed in Table 1 below.

Table 1
Total Features (by Category)

Category	Inspected	Future Inspection
Passive Incorporated	28	1
Passive Temporary	0	0
Active Incorporated	0	2
Active Temporary	0	0

Results from the walkdowns of the flood protection features are discussed below. These results include key findings; any degraded, non-conforming, or unanalyzed conditions; and any actions taken or planned to address conditions where required.

7.1 Results Summary

7.1.1 Manhole Conduit Seals

Eight conduits in Manhole 1 are routed below grade to the Reactor Building. These conduits are sealed internally at the manhole end. The conduit seals were inspected, and close-up photographs were taken.

The inspection of the manhole revealed the following:

- Uneven patchwork application of conduit sealing material at the conduits leading to the Reactor Building.
- Significant corrosion of some of the armored cables entering the conduits.
- Water appeared to be seeping from the area where an armored cable entered a conduit.
- Exposed portions of the conduit sleeves appeared to be in acceptable condition.
- Manhole sump pump appeared to be in working order. Water level was below the level at which the pump would be expected to operate. No signs of degradation.

The inspection results concluded the following for this manhole:

- Based on the manhole water level and pump appearance, the sump pump appears to be operating properly.
- The material condition at the conduit seals is not acceptable based on the description above.
- The integrity of the penetration seals could not be visually verified due to the uneven patchwork appearance of the seal material.
- Water seepage from the armored cable/seal penetration area is indication of potential seal or armor integrity failure.
- Overall, should flooding of Manhole 1 occur to a level above the conduits, the degraded condition would not likely result in significant water penetration into the Reactor Building.

This observation was documented in a condition report. In addition, two earlier condition reports already relate to this topic.

Walkdowns of Manhole 2 were not performed. Completion of this walkdown activity is being tracked by a condition report. See Section 7.4 below.

7.1.2 Yard Areas

The yard areas were inspected via walkdown. The licensing basis states that precipitation on the site is carried away via intermittent streams. For convenience, the plant yard areas were divided into four quadrants (North East, South East, North West, and South West).

The goals of the walkdown included:

- Verify no topography changes, including security barrier installations, adversely affect the site drainage plan.
- Verify there are no added structures, security barriers, fences, etc. not shown on design drawings.

The results of the walkdown confirmed that the above conditions were met. No degraded, non-conforming, or unanalyzed conditions were discovered. No condition reports were written. It should also be noted that in addition to intermittent streams, the site contains a yard drainage system (storm sewer) with numerous catch basins. However, this system is not credited in the licensing basis for removal of ground precipitation.

7.1.3 Perimeter Drain Pumps

The perimeter drain pump pit was considered a restricted access area, thus a walkdown and inspection was not performed. Completion of this walkdown activity is being tracked by a condition report.

A video inspection of the East and West drain pipes was performed in 2010. This video confirmed that the pipe integrity is sound.

7.1.4 Screenwell Building

The screenwell building was inspected via walkdown. The focus of the inspection was the 255 ft. elevation equivalent to the screenwell flood level. The goals of the walkdown included:

- Verify adequate structural integrity of the concrete slabs at the 255 ft. elevation
- Confirm that all safety related equipment is located above the level of the floor and would not be impacted by a flood at the 255 ft. elevation

The results of the walkdown confirmed that the above conditions were met. No degraded, non-conforming, or unanalyzed conditions were discovered. No condition reports were written.

7.1.5 Shoreline Headwalls

The shoreline headwalls were inspected via walkdown. The goals of the inspection included the following.

- Headwall pipe free from obstructions and blockages
- No scouring or undermining
- Confirm discharge pipe above shore line rock
- Confirm discharge pipe diameter matches drawings

The walkdown of these features included a visual inspection and photographs of the shoreline and features along with dimensional verification of the discharge pipe size. The results of the walkdown confirmed that the above conditions were met. No degraded, non-conforming, or unanalyzed conditions were discovered. No condition reports were written.

7.1.6 Roof Drains

Roof drains were inspected via walkdown. The goals of the inspection included the following.

- Drain is in good condition with no signs of degradation
- No foreign material obstructions in the drain path

A total of 20 roof drains were inspected (10 on the turbine building, 6 on the Reactor Building, and 4 on the MG set room roofs. Numerous degraded conditions were found and are summarized below.

- The two drains on the east MG set room roof were significantly clogged with debris around the dome. A piece of one of the domes was found on the roof near the drain.
- A few of the turbine building roof drains had debris buildup causing partial blockage and allowing ponding of water around the drain.
- Numerous domes over the drains (debris guards) were broken or missing sections (spars).

- Most of the domes on the turbine building roof (and some on the Reactor Building roof) were not properly secured to the drain section on the roof (clamp ring). Most of the turbine building roof ground wires were improperly installed contributing to this problem.

The degraded and non-conforming conditions described above are documented in condition reports.

7.2 Deficiencies

The following is a description of the deficiencies as determined by the Condition Report Process. Engineering is in the process of dispositioning the condition reports.

7.2.1 MG Set Room Roof Drains

Partially clogged and degraded roof drains were observed on the MG Set roof. No standing water was observed. It is reasonable to conclude that the drains were still functional although at a reduced capacity. Thus, the roof structure remained functional.

7.2.2 Reactor Building Roof Drains

Degraded roof drains were observed on the Reactor Building roof. It is reasonable to conclude that the drains were still functional. Thus, the roof structure remained functional.

7.2.3 Turbine Building Roof Drains

Partially clogged and degraded roof drains were observed on the Turbine Building roof. Minor standing water was observed. It is reasonable to conclude that the drains were still functional although at a reduced capacity. Thus, the roof structure remained functional.

7.2.4 Manhole 1 Material Condition

Uneven patchwork application of conduit sealing material was observed at the conduits leading to the Reactor Building. Significant corrosion of some of the armored cables entering the conduits was also observed. Water appeared to be seeping from the area where an armored cable entered a conduit.

Overall, should flooding of Manhole 1 occur to a level above the conduits, the degraded condition would not likely result in significant water penetration into the Reactor Building. Thus, the water intrusion would be within the capability of the area floor drain system.

7.3 Observations

All observations from the walkdowns have been captured in condition reports.

7.4 Corrective Actions

For each of the Condition Reports a Work Order has been assigned to resolve the identified condition.

7.5 Flood Protections Features Not Inspected

The flood protection features listed below were not inspected.

7.5.1 Perimeter Drain Pump Pit

Access to pumps 75P-4 A/B in the perimeter drain pump pit is through vertical 30" diameter pipe that is over 40 ft. long. Entry into this pit requires special rigging to allow the worker to be lowered in a harness by a hoist. This feature is classified as Restricted Access as it is located in a confined space. The restricted access of this feature is being tracked by a condition report. The schedule for inspection is November 1, 2014.

The schedule for the future inspection is acceptable based on the following:

- Remote inspection of the drain pipes (east and west) was performed in 2010. The drain pipe was clear and the integrity was sound.
- Pump performance is monitored by the Chemistry Department on a weekly basis. Data is reviewed for pump run time and total flow volume.

7.5.2 Manhole 2

Access into Manhole 2 requires confined space entry. During the team walkdown period (refueling outage), site support was not available for this confined space entry, thus this feature is considered restricted access.

The restricted access of this feature is being tracked by a condition report. The site is schedule to perform this walkdown on October 30, 2013 as part of the next scheduled PM for the manhole.

7.5.3 No flood protection features were considered inaccessible.

8.0 AVAILABLE PHYSICAL MARGIN

As indicated in Section 3.12 of NEI 12-07, Rev. 0A, the NRC is no longer expecting the Recommendation 2.3: Flooding Walkdowns to include an evaluation of the cliff-edge effects at the site. The Available Physical Margin (APM) has been determined and documented on the walkdown record forms. The APMs provided on the walkdown record forms will allow flood hazard reevaluations completed in response to Recommendation 2.1: Flooding to be completed.

No APMs documented in the record forms were considered to be small APMs at JAF.

9.0 NEW FLOOD PROTECTION SYSTEMS

There are no planned or newly installed flood protection systems or flood mitigation measures including flood barriers that further enhance the flood protection. The flooding walkdowns have not resulted in the need for any changes.

10.0 REFERENCES

10.1 NRC Letter to Licensees, dated March 12, 2012, “Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1,2.3, and 9.3 of the Near Term Task Force Review of Insights from the Fukushima Daiichi Accident.”

10.2 Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features (NEI 12-07 [Rev. 0-A]), NEI, dated May 2012.

10.3 Regulatory Issues Summary 2005-20, Revision 1, Revision to NRC Inspection Manual Part 9900 Technical Guidance, “Operability Conditions Adverse to Quality or Safety.”

10.4 JAF Final Safety Analysis Report Rev. 3, Dated 4/11/2011

10.5 JAF-RPT-MISC-02211, Rev. 0, JAF-Individual Plant Examination for External Events, Dated 6/27/1996

10.7 10CFR50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants” (Maintenance Rule)

10.8 National Weather Service, “Seasonal Variation of the Probable Maximum Precipitation East of the 105th Meridian for Areas from 10 to l000 Square Miles and Durations of 6, 12, 24, and 48 hours”, Hydrometeorological Report No. 33, 1956

11.0 ATTACHMENTS

None

ATTACHMENT 2

JAFP-12-0135

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will perform inspections of equipment that could not be inspected as identified in Section 7.5 of the Flooding Walkdown Report.	✓		November 1, 2014