



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 23, 2014

Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – STAFF ASSESSMENT OF THE FLOODING WALKDOWN REPORT SUPPORTING IMPLEMENTATION OF NEAR-TERM TASK FORCE RECOMMENDATION 2.3 RELATED TO THE FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT ACCIDENT (TAC NO. MF0296)

Dear Sir or Madam:

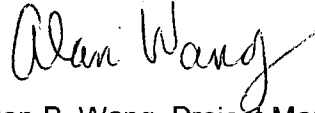
On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued a request for information letter per Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (50.54(f) letter). The 50.54(f) letter was issued to power reactor licensees and holders of construction permits requesting addressees to provide further information to support the NRC staff's evaluation of regulatory actions that may be taken in response to lessons learned from Japan's March 11, 2011, Great Tōhoku Earthquake, resultant tsunami, and subsequent accident at the Fukushima Dai-ichi nuclear power plant. The request addressed the methods and procedures for nuclear power plant licensees to conduct seismic and flooding hazard walkdowns to identify and address degraded, nonconforming, or unanalyzed conditions through the corrective action program, and to verify the adequacy of the monitoring and maintenance procedures.

By letter dated November 27, 2012, as supplemented by letter dated November 11, 2013, Entergy Operations, Inc. (Entergy, the licensee), submitted a Flooding Walkdown Report as requested in Enclosure 4 of the 50.54(f) letter for the Waterford Steam Electric Station, Unit 3. By letter dated January 31, 2014, Entergy provided a response to the NRC staff's request for additional information dated December 23, 2013, for the staff to complete its assessments.

The NRC staff reviewed the information provided and, as documented in the enclosed staff assessment, determined sufficient information was provided to be responsive to Enclosure 4 of the 50.54(f) letter.

If you have any questions, please contact me at (301) 415-1445 or by e-mail at Alan.Wang@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Alan Wang". The signature is written in a cursive style with a long, sweeping underline.

Alan B. Wang, Project Manager
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure:
Staff Assessment of Flooding
Walkdown Report

cc w/encl: Distribution via Listserv

STAFF ASSESSMENT OF FLOODING WALKDOWN REPORT
NEAR-TERM TASK FORCE RECOMMENDATION 2.3 RELATED TO
THE FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT ACCIDENT
ENERGY OPERATIONS, INC.
WATERFORD STEAM ELECTRIC STATION, UNIT 3
DOCKET NO. 50-382

1.0 INTRODUCTION

On March 12, 2012,¹ the U.S. Nuclear Regulatory Commission (NRC) issued a request for information per Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.54(f) (50.54(f) letter) to all power reactor licensees and holders of construction permits in active or deferred status. The request was part of the implementation of lessons learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 4, "Recommendation 2.3: Flooding,"² to the 50.54(f) letter requested licensees to conduct flooding walkdowns to identify and address degraded, nonconforming, or unanalyzed conditions using the corrective action program (CAP), verify the adequacy of monitoring and maintenance procedures, and report the results to the NRC.

Enclosure 4 of the 50.54(f) letter requested licensees to respond with the following information:

- a. Describe the design basis flood hazard level(s) for all flood-causing mechanisms, including groundwater ingress.
- b. Describe the protection and migration features that are considered in the licensing basis evaluation to protect against external ingress of water into SSCs [structures, systems, and components] important to safety.
- c. Describe any warning systems to detect the presence of water in rooms important to safety.
- d. Discuss the effectiveness of flood protection systems and exterior, incorporated, and temporary flood barriers. Discuss how these systems and barriers were evaluated using the acceptance criteria developed as part of Requested Information Item 1.h.
- e. Present information related to the implementation of the walkdown process (e.g., details of selection of the walkdown team and procedures,) using the documentation template discussed in Requested Information item 1.j, including actions taken in response to the peer review.

¹ Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340.

² ADAMS Accession No. ML12056A050.

- f. Results of the walkdown including key findings and identified degraded, nonconforming, or unanalyzed conditions. Include a detailed description of the actions taken or planned to address these conditions using guidance in Regulatory Issues Summary 2005-20, Revision 1, Revision to the NRC Inspection Manual Part 9900 Technical Guidance, "Operability Conditions Adverse to Quality or Safety," including entering the condition in the corrective action program.
- g. Document any cliff-edge effects identified and the associated basis. Indicate those that were entered into the corrective action program. Also include a detailed description of the actions taken or planned to address these effects.
- h. Describe any other planned or newly installed flood protection systems or flood mitigation measures including flood barriers that further enhance the flood protection. Identify the results and any subsequent actions taken in response to the peer review.

In accordance with the 50.54(f) letter, Enclosure 4, Required Response Item 2, licensees were required to submit a response within 180 days of the NRC's endorsement of the flooding walkdown guidance. By letter dated May 21, 2012,³ the Nuclear Energy Institute (NEI) staff submitted NEI 12-07, Revision 0-A, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," to the NRC staff to consider for endorsement. By letter dated May 31, 2012,⁴ the NRC staff endorsed the walkdown guidance.

By letter dated November 27, 2012,⁵ as revised by letter dated November 11, 2013,⁶ Entergy Operations, Inc. (Entergy, or the licensee), provided a response to Enclosure 4 of the 50.54(f) letter Required Response Item 2, for the Waterford Steam Electric Station, Unit 3 (Waterford 3). The NRC staff issued a request for additional information (RAI) to the licensee regarding the available physical margin (APM) dated December 23, 2013.⁷ The licensee responded by letter dated January 31, 2014.⁸

The NRC staff evaluated the licensee's submittals to determine if the information provided in the walkdown report met the intent of the walkdown guidance and if the licensee responded appropriately to Enclosure 4 of the 50.54(f) letter.

2.0 REGULATORY EVALUATION

The SSCs important to safety in operating nuclear power plants are designed either in accordance with, or meet the intent of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," Criterion 2, "Design Bases for protection against natural

³ ADAMS Package Accession No. ML121440522.

⁴ ADAMS Accession No. ML12144A142.

⁵ ADAMS Accession No. ML12333A147.

⁶ ADAMS Accession No. ML13317A076.

⁷ ADAMS Accession No. ML13325A891.

⁸ ADAMS Accession No. ML14031A164.

phenomena,” and Appendix A “Seismic and Geological Criteria for Nuclear Plants,” to 10 CFR Part 100. Criterion 2 states that SSCs important to safety at nuclear power plants shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions.

For initial licensing, each licensee was required to develop and maintain design bases that, as defined by 10 CFR 50.2, identify the specific functions to be performed by an SSC, and the specific values or ranges of values chosen for controlling parameters as reference bounds for the design.

The design bases for the SSCs reflect appropriate consideration of the most severe natural phenomena that have been historically reported for the site and surrounding area. The design bases also reflect sufficient margin to account for the limited accuracy, quantity, and period of time in which the historical data have been accumulated.

The current licensing basis (CLB) is the set of NRC requirements applicable to a specific plant, and a licensee’s written commitments for ensuring compliance with, and operation within, applicable NRC requirements and the plant-specific design basis that are in effect.

3.0 TECHNICAL EVALUATION

3.1 Design Basis Flooding Hazard for the Waterford 3 Reactor

The design basis flood hazard for the Waterford 3 site is a combined hypothetical flooding event involving the probable maximum flood (PMF) from the Mississippi River, probable maximum hurricane (PMH) in Barataria Bay, and instantaneous failure of the levee which is adjacent to the site. The Waterford 3 site is located along the west bank of the Mississippi River and is protected from the river by a man-made levee with a crest (top) elevation of 30.0 feet mean sea level (MSL). The site has grade elevations between 14.5 feet MSL and 17 feet MSL, and the average river elevation (stage) at the levee is approximately 10-13 feet MSL. The PMF was defined by the Corps of Engineers Hypo-Flood Scenario 52A, which is a synthetic flood that reflects a combination of past storms and the resulting floods generated by those events, that produces a river stage flood elevation of 27.0 feet MSL behind the levee. However, for additional conservatism during the levee failure, a river stage elevation equal to the levee crest elevation (30.0 feet MSL) was used as the PMF elevation. The concurrent PMH occurs in Barataria Bay which produces a surge stillwater elevation of 18.1 feet MSL, with hurricane induced wind waves resulting in water elevations of 23.7 feet MSL. The levee failure analysis with river elevations of 30.0 feet MSL and PMH storm elevations of 23.7 feet MSL resulted in a maximum effective water level of 27.6 ft. MSL at the Waterford 3 site. This maximum flood water elevation of 27.6 ft. MSL occurs along the north wall of the Nuclear Plant Island Structure (NPIS).

The licensee notes that the Waterford 3 site is not considered to be susceptible to flooding by dam failures, ice flooding, or channel migration. The licensee stated that the site is also not adjacent to any coastal area and, therefore, is not vulnerable to tsunami flooding and/or tidal surge or seiche.

The licensee reported that although the NPIS power block extends to a depth of 64.5 ft below the site grade, groundwater intrusion is not considered to be a design issue. The licensee further stated that local groundwater levels are reported to be about 77 ft below the ground surface.

Based on the NRC staff's review, the licensee appears to have described the design basis flood hazard level requested in the 50.54(f) letter and consistent with the walkdown guidance.

3.2 Flood Protection and Mitigation

3.2.1 Flood Protection and Mitigation Description

The licensee stated that the CLB flood protection for the Waterford 3 site is a combined flooding event resulting in a PMF level of 27.6 ft MSL. The licensee reported that safety-related SSCs at Waterford 3 are protected from flooding up to an elevation of 29.25 ft MSL.

The licensee stated that during the initial phase of construction (from 1975 to 1978), the foundation below the NPIS nuclear island experienced settlement; the licensee re-surveyed the NPIS and found that the foundation had settled approximately 9 inches from the original licensing basis elevation of 30 ft MSL. The settlement resulted in a revised CLB flood elevation of 29.25 ft MSL.

The licensee's flood protection and mitigation features were designed so that all safety-related systems and components are enclosed within the NPIS. The licensee stated that the NPIS is a rectangular box-like reinforced concrete structure 380-ft long, 267-ft wide and extending 64.5 ft below grade. Its common foundation mat and exterior wall system are designed to withstand all loadings and postulated floods as well as to minimize water intrusion. The NPIS building houses all safety-related equipment at the Waterford 3 site. The Waterford 3 site topography, acting in concert with man-made levees, bypass channels, culverts, and drainage ditches, also contributes to the flood protection/mitigation function by passively diverting flood water away from the site to wetlands located to the south.

3.2.2 Incorporated and Exterior Barriers

The licensee reported that flood protection measures intended to protect safety-related systems and equipment are passive and active features that were incorporated into the original Waterford 3 site. Specific features that provide flood protection at the site include: the reinforced concrete NPIS monolith (specifically walls and foundation base-mat); designated flood-protection doors along the exterior of the NPIS block; penetration seals within NPIS exterior walls; permanent sump pumps; roof and floor drains; certain credited valves; and the Dry Cooling Tower backup diesel pumps.

3.2.3 Temporary Barriers and Other Manual Actions

The licensee stated that the CLB requires securing seven credited NPIS flood-tight doors within 12 hours of the Mississippi River reaching an elevation of 27 ft MSL, consistent with Waterford 3's Off-Normal Event Procedure. That procedure also requires that the licensee verify that four Fuel Handling Building (FHB) flood barrier credited valves are closed and

requires that the credited permanent sump pumps in-place throughout the Waterford 3 physical plant are operable during severe weather watches and/or warnings. The four FHB valves define the flood barrier between the Fuel Pool Cask Decontamination Area (open to the train bay which is not flood protected) and the FHB sump.

The licensee did not identify any temporary barriers in its walkdown report that require manual operator actions in the event of a flood threat.

3.2.4 Reasonable Simulation and Results

The purpose of performing reasonable simulations is to verify that the required flood protection procedures or activities can be executed as specified/ as written.

The licensee does not incorporate any temporary flood protection barriers and therefore did not perform any reasonable simulation at the Waterford 3 site. The seven credited flood doors were closed in August 2012 in response to a severe weather warning due to Hurricane Isaac. In a loss-of-power event, backup diesel pumps are to be activated when the credited permanent sump pumps used to keep water out of the NPIS are not available. The backup diesel pumps would need to be started within 3 hours of failure of the permanent sump pumps. This flooding mitigation feature is not a part of the CLB for Waterford 3 and, therefore, starting the backup diesel pumps was not simulated.

3.2.5 Conclusion

Based on the NRC staff's review, the licensee appears to have described protection and mitigation features as in the 50.54(f) letter and consistent with the walkdown guidance.

3.3 Warning Systems

The licensee reported that there are no credited external flooding warning systems installed at the Waterford 3 site.

Based on the NRC staff's review, the licensee appears to have provided information to describe any warning systems as requested in the 50.54(f) letter and consistent with the walkdown guidance.

3.4 Effectiveness of Flood Protection Features

The licensee stated that the design basis flood hazard for the Waterford 3 site is based on a postulated PMF, specifically a combined effects flood which includes the PMP, PMH, and the instantaneous failure of the Waterford 3 site levee.

The licensee reported that all flood protection features at the Waterford 3 site that are intended to protect safety-related structures and equipment against the combined flooding event which include a combination of both active and passive design features. The licensee found no deficiencies and reported that all features were available and functional.

The licensee defined the acceptance criteria for the flood protection features by the requirements in the current licensing basis using guidance from NEI 12-07. The licensee visually inspected the flood protection features to identify any material degradation as well as verifying the configuration with design documents.

Based on the NRC staff's review, the licensee appears to have discussed the effectiveness of flood protection features as requested in the 50.54(f) letter and consistent with the walkdown guidance.

3.5 Walkdown Methodology

By letter dated June 7, 2012,⁹ the licensee responded to the 50.54(f) letter that it intended to utilize the NRC-endorsed walkdown guidelines contained in NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features."¹⁰

The licensee's walkdown submittal dated November 27, 2012, as supplemented by letter dated November 11, 2013, indicated that the licensee implemented the walkdowns consistent with the intent of the guidance provided in NEI 12-07. The licensee did not identify any exceptions from NEI 12-07.

Based on the NRC staff's review, the licensee appears to have presented information related to the implementation of the walkdown process as requested in the 50.54(f) letter and consistent with the walkdown guidance.

3.6 Walkdown Results

3.6.1 Walkdown Scope

The licensee performed walkdowns of 22 flood protection features (170 individual attributes) including exterior walls and base-mat of the NPIS, flood protection doors, valves, and penetration seals through the NPIS exterior walls, permanent sump pumps, backup diesel pumps, site topography, roof drains and floor drains.

The licensee noted that flood protection features at the Waterford 3 site do not include any temporary features that would require the implementation of a procedure for the performance of those manual/operator actions. The licensee did identify two active features that would require the implementation of an operator action (e.g., the seven credited flood protection doors on the exterior of the NPIS and the four FHB valves). The licensee used acceptance criteria consistent with the intent NEI 12-07. Items that did not meet the NEI 12-07 acceptance criteria were documented in the Corrective Action Program (CAP).

⁹ ADAMS Accession No. ML12164A676.

¹⁰ ADAMS Accession No. ML12173A215.

3.6.2 Licensee Evaluation of Flood Protection Effectiveness, Key Findings, and Identified Deficiencies

The licensee performed an evaluation of the overall effectiveness of the Waterford 3's flood protection features. The licensee confirmed that walls, floors and penetrations credited flood barriers are in place and are capable of performing their intended functions. By virtue of its walkdown inspections, the licensee verified that permanent safety-related SSCs at the Waterford 3 site were acceptable, not degraded, and capable of performing their intended design function as credited in the CLB. Additional specific provisions for flood protection include administrative procedures to assure that all exterior access doors below elevation 30.0 ft MSL will be locked closed in the event of a flood warning. Additionally, the Waterford 3 procedures verify credited valves are closed and ensure credited sump pumps are operable. A Surveillance Procedure provides instructions for monitoring the Mississippi River level during flood stages projected to rise to 27 ft MSL within the next 12 hours. Entergy corporate procedures provide guidance and requirements for conducting a structural condition monitoring program to meet the requirements of 10 CFR 50.65, the Maintenance Rule.

NEI 12-07 defines a deficiency as follows: "a deficiency exists when a flood protection feature is unable to perform its intended function when subject to a design basis flooding hazard." The licensee stated that the four valves in the FHB, that are part of the flood barrier for the Waterford 3 site, were not included in a preventive maintenance program and, therefore, were considered a deficiency.

Features that did not meet the NEI 12-07 acceptance criteria were entered into the CAP and evaluated. The licensee concluded, based on its operability determinations, that these FHB valves could perform their intended flood protection functions when subjected to the design basis flooding hazard.

NEI 12-07 requires licensees to identify observations in the CAP that were not yet dispositioned at the time the walkdown report was submitted. Entergy stated that all observations that had been entered into the CAP as the result of the walkdowns had been dispositioned at the time the report was created.

3.6.3 Flood Protection and Mitigation Enhancements

The licensee reported that there were no recently implemented or planned enhancements to the Waterford 3 site that are intended to improve or increase flood protection and/or mitigation.

3.6.4 Planned or Newly-Installed Features

The licensee did not determine that changes were necessary by the flood walkdowns.

3.6.5 Deficiencies Noted and Actions Taken or Planned to Address

The licensee documented in the CAP features that did not meet the NEI 12-07 acceptance criteria. The licensee identified that the Reactor Auxiliary Building roof drains and FHB valves needed to be entered into the Preventative Maintenance Program already established for the Waterford 3 site. The FHB valves were the only feature that was determined to be a deficiency

as defined by NEI 12-07. The licensee's operability determinations for this deficiency concluded that FHB valves could perform their intended flood protection function when subjected to the design basis flooding hazard. The licensee stated that all observations that had been entered into the CAP as the result of the flooding walkdowns had been dispositioned at the time the report was created. The licensee included additional information regarding the FHB valve operability review following the identification of the deficiency in its supplement revised report dated November 11, 2013.

3.6.6 Staff Analysis of Walkdowns

The NRC staff reviewed the licensee's walkdown report dated November 27, 2012, as supplemented by letter dated November 11, 2013. This staff review of the walkdown report focuses primarily on those items related to the Waterford 3 CLB. The licensee adequately evaluated the CLB flood protection features and the features are functional and in good condition. There are no procedures in regards to the CLB requiring one or more reasonable simulations. Flood protection doors, sump pumps and system valves credited for flooding are verified closed/operable for various severe weather watches/warnings or Mississippi River flooding by station procedures.

The licensee evaluated the capability of flood protection features by conducting visual inspections. Visual inspections included credited flood protection features such as: seals on through-wall penetrations; floor barrier walls; designated flood protection doors; sump pumps; valves; roof drains; and pipe drains. The licensee reported that the inspection of seals on through-wall penetrations indicated that they were generally in good condition and did not show signs of degradation. Visual inspection of floor barrier walls indicated no visible water seepage or cracks greater than 0.04 inches. The licensee reported that the inspection of flood protection doors indicated that the doors would function as intended. The sump pumps did not show severe corrosion or missing fittings and the inspection of valves, roof drains, and pipe drains indicated that they would be functional.

Based on the NRC staff's review, the licensee appears to have provided results of the walkdown and described any other planned or newly installed flood protection systems or flood mitigation measures as requested in the 50.54(f) letter and consistent with the walkdown guidance. Based on the information provided in the licensee's submittals, the NRC staff concludes that the licensee's implementation of the walkdown process meets the intent of the walkdown guidance.

3.6.7 Available Physical Margin

The NRC staff issued a request for additional information (RAI) to the licensee regarding the APM dated December 23, 2013. The licensee responded with a letter dated January 31, 2014. The licensee has reviewed its APM determination process, and entered any unknown APMs into the CAP. The staff reviewed the response, and concludes that the licensee met the intent of the APM determination per NEI 12-07.

Based on the NRC staff's review, the licensee appears to have documented the information requested for any cliff-edge effects, as requested in the 50.54(f) letter and consistent with the

walkdown guidance. Further, the staff reviewed the response, and concludes that the licensee met the intent of the APM determination per NEI 12-07.

3.7 NRC Oversight

3.7.1 Independent Verification by Resident Inspectors

On June 27, 2012, the NRC issued Temporary Instruction (TI) 2515/187, "Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns."¹¹ In accordance with the TI, NRC inspectors independently verified that the licensee implemented the flooding walkdowns consistent with the intent of the walkdown guidance. Additionally, the inspectors independently performed walkdowns of a sample of flood protection features.

The inspection report dated February 14, 2013,¹² documents the results of this inspection. The inspector identified an unresolved item related to a PMP flooding event that could potentially affect safety-related equipment located on the roof of the reactor auxiliary building. The licensee entered this issue of concern into the CAP for further resolution.

4.0 SSCs NOT WALKED DOWN

The licensee reported no restricted access features; only inaccessible features were identified.

4.1 Restricted Access

No restricted access features were identified by the licensee.

4.2 Inaccessible Features

The licensee reported that there were four locations/areas of the Waterford 3 physical plant that were not inspected because of physical inaccessibility. They included the following:

- A through-wall penetration and an exterior wall inside of a pipe chase in the Reactor Auxiliary Building. The licensee reported that the point-of-access to this location is blocked by a permanent filter skid that would require major disassembly to access the pipe chase for inspection.
- The Spent Resin Tank Room, located in a locked high-radiation area in the Reactor Auxiliary Building. Following a review of design drawings, licensee reported that no through-wall penetrations could be identified in the room.
- In the FHB, the heating, ventilation, and air conditioning (HVAC) air intake between columns 5FH and 6FH. The licensee reported that a chiller is installed on top of the bay opening of the HVAC air intake, and major

¹¹ ADAMS Accession No. ML12129A108.

¹² ADAMS Accession No. ML13045A582.

disassembly of this system would be required to access the flood protection wall for the purposes of inspection.

- Exterior NPIS walls that are below-grade could not be inspected.

The exterior walls of the NPIS are designed as a continuous concrete barrier and are considered a flood protection feature. The licensee stated that the majority of these exterior walls were inspected and no deficiencies were identified. Design documents show that the inaccessible penetration is grouted, and other grouted penetrations that were inspected were found to be in good condition. Based on these factors, the licensee has stated that there is assurance that the inaccessible features are available and functional.

5.0 CONCLUSION

The NRC staff concludes that the licensee's implementation of flooding walkdown methodology meets the intent of the walkdown guidance. The staff concludes that the licensee, through the implementation of the walkdown guidance activities and, in accordance with plant processes and procedures, verified the plant configuration with the current flooding licensing basis; addressed degraded, nonconforming, or unanalyzed flooding conditions; and verified the adequacy of monitoring and maintenance programs for protective features. Furthermore, the licensee's walkdown results, which were verified by the staff's inspection, identified no immediate safety concerns. The NRC staff reviewed the information provided and determined that sufficient information was provided to be responsive to Enclosure 4 of the 50.54(f) letter.

If you have any questions, please contact me at (301) 415-1445 or by e-mail at Alan.Wang@nrc.gov.

Sincerely,

/RA/

Alan B. Wang, Project Manager
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure:
Staff Assessment of Flooding
Walkdown Report

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC
LPL4-2 R/F
RidsAcrsAcnw_MailCTR Resource
RidsNroDsea Resource
RidsNrrDorl Resource
RidsNrrDorlLpl4-2 Resource
RidsNrrLABurkhardt Resource
RidsNrrPMWaterford Resource
RidsOpaMail Resource
RidsRgn4MailCenter Resource

JNick, EDO RIV
RKuntz, NRR
AKock, NRO
SFlanders, NRO
CCook, NRO
RKaras, NRO
PChaput, NRO
MJardaneh, NRO
EMiller, NRR

ADAMS Accession No. ML14135A349 * concurrence by e-mail

OFFICE	NRR/DORL/LP4-2/PM	NRR/DORL/LP4-2/PM	NRR/DORL/LPL4-2/LA	NRR/JLD/PMB/PM
NAME	MOrenak	AWang	JBurkhardt	RKuntz
DATE	05/16/14	05/19/14	5/16/14	05/27/14
OFFICE	NRO/DSEA/RHM2/BC	OGC	NRR/DORL/LPL4-2/BC	NRR/DORL/LPL4-2/PM
NAME	RKaras*	Not Required	DBroaddus	AWang
DATE	05/12/14	--	06/23/14	06/23/14

OFFICIAL RECORD COPY