



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

November 8, 2013

Mr. Ben Waldrep  
Vice President of Corporate  
Governance & Operations Support  
Duke Energy Corporation  
526 S. Church St.  
Charlotte NC 28202

**SUBJECT: PUBLIC MEETING SUMMARY – DUKE ENERGY CAROLINAS, LLC, DOCKET  
NOS. 50-269, 50-270, 50-287, 50-369, 50-370, 50-413, 50-414, 50-325,  
50-324, 50-261, 50-400**

Dear Mr. Waldrep:

This refers to the meeting conducted on November 6, 2013, in Atlanta, GA. The purpose of the meeting was to provide opportunities to discuss the planned Fukushima-related modifications being made at the sites operated by Duke Energy Carolinas, LLC. Enclosed is a list of attendees and NRC and licensee presentation slides.

In accordance with Title 10 of the Code of Federal Regulations 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this meeting, please contact me at (404) 997-4551.

Sincerely,

***/Jonathan Bartley RA for/***

Gerald J. McCoy, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287, 50-369,  
50-370, 50-413, 50-414, 50-325,  
50-324, 50-261, 50-400

License Nos.: DPR-38, DPR-47, DPR-55, NPF-9,  
NPF-17, NPF-35, NPF-52, DPR-62,  
DPR-71, DPR-23, NPF-63

Enclosures: (As stated)

cc distribution via ListServ

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PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
 ADAMS:  Yes    ACCESSION NUMBER: ML       SUNSI REVIEW COMPLETE     FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP							
SIGNATURE	AMR /RA/	JHB /RA for/							
NAME	ARuh	GMcCoy							
DATE	11/08/2013	11/08/2013							
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

B. Waldrep

2

Letter to Ben Waldrep from Gerald McCoy dated November 8, 2013

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RidsNrrPMBrunswick Resource

RidsNrrPMHarris Resource

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## PUBLIC MEETING ATTENDANCE LIST

We sincerely appreciate your presence at, and your interest in, the Nuclear Regulatory Commission's Public Meeting with Duke Energy Carolinas, LLC.  
We ask that everyone print your name and affiliation below.

6 November 2013

Name	Affiliation
Art ZAREMBA	Duke Energy
JEFF THOMAS	DUKE ENERGY
CHRIS NOWI	Duke Energy
DANA C. JONES	DUKE ENERGY
Ben Waldrep	Duke ENERGY
PAUL BOYASSIAN	AREVA /SGT
Matthew SIDOTI	PWC
CHARLES BAILEY	SGT
LARRY HENKEL	CBI
Alan Small	CBI
Lloyd Ganelette	EPA
Mike Weber	Duke
David Llewellyn	Duke
Scotty Bradshaw	Duke
Bob Pryce	Duke
Mark Van Sicklen	Duke
Lenny Beller	Duke
Adam Rub	NRC
Sandra Herrick	NRC
Paul Carman	NRC

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Name	Affiliation
Brad Bishop	NRC
Victor McCree	NRC
Richard Croteau	NRC
William Jones	NRC
George Hopper	NRC
Gerald McCoy	NRC
Terrence Reis	NRC
Andrew Hon	NRC
Bill Freebairn	Platts Nucleonics Week
Tom Clements	Friends of the Earth
Michael Seaman-Huynh	SC Government
Scott Carter	TVA
Jim Riccio	Greenpeace
Ben Turetzky	FOLKS
Bob Swank	FOLKS
Ruth Thomas	Environmentalists Inc.
Eric Connor	The Greenville News
Kagen Delrio	NCEMCS
Curtis Castell	CB&I
Dan Ludwig	Xcel Energy

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Name	Affiliation
Sandra Threath	SC DoH&EC
Mary Bright	SC DoH&EC
Eldon Evans	SM&E Inc.
Rita Sight	Public

# Public Meeting with Duke Energy Carolinas

Nuclear Regulatory Commission  
Atlanta, Ga  
November 6, 2013



# Purpose of Meeting

**Discuss the planned modifications to Duke  
Energy sites that will address Japan Lessons  
Learned**





# Agenda

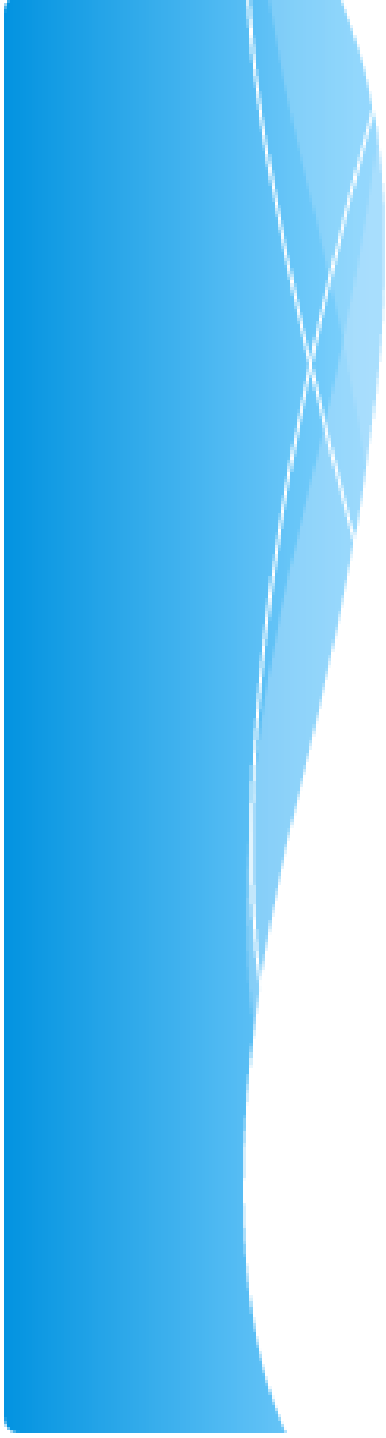
- **NRC Introduction**
- **Duke Energy Introduction**
- **Discussion of Duke Energy Planned Modifications**
- **Public Questions and Comments**
- **NRC Closing Remarks**



## NRC Attendees

- Victor McCree, Regional Administrator, Region II
- Richard Croteau, Director, Division of Reactor Projects, Region II
- William Jones, Deputy Director, Division of Reactor Projects, Region II
- George Hopper, Chief, Projects Branch 4, Region II





# Duke Energy Remarks





## Planned Fukushima-Related Modifications

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**NRC Region II Public Meeting**

**November 6, 2013**



*For Informational Purposes Only*

# Agenda

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Opening Remarks	Ben Waldrep
Fleet Overview	David Llewellyn
McGuire	Scotty Bradshaw
Harris	Mike Weber
Catawba	Bob Pryce
Robinson	Mark Van Sicklen
Brunswick	Lenny Beller
Oconee	Dana Jones
Closing Remarks	Ben Waldrep



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## Opening Remarks

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- Prime focus is on continued safe operation
- The industry has responded aggressively to the accident at the Fukushima Daiichi facility
- Measures and strategies are being implemented commensurate with safety
- Flexible and diverse (FLEX) strategies add an additional layer of protection to the layers of defense already in place



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## **Fleet Overview**

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- **NRC Orders and Requests for Information**
- **Flexible and Diverse (FLEX) Strategies**
- **Spent Fuel Pool (SFP) Instrumentation**
- **Severe Accident Capable Vents**



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## **Fleet Overview**

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- **Emergency Preparedness Communications**
- **Emergency Preparedness Staffing**
- **Flood Hazard Re-evaluations**
- **Augmented Seismic Approach**



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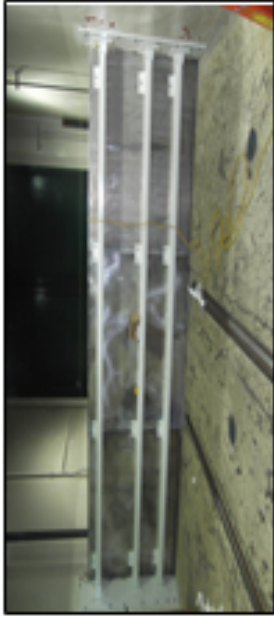


# Fleet Overview

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- Seismic and Flooding Walkdowns

*Brunswick Reactor Building Railroad Door*



*Brunswick Control Building Door*



*Cabinet Inspections*



## **Fleet Overview**

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- Identified modifications reflect current plans
- Many modifications are in the conceptual design phase
- Supporting evaluations and analyses may impact plans and schedules
- Design work is proceeding in parallel with NRC review

## Fleet Overview

- The FLEX and SFP instrumentation modifications are required to be implemented prior to startup from the following refueling outages

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016
<b>McGuire 1</b> M1EOC23	<b>Brunswick 2</b> B222	<b>McGuire 2</b> M2EOC23	<b>Brunswick 1</b> B121	<b>Oconee 1</b> O1EOC29
	<b>Catawba 2</b> C2EOC20	<b>Oconee 2</b> O2EOC27	<b>Oconee 3</b> O3EOC28	
	<b>Harris</b> H119	<b>Catawba 1</b> C1EOC22		
	<b>Robinson</b> R229			



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## Fleet Overview

### NTTF 7.1, Spent Fuel Pool Level Instrumentation

Spent Fuel Pool Level Instrumentation Modification	Schedule											
	Design Approval (A) and Implementation Complete (C)											
	1013	1014	2014	3014	4014	1015	2015	3015	4015	1016	2016	
Brunswick Nuclear Plant, Unit 1			A							C		
Brunswick Nuclear Plant, Unit 2			A			C						
Catawba Nuclear Station, Unit 1				A		C						
Catawba Nuclear Station, Unit 2			A	C								
Harris Nuclear Plant				A			C					
McGuire Nuclear station, Unit 1					C							
McGuire Nuclear Station, Unit 2	A								C			
Oconee Nuclear Station, Unit 1&2						A				C		
Oconee Nuclear Station, Unit 3											C	
Robinson Nuclear Plant			A	C								

LEGEND: A = Design Approval at single unit site. AB = Design Approval for Unit #. C = Design Completion at single unit site. CB = Design Completion for Unit#.



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# McGuire

NTTF 4.2, FLEX Strategy	Schedule									
	Design Approval (A) and Implementation Complete (C)					Schedule				
	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	3Q15	4Q15	
Assured Air Source to Supply the SG PORVs and AFW valves to support plant cooldown.	A1				C1 A2					C2
Assured Water Supply to the TDAFWPs – Auto-aligns pump to underground condenser circulating water header in the event the CAST is lost to support plant cooldown.		A1			C1	A2				C2
Process Connections -- Provide makeup water to support plant cooldown, AFWPT sump and SFP cooling.		A1			C1	A2				C2
Connections for Portable Electrical Equipment – Provide power to various loads to facilitate coping strategies.	A1				C1 A2					
FLEX Storage Facilities – Provide FLEX storage facilities that satisfy NEI 12-08.	A				C					

LEGEND: A# = Design Approval for Unit #. C# = Design Completion for Unit#.



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# Harris

NTTF 4.2, FLEX Strategy	Schedule							
	Design Approval (A) and Implementation Complete (C)				Schedule			
	10/14	3/0/14	3/0/14	4/0/14	10/15	3/0/15	4/0/15	10/16
Control circuit modifications for SG PORVs and MDAFW FCVs to support FLEX strategies.			A			C		
Enhance piping to ensure a robust make up flowpath from the RWST to the Spent Fuel Pools to maintain SFP inventory.			A			C		
Process connections to provide makeup water for support of FLEX strategies.			A			C		
Electrical/Power connections/distribution for FLEX equipment to facilitate coping strategies			A			C		
FLEX Storage Facilities - Provide FLEX storage facilities that satisfy NEI 12-08.			A			C		

LEGEND: A = Design Approval at single unit site. C = Design Completion at single unit site.



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# Catawba

NTTF 4.2, FLEX Strategy	Schedule									
	Design Approval (A) and Implementation Complete (C)					Schedule				
	4Q13	1Q14	3Q14	2Q14	4Q14	1Q15	2Q15	3Q15	4Q15	4Q15
Provide Automatic swap-over capability to embedded Condenser Circulating Water piping			A2			A1 C2				C1
Process Connections - Auxiliary Feedwater piping connections for portable pump		A1	C1	A2		C2				
Process Connections – Nuclear Service Water Connections for long term plant cooling	A1		A2	C1 C2						
Process Connections - Primary System injection			A1 A2	C1 C2						
Provide 600 VAC Electrical Power Distribution			A2	A1	C2	C1				
FLEX Storage Facility - Provide FLEX storage facility that satisfies NEI 12-08.			A		C					

LEGEND: A# = Design Approval for Unit #. C# = Design Completion for Units.



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# Robinson

NTTF 4.2, FLEX Strategy	Schedule									
	Design Approval (A) and Implementation Complete (C)									
	1014	2014	3014	4014	1015	2015	3015	4015	1016	
Motive force for steam generator power operated relief valves to support plant cooldown	A			C						
Alternate water source for steam generator inventory		A			C					
Process connections to provide makeup water in support of plant cooldown and Spent Fuel Pool cooling	A					C				
Electrical connections for portable diesel generator to power loads to facilitate coping strategies	A				C					
FLEX Storage Facility and travel path upgrades - Provide FLEX storage facility that satisfies NEI 12-06.		A			C					

LEGEND: A = Design Approval at single unit site. C = Design Completion at single unit site.



# Brunswick

NTTF 4.2, FLEX Strategy	Schedule									
	Design Approval (A) and Implementation Complete (C)					Schedule				
	10/14	3/014	10/14	3/015	10/15	3/015	10/15	3/016	10/16	3/016
Secondary water source for RPV injection – backup option of water to Suppression Pool.	A				C					
FLEX Reactor Pressure Vessel injection path	A2	A1			C2				C1	
FLEX Spent Fuel Pool make up	A2	A1			C2				C1	
FLEX Diesels to provide electrical power in support of coping strategies.								A1 A2		C1
FLEX Storage facility - Provide FLEX storage facility that satisfies NEI 12-08.	A				C					

LEGEND: A# = Design Approval for Unit #. C# = Design Completion for Unit#.

## **Brunswick**

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- **Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions**
- **Phase 1 – Wetwell Vent Path**
  - Working with industry and NRC on NEI 13-02
  - Compliance dates: U1 – 2018, U2 – 2017
  - B/U N2 Capacity and Inverter modification designs nearing completion
  - Conceptual design in progress on system piping/instrumentation
- **Phase 2 – Drywell Vent Path**
  - Study phase in progress for boundary conditions and vent path
  - Compliance dates: U1 – 2018, U2 - 2019

# Oconee

NTTF 4.2, FLEX Strategy	Design Approval (A) and Implementation Complete (C)						Schedule						
	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17
Steam Generator Makeup capability to support plant cooldown		A2		A3	C2	A1	C3						C1
RC Makeup capability to support plant cooldown		A2		A3	C2	A1	C3						C1
CW embedded water transfer capability to ensure inventory for plant cooldown		A2		A3	C2	A1	C3						C1
Connections to allow for use of portable power to facilitate coping strategies		A2		A3	C2	A1	C3						C1
FLEX Storage Facility - Provide FLEX storage facility that satisfies NEI 12-06.	A			C									

LEGEND: A# = Design Approval for Unit #. C# = Design Completion for Unit#.



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# Oconee

NTTF 2.1, External Flooding	Schedule							
	Design Approval (A) and Implementation Complete (C)							
	2014	2014	4Q14	1Q15	3Q15	4Q15	1Q16	3Q16
Discharge Diversion Wall			A					C
Power Block east bank protection		A						C
Intake dike protection			A					C
Turbine Building Drain Isolation		A						C

LEGEND: A# = Design Approval for Unit #. C# = Design Completion for Unit#.



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## Closing Remarks

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- Duke Energy is committed to continued improvements to nuclear safety
- These improvements add additional layers of protection when responding to extreme natural events
- FLEX strategies will be adjusted as we learn more from analysis and experience
- Leadership sets the tone on advancing nuclear safety

## Acronyms

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AFW - Auxiliary Feedwater	PORV – Power Operated Relief Valve
AFWPT - Auxiliary Feedwater Pump Turbine	RC – Reactor Coolant
CAST – Auxiliary Feedwater Storage Tank	RC\$ – Reactor Coolant System
CCW – Condenser Cooling Water	RN – Nuclear Service Water
CV – Control Valve	RPV – Reactor Pressure Vessel
EDG – Emergency Diesel Generator	RWST – Refueling Water Storage Tank
FLEX – Flexible and Diverse	SFP – Spent Fuel Pool
FCV – Flow Control Valve	SG – Steam Generator
MDAFW – Motor Driven Auxiliary Feedwater	TDAFW – Turbine Driven Auxiliary Feedwater
NEI – Nuclear Energy Institute	TDP – Turbine Driven Pump
NRC – Nuclear Regulatory Commission	



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