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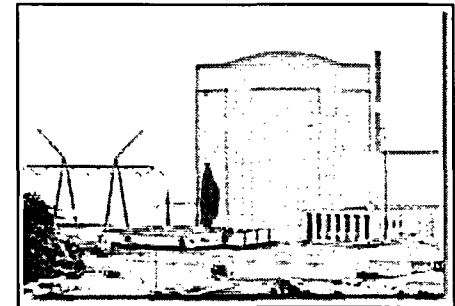


**ALTERNATIVE SOURCE TERM**

**Pre-Submittal Meeting**

**Palisades Nuclear Plant**

**August 2, 2006**



# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## NMC ATTENDEES

- **John Broschak**                      **Engineering Director**
- **Ed Weinkam**                      **Licensing & Reg. Svcs. Director**
- **Gabor Salamon**                      **Licensing Manager**
- **Brian Brogan**                      **Engineering Programs**
- **Jeff Voskuil**                      **Engineering Programs**
- **Amy Hazelhoff**                      **Licensing**
- **Jesus (Jay) Arias**                      **Licensing**

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## PURPOSE OF PRE-SUBMITTAL MEETING

- Common understanding of the proposed scope of the Palisades application
- Understand the level of detail of information expected in the application
- Gain understanding regarding regulatory positions on specific issues

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## AGENDA

- Reason for Adopting the Alternate Source Term
- Scope of Implementation
- Overview of Changes to the Licensing Basis
- Specific Aspects of the Analyses
  
- Submittal Content
- Schedules
- Summary

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## REASON FOR ADOPTING ALTERNATE SOURCE TERM

- To update the Palisades accident dose analyses following the guidance provided in Regulatory Guide 1.183

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SCOPE OF IMPLEMENTATION

- Full scope implementation
- Limiting accidents analyzed:
  - Loss-of-Coolant Accident (LOCA)
  - Fuel Handling Accident (FHA)
  - Main Steam Line Break (MSLB)
  - Steam Generator Tube Rupture (SGTR)
  - Control Rod Ejection (CRE)
  - Small Line Break Outside Containment (SLBOC)
  - Spent Fuel Cask Drop (SFCD)
- Other Palisades UFSAR Chapter 14 events

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## OVERVIEW OF LICENSING BASIS CHANGES

- Revise radiological consequences for limiting accidents
  - TEDE acceptance criterion
  - Revised assumptions
  - Revised results
- Change Palisades Technical Specifications
  - Definition of Dose Equivalent I-131 in TS Section 1.1

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SPECIFIC ASPECTS OF THE ANALYSES

- AST analysis philosophy
- Analysis Differences
  - Palisades-specific source term inventories
  - Updated control room X/Q
  - Updated offsite X/Q
  - Updated control room breathing rates



# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SPECIFIC ASPECTS OF THE ANALYSES

- Analysis Differences (continued)
  - Lower control room envelope unfiltered in-leakage for limiting events
  - Single containment release scenario for control rod ejection

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SPECIFIC ASPECTS OF THE ANALYSES

- Analysis Differences (continued)
  - MHA/LOCA
    - Plant configuration
    - Reduced containment spray flow rate
    - Effect of low pH SIRWT water on iodine volatile fraction to justify airborne fraction <10%
    - Termination of SIRWT isolation valve back-leakage
    - Lower SIRWT recirc valve back-leakage

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SPECIFIC ASPECTS OF THE ANALYSES

- Assumptions requiring plant modifications
  - Lower control room envelope unfiltered in-leakage
  - Termination of SIRWT isolation valve back-leakage
  - Lower SIRWT recirc valve leakage

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SPECIFIC ASPECTS OF THE ANALYSES

- **Palisades Summary of Alternative Source Term Analysis Results**

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## MHA/LOCA Results (rem)

### TID Analysis

### AST Analysis

Thyroid

Whole Body

TEDE

**LPZ**

**10.0**

**0.1**

**3.4**

**EAB**

**18.1**

**0.3**

**13.2**

**CR**

**21.3**

**2.7**

**4.2**

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## FHA Results (rem)

### TID Analysis

### AST Analysis

**Thyroid**

**Whole Body**

**TEDE**

**LPZ**

**8.7**

**<0.1**

**0.3**

**EAB**

**53.6**

**0.2**

**2.2**

**CR**

**19.7**

**<0.1**

**4.0**

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## MSLB Results (rem)

### TID Analysis

### AST Analysis

**Thyroid**

**Whole Body**

**TEDE**

**LPZ**

**4.0**

**<0.1**

**0.8**

**EAB**

**15.7**

**<0.1**

**2.5**

**CR**

**11.8**

**<0.1**

**4.98**



# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## SGTR Results (rem)

### TID Analysis

### AST Analysis

Thyroid

Whole Body

TEDE

LPZ

0.7

0.1

0.2

EAB

4.3

1.6

1.2

CR

5.6

<0.1

3.8





# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## CRE Results (rem)

### TID Analysis

### AST Analysis

**Thyroid**

**Whole Body**

**TEDE**

**LPZ**

**11.5**

**0.2**

**0.7**

**EAB**

**22.7**

**0.3**

**2.7**

**CR**

**23.9**

**0.4**

**1.1**



# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## SLBOC Results (rem)

### TID Analysis

### AST Analysis

Thyroid

Whole Body

TEDE

LPZ

0.8

<0.1

0.1

EAB

4.8

0.1

0.4

CR

5.7

<0.1

0.5



# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

## SFCD Results (rem)

	TID Analysis		AST Analysis
	Thyroid	Whole Body	TEDE
<b>LPZ</b>	8.3	<0.1	0.3
<b>EAB</b>	51.2	0.3	2.0
<b>CR</b>	8.2	<0.1	1.7



# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SUBMITTAL CONTENT

- Licensing technical report summarizing assumptions and analyses
- Accident analyses input parameter and results tables
- RG 1.183 conformance table
- NRC RIS 2006-04 disposition table
- Meteorological data and accident analyses calculations in electronic form
- Information copies of mark-ups of affected pages of the Updated Final Safety Analyses Report
- TS change

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SCHEDULES

- Submittal by August 31, 2006
- Implementation coincident with restart from 2007 Fall Refueling Outage

# PALISADES NUCLEAR PLANT ALTERNATIVE SOURCE TERM

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## SUMMARY