



NRC-03-115

10 CFR 50, App. E

December 8, 2003

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

KEWAUNEE NUCLEAR POWER PLANT  
DOCKET 50-305  
LICENSE No. DPR-43  
RADIOLOGICAL EMERGENCY RESPONSE PLAN IMPLEMENTING PROCEDURES

Pursuant to 10 CFR 50 Appendix E, attached is the latest revisions to the Kewaunee Nuclear Power Plant Radiological Emergency Response Plan Implementing Procedures (EPIPs). These revised procedures supersede the previously submitted procedures.

Pursuant to 10 CFR 50.4, two additional copies of this letter and attachment are hereby submitted to the Regional Administrator, U. S. Nuclear Regulatory Commission, Region III, Lisle, Illinois. As required, one copy of this letter and attachment is also submitted to the Kewaunee Nuclear Power Plant NRC Senior Resident Inspector.

Thomas Coutu  
Site Vice President, Kewaunee Nuclear Power Plant  
Nuclear Management Company, LLC

SLC

Enclosure

cc: Senior Resident Inspector, Kewaunee, w/enc.  
Administrator Region III (2 copies), w/enc.  
Public Service Commission of Wisconsin, w/o enc.  
QA Vault, w/o enc.

A045

# DOCUMENT TRANSMITTAL

KEWAUNEE NUCLEAR POWER PLANT

FROM: DIANE FENCL - KNPP

TRANSMITTAL DATE 12-04-2003

## EMERGENCY PLAN IMPLEMENTING PROCEDURES TRANSMITTAL FORM

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PERSONAL COPIES (21-40) These copies are for the personal use of the listed individuals for reference or emergency response.

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REFERENCE COPIES - CUSTODIAN (41-100) These copies are for general reference by anyone. They are distributed throughout the plant and corporate offices. The named individual is the responsible custodian for the procedures and shall insure they are properly maintained.

NO Library - KNPP (59)

C. Sternitzky - ATF-2 (44)

M. Daron - Security Building (46)

C. Grant - EOF (81)

C. Grant - OSF (52, 96)

LOREB - STF (62, 66, 67, 68, 70, 72, 73, 74)

STF Library (43)

Resource Center - Training (82)

D. Krall - CR/SS Office (51, 56)

C. Grant - TSC (50, 95)

W. Galarneau - RAF (53)

W. Galarneau - SBF/EMT (54)

W. Galarneau - RPO (55)

STF (86, 87, 88)

WORKING COPIES (101-199) These copies of procedures are kept in the areas designated for use in response to an emergency.

W. Galarneau - RAF/RPO (106, 107)(Partial Distribution)

W. Galarneau - SBF/ENV (108, 109)(Partial Distribution)

W. Galarneau - SBF/EM Team (110, 111, 111A)(Partial Distribution)

W. Flint - Cold Chem/HR Sample Room (113)

S. Zutz - SBF/SEC (114)

E. Gilson - Security (121)

S. Zutz - Security Building (120)

Ops Admin. (126)

C. Grant (Liaison Manuals)(EPIP-AD-02 and EOF-04 & APPX-A-06 Figures only)

C. Grant - TSC Response Blue Binder (Partial Distribution)

C. Grant - TSC Response Red Binder (Partial Distribution)

~~C. Grant - TSC (Partial Distribution - FORMS ONLY)~~

C. Grant - EOF Response Binder (Partial Distribution)

D. Krall - CR Response Binder (Partial Distribution)

K. Stangel - SCR Response Binder (Partial Distribution)

D. Krall - CR Tag Desk (Partial Distribution)

K. Stangel - SCR Tag Desk (Partial Distribution)

Originals to KNPP QA Vault

Please follow the directions when updating your EPIP Manual. **WATCH FOR DELETIONS!!!** These are controlled procedures and random checks may be made to ensure the manuals are kept up-to-date.

**\*THIS IS NOT A CONTROLLED COPY. IT IS A COPY FOR INFORMATION ONLY.**



**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

PROC. NO.	TITLE	REV.	DATE
<b>EP-AD</b>			
EPIP-AD-01	Personnel Response to the Plant Emergency Siren	L	09-09-2003
EPIP-AD-02	Emergency Class Determination	AI	12-04-2003
EPIP-AD-03	KNPP Response to an Unusual Event	AJ	09-09-2003
EPIP-AD-04	KNPP Response to Alert or Higher	AO	09-09-2003
EP-AD-5	Site Emergency	Deleted	04-27-87
EPIP-AD-05	Emergency Response Organization Shift Relief Guideline	E	02-18-2003
EP-AD-6	General Emergency	Deleted	04-24-87
EPIP-AD-07	Initial Emergency Notifications	AV	09-09-2003
EP-AD-8	Notification of Alert or Higher	Deleted	02-26-96
EP-AD-9	Notification of Site Emergency	Deleted	04-27-87
EP-AD-10	Notification of General Emergency	Deleted	04-27-87
EPIP-AD-11	Emergency Radiation Controls	S	12-19-2002
EP-AD-12	Personnel Assembly and Accountability	Deleted	03-26-94
EP-AD-13	Personnel Evacuation	Deleted	04-25-94
EP-AD-13A	Limited Area Evacuation	Deleted	03-01-83
EP-AD-13B	Emergency Assembly/Evacuation	Deleted	03-01-83
EP-AD-13C	Site Evacuation	Deleted	03-01-83
EP-AD-14	Search and Rescue	Deleted	05-25-94
EPIP-AD-15	Recovery Planning and Termination	P	09-12-2002
EP-AD-16	Occupational Injuries or Vehicle Accidents During Emergencies	Deleted	03-14-97
EP-AD-17	Communications	Deleted	03-05-84
EPIP-AD-18	Potassium Iodide Distribution	P	02-27-2002
EPIP-AD-19	Determining Protective Action Recommendations	T	09-19-2003

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

<b>PROC. NO.</b>	<b>TITLE</b>	<b>REV.</b>	<b>DATE</b>
EPIP-AD-20	KNPP Response to a Security Threat	E	09-30-2003
<b>EP-ENV</b>			
EPIP-ENV-01	Environmental Monitoring Group Organization and Responsibilities	X	07-31-2003
EPIP-ENV-02	Environmental Monitoring Team Activation	Y	07-31-2003
EP-ENV-3A	Environmental Protection Director Actions and Directives	Deleted	09-26-84
EP-ENV-3B	EM Team Actions	Deleted	09-26-84
EPIP-ENV-03C	Dose Projection Using RASCAL Software	X	09-19-2003
EP-ENV-3D	Revision and Control of ISODOSE II	Deleted	02-14-95
EP-ENV-3E	Manual Determination of X/Q	Deleted	04-24-87
EP-ENV-3F	Manual Determination of X/Q (Green Bay Meteorological Data)	Deleted	05-30-86
EP-ENV-3G	Manual Dose Projection Calculation	Deleted	06-02-89
EP-ENV-3H	Protective Action Recommendations	Deleted	04-13-90
EPIP-ENV-04A	Portable Survey Instrument Use	U	07-31-2003
EPIP-ENV-04B	Air Sampling and Analysis	Y	07-31-2003
EP-ENV-4C	Environmental Monitoring Teams	Deleted	04-13-90
EPIP-ENV-04C	Ground Deposition Sampling and Analysis	Y	07-31-2003
EPIP-ENV-04D	Plume Tracking for Environmental Monitoring Teams	P	07-31-2003
EP-ENV-5A	LCS-1 Operation	Deleted	04-14-86
EP-ENV-5B	MS-3 Operation	Deleted	04-14-86
EP-ENV-5C	SAM II Operation	Deleted	04-14-86
EP-ENV-5D	PAC-4G (Alpha Counter) Operation	Deleted	04-14-86
EP-ENV-5E	Reuter-Stokes Operation	Deleted	08-27-85

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

<b>PROC. NO.</b>	<b>TITLE</b>	<b>REV.</b>	<b>DATE</b>
EP-ENV-6	Data Analysis, Dose Projections and Protective Action Recommendations	Deleted	12-21-81
EP-ENV-6	Alternate Sample Analysis and Relocation of EM Team	Deleted	04-14-86
EP-ENV-6A	Relocation of Site Access Facility (Habitability)	Deleted	03-23-84
EP-ENV-6B	SAF Environmental Sample Analysis Relocation	Deleted	03-23-84
EP-ENV-7	Site Access Facility Communications	Deleted	09-26-84
EP-ENV-8	Total Population Dose Estimate Calculations	Deleted	04-14-86
<b>EP-EOF</b>			
EP-EOF-1	Corporate Emergency Response Organization	Deleted	03-11-94
EPIP-EOF-02	Emergency Operations Facility (EOF) Activation	AB	07-31-2003
EPIP-EOF-03	EOF Staff Action for Unusual Event	AE	07-31-2003
EPIP-EOF-04	EOF Staff Action for Alert or Higher	AL	07-31-2003
EP-EOF-5	Corporate Staff Action for Site Emergency	Deleted	04-24-87
EP-EOF-6	Corporate Staff Action for General Emergency	Deleted	04-24-87
EP-EOF-7	Notification of Unusual Event	Deleted	04-06-94
EP-EOF-8	Relocation of EOF	Deleted	03-01-83
EPIP-EOF-08	Continuing Emergency Notifications	AA	07-31-2003
EP-EOF-9	Interface with Support Organizations	Deleted	03-05-84
EP-EOF-9	Notification of Site Emergency	Deleted	04-24-87
EP-EOF-10	Notification of General Emergency	Deleted	04-24-87
EPIP-EOF-11	Internal Communication and Documentation Flow	W	07-31-2003
EPIP-EOF-12	Media Center/Emergency Operation Facility/Joint Public Information Center/Security	R	06-19-2003

# EMERGENCY PLAN IMPLEMENTING PROCEDURES

## INDEX

DATE: 12-04-2003

PROC. NO.	TITLE	REV.	DATE
<b>EP-OP</b>			
EP-OP-1	Control Room Emergency Organization	Deleted	04-24-87
EP-OP-2	Emergency Control Room Activation for Emergency Response	Deleted	04-24-87
EP-OP-3	Control Room Communications	Deleted	04-24-87
<b>EP-OSF</b>			
EP-OSF-1	Operation Support Facility Emergency Organization	Deleted	04-24-87
EPIP-OSF-02	Operational Support Facility Operations	W	11-04-2003
EPIP-OSF-03	Work Orders During an Emergency	P	05-09-2002
EP-OSF-4	Operational Support Facility Communications	Deleted	04-24-87
EPIP-OSF-04	Search and Rescue	E	05-23-2002
<b>EP-RET</b>			
EP-RET-1	Radiation Emergency Team Organization	Deleted	04-16-96
EPIP-RET-02	In-Plant Radiation Emergency Team	X	07-31-2003
EPIP-RET-02A	Radiation Protection Office/Radiological Analysis Facility (RPO/RAF) Activation	V	11-04-2003
EPIP-RET-02B	Gaseous Effluent Release Path, Radioactivity, and Release Rate Determination	T	09-19-2003
EP-RET-2C	Containment Air Sampling and Analysis	Deleted	03-01-83
EPIP-RET-02D	Emergency Radiation Entry Controls and Implementation	M	06-12-2001
EP-RET-2E	Handling of Injured Personnel	Deleted	04-16-96
EP-RET-2F	Personnel Decontamination	Deleted	04-13-90
EPIP-RET-03	Chemistry Emergency Team	P	02-18-2003
EPIP-RET-03A	Liquid Effluent Release Paths	L	11-29-2001
EP-RET-3B	Post-Accident Reactor Coolant Alternate Sampling Procedure	Deleted	01-25-88

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

<b>PROC. NO.</b>	<b>TITLE</b>	<b>REV.</b>	<b>DATE</b>
EPIP-RET-03C	Post Accident Operation of the High Radiation Sample Room	P	01-15-2002
EPIP-RET-03D	Containment Air Sampling Analysis Using CASP	N	01-15-2002
EP-RET-3E	Post Accident Operation of High Rad Sample Room Inline Multiported Count Cave	Deleted	08-27-85
EPIP-RET-04	SBF Activation	U	06-19-2003
EP-RET-4A	EOF Radiological Monitoring	Deleted	03-10-83
EPIP-RET-04A	SBF Operation/Relocation	Deleted	10-02-2001
EP-RET-4B	Radiological Controls at Site Access Facility	Deleted	07-12-94
EP-RET-4C	Site Radiological Monitoring	Deleted	07-12-94
EP-RET-4D	SAM-II Operation	Deleted	07-12-94
EP-RET-5	Plume Projection	Deleted	09-26-84
EPIP-RET-05	Site Boundary Dose Rates During Controlled Plant Cooldown	I	07-31-2003
EP-RET-5A	Plume Projection	Deleted	04-27-87
EP-RET-6	Dose Projection	Deleted	04-24-87
EP-RET-7	Radiological Analysis Facility/Radiation Protection Office Communications	Deleted	04-24-87
EPIP-RET-08	Contamination Control of the Aurora Medical Center	Deleted	05-23-2002
EPIP-RET-09	Post-Accident Population Dose	Deleted	09-19-2003
<b>EP-SEC</b>			
EP-SEC-1	Security Organization	Deleted	04-24-87
EPIP-SEC-02	Security Force Response to Emergencies	Z	07-31-2003
EP-SEC-2A	Manual Activation of Emergency Sirens	Deleted	04-16-82
EPIP-SEC-03	Personnel Assembly and Accountability	AG	05-20-2003
EPIP-SEC-04	Security Force Actions for Dosimetry Issue	P	10-02-2001

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

<b>PROC. NO.</b>	<b>TITLE</b>	<b>REV.</b>	<b>DATE</b>
EP-SEC-5	Security Force Response to the EOF	Deleted	07-28-88
EPIP-SEC-05	Personnel Evacuation	G	06-20-2002
<b>EP-TSC</b>			
EPIP-TSC-01	Technical Support Center Organization and Responsibilities	S	01-28-2003
EPIP-TSC-02	Technical Support Center Activation	U	01-20-2003
EPIP-TSC-03	Plant Status Procedure	W	05-05-2003
EPIP-TSC-04	Emergency Modifications	O	04-29-2003
EP-TSC-5	Technical Support Center Communications Equipment	Deleted	04-24-87
EP-TSC-6	Assessment of Reactor Core Damage	Deleted	09-30-86
EPIP-TSC-07	RV Head Venting Time Calculation	J	06-20-2002
EPIP-TSC-08A	Calculations for Steam Release from Steam Generators	P	09-02-2003
EPIP-TSC-08B*	STMRLS Computer Program	H	07-31-2003
EP-TSC-8C*	See EP-TSC-8B	Deleted	04-16-92
* EP-TSC-8B was totally deleted; therefore, EP-TSC-8C was changed to EP-TSC-8B			
EP-TSC-9	Core Damage Assessment Using Released Radionuclides	Deleted	09-30-86
EPIP-TSC-09A*	Core Damage Assessment	K	05-05-2003
EPIP-TSC-09B*	CORE Computer Program	Deleted	05-16-2002
EP-TSC-9C*	See EP-TSC-9B	Deleted	04-16-92
* EP-TSC-9A, Rev. D was totally deleted; therefore, EP-TSC-9B became EP-TSC-9A. EP-TSC-9B was previously EP-TSC-9C.			
EPIP-TSC-10	Technical Support for IPEOPs	L	07-31-2003

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

DATE: 12-04-2003

<b>FIGURES</b>					
<b>EPIP</b>	<b>FIG #</b>	<b>Figure EPIPF</b>	<b>DESCRIPTION</b>	<b>REV.</b>	<b>DATE</b>
EPIP-SEC-05 EPIP-APPX-A-06	EP-FIG-003	APPX-A-06-03	Technical Support Center - KNP Floor Plan	B	06-12-2001
EPIP-APPX-A-06	EP-FIG-005	APPX-A-06-02	Site Boundary Facility - KNP Floor Plan	A	10-31-2000
EPIP-APPX-A-06	EP-FIG-008	APPX-A-06-01	Radiological Analysis Facility - KNP Floor Plan	A	10-31-2000
EPIP-EOF-12 Form EPIPF-EOF-02-01	EP-FIG-009	EOF-12-01	Division Office Building (2nd Floor) Floor Plan	C	06-19-2003
EPIP-APPX-A-06	EP-FIG-012	APPX-A-06-08	State/County Work Area - WPSC D2-1 Floor Plan	C	10-31-2000
EPIP-APPX-A-06	EP-FIG-013	APPX-A-06-09	NRC Work Area - WPSC D2-4 Floor Plan	A	10-31-2000
EPIP-AD-19	EP-FIG-014	AD-19-01	Population Distribution by Geographical Sub-Areas (with sectors)	A	10-31-2000
EPIP-APPX-A-06	EP-FIG-022	APPX-A-06-04	EOF - WPSC D2-3 Floor Plan	D	04-29-2003
EPIP-EOF-12	EP-FIG-024	EOF-12-02	Location of JPIC and Media Briefing Center Map	D	06-19-2003
EPIP-SEC-05	EP-FIG-026	SEC-05-01	KNP Site Map & Evacuation Routes	E	09-19-2003
APPX-A-6	EP-FIG-034	---	Floor Plan - Media Briefing Center	Deleted	08-04-98
EPIP-EOF-12 EPIP-APPX-A-06	EP-FIG-035	APPX-A-06-06	Media Briefing Center	D	04-29-2003
APPX-A-6	EP-FIG-037	---	Floor Plan - Corporate Response Center	Deleted	08-04-98
APPX-A-6	EP-FIG-038	---	Floor Plan - JPIC	Deleted	08-04-98
EPIP-OSF-02	EP-FIG-039	OSF-02-01	High Priority Work	B	07-31-2003
EPIP-OSF-02	EP-FIG-039A	OSF-02-02	Lower Priority Work	B	07-31-2003
EPIP-APPX-A-06	EP-FIG-043	APPX-A-06-10	JPIC - Federal Work Area - WPSC D2-9	C	04-29-2003
EPIP-APPX-A-06	EP-FIG-044	APPX-A-06-07	JPIC - State and County Work Area - WPSC D2-8	D	04-29-2003
EPIP-APPX-A-06	EP-FIG-045	APPX-A-06-05	JPIC - Utility Work Area - WPSC D2-7	D	04-29-2003
RET-08	EP-FIG-046	RET-08-01	Aurora Medical Center Location	Deleted	05-23-2002
EPIP-APPX-A-02	---	APPX-A-02-01	ERO Call Tree	Deleted	12-04-2001

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

<b>NUMBER</b>	<b>TITLE</b>	<b>REVISION</b>	<b>DATE</b>
	<b>APPENDIX A</b>		
APPX-A-1	Communication System Description	AF	08-04-98
EPIP-APPX-A-02	Response Personnel Call List	Deleted	02-06-2002
EPIP-APPX-A-03	Off-Site Telephone Numbers	Deleted	02-06-2002
EPIP-APPX-A-06	KNPP Emergency Response Facility Figures	AB	04-29-2003

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

FORM EIPF	TITLE	REV.	DATE
<b>APPENDIX B</b>			
<b>EP-AD</b>			
AD-07-01	Event Notice - Nuclear Accident Reporting System Form (NARS)	V	05-05-2003
AD-07-02	State Call-Back - Question Guideline	C	11-15-2001
AD-07-03	Fax Event Notice	C	09-19-2003
AD-07-04	ERO Event Notification	Deleted	07-31-2003
AD-11-01	Emergency Radiation Work Permit	H	12-19-2002
AD-18-01	Airborne Radioiodine Dose Accountability and Potassium Iodide Distribution	B	08-06-2002
AD-18-02	Record of Known Allergy To or Voluntary Refusal to Take Potassium Iodide	A	02-27-2002
<b>EP-ENV</b>			
ENV-01-01	Environmental Dispatch Area Activation Checklist	E	07-31-2003
ENV-01-02	EMT Status	C	07-31-2003
ENV-01-03	Meteorological and Plant Status Data	C	12-14-2001
ENV-01-04	EMT Orders/Field Data	C	07-31-2003
ENV-02-01	EMT Activation Checklist	O	07-31-2003
<b>EP-EOF</b>			
EOF-02-01	EOF Activation Checklist	V	09-19-2003
EOF-02-02	EOF Deactivation Checklist	N	01-28-2003
EOF-04-01	SRCL Initial Action Checklist	D	01-20-2003
EOF-04-02	Telephone Communications Log Sheet	A	12-14-2001
EOF-08-03	Fax for Emergency Declaration or Status Updates	H	01-20-2003
EOF-08-05	Plant Emergency Status Report	A	11-27-2001
EOF-08-06	Radiological Status Report	E	01-20-2003
EOF-11-02	Operating Status	G	11-07-2002

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

FORM EIPPF	TITLE	REV.	DATE
EOF-11-03	Environmental Status Board	G	11-07-2002
EOF-12-01	I.D. Badge Registration Form	G	10-24-2000
<b>EP-OSF</b>			
OSF 2.2	Maintenance Work in Progress	Deleted	07-08-98
OSF-03-01	Operational Support Facility Team Briefing	C	12-04-2001
<b>EP-RET</b>			
RET-02A-02	Emergency Sample Worksheet	E	06-05-2001
RET-02B-01	Containment Stack Release (Grab Sample)	E	09-19-2003
RET-02B-02	Auxiliary Building Stack Release (Grab Sample)	E	09-19-2003
RET-02B-03	Auxiliary Building Stack Release (Sping Reading)	E	09-19-2003
RET-02B-04	Containment Stack Release (Sping Reading)	D	09-19-2003
RET-02B-05	Steam Release	E	09-19-2003
RET-02B-06	Field Reading (Grab Sample)	B	08-06-2002
RET-04-01	SAM-2 Counting Equipment Worksheet	E	06-12-2001
RET 8.3	Hospital Survey 1	Deleted	06-05-2001
RET 8.4	Hospital Survey 2	Deleted	07-25-97
RET 8.5	Hospital Survey 3	Deleted	07-25-97
RET-08-06	Hospital Survey 4	Deleted	05-23-2002
RET-09-01	Post-Accident TLD Record Sheet	D	04-16-2002
<b>EP-SEC</b>			
SEC-03.01	Emergency Accountability Log	A	03-28-2000
SEC-04-01	Emergency Dosimeter Log	H	11-04-2003
<b>EP-TSC</b>			
TSC-01.01	Plant Status Summary for SAM Implementation	C	01-28-2003
TSC-01.02	Severe Accident Management Summary and Strategy Recommendation	B	02-06-2002

**EMERGENCY PLAN IMPLEMENTING PROCEDURES**

**INDEX**

**DATE: 12-04-2003**

FORM EIPF	TITLE	REV.	DATE
TSC-01-03	Severe Accident Management - Status	C	07-31-2003
TSC-02-01	TSC and OSF Activation Checklist	P	01-20-2003
TSC-02-02	TSC Ventilation Checklist	J	09-19-2003
TSC-02-03	Emergency Response Data System (ERDS) Link Initiation Checklist	H	01-20-2003
TSC-02-04	TSC Chart Recorder Operation Checklist	E	01-20-2003
TSC-02-05	TSC and OSF De-Activation Checklist	C	01-28-2003
TSC-03-01	Plant System Status	L	06-12-2001
TSC-03-02	Plant Equipment Status	L	06-12-2001
TSC-03-03	Environmental Status Board	J	06-12-2001
TSC-03-04	Radiation Monitors	I	01-08-2002
TSC-04-01	Emergency Modification Request	H	04-29-2003
TSC-04-02	Emergency Physical Change Safety Review	Deleted	05-09-2002
TSC-04-03	Emergency Modification Index	G	04-29-2003
TSC-07-01	Head Venting Calculation	G	06-20-2002
TSC-08A-01	Steam Release Data Sheet (Energy Balance)	H	12-14-2001
TSC-08A-02	Steam Release Calculation Sheet (Energy Balance)	H	09-02-2003
TSC-08A-03	Steam Release Data/Calculation Sheet (Open Valve)	E	12-14-2001
TSC-08A-04	Steam Release Data/Calculation Sheet (STMRLS Program)	D	12-14-2001
TSC-09A-01	Core Exit Thermocouple Data	D	05-16-2002
TSC-09A-02	Fuel Rod Clad Damage Estimate	D	05-16-2002
TSC-09A-03	Fuel Rod Overtemperature Damage Estimate	F	11-04-2003
TSC 9A.4	Core Damage Based on Activity Ratios	Deleted	05-16-2002
TSC-09A-05	Core Damage Assessment (Monitoring Data)	E	05-16-2002
TSC 9A.6	Core Damage Summary	Deleted	05-16-2002
TSC-09A-07	Core Damage Assessment Results	A	05-05-2003

<b>WISCONSIN PUBLIC SERVICE CORP.</b>  <b>Kewaunee Nuclear Power Plant</b>  <i>Emergency Plan Implementing Procedure</i>		No.	EPIP-AD-02	Rev.	AI	
		Title	Emergency Class Determination			
		Date	DEC 4 2003	Page 1 of 21		
Reviewed By			Rich Johnson			
Approved By			Rich Johnson			
Nuclear Safety Related	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	PORC Review Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	SRO Approval Of Temporary Changes Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

## 1.0 Purpose

- 1.1 This procedure provides instruction for determining proper emergency classification listed in order to activate the appropriate level of response from the Kewaunee Nuclear Power Plant (KNPP) emergency response organization and off-site response organization.

## 2.0 General Notes

- 2.1 None

## 3.0 Precautions and Limitations

- 3.1 Plant monitors used to determine whether emergency classification levels are being exceeded should be checked for accuracy prior to declaring an emergency class (e.g., compare against redundant channels, determine if consistent with system status, or verification by sample analysis when required by Chart A(1).
- 3.2 This procedure is not written to facilitate de-escalation. Therefore, any decision to de-escalate must be based on a thorough review of procedures and plant conditions. If appropriate, it is preferable to terminate or enter recovery. However, there may be occasions where it is appropriate to de-escalate.
- 3.3 Once indication is available that an emergency action level has been met, classification must be made as soon as possible and must not exceed 15 minutes. A classification should not be made before an emergency action level has been met. Once a classification has been declared, notification must be initiated and in progress to the State and County agencies within 15 minutes of event classification using "Event Notice," Form EPIPF-AD-07-01. During the initial 15-minute classification assessment, there may be rapidly changing conditions. Classification during this initial period should be based on currently available plant status.

## 4.0 Initial Conditions

- 4.1 This procedure applies during any plant evolution that may result in an emergency declaration.

<b>WISCONSIN PUBLIC SERVICE CORP.</b>  <b>Kewaunee Nuclear Power Plant</b>  <i>Emergency Plan Implementing Procedure</i>	No. EPIP-AD-02	Rev. AI
	Title Emergency Class Determination	
	Date DEC 4 2003	Page 2 of 21

## 5.0 Procedure

- 5.1 Determine if a plant emergency exists during abnormal plant conditions by referring to Table 2-1, Emergency Action Level Charts.
- 5.2 IF a plant emergency exists, THEN perform the required actions of the appropriate emergency procedure listed below:
- 5.2.1 EPIP-AD-03, "KNPP Response to an Unusual Event"
- 5.2.2 EPIP-AD-04, "KNPP Response to Alert or Higher"
- 5.3 As plant conditions change, continue referring to the Emergency Action Level Charts.
- 5.4 Determine if the emergency should be reclassified.
- 5.5 IF the event is reclassified, THEN return to Step 5.2.
- 5.6 IF Final Conditions (Section 6.0) are not met, THEN return to Step 5.3.
- 5.7 IF Final Conditions (Section 6.0) are met, THEN use of this procedure may be suspended.

## 6.0 Final Conditions

- 6.1 Plant Emergency has been Terminated or Recovery actions have begun and the Responsible Director has suspended the use of EPIPs.

## 7.0 References

- 7.1 Kewaunee Nuclear Power Plant Emergency Plan
- 7.2 EPIP-AD-01, Personnel Response to the Plant Emergency Siren
- 7.3 EPIP-AD-03, KNPP Response to an Unusual Event
- 7.4 EPIP-AD-04, KNPP Response to Alert or Higher
- 7.5 COMTRAK 89-001, NRC Inspection Report 88-11, Improve Guidance for Fires Chart G
- 7.6 OEA 87-246, Report OE 2265, Improve Description of Unusual Aircraft Activity Chart P
- 7.7 NRC Letter 07-11-94, Branch Position on Acceptable Deviations to NUREG-0654
- 7.8 OEA 96-083, NRC IN 1997-045 Chart A(2)

<b>WISCONSIN PUBLIC SERVICE CORP.</b>  <b>Kewaunee Nuclear Power Plant</b>  <i>Emergency Plan Implementing Procedure</i>	<b>No.</b>	EPIP-AD-02	<b>Rev.</b>	AI
	<b>Title</b>	Emergency Class Determination		
	<b>Date</b>	DEC 4 2003	<b>Page 3 of 21</b>	

**8.0 Records**

8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

None

8.1.2 Non-QA Records

None

## EMERGENCY ACTION LEVEL CHARTS

The following charts are separated into different abnormal operating conditions which may, depending upon their severity, be classified as an Unusual Event, Alert, Site Emergency, or General Emergency.

	CHART	PAGE
Abnormal Radiological Effluent	A (1)	5
Gaseous Effluent Action Levels	A (2)	6 - 8
Fuel Damage Indication	B	9
Primary Leak to LOCA	C	10
Primary to Secondary Leak	D	11
Loss of Power	E	12
Engineered Safety Feature Anomaly	F	13
Loss of Indication	G	14
DELETED	H	14
Secondary Side Anomaly	I	15
Miscellaneous Abnormal Plant Conditions	J	16
Fire and Fire Protection	K	17
DELETED	L	17
Earthquake	M	18
High Winds or Tornado	N	18
Flood, Low Water, or Seiche	O	19
External Events and Chemical Spills	P	20
Security Contingency	Q	21

**CHART A(1)  
ABNORMAL RADIOLOGICAL EFFLUENT**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
SEE CHART A(2)	Effluent monitors detect levels corresponding to greater than 1 rem/hr whole body or 5 rem/hr thyroid at the site boundary under " <u>actual meteorological</u> " conditions.	GENERAL EMERGENCY
Projected or measured dose rates to be provided by the Radiological Protection Director or Environmental Monitoring Teams.	Projected or measured in the environs dose rates greater than 1 rem/hr whole body or 5 rem/hr thyroid at the site boundary.	GENERAL EMERGENCY
SEE CHART A(2)	Effluent monitors detect levels corresponding to greater than 50 mr/hr for ½ hour <u>OR</u> greater than 500 mr/hr for two minutes (or five times these levels to the thyroid) <u>OR</u> for " <u>adverse meteorology.</u> "	SITE EMERGENCY
Projected or measured dose rates to be provided by the Radiological Protection Director or Environmental Monitoring Teams.	At the site boundary, projected or measured dose rates greater than 50 mr/hr for ½ hours <u>OR</u> greater than 500 mr/hr for two minutes (or five times these levels to the thyroid) or EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.	SITE EMERGENCY
SEE CHART A(2)	Radiological effluents greater than 10 times ODCM instantaneous limits.	ALERT
<ul style="list-style-type: none"> <li>a. Containment R-2 OR R-7 <math>\geq</math> 1,000 times baseline established in the Control Room, <u>OR</u></li> <li>b. Charging Area R-4 <math>\geq</math> 1,000 times baseline established in the Control Room, <u>OR</u></li> <li>c. SFP Area R-5 <math>\geq</math> 1,000 times baseline established in the Control Room, <u>OR</u></li> <li>d. Plant area air sample indicates airborne contamination &gt; 1,000 times the occupational DAC values.</li> </ul>	Radiation levels or airborne contamination which indicate a severe degradation in the control of radioactive materials (e.g., radiation levels suddenly increase by a factor of 1,000).	ALERT
(1) <u>Gaseous Releases</u> : See Chart A(2)	Offsite Dose Calculation Manual limits exceeded.	UNUSUAL EVENT
(2) <u>Liquid Releases</u> : Notification by the Rad-Chem Group of violating ODCM 3.3.1 limits.		

## CHART A(2) GASEOUS EFFLUENT ACTION LEVELS

### 1. AUX BUILDING VENT RELEASES - WITH SIGNIFICANT CORE DAMAGE

Instrument readings assuming a post accident gas release AND Containment High Range Radiation Monitors 42599 (R-40) and 42600 (R-41) reads 1000 R/hr for > 2 minutes within one-half hour of the accident.

**NOTE:** Use adverse meteorology conditions (ADV MET) only when, 10m and 60m wind speed < 5mph AND Delta-T > +2.4 degrees F or Sigma Theta is < 3.01 degrees. All other cases are average meteorology (AVG MET).

**NOTE:** R-13 and R-14 are expected to be off scale high during all events on this page.

SV & SFP FANS	AUX BLDG SPING MONITORS				AUX BLDG STACK MONITORS				EMERG. CLASS.
	MID RANGE CPM (01-07) PPCS PT G9086G		HIGH RANGE CPM (01-09) PPCS PT G9088G		R-35 MR/HR		R-36 R/HR		
TOTAL NUMBER RUNNING	AVG MET	ADV MET	AVG MET	ADV MET	AVG MET	ADV MET	AVG MET	ADV MET	
1	**	1.1E+4	6.5E+1	*	**	7.9E+2	1.27E+2	7.9E-1	GENERAL EMERG.
2	8.8E+5	5.5E+3	3.25E+1	*	**	3.9E+2	6.35E+1	4.0E-1	
3	5.9E+5	3.7E+3	2.16E+1	*	**	2.6E+2	4.2E+1	2.6E-1	
4	4.4E+5	2.7E+3	1.62E+1	*	**	2.0E+2	3.175E+1	2.0E-1	

1	8.8E+4	5.5E+2	3.0E+0	*	6.3E+3	3.9E+1	6.3E+0	*	SITE EMERG.
2	4.4E+4	2.7E+2	1.5E+0	*	3.1E+3	1.9E+1	3.1E+0	*	
3	2.9E+4	1.8E+2	1.0E+0	*	2.1E+3	1.3E+1	2.1E+0	*	
4	2.2E+4	1.3E+2	*	*	1.5E+3	9.5E+0	1.5E+0	*	

1	1.0E+3	6.2E+0	*	*	7.0E+1	*	*	*	ALERT
2	5.0E+2	3.1E+0	*	*	3.5E+1	*	*	*	
3	3.3E+2	2.0E+0	*	*	2.3E+1	*	*	*	
4	2.5E+2	1.5E+0	*	*	1.75E+1	*	*	*	

1	1.0E+2	6.2E-1	*	*	7.0E+0	*	*	*	UNUSUAL EVENT
2	5.0E+1	3.1E-1	*	*	3.5E+0	*	*	*	
3	3.3E+1	2.0E-1	*	*	2.3E+0	*	*	*	
4	2.5E+1	1.5E-1	*	*	1.7E+0	*	*	*	

\* Offscale Low

\*\* Offscale High (Confirmation Only)

## CHART A(2) GASEOUS EFFLUENT ACTION LEVELS continued

### 2. AUX BUILDING VENT RELEASES WITHOUT CORE DAMAGE

**NOTE:** Use adverse meteorology conditions (ADV MET) only when, 10m and 60m wind speed < 5mph AND Delta-T > +2.4 degrees F or Sigma Theta is < 3.01 degrees. All other cases are average meteorology (AVG MET).

**NOTE:** R-13 and R-14 are expected to be off scale high during all events on this page.

SV & SFP FANS	AUX BLDG SPING MONITORS				EMERG. CLASS.
	MID RANGE CPM (01-07) PPCS PT G9086G		HIGH RANGE CPM (01-09) PPCS PT G9088G		
	AVG MET	ADV MET	AVG MET	ADV MET	
1	**	9.4E+4	1.6E+4	1.0E+2	GENERAL EMERG.
2	**	4.7E+4	8.0E+3	5.0E+1	
3	**	3.1E+4	5.3E+3	3.3E+1	
4	**	2.3E+4	4.0E+3	2.5+1	

1	7.5E+5	4.6E+3	8.0E+2	5.0E+0	SITE EMERG.
2	3.7E+5	2.3E+3	4.0E+2	2.5E+0	
3	2.5E+5	1.5+3	2.6E+2	1.6E+0	
4	1.8E+5	1.1E+3	2.0E+2	1.2E+0	

SV & SFP FANS TOTAL NUMBER RUNNING	AUX BLDG SPING MONITORS		EMERG. CLASS.
	LOW RANGE Ci/cc (01-05) PPCS PT G9084G	MID RANGE CPM (01-07) PPCS PT 9086G	
1	**	8.6E+3	ALERT
2	**	4.3E+3	
3	**	2.8E+3	
4	**	2.1E+3	

1	6.3E-2	8.6E+2	UNUSUAL EVENT
2	3.1E-2	4.3E+2	
3	2.1E-2	2.8E+2	
4	1.5E-2	2.1E+2	

\*\* Offscale High (Confirmation Only)

**CHART A(2)**  
**GASEOUS EFFLUENT ACTION LEVELS continued**

**3. STEAM LINE RELEASE WITH SIGNIFICANT CORE DAMAGE**

Instrument readings assuming radioactive steam is releasing at a total of 1.4E+5 pounds per hour to the atmosphere AND Containment High Range Radiation Monitor 42599 (R-40) or 42600 (R-41) reads 1000 R/hr for > 2 minutes within one-half hour of the accident.

R-15 (cpm)	"A" Steam Line Monitors		"B" Steam Line Monitors		Emergency Classification
	R-31 (mR/hr)	R-32 (R/hr)	R-33 (mR/hr)	R-34 (R/hr)	
**	1.3E+3	1.3E+0	1.3E+03	1.3E+0	General Emergency
**	6.0E+1	--	6.0E+1	--	Site Emergency
**	1.5E-1	--	1.5E-1	--	Alert
2.0E+05	--	--	--	--	Unusual Event

\*\* Offscale High (Confirmation Only)

**4. SHIELD BUILDING STACK RELEASE**

Instrument readings assuming SBV System is operating in the recirculation mode.

Reactor Bldg. Discharge Vent SPING		Emergency Classification
PPCS PT G9077G (02-07) Mid Range (cpm)	PPCS PT G9079G (02-09) High Range (cpm)	
1.3E+05	1.5E+2	General Emergency
6.7E+03	7.0E+0	Site Emergency
1.5E+1	--	Alert
--	--	Unusual Event

## CHART B FUEL DAMAGE INDICATION

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) CET > 1,200 Degrees for greater than 15 minutes, <u>OR</u> (2) R40 or R41 > 1,000 R/hr, <u>OR</u> (3) SACRG-1, Severe Accident Control Room Guideline Initial Response has been implemented.	Plant conditions exist that make the release of large amounts of radioactivity in a short time period possible.	<b>GENERAL EMERGENCY</b>
(Major damage is more than one spent fuel element damaged.)  (1) <u>Fuel Handling accident in Containment</u> a. Alarm on R-11 <u>OR</u> R-12, <u>AND</u> b. Dropped spent fuel assembly, <u>OR</u> c. Report of a large object dropped in Rx core, <u>OR</u>  (2) <u>Fuel Handling Accident in Auxiliary Bldg.</u> a. Alarm on R-13 or R-14, <u>AND</u> b. A large object dropped in spent fuel pool, <u>OR</u> c. A dropped spent fuel assembly, <u>OR</u> d. A loss of water level below spent fuel.	Major damage to spent fuel in containment or auxiliary building.	<b>SITE EMERGENCY</b>
(1) R-9 indication is offscale high, <u>AND</u> (2) Laboratory analysis confirms RCS activity levels comparable to USAR Appendix D, Table D.4-1.	<u>Severe loss of fuel cladding</u>  a. Very high coolant activity sample  b. Failed fuel monitor indicates greater than 1% fuel failures within 30 minutes or 5% total fuel failures.	<b>ALERT</b>
(1) <u>Fuel Handling Accident in Containment</u> a. A confirming report, <u>AND</u> b. Alarm on R-11 <u>OR</u> R-12, <u>OR</u>  (2) <u>Fuel Handling Accident in Auxiliary Bldg.</u> a. A confirming report, <u>AND</u> b. Alarm on R-13 <u>OR</u> R-14.	Fuel damage accident with release of radioactivity to containment or auxiliary building.	<b>ALERT</b>
(1) With RCS Temperature > 500°F, a. > 1.0 $\mu\text{Ci}/\text{gram}$ DOSE Equivalent I-131 for 48 hours, <u>OR</u> b. Exceeding 60 $\mu\text{Ci}/\text{gram}$ for Dose Equivalent I-131, <u>OR</u> c. > 91/ $\bar{E}$ $\mu\text{Ci}/\text{cc}$ As determined by SP-37-065 (from T.S. 3.1.c)	High reactor coolant activity sample.	<b>UNUSUAL EVENT</b>
(1) R-9 is greater than 5.0 R/hr, <u>AND</u> (2) Verified by RCS chemistry sample analysis.	Failed fuel monitor indicates greater than 0.1% equivalent fuel failures within 30 minutes.	<b>UNUSUAL EVENT</b>

## CHART C PRIMARY LEAK TO LOCA

**NOTE:** This chart does not apply when leakage from the Reactor Coolant System is caused by a Steam Generator tube rupture.

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
<p>(1) <u>LOCA</u> is verified per IPEOP E-1, "Loss of Reactor or Secondary Coolant," <u>AND</u></p> <p>(2) ECCS failure is indicated by:</p> <p style="margin-left: 20px;">a. SI and RHR pumps not running, <u>OR</u></p> <p style="margin-left: 20px;">b. Verification of no flow to the reactor vessel, <u>OR</u></p> <p style="margin-left: 20px;">c. Core exit thermocouples indicate greater than 1,200°F, <u>AND</u></p> <p>(3) Failure or potential failure of containment is indicated by:</p> <p style="margin-left: 20px;">a. Physical evidence of containment structure damage, <u>OR</u></p> <p style="margin-left: 20px;">b. Containment Pressure is &gt; 23 PSIG and loss of all containment fan coil units and both trains of ICS, <u>OR</u></p> <p style="margin-left: 20px;">c. Containment hydrogen monitor indicates <math>\geq 10\%</math> hydrogen concentration, <u>OR</u></p> <p style="margin-left: 20px;">d. Containment pressure exceeds 46 psig.</p>	<p>(1) Loss of coolant accident, <u>AND</u></p> <p>(2) Initial or subsequent failure of ECCS, <u>AND</u></p> <p>(3) Containment failure or potential failure exists (loss of 2 of 3 fission product barriers with a potential loss of 3rd barrier).</p>	GENERAL EMERGENCY
<p>(1) SI System is activated and RCS leakage exceeds charging system capacity as verified by Control Room indications or IPEOPs.</p>	Reactor Coolant System leakage greater than make-up pump capacity.	SITE EMERGENCY
<p>(1) Charging flow versus letdown flow indicates an unisolable RCS leak &gt; 50 gpm.</p>	Reactor Coolant System leak rate greater than 50 GPM.	ALERT
<p>(1) Initiation of reactor shutdown <u>required</u> by Technical Specification, Section T.S. 3.1.d. Indicated leakage may be determined using Reactor Coolant System mass balance calculations performed by SP-36-082.</p>	Exceeding Reactor Coolant System leak rate, Technical Specifications, requiring reactor shutdown.	UNUSUAL EVENT

**CHART D  
PRIMARY TO SECONDARY LEAK**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) Entry into IPEOP E-3, "Steam Generator Tube Rupture," is expected or has occurred, <u>AND</u> (2) Primary-to-secondary flow > 800 GPM OR RCS pressure decreasing uncontrollably, <u>AND</u> (3) All three transformers Main Aux., Reserve Aux., and Tertiary Aux., are de-energized.	Rapid failure of steam generator tubes with loss of off-site power.	SITE EMERGENCY
(1) Entry into IPEOP E-3, "Steam Generator Tube Rupture," is expected or has occurred, <u>AND</u> (2) Primary-to-secondary leak rate > 400 GPM, <u>AND</u> (3) All three transformers: Main Aux., Reserve Aux., and Tertiary Aux., are de-energized.	Rapid gross failure of one steam generator tube with loss of off-site power.	ALERT
(1) Entry into IPEOP E-3, "Steam Generator Tube Rupture," is expected or has occurred, <u>AND</u> (2) Primary-to-secondary leak rate greater than 800 GPM indicated by SI flow <u>OR</u> RWST level change.	Rapid failure of multiple steam generator tubes.	ALERT
(1) Primary-to-secondary leakage > 150 gallons per day for more than 4 hours (TS 3.1.d.2).  (Do not delay declaration if leakage suddenly increases above 150 gallons per day <u>AND</u> plant shutdown actions are initiated.)	Exceeding Primary-to-Secondary leak rate Technical Specification.	UNUSUAL EVENT

## CHART E LOSS OF POWER

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) RCS is $\geq 350^{\circ}\text{F}$ , <u>AND</u> (2) Buses 1 through 6 are de-energized including the D/G supplies to buses 5 and 6, <u>AND</u> (3) Loss of the turbine driven AFW pump, <u>AND</u> (4) Conditions exist for greater than 2 hours.	Failure of off-site and on-site AC power, <u>AND</u>  Total loss of auxiliary feedwater makeup capability for greater than 2 hours. (Loss of power plus loss of all AFW would lead to clad failure and potential containment failure.)	GENERAL EMERGENCY
(1) Buses 1 through 6 are de-energized including the D/G supplies to buses 5 and 6 for longer than 15 minutes. (Does not apply when core is unloaded or cavity is flooded with internals removed.)	Loss of off-site power, <u>AND</u>  Loss of on-site AC power (for more than 15 minutes).	SITE EMERGENCY
(1) Low voltage lockout <u>OR</u> de-energized condition on all safeguards DC distribution cabinets for greater than 15 minutes. a. BRA 102 and BRB 102, <u>OR</u> b. BRA 104 and BRB 104, <u>OR</u> c. BRA 102 and BRB 104, <u>OR</u> d. BRB 102 and BRA 104 (Does not apply when core is unloaded or cavity is flooded with internals removed.)	Loss of all vital on-site DC power (for more than 15 minutes).	SITE EMERGENCY
(1) Low voltage lockout <u>OR</u> de-energized condition on all safeguards DC distribution cabinets for less than 15 minutes. a. BRA 102 and BRB 102, <u>OR</u> b. BRA 104 and BRB 104, <u>OR</u> c. BRA 102 and BRB 104, <u>OR</u> d. BRB 102 and BRA 104 (Does not apply when core is unloaded or cavity is flooded with internals removed.)	Loss of all vital on-site DC power (for less than 15 minutes).	ALERT
(1) Buses 1 through 6 are de-energized, <u>AND</u> (2) The D/G supplies to buses 5 and 6 do not respond as designed. AC power is restored to bus 5 or 6 within 15 minutes. (Does not apply when core is unloaded or cavity is flooded with internals removed.)	Loss of off-site power, <u>AND</u>  Loss of on-site AC power (for less than 15 minutes.)	ALERT
(1) With the Reactor Coolant System above cold shutdown condition: a. All three transformers: Main Aux., Reserve Aux., and Tertiary are de-energized, <u>OR</u> b. Both D/Gs unavailable (unable to supply bus 5 or 6 by any means).	Loss of off-site power, <u>OR</u>  Loss of on-site power capability.	UNUSUAL EVENT
(1) Core is unloaded or reactor cavity is flooded with internals removed, <u>AND</u> (2) Buses 1 through 6 are de-energized including the D/G supplies to buses 5 and 6 for longer than 15 minutes.	Loss of off-site power, <u>AND</u>  Loss of on-site AC power (for more than 15 minutes).	UNUSUAL EVENT

**CHART F**  
**ENGINEERED SAFETY FEATURE ANOMALY**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
<p>(1) RCS &gt; 200°F with a loss of cooling capability or inventory control:</p> <ul style="list-style-type: none"> <li>a. Sustained loss of negative reactivity control, <u>OR</u></li> <li>b. Steam dump, S/G safeties, and power operating reliefs not operable (&gt; 350°F), <u>OR</u></li> <li>c. Inability to feed S/Gs (No AFW or Main Feedwater/Condensate Flow), <u>OR</u></li> <li>d. Sustained loss of RCS inventory control, <u>OR</u></li> <li>e. Sustained loss of both trains of RHR, <u>AND</u> the inability to sustain either natural <u>OR</u> forced circulation with the steam generators (<math>\leq 350^{\circ}\text{F}</math>).</li> </ul> <p>(A Site Emergency should be declared upon the initiation of bleed and feed per FR H.1, "Response to Loss of Secondary Heat Sink.")</p>	<p>Complete loss of any function needed when RCS &gt; 200°F.</p>	<p style="text-align: center;">SITE EMERGENCY</p>
<p>(Apply this criteria when the RCS is <math>\leq 200^{\circ}\text{F}</math>.)</p> <p>(1) Loss of both trains of RHR</p> <p>(Does not apply when core is unloaded <u>OR</u> cavity is flooded with internals removed.)</p>	<p>Complete loss of any function needed when RCS <math>\leq 200^{\circ}\text{F}</math>.</p>	<p style="text-align: center;">ALERT</p>
<p>(1) Failure of both Rx trip breakers to open upon receipt of a valid signal. Applies even if IPEOP FR S.1 is not entered.</p>	<p>Failure of the Reactor Protection System to initiate and complete a reactor trip which brings the reactor subcritical.</p>	<p style="text-align: center;">ALERT</p>
<p>(1) Loss of ESF function, required support function or required Tech Spec instruments <u>OR</u> Exceeding Tech Spec Safety Limits, <u>AND</u></p> <p>(2) upon discovery, inability or failure to take required shutdown or mode change actions within the required time.</p> <p>(Total loss of AFW system when required (FR-H.1 implemented) should be declared a UE regardless of Tech Spec action compliance.)</p>	<p>Inability to reach required shutdown within Tech Spec limits</p>	<p style="text-align: center;">UNUSUAL EVENT</p>

**CHART G  
LOSS OF INDICATION**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) Total loss of Annunciator System computer alarms, and sequence of events recorder for greater than 15 minutes, <u>AND</u> (2) Uncontrolled plant transient in progress or initiated during the loss.	Most or all alarms (annunciators) lost and a plant transient initiated or in progress.	SITE EMERGENCY
(1) Total loss of Annunciator System, computer alarms, and sequence of events recorder. (Not applicable when plant is at or below cold shutdown.)	Most or all alarms (annunciators) lost.	ALERT
(1) Significant loss of ESF or Rx Protection instrumentation. An Unusual Event should <u>NOT</u> be declared for a non-emergency Tech Spec backdown, when the affected parameter remains monitorable.  (Not applicable when plant is at or below cold shutdown.)	Indications or alarms on process or effluent parameters not functional in control room to an extent requiring plant shutdown or other significant loss of assessment capability.	UNUSUAL EVENT

**CHART H  
(DELETED)**

**CHART I  
SECONDARY SIDE ANOMALY**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
<p>(1) Main steam line break that results in a SI actuation, <u>AND</u></p> <p>(2) a. R-15 or R-19 reads offscale high with confirmation by chemistry analysis, <u>OR</u></p> <p>b. Primary-to-secondary leakage &gt; 50 gpm, <u>AND</u></p> <p>(3) a. R-9 or CNTMT high range rad monitors (42599, 42600) indicate &gt; 10 R/hr, <u>OR</u></p> <p>b. CNTMT hydrogen monitor indicates &gt; 1% hydrogen concentration.</p>	<p>Steam line break, <u>AND</u></p> <p>Primary-to-secondary leak &gt; 50 GPM, <u>AND</u></p> <p>Indication of Fuel Damage.</p>	<p style="text-align: center;">SITE EMERGENCY</p>
<p>(1) Main steam line break that results in a SI actuation, <u>AND</u></p> <p>a. R-15 <u>OR</u> R-19 reads a factor of 1000 above normal, <u>OR</u></p> <p>b. Primary-to-secondary leakage &gt; 10 gpm.</p>	<p>Steam line break with significant (greater than 10 GPM) primary-to-secondary leakage.</p> <p>(Applies even if events occur in opposite steam generators.)</p>	<p style="text-align: center;">ALERT</p>
<p>(1) Turbine trip and observation of penetration of casing.</p>	<p>Turbine rotating component failure causing rapid plant shutdown.</p>	<p style="text-align: center;">UNUSUAL EVENT</p>
<p>(1) The uncontrolled depressurization of the secondary system that results in an SI actuation. (Unusual Event should be declared even if transient was mitigated by closure of the Main Steam Isolation Valves.</p>	<p>Rapid depressurization of the secondary side.</p>	<p style="text-align: center;">UNUSUAL EVENT</p>

**CHART J**  
**MISCELLANEOUS ABNORMAL PLANT CONDITIONS**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
<p>(1) Containment boundary failure or potential failure:</p> <p>a. Containment pressure &gt; 46 psig, <u>OR</u></p> <p>b. Loss of all containment fan coil units and both trains of ICS, <u>OR</u></p> <p>c. Containment hydrogen monitor <math>\geq</math> 10% hydrogen concentration, <u>AND</u></p> <p>(2) Loss of core cooling capability:</p> <p>a. Loss of SI and RHR flow, <u>AND</u></p> <p>(3) Failure of shutdown system when required:</p> <p>a. Entry into IPEOP FR-S.1, "Response to Nuclear Power Generation/ATWS," <u>OR</u></p> <p>b. Loss of AFW for greater than 30 minutes with loss of main FW and condensate.</p>	<p>Other plant conditions that make a release of large amounts of radioactivity in a short time period possible; e.g., any core melt situation.</p> <p>Examples:</p> <ul style="list-style-type: none"> <li>- Failure of main FW and AFW systems for greater than 30 minutes without Safety Injection and Residual Heat Removal flow. Plus a containment failure is imminent.</li> <li>- Transient requiring the operation of shutdown systems with a failure of these shutdown systems. In addition, failure of SI and RHR and containment failure is imminent.</li> </ul>	<p style="text-align: center;"><b>GENERAL EMERGENCY</b></p>
<p>(1) Evacuation of Control Room (E-O-06 event).</p>	<p>Evacuation of control room and control of shutdown systems required from local stations.</p>	<p style="text-align: center;"><b>SITE EMERGENCY</b></p>
<p>(1) Conditions that warrant increased awareness on part of the plant staff will be evaluated by the Plant Manager or his designate. This is to determine if conditions are applicable for activating the E.P.</p> <p><u>Example:</u> Loss of AFW system when required, validated upon implementation of FR H.1 "Response to Loss of Secondary Heat Sink."</p>	<p>Other plant conditions that warrant increased awareness on the part of plant staff or state and/or local authorities.</p>	<p style="text-align: center;"><b>UNUSUAL EVENT</b></p>

**CHART K  
FIRE AND FIRE PROTECTION**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) A fire within the Auxiliary Building, Technical Support Center, safeguards alley, D/G rooms, Battery Rooms, or screenhouse that defeats redundant safety trains of ESF equipment causing the required ESF system to be inoperable.	A fire compromising the functions of safety systems.	SITE EMERGENCY
(1) A fire within the Auxiliary Building, Technical Support Center, safeguards alley, D/G rooms, Battery Rooms, or screenhouse that lasts more than 10 minutes <u>OR</u> causes a single train of required ESF equipment to be inoperable.	A fire potentially affecting safety systems.	ALERT
(1) Any fire within the protected area lasting more than 10 minutes.	A fire within the plant lasting more than 10 minutes.	UNUSUAL EVENT

**CHART L**

(DELETED)

## CHART M EARTHQUAKE

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) Activation of seismic recorder with TRIGGER, OBE, and DBE lights lit in relay room on RR159, <u>AND</u> (2) Verification of a seismic event by physical experience or from U. of W. - Milwaukee Seismic Center.	An earthquake greater than Design Basis Earthquake (DBE).	SITE EMERGENCY
(1) Activation of seismic recorder with TRIGGER, and OBE lights lit in relay room on RR159, <u>AND</u> (2) Verification of a seismic event by physical experience or from U. of W. - Milwaukee Seismic Center.	An earthquake greater than Operational Basis Earthquake (OBE).	ALERT
(1) Activation of seismic recorder with TRIGGER light lit in relay room on RR159, <u>OR</u> (2) An earthquake felt in the Plant*. (*Should be confirmed by evidence of physical damage or verification from University of Wisconsin Seismic Center.)	An earthquake felt in plant or detected on station seismic instrumentation.	UNUSUAL EVENT

- NOTE:**
- 1.) Telephone numbers for U of W - Milwaukee Seismic Center are in the KPB Emergency Telephone Directory, ETD 02.
  - 2.) The Point Beach Seismic Monitor may be used if the KNPP Monitor is out of service.

## CHART N HIGH WINDS OR TORNADO

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) Winds in excess of 100 mph for greater than 1 hour, <u>AND</u> (2) Plant above cold shutdown condition.	Sustained winds in excess of design levels with plant not in cold shutdown.	SITE EMERGENCY
(1) A tornado which strikes the facility, <u>AND</u> (2) Causes damage to render a single train of required ESF equipment to be inoperable.	Any tornado striking facility.	ALERT
(1) A tornado observed on-site causing significant damage to the facility.	Any tornado on-site.	UNUSUAL EVENT

## CHART O FLOOD, LOW WATER, OR SEICHE

KNPP INDICATION				EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
<b>FOREBAY LEVEL Indicated for &gt; 15 minutes</b>				Flood, low water, or seiche near design levels.	<b>ALERT</b>
0 PUMPS	1 PUMP	2 PUMPS	CORRESPOND TO LAKE LEVEL		
NOTE 3	NOTE 1	≥ 94% *	≥ 588 ft.		
< 50% *	NOTE 5	NOTE 5	< 568.5 ft.		
OR Deep water Wave ≥ 22.5 ft.					
<b>FOREBAY LEVEL Indicated for &gt; 15 minutes</b>				50-year flood, low water level or seiche	<b>UNUSUAL EVENT</b>
0 PUMPS	1 PUMP	2 PUMPS	CORRESPOND TO LAKE LEVEL		
NOTE 2	≥ 98% *	≥ 88% *	≥ 586 ft.		
< 53.1% *	< 46.9% * NOTE 4	NOTE 5	< 569.5 ft.		
OR Deep water wave ≥ 18 ft. (as confirmed by the U.S. Coast Guard, Two Rivers)					

**NOTE 1:** Above the bottom of bar No. 1 painted on the south wall of the forebay.

**NOTE 2:** Above the bottom of bar No. 2 painted on the south wall of the forebay.

**NOTE 3:** Above the bottom of bar No. 3 painted on the south wall of the forebay.

**NOTE 4:** Applies to an uncontrollable decrease (cannot be restored by operator action. If the water box inlet valves are throttled, use other means to determine lake level per E-CW-04, "Loss of Circulating Water.")

**NOTE 5:** The corresponding forebay level for the associated lake level is below the circulating water pump trip setpoint of 42%. Therefore, this criterion will not be reached.

\* Computer point for forebay level is L09075A and should be used because of its greater accuracy. Plant elevations and lake elevations are referenced to International Great Lakes Datum (IGLD), 1955

(IGLD 1955 = IGLD 1985 - 0.7 FEET)

**CHART P**  
**EXTERNAL EVENTS AND CHEMICAL SPILLS**

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) An aircraft crash into plant buildings which causes a complete loss of an ESF function.	Aircraft crash affecting vital structures by impact <u>OR</u> fire.	SITE EMERGENCY
(1) A missile strikes plant buildings, <u>OR</u> (2) An explosion occurs within a plant building, which causes a complete loss of an ESF function.	Severe damage to safe shutdown equipment from missiles or explosion.	SITE EMERGENCY
(1) Release of flammable or toxic gas, which causes or is likely to cause evacuation of stations necessary to control shutdown systems, <u>AND</u> (2) Portable monitors indicate toxic or explosive concentrations of the gas at life threatening levels in those vital areas.	Uncontrolled release of toxic or flammable gas is confirmed within vital area.	SITE EMERGENCY
(1) An aircraft crashes into plant buildings <u>AND</u> causes a single train of required ESF equipment to be inoperable.	Aircraft crash on facility.	ALERT
(1) A missile strikes the facility <u>AND</u> causes a single train of required ESF equipment to be inoperable.	Missile impact from whatever source on facility.	ALERT
(1) Release of toxic or flammable gas at life threatening levels enters the protected area <u>AND</u> impacts safe operation of the plant.	Uncontrolled release of toxic or flammable gas is confirmed within the protected area.	ALERT
(1) Self-explanatory.	Known explosion damage to facility affecting plant operation.	ALERT
(1) An aircraft crash within the site boundary, <u>OR</u> (2) Unusual aircraft activity such as erratic flying, dropped unidentified object, or other hostile acts, which threaten the plant or plant personnel. (Any other persistent aircraft activity for which identification attempts through the FAA or other agencies have been unsuccessful.)	Aircraft crash on-site or unusual aircraft activity over facility.	UNUSUAL EVENT
(1) Release of toxic or flammable gas on site, <u>AND</u> (2) Portable monitors indicate toxic or explosive concentrations at life threatening levels of the gas near the spill area.	Uncontrolled release of toxic or flammable gas is confirmed on site.	UNUSUAL EVENT

## CHART Q SECURITY CONTINGENCY

KNPP INDICATION	EMERGENCY CLASSIFICATION CRITERIA	CLASSIFICATION
(1) Physical attack on the plant that has resulted in unauthorized personnel occupying the control room or any other vital areas as described in the Security Plan.	Loss of physical control of the plant.	GENERAL EMERGENCY
(1) Physical attack on the plant involving imminent occupancy of the control room, auxiliary shutdown panels, or other vital areas as defined by the Security Plan.	Imminent loss of physical control of the plant.	SITE EMERGENCY
(1) Security safeguards contingency event that results in a hostile force entering the protected area of the plant, but not gaining control over shutdown capability or of any vital areas as defined in the Security Plan, <u>OR</u>  (2) Security safeguards contingency event that results in a site specific HI level CREDIBLE threat as defined in the Security Plan.	Ongoing security compromise.	ALERT
(1) Security safeguards contingency event that results in a site specific LO level CREDIBLE threat as defined in the Security Plan, <u>OR</u>  (2) Security safeguards contingency event that results in a Bomb threat accompanied by interception of bomb materials, <u>OR</u>  (3) Security safeguards contingency event that results in an attempted entry into the protected area of the plant by a hostile force, <u>OR</u>  (4) Security safeguards contingency event that results in undetonated bomb found within the protected area.	Security threat or attempted entry or attempted sabotage.	UNUSUAL EVENT

NOTE: Security staff will NOT act as notifier during security events. Utilize Control Room staff for notifications.