UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

SEP 15 1995

MEETING SUMMARY

Licensees:
Arizona Public Service Company
Southern California Edison Company
Pacific Gas and Electric
Washington Public Power Supply System
Houston Power and Light
Texas Utilities
Omaha Public Power District
Nebraska Public Power District
Wolf Creek Nuclear Operating Corporation
Entergy Operations- Arkansas Nuclear One
Entergy Operations- Grand Gulf
Entergy Operations- River Bend
Entergy Operations- Waterford

Facility:
Palo Verde Nuclear Generating Station, Units 1, 2, and 3
San Onofre Nuclear Generating Station, Units 2 and 3
Diablo Canyon Power Plant, Units 1 and 2
Washington Nuclear Power-2
South Texas Project, Units 1 and 2
Comanche Peak Steam Electric Station, Units 1 and 2
Fort Calhoun Station
Cooper Nuclear Station
Wolf Creek Generating Station
Arkansas Nuclear One, Units 1 and 2
Grand Gulf Nuclear Station
River Bend Station
Waterford Steam Electric Station, Unit 3

Dockets:
50-528/-529/-530/-361/-362/-275/-323-/-397-/-498/
-499/-445/-446/-285/-298/-482/-313/-368/-416/-458/-382

SUBJECT: MEETING ON PILOT EXAMINATION DEVELOPMENT PROGRAM

On September 7, 1995, the Nuclear Regulatory Commission (NRC) hosted a meeting in Arlington, Texas with representatives of the nuclear power plants licensed in NRC's Region IV. This was a working level meeting between utility and NRC headquarters and regional representatives to discuss questions concerning the implementation of the pilot examination development program. We appreciate your staff's attendance and contributions.

This letter transmits copies of the attendance list, agenda, and presentation handouts used during the meeting. It should be emphasized that the Agency is committed to improving the efficiency and effectiveness of the operator licensing process. The lessons-to-be-learned from this pilot program will be essential to this goal.

Memo 4

If you or your staff have any questions, please contact the Chief, Operations Branch, at (817)860-8159 voice or (817)860-8212 facsimile.

Sincerely,

Thomas P. Gwynn, Director
Division of Reactor Safety

Attachments:
1. Attendance List
2. Meeting Agenda and Handouts

cc:
Entergy Operations, Inc.
ATTN: J. W. Yelverton, Vice President
Operations, Arkansas Nuclear One
1448 S.R. 333
Russellville, Arkansas 72801-0967

Entergy Operations, Inc.
ATTN: Harry W. Keiser, Executive
Vice President & Chief Operating Officer
P.O. Box 31995
Jackson, Mississippi 39286-1995

Entergy Operations, Inc.
ATTN: Jerrold G. Dewease, Vice President
Operations Support
P.O. Box 31995
Jackson, Mississippi 39286

Wise, Carter, Child & Caraway
ATTN: Robert B. McGehee, Esq.
P.O. Box 651
Jackson, Mississippi 39205

County Judge of Pope County
Pope County Courthouse
Russellville, Arkansas 72801

Winston & Strawn
ATTN: Nicholas S. Reynolds, Esq.
1400 L Street, N.W.
Washington, D.C. 20005-3502

Arkansas Department of Health
ATTN: Ms. Greta Dicus, Director
Division of Radiation Control and
Emergency Management
4815 West Markham Street
Little Rock, Arkansas 72201-3867

B&W Nuclear Technologies
ATTN: Robert B. Borsum
Licensing Representative
1700 Rockville Pike, Suite 525
Rockville, Maryland 20852

Nebraska Public Power District
ATTN: Guy R. Horn, Vice President - Nuclear
1414 15th Street
Columbus, Nebraska 68601

Nebraska Public Power District
ATTN: John R. McPhail, General Counsel
P.O. Box 499
Columbus, Nebraska 68602-0499

Nebraska Public Power District
ATTN: John Mueller, Site Manager
P.O. Box 98
Brownville, Nebraska 68321

Nebraska Public Power District
ATTN: Robert C. Godley, Nuclear
Licensing & Safety Manager
P.O. Box 98
Brownville, Nebraska 68321

Midwest Power
ATTN: James C. Parker, Sr. Engineer
907 Walnut Street
P.O. Box 657
Des Moines, Iowa 50303

Lincoln Electric System
ATTN: Mr. Ron Stoddard
11th and O Streets
Lincoln, Nebraska 68508

Nebraska Department of Environmental
Quality
ATTN: Randolph Wood, Director
P.O. Box 98922
Lincoln, Nebraska 68509-8922

Nemaha County Board of Commissioners
ATTN: Larry Bohlken, Chairman
Nemaha County Courthouse
1824 N Street
Auburn, Nebraska 68305

Nebraska Department of Health
ATTN: Cheryl Rogers, LLRW Program Manager
Environmental Protection Section
301 Centennial Mall, South
P.O. Box 95007
Lincoln, Nebraska 68509-5007

Nebraska Department of Health
ATTN: Dr. Mark B. Horton, M.S.P.H.
Director
P.O. Box 950070
Lincoln, Nebraska 68509-5007

Department of Natural Resources
ATTN: R. A. Kucera, Department Director
of Intergovernmental Cooperation
P.O. Box 176
Jefferson City, Missouri 65102

Kansas Radiation Control Program Director

TU Electric
ATTN: C. L. Terry, Group Vice President
Nuclear Production
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, Texas 75201-3411

TU Electric
ATTN: Roger D. Walker, Manager of
Regulatory Affairs for Nuclear
Engineering Organization
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, Texas 75201-3411

Juanita Ellis
President - CASE
1426 South Polk Street
Dallas, Texas 75224

TU Electric
Bethesda Licensing
3 Metro Center, Suite 610
Bethesda, Maryland 20814

Morgan, Lewis & Bockius
ATTN: George L. Edgar, Esq.
1800 M. Street, NW
Washington, D.C. 20036

Texas Department of Licensing & Regulation
ATTN: G. R. Bynog, Program Manager/
Chief Inspector
Boiler Division
P.O. Box 12157, Capitol Station
Austin, Texas 78711

Honorable Dale McPherson
County Judge
P.O. Box 851
Glen Rose, Texas 76043

Texas Radiation Control Program Director
1100 West 49th Street
Austin, Texas 78756

Office of the Governor
ATTN: Susan Rieff, Director
Environmental Policy
P.O. Box 12428
Austin, Texas 78711

Pacific Gas and Electric Company
Nuclear Power Generation, B14A
ATTN: Gregory M. Rueger, Senior Vice
President and General Manager
Nuclear Power Generation Bus. Unit
77 Beale Street, Room 1451
P.O. Box 770000
San Francisco, California 94177

Sierra Club California
ATTN: Dr. Richard Ferguson
Energy Chair
1100 11th Street, Suite 311
Sacramento, California 95814

San Luis Obispo
Mothers for Peace
ATTN: Ms. Nancy Culver
P.O. Box 164
Pismo Beach, California 93448

Ms. Jacquelyn C. Wheeler
P.O. Box 164
Pismo Beach, California 93448

The County Telegram Tribune
ATTN: Managing Editor
1321 Johnson Avenue
P.O. Box 112
San Luis Obispo, California 93406

San Luis Obispo County Board of
Supervisors
ATTN: Chairman
Room 370
County Government Center
San Luis Obispo, California 93408

California Public Utilities Commission
ATTN: Mr. Truman Burns\Mr. Robert Kinosian
505 Van Ness, Rm. 4102
San Francisco, California 94102

Diablo Canyon Independent Safety Committee
Attn: Robert R. Wellington, Esq.
Legal Counsel
857 Cass Street, Suite D
Monterey, California 93940

Radiologic Health Branch
State Department of Health Services
ATTN: Mr. Steve Hsu
P.O. Box 942732
Sacramento, California 94234

State of California
ATTN: Mr. Peter H. Kaufman
Deputy Attorney General
110 West A Street, Suite 700
San Diego, California 92101

Pacific Gas and Electric Company
ATTN: Christopher J. Warner, Esq.
P.O. Box 7442
San Francisco, California 94120

Diablo Canyon Nuclear Power Plant
ATTN: Warren H. Fujimoto, Vice President
and Plant Manager
P.O. Box 56
Avila Beach, California 93424

Omaha Public Power District
ATTN: T. L. Patterson, Division Manager
Nuclear Operations
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399, Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska 68023-0399

Winston & Strawn
ATTN: Mr. James R. Curtiss
1400 L. Street, N.W.
Washington, D.C. 20005-3502

Washington County Board
of Supervisors
ATTN: Jack Jensen, Chairman
Blair, Nebraska 68008

Fort Calhoun Station
ATTN: James W. Chase, Manager
P.O. Box 399
Fort Calhoun, Nebraska 68023

Arizona Public Service Company
ATTN: William L. Stewart
. Executive Vice President, Nuclear
P.O. Box 53999
Phoenix, Arizona 85072-3999

Arizona Corporation Commission
ATTN: Mr. Steve Olea
1200 W. Washington Street
Phoenix, Arizona 85007

Southern California Edison Company
ATTN: T. E. Oubre, Esq.
P.O. Box 800
Rosemead, California 91770

Arizona Radiation Regulatory Agency
ATTN: Aubrey V. Godwin, Director
4814 South 40 Street
Phoenix, Arizona 85040

Maricopa County Board of Supervisors
ATTN: Chairman
111 South Third Avenue
Phoenix, Arizona 85003

Palo Verde Services
ATTN: Curtis Hoskins, Executive
Vice President and
Chief Operating Officer
2025 N. 3rd Street, Suite 220
Phoenix, Arizona 85004

Akin, Gump, Strauss, Hauer and Feld
El Paso Electric Company
ATTN: Roy P. Lessey, Jr., Esq.
1333 New Hampshire Avenue, Suite 400
Washington, D.C. 20036

Arizona Public Service Company
ATTN: Angela K. Krainik, Manager
Nuclear Licensing
P.O. Box 52034
Phoenix, Arizona 85072-2034

Entergy Operations, Inc.
ATTN: John R. McGaha, Vice President -
Operations, River Bend Station
P.O. Box 220
St. Francisville, Louisiana 70775

Entergy Operations, Inc.
ATTN: Harold W. Keiser, Executive Vice
President and Chief Operating Officer
P.O. Box 31995
Jackson, Mississippi 39286-1995

Entergy Operations, Inc.
ATTN: Michael B. Sellman, General Manager
Plant Operations
P.O. Box 220
St. Francisville, Louisiana 70775

Entergy Operations, Inc.
ATTN: James J. Fisicaro, Director
Nuclear Safety
River Bend Station
P.O. Box 220
St. Francisville, Louisiana 70775

Winston & Strawn
ATTN: Mark J. Wetterhahn, Esq.
1401 L Street, N.W.
Washington, D.C. 20005-3502

Entergy Operations, Inc.
ATTN: Otto P. Bulich, Manager
Nuclear Licensing
P.O. Box 220
St. Francisville, Louisiana 70775

The Honorable Richard P. Ieyoub
Attorney General
P.O. Box 94095
Baton Rouge, Louisiana 70804-9095

H. Anne Plettinger
3456 Villa Rose Drive
Baton Rouge, Louisiana 70806

President of West Feliciana
Police Jury
P.O. Box 1921
St. Francisville, Louisiana 70775

Cajun Electric Power Coop. Inc.
ATTN: Larry G. Johnson, Director
Systems Engineering
10719 Airline Highway
P.O. Box 15540
Baton Rouge, Louisiana 70895

William H. Spell, Administrator
Louisiana Radiation Protection Division
P.O. Box 82135
Baton Rouge, Louisiana 70884-2135

Southern California Edison Co.
San Onofre Nuclear Generating Station
ATTN: Harold B. Ray
Executive Vice President
P.O. Box 128
San Clemente, California 92674-0128

County of San Diego
ATTN: Chairman, Board of Supervisors
1600 Pacific Highway, Room 335
San Diego, California 92101

Rourke & Woodruff
ATTN: Alan R. Watts, Esq.
701 S. Parker St. No. 7000
Orange, California 92668-4702

Public Utilities Department
City of Riverside
ATTN: Sherwin Harris, Resource
Project Manager
3900 Main Street
Riverside, California 92522

Southern California Edison Company
San Onofre Nuclear Generating Station
ATTN: R. W. Krieger, Vice President
P.O. Box 128
San Clemente, California 92674-0128

California Department of Health Services
ATTN: Dr. Harvey Collins, Chief
Division of Drinking Water and
Environmental Management
P.O. Box 942732
Sacramento, California 94234-7320

Bechtel Power Corporation
ATTN: Richard Kosiba, Project Manager
12440 E. Imperial Highway
Norwalk, California 90650

San Diego Gas & Electric Company
ATTN: Richard Krumvieda, Manager
Nuclear Department
P.O. Box 1831
San Diego, California 92112

City of San Clemente
ATTN: Mayor
100 Avenida Presidio
San Clemente, California 92672

Houston Lighting & Power Company
ATTN: William T. Cottle, Group
Vice President, Nuclear
P.O. Box 289
Wadsworth, Texas 77483

Houston Lighting & Power Company
ATTN: Lawrence E. Martin, General Manager
Nuclear Assurance & Licensing
P.O. Box 289
Wadsworth, Texas 77483

City of Austin
Electric Utility Department
ATTN: J. C. Lanier/M. B. Lee
721 Barton Springs Road
Austin, Texas 78704

City Public Service Board
ATTN: K. J. Fiedler/M. T. Hardt
P.O. Box 1771
San Antonio, Texas 78296

Morgan, Lewis & Bockius
ATTN: Jack R. Newman, Esq.
1800 M. Street, N.W.
Washington, D.C. 20036-5869

Central Power and Light Company
ATTN: Mr. C. A. Johnson
P.O. Box 289
Mail Code: N5012
Wadsworth, Texas 77483

INPO
Records Center
700 Galleria Parkway
Atlanta, Georgia 30339-5957

Mr. Joseph M. Hendrie
50 Bellport Lane
Bellport, New York 11713

Bureau of Radiation Control
State of Texas
1100 West 49th Street
Austin, Texas 78756

Office of the Governor
ATTN: Andy Barrett, Director
Environmental Policy
P.O. Box 12428
Austin, Texas 78711

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, Texas 77414

Licensing Representative
Houston Lighting & Power Company
Suite 610
Three Metro Center
Bethesda, Maryland 20814

Houston Lighting & Power Company
ATTN: Rufus S. Scott, Associate
General Counsel
P.O. Box 61867
Houston, Texas 77208

Egan & Associates, P.C.
ATTN: Joseph R. Egan, Esq.
2300 N Street, N.W.
Washington, D.C. 20037

Entergy Operations, Inc.
ATTN: Ross P. Barkhurst, Vice President
Operations, Waterford
P.O. Box B
Killona, Louisiana 70066

Entergy Operations, Inc.
ATTN: Harry W. Keiser, Executive Vice
President and Chief Operating Officer
P.O. Box 31995
Jackson, Mississippi 39286-1995

Entergy Operations, Inc.
ATTN: D. R. Keuter, General
Manager Plant Operations
P.O. Box B
Killona, Louisiana 70066

Entergy Operations, Inc.
ATTN: Donald W. Vinci
Licensing Manager
P.O. Box B
Killona, Louisiana 70066

Chairman
Louisiana Public Service Commission
One American Place, Suite 1630
Baton Rouge, Louisiana 70825-1697

Entergy Operations, Inc.
ATTN: R. F. Burski, Director
Nuclear Safety
P.O. Box B
Killona, Louisiana 70066

William H. Spell, Administrator
Louisiana Radiation Protection Division
P.O. Box 82135
Baton Rouge, Louisiana 70884-2135

Parish President
St. Charles Parish
P.O. Box 302
Hahnville, Louisiana 70057

Mr. William A. Cross
Bethesda Licensing Office
3 Metro Center
Suite 610
Bethesda, Maryland 20814

Wolf Creek Nuclear Operating Corporation
ATTN: Neil S. Carns, President and
Chief Executive Officer
P.O. Box 411
Burlington, Kansas 66839

Wolf Creek Nuclear Operating Corp.
ATTN: Vice President Plant Operations
P.O. Box 411
Burlington, Kansas 66839

Shaw, Pittman, Potts & Trowbridge
ATTN: Jay Silberg, Esq.
2300 N Street, NW
Washington, D.C. 20037

U.S. Nuclear Regulatory Commission
ATTN: Regional Administrator, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Wolf Creek Nuclear Operating Corp.
ATTN: Supervisor Licensing
P.O. Box 411
Burlington, Kansas 66839

Wolf Creek Nuclear Operating Corp.
ATTN: Supervisor Regulatory Compliance
P.O. Box 411
Burlington, Kansas 66839

Missouri Public Service Commission
ATTN: Assistant Manager
Energy Department
P.O. Box 360
Jefferson City, Missouri 65102

Kansas Corporation Commission
ATTN: Chief Engineer
Utilities Division
1500 SW Arrowhead Rd.
Topeka, Kansas 66604-4027

Office of the Governor
State of Kansas
Topeka, Kansas 66612

Attorney General
Judicial Center
301 S.W. 10th
2nd Floor
Topeka, Kansas 66612-1597

County Clerk
Coffey County Courthouse
Burlington, Kansas 66839-1798

Kansas Department of Health
and Environment
Bureau of Air & Radiation
ATTN: Public Health Physicist
Division of Environment
Forbes Field Building 283
Topeka, Kansas 66620

Washington Public Power Supply System
ATTN: J. V. Parrish, Vice President
Nuclear Operations
3000 George Washington Way
P.O. Box 968, MD 1023
Richland, Washington 99352

Washington Public Power Supply System
ATTN: J. H. Swailes, WNP-2 Plant Manager
P.O. Box 968, MD 927M
Richland, Washington 99352-0968

Washington Public Power Supply System
ATTN: Chief Counsel
3000 George Washington Way
P.O. Box 968, MD 396
Richland, Washington 99352-0968

Energy Facility Site Evaluation Council
ATTN: Frederick S. Adair, Chairman
P.O. Box 43172
Olympia, Washington 98504-3172

Washington Public Power Supply System
ATTN: D. A. Swank, WNP-2 Licensing Manager
P.O. Box 968 (Mail Drop PE20)
Richland, Washington 99352-0968

Washington Public Power Supply System
ATTN: P. R. Bemis, Director
Regulatory and Industry Affairs
P.O. Box 968 (Mail Drop PE20)
Richland, Washington 99352-0968

Benton County Board of Commissioners
ATTN: Chairman
P.O. Box 190
Prosser, Washington 99350-0190

Winston & Strawn
ATTN: M. H. Philips, Esq.
1400 L Street, N.W.
Washington, D.C. 20005-3502

Entergy Operations, Inc.
ATTN: Mr. C. R. Hutchinson, Vice President
Operations - Grand Gulf
P. O. Box 756
Port Gibson, MS 39150

M. J. Meisner, Director
Nuclear Safety and Regulatory Affairs
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

K. G. Hess
Manager of Operations
Bechtel Power Corporation
P. O. Box 2166
Houston, Tx 77252-2166

N. G. Chapman, Manager
Bechtel Power Corporation
9801 Washington Boulevard
Gaithersburg, MD 20878

D. L. Pace
General Manager
Grand Gulf Nuclear Station
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

R. B. McGehee, Esq.
Wise, Carter, Child,
and Caraway
P. O. Box 651
Jackson, MS 39205

N. S. Reynolds, Esq.
Winston & Strawn
1400 L Street, NW, 12th Floor
Washington, D. C. 20005-3502

Office of the Governor
State of Mississippi
Jackson, MS 39201

President
Claiborne County Board
of Supervisors
Port Gibson, MS 39150

Mike Moore, Attorney General
Frank Spencer, Asst. Attorney General
State of Mississippi
P. O. Box 22947
Jackson, MS 39225

Sam Mabry, Director
Division of Solid Waste Management
Mississippi Department of Natural
Resources
P. O. Box 10385
Jackson, MS 39209

Dr. F. E. Thompson, Jr.
State Health Officer
State Board of Health
P. O. Box 1700
Jackson, MS 39205

bcc:
G. F. Sanborn, EO
C. A. Hackney, RSLO, RIV
B. Henderson, PAO, RIV
S. Richards, NRR
B. Boger, NRR
NRC Attendees
RIV File
DMB (IE 45)
G. F. Sanborn, EO
C. A. Hackney, RSLO
B. Henderson,, PAO, RIV

DOCUMENT NAME: O:\OS\PILOT.LTR
To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

C:OB:DRS		D:DRS							
JLPellet:cg *		TPGwynn							
09/12/95		09/15/95							

*Previously concurred OFFICIAL RECORD COPY

250002

The Honorable William J. Guste, Jr.
Attorney General
Department of Justice
State of Louisiana
P. O. Box 94005
Baton Rouge, LA 70804-9005

J. E. Tedrow
NRC Resident Inspector
U.S. Nuclear Regulatory Commission
Route 2, Box 399
Port Gibson, MS 39150

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
River Bend
P. O. box 1051
St. Francisville, LA 70775

bcc:
G. F. Sanborn, EO
C. A. Hackney, RSLO, RIV
B. Henderson, PAO, RIV
S. Richards, NRR
B. Boger, NRR
NRC Attendees
RIV File
DMB (IE 45)
G. F. Sanborn, EO
C. A. Hackney, RSLO
B. Henderson,, PAO, RIV

DOCUMENT NAME: O:\OS\PILOT.LTR
To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

C:OB:DRS		D:DRS							
JLPellet:cg		TPGwynn							
09/12/95		09/ /95							

OFFICIAL RECORD COPY

ATTACHMENT 1

Attendance List

Licensee Personnel

Randoll Amundson, Comanche Peak
Jack Baggett, River Bend Station
Gary Box, Palo Verde
Jeff Boyd, Cooper Station
Terry Brown, Waterford 3
Bruce Bryant, Grand Gulf
John Carlin, South Texas Project
Charles Cresaf, Grand Gulf
Mike DeFrees, South Texas Project
Steve Falley, Comanche Peak
Michael Goad, Arkansas Nuclear One
Randy Guyer, Wolf Creek Nuclear Operating Corporation
Michael Jesse, Waterford 3
Roger Jett, Diablo Canyon
Mike Kirby, Southern California Edison Company
Andy Langdon, Washington Public Power Supply System
Mike Lazar, Fort Calhoun Station
Don LeGrand, South Texas Project
Robert Nunez, Palo Verde
Kurt Ranch, Southern California Edison Company
Rob Sandstrom, Southern California Edison Company
Mark Sharp, Palo Verde
Mike Shelly, Grand Gulf

NRC Personnel

Kenneth Brockman
Howard Bundy
Laura Hurley
Joseph Tapia
Stephen McCrory
Tom McKernon
Tom Meadows
John Munro
Mike Murphy

ATTACHMENT 2

Meeting Agenda and Handouts

SEPTEMBER 7, 1995 REGION IV MEETING AGENDA - PILOT EXAMINATION PROGRAM

I. Welcome to Region IV
   A. Introduction of Attendees
   B. Purpose of meeting

II. Pilot Examination Program
   A. Program Genesis
      1. What's changing?
      2. Why change now?
   B. Pilot Schedule & Volunteers (See attached)
   C. Pilot Examination Activities
      1. Preliminary activities
         a. Examination schedule
            (1) What week(s)?
            (2) How much material is needed?
         b. Product expected
            (1) What's an outline & when will we get it?
            (2) Who's doing the work, where?
            (3) Who should we call?
      2. Examination Review & Approval Process
         a. Schedule
         b. Product expected
      3. Examination administration
         a. Written
         b. Operating test
      4. Examination Grading & Analysis
         a. Written
            (1) Who?
            (2) When?
            (3) What?
         b. Operating test
            (1) Who?
            (2) When?
            (3) What?
      5. Postexamination Product & Activities
         a. Graded examinations
         b. Assorted forms
         c. Exam report

III. National Public Information Workshop
   A. When: Tuesday, 9/26/95, 9 a.m. to 5 p.m.
   B. Where: Auditorium, Two White Flint North, Rockville, MD

IV. Questions & Answers

V. Closing Remarks

PILOT SCHEDULE AND VOLUNTEERS

Month	Region I	Region II	Region III	Region IV
October 1995	-	Brunswick	-	Palo Verde
November 1995	Limerick Pilgrim Millstone 3	-	Lasalle	San Onofre
December 1995	-	Brunswick Vogtle	Fermi	Fort Calhoun
January 1996	-	McGuire North Anna	DC Cook Zion	-
February 1996	Ginna Millstone 2	Robinson	Kewaunee	-
March 1996	-	Crystal River	-	-
April 1996	-	-	Braidwood	-

EXAMINATION

OUTLINE

EXAMPLES

PILOT EXAMINATION SAMPLE SCHEDULES

Class Size Samples	Monday	Tuesday	Wednesday	Thursday	Friday
7U-SROs 1I-SRO	Travel, badge, tour, etc.	Sim1 / Sim2 U1-I1-S / U2-2S I1-2S / U3-2S U4-2S / U5-2S U6-2S / U7-2S	Ex1: 3 U Adm/WT Ex2: 3 U Adm/WT Ex3: U/I Adm/WT	Exit	
Material Needed	This schedule requires 3 examiners. No examiner administers more than 4 scenarios and 15 JPMs. Two scenarios, 10 JPMs in a single walkthough (U/G uses 5), and a single administrative walkthrough are required. This schedule uses many surrogates, but avoids examining U-SROs in RO positions.				
3I-SROs	Travel, badge, tour, etc.	3I Crew/Sim	Ex1: ½I1 Adm/WT I2 Adm/WT Ex2 I3 Adm/WT ½I1 Adm/WT	Exit	
Material Needed	This schedule requires 3 examiners. Examiners administer 3 scenarios or one walkthrough each day. Three scenarios, 10 JPMs, and a single administrative walkthrough are required.				
4 ROs 2I-SROs 2U-SROs	Travel, badge, tour, etc.	2R/1U Crew/Sim 2R/1U Crew/Sim 2I Crew/Sim	5 Sim JPMs for: Ex1: R1, R2 Ex2: R3, R4 Ex3: I1, I2	Finish WT for: Ex1: R1, R2, U1 Ex2: R3, R4, U2 Ex3: I1, I2	Exit
Material Needed	This schedule requires 3 examiners. Examiners administer 2~3 scenarios and up to 15 JPMs in one day plus administrative topics. Two scenarios, 10 JPMs, and a single administrative walkthrough are required.				

WRITTEN

EXAMINATION

OUTLINE

EXAMPLES

Facility: Example 1 BWR Exam Date:

Knowledge and Ability Record Form
COUNT MATRIX

Summarizing Counts by K/A Group
for
BWR - Senior Reactor Operator

												Total
Plant Wide Generics												12
	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	SG	
Plant Systems I	2	0	3	1	0	1	2	2	3	4	5	23
Plant Systems II	2	1	1	1	1	0	1	2	1	1	2	13
Plant Systems III	2	0	0	0	0	1	0	0	0	0	1	4
Emergency/Abn I	0	4	5	.....			6	3	.....		7	25
Emergency/Abn II	3	5	2	.....			0	1	.....		6	17
Totals	9	10	11	2	1	2	9	8	4	5	21	=====
Model Total												94

← Note - no zeros allowed.

BWR - Senior Reactor Operator Target: 17 % Actual: 12.8 %

K/A	Rep	Topic	Rating R/S
294001A101		Ability to obtain and verify control procedure copy	2.9/3.4
294001A103		Ability to locate and use procedures and station directives related to shift staffing and activities	2.7/3.7
294001A104		Ability to operate the plant phone, paging system, and two-way radio	3.1/3.2
294001A108		Ability to obtain and interpret station reference material such as graphs, nomographs, and tables which contain system performance data	3.1/3.6
294001A110		Ability to coordinate personnel activities outside the control room	3.6/4.2
294001A111		Ability to direct personnel activities inside the control room	3.3/4.3
294001A114		Ability to maintain primary and secondary plant chemistry within allowable limits	2.9/3.4
294001A115		Ability to use plant computer to obtain and evaluate parametric information on system and component status	3.2/3.4
294001K101		Knowledge of how to conduct and verify valve lineups	3.7/3.7
294001K109		Knowledge of safety procedures related to high pressure	3.4/3.8
294001K110		Knowledge of safety procedures related to caustic solutions	3.1/3.4
294001K116		Knowledge of facility protection requirements, including fire brigade and portable fire-fighting equipment usage	3.5/3.8

Knowledge and Ability Record Form
PLANT SYSTEMS
BWR Senior Reactor Operator - 40 %

Group I Plant Systems Target: 23 % Actual: 24.5 %

201005 Rod Control and Information
202002 Recirculation Flow Control
203000 RHR/LPCI: Injection Mode
206000 High Pressure Coolant Inject.
207000 Isolation (Emergency) Cond.
209001 Low Pressure Core Spray
209002 High Pressure Core Spray
211000 Standby Liquid Control
212000 Reactor Protection
215004 Source Range Monitor
215005 Average Power Range Monitor/ Local Power Range Monitor
216000 Nuclear Boiler Instrumentation
217000 Reactor Core Isolation Cooling
218000 Automatic Depressurization
223001 Primary Containment and Aux.
223002 Primary Containment Isolation/ Nuclear Steam Supply Shut-Off
226001 RHR/LPCI: Contain Spray Sys Mode
239002 Relief/Safety Valves
241000 Reactor/Turbine Pressure Regul
259002 Reactor Water Level Control
261000 Standby Gas Treatment
262001 AC Elecrical Distribution
264000 Emergency Generators
290001 Secondary Containment

K/A	Rep	Topic	Rating R/S
202002G009		Ability to locate and operate components, including local controls	3.8/3.5
203000A210		Nuclear boiler instrument failures	3.3/3.5
203000A303		Pump discharge pressure	3.7/3.6
203000A404		Heat exchanger cooling flow	3.6/3.6
203000K402		Prevention of piping overpressurization	3.3/3.4
206000K104		Reactor feedwater system: BWR-2,3,4	3.6/3.6
209002A102		HPCS pressure: BWR-5,6	3.4/3.6
211000A305		Flow indication: Plant-Specific	4.1/4.2
212000K307		Reactor power (thermal heat flux)	3.8/3.9
215005G001		Knowledge of operator responsibilities during all modes of plant operation	3.9/4.1
216000K113		Feedwater system	3.4/3.5
217000A214		Rupture disc failure: Exhaust-Diaphragm	3.3/3.4
217000A404		Manually initiated controls	3.6/3.6
218000K601		RHR/LPCI system pressure: Plant-Specific	3.9/4.1
226001A403		Spray valves	3.5/3.4
239002G005		Knowledge of limiting conditions for operations and safety limits	3.6/4.4
239002G010		Ability to explain and apply all system limits and precautions	3.4/3.4
241000A114		Pressure setpoint/pressure demand	3.4/3.4
241000A403		Reactor water level	3.8/3.9
241000K330		EGC: Plant-Specific	3.0/3.0
259002A308		FWCI system initiation: FWCI	4.0/4.0
259002G010		Ability to explain and apply all system limits and precautions	3.3/3.4
261000K303		Primary containment pressure: Mark-I&II	3.2/3.4

Group II Plant Systems Target: 13 % Actual: 13.8 %

201001 Control Rod Drive Hydraulic
201002 Reactor Manual Control
201004 Rod Sequence Control
201006 Rod Worth Minimizer
202001 Recirculation
204000 Reactor Water Cleanup
205000 Shutdown Cooling System
214000 Rod Position Information
215002 Rod Block Monitor
215003 Intermediate Range Monitor
219000 RHR/LPCI: Torus/Suppression Pool Cooling Mode
230000 RHR/LPCI: Torus/Suppression Pool Spray Mode
234000 Fuel Handling Equipment
239003 MSIV Leakage Control
245000 Main Turbine Generator & Aux.
259001 Reactor Feedwater
262002 Uninterrupt Power Supply(AC/DC)
263000 DC Elctrical Distribution
271000 Offgas
272000 Radiation Monitoring
286000 Fire Protection
290003 Control Room HVAC

K/A	Rep	Topic	Rating R/S
201001K201		Pumps	2.9/3.1
202001A211		Low reactor water level	3.7/3.9
202001A307		Pump trips: Plant-Specific	3.3/3.3
202001K128		End-of-cycle recirculation pump trip circuitry: Plant-Specific	3.9/4.1
202001K412		Minimization of reactor vessel bottom head temperature gradients: Plant-Specific	3.2/3.5
215003A102		Reactor power indication response to rod position changes	3.7/3.7
215003G014		Ability to perform without reference to procedures those actions that require immediate operation of system components or controls	3.6/3.4
219000K104		LPCI/RHR pumps	3.9/3.9
234000K501		Crane/hoist operation	2.9/3.4
259001A201		Pump trip	3.7/3.7
259001A407		Pump discharge pressure	3.3/3.2
263000K301		Emergency generators: Plant-Specific	3.4/3.8
271000G003		Knowledge of which events related to system operation/status should be reported to outside agencies	2.9/4.3

PLANT SYSTEMS

BWR Senior Reactor Operator - 40 %

Group III Plant Systems Target: 4 % Actual: 4.3 %

201003 Control Rod and Drive Mechanism
215001 Traversing In-Core Probe
233000 Fuel Pool Cooling and Clean-up
239001 Main and Reheat Steam
256000 Reactor Condensate
268000 Radwaste
288000 Plant Ventilation
290002 Reactor Vessel Internals

K/A	Rep	Topic	Rating R/S
201003G003		Knowledge of which events related to system operation/status should be reported to outside agencies	2.7/3.9
256000K102		Reactor feedwater system	3.3/3.3
256000K114		RHR (LPCI): Plant-Specific	3.0/3.0
290002K611		RHR: Plant-Specific	3.1/3.2

Group I Emergency and Abnormal Plant Evolutions Target: 26 % Actual: 26.6 %

295003 Part/Complete Loss AC Power
295006 SCRAM
295007 High Reactor Pressure
295009 Low Reactor Water Level
295010 High Drywell Pressure
295013 High Suppression Pool Temp.
295014 Inadvertent Reactivity Add.
295015 Incomplete SCRAM
295016 Control Room Abandonment
295017 High Off-Site Release Rate
295023 Refueling Accidents
295024 High Drywell Pressure
295025 High Reactor Pressure
295026 Suppression Pool High Water Temp.
295027 High Containment Temperature
295030 Low Suppression Pool Water Level
295031 Reactor Low Water Level
295037 SCRAM Condition Present & Reactor Power Above APRM DownScale or Unk.
295038 High Off-Site Release Rate

K/A	Rep	Topic	Rating R/S
295003K202		Emergency generators	4.1/4.2
295006G005		Knowledge of the annunciator alarms and indications, and use of the response instructions	4.1/4.0
295007A105		Reactor/turbine pressure regulating system	3.7/3.8
295007K305		Low pressure system isolation	3.0/3.2
295009K301		Recirculation pump run back: Plant-Specific	3.2/3.3
295010A104		Drywell sampling system	3.1/3.0
295010G012		Ability to utilize symptom based procedures	3.8/4.4
295010K303		Radiation level monitoring	3.2/3.5
295014A102		Recirculation flow control system	3.6/3.8
295014A201		Reactor power	4.1/4.2
295014G005		Knowledge of the annunciator alarms and indications, and use of the response instructions	3.7/3.7
295016G002		Knowledge of which events related to system operation/status should be reported to outside agencies	3.1/4.5
295016G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	4.1/4.2
295017K202		Radwaste	2.8/3.1
295023A102		Fuel pool cooling and cleanup system	2.9/3.1
295024A109		Suppression pool makeup: Plant-Specific	2.9/3.0
295024A203		Suppression pool level	3.8/3.8
295024G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.6/4.4
295025A203		Suppression pool temperature	3.9/4.1
295025G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	4.2/4.3
295025K301		Safety/relief valve opening	4.2/4.3
295025K309		Low-low set initiation: Plant-Specific	3.7/3.7
295026A102		Suppression pool spray: Plant-Specific	3.6/3.8
295030K205		HPCS: Plant-Specific	3.8/3.9
295038K201		Radwaste	3.1/3.4

Group II Emergency and Abnormal Plant Evolutions Target: 17 % Actual: 18.1 %

295001 Partial or Complete Loss of Forced Core Flow Circulation
295002 Loss of Main Condenser Vacuum
295004 Part/Complete Loss of DC Power
295005 Main Turbine Generator Trip
295008 High Reactor Water Level
295011 High Containment Temperature
295012 High Drywell Temperature
295018 Part/Complete Loss of Component Cooling Water
295019 Part/Complete Loss Instru. Air
295020 Inadvertent Containment Isol.
295021 Loss of Shutdown Cooling
295022 Loss of CRD Pumps
295028 High Drywell Temperature
295029 High Suppression Pool Water Level
295032 High Secondary Containment Area Temperature
295033 High Secondary Containment Area Radiation Levels
295034 Secondary Containment Ventilation High Radiation
295035 Secondary Containment High Differential Pressure
295036 Secondary Containment High Sump/Area Water Level

K/A	Rep	Topic	Rating R/S
295001G009		Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.5/3.4
295002K103		Loss of heat sink	3.6/3.8
295005K208		A.C. electrical distribution	3.2/3.3
295008A203		Reactor water cleanup blowdown flow	2.9/3.0
295008K211		Main steam	3.1/3.3
295008K303		PCIS/NSSSS initiation: Plant-Specific	2.9/3.1
295012G006		Ability to locate and operate components, including local controls	3.7/3.7
295012K202		Drywell cooling	3.6/3.7
295019K303		Service air isolations: Plant-Specific	3.2/3.2
295022K102		Reactivity control	3.6/3.7
295029G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.4/4.4
295032G012		Ability to utilize symptom based procedures	3.6/4.4
295032K207		Leak detection system concept: Plant-Specific	3.6/3.8
295032K208		Systems required for safe shut-down	3.8/3.9
295033G003		Knowledge of limiting conditions for operations and safety limits	3.0/4.1
295035G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	3.9/4.2
295036K101		Radiation releases	2.9/3.1

Knowledge and Ability Record Form
COUNT MATRIX

Summarizing Counts by K/A Group
for
BWR - Senior Reactor Operator

	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	SG	Total
Plant Wide Generics												14
Plant Systems I	3	1	2	2	0	3	2	1	2	1	6	23
Plant Systems II	5	0	1	0	0	1	0	1	1	0	4	13
Plant Systems III	1	0	0	0	1	0	1	0	0	1	0	4
Emergency/Abn I	1	8	5	.....			1	4	.....		7	26
Emergency/Abn II	2	2	1	.....			3	3	.....		6	17
Totals	12	11	9	2	1	4	7	9	3	2	23	=====
Model Total												97

PLANT-WIDE GENERIC RESPONSIBILITIES

BWR - Senior Reactor Operator Target: 17 % Actual: 14.4 %

K/A	Rep	Topic	Rating R/S
294001A101		Ability to obtain and verify control procedure copy	2.9/3.4
294001A102		Ability to execute procedural steps	4.2/4.2
294001A107		Ability to obtain and interpret station electrical and mechanical drawings	3.0/3.7
294001A110		Ability to coordinate personnel activities outside the control room	3.6/4.2
294001A112		Ability to direct personnel activities outside the control room	3.5/4.2
294001A113		Ability to locate control room switches, controls, and indications, and to determine that they are correctly reflecting the desired plant lineup	4.5/4.3
294001A115		Ability to use plant computer to obtain and evaluate parametric information on system and component status	3.2/3.4
294001A116		Ability to take actions called for in the Facility Emergency Plan, including (if required) supporting or acting as the Emergency Coordinator	2.9/4.7
294001K103		Knowledge of 10 CFR 20 and related facility radiation control requirements	3.3/3.8
294001K105		Knowledge of facility requirements for controlling access to vital/control areas	3.2/3.7
294001K111		Knowledge of safety procedures related to chlorine	2.9/3.3
294001K113		Knowledge of safety procedures related to oxygen-deficient environment	3.2/3.6
294001K114		Knowledge of safety procedures related to confined spaces	3.2/3.4
294001K116		Knowledge of facility protection requirements, including fire brigade and portable fire-fighting equipment usage	3.5/3.8

Group I Plant Systems Target: 23 % Actual: 23.7 %

201005 Rod Control and Information
202002 Recirculation Flow Control
203000 RHR/LPCI: Injection Mode
206000 High Pressure Coolant Inject.
207000 Isolation (Emergency) Cond.
209001 Low Pressure Core Spray
209002 High Pressure Core Spray
211000 Standby Liquid Control
212000 Reactor Protection
215004 Source Range Monitor
215005 Average Power Range Monitor/ Local Power Range Monitor
216000 Nuclear Boiler Instrumentation
217000 Reactor Core Isolation Cooling
218000 Automatic Depressurization
223001 Primary Containment and Aux.
223002 Primary Containment Isolation/ Nuclear Steam Supply Shut-Off
226001 RHR/LPCI: Contain Spray Sys Mode
239002 Relief/Safety Valves
241000 Reactor/Turbine Pressure Regul
259002 Reactor Water Level Control
261000 Standby Gas Treatment
262001 AC Elecrical Distribution
264000 Emergency Generators
290001 Secondary Containment

K/A	Rep	Topic	Rating R/S
201005K101		Neutron monitoring system: BWR-6	3.3/3.3
206000K611		Nuclear boiler instrumentation: BWR-2,3,4	3.6/3.7
207000G007		Knowledge of purpose and function of major system components and controls	3.8/4.0
207000K202		Initiation logic: BWR-2,3	3.5/3.7
207000K605		Primary containment isolation system: BWR-2,3	3.6/3.8
209001G006		Knowledge of bases in technical specifications for limiting conditions for operations and safety limits	3.0/4.0
209002K103		Water leg (jockey) pump: BWR-5,6	3.0/3.0
211000A102		Explosive valve indication	3.8/3.9
211000G012		Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.9/3.7
212000A305		SCRAM instrument volume level	3.9/3.9
212000K106		Control rod drive hydraulic system	3.5/3.6
215004A106		Lights and alarms	3.1/3.1
215004G006		Knowledge of bases in technical specifications for limiting conditions for operations and safety limits	2.8/3.7
215004K601		RPS	3.2/3.3
215005G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	4.1/4.3
216000K403		Redundancy of sensors	3.4/3.6
217000K301		Reactor water level	3.7/3.7
217000K407		Alternate supplies of water	3.6/3.6
226001A220		Loss of coolant accident	3.7/4.1
239002A302		SRV operation on high reactor pressure	4.3/4.3
241000K329		PCIS/NSSSS	2.9/3.1
262001A405		Voltage, current, power, and frequency on A.C. buses	3.3/3.3
264000G003		Knowledge of which events related to system operation/status should be reported to outside agencies	2.9/4.3

Knowledge and Ability Record Form
PLANT SYSTEMS
BWR Senior Reactor Operator - 40 %

Group II Plant Systems Target: 13 % Actual: 13.4 %

201001 Control Rod Drive Hydraulic
201002 Reactor Manual Control
201004 Rod Sequence Control
201006 Rod Worth Minimizer
202001 Recirculation
204000 Reactor Water Cleanup
205000 Shutdown Cooling System
214000 Rod Position Information
215002 Rod Block Monitor
215003 Intermediate Range Monitor
219000 RHR/LPCI: Torus/Suppression Pool Cooling Mode
230000 RHR/LPCI: Torus/Suppression Pool Spray Mode
234000 Fuel Handling Equipment
239003 MSIV Leakage Control
245000 Main Turbine Generator & Aux.
259001 Reactor Feedwater
262002 Uninterrupt Power Supply(AC/DC)
263000 DC Elctrical Distribution
271000 Offgas
272000 Radiation Monitoring
286000 Fire Protection
290003 Control Room HVAC

K/A	Rep	Topic	Rating R/S
201001K301		Recirculation pumps: Plant-Specific	3.0/3.1
202001A207		Recirculation pump speed mismatch: Plant-Specific	3.1/3.3
202001G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	4.0/4.2
204000K115		Leak detection: Plant-Specific	3.1/3.2
214000G005		Knowledge of limiting conditions for operations and safety limits	2.9/3.8
215003G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	3.7/3.9
234000G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	3.8/4.1
259001K119		Redundant reactivity control system: Plant-Specific	3.0/3.3
262002K114		Main steam line radiation monitors: Plant-Specific	2.8/3.0
262002K117		Scram solenoid valves: Plant-Specific	3.1/3.3
272000A303		Liquid radwaste isolation indications	3.1/3.5
272000K107		Isolation condenser: Plant-Specific	3.0/3.2
286000K601		A.C. electrical distribution: Plant-Specific	3.1/3.1

Group III Plant Systems Target: 4 % Actual: 4.1 %

201003 Control Rod and Drive Mechanism
215001 Traversing In-Core Probe
233000 Fuel Pool Cooling and Clean-up
239001 Main and Reheat Steam
256000 Reactor Condensate
268000 Radwaste
288000 Plant Ventilation
290002 Reactor Vessel Internals

K/A	Rep	Topic	Rating R/S
201003K502		Flux shaping	2.8/3.3
256000A107		System lineup	3.1/3.1
256000A413		Condenser vacuum	3.3/3.4
256000K109		Offgas condenser: Plant-Specific	2.9/3.0

Group I Emergency and Abnormal Plant Evolutions Target: 26 % Actual: 26.8 %

295003 Part/Complete Loss AC Power
295006 SCRAM
295007 High Reactor Pressure
295009 Low Reactor Water Level
295010 High Drywell Pressure
295013 High Suppression Pool Temp.
295014 Inadvertent Reactivity Add.
295015 Incomplete SCRAM
295016 Control Room Abandonment
295017 High Off-Site Release Rate
295023 Refueling Accidents
295024 High Drywell Pressure
295025 High Reactor Pressure
295026 Suppression Pool High Water Temp.
295027 High Containment Temperature
295030 Low Suppression Pool Water Level
295031 Reactor Low Water Level
295037 SCRAM Condition Present & Reactor Power Above APRM DownScale or Unk.
295038 High Off-Site Release Rate

K/A	Rep	Topic	Rating R/S
295006G001		Knowledge of system status criteria which require the notification of plant personnel	3.4/4.1
295007G004		Knowledge of bases in technical specifications for limiting conditions for operations and safety limits	3.0/3.9
295007K101		Pump shutoff head	2.9/3.2
295007K206		PCIS/NSSSS: Plant-Specific	3.5/3.7
295007K302		HPCI operation: Plant-Specific	3.7/3.8
295007K303		RCIC operation: Plant-Specific	3.4/3.5
295010K202		Drywell/suppression chamber differential pressure: Mark-I&II	3.3/3.5
295014K202		Fuel thermal limits	3.7/4.2
295015G001		Knowledge of system status criteria which require the notification of plant personnel	3.2/3.9
295016K202		Local control stations: Plant-Specific	4.0/4.1
295017K303		Implementation of site emergency plan	3.3/4.5
295017K305		Control room ventilation: Plant-Specific	3.3/3.6
295023A204		Occurrence of fuel handling accident	3.4/4.1
295024A203		Suppression pool level	3.8/3.8
295024K201		HPCI (FWCI): Plant-Specific	3.9/4.0
295026A103		Temperature monitoring	3.9/3.9
295026G002		Knowledge of which events related to system operation/status should be reported to outside agencies	3.0/4.5
295026G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	4.4/4.6
295026K203		Suppression chamber pressure: Mark-I&II	3.2/3.6
295027A202		Containment pressure: Mark-III	3.7/3.7
295031G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.6/4.4
295037A207		Containment conditions/isolations	4.0/4.2
295037K203		ARI/RPT/ATWS: Plant-Specific	4.1/4.2
295038G009		Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.8/3.7

Group I Emergency and Abnormal Plant Evolutions Target: 26 % Actual: 26.8 %

295003 Part/Complete Loss AC Power
295006 SCRAM
295007 High Reactor Pressure
295009 Low Reactor Water Level
295010 High Drywell Pressure
295013 High Suppression Pool Temp.
295014 Inadvertent Reactivity Add.
295015 Incomplete SCRAM
295016 Control Room Abandonment
295017 High Off-Site Release Rate
295023 Refueling Accidents
295024 High Drywell Pressure
295025 High Reactor Pressure
295026 Suppression Pool High Water Temp.
295027 High Containment Temperature
295030 Low Suppression Pool Water Level
295031 Reactor Low Water Level
295037 SCRAM Condition Present & Reactor Power Above APRM DownScale or Unk.
295038 High Off-Site Release Rate

K/A	Rep	Topic	Rating R/S
295038K204		Stack-gas monitoring system: Plant-Specific	3.9/4.2
295038K303		Control room ventilation isolation: Plant-Specific	3.7/3.9

Group II Emergency and Abnormal Plant Evolutions Target: 17 % Actual: 17.5 %

295001 Partial or Complete Loss of Forced Core Flow Circulation
295002 Loss of Main Condenser Vacuum
295004 Part/Complete Loss of DC Power
295005 Main Turbine Generator Trip
295008 High Reactor Water Level
295011 High Containment Temperature
295012 High Drywell Temperature
295018 Part/Complete Loss of Component Cooling Water
295019 Part/Complete Loss Instru. Air
295020 Inadvertent Containment Isol.
295021 Loss of Shutdown Cooling
295022 Loss of CRD Pumps
295028 High Drywell Temperature
295029 High Suppression Pool Water Level
295032 High Secondary Containment Area Temperature
295033 High Secondary Containment Area Radiation Levels
295034 Secondary Containment Ventilation High Radiation
295035 Secondary Containment High Differential Pressure
295036 Secondary Containment High Sump/Area Water Level

K/A	Rep	Topic	Rating R/S
295012G012		Ability to utilize symptom based procedures	3.6/4.3
295019G002		Knowledge of which events related to system operation/status should be reported to outside agencies	3.0/4.1
295019G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.2/4.1
295019K218		ADS: Plant-Specific	3.5/3.5
295020A103		Containment ventilation system: Plant-Specific	2.9/3.1
295020G007		Ability to explain and apply all system limits and precautions	3.0/3.3
295021A203		Reactor water level	3.5/3.5
295021K103		Adequate core cooling	3.9/3.9
295028A205		Torus/suppression chamber pressure: Plant-Specific	3.6/3.8
295032A103		Secondary containment ventilation	3.7/3.7
295032A203		Cause of high area temperature	3.8/4.0
295033A108		Control room ventilation: Plant-Specific	3.6/3.8
295033G005		Knowledge of the annunciator alarms and indications, and use of the response instructions	3.6/3.7
295033G006		Ability to locate and operate components, including local controls	3.9/3.8
295033K303		Isolating affected systems	3.8/3.9
295034K101		Personnel protection	3.8/4.1
295034K204		Secondary containment ventilation	3.9/3.9

Knowledge and Ability Record Form
COUNT MATRIX

Summarizing Counts by K/A Group
for
PWR - Senior Reactor Operator

												Total
Plant Wide Generics												12
	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	SG	
Plant Systems I	1	0	1	3	0	1	0	3	2	1	7	19
Plant Systems II	5	1	0	0	1	0	1	1	1	2	4	16
Plant Systems III	0	0	0	0	0	0	0	0	0	1	3	4
Emergency/Abn I	4	1	3	.....			9	3	.....		2	22
Emergency/Abn II	0	0	2	.....			3	5	.....		6	16
Emergency/Abn III	0	0	0	.....			1	1	.....		1	3
Totals	10	2	6	3	1	1	14	13	3	4	23	=====
Model Total												92

PWR - Senior Reactor Operator Target: 17 % Actual: 13.0 %

K/A	Rep	Topic	Rating R/S
194001A101		Ability to obtain and verify control procedure copy	3.3/3.4
194001A102		Ability to execute procedural steps	4.1/3.9
194001A106		Ability to maintain accurate, clear and concise logs, records, status boards and reports	3.4/3.4
194001A107		Ability to obtain and interpret station electrical and mechanical drawings	2.5/3.2
194001A110		Ability to coordinate personnel activities outside the control room	2.9/3.9
194001A113		Ability to locate control room switches, controls, and indications, and to determine that they are correctly reflecting the desired plant lineup	4.3/4.1
194001K107		Knowledge of safety procedures related to electrical equipment	3.6/3.7
194001K108		Knowledge of safety procedures related to high temperature	3.5/3.4
194001K109		Knowledge of safety procedures related to high pressure	3.4/3.4
194001K110		Knowledge of safety procedures related to caustic solutions	3.0/3.3
194001K111		Knowledge of safety procedures related to chlorine	3.4/3.5
194001K116		Knowledge of facility protection requirements, including fire brigade and portable fire-fighting equipment usage	3.5/4.2

Group I Plant Systems Target: 19 % Actual: 20.7 %

001 Control Rod Drive	017 In-Core Temperature	061 Aux./Emer. Feedwater
003 Reactor Coolant Pump	022 Containment Cooling	063 DC Electrical Dist.
004 Chemical & Volume	025 Ice Condenser	068 Liquid Radwaste
013 E. Saftey Actuation	026 Containment Spray	071 Wast Gas Disposal
014 Rod Position Indic.	056 Condensate System	072 Area Radiation Mon.
015 Nuclear Instrument.	059 Main Feedwater System	

K/A	Rep	Topic	Rating R/S
001000G008		Knowledge of the annunciator alarms and indications, and use of the response instructions	3.6/3.6
001010A301		RCS temperature and pressure	3.9/3.9
001050A203		Possible causes of mismatched control rods	3.0/3.8
004000G012		Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.4/3.4
004000K401		Oxygen control in RCS	2.8/3.3
004010A212		High secondary and primary concentrations of chloride, fluoride, sodium and solids	2.8/3.5
004010A305		VCT level	3.3/3.2
004020K301		RCS temperature and pressure	3.4/3.6
013000K119		WGDS	2.6/3.0
013000K419		Reason for opening breaker on high-head injection pump	3.0/3.4
015000K603		Component interconnections	2.6/3.0
022000G009		Ability to locate and operate components, including local controls	3.3/3.3
022000G011		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	2.9/3.6
026000A205		Failure of chemical addition tanks to inject	3.7/4.1
026000G013		Ability to perform specific system and integrated plant procedures during all modes of operation	3.5/3.7
059000A410		ICS	3.9/3.8
061000G004		Knowledge of system purpose and/or function	3.6/3.8
063000K401		Manual/automatic transfers of control	2.7/3.0
068000G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency or abnormal operating procedures	2.9/3.1

Group II Plant Systems Target: 17 % Actual: 17.4 %

002 RCS	012 RPS	029 CPS	039 MRSS	073 PRM
006 ECCS	016 NNIS	033 SFPCS	055 CARS	075 CIRC
010 PZRPRS	027 CIRS	034 FHES	062 AC	079 SAS
011 PZRLCS	028 HRPS	035 S/GS	064 ED/G	086 FPS
				103 Containment

K/A	Rep	Topic	Rating R/S
006000A201		High bearing temperature	2.9/3.1
006000A302		Pumps	4.1/4.1
006000G005		Knowledge of limiting conditions for operations and safety limits	3.5/4.2
006000G013		Ability to perform specific system and integrated plant procedures during all modes of operation	3.9/4.0
006000K111		CCWS	2.8/3.2
006020A108		Reactor vessel level	3.5/3.8
011000A403		PZR heaters	3.3/3.1
011000K201		Charging pumps	3.1/3.2
016000K107		ECCS	3.7/3.7
016000K112		S/G	3.5/3.5
028000A403		Location and operation of hydrogen sampling and analysis of containment atmosphere, including alarms and indications	3.1/3.3
029000G010		Ability to explain and apply all system limits and precautions	2.9/3.1
035010K501		Effect of secondary parameters, pressure, and temperature on reactivity	3.4/3.9
073000G008		Knowledge of the annunciator alarms and indications, and use of the response instructions	3.3/3.3
079000K101		IAS	3.0/3.1
086000K103		AFW system	3.4/3.5

Group III Plant Systems Target: 4 % Actual: 4.4 %

005 Residual Heat Removal System
007 PZR Relief Tank/Quench
008 Component Cooling Water System
041 Steam Dump System Bypass Control
045 Main Turbine Generator
076 Service Water System
078 Instrument Air System

K/A	Rep	Topic	Rating R/S
005000G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	3.8/3.9
008000G005		Knowledge of limiting conditions for operations and safety limits	3.3/3.8
041020A405		Main steam header pressure	3.1/3.3
076000G014		Ability to perform without reference to procedures those actions that require immediate operation of system components or controls	2.9/3.1

EMERGENCY PLANT EVOLUTIONS
PWR Senior Reactor Operator - 43 %

Group I Emergency and Abnormal Plant Evolutions . Target: 24 % Actual: 23.9 %

000001 Continuous Rod With.	000026 Loss of CCW	000059 LRW Release
000003 Dropped Control Rod	000029 ATWS	000067 Plant Fire Onsite
000005 Inoperable/Stuck Rod	000040 Steam Line Rupture	000068 CR Evacuation
000011 Large Break LOCA	000051 Loss of Vacuum	000069 Loss Containment
000015 RCP Motor Malfunction	000055 Blackout	000074 Inadeq. Core Cool
000024 Emergency Boration	000057 Loss of AC Elec. Instrument Bus	000076 High RCS Activity

K/A	Rep	Topic	Rating R/S
000001A105		Reactor trip switches	4.3/4.2
000001A107		RPI	3.3/3.1
000001K122		Delta flux (ΔI)	3.2/3.6
000005K203		Metroscope	3.1/3.3
000011A106		D/Gs	4.2/4.2
000011A209		Existence of adequate natural circulation	4.2/4.3
000011K303		Starting auxiliary feed pumps and flow, ED/G, and service water pumps	4.1/4.3
000026A102		Loads on the CCWS in the control room	3.2/3.3
000029A110		Rod control function switch	3.6/3.2
000029A115		AFW system	4.1/3.9
000040G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.1/3.8
000040K105		Reactivity effects of cooldown	4.1/4.4
000040K106		High-energy steam line break considerations	3.7/3.8
000057A213		VCT level and pressure indicators and recorders	3.0/3.4
000059G005		Knowledge of the annunciator alarms and indications, and use of the response instructions	3.1/3.8
000059K105		The calculation of offsite doses due to a release from the power plant	2.6/3.6
000068A107		PZR heaters	4.1/4.2
000068K307		Maintenance of S/G level, using AFW flow control valves	4.0/4.3
000068K309		Transfer of the following to local control: charging pumps, charging header flow control valve, PZR heaters, and boric acid transfer pumps	3.9/4.4
000074A109		CVCS	3.7/3.8
000074A116		RCS in-core thermocouple indicators	4.4/4.6
000074A203		Availability of turbine bypass valves for cooldown	3.8/4.1

Group II Emergency and Abnormal Plant Evolutions Target: 16 % Actual: 17.4 %

000007 Reactor Trip	000027 PZR PCS Malfunction	000054 Loss of MFW
000008 Stuck Relief Value	000032 Loss of SRNI	000058 Loss of DC
000009 Small Break LOCA	000033 Loss of IRNI	000060 GRW Release
000022 Loss of RCS Makeup	000037 SG Tube Leak	000061 ARMS Alarm
000025 Loss of Residual Heat	000038 SG Tube Rupture	000065 Loss of IAS

K/A	Rep	Topic	Rating R/S
000007A110		S/G pressure	3.7/3.7
000008A222		Consequences of loss of pressure in RCS; methods for evaluating pressure loss	3.8/4.2
000008A226		Probable PZR steam space leakage paths other than PORV or code safety	3.1/3.4
000008G004		Knowledge of bases in technical specifications for limiting conditions for operations and safety limits	2.6/3.6
000009A215		RCP parameters	3.3/3.4
000009G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.2/3.9
000022K307		Isolating charging	3.0/3.2
000025A206		Existence of proper RHR overpressure protection	3.2/3.4
000027G006		Ability to locate and operate components, including local controls	3.6/3.6
000037A101		Maximum controlled depressurization rate for affected S/G	3.7/3.6
000037A215		Magnitude of atmospheric radioactive release if cooldown must be completed using steam dump or atmospheric reliefs	3.4/4.2
000037G012		Ability to utilize symptom based procedures	3.5/3.8
000038A118		S/G blowdown valve indicators	4.0/3.9
000054G012		Ability to utilize symptom based procedures	3.2/3.2
000054K303		Manual control of AFW flow control valves	3.8/4.1
000058G012		Ability to utilize symptom based procedures	3.3/3.4

Group III Emergency and Abnormal Plant Evolutions Target: 3 % Actual: 3.3 %

000028 Pressure Level Malfunction 000056 Loss of OffSite Power
000036 Fuel Handling Accident

K/A	Rep	Topic	Rating R/S
000056A128		SWS flow control valve for the CCW cooler to control CCW outlet temperature	3.1/3.1
000056A278		Bus voltmeters	2.7/3.0
000056G007		Ability to explain and apply all system limits and precautions	3.3/3.4

Facility: Example 1 - PWR Exam Date: _____

Knowledge and Ability Record Form
COUNT MATRIX

Summarizing Counts by K/A Group
for
PWR - Senior Reactor Operator

	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	SG	Total
Plant Wide Generics												13
Plant Systems I	1	0	1	3	3	0	1	3	1	0	5	18
Plant Systems II	2	1	2	3	0	1	2	2	0	1	2	16
Plant Systems III	1	0	0	0	0	0	0	0	0	1	2	4
Emergency/Abn I	3	1	2	.....			8	3	.....		7	24
Emergency/Abn II	0	0	4	.....			4	2	.....		6	16
Emergency/Abn III	0	0	0	.....			1	1	.....		1	3
Totals	7	2	9	6	3	1	16	11	1	2	23	=====
Model Total												94

PWR - Senior Reactor Operator Target: 17 % Actual: 13.8 %

K/A	Rep	Topic	Rating R/S
194001A101		Ability to obtain and verify control procedure copy	3.3/3.4
194001A102		Ability to execute procedural steps	4.1/3.9
194001A104		Ability to operate the plant phone, paging system, and two-way radio	3.0/3.2
194001A107		Ability to obtain and interpret station electrical and mechanical drawings	2.5/3.2
194001A112		Ability to direct personnel activities outside the control room	3.1/4.1
194001A113		Ability to locate control room switches, controls, and indications, and to determine that they are correctly reflecting the desired plant lineup	4.3/4.1
194001A115		Ability to use plant computer to obtain and evaluate parametric information on system and component status	3.1/3.4
194001K102		Knowledge of tagging and clearance procedures	3.7/4.1
194001K104		Knowledge of facility ALARA program	3.3/3.5
194001K108		Knowledge of safety procedures related to high temperature	3.5/3.4
194001K110		Knowledge of safety procedures related to caustic solutions	3.0/3.3
194001K115		Knowledge of safety procedures related to hydrogen	3.4/3.8
194001K116		Knowledge of facility protection requirements, including fire brigade and portable fire-fighting equipment usage	3.5/4.2

Group I Plant Systems Target: 19 % Actual: 19.2 %

001 Control Rod Drive
003 Reactor Coolant Pump
004 Chemical & Volume
013 E. Saftey Actuation
014 Rod Position Indic.
015 Nuclear Instrument.
017 In-Core Temperature
022 Containment Cooling
025 Ice Condenser
026 Containment Spray
056 Condensate System
059 Main Feedwater System
061 Aux./Emer. Feedwater
063 DC Electrical Dist.
068 Liquid Radwaste
071 Wast Gas Disposal
072 Area Radiation Mon.

K/A	Rep	Topic	Rating R/S
001010K537		Sign changes (plus or minus) in reactivity. obtained when positive reactivities are added to negative reactivities	3.2/3.4
003000K407		Minimizing RCS leakage (mechanical seals)	3.2/3.4
004000G007		Knowledge of purpose and function of major system components and controls	3.3/3.3
004010A301		RCS pressure and temperature	3.9/3.9
004010K502		Reason for nitrogen purge of CVCS	2.6/3.2
013000G010		Ability to explain and apply all system limits and precautions	3.6/3.8
013000K420		Reason for stopping CCW pump on train being tested	3.1/3.3
015000A201		Power supply loss or erratic operation	3.5/3.9
015000A202		Faulty or erratic operation of detectors or compensating components	3.1/3.5
015020K510		Definition of reactor poison	2.9/3.2
022000K102		SEC/remote monitoring systems	3.7/3.5
022000K302		Containment instrumentation readings	3.0/3.3
026000A204		Failure of spray pump	3.9/4.2
026000G010		Ability to explain and apply all system limits and precautions	3.3/3.5
026000G015		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency or abnormal operating procedures	3.8/4.1
061000A101		S/G level	3.9/4.2
072000G005		Knowledge of limiting conditions for operations and safety limits	3.0/3.6
072000K401		Containment ventilation isolation	3.3/3.6

Group II Plant Systems Target: 17 % Actual: 17.0 %

002 RCS	012 RPS	029 CPS	039 MRSS	073 PRM
006 ECCS	016 NNIS	033 SFPCS	055 CARS	075 CIRC
010 PZRPRS	027 CIRS	034 FHES	062 AC	079 SAS
011 PZRLCS	028 HRPS	035 S/GS	064 ED/G	086 FPS
				103 Containment

K/A	Rep	Topic	Rating R/S
002000A202		Loss of coolant pressure	4.2/4.4
006000K301		RCS	4.1/4.2
006020K403		Recirculation flowpath of reactor building sump	3.2/3.6
006050A401		ESF system, including reset	4.2/4.3
010000G007		Knowledge of purpose and function of major system components and controls	3.4/3.4
010000K201		PZR heaters	3.0/3.4
011000A101		PZR level and pressure	3.5/3.6
033000K301		Area ventilation systems	2.6/3.1
034000K601		Fuel handling equipment	2.1/3.0
035010A201		Faulted or ruptured S/Gs	4.5/4.6
039000K104		RCS temperature monitoring and control	3.1/3.1
064000K103		Diesel fuel oil supply system	3.6/4.0
064000K408		ED/G fuel isolation valves	2.9/3.5
086000A104		Fire dampers	2.7/3.3
103000G009		Ability to locate and operate components, including local controls	3.3/3.6
103000K401		Vacuum breaker protection	3.0/3.7

Group III Plant Systems Target: 4 % Actual: 4.3 %

005 Residual Heat Removal System
007 PZR Relief Tank/Quench
008 Component Cooling Water System
041 Steam Dump System Bypass Control
045 Main Turbine Generator
076 Service Water System
078 Instrument Air System

K/A	Rep	Topic	Rating R/S
005000K104		CVCS	2.9/3.1
007000G012		Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.0/3.1
008000A401		CCW indications and controls	3.3/3.1
008000G008		Knowledge of the annunciator alarms and indications, and use of the response instructions	3.2/3.3

Group I Emergency and Abnormal Plant Evolutions Target: 24 % Actual: 25.5 %

000001 Continuous Rod With.	000026 Loss of CCW	000059 LRW Release
000003 Dropped Control Rod	000029 ATWS	000067 Plant Fire Onsite
000005 Inoperable/Stuck Rod	000040 Steam Line Rupture	000068 CR Evacuation
000011 Large Break LOCA	000051 Loss of Vacuum	000069 Loss Containment
000015 RCP Motor Malfunction	000055 Blackout	000074 Inadeq. Core Cool
000024 Emergency Boration	000057 Loss of AC Elec. Instrument Bus	000076 High RCS Activity

K/A	Rep	Topic	Rating R/S
000001K302		Tech-Spec limits on rod operability	3.2/4.3
000003K203		Metroscope	3.1/3.2
000005G002		Knowledge of which events related to system operation/status should be reported to outside agencies	2.5/3.4
000026A101		CCW/nuclear service water temperature indications	3.1/3.1
000029G007		Ability to explain and apply all system limits and precautions	3.8/4.0
000040A103		Isolation of one steam line from header	4.3/4.3
000040A114		Nuclear instrumentation	4.2/4.2
000040K103		RCS shrink and consequent depressurization	3.8/4.2
000055G007		Ability to explain and apply all system limits and precautions	3.6/3.7
000055K101		Effect of battery discharge rates on capacity	3.3/3.7
000057A220		Interlocks in effect on loss of ac vital electrical instrument bus that must be bypassed to restore normal equipment operation	3.6/3.9
000057G006		Ability to locate and operate components, including local controls	3.5/3.8
000059A101		Radioactive-liquid monitor	3.5/3.5
000067A210		Time limit of long-term-breathing air system for control room	2.9/3.6
000067G001		Knowledge of system status criteria which require the notification of plant personnel	3.6/4.0
000068A204		S/G pressure	3.7/4.0
000069G007		Ability to explain and apply all system limits and precautions	3.5/3.6
000074A104		Turbine bypass or atmospheric dump valves, to obtain and maintain the desired pressure	3.9/4.1
000074A111		Reactor building sump and its interlocks	3.6/3.7
000074A117		S/G pressure and level indicators	4.0/4.1
000074A124		Turbine bypass valve hand/automatic controls, indicators, and setpoints	3.6/3.8
000074G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	4.5/4.6
000074K107		Definition of saturated steam	2.8/3.2
000074K306		Confirming that the PORV cycles open at the specified	3.9/4.2

Group I Emergency and Abnormal Plant Evolutions Target: 24 % Actual: 25.5 %

000001 Continuous Rod With.	000026 Loss of CCW	000059 LRW Release
000003 Dropped Control Rod	000029 ATWS	000067 Plant Fire Onsite
000005 Inoperable/Stuck Rod	000040 Steam Line Rupture	000068 CR Evacuation
000011 Large Break LOCA	000051 Loss of Vacuum	000069 Loss Containment
000015 RCP Motor Malfunction	000055 Blackout	000074 Inadeq. Core Cool
000024 Emergency Boration	000057 Loss of AC Elec. Instrument Bus	000076 High RCS Activity

K/A	Rep	Topic	Rating R/S
		setpoint	

Group II Emergency and Abnormal Plant Evolutions Target: 16 % Actual: 17.0 %

000007 Reactor Trip	000027 PZR PCS Malfunction	000054 Loss of MFW
000008 Stuck Relief Value	000032 Loss of SRNI	000058 Loss of DC
000009 Small Break LOCA	000033 Loss of IRNI	000060 GRW Release
000022 Loss of RCS Makeup	000037 SG Tube Leak	000061 ARMS Alarm
000025 Loss of Residual Heat	000038 SG Tube Rupture	000065 Loss of IAS

K/A	Rep	Topic	Rating R/S
000007A202		Proper actions to be taken if the automatic safety functions have not taken place	4.3/4.6
000007G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.5/3.8
000009K306		RCS inventory balance	3.9/4.0
000022G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	3.3/3.6
000022K303		Performance of lineup to establish excess letdown after determining need	3.1/3.3
000027G012		Ability to utilize symptom based procedures	3.2/3.4
000032G011		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures	3.1/3.4
000033G007		Ability to explain and apply all system limits and precautions	2.8/3.1
000037A107		CVCS letdown flow indicator	3.1/3.2
000037A204		Comparison of RCS fluid inputs and outputs. to detect leaks	3.4/3.7
000038A120		AFW flow control valve reset switches and indicators	3.8/3.6
000038A135		Steam dump condenser	3.5/3.6
000038A143		Manual isolation of steam dump valves	3.6/3.5
000038G008		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications	3.1/3.9
000038K309		Criteria for securing/throttling ECCS	4.1/4.5
000054K301		Reactor and/or turbine trip. manual and automatic	4.1/4.4

Group III Emergency and Abnormal Plant Evolutions Target: 3 % Actual: 3.2 %

000028 Pressure Level Malfunction
000036 Fuel Handling Accident
000056 Loss of OffSite Power

K/A	Rep	Topic	Rating R/S
000056A133		PORV block valve control switch	3.3/3.5
000056A229		Service water booster pump ammeter and flowmeter	3.0/3.2
000056G010		Ability to perform without reference to procedures those actions that require immediate operation of system components or controls	3.7/3.9

OPERATING

TEST

ADMINISTRATIVE

TOPICS

OUTLINE

ES-301 Administrative Topics Outline Form ES-301-1

Examination (Circle One): RO / SRO(I) / SRO(U) Set: PNL-2

Facility: [redacted] Week of Examination: [redacted]

Examinee's Name (print): _____

Administrative Topic / Subject Description		Describe Method Of Evaluation: 1. ONE Administrative JPM, or 2. TWO Administrative Questions
A.1	Shift Manning / Operations	a. Who can perform reactivity changes.
		b. Tech Spec requirement for HP Tech leaving site.
	Mode Changes / Daily Operations	c. Reactor startup permission
		d. AFP Surveillance for MODE change
A.2	Tagging and Use of P&IDs	a. Tag "B" SI Pump Demonstrate use of P&IDs
		b. MOV Tagging requirements
A.3	Radiation Control	a. RCA entry and exit JPM
A.4	Emergency Plan	a. Classify an event (SRO)
		b. Notification time limit (RO)
		c. What are the Emergency Director duties that cannot be delegated.

Examiner: [redacted] Chief Examiner: [redacted]

ES-301 Administrative Topics Outline Form ES-301-1

Examination Level (Circle One): RO / SRO(I) / SRO(U) Set: PNL-1

Facility: [redacted] Week of Examination: [redacted]

Examinee's Name (print): _____

Administrative Topic / Subject Description		Describe Method Of Evaluation: 1. ONE Administrative JPM, or 2. TWO Administrative Questions
A.1	Shift Manning	a. Use of Tech Specs for manning
		b. Who can perform reactivity changes.
	Mode Changes / Daily Operations	c. Reactor startup permission
		d. AFP Surveillance for MODE change
A.2	Tagging and Use of P&IDs	a. Tag "A" MDAFP out of service. Demonstrate use of P&IDs
		b. MOV Tagging Requirements
A.3	Radiation Control	a. RCA entry and exit JPM
A.4	Emergency Plan	a. Classify an event (SRO)
		b. Notification time limit (RO)
		c. Classification categories and emergency center activation.

Examiner: [redacted] Chief Examiner: [redacted]

Examination Level (Circle One): RO / SRO Set 2
Facility: [redacted] Week of Examination: [redacted]
Examiner's Name (print): [redacted]

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM 00105 - Calculate Boron for Shutdown Margin
	Key Control	How CBOR know he has key locker key after watch relief?
		Describe procedure for controlling Category E valve padlock key.
A.2	Temporary Modifications to Systems	How label window for pulled annunciator card?
		Which group responsible for identification and changeout of annunciator card?
A.3	Radiological Work Permits	What are ALARA Cat 1 and Cat 3 activities and required RWPs?
		What type RCA does NOT require RWP and which RCAs require pre-job briefs?
A.4	Emergency Communications	What shift positions become CR Notifications and Status Board Communicators?
		Who has to be notified first and when on Emergency Classification?

Examiner: [redacted] Chief Examiner: [redacted]

Examination Level (Circle One): RO / SRO Set 1
Facility: [redacted] Week of Examination: [redacted]
Examiner's Name (print): [redacted]

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM 00103 - Calculate ECP
	Short-Term Info	What position voltmeter select switches left in?
		How many flowpaths per BAMT required?
A.2	Tagging and Clearances	What label/card attached to grounding device, and who must attach it?
		What position must load center/switchgear/MCC breakers be Hold-carded in?
A.3	Radiation Exposure Limits	Define TEDE, TODE, and what are Federal limits?
		What are ADCLs for eye?
A.4	Emergency Action Levels	What are 3 fission product barriers and what classify if fail?
		On SAE, what off-site areas receive excessive exposures?

Examiner: [redacted] Chief Examiner: [redacted]

Examination Level (Circle One):		SROu
Facility: [redacted]	Week of examination	[redacted]
Examiner's Name (print):		
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM-Perform Boron Concentration Change Calculation
	Shift Operations - FIRE	Ques: THE MASTER REMOTE CONTROL PANEL
	Staffing	Ques: Maximum allowable hours of work
A.2	Tagging and Clearances	Ques: Temporary Alteration tagging
		Ques: Clearance tag removal authority
A.3	Radiation Control	Ques: Self-reading dosimeter requirements
		Ques: 10 CFR 20 term for external exposure
A.4	Emergency Plan	Ques: Requirements for notification of local and state emergency control facilities
		Ques: Requirements for notification of a change in protective action recommendations

Examiner: [redacted] Chief Examiner: [redacted]

ES-301 Administrative Topics Outline Form ES-301-1

Examination Level (Circle One):	RO / (SRO)	
Facility: [redacted]	Week of examination [redacted]	
Examiner's Name (print):		
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM-Perform Boron Concentration Change Calculation
	Procedure Temp Mods	Ques: Required frequency of field procedure reverification
	Staffing	Ques: Maximum allowable hours of work
A.2	Tagging and Clearances	Ques: Temporary Alteration tagging
		Ques: Clearance tag removal authority
A.3	Radiation Control	Ques: Self-reading dosimeter requirements
		Ques: 10 CFR 20 term for external exposure
A.4	Emergency Plan	Ques: Requirements for notification of local and state emergency control facilities
		Ques: Requirements for notification of a change in protective action recommendations

Examiner: [redacted] Chief Examiner: [redacted]

OPERATING

TEST

WALK-THROUGH

TEST

OUTLINE

EXAMPLES

Examination Level: RO

Facility: [redacted] Week of Examination: [redacted]

Examinee's Name (print): _____ Set: PNL-1R

System / JPM	Safety Function	Planned Followup Questions: K/A/G /Importance	
Recover a Dropped Rod (PNL-11) 000003A102 (3.6/3.4)	I SET "A"	Rod control operation	001000G007 (3.2/3.3)
		Rod control Tech Spec	001000G011 (3.4/3.9)
Power Range NIS Failed LOW (PNL-16 REVISED C-081) 015000A202 (3.1/3.5)	IX SET "A"	Tech Spec for failed Power Range NIS	015000G011 (3.1/3.8)
		PR inputs to Reactor Protection	015000K101 (4.1/4.2)
EDG Test - With fault (PNL-14) 064000A406 (3.9/3.9)	VII Alt Path STAND ALONE	EDG precautions	064000G010 (3.4/3.6)
		Diesel engine trips	064000K402 (3.9/4.2)
Lineup PASS Hydrogen Sample (PNL-17 REVISED C-079) 028000A403 (3.1/3.3)	VI SET "B"	Sources of LOCA H2	028000K503 (2.9/3.6)
		H2 removal systems	028000G004 (3.3/3.5)
Shift to Cold Leg Recirc - RHR fails during shiftover (PNL-15) 000011G012 (4.0/4.1)	III ESF for SRO(U) Alt Path SET "B"	Basis for separation	006030A402 (4.4/4.4)
		Shift between cold and hot leg recirc mode of recirculation	000011K313 (3.8/4.2)
The JPMs above this line are for Simulator. The ones below the line are in-plant/Control Room JPMs.			
Start an RCP in MODE 3 (PNL-12) 003000G010 (3.3/3.6)	IV Shutdown MODE	CONTROLLED LEAKAGE TS	003000A201 (3.5/3.9)
		RCP seal package	003000K103 (3.3/3.6)
Loss of CCW Pump/Service Loop (PNL-13) 000026G010 (3.6/3.5)	X	Basis of RCP seal isol	000026K304 (4.0/4.2)
		Automatic actions	008000A301 (3.2/3.0)
Local start of TDAFW pump (PNL-18 REVISED T-107) 000054A102 (4.4/4.4)	V	AFW Valve Operation	061000A301 (4.2/4.2)
		AFW Auto Starts	061000K402 (4.5/4.6)
RO Actions During Control Room Evacuation (PNL-19 REV T-104) 000068G006 (4.1/4.3)	VIII Abnormal	BOP Immediate Actions	000068G010 (4.1/4.2)
		ASP Operation	000068A128 (3.8/4.0)
Align PDP to BIT (PNL-110 REVISED A-143) 006000G009 (4.0/3.9)	II RCA	ECCS Funct/Operation	006000A303 (4.1/4.1)
		ECCS Tech Specs	006000G011 (3.6/4.2)

Examiner: [redacted] Chief Examiner: [redacted]

Examination Level (Circle One): SRO(U)

Facility: [redacted] Week of Examination: [redacted]

Examinee's Name (print): _____ Set: [redacted]

System / JPM	Safety Function	Planned Followup Questions: K/A/G /Importance
Power Range NIS Failed LOW (PNL-16 REVISED C-081) 015000A202 (3.1/3.5)	IX SET "A"	Tech Spec for failed Power Range NIS 015000G011 (3.1/3.8) PR inputs to Reactor Protection 015000K101 (4.1/4.2)
Shift to Cold Leg Recirc - RHR fails during shiftover (PNL-15) 005000G015 (3.8/3.9)	III ESF for SRO(U) Alt Path SET "B"	Basis for separation 006030A402 (4.4/4.4) Shift between cold and hot leg recirc mode of recirculation 000011K313 (3.8/4.2)
The JPMs above this line are for Simulator. The ones below the line are In-plant/Control Room JPMs.		
Start an RCP in MODE 3 (PNL-12) 003000G010 (3.3/3.6)	IV Shutdown MODE	CONTROLLED LEAKAGE TS 003000A210 (3.5/3.9) RCP seal package 003000K103 (3.3/3.6)
RO Actions During Control Room Evacuation (PNL-19 REV T-104) 000068G006 (4.1/4.3)	VIII Abnormal	BOP Immediate Actions 000068G010 (4.1/4.2) ASP Operation 000068A128 (3.8/4.0)
Align PDP to BIT (PNL-110 REVISED A-143) 006000G009 (4.0/3.9)	II RCA	ECCS Funct/Operation 006000A303 (4.1/4.1) ECCS Tech Specs 006000G011 (3.6/4.2)

Examiner: [redacted] Chief Examiner: [redacted]

ES-301 Individual Walk-Through Test Outline Form ES-301-2

Examination Level: SRO(I)

Facility: [redacted] Week of Examination: [redacted]

Examinee's Name (print): _____ Set: PNL-2A

System / JPM	Safety Function	Planned Followup Questions: K/A/G /Importance	
Emergency Boration (PNL-21 REVISED C-063) 000024K302 (4.2/4.4)	I SET "A"	Alt flowpath	000024A202 (3.9/4.4)
		Entry conditions	000024G011 (3.8/3.9)
CTMT Spray failed during LBLOCA (PNL-23) 026000G015 (3.8/4.1)	VI ESF - Alt Path SET "A"	CS sump design	026000K405 (2.8/3.3)
		Purpose of NaOH	026000G004 (3.6/3.9)
EDG Test (PNL-24 REVISED C-006) 064000A406 (3.9/3.9)	VII SET "B"	EDG precautions	064000G010 (3.4/3.6)
		Diesel breaker trips	064000K402 (3.9/4.2)
Loss of Source Range NIS (PNL-27) 000032G011 (3.1/3.4)	IX Shutdown MODE SET "B"	Affect of undercompensation on NIS	015000K407 (3.7/3.8)
		SR MODE 6 Tech Spec	015000G011 (3.1/3.8)
Shift to Hot Leg Recirc (PNL-25) 000011G012 (4.0/4.1)	III ESF STAND ALONE	Basis for separation	006030A402 (4.4/4.4)
		Shift between cold and hot leg recirc mode of recirculation	000011K313 (3.8/4.2)
The JPMs above this line are for Simulator. The ones below the line are in-plant/Control Room JPMs.			
Perform a dilution (PNL-26 / REVISED C-037) 004020A401 (3.8/3.3)	II	Reactivity effects	004010A203 (3.9/4.2)
		Loss of Letdown	004000A302 (3.6/3.6)
Start RCP - High seal leakoff (PNL-22) 000015A122 (4.0/4.2)	IV Shutdown MODE Alt Path	CONTROLLED LEAKAGE TS	003000A201 (3.5/3.9)
		RCP seal package	003000K103 (3.3/3.6)
Cooldown MDAFP Discharge (PNL-28 REVISED T-106) 061000G009 (3.8/3.9) 061000A206 (2.7/3.0)	V Abnormal	AFW Valve Operation	061000A301 (4.2/4.2)
		AFW Auto Starts	061000K402 (4.5/4.6)
SO Actions in Control Room Evacuation (PNL-29) 000068G006 (4.1/4.3)	VIII RCA	RO Immediate Actions	000068G010 (4.1/4.2)
		ASP Operation	000068A128 (3.8/4.0)
Align Alt ESF Pump Cooling During Loss of CCW (PNL-210) 000026G006 (3.4/3.6)	X Abnormal RCA	Basis of RCP seal isol	000026K304 (4.0/4.2)
		Automatic actions	008000A301 (3.2/3.0)

Examiner: [redacted] Chief Examiner: [redacted]

ES-301 Individual Walk-Through Test Outline Form ES-301-2

Examination Level: SRO(I)

Facility: [redacted] Week of Examination: [redacted]

Examinee's Name (print): _____ Set: PNL-2B

System / JPM	Safety Function	Planned Followup Questions: K/A/G /Importance	
Emergency Boration (PNL-21 REVISED C-063) 000024K302 (4.2/4.4)	I SET "A"	Alt flowpath	000024A201 (3.9/4.4)
		Entry conditions	000024G011 (3.8/3.9)
CTMT Spray failed during LBLOCA (PNL-23) 026000G015 (3.8/4.1)	VI ESF - Alt Path SET "A"	CS sump design	026000K405 (2.8/3.3)
		Purpose of NaOH	026000G004 (3.6/3.9)
EDG Test (PNL-24 REVISED C-006) 064000A406 (3.9/3.9)	VII SET "B"	EDG precautions	064000G010 (3.4/3.6)
		Diesel breaker trips	064000K402 (3.9/4.2)
Loss of Source Range NIS (PNL-27) 000032G011 (3.1/3.4)	IX Shutdown MODE SET "B"	Affect of undercompensation on NIS	015000K407 (3.7/3.8)
		SR MODE 6 Tech Spec	015000G011 (3.1/3.8)
Shift to Hot Leg Recirc (PNL-25) 000011G012 (4.0/4.1)	III ESF STAND ALONE	Basis for separation	006030A402 (4.4/4.4)
		Shift between cold and hot leg recirc mode of recirculation	000011K313 (3.8/4.2)
~~The JPMs above this line are for Simulator. The ones below the line are in-plant/Control Room JPMs.~~			
Start an RCP in MODE 3 (PNL-12) 003000G010 (3.3/3.6)	IV Shutdown MODE	CONTROLLED LEAKAGE TS	003000A201 (3.5/3.9)
		RCP seal package	003000K103 (3.3/3.6)
Loss of CCW Pump/Service Loop (PNL-13) 000026G010 (3.6/3.5)	X	Basis of RCP seal isol	000026K304 (4.0/4.2)
		Automatic actions	008000A301 (3.2/3.0)
Local start of TDAFW pump (PNL-18 REVISED T-107) 000054A102 (4.4/4.4)	V	AFW Valve Operation	[illegible] (4.2/4.2)
		AFW Auto Starts	061000K402 (4.5/4.6)
RO Actions During Control Room Evacuation (PNL-19 REV T-104) 000068G006 (4.1/4.3)	VIII Abnormal	BOP Immediate Actions	000068G010 (4.1/4.2)
		ASP Operation	000068A128 (3.8/4.0)
Align PDP to BIT (PNL-110 REVISED A-143) 006000G009 (4.0/3.9)	II RCA	ECCS Funct/Operation	006000A303 (4.1/4.1)
		ECCS Tech Specs	006000G011 (3.6/4.2)

Examiner: [redacted] Chief Examiner: [redacted]

ES-301 Individual Walk-through Test Outline 2 Form ES-301-2

Examination Level (Circle One): RO / SRO(I) / SRO(U)
Facility: [redacted] Week of Examination: [redacted]
Examiner's Name (print) [redacted]

System / JPM	Safety Function	Planned Follow-up Questions: K/A/G // Importance // Description
1. CRDS-NRC03 Recover CEA	I	a. 001000G010 [3.3/3.5] Basis for CEDMCS timer action?
		b. 001000A201 [3.1/3.7] How lose CEDM cooling?
2. CVCS-00002 Emergency Boration	II	a. 004000K404 [3.2/3.1] What auto functions lost in LOCAL?
	Alt	b. 004000A203 [3.6/4.2] How Emerg Borate w/pipe ruptures?
3. ECCS-30006 Align HPSI to Hot Leg	III	a. 006000K402 [2.8/3.0] What basis for HPSI header reliefs?
	Alt	b. 006050K402 [4.1/4.3] Why shut orifice bypasses?
4. HRPS-NRC04 Start H2 Recomb	VI	a. 028000G010 [3.0/3.2] Why start H_2 Analyzer for LOCA?
	ESF	b. 028000A403 [3.1/3.3] How H_2 Analyzer operate?
5. AC ELECT-10003 Backfeed 2A2	VII	a. 062000K201 [3.3/3.4] What designations for various panels?
		b. 062000K212 [3.2/3.6] When use overhead swing cables?
6. MTG-10020 Synch to Grid	V	a. 045000K413 [2.6/2.8] What conditions required for shell warming?
		b. 045010K425 [2.8/3.0] What happens to Load Set when Load Limit decreased?
7. RCPS-10010 Start RCP 2P32B	IV	a. 003000G010 [3.3/3.6] What basis for 500F temp. limit?
		b. 003000K614 [2.6/2.9] How soon start RCP?
8. EDGS-EDDCS Start EDG2 without DC	VII	a. 064000K203 [3.2/3.6] What supplies EDG field flash?
		b. 064000A401 [4.0/4.3] What meaning of amber light?
9. WGDS-GRWRL Release Rad Gas	XI	a. 071000G010 [2.5/2.7] What gas rad monitors have auto trips?
	RCA	b. 071000K104 [2.7/2.9] What backup for excess release?
10. CREVAC-NRC05 CR Evac-EO Tasks	VIII	a. 000068K318 [4.2/4.5] What accident assumptions in Alt SD Procedure?
		b. 000068K203 [2.9/3.1] Define Hot Shorts for Alt. SD Procedure.

Examiner: [redacted] Chief Examiner [redacted]

ES-301 Individual Walk-through Test Outline 1 Form ES-301-2

Examination Level (Circle One): RO / SRO(I) / SRO(U)
Facility: [redacted] Week of Examination: [redacted]
Examiner's Name (print) [redacted]

System / JPM	Safety Function	Planned Follow-up Questions: K/A/G // Importance // Description
1. CRDS-00003 Exercise CEAs	I	a. 001000A320 [3.7/3.6] What overlap required?
	Alt	b. 001000K103 [3.4/3.6] What function of lower gripper?
2. RHRS-NRC01 Initiate SDC	IV	a. 005000A204 [2.9/2.9] What effect of IAS loss on SDC?
		b. 005000K403 [2.9/3.2] Why 2SI5091-3 kept locked open?
3. SIT-140 Fill SIT C	III	a. 006020A304 [4.2/4.3] What actuations initiated by BAS?
	ECCS	b. 006000A303 [4.1/4.1] What prevents SIT overfill on SIAS?
4. CVCS-30002 Restore Letdown	II	a. 004010K101 [3.4/3.9] How control purif. flow rate on SDC?
		b. 004020A104 [2.8/3.0] What indications of CVCS demin leak?
5. EDGS-047/051 Start/Load EDG	VII	a. 064000K402 [3.9/4.2] What happens on LO detector failure?
		b. 064000K103 [3.6/4.0] How preclude start on air rolling?
6. CSS-20003 Initiate Spray	VI	a. 026000A301 [4.2/4.5] What intlks on NaOH tank/pump?
	Alt	b. 026000K102 [4.1/4.1] What source of pump seal water?
7. RPS-00057 Test TCBs	IX	a. 012000A403 [3.6/3.6] How/Where bypass low pressure trip?
		b. 012000A406 [3.0/3.2] How enable/ disable RPS trip bypasses?
8. SWS-NRC02 Shift 2P4B to Loop 2	V	a. 076000A202 [2.7/3.2] Why ruptured SWS hdr return to lake left open?
		b. 076000K406 [2.8/3.2] Why start 2P4B before swap Xconn's?
9. LRS-LRWLR Release Rad Liquid	XI	a. 068000G014 [2.6/2.8] What action take if RM trip setpoint wrong?
	RCA	b. 068000K107 [2.7/2.9] Which LWS receives contmt sump?
10. AC Elect-Y22SU Start 2Y22	VII	a. 062000A201 [3.4/3.9] What effect of losing battery eliminator?
		b. 062000K403 [2.8/3.1] What trips on fast Xfer to SUT #3?

Examiner: [redacted] Chief Examiner: [redacted]

ES-301 Individual Walk-through Test Outline Form ES-301-2

Examination Level (Circle One): SRO(U)

Facility: [redacted] Week of Examination [redacted]

Examiner's Name (print):

System / JPM	Safety Funct.	Planned Follow-up Questions: K/A/G // Importance // Description
1. FW Control/Reactor Trip Override	IV Alt-Path Mod CR	a. 000037K305 (3.7/4.0) SGTR Actions
		b. 059000G005 (2.8/3.4) Startup Main Feed Pump.
2. HPSI/Hot & Cold Leg Injection	II CR	a. K/A: 0000009A239 (4.3/4.7) RCS Temp. during LOCA.
		b. K/A: 000011A204 (3.7/3.9) PZR level during a LOCA
3. CEA/Operability Check	I CR	a. K/A: 000003A105 (4.1/4.1) Dropped CEA
		b. K/A: 000057A219 (4.0/4.3) Reactor Trip
4. CVCS/Purge VCT	VIII Plant	a. K/A: 004010K609 (4.4/4.6) Emergency Boration.
		b. 004000A032 (3.6/3.6) Letdown isolation.
5. ACCW/Manual Start of ACCW Pump	X Plant	a. K/A: 008000A202 (3.2/3.5) CCW during a SIAS.
		b. K/A: 008000A202 (3.2/3.5) Location of CC isolation valve.
6.		a.
		b.
7.		a.
		b.
8.		a.
		b.
9.		a.
		b.
10		a.
		b.

Examiner: [redacted] Chief Examiner: [redacted]

Examination Level (Circle One): SRO(I)

Facility: [redacted] Week of Examination [redacted]

Examiner's Name (print):

System / JPM	Safety Funct.	Planned Follow-up Questions: K/A/G // Importance // Description
1. RCP/Start an RCP	IV S/D Alt- Path	a. 003000K113 (2.5/2.5) Reason for RCP oil lift pumps
		b. 003000G007 (3.2/3.3) Purpose of RCP Speed sensors
2. H2/Start the Hydrogen Recombiners	VI	a. 028000K301 (3.3/4.0) H2 recombiner unavailability
		b. 028000K503 (2.9/3.6) Sources of hydrogen
3. HPSI/Hot & Cold Leg Injection	II	a. 009000A239 (4.3/4.7) RCS temperature during LOCA.
		b. 011000A204 (3.7/3.9) PZR level during LOCA
4. SIAS/Reset SIAS and CIAS	IX	a. 006030K603 (3.3/3.6) HPSI Pump cooling
		b. 013000A301 (3.7/3.9) Bypass operations
5. CEA Operability Check	I	a. 003000A105 (4.1/4.1) Dropped CEA
		b. 057000A210 (4.0/4.3) Reactor trip
6. EDG/Synchronize and load the EDG	VII Alt- Path	a. 064000A301 (4.1/4.0) Output breaker closure conditions
		b. 064000K203 (3.2/3.6) DC control power bus
7. MFW/Place MFW pump in service	V	a. 059000K419 (3.2/3.4) MFW isolation
		b. 059000A211 (3.0/3.3) FW control failure
8. CRDM/CEA Drive MG Set startup	I	a. 001000K603 (3.7/4.2) Trip logic
		b. 001010K603 (3.1/3.3) PPS failure
9. SFP/Add Makeup to the SFP from the RWSP	XI Abnorm	a. 033000K405 (3.1/3.3) Maintain Keff
		b. 033000K403 (2.6/2.9) Syphon breaks
10 CVCS/Purge VCT	VIII	a. 004010K609 (4.4/4.6) Emergency boration
		b. 004000A032 (3.6/3.6) Letdown isolation

Examiner: [redacted] Chief Examiner: [redacted]

OPERATING

TEST

SCENARIO

OUTLINE

EXAMPLES

SCENARIO EVENTS

mulation Facility [redacted] Scenario No. A-1

Examiners: _____ Applicants: _____

_____ _____

_____ _____

Initial Conditions: IC-2, MOL, 100%, steady state

Turnover: OOS - DG-1 (4 hours ago) and "A" charging pump (8 hours ago). Neither expected back this shift.

1 gph SGTL on "B" S/G.. Thunderstorms will be passing through the area later. Maintain power.

EVENT NO.	MALF. NO.	TYPE*	EVENT DESCRIPTION
Preexisting Malfunctions	X:EH3902		Main turbine fails to auto trip.
	I/O		2 stuck CEAs in shutdown banks
1.	I/O	RO-I	Letdown pressure processor (PIC-4812) fails low.
2.	I/O	RO-C	Failure of RCP "C" lower seal.
3.	I/O	BOP-C	SIT "B" outlet valve fails closed - unrecoverable
4.	---------	RO-R BOP-N	Load decrease and plant shutdown.
5.	XITR0401,2	BOP-I	"A" Steam Generator level transmitter (2LT-1033) fails high.
6.	I/O	RO-M BOP-M	Failure of all seals on RCP "C"--LOCA. (5 - minute ramp cued on seal failure)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Examiner: _____

Chief Examiner: [redacted]

SCENARIO EVENTS

imulation Facility [redacted] Scenario No. A-3

Examiners: _____ Applicants: _____

_____ _____

_____ _____

Initial Conditions: IC-33, MOL, 90%, steady state

Turnover: OOS - DG-1 (4 hours ago) and "A" boric acid pump (8 hours ago). Neither is expected back by end of shift.

1 gph SGTL on "B" S/G. Thunderstorms will be passing through the area later. Maintain power.

EVENT NO.	MALF. NO.	TYPE*	EVENT DESCRIPTION
Preexisting Malfunctions	I/O		DG-2 output breaker fails to autoclose.
1.	XITR0201,1	RO-R RO-I	Increase power to 100% Letdown heat exchanger outlet temperature transmitter (2TE-4815) fails low.
2.	I/O	BOP-I	"A" main steam flow transmitter (2FT-1030) fails low.
3.	XRCH5002, 60 gpm	RO-C	"B" charging pump suction line rupture.
4.	X:LO7901	BOP-C	Loss of lube oil to "A" MFW pump turbine
5.	X:EA8800	RO-M BOP-M	~~Unit auxiliary transformer struck by lighting~~ - reactor trip
6.	X:EA8902	RO-M BOP-M	~~Startup No. 3 transformer Failure~~ station blackout

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Examiner: _____

Chief Examiner: [redacted]

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: 1-2

Examiners: [redacted] Applicants: [redacted]

Initial Conditions: IC-30: The plant is at 100% power at end of core life with boron concentration at 40 ppm and equilibrium xenon. ESI is 0.04 with a deviation band of +/- 0.02. BAMT is at 5000 ppm. EFW pump A/B is OOS due to a crack in the steam casing. SG A has a tube leak of about 0.25 gpd (tracking - not in off normal). Condenser exhaust is in the Atmosphere position.

Turnover: Maintain 100% power operations.

Event No.	Malf. No.	Event Type*	Event Description
1	CV17	C-RO	Letdown HX tube leak (15 gpm)
2	RX14A	I-RO	PZR controlling pressure transmitter fails high.
3	FW21B FW10B	C-BOP	Loss of condenser vacuum. B Condenser vacuum pump starts then trips 30 seconds later (leak at 5% initially, then ramp to 10% over 15 minutes).
4		R-RO	Power reduction due to loss of condenser.
5	RC11A1 RP03	C-BOP MT	PZR relief valve fails open. T/G fails to trip.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: 1-4

Examiners: [redacted] Applicants: [redacted]

Initial Conditions: IC-18: 55% power, ASI control is in progress with PLCEAs. ESI is 0.00 with a deviation band of ±0.02. RCS boron is 788 ppm, BAM tanks at 5000 ppm. Both MFPs in service. Equipment OOS: MS-320-A leaks and is manually isolated, CEDM fan D, bad motor.

Turnover: The plant has been at 55% for the last 2 days due to repairs on MFP B. Prior to that, the plant had been at 100% for 60 days. Repairs are complete and both feedpumps are in service. Raise power to 100% by dilution while controlling ASI with CEAs.

**: NOTE PRESET MALFUNCTION ON EVENT 5

Event No.	Malf. No.	Event Type*	Event Description
1		R/N	Increase power to 100%
2	RC19A (100%)	I	RCS loop 1 Tc safety transmitter (TT-0112A) fails HI - safety channel A.
3	SG01B (5%), I/O	M/C	SGTR on SG2/** (preset "RAD MONITORING SYS HI" annunciator CP-36, CAB-L, A09, fails to illuminate) (Preset AE-117 red light ON, AE-118 green light on)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: 1-1

Examiners: [redacted] Applicants: [redacted]

[redacted]

[redacted]

[redacted] (BOP)

Initial Conditions: IC-30: The plant is at 100% power at end of core life with boron concentration at 40 ppm and equilibrium xenon. ESI is 0.04 with a deviation band of +/- 0.02. BAMT is at 5000 ppm. EFW pump A/B is OOS due to a crack in the steam casing. SG A has a tube leak of about 0.25 gpd (tracking - not in off normal). MS-320-A leaks and is manually isolated. CEDM fan D, bad motor.

Turnover: Maintain 100% power operations. EDG A has been loaded for 15 minutes for a monthly surveillance.

Event No.	Malf. No.	Event Type*	Event Description
1	CV01B	C-RO	Charging pump B trips on overcurrent.
2	EG10	C-BOP	EDG trips on overspeed.
3	SG06A	I-BOP	SG A level transmitter fails high.
4	SG01	C-BOP C-RO	SG A tube leak at 30 gpm (ramp 3 minutes) (severity 0.20).
5		N-BOP R-RO	Power reduction due to SG tube leak.
6	MS13B	M	MSLB SG B outside containment before MSIV (10% ramp - 5 minutes).

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: 1-3

Examiners: [redacted] Applicants: [redacted] (RO)

[redacted]

[redacted]

Initial Conditions: IC-18: 55% power, ASI control is in progess with PLCEAs. ESI is 0.00 with a deviation band of ±0.02. RCS boron is 788 ppm, BAM tanks at 5000 ppm. Both MFPs in service. Equipment OOS: MS-320-A leaks and is manually isolated, CEDM fan D, bad motor.

Turnover: The plant has been at 55% for the last 2 days. Prior to that, it was at 35% for 3 days while awaiting repairs on MFP B. Lower power by boration to 50% while controlling ASI with CEAs to allow engineer to evaluate the B MFP repairs. Leave both pumps in service during the downpower.

Event No.	Malf. No.	Event Type*	Event Description
1		R/N	Reduce power to 50%
2	CH06-A.1	I	After power reduced 2-5%, CNTMT sump level xmter fails HI. (tech spec LCO)
3	RD09F	C	If possible, during next CEA control for ASI, continuous CEA withdrawl requiring a manual reactor trip.
3a	RP01A&D (pre-set)	M	RPS manual pushbuttons A and D fail to trip reactor.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: 1.1MM (91-03)

Examiners: _____ Applicants: _____

Initial Conditions: SEE ATTACHED

Turnover: SEE ATTACHED

RUN TIMES / GROUPINGS

START Event No.	Malf. No.	Event Type*	Event Description
1	MAL RCS1 ACT	I	'A' LOOP T-cold RTD FAILS HIGH
2	MAL RCS2 ACT,0,50	C/N/R	50 GPM TUBE LEAK ON SG 'D' COMMENCE NORMAL SHUTDOWN
3	MAL PRS1 ACT	I	CONTROLLING PRZR PRESSURE CHANNEL (455) FAILS HIGH (INITIATE AFTER PLANT SHUTDOWN STARTS)
4	SMLRCS2= .174	M	SG 'D' TUBE RUPTURE (600 GPM)
END	MAL RCS9 ACT,RTB,,0	C	'B' TRAIN REACTOR TRIP BREAKER FAILS TO OPEN

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

INITIAL CONDITIONS/TURNOVER

IC-22

100% POWER, MOL, FOR 73 DAYS

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: 1.2MM (91-07)

Examiners: _____ Applicants: _____

Initial Conditions: SEE ATTACHED

Turnover: SEE ATTACHED

Event No.	Malf. No.	Event Type*	Event Description
1		N/R	INCREASE POWER TO 95%
2	MAL EPS6 ACT,2,,0 MAL AFW2 ACT,2	C	NB02 BUS LOCKOUT (~~3-5 MINUTES AFTER EVENT 2~~) TD AFW FAILS TO AUTO START
3	MALF NIS3 ACT	I	POWER RANGE NIS DETECTOR N41 FAILS
4	MAL PRS7 ACT,1, 100,60,,0	I	PRZR SPRAY VALVE MASTER CONTROLLER CAUSES BOTH SPRAY VALVES TO OPEN IN AUTO (Manual control available)
5	MAL EPS1 ACT,1,2,,0	M/C	STATION BLACKOUT - EME C-00 TD AFW PUMP FAILS TO START AUTOMATICALLY CAN BE RESET
END	MAL AFW2 ACT,1		

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

INITITAL CONDITIONS/TURNOVER:

IC21

% POWER, MOL:

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: TOM-1 (91-34)

Examiners: _____ Applicants: _____

Initial Conditions: SEE ATTACHED

Turnover: SEE ATTACHED

Event No.	Malf. No.	Event Type*	Event Description
← START			
1		R/N	Power Reduction to 80%
3	RCS1 ACT	I	Controlling PZR pressure channel PT-457 fails to 2500 psig
2	PRS1 ACT	I	RCS Loop 'A' Tc fails high, Tavg fail hi causing inward rod motion.
4	NB01 L/O	C	NB01 develops a fault/Loss of bus. (TS 3.7.1.2, action b), EDG A fails to load.
5	MSS6/RCS8 MSS4.C.5.4 E6	M/C	*CUE: Security calls in major earthquake. Earthquake causes MSIV 'C' to close. The reactor WILL NOT auto trip. SG 'C' becomes faulted (On command from chief examiner, after MSIV closes).
← END			

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: TOM-2 (91-28)

Examiners: _____ Applicants: _____

Initial Conditions: SEE ATTACHED

Turnover: SEE ATTACHED

Event No. ←START	Malf. No.	Event Type*	Event Description
1	CRF4 ACT,SG,H8	C	Dropped rod - Control rod H8.
2	PCS2 ACT	I	First stage pressure transmitter PT-505 fails LOW.
3	RCS2 ACT,D,50,	C/R/N	"D" SG Tube Leak. Plant shutdown.
4	NIS3 ACT	I	Power Range NIS detector N41 fails HI.
5	RCS2 ACT,D,50, ACT,D,600	M	SG "D" Leak grows to a 600 gpm SGTR.
←END			

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]
Chief Examiner

* NOTE: SIMULATOR HUNG AT 0940AM. RESTARTED SCENARIO AT 0953am WITH LITTLE IMPACT ON TEST.

[redacted] 4/26/95

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: TOM-3 (91-10)

Examiners: _____ Applicants: _____

_____ _____

_____

Initial Conditions: SEE ATTACHED

Turnover: SEE ATTACHED

Event No. ← START	Malf. No.	Event Type*	Event Description
1		R/N	Power Reduction to MODE-5
2	PRS1 ACT,455,2500	I	PZR pressure channel 455 fails HI, causing RCS pressure to drop until the alternate channel is selected.
3	EWM3 D2,0 preload	I	"D" SG FRV controller fails LOW/Reactor Trip on low/low SG level -NO manual control available.
4	TUR8 option 2 preload	C	The main turbine fails to trip and can only be tripped locally by dumping EHC or tripping the EHC pumps.
5	MSS2 option 9 preload	M/C	SI and MSIS due to low steamline pressure. The "A" MSIV fails to close.
← END			

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]

Chief Examiner

BACK-UP - NOT RUN

Scenario Events Form ES-301-3

Simulation Facility: [redacted] Scenario No.: TOM-4 (91-12)

Examiners: _____ Applicants: _____

_____ _____

_____

Initial Conditions: SEE ATTACHED

Turnover: SEE ATTACHED

Note: PRESET:

FWM9 ACT, 3,5E6,0,JMLMSS13,600

AFW2 ACT,B,NALP01B,GT,0,30 SET CAL08=0.0 PRESET

Event No.	Malf. No.	Event Type*	Event Description
1		R/N	Power Reduction to 60%
2	MSS13 ACT	I	MSL Pressure Transmitter PT-507 fails low.
3	MSS7 ACT	C	The ARV on 'A' SG fails to 95% OPEN.
4	PRS7 ACT 1,160,60,,0	I	The Master PZR pressure controller fails.
5	PRESET FWM9 3,2.0 E7 AFW1 B AFW2 2	M/C	Feedwater leak downstream of the MFWPs/Reactor Trip/Loss of all feedwater.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Review Complete: [redacted]

Chief Examiner