UNITED STATES
NUCLEAR REGULATORY COMMISSION
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Docket Nos: 50-390
and 50-391

APPLICANT: Tennessee Valley Authority

FACILITY: Watts Bar Nuclear Plant, Units 1 & 2

SUBJECT: SUMMARY OF MEETING TO DISCUSS RUSKIN FIRE DAMPERS AT THE WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2

On March 27, 1985, representatives from TVA and the NRC met to discuss resolution of the concern regarding Ruskin fire damper use at the Watts Bar facility. Enclosure (1) is the list of attendees. Enclosure (2) is the applicant's presentation.

A concern was raised by TVA that, according to their analysis, some of the Ruskin fire dampers would not close during a fire due to an inability to overcome air flow velocities. To respond to the concern, TVA proposed to shut off the ventilation system if the fire brigade leader determined it necessary to do so. The staff was concerned that not enough consideration would be given to this action despite the brigade member's training, and concluded it prudent to shut the ventilation system off immediately upon notification of a fire, and then determine if it was prudent to start the system up again.

Following discussion of various proposals to resolve the concern, TVA presented their final proposal as documented in TVA's letter dated March 28, 1985.

Thomas J. Kenyon, Project Manager
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Division of Licensing

cc: See next page

DESIGNATED ORIGINAL

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Enclosure (1)

RUSHIN FIRE DAMPER MEETING

WATTS BAR MEETING

MARCH 27, 1985

NAME	ORGANIZATION
T. J. Kenyon	DL/LB #4
R. H. Shell	TVA/Nuclear Licensing Branch
R. M. Pierce	TVA/Watts Bar Project Manager
J. Benaroya	NRR/DE/CMEB
R. E. Thompson	TVA/Risk Management
E. G. Adensam	NRR/DL/LB #4
L. A. Johnson	TVA/OE/Mech. Engr. Branch
J. J. Ritts	TVA/OE/Licensing
G. A. Silver	TVA/OE/Mech. Engr. Branch
R. H. Ferguson	NRR/DE/CMEB
Dennis Kubicki	NRR/DE/CMEB
K. S. West	NRR/DE/CMEB
J. Loud	TVA

AUTOMATIC SHUTDOWN PROBLEMS

1. HVAC SHUTDOWN DUE TO SPURIOUS ALARMS.

2. DETECTOR INSENSITIVITY DUE TO DILUTION AIR.

3. DIFFICULTY LOCATING FIRES.

4. BREATHING APPARATUS MAY BE NECESSARY.

5. SMOKE DAMAGE TO ADJACENT EQUIPMENT.

6. UNNECESSARY UNIT SHUTDOWN.

7. PERSONNEL SAFETY.

ENCLOSURE (2)

DAMPER DESIGN

--U.L. LISTED PER UL 555.

--SEISMICALLY QUALIFIED CATEGORY I

--APPROVED QA PROGRAM

--CLOSE ON HIGH TEMPERATURE

TVA DAMPER CLOSURE WITHOUT AIRFLOW BASED ON:

--LARGE DUCTS WITH HIGH VELOCITIES.

--DIFFICULTY IN CLOSING MULTI-SECTION FIRE DAMPERS.

--UL 555 TESTS.

ADDITIONAL DESIGN FEATURES

--MAJORITY OF DAMPERS CLOSE WITH OR WITHOUT FLOW (288 OUT OF 364)

--ALL SHUTDOWN DAMPERS SPRINKLER PROTECTED (30 ON BOTH SIDES - REMAINING 19 ON ONE SIDE)

--UNPROTECTED DAMPERS NOT NEEDED FOR SHUTDOWN

FIRE BRIGADE COMPOSITION

--ALL OPERATIONS

--FIRE BRIGADE LEADER - ASE

--RESPONSE TEAM

--BACKUP BRIGADE

FIRE BRIGADE TRAINING

--STUDENT OPERATOR TRAINING - > 2 YEARS

--PLANT SPECIFIC TRAINING

--FIRE BRIGADE MEMBERSHIP TRAINING - 32 HOURS REPEATED EVERY 4 YEARS

--FIRE INCIDENT COMMAND COURSE (FOR BRIGADE LEADERS) - 32 HOURS REPEATED EVERY 4 YEARS

--FIRE BRIGADE REFRESHER COURSE - 8-HOUR ANNUALLY

--FIRE BRIGADE MEETINGS - QUARTERLY

--FIRE DRILLS - QUARTERLY

NAME OF PROGRAM Fire Brigade Course

LESSON PLAN SEQUENCE Classroom #14 - Part I

TITLE Fundamental Elements of Firefighting, Strategy and Tactics - Part I

INSTRUCTOR'S LESSON PLAN

INSTRUCTOR'S NOTES AND REFERENCES	TEACHING POINTS
	b. Choosing the proper extinguishing agent
	c. Moving equipment out of an exposed area
D. Ventilation - define	D. Ventilation - the systematic removal of smoke, heat and gases from the fire building
Introduce film: Ventilation	1. Reasons for ventilation
1. Reviews stages of fire	a. Confine the fire
2. Heat and smoke travel	b. Protect exposures
3. Basic principles of ventilation	c. Rescue
4. Demonstrates methods of forcible entry.	d. Speeds attack and extinguishment
Review key points	e. Reduces danger of backdraft
1. Key word is controlled release of smoke, heat and gases	2. Types of ventilation
2. Facilitate resuce	a. Horizontal
3. Protect exposure	b. Vertical
4. Confine fire	3. Methods of ventilation
5. Reduces backdraft likelihood	a. Mechanical
6. Prevents mushrooming	b. Natural
7. Never ventilate below fire	4. Ventilation in nuclear plants
	a. If radioactive materials involved, use as little ventilation as possible

NAME OF PROGRAM Fire Brigade Course

LESSON PLAN SEQUENCE Classroom #14

TITLE Fundamental Elements of Firefighting Strategy and Tactics (Part II)

INSTRUCTOR'S LESSON PLAN

INSTRUCTOR'S NOTES AND REFERENCES	TEACHING POINTS
	VI. Confining the fire
	A. Fourth objective of the nine fundamentals of firefighting.
B. Can be extremely difficult-explain	B. Must first locate fire
	C. Must confine fire to its location at time of arrival of fire brigade.
D. Explain - give examples	D. Must not spread the fire by incorrect methods of attack or ventilation.
E. Give examples	E. Means of fire travel or extension
	1. Conduction
	2. Radiation
	3. Convection
F. Explain	F. Six sides of fire or six directions of fire travel.
	1. Must check all six sides - never assume the fire hasn't extended.
2. FBL can only see 1 or 2 sides of fire - must rely on "sectored" FBM.	2. Must communicate fire extension information back to FBL
	G. Avenues of structural fire travel.
1. OHT #5 (Brady Unit 13, Section 1, No. 10)	1. Common to all structurals
	a. Elevator shafts
	b. Ventilation shafts
	c. Pipe chases
	d. Stairways

NAME OF PROGRAM Fire Brigade Course

LESSON PLAN SEQUENCE Classroom #14

TITLE Fundamental Elements of Firefighting Strategy and Tactics (Part II)

INSTRUCTOR'S LESSON PLAN

INSTRUCTOR'S NOTES AND REFERENCES	TEACHING POINTS
2. OHT #6 (Brady Unit 4, Section B, No. 2) Ask Class	2. Other means in TVA
	a. (Examples given on OHT #6)
	b. Vertical and horizontal cable trays.
	c. Explosion at time of fire
c. i.e., – O.C.B.	d. Grating floor
	e. Beside boiler
	f. Coal transfer belts
g. OHT #7 (Brady Unit 29, Section 8, No. 11)	g. False ceilings
h. OHT #8 (Brady, Unit 29 Section 8, No. 9) Stress again – never assume fire has not extended.	h. Walls
	i. Steel beam pentrating concrete wall.
	j. Any penetration openings in walls or ceiling.
	k. Never assume dampers in ventilation ducts have closed.
l. OHT #9 (Brady Unit 29, Section 1 No. 6) Use a plant scenerio to explain. i.e., small confined room – small fire – FBL has two FBM's to advance a hose line inside. They notice its extremely hot. Alternatives.	l. Radiate heat – flashover

AUXILIARY BUILDING

EL 676 & 692

PRE FIRE PLAN

Summary: Auxiliary Building levels 676 and 692 are separated from the Control Building and Reactor Building with 3-hour fire rated walls and penetration. The inner rooms and areas are divided with 1½-hour fire rated walls and penetrations with the following exceptions which have no required fire rating:

EL 676: Spare room, floor drain collecting tank and pump rooms, gas stripper feed pump room and elevator.

EL 692: Concentrate filter room, evaporative package rooms, spare room, valve galleries, spent resin tank room, chemical drain tank room and elevator.

Each level has fire hose racks of 100 feet, 1", as shown on the attached figure. Sprinkler protection of rooms on EL 692 is controlled by FCV-0-26-191 on EL 676 adjacent to elevator. See figure 2. No installed automatic suppression systems exist on EL 676.

I. COMBUSTIBLES

A. Electrical cable insulation and switch material
B. Lube oils
C. Chemicals
D. Hydrogen

II. HAZARDS/PRECAUTIONS

A. Toxic gases: cable and motor insulation and chemicals
B. Conjestion
C. Critical safety areas
D. Hatch between EL 676 and EL 692
E. Locked Doors

III. VENTILATION

A. If indicated by fire conditions the fire brigade leader can isolate the fire by closing doors and supply ventilation system if applicable.

1. Some fire dampers may not fully close under normal ventilation flow conditions. The fire brigade leader must assess the potential for spreading of a fire to adjacent fire cells and shut off ventilation systems as necessary to ensure fire damper closure to maintain fire cell integrity.

B. If the situation requires manual smoke removal, the fire brigade leader can use portable fans and duct to route smoke as follows:

1. On elevation 676 the smoke can be vented into rooms 674.0 A1, 674.0 A2, or 676.0 A5.
2. On elevation 692 the smoke can be vented into rooms 692.0 A8, 692.0 A18, 692.0 A24, 692.0 A30, 692 A31, 676.0 A2, or 676.0 A3.