

Bucket No. 50-346

License No. NPF-3

Serial No. 1-390

MP 1410.76

Davis-Besse Nuclear Power Station

Enclosure #2

Unit No. 1

Maintenance Procedure MP 1410.76

Control and Regulation of Transient Combustibles

NUCLEAR SAFETY RELATED

Record of Approval and Changes

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		Date
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	SRB Chairman	Date
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	Quality Assurance Director	Date
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Revision	SRB		QA		Sta. Supt.	
No.	Recommendation	Date	Approved	Date	Approval	Date

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1. PURPOSE

To control and govern the amount of transient combustibles that may be transported into a safety related area.

2. REFERENCES

- 2.1 BTP 9.5-1 Fire Protection Guidelines for Nuclear Power Plants
- 2.2 DBNPS Fire Hazards Analysis Report
- 2.3 ANSI N45.2.2-1972 Material Storage and Handling Requirements (RG 1.38, dated 3/16/73)

3. DEFINITIONS

- 3.1 Fire Load - Refers to the amount of combustible material present in a given situation. The fire load is employed to calculate a number to assist in the evaluation of the total combustible loading, including both the in-situ and transient materials, for a given area.
- 3.2 Maximum Allowable Fire Load - The fire load expressed in BTU's per square foot (BTU/Ft^2) that the automatic and manual suppression systems are capable of removing per unit time based on the water suppression design criteria expressed in gallons per minute per square foot.
- 3.3 Allowable Transient Fire Loads - Shall be defined as any combustible or flammable liquids, wood and plastic products, spilled oil, oil drums, and other combustible and/or explosive materials that are NOT permanently installed or in a designated permanent storage area.
- 3.4 Storage - Any designated room or area in which articles are stored, kept, or accumulated for some future use and drawn upon as needed.
- 3.5 Current Combustible Loading - Shall be defined as the current amount of any combustible or flammable liquids, wood and plastic products, spilled oil, oil drums, and other combustible and/or explosive materials which is in-situ to an area or room.
- 3.6 In-situ - Combustibles which are not transient and are permanent fire loads in a room or area.

4. USE AND STORAGE OF TRANSIENT COMBUSTIBLE MATERIALS

- 4.1 The use of transient combustibles during maintenance and modification, such as combustible and flammable gasses and liquids, wood and plastic products, combustible fuels and lubricants, HEPA and

charcoal filters, dry unused ion exchange resins and other combustible materials, shall be controlled in areas containing safety related equipment or systems.

- 4.2 This control will require an in-plant review of proposed major work activities to identify potential transient fire loads which exceed the designated transient fire load limit for each work area as established in Attachment 1 of this procedure.
- 4.3 When the transient fire load causes the total fire load of the area to exceed the Maximum Allowable Fire Load (BTU/Ft²) as outlined in Attachment 1, additional portable suppression equipment should be brought into the area throughout the duration of which the Maximum Allowable Fire Load (BTU/Ft²) is exceeded.
- 4.4 The Responsible Department should have the work area physically surveyed for combustible materials necessary to perform the designated work activity and complete Column 1 of Attachment 3, Section 1-4, indicating the approximate amount of each type of combustible material necessary to complete the maintenance or modification and forward to the fire protection coordinator for completion.
- 4.5 The Fire Protection Coordinator or his designee shall calculate the total transient fire load in BTU's/Ft² as per Attachment 2. The Fire Protection Coordinator or his designee will compare the additional transient fire loading (BTU's/Ft²) (calc. from Attachment 2) to the Allowable Transient Fire Load (BTU's/Ft²) (Attachment 1).

If the additional Transient Fire Load (BTU's/Ft²) is in excess of the Allowable Transient Fire Load, the Fire Protection Coordinator or his designee will complete Section 6 of Attachment 3.

- 4.6 The Fire Protection Coordinator or his designee, based on the amount by which the transient fire load exceeds the Maximum Allowable Fire Load, will determine the number and type of additional fire suppression systems required for the work activity, and inform the responsible foreman/supervisor of the amount and type of additional suppression required (Attachment 3, Section 7). Additional guidelines for use of fire suppression equipment are depicted on Attachment 4.
- 4.7 If the Transient Fire Load does not exceed the Maximum Allowable Transient Fire Load, the Fire Protection Coordinator or his designee will complete Attachment 3, Section 5.
- 4.8 If additional fire suppression equipment is necessary, the Fire Protection Coordinator will be responsible for procuring the

necessary fire fighting equipment, and ensuring placement of the additional fire suppression equipment at the work site.

- 4.9 The responsible department will inform the Fire Protection Coordinator or designee when the maintenance or modification work activity is completed.
- 4.10 The Fire Protection Coordinator will be responsible for removing the additional fire suppression equipment for the work activity site and returning it to its designated storage area. The Fire Protection Coordinator will then sign and complete the disposition portion of Attachment 3.
- 4.11 If the scope of the work activity changes resulting in additional transient combustibles being brought into the work area, the responsible foreman and/or supervisor will inform the Fire Protection Coordinator, who will complete an additional Attachment 3 Section 1-4 and forward to the Fire Protection Coordinator for completion.

5. NORMAL LEVELS OF TRANSIENT COMBUSTIBLES

- 5.1 The fire protection system design criteria and Fire Hazards Analysis in general assume some normal level of transient combustibles for all areas of the plant. In general, it is safe to assume that any area can support a minimum of two stepoff pads and their associated waste collection baskets, as well as an equivalent of two 55-gallon drums of Class A combustibles. In addition, each area can support several small (approximate 1 qt.) approved lube oil containers for adding oil to bearings, not to exceed five gallons total in any area.
- 5.2 The allowable transient fire loads as specified in Attachment 1 is a guideline for determining when additional fire suppression equipment is required. For practical purposes the recommended allowable transient fire load level will be maintained at 40,000 BTU's/Ft² or the equivalent of a one hour fire as per N.F.P.A. Handbook 14th edition.

Space Number	Space Identification	File Area & Fire Zone	Eleva- tion (Feet)	Area (ft ²)	Current Combustible Loading (BTU/ft ²)	Maximum Allowable Fire Load (BTU/ft ²)	Allowable Transient Fire Load (BTU/ft ²)
103	Spent resin transfer pump rm	C-8	545	72	278	40,000	39,722
104A	Monorail area	C-8	545	40	486	40,000	39,514
109	Maintenance work area	C-4	545	240	9,212	40,000	30,788
121	Waste gas surge tank rm	A-5	545	2,672	0	40,000	40,000
205	Make-up tank rm	*-4	545	68	0	40,000	40,000
100*	Equipment & pipe chase	B-2	545	100	272	40,000	39,728
101*	Pipe tunnel	B-1	545	600	666	40,000	39,334
102	Spent resin storage tank rm	C-7	545	64	0	40,000	40,000
103	Spent resin transfer pump rm	C-8	545	124	278	40,000	39,722
104	Decontm. area	C-6	545	72	17	40,000	39,983
105*	ECCS pump rm	A-16	545	1,169	509	40,000	39,491
106	Radioactive equipment storage rm	C-5	545	375	1,787	40,000	38,213
106A	Sampling hood rm.	C-5	545	169	6,797	40,000	33,203
107	Reactor cool drain tank rm	C-1	545	79	0	40,000	40,000
108	Reactor cool drain tank pump rm	C-2	545	80	375	40,000	39,625
109A	Passage	C-4	545	66	5,762	40,000	34,238
110*	Passage	A-9	545	311	6,912	40,000	33,088
110A	Passage	A-9	555	329	5,893	40,000	34,107
111	Concentrate storage tank rm	C-3	545	87	0	120,000	120,000
112*	Decontm area	A-9	545	27	0	40,000	40,000
113*	Decay heat cooler rm	A-15	545	1,643	4,480	40,000	35,520
114	Misc waste monitor tank & pump rm	A-14	545	558	4,967	40,000	35,033
115*	ECCS pump rm	A-13	545	1,128	3,444	40,000	36,556
116	Misc waste evap rm	A-11	545	778	387	40,000	39,620
117	Waste evap storage tank & pump rm	A-12	545	127	163	40,000	39,837
117A	Cnds collection tank & pump rm	A-10	545	123	3,276	40,000	36,724
119	Degasifier rm	A-8	545	65	3,768	40,000	36,232
120	Valve rm	A-6	545	32	25	40,000	39,975
122	Valve access rm	A-7	545	62	36	40,000	39,961
123	Clean waste receiver tank rm	A-4	545	1,162	4,032	40,000	35,968
124*	Clean waste receiver tank rm	A-3	545	1,074	7,715	280,000	272,285
125	Detergent waste drain tank rm	A-2	545	690	50	40,000	39,950
126	Misc waste drain tank rm	A-1	545	927	26	40,000	39,974

*Rooms containing equipment and/or cables utilized to achieve cold shutdown.

Space Number	Space Identification	File Area & Fire Zone	Elevation (Feet)	Area (ft ²)	Current Combustible Loading (BTU/ft ²)	Maximum Allowable Fire Load (BTU/ft ²)	Allowable Transient Fire Load (BTU/ft ²)
126	Misc waste drain tank rm	A-1	545	942	36	40,000	39,964
200	Clean liquid waste monitor tank rm	H-7	565	1,800	0	40,000	40,000
201	Clean liquid waste monitor tank rm	H-6	565	1,800	0	40,000	40,000
202	Pipeway area	D-11	565	35	0	40,000	40,000
203	Monitor tank trans pump rm	H-4	565	58	0	40,000	40,000
204	Clean waste monitor tank filter rm	H-5	565	45	10	40,000	39,990
205	Make-up tank rm	I-4	565	90	0	40,000	40,000
206	Make-up a purification filters rm	H-3	565	55	0	40,000	40,000
207	Vestibule	H-2	565	40	0	40,000	40,000
208*	No 1 mechanical penetration rm	D-11	565	1,870	4,121	280,000	275,879
209*	Corridor	H-2	565	940	22,603	280,000	257,397
210	Demin rm	I-1	565	130	620	40,000	39,380
211*	Valve rm	I-2	565	120	333	40,000	39,667
212*	Valve rm	I-3	565	112	0	40,000	40,000
213	Reactor area	D-6	565	1,587	0	40,000	40,000
214	Core flooding tank area	D-9	565	402	149	40,000	39,851
215	Let down coolers area	D-8	565	300	200	40,000	39,800
216	Steam generator area	D-7	565	1,311	82,271	100,000	17,729
217	Core flooding tank area	D-2	565		0	40,000	40,000
218	Steam generator area	D-3	565	1,311	82,271	100,000	17,729
219	Lower canal area	D-5	565		0	40,000	40,000
220*	Incore instrumentation trench area	D-4	565	654	46	40,000	39,954
221	Top of transtube shield area	M-8	565	300	32	40,000	39,968
222	Fuel transfer tube rm	V-12	563	2,700	87	40,000	39,913
223	Caskpit	V-13	557	95	57	40,000	39,943
224	Spent fuel storage pool	V-14	563	5,800	0	40,000	40,000
225*	Make-up pump rm	H-1	565	688	9,279	40,000	30,721
226A	Vestibule	H-1	565	38	597	40,000	39,403
227	Passageway, aux bldg	G-11	565	903	62,366	280,000	217,634
228	Demineralizer rm	G-12	565	92	0	40,000	40,000
230	Demin filter rm	G-4	565	77	0	40,000	40,000
231*	Clean waste booster pump rm	G-6	565	64	625	40,000	39,375
232*	Valve rm	G-7	565	143	140	40,000	39,860

*Rooms containing equipment and/or cables utilized to achieve cold shutdown.

Space Number	Space Identification	File Area & Fire Zone	Eleva- tion (Feet)	Area (ft ²)	Current Combustible Loading (BTU/ft ²)	Maximum Allowable Fire Load (BTU/ft ²)	Allowable Transient Fire Load (BTU/ft ²)
233	Demineralizer rm	G-8	565	65	0	40,000	40,000
234*	Boric acid evaporator rm	G-9	565	390	1,267	40,000	38,733
235*	Boric acid evaporator rm	G-10	565	390	1,267	40,000	38,733
236*	No 2 mechanical penetration rm	D-10	565	1,200	6,670	280,000	273,330
237*	Aux feed pump unit rm	E-1	565	435	12,653	40,000	27,347
238*	Aux feed pump unit rm	F-1	565	700	9,949	40,000	30,051
240*	Boric acid add tank rm	G-1	565	674	59	40,000	39,941
241*	Passage	G-12	565	248	19,429	40,000	20,571
242	Valve rm	G-5	565	106	0	40,000	40,000
243	W.G. compressor rm	G-3	565	130	7,153	40,000	32,847
244	W.G. compressor rm	G-2	565	142	6,549	40,000	33,451
245	Cooling water tank area	TT-1	565	167	0	40,000	40,000
246	Condenser pit	II-7	565	39,950	54,567	280,000	225,433
247	Heater drain 3 valve rm	II-4	565	39,950	54,567	280,000	225,433
248	Condensate demin hold up tanks rm	II-3	565	39,950	54,567	280,000	225,433
249	Lube oil stor tanks rm	JJ-1	565	939	0	280,000	140,000
250	Pipe tunnel	II-3	565	39,950	54,567	280,600	225,433
251	Valve rm	II-5	565	39,950	54,567	280,000	225,433
252	Feed water pump rm	II-3	565	39,950	54,567	280,000	225,433
253	Condensate pump pit	II-2	565	39,950	54,567	280,000	225,433
254	Storage area	II-1	565	39,950	54,567	280,000	225,433
237*	Aux feed pump unit rm	E-1	565	435	12,653	40,000	27,347
238*	Aux feed pump unit rm	F-1	565	700	9,949	40,000	30,051
306	New fuel storage	V-3	585	896	140	40,000	39,860
310*	Passage	U-1	585	2,696	41,512	280,000	238,488
127*	Annulus space	D-1	585-643	1,908	10,772	40,000	29,228
300*	Fuel handling area	V-1	585	4,118	15,285	40,000	24,715
300A	Cask wash area	-	585	8,000	2,021	40,000	37,979
300B	Drum storage	V-4	585	8,000	170	40,000	39,830
301	Solid waste baler area	V-15	585	450	15	40,000	39,985
302	Drumming area	V-8	585	1,896	7,021	40,000	32,979
303*	No 3 mechanical penetration rm	D-17	585	2,580	6,011	280,000	273,989
304*	Corridor	V-6	585	1,116	48,949	280,000	231,051

*Rooms containing equipment and/or cables utilized to achieve cold shutdown.

Space Number	Space Identification	File Area & Fire Zone	Elevation (Feet)	Area (ft ²)	Current Combustible Loading (BTU/ft ²)	Maximum Allowable Fire Load (BTU/ft ²)	Allowable Transient Fire Load (BTU/ft ²)
310*	Passage	U-1	585	2,696	41,512	45,000	3,488
313*	Hatch area	U-1	585	2,696	41,512	45,000	3,488
314*	No 4 mechanical penetration rm	D-16	585	2,900	33,201	280,000	246,799
315*	Tank area	D-14	585	1,900	0	40,000	40,000
316*	Core flooding tank area	D-12	585	2,400	0	40,000	40,000
317*	Hatch area	D-15	585	3,168	15,455	40,000	24,545
318*	Diesel generator rm	K-1	585	1,548	38,703	280,000	241,297
319*	Diesel generator rm	J-1	585	1,480	39,204	280,000	240,796
320*	Maintenance rm	M-1	585	640	0	40,000	40,000
320A*	Day tank rm	L-1	585	231	0	280,000	140,000
321	Charge rm	O-1	585	198	0	40,000	0
321A*	Day tank rm	M-1	585	212	0	280,000	140,000
322*	Passage	P-1	585	612	57,481	60,000	2,519
323*	High voltage switchgear rm	Q-1	585	2,370	25,288	40,000	14,712
324*	Aux shutdown pnl 3 trans switch rm	P-1	585	350	18,571	40,000	21,429
325*	High voltage switchgear rm	S-1	585	2,090	35,638	40,000	4,362
326	Heater bay area	II-10	585	39,950	54,567	280,000	225,433
328*	CCW heat exchanger & pump rm	T-1	585	2,208	392	40,000	39,608
331	Auxiliary steam boiler rm	KK-1	585	1,344	29,762	280,000	250,238
333	Seal oil rm	LL-1	585	721	223,224	280,000	56,776
334	Turbine pedestal area	II-8	585	39,950	54,567	280,000	225,433
335	Welding area	NN-4	585	1,002	27	40,000	39,973
336	Main workshop	NN-3	585	1,002	75,200	280,000	204,800
336A	Tool crib	NN-3	585	1,002	75,200	280,000	204,800
336B	Supply storage	NN-3	585	1,002	75,200	280,000	204,800
336C	Electrical maintenance area	NN-3	585	1,002	75,200	280,000	204,800
337#	Oil drum storage rm	MM-1	585	147	2,292,321	280,000	0
338	Toilet	NN-2	585	1,002	393	40,000	39,607
339	Maintenance office	NN-1	585	1,002	75,200	280,000	204,800
340A	Storage	NN-7	594	1,675	79,638	280,000	200,362
341	Maintenance shop and storage area	NN-5	585	1,002	75,200	80,000	4,800
345	Condensate storage tank area	00-1	585	42,560	0	160,000	160,000
347	Lube oil filter rm	RR-1	585	120	13,611	280,000	266,389

*Rooms containing equipment and/or cables utilized to achieve cold shutdown.

#Rooms which permit no transient fireload unless additional fire suppression equipment is brought into the area.

Space Number	Space Identification	File Area & Fire Zone	Eleva- tion (Feet.)	Area (ft ²)	Current Combustible Loading (BTU/ft ²)	Maximum Allowable Fire Load (BTU/ft ²)	Allowable Transient Fire Load (BTU/ft ²)
348	Pump house	II-13	585	39,950	54,567	120,000	65,433
300*	Fuel handling area	V-1	585	4,118	15,285	40,000	24,715
304*	Corridor	V-6	585	1,116	48,949	280,000	231,051
317*	Hatch area	D-15	585	3,168	15,455	40,000	24,545
334	Turbine pedestal area	II-8	585	39,950	54,567	280,000	225,433
312*	Spent fuel pump area	U-2	585	699	57	40,000	39,943
427*	No 2 electrical penetration rm	D-16	603	1,282	51,913	280,000	228,087
430	Heater bay area	II-10	603	39,950	54,567	280,000	225,433
431	Turbine area	II-11	603	39,950	54,567	280,000	225,433
431A	Condensate demineralize area	II-12	603	39,950	54,567	80,000	25,433
404*	Corridor	V-9	603	1,560	67,195	80,000	12,805
405*	Storage V-10	603	200	7,800	280,000	272,200	7,800
407	Hatch area	D-20	603	9,728	20	40,000	39,980
410*	Passage	D-19	603		0	40,000	40,000
400*	Passage	V-8	603	8,430	17,764	80,000	62,236
411	Corridor	CC-13	603	578	176,175	80,000	0
431	Turbine area	II-11	603	39,950	54,567	280,000	225,433
401	Fuel handling exh unit rm	V-7	603	1,297	8,012	40,000	31,998
402*	No 1 electrical penetration rm	D-21	603	1,507	35,372	280,000	244,628
404*	Corridor	V-9	603	1,560	67,195	80,000	12,805
405*	Storage	V-10	603	200	7,800	80,000	72,200
406	Hot instrument shop	V-11	603	238	127	40,000	39,873
422	Vestibule	CC-8	603	178	15	40,000	39,985
422A	Cable spreading rm	DD-1	603	6,588	198,022	280,000	81,978
422B	Ladder space	CC-19	603	151	120	40,000	39,880
428*	Low voltage swgr rm	X-1	603	3,350	29,547	40,000	10,453
428A*#	Battery room A	W-1	603	407	250,910	80,000	0
428B*	No 1 elec isolation rm	AA-1	603	120	8,251	40,000	31,749
429*	Low voltage swgr rm	Y-1	603	2,090	27,545	40,000	12,455
429A*	No 2 elec isolation rm	BB-1	603	120	6,656	40,000	33,344
429B#	Battery rm	Z-1	603	407	256,910	80,000	0
432#	Turbine Lube oil tk rm (EL.596'1")	PP-1	603	939	4,282,309	280,000	277,690
-*	Passage (west penetration area)	D-26	603	362	210	60,000	59,790

*Rooms containing equipment and/or cables utilized to achieve cold shutdown.

#Rooms which permit no transient fireload unless additional fire suppression equipment is brought into the area.

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Space Number	Space Identification	File Area & Fire Zone	Eleva- tion (Feet)	Area (ft ²)	Current Combustible Loading (BTU/ft ²)	Maximum Allowable Fire Load (BTU/ft ²)	Allowable Transient Fire Load (BTU/ft ²)
501*	Radwaste exhaust equip & main station exhaust fan rm	EE-3	623	4,679	3,815	280,000	276,185
514	Heater bay area	II-10	623	39,950	54,567	280,000	225,433
517	Turbine operating fl	II-14	623	39,950	54,567	280,000	225,433
505*	Control rm	FF-4	623	3,664	20,231	40,000	19,769
517	Turbine operating floor	II-14	623	39,950	54,567	280,000	225,433
517A	Battery rack rm	YY-1	623	107	54,567	80,000	25,433
517B	Battery charger rm	II-16	623	109	54,567	80,000	25,433
500*	Radwaste & fuel handling & air	EE-4	623	4,676	1,136	40,000	38,864
502*	Control cabinet rm	FF-1	623	3,664	20,231	40,000	19,769
510	Computer rm	GG-2	623	639	18,803	40,000	21,197
511	Conference rm	GG-1	623	639	18,803	40,000	21,197
514	Heater bay area	II-10	623	39,950	54,567	280,000	225,433
515	Purge exhaust equipment rm	EE-2	623	4,676	7,097	40,000	32,921
516*	Non-rad supply air & exhaust	EE-1	623	19,975	4,676	40,000	35,324
601*	No 1 main steam line area	D-25	643	5,552	2	40,000	39,998
602*	No 2 main steam line area	D-24	643	2,584	4	40,000	39,996
600*	Purge inlet equipment rm	D-25	643				
604	Heater bay area	II-10	643	39,950	54,567	280,000	225,433
707	Heater bay area	II-10	643	39,950	54,567	280,000	225,433
707	Heater bay area	II-10	657	39,950	54,567	280,000	225,433
603*	AC equipment rm	HH-1	643	3,519	8,073	40,000	31,927
53*	Service water valve rm	-	566	11,627	54,676	280,000	225,324
52*	Service water pump rm	-	576	996	13,268	280,000	266,732
51*	Diesel fire pump rm	-	576	192	9,327	280,000	270,673
50*	Screen wash area	-	585	600	1,276	40,000	38,724

*Rooms containing equipment and/or cables utilized to achieve cold shutdown.

SPECIFIC HEAT LOADS FOR TYPICAL TRANSIENT
COMBUSTIBLES IN USE AT DAVIS-BESSE NUCLEAR POWER STATION

MATERIALS

Wood:

2" x 10" standard planking	60278.4 BTU's/board foot
2" x 12" standard planking	72800.0 BTU's/board foot
4' x 8' x 1/2" sheet of plywood	400,399 BTU's/sheet
4' x 8' x 3/4" sheet of plywood	600,600 BTU's/sheet
4' x 8' x 1" sheet of plywood	800,800 BTU's/sheet
2" x 4" standard board	24266.6 BTU's/board foot
Standard Wood Pallet	516,960 BTU's/pallet

Lube Oil	155,000 BTU/Gallon
Diesel Fuel Oil	164,000 BTU/Gallon
Transformer Oil	143,000 BTU/Gallon
Methanol	64,000 BTU/Gallon
Acetone	88,500 BTU/Gallon

Gases:

**Acetylene	1,451 BTU/Cubic Foot
**Hydrogen	391 BTU/Cubic Foot
Battery Cells (Plastic)	20,000 BTU/Pound
Charcoal	13,000 BTU/Pound
Cloth (Cotton)	7,200 BTU/Pound
Paper	7,800 BTU/Pound
Cable Jacket Material*	1,171,000 BTU/Cubic Foot or 500-2500 BTU/Linear Foot of Cable

*Assumed 90% by volume BUTYL Rubber Insulation and 10% by Volume PCV Jacket.

**NOTE: 300 ft³ or 220 ft³ cylinders are currently in use for storage of Acetylene and Hydrogen gasses at Davis-Besse.

In order to aid both Toledo Edison and Construction personnel in determining the additional heat load introduced by transient combustibles to a particular room, the following sample calculations are proposed.

I. For planking: (Boards) (BTU/ft²)

$$\frac{\text{Number of BTU's/board feet} \times \text{number of board feet}}{\text{Area of Room (ft}^2\text{)}}$$

II. For sheets of plywood: (BTU/ft²)

$$\frac{\text{Number of BTU's/sheet} \times \text{number of sheets}}{\text{Area of Room (ft}^2\text{)}}$$

III. Various Oils: (BTU/ft²)

$$\frac{\text{Number of BTU's/gallon} \times \text{number of gallons in container}}{\text{Area of Room (ft}^2\text{)}}$$

IV. Acetylene and Hydrogen: (BTU/ft²)

$$\frac{\text{Number of BTU's/cubic feet of gas} \times \text{number of cubic feet in cylinder}}{\text{Area of Room (ft}^2\text{)}}$$

V. Battery Cells (Plastic (BTU/ft²))

Charcoal

Cloth (Cotton)

Paper

Cable Jacket Material

$$\frac{\text{Number of BUT's/pound of material} \times \text{number of pounds of material}}{\text{Area of Room (ft}^2\text{)}}$$

COMBUSTIBLES FOR WORK ACTIVITYInitiation:

Originator _____ Date _____

FCR/MWO No. _____ Location _____

Description of Activity _____

Time Duration: From: _____ To: _____

Responsible Foreman and/or Supervisor _____ Phone/Ext. _____

		Column 1 (Quantity)	Fire Protection Coordinator
1. <u>Wood</u>			
1. 2" x 10" planking approx. board feet	_____	_____	
2. 2" x 12" planking approx. board feet	_____	_____	
3. 4' x 8' x 1/2" plywood sheet (approx. number of sheets)	_____	_____	
4. 4' x 8' x 3/4" plywood sheets (approx. number of sheets)	_____	_____	
5. 4' x 8' x 1" plywood sheets (approx. number of sheets)	_____	_____	
6. 2" x 4" planking approx. board feet	_____	_____	
7. Other _____ (type and board feet)	_____	_____	
2. <u>Oils and Liquids</u>			
1. Lube Oil (approx. gallons)	_____	_____	
2. Diesel Fuel Oil (approx. gallons)	_____	_____	
3. Transformer Oil (approx. gallons)	_____	_____	
4. Methanol (approx. gallons)	_____	_____	
5. Acetone (approx. gallons)	_____	_____	
6. Other _____ (approx. gallons)	_____	_____	
3. <u>Gases</u>			
1. Acetylene (approx. cubic feet)	_____	_____	
2. Hydrogen (approx. cubic feet)	_____	_____	
3. Other _____ (approx. cubic feet)	_____	_____	
4. <u>Miscellaneous</u>			
1. Battery Cells (approx. pounds of plastic)	_____	_____	

Column 1 Fire Protection
(Quantity) Coordinator

- | | | | |
|----|------------------------------------------------------------|-------|-------|
| 2. | Charcoal (HEPA filters, etc., approx. lbs) | _____ | _____ |
| 3. | Cloth (cotton; approx. lbs) | _____ | _____ |
| 4. | Paper products (approx. lbs) | _____ | _____ |
| 5. | Cable Jacket Material (cubic feet or linear foot of cable) | _____ | _____ |
| 6. | Other _____ (amount) | _____ | _____ |
| 7. | Extension cord/air hose/weld cable (linear ft) | _____ | _____ |
5. The Transient Fire Loading for Room/Area _____ is not in excess of the Maximum Allowable Transient Fire Load, and no additional fire suppression is required.
- Date _____
- Fire Protection Coordinator
6. The Transient Fire Loading for Room/Area _____ is in excess of the Maximum Allowable Transient Fire Load by _____ BTU's/ft². A summary of the Transient Fire Loading and the amount by which the Transient Fire Load exceeds the Maximum Allowable Transient Fire Load has been completed.
- Date _____
- Fire Protection Coordinator
7. The additional required fire suppression equipment listed below has been procured and placed at the work activity.
- | | |
|------------|--------------------------|
| <u>No.</u> | <u>Type of Equipment</u> |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
- Date _____
- Fire Protection Coordinator
8. The maintenance or modification activity has been completed and the transient combustibles associated with the work activity have been removed.
- Date _____
- Fire Protection Coordinator
9. Disposition
- The work area was inspected and the additional fire suppression equipment removed and returned to its designated storage area.
- Reviewed by: _____ Date _____
- Fire Protection Coordinator

ADDITIONAL FIRE SUPPRESSION GUIDELINES FOR EXCESSIVE TRANSIENT COMBUSTIBLES

The following list indicates limitations for various suppression equipment that the Toledo Edison Company at Davis-Besse will use in its determination of the amount of additional suppression equipment necessary to combat excessive transient fire loads during maintenance and modification activities. These limitations will be in accordance with appropriate N.F.P.A. regulations and in many cases will have additional safety margins incorporated to ensure rapid suppression of combustion activities (NFPA Guidelines minus 30%).

	<u>N.F.P.A. Guideline</u>	<u>TED Guideline</u>
1. Hose Station (60 gpm)	480,000 BTU/min.	336,000 BTU/min.
2. Hose Station (90 gpm)	720,000 BTU/min.	504,000 BTU/min.
3. Hose Station (125 gpm)	1,000,000 BTU/min.	700,000 BTU/min.
4. Hose Station (250 gpm)	2,000,000 BTU/min.	1,400,000 BTU/min.
5. CO ₂ Extinguisher (20 lb)	-	*
6. Dry Chemical (20 lb)	-	*
7. Dry Chemical, wheeled (150 lb)	-	*

*Extinguishers will not be used to combat excessive transient fire loads since their effect on a total involvement incident would be nominal.

**Additional portable extinguishers will be provided, at the discretion of the Fire Protection Coordinator, to aid maintenance/modification personnel in combating fires at the incipient stage, in an effort to avoid total involvement.

DAVIS-BESSE NUCLEAR POWER STATION - UNIT 1
MAJOR MODIFICATION REQUEST
ED 6927-3

Docket No. 50-346
License No. NPF-3
Serial No. 1-390
Enclosure #3
Page 1 of 4

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SECTION 1

PROCEDURE TITLE AND NUMBER

EMERGENCY PLAN

☐ NUCLEAR SAFETY RELATED (I)

☒ NON-NUCLEAR SAFETY RELATED (A)

☐ PERIODIC (ANNUAL) REVIEW IN ACCORDANCE WITH AD 1805.02

REASON FOR CHANGE

*To incorporate organizational changes, facility changes,
corporate response action modification,
To meet an NRC Five Protection commitment*

DET/ LED CHANGE

SEE ATTACHED SHEETS.

PREPARED BY

Ronald Dunkel

Gleed

DATE

10-21-83

SUBMITTED BY

Smith Lisch

DATE

10/23-83

SECTION 2

Docket No. 50-346

License No. NPF-3

Serial No. 1-390

Enclosure #3

Page 2 of 4

For ST's ONLY: Review by Lead Maintenance Support or Lead I&C Engineer for PM Program.

REVIEW PERFORMED ☐
COMMENTS

Review by SRB for ST schedule and made checklist changes.

REVIEW PERFORMED ☐
COMMENTS

SECTION 3

SAFETY REVIEW

- Yes ☐ No ☒ NSR change in the facility as described in the FSAR.
Yes ☐ No ☒ NSR change in the procedures as described in the FSAR.
Yes ☐ No ☒ NSR test or experiment not described in the FSAR.
Yes ☐ No ☒ Change in the Technical Specifications.

NOTE: If any of the above Section III are "Yes," a written safety evaluation shall be performed per AD 1845.01 (Safety Evaluation No. _____) and a Section IV Safety Evaluation shall be performed, unless this is part of an FCR (FCR No. _____ if applicable).

- Yes ☐ No ☒ Decrease in the effectiveness of the Industrial Security Plan. If this is "Yes", the change cannot be made without NRC concurrence.
Yes ☐ No ☒ Decrease in the effectiveness of the Davis-Besse Emergency Plan. If this is "Yes", the change cannot be made without NRC concurrence. (10CFR50.54(q))
Yes ☐ No ☒ Is an ALARA review required:

NOTE: If "Yes" submit a copy of the modification to the Radiological Affairs Manager (RAM). The procedure may be approved prior to the review; the RAM will submit the review to the SRB.

SECTION 4

SAFETY EVALUATION

- Yes ☐ No ☒ The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report may be increased.
Yes ☐ No ☒ A possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report may be created.
Yes ☐ No ☒ The margin of safety as defined in the bases for any Technical Specification is reduced.

NOTE: If any of Section IV is "Yes", an "Unreviewed Safety Question" is involved and the change cannot be made without NRC concurrence. (FCR No. _____ if applicable)

SECTION 5

FOR DELETIONS OR ADDITIONS OF PROCEDURES, A TEMPORARY MODIFICATION MUST BE SUBMITTED FOR AD 1838.00, IF APPLICABLE.

Yes ☐ No ☐ AD 1838.00 Temporary Modification submitted.

SECTION 6

FOR ADDITIONS, DELETIONS, NSR MODIFICATIONS, AND MODIFICATIONS REQUIRING SAFETY EVALUATIONS, AND NSR/NON-NSR CHANGES.

SRB Comments: _____

SRB Recommendation: BRBDate 10/25/83

SECTION 7

STATION SUPERINTENDENT APPROVAL

DATE

TD Murray
10/25/83

When local fire support is required within the Protected Area, local fire department personnel will function in conjunction with, and under the direction of the DBNPS Fire Brigade.

4
5.1.2XX Fire-Fighting Organizations

The following fire-fighting organizations will provide assistance as requested by Davis-Besse Nuclear Power Station:

- a. Carroll Township Fire Department
- b. Oak Harbor Fire Department
- c. County Fire Board (Through Ottawa County Plan)

71
4.3
5.1.3XX Local Physicians

There are physicians available locally who have signed letters of agreement to provide medical services to DBNPS personnel in the event of an emergency. One physician has been designated as the Lead Medical Coordinator and attended Training Seminars on Medical Care. All these physicians have attended ~~the~~ Workshop on Medical Planning Aspects of Radiation Accident Management. *lower case*

5.5 ~~5.5~~ Medical Emergency Plan

Medical support for the DBNPS is based on three levels of support:

- a. First Aid and evaluation at the station.
- b. Emergency treatment at Magruder Memorial Hospital, Port Clinton, Ohio *or St. Charles Hospital, Oregon, Ohio.*
(Non-contaminated injuries may receive routine medical treatment at other area hospitals.)
- c. ~~St. Charles Hospital, Toledo, Ohio may act as a backup to Magruder Hospital.~~
- CX. Definitive evaluation and treatment at the Peter Bent Brigham Hospital, Harvard School of Medicine, Boston, Mass.

REMS Corporation has been retained by TED to coordinate medical emergency activities at the levels of support mentioned, and to provide the following additional services:

- a. Immediate telephone consultation for DBNPS personnel, their medical consultants, and/or the staff of Magruder Memorial Hospital, with regard to evaluation and treatment of victims of radiation accidents occurring at the site.
- b. On request, provide a Radiation Emergency Medical (REM) Team to assist in the implementation of the emergency medical plan.
- c. Provide written procedures for the implementation of the emergency medical plan at DBNPS and Magruder Memorial Hospital.

Including the understanding that when local fire support is required within the protected area, local fire department personnel will function in conjunction with, and under the direction of the DBNPS Fire Brigade.

1. Interface with the nuclear security force during emergencies.
2. Basic health physics indoctrination and training.
3. The DBNPS facility layout.
4. Onsite fire protection system equipment (permanent and portable).
5. Differences between onsite fire fighting equipment and fire company supplied equipment.
6. Communications systems.
7. Review of applicable parts of the DBNPS Emergency Plan and Implementing Procedures.
8. The onsite emergency organization with specific emphasis on the interface between the DBNPS Fire Brigade and Local Fire Department personnel.

5. Magruder Memorial Hospital, ^{St. Charles Hospital,} Local Physicians, and Ambulance Services:

The local medical support organizations and personnel shall also be invited to participate in a training program that will, as a minimum and as applicable, include the following topics:

- a. Interface with the nuclear security force during emergencies.
- b. Basic health physics indoctrination and training.
- c. The DBNPS facility layout.
- d. Onsite medical treatment facilities, equipment, and supplies.
- e. Communications systems.
- f. The onsite emergency organization with specific emphasis on the interface between the DBNPS First Aid Teams, the local medical support personnel, and REMS Corporation.

Docket No. 50-346
License No. NPF-3
Serial No. 1-390
Enclosure #4
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DAVIS-BESSE NUCLEAR POWER STATION - UNIT 1
TEMPORARY MODIFICATION REQUEST
ED 6926

SECTION 1

PROCEDURE TITLE AND NUMBER

Abnormal Operating Procedure

AB 1203.26 Serious Control Room fire

REASON FOR CHANGE

1. Insure the availability of communications between the Shift Supervisor at the Auxiliary Shutdown Panel and personnel performing duties in accordance with AB 1203.26
2. Sound powered phones have not yet been installed as per FCR 83-129

CHANGE

place a note/comment between 3.2 & 3.2.1 which states that if communication is not possible with the Aux. shutdown Panel, proceed to the North wall of mechanical penetration room #4 and establish communication with the Shift Supervisor either directly or by relaying through S.A.S.

IS PROCEDURE REVISION REQUIRED

Yes ☐

No ☒

If no, this modification is valid until sound power phones are installed

PREPARED BY	<u>R. L. Ebersole</u>	DATE	<u>11/1/83</u>
APPROVED BY	<u>W. J. Conna</u>	DATE	<u>11/1/83</u>
APPROVED BY	<u>B. Russert</u>	DATE	<u>11/1/83</u>
SUBMITTED BY (Section Head)		DATE	
RECOMMENDED BY (SRB Chairman)		DATE	
QA APPROVED BY (Manager of Quality Assurance)	<u>N/A</u>	DATE	
APPROVED BY (Station Superintendent)		DATE	

- 7.2 Fire Reports are filled out and submitted in accordance with EP 1202.35, Fire Emergency Procedure.

8. INSPECTIONS

During the normal course of their duties or when conditions dictate, the Fire Marshal, Fire Protection Coordinator or their designees, perform spot check inspections of the plant and grounds and submit reports of these inspections, when necessary, to the Station Superintendent. The Fire Protection Coordinator shall maintain a record of inspections, showing dates and areas, if problems exist.

9. IMPLEMENTING PROCEDURES

The procedures which have been established to implement the requirements for control over the Fire Protection and Detection Systems and the related Surveillance requirements are listed in the references section of this procedure.

10. FIRE BARRIER WATCH PATROL

10.1 Definitions

10.1.1 Fire Watch - an individual trained in the use and operation of fire extinguishment equipment. This individual will be qualified to serve as fire watch for Open Flame, Welding, Grinding and Cutting Permits as specified in AD 1844.07, "Open Flame, Welding, Cutting and Grinding Permits". Formal training for this individual will be in accordance with AD 1828.19.

10.1.2 Fire Barrier Watch - an individual trained in the formal process for notification of the security force and Shift Supervisor that a fire exists. This individual will be trained through General Orientation Training in the use and operation of plant communication systems. The sole purpose of this individual will be to observe fire doors, dampers, barriers, and other items which degrade the adequacy of the protection program.

10.2 At Davis-Besse, it becomes necessary from time to time, for various reasons, to establish a continuous fire watch patrol (affected area will be manned at all times) or a once per hour fire watch patrol.

If the patrol is established as a result of a Technical Specification Action Statement, it shall be logged on Attachment 1. If the Action Statement is the result from a deficiency on a surveillance test, it shall be logged on Attachment 1 and sent, when it is completed, with a Data Cover Sheet attached, to be filed with the appropriate surveillance test.

The following Technical Specifications will require a fire watch patrol, if the station enters into the Action Statement:

- TS 1. 3.3.3.8, Fire Detection Instrumentation
- TS 2. 3.7.9.2, Spray and/or Sprinkler Systems
- TS 3. 3.7.10, Penetration Fire Barriers

If a fire barrier watch is being established because the security-fire/radiation computer is inoperable, the fire barrier watch patrol will be documented in Attachments 2 and 3. Inspection of the fire panels listed on Attachments 2 and 3 when the computer is inoperable is considered inspecting the effected area.

All fire barrier watch patrol sheets will be sent to the Station Fire Protection Coordinator for his review, when they are completed.

NOTE: Perform an hourly fire barrier watch patrol if the station is in the action statement of the Fire Detection Instrumentation. Perform a continuous fire barrier watch patrol if you are in the action statement of either the Spray and/or Sprinkler System or Penetration Fire Barriers.

11. FIRE PROTECTION ENGINEER

The Fire Protection Engineer is available to review the formulation and implementation of the Fire Protection Program as a member of the Toledo Edison Staff or as a consultant.

The Fire Protection Engineer is a graduate of an engineering curriculum of accepted standing and shall have completed not less than six years of engineering attainment indicative of growth in engineering competency and achievement, three of which shall have been in responsible charge of fire protection engineering work. These requirements are the eligibility requirements as a member in the Society of Fire Protection Engineers.

FIRE WATCH PATROL

A Fire Watch Patrol will be documented on this sheet, when it becomes necessary to establish a watch as the result of a Technical Specification Action Statement. The Action Statement may require a continuous fire watch or a once per hour fire watch. The following Technical Specifications will require a Fire Watch Patrol, if the Station enters into the Action Statement:

1. 3.3.3.8, Fire Detection Instrumentation*
2. 3.7.9.2, Spray and/or Sprinkler Systems Circle One
3. 3.7.10, Penetration Fire Barriers

*When the computer is inoperable, use Attachments 2 and 3.

Detectors Inoperable	Rooms or Fire Panels Affected	Required Surv. Interval	Date and Time Surveillance Initiated

Reason for Fire Watch:

6 | I have located the nearest Gai-tronics box and am familiar with its use and operation (ref. Section 10.1.2).

Verified _____ Date _____

Time	Verified	Time	Verified
0100		1300	
0200		1400	
0300		1500	
0400		1600	
0500		1700	
0600		1800	
0700		1900	
0800		2000	
0900		2100	
1000		2200	
1100		2300	
1200		2400	

Reviewed _____ Date _____

NOTE: The Shift Supervisor or Assistant Shift Supervisor shall review the Fire Watch Patrol Sheet when the Fire Watch is initiated and