



General Electric Company  
175 Curtner Avenue, San Jose, CA 95125

April 30, 1993

Docket No. STN 52-001

Chet Poslusny, Senior Project Manager  
Standardization Project Directorate  
Associate Directorate for Advanced Reactors  
and License Renewal  
Office of the Nuclear Reactor Regulation

Subject: Submittal Supporting Accelerated ABWR Review Schedule - **DFSER Open Item 1.9-1**

Dear Chet:

Enclosed is an updated Table 1.9-1, "Summary of ABWR Standard Plant COL License Information" addressing DFSER Open Item 1.9-1.

Please provide a copy of this transmittal to Jerry Wilson.

Sincerely,

Jack Fox  
Advanced Reactor Programs

cc: Norman Fletcher (DOE)  
Mike Song (GE)

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**Table 1.9-1**  
**SUMMARY OF ABWR STANDARD PLANT**  
**COL LICENSE INFORMATION**

ITEM NO.	SUBJECT	SUBSECTION
1.1	Design process to establish detailed design documentation	1.1.11.1
1.2	Standard review plan sections for remainder of plant identified as "Interface" in Table 1.8-19	1.8.4
1.3	Applicability of regulatory guides for remainder of plant identified as "Interface" in Table 1.8.20	1.8.4
1.4	Applicability of experience information for remainder of plant identified as "Interface" in Table 1.8-22	1.8.4
1.5	Emergency procedures and emergency procedures training program	1A.3.1
1.6	Review and modify procedures for removing safety-related systems from service	1A.3.2
1.7	In-plant radiation monitoring	1A.3.3
1.8	Reporting of failures of reactor system relief valves	1A.3.4
1.9	Report on ECCS outage	1A.3.5
1.10	Procedures for reactor venting	1A.3.6
2.1	Non-seismic design parameters	2.3.1.1
2.2	Seismic design parameters	2.3.1.2
2.3	Standard review plan site characteristics	2.3.2
2.4	Site location and description	2.3.2.1
2.5	Exclusion area authority and control	2.3.2.2
2.6	Population distribution	2.3.2.3
2.7	Identification of potential hazards in site vicinity	2.3.2.4
2.8	Evaluation of potential accidents	2.3.2.5
2.9	External impact hazards	2.3.2.6
2.10	Local meteorology	2.3.2.7
2.11	Onsite meteorological measurements program	2.3.2.8
2.12	Short-term dispersion estimates for accidental atmospheric releases	2.3.2.9

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ITEM NO.	SUBJECT	SUBSECTION
2.13	Long-term diffusion estimates	2.3.2.10
2.14	Hydrologic description	2.3.2.11
2.15	Floods	2.3.2.12
2.16	Probable maximum flood on stream and rivers	2.3.3.13
2.17	Ice effects	2.3.3.14
2.18	Cooling water channels and reservoirs	2.3.2.15
2.19	Channel division	2.3.2.16
2.20	Flooding protection requirements	2.3.2.17
2.21	Cool water supply	2.3.2.18
2.22	Accidental release of liquid effluents in ground and surface water	2.3.2.19
2.23	Technical specifications and emergency operation requirement	2.3.2.20
2.24	Basic geological and seismic information	2.3.2.21
2.25	Vibratory ground motion	2.3.2.22
2.26	Surface faulting	2.3.2.23
2.27	Stability of substance material and foundation	2.3.2.24
2.28	Site and facilities	2.3.2.25
2.29	Field investigations	2.3.2.26
2.30	Laboratory investigations	2.3.2.27
2.31	Subsurface conditions	2.3.2.28
2.32	Evacuation and Backfilling for foundation construction	2.3.2.29
2.33	Ground water level	2.3.2.30
2.34	Liquefaction potential	2.3.2.31
2.35	Response of soil and rock to dynamic loading	2.3.2.32
2.36	Maximum soil bearing pressure	2.3.2.33

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ITEM NO.	SUBJECT	SUBSECTION
2.37	Earth pressures	2.3.2.34
2.38	Soil properties for seismic analysis of buried pipes	2.3.2.35
2.39	Static and dynamic stability of facilities	2.3.2.36
2.40	Subsurface instrumentation	2.3.2.37
2.41	Stability of slopes	2.3.2.38
2.42	Embankments and dams	2.3.2.39
2.43	CRAC 2 computer code calculations	2.3.3
3.1	Site-specific design basis wind	3.3.3.1
3.2	Site-specific design basis tornado	3.3.3.2
3.3	Effect of non-seismic Category I structures and components not designed for tornado loads	3.3.3.3
3.4	Flood elevation	3.4.3.1
3.5	Ground water elevation	3.4.3.2
3.6	Flood protection requirements for other structures	3.4.3.3
3.7	Protection of ultimate heat sink	3.5.4.1
3.8	Missiles generated by other natural phenomena	3.5.4.2
3.9	Site proximity missiles and aircraft hazards	3.5.4.3
3.10	Secondary missiles inside containment	3.5.4.4
3.11	Impact of failure out of nonsafety-related structures, systems, and components due to design basis tornado	3.5.4.5
3.12	Turbine system maintenance program	3.5.4.6
3.13	Maintenance equipment missile prevention inside containment	3.5.4.7
3.14	Failure of structures, systems and components outside ABWR standard plant scope	3.5.4.8
3.15	Details of pipe break analysis results and protection methods	3.6.5.1
3.16	Leak-before-break analysis results	3.6.5.2

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3.17	Inservice inspection of piping in containment penetration	3.6.5.3
3.18	Piping Analysis, Modeling of Piping Supports	3.7.6.1
3.19	Foundation waterproofing	3.8.6.1
3.20	Site specific physical properties and foundation settlement	3.8.6.2
3.21	Structural integrity pressure result	3.8.6.3
3.22	Identify new seismic category structures	3.8.6.4
3.23	Capability of foundation to transfer shear	3.8.6.5
3.24	Reactor internals vibration analysis, measurement and inspection program	3.9.7.1
3.25	ASME Class 2 or 3 or Quality Group D Components with 60 year design life	3.9.7.2
3.26	Pump and valve inservice testing program	3.9.7.3
3.27	Audits of design specification and design reports	3.9.7.4
3.28	ASME Class 1, 2 and 3 piping system clearance requirements	3.9.7.5
3.29	As-built reconciliation analysis for ASME Class 1, 2 and 3 piping systems	3.9.7.6
3.30	Pipe support baseplate and anchor bolt design	3.9.7.7
3.31	Pipe mounted equipment allowable loads	3.9.7.8
3.32	Benchmark requirements for computer codes used to perform piping dynamic analysis	3.9.7.9
3.33	ASME Class 1, 2 and 3 piping system design requirements for thermal stratification of fluids	3.9.7.10
3.34	Equipment qualification records	3.10.5.1
3.35	Dynamic qualification report	3.10.5.2
3.36	Environmental qualification document	3.11.6.1
3.37	Environmental qualification records	3.11.6.2
3.38	Surveillance, maintenance and experience information	3.11.6.3
3.39	Radiation environment conditions	3I.3.3.1

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ITEM NO.	SUBJECT	SUBSECTION
4.1	Fuel Design	4.2.2.1
4.2	Control blade design	4.2.2.2
4.3	Core loading pattern	4.3.2.1
4.4	Core effective multiplication value	4.3.2.2
4.5	Power flow operating map	4.4.4.1
4.6	Thermal limits	4.4.4.2
4.7	CRD inspection program	4.5.3.1
5.1	Conversion of indications	5.2.6.1
5.2	Plant specific ISI/PSI	5.2.6.2
5.3	Fracture toughness data	5.3.4.1
5.4	Materials and surveillance capsule	5.3.4.2
5.5	Plant-specific pressure temperature information	5.3.4.3
6.1	Protective coatings and organic materials	6.1.3.1
6.2	Alternate hydrogen control	6.2.7.1
6.3	Administrative control maintaining containment isolation	6.2.7.2
6.4	ECCS performance results	6.3.6.1
6.5	ECCS testing requirements	6.3.6.2
6.6	SGTS performance	6.5.5.1
6.7	PSI and ISI program plans	6.6.9.1
6.8	Access requirements	6.6.9.2
7.1	Use of software metric to track error rates	7A.8
7.2	Cooling temperature profile for class 1E digital equipment	7.3.3.1
7.3	Effects of station blackout on the HVAC	7.8.1
7.4	Electrostatic discharge on exposed equipment components	7.8.2
7.5	Localized high heat spots in semiconductor materials for computing devices	7.8.3

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ITEM NO.	SUBJECT	SUBSECTION
8.1	Diesel generator reliability	8.1.4.1
8.2	Periodic testing of offsite equipment	8.2.4.1
8.3	Procedures when a reserve or unit auxiliary transformer is out of service	8.2.4.2
8.4	Offsite power systems design bases	8.2.4.3
8.5	Offsite power systems scope split	8.2.4.4
8.6	Interrupting capacity of electrical distribution equipment	8.3.4.1
8.7	Diesel generator design details	8.3.4.2
8.8	Certified proof tests on cable samples	8.3.4.3
8.9	Current limiting devices for electrical penetration assemblies	8.3.4.4
8.10	DC voltage analysis	8.3.4.6
8.11	Offsite power supply arrangement	8.3.4.9
8.12	Diesel generator qualification tests	8.3.4.10
8.13	Minimum starting voltages for Class 1E motors	8.3.4.12
8.14	Administrative controls for bus grounding circuit breakers	8.3.4.14
8.15	Administrative controls for manual interconnections	8.3.4.15
8.16	Emergency operating procedures for station blackout	8.3.4.16
8.17	Common industrial standards referenced in purchase specifications	8.3.4.17
8.18	Administrative controls for switching 125 Vdc standby charger	8.3.4.18
8.19	Control access to Class 1E power equipment	8.3.4.19
8.20	Periodic testing of voltage protection equipment	8.3.4.20
8.21	Diesel generator parallel test mode	8.3.4.21
8.22	Periodic testing of diesel generator protective relaying	8.3.4.22
8.23	Periodic testing of diesel generator synchronizing interlocks	8.3.4.23



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ITEM NO.	SUBJECT	SUBSECTION
8.24	Periodic testing of thermal overloads and bypass circuitry	8.3.4.24
8.25	Periodic inspection/testing of lighting systems	8.3.4.25
8.26	Controls for limiting potential hazards into cable chases	8.3.4.26
8.27	Periodic testing of Class 1E equipment protective relaying	8.3.4.27
8.28	Periodic testing of CVCF power supplies and EPAs	8.3.4.28
8.29	Periodic testing of Class 1E circuit breakers	8.3.4.29
8.30	Periodic testing of electrical systems & equipment	8.3.4.30
8.31	Class 1E battery installation and maintenance requirements	8.3.4.32
8.32	Periodic testing of Class 1E batteries	8.3.4.33
8.33	Periodic testing of Class 1E CVCF power supplies	8.3.4.34
8.34	Periodic testing of Class 1E battery chargers	8.3.4.35
8.35	Periodic testing of Class 1E diesel generators	8.3.4.36
9.1	New fuel storage racks criticality analysis	9.1.6.1
9.2	Dynamic and impact analysis of new fuel storage racks	9.1.6.2
9.3	Spent fuel storage racks criticality analysis	9.1.6.3
9.4	Spent fuel storage racks load drop analysis	9.1.6.4
9.5	New spent fuel inspection stand seismic capability	9.1.6.5
9.6	Overhead load handling system information	9.1.6.6
9.7	Spent fuel racks structural evaluation	9.1.6.7
9.8	Spent fuel racks thermal-hydraulic analysis	9.1.6.8
9.9	Spent fuel firewater makeup procedures and training	9.1.6.9
9.10	Ultimate heat sink	9.2.17.1
9.11	Makeup water system preparation	9.2.17.2
9.12	Potable and sanitary water system	9.2.17.3
9.13	Reactor service water system (portions outside the scope of ABWR standard plant)	9.2.17.4



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ITEM NO.	SUBJECT	SUBSECTION
9.14	Turbine service water system (portions outside the scope of ABWR standard plant)	9.2.17.5
9.15	HECW system refrigerator requirements	9.2.17.6
9.16	Reactor service water system requirements	9.2.17.7
9.17	Storage tank discharge valve reliability	9.3.11.1
9.18	Radioactive drain transfer system collection piping	9.3.12.1
9.19	Storage tank discharge valve reliability	9.3.12.2
9.20	Contamination of the DG combustion air intake	9.5.13.1
9.21	Use of communication system in emergencies	9.5.13.2
9.22	Maintenance and testing procedures for communication equipment	9.5.13.3
9.23	Use of portable hand light in emergency	9.5.13.4
9.24	Vendor specific design of diesel generator auxiliaries	9.5.13.5
9.25	Diesel generator cooling water system design flow and heat removal requirements	9.5.13.6
9.26	Fire rating for penetration seals	9.5.13.7
9.27	Diesel generator requirements	9.5.13.8
9.28	Applicant fire protection program	9.5.13.9
9.29	HVAC pressure calculations	9.5.13.10
9.30	Plant security systems criteria	9.5.13.11
9.31	Fire hazard analysis compliance review	9.5.13.12
9.32	Diesel fuel refueling procedures	9.5.13.13
9.33	Portable and fixed emergency communication systems	9.5.13.14
9.34	Identification of chemicals	9.5.13.15
9.35	NUREG/CR-0600 diesel generator reliability recommendations	9.5.13.16
9.36	Sound-powered telephone units	9.5.13.17
10.1	Fracture toughness	10.2.3.2

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ITEM NO.	SUBJECT	SUBSECTION
10.2	Low pressure turbine disk fracture toughness	10.2.5.1
10.3	Turbine design overspeed	10.2.5.2
10.4	Procedures to avoid steam hammer and discharge loads	10.3.7.1
10.5	MSIV leakage	10.3.7.2
10.6	Radiological analysis of the TGSS effluents	10.4.10.1
11.1	Tank Resistance to vacuum collapse	11.2.4
11.2	Liquid waste management system	11.2.5.1
11.3	Gaseous waste management system	11.3.11.1
11.4	Cement-glass solidification system	11.4.3.1
11.5	Solid waste	11.4.3.2
12.1	Equipment design considerations to limit component radiation levels	12.1.2.2.3
12.2	Facility layout general design considerations for maintaining radiation exposures ALRA	12.1.2.3
12.3	Minimizing personnel time spent in radiation areas	12.1.2.3.1
12.4	Minimizing radiation levels in plant access areas and vicinity of equipment	12.1.2.3.2
12.5	Regulatory Guide 8.10	12.1.4.1
12.6	Regulatory Guide 1.8	12.1.4.2
12.7	Occupational radiation exposures	12.1.4.3
12.8	Airborne radionuclide concentration calculation	12.3.7.1
12.9	Operational considerations	12.3.7.2
12.10	Requirements of 10CFR 70.24	12.3.7.3
12.11	Radiation protection program	12.5.3.1
12.12	Compliance with paragraph 50.3.4(f) (XXVII) of 10CFR Part 50 and NUREG-0737 Item III.D.3.3	12.5.3.2
13.1	Emergency plans	13.3.1.1
13.2	Security, contingency, and guard training plans	13.6.3.8

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ITEM NO.	SUBJECT	SUBSECTION
13.3	Achievement of operational status	13.6.3.9
13.4	Vital area classification of control and security alarm systems	13.6.3.10
13.5	Verification that vital systems can perform their safety function	13.6.3.11
13.6	Evaluation of security response force	13.6.3.12
13.7	Compatibility with R.G. 5.12, positive control requirements and record keeping	13.6.3.13
14.1	Other testing	14.2.13.1
14.2	Test procedure/administrative manual	14.2.13.2
14.3	Tests exempt from license conditions	14.2.13.3
15.1	Evaluation of inadvertent closure of MSIV for final design and site parameters	15.2.4.5
15.2	Fuel misorientation event analysis	15.4.10.1
15.3	Evaluation of failure of small line outside primary containment for final design and site parameters	15.6.2
15.4	Evaluation of main steam line break for final design and site parameters	15.6.4
15.5	Evaluation of loss of coolant accident for final design and site parameters	15.6.5
15.6	Evaluation of feedwater line break for final design and site parameters	15.6.6
15.7	Evaluation of failure of liquid radwaste tank for final design and site parameters	15.7.3
15.8	Evaluation of fuel handling accident for final design and site parameters	15.7.4
15.9	Evaluation of fuel cask drop accident for final design and site parameters	15.7.5
16.1	COL information required for plant specific technical specifications	16.1.1
17.1	QA programs for construction and operation	17.0.1.1

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ITEM NO.	SUBJECT	SUBSECTION
17.2	Policy and implementation procedures for D-RAP	17.3.13.1
17.3	D-RAP organization	17.3.13.2
17.4	Provision for O-RAP	17.3.13.3
18.1	Number of operators needing controls access	18.8.1
18.2	Automation strategies and their effects on operator reliability	18.8.2
18.3	SPDS design conformance with NU	18.8.3
18.4	Standard design features design validation	18.8.4
18.5	Remote shutdown system design evaluation	18.8.5
18.6	Local valve position indication	18.8.6
18.7	Operator training	18.8.7
18.8	SPDS availability	18.8.8
18.9	Safety system status monitoring	18.8.9
18.10	PGCS malfunctions	18.8.10
19.1	Event specific procedure for unisolated RWCU line break	19.9.1
19.2	Confirmation of RWCU operation beyond design bases	19.9.2
19.3	Event specific procedures for severe external flooding	19.9.3
19.4	Confirmation of seismic capacities beyond the plant design bases	19.9.8
19.5	Plant walkdowns	19.9.9
19.6	Confirmation of loss of AC power plant	19.9.10
19.7	Procedures and training for use of AC-independent water injection system	19.9.11
19.8	Action to avoid common cause failures in the essential multiplexing system (EMUX)	19.9.12
19.9	Actions mitigate station blackout events	19.9.13
19.10	Actions to reduce risk of internal flooding	19.9.14
19.11	Actions to avoid loss of decay heat removal and minimize shutdown risk.	19.9.15

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<b>ITEM NO.</b>	<b>SUBJECT</b>	<b>SUBSECTION</b>
19.12	Procedures for operation of RCIC from outside the control room	19.9.16
19.13	ECCS test and surveillance intervals	19.9.17
19.14	Long-term training upgrade	19A.3.1
19.15	Long-term program of upgrading of procedures	19A.3.2
19.16	Purge system reliability	19A.3.3
19.17	Licensing emergency support facility	19A.3.4
19.18	In-plant radiation monitoring	19A.3.5
19.19	Feedback of operating, design and construction experience	19A.3.6
19.20	Organization and staffing to oversee design and construction	19A.3.7
19.21	COL applicant safety issues	19B.3.1