RECEIVED
FEB 2 1997
Brian A. Mc Intyre

COVER SHEET FAX

To: Bill Huffman (NRC)

cc: B. McIntyre (Informal NRC File), Dan Garner, Bob Kemper, Larry Hochreiter, File 7.6

Subject: WC/T

Date: February 7, 1997

Pages: Two, including this cover sheet.

COMMENTS:

Bill,

In speaking with Dan Garner regarding his conversation with Lambrose Lois, he indicated that he made some notes regarding Lambrose's concerns on WCT LTC. These are attached and might be of use to Lambrose in writing up his RAIs. Please give a copy to Lambrose. Thanks.

Earl

From the desk of...

Earl H. Novendstern
Manager, Advanced and VVER Plant Safety Analysis
Westinghouse
PO Box 355
Pittsburgh, PA 15235

(412) 374 -4790
Fax: (412) 374-5744

2/11/97

Subject: Comments by Lambrose Lois on LTC WCAP 14776. 2/10/96.

Comments by Mr. Lois addressed the data comparisons in Section 5. The major thrust of his concerns was that the calculations have not been run long enough. This surfaced in a number of his specific comments. Note that the comments relate to specific figures.

1. Section 5.1, Figures 5.1-5 and 5.1-6, Sump Injection Flow Rates. With additional calculations, of 1000 to 2000 sec, will the sump flow rates continue to track the data?

2. Section 5.1, Figure 5.1-8 (and 5.1-10), Total Integral DVI Flows. Even though the deviation between the calculated and test flow rates is small, will it persist with additional time or will it diverge? What happens in 1000 to 2000 more seconds?

3. Section 5.1, Figures 5.1-11 and 5.1-12, Liquid Temp. at DVI Nozzles. Will the temperature deviation of the injection water impact boiling in the core and cause future deviations in the comparisons?

4. Section 5.2.1, second paragraph, pg. 5-34. What is the uncertainity in the pressure data, or why is there a 2.5 psia pressure deviation?

5. Section 5.2.1, fourth paragraph, pg. 5-34. Why not run the calculation another 500 to 600 seconds to cover the opening of the motor operated sump isolation valves?

6. Section 5.2, Figures 5.2-11 and 5.2-12, Liquid Temp. at DVI Nozzles. With the significant change in temperature at 14,700 seconds at the opening of the motor operated sump isolation valves, why not demonstrate the code capability with some additional calculations?

7. Section 5.2, Figures 5.2-14 and 5.2-28, Break Flow and Hot Leg Level. Since the break flow is under predicted why isn't the hot leg level over predicted, or why is it underpredicted also, (it looks backwards)

8. Section 5.3.1, fifth paragraph, pg. 5-65, Why not run the calculation longer to include the effect of sump injection instead of simplifying the calculation by inhibiting the valve?

FAX to DINO SCALETTI

February 25, 1997

CC: Sharon or Dino, please make copies for: Diane Jackson
Ted Quay

Don Lindgren
Ed Johnson
Ed Cummins
Bob Vijuk
Brian McIntyre

OPEN ITEMS FOR SSAR SECTION 3.6.3

This is a background package for the remaining open items for SSAR section 3.6.3. SSAR section 3.6.3 is of interest because by our joint NRC/W schedule, the FSER for this section should be turned into Projects by the end of March. There are 11 Open Items with NRC Status of Action W. Five (5) of these items (611, 614, 616, 618 and 620) still require some Westinghouse action and will be addressed in letter NSD-NRC-97-4997 when it is issued. In addition, item 608 is readdressed in this same letter, NSD-NRC-97-4997. Westinghouse believes the other five (5) items (1883, 2430, 2431, 2432 and 3518) have already been addressed at least two months ago. We request that NRC provide a definitive action for Westinghouse or provide direction to change the status of these items. We recommend "Action N". Thank you.

Jim

Jim Winters
412-374-5290

10/5

Item No.	Branch	DSER Section/ Question	Type	Title/Description Detail Status	Resp Engineer	(W) Status	NRC Status	Letter No. /	Date

any to replace ADS Stage 1 with for audit.
Resolved - Pending SSAR revision. Responses and SSAR revisions were provided in letter NSD-NRC-96-4873
Closed - SSAR Revisions identified in NSD-NRC-96-4873 were included in SSAR Revision 10.

Action W - Add a description in SSAR 3B.3.1.3 and 3B.3.2.3 (bounding curve construction procedures), or in 3.6.3.3 (bounding analysis) to explain how bounding curves meet LBB acceptance criteria.
NRC will audit calculations to ensure that the bounding curves satisfy LBB acceptance criteria.
Uncertainties in applying LBB to small lines (see NUREG/CR-6443, Section 3.5 on pressure-induced bending effects to leakage flaw size and max stress) needs to be discussed. Westinghouse should perform sensitivity studies.
Applying the LBB methodology to the FW line is unacceptable. Revisions to the SSAR to delete the main feedwater line from LBB consideration will be tracked under DSER# 3.6.3.5-5 (OITS 614). For further discussion of this issue, see NRC letter dated January 24, 1997.
Results from the PICEP computer code do not agree with Westinghouse LBB analyses. Need an explanation.

611	NRR/EMEB	3.6.3.5-2	DSER-OI		Johnson	Action W	Action W	NSD-NRC-96-4743	

Westinghouse should provide additional discussion concerning the differences in analysis, fabrication, and inspection between Class 1 and 2 systems. (See Q252.5)

Closed - Included in Appendix 3B Rev. 7 - A fatique crack growth analysis will be performed on the main feedwater line. This along with the preservice inspection and Section XI required inservice inspection will provide for the integrity of each system.
Closed - Response provided by NSD-NRC-96-4743.
Action - Revise SSAR to state that there is no difference or ASME Code Class 1, 2, and 3 piping systems in LBB evaluation due to inspection or fabrication differences. Reference additional requirements for Class 3 ECCS lines
Resolved - Pending SSAR revision. Responses and SSAR revisions were provided in letter NSD-NRC-96-4873
Closed - SSAR Revisions identified in NSD-NRC-96-4873 were included in SSAR Revision 10.

Action W - Explain why the fatigue crack growth analyses and augmented in-service inspection (ISI), which are performed for the feedwater nozzle connections to steam generator, are not performed at the main steam nozzles. Revision of SSAR Sections 3B.2.4, and 3B.8, Rev 10 may be needed.

614	NRR/EMEB	3.6.3.5-5	DSER-OI		Johnson	Action W	Action W	NSD-NRC-96-4743	

Westinghouse should provide in the SSAR, more detailed discussions with sufficient information to support the conclusion that the MS and FW piping systems do not fall within the limitations delineated in Section 5.1 of Volume 3 of NUREG-1061.

Closed - Additional discussion added to the SSAR Appendix 3B Rev. 7 to support the inclusion of the mainsteam and feedwater lines as LBB lines. See Follow on questions 210.202 through 210.212, (Items 2422 through 2432) for specific NRC requests.
Closed - Response provided by NSD-NRC-96-4743.
Action W - 8/20/96 NRC letter request that the main feedwater line be deleted from list of LBB lines. The remaining unresolved issue is size of waterhammer loads. See open item 620 (DSER item 3.6.3.6-20)
Action N - pending NRC response to the request for information on the methods used by the NRC for the watterhammer load evaluation. Response was provided in letter NSD-NRC-96-4873

Action W - The Westinghouse proposal to apply LBB methodology to the FW line is unacceptable. Westinghouse needs to revise the SSAR to delete the main feedwater line from LBB consideration. For further discussion of this issue, see NRC letter dated January 24, 1997.

616	NRR/EMEB	3.6.3.6-2	DSER-OI		Johnson, E.	Action W	Action W	NSD-NRC-96-4743	

The sample analysis for the RCL piping was based on routed RCL piping supported by primary equipment supports, but interconnected piping (e.g., the pressurizer surge line) was not included in the model. This response may be acceptable; however, the staff intends to review these stresses in future piping audits.

Closed - Discussed at meeting with NRC on February 14 & 15, 1995. Any issues raised during audits will be treated as separate items.
Closed - Response provided by NSD-NRC-96-4743.

Action W - This item will be evaluated as a part of DSER Open Item 3.6.3.4-1.

AP600 Open Item Tracking System Database: Executive Summary

Date: 2/25/97

Selection: [nrc st code]='Action W' And [DSER Section] like '3.6.3*' Sorted by Item #

Item No.	Branch	DSER Section/ Question	Type	Title/Description Detail Status	Resp Engineer	(W) Status	NRC Status	Letter No. /	Date
608	NRR/EMEB	3.6.3.4-1	DSER-OI		Bhowmick	Closed	Action W	NSD-NRC-96-4743	

Westinghouse should perform and submit for staff review bounding LBB analyses for candidate piping systems including evaluations for susceptibility to degradation mechanisms for the projected 60-year AP600 design life.

Closed - Bounding analysis and information to perform independent calculation has been provided to the NRC
Action W - Letter dated August 20, 1996 identified additional items for Westinghouse action. A phone call on August 27 provided additional clarification.
Clarify how PSI and (augmented) ISI requirements will provide for integrity of ASME Code Class 2 and 3 piping systems.
Clarify: ...the highest stressed point (critical location) has to be less than the bounding analysis curve. Action - The 5th bullet will be revised to clarify the comparison
3.6.3.3 Revise parts of this SSAR section which are inconsistent with bounding analysis approach.
Provide a description of LBB acceptance criteria and demonstrate how bounding analysis approach satisfies these criteria. Action - 3.6.3.2 and 3.6.3.3 will be reviewed for changes that clarify how bounding analysis method is accomplished.
Action - The failure mechanism for non-stainless steel material will be included in 3.6.3.3
3B.1 Explain the relationship between the bounding analyses and the requirements of SRP 3.6.3 and NUREG-1061, Vol. 3. Discussed during phone call.
3B.2 Explain if water chemistry requirements will minimize stress corrosion in auxiliary stainless steel piping. If so, provide discussion in 3B.2.2. Discussed during phone call no SSAR changes proposed.
Explain in 3B.2.3 how pressurized safety valve discharge loads are considered in analysis. Note * in 3B.3.3.1 will be revised to specifically address safety valve opening.
Explain in 3B.2.4 how fatigue effects due to thermal and other cyclic loads are evaluated in ASME Code, Class 2 and 3 piping (Cf 3.6.1.8.2 of CE System 80+ SSAR). Action - Additional information to be added to 3B.2.4.
Explain in 3B.2.5 how dynamic strain aging (DSA) effects were evaluated. Discussed in phone call. No SSAR changes proposed.
Clarify the statement in the third paragraph in auxiliary stainless steel section of 3B.2.6 that unisolable sections of identified candidate LBB piping systems are susceptible to adverse stresses as described in Bulletin 88-08. Action - Revised 3B.2.6 will state that there is no unisolateable sections.
Explain in 3B.2 how susceptibility of failures due to creep fatigue and indirect causes and cleavage type failures were evaluated. ?????
3B.3 Explain how the bounding analyses are consistent with themethodology in GDC-4, SRP 3.6.3 and NUREG-1061, Vol. 3.
Clarify the load margin in the third bullet of 3.B.3.
Clarify in 3B.3.1 the inclusion of 304L.
Clarify in 3B3.1.3 how the lower magnitude of bending stress is selected.
Clarify in 3B3.2.4 how the higher magnitude of bending stress is selected.
Define Y and Z axes in 3B.3.3.1 through 3B.3.3.3. Action - Changes to clarify the abouve will be included in the SSAR
3B.4 Revise 3B.4 to include ASME Code Class 3 piping systems (3B.6 indicates there are Class 3 candidate LBB systems). Action - Revise subsection to focus on differences due to material not Code Class.
Revise 3B.4 to discuss differences in design analyses for ASME Code Class 1, 2, and 3 systems, instead of differences in LBB analyses. Action - See previous question
3B.5 Discuss the significance of the differences in inspection criteria for ASME Code Class 1, 2, and 3 piping systems identified in 3B.5 for LBB applications. Action - Revise SSAR to state that there is no difference in LBB evaluation due to inspection differences. Reference additional requirements for Class 3 ECCS lines
3B.6 Discuss the significance of the differences in fabrication requirements for ASME Code Class 1, 2, and 3 piping systems identified in 3B.6 for LBB applications. Action Revise SSAR to state that there is no difference in LBB evaluation due to fabrication differences
3B.7 Delete 3B.7 on monitoring unanticipated dynamic loads in the MainFeedwater Line. Action - Westinghouse will provide additional information to support LBB for main feedwater line
3B.8 Delete 3B.8 for augmented ISI for Main Feedwater nozzles on steam generators. Action - Westinghouse will provide additional information to support LBB for main feedwater line
Tables Add line size and material to Table 3B-1. Action W - Move ADS stage 1 line from LBB line
Bounding Curves Analyses for the following selected boundingcurves Figs. 3B-2 through 3B-40 will be audited during meeting:
(1) Main Steam - A
(2) Main Feedwater - A
(3) Surge Line
(4) PRHR Supply Line - 12"
(5) CMT - A
(6) ADS Stage 1
Westinghouse should perform sensitivity analyses to assess differences in calculated leak rates for 4 inch ADS line. Action N - Staff will decide what line if

Selection: [nrc st code]='Action W' And [DSER Section] like '3.6.3*' Sorted by Item #

Item No	Branch	DSER Section/ Question	Type	Title/Description Detail Status	Resp Engineer	(W) Status	NRC Status	Letter No / Date
618	NRR/EMEB	3.6.3.6-4	DSER-OI	Westinghouse should benchmark its leak rate evaluation methodology against methods currently accepted by the staff, (such as using the PICEP computer code). Closed - NRC meeting 7/25/95 - NRC consultant is to review material submitted on South Texas. Closed - Response provided by NSD-NRC-96-4743. Action W - This issue will be evaluated as a part of DSER Open Item 3.6.3.4-1.	Bhowmick	Action W	Action W	NSD-NRC-96-4743
620	NRR/EMEB	3.6.3.6-6	DSER-OI	Westinghouse should address whether the water hammer type loads from condensation events need to be considered in the LBB analyses, if not, Westinghouse should justify why these loads can be excluded. Action W - Evaluations of plant loadings from condensation events are being performed, using in part data from the AP600 test facility at Oregon State University. Upon completion of the evaluation, loadings from condensation events will be included in the plant analysis as appropriate. Closed - Response provided by NSD-NRC-96-4743. Action W - 8/28/96 Resolve differences between Westinghouse and NRC estimates for water hammmer loads for the main feedwater pipe. Action N - pending NRC response to the request for information on the methods used by the NRC for the watterhammer load evaluation. Response was provided in letter NSD-NRC-96-4873 Action W - Preliminary results from small-break LOCA tests performed at Oregon State University indicate that rapid condensation events have the potential to cause unanticipated dynamic loads to occur in the AP600 RCS. These water hammer type loads have not been considered in the piping design loads to justify a LBB approach for the AP600 main coolant loop and attached piping. Westinghouse was requested to address whether these water hammer-type loads from condensation events need to be considered in its LBB analyses or, if not, justify why these loads can be excluded and incorporate relevant discussions in the SSAR.	Johnson	Action W	Action W	NSD-NRC-96-4743
1883	NRR/EMEB	3.6.3.4-1	DSER-COL	3.6.3.4-1 The COL applicant should verify that the actual material properties and final as-built piping analyses meet the acceptance parameters established in the bounding LBB analyses. Closed - Specific requirement for as-built verification to Combined License information item was added in the SSAR 3.6.4.2 for reconciliation of the LBB analysis. Closed - Response provided by NSD-NRC-96-4743.	Lindgren/Bhowmick	Closed	Action W	NSD-NRC-96-4743
2430	NRR/EMEB	3.6.3	MTG-OI	Follow on question 210.210 Westinghouse should discuss in the SSAR how erosion-corrosion effects have been minimized or eliminated in the feedwater line inside containment. Closed - SSAR Appendix 3B revision 7, section 3B.2.1 provides a description. Closed - Response provided by NSD-NRC-96-4743.	Lindgren/Bhowmick	Closed	Action W	NSD-NRC-96-4743
2431	NRR/EMEB	3.6.3	MTG-OI	Follow on question 210.211 Westinghouse should discuss in the SSAR how fatigue effects due to dynamic operational vibration cycles have been minimized in the feedwater lines. Closed - SSAR Appendix 3B revision 7, section 3B.2.4(under high-cycle fatigue) indicated that main feedwater pump vibration is isolated from the leak-before-break feedwater line inside containment via the piping and equipment supports. Closed - Response provided by NSD-NRC-96-4743.	Lindgren/Bhowmick	Closed	Action W	NSD-NRC-96-4743

AP600 Open Item Tracking System Database: Executive Summary

Date: 2/25/97

Selection: [nrc st code]='Action W' And [DSER Section] like '3.6.3*' Sorted by Item #

Item No.	Branch	DSER Section/ Question	Type	Title/Description Detail Status	Resp Engineer	(W) Status	NRC Status	Letter No. /	Date
2432	NRR/EMEB	3.6.3	MTG-OI		Lindgren/Bhowmick	Closed	Action W		
				Follow on question 210.212 Westinghouse should commit in the SSAR to provide instrumentation for monitoring any unanticipated dynamic loads in the feedwater lines inside containment.					
				Closed - SSAR Appendix 3B revision 7, section 3B.7 indicated that instrumentation for monitoring unanticipated dynamic loads in the feedwater lines inside containment will be provided in the first plant.					
3518	NRR/EMEB	3.6.3	RAI-OI		Johnson	Closed	Action W	NSD-NRC-96-4873	
				RAI 210.228 NUREG/CR-6443 indicates that the effects of: 1) restraint of pressure induced bending, and 2) residual stress can result in gross overestimates of leak rates in small diameter (4-inch) piping. Westinghouse should be prepared to discuss and quantify these effects.					
				Closed - pending review of response. Responses were provided in letter NSD-NRC-96-4873					

5 of 5

Westinghouse

FAX COVER SHEET

RECIPIENT INFORMATION		SENDER INFORMATION	
DATE:	February 24, 1997	NAME:	Jim Winters
TO:	Diane Jackson	LOCATION:	ENERGY CENTER - EAST
PHONE:	FACSIMILE:	PHONE:	Office: 412-374-5290
COMPANY:	US NRC	Facsimile:	win: 284-4887 outside: (412)374-4887
LOCATION:			

Cover + Pages 1 + 1

The following pages are being sent from the Westinghouse Energy Center, East Tower, Monroeville, PA. If any problems occur during this transmission, please call:

WIN: 284-5125 (Janice) or Outside: (412)374-5125.

COMMENTS:

Diane

This markup should resolve new open item 11-5-3 from our 11/5/96 telecon

It will go into SSAR Revision 12 unless we hear from you

Jim Winters

cc Lindgren
McIntyre
Cummins
Ron Vijuk
Winters
Hutchings
Jeanne Evans

9.3 Process Auxiliaries

9.3.1 Compressed and Instrument Air System

The compressed and instrument air system (CAS) consists of three subsystems; instrument air, service air, and high-pressure air. Instrument air supplies compressed air for air-operated valves and dampers. Service air is supplied at outlets throughout the plant to power air-operated tools and is used as a motive force for air-powered pumps. The service air subsystem is also utilized as a supply source for breathing air. Individually packaged air purification equipment is used to produce breathing quality air for protection against airborne contamination. The high-pressure air subsystem supplies air to the main control room emergency habitability system (VES), the generator breaker package, and fire fighting apparatus recharge station. Major components of the compressed and instrument air system are located in the turbine building.

9.3.1.1 Design Basis

9.3.1.1.1 Safety Design Basis

The compressed and instrument air system serves no safety-related function other than containment isolation and therefore has no nuclear safety design basis except for containment isolation. See subsection 6.2.3 for the containment isolation system.

9.3.1.1.2 Power Generation Design Basis

The instrument air subsystem provides filtered, dried, and oil-free air for air-operated valves and dampers. The instrument air subsystem consists of two compressors and associated support equipment and controls that are powered from switchgear backed by the nonsafety-related onsite standby diesel generators as an investment protection category load. The subsystem provides high quality instrument air as specified in the ANSI/ISA S-7.3 standard (~~Reference~~ 9.3.8.1).

The service air subsystem provides filtered, dried, and oil-free compressed air for service outlets located throughout the plant. The service air subsystem consists of two compressors and their associated support equipment and controls. Plant breathing air requirements are satisfied by using the service air subsystem as a supply source. Individually packaged air purification equipment is used to improve the service air to Quality Verification Level D breathing air as defined in ANSI/CGA G-7.1.

The high-pressure air subsystem consists of one compressor, its associated air purification system and controls, and a high-pressure receiver. It provides clean, oil-free, high-pressure air to recharge the main control room emergency habitability system cylinders, refill the individual fire fighting breathing air bottles, and recharge the generator breaker reservoir. Quality Verification Level E air as defined in ANSI/CGA G-7.1 is produced by this subsystem. See Section 6.4 for a description of the main control room habitability system.

Westinghouse

FAX COVER SHEET

RECIPIENT INFORMATION		SENDER INFORMATION	
DATE:	2/26/97	NAME:	Steve KeRCH
TO:	Jim Bongarra / Jim Higgins	LOCATION:	Monroeville, PA
PHONE:	301-415-1046 / 516-344-3638	PHONE:	412-374-5184
COMPANY:	NRC / BNL		
LOCATION:		FAX:	(412) 374-5099

Cover + Pages = 1 + 3 = 4 total

- REMOVE ALL STAPLES
- PENCIL WILL NOT TRANSMIT - USE BLACK PEN
- PLEASE MAKE COPIES OF TWO-SIDED PAGES

Comments:

Jim Bongarra,

Attached are the changes to SSAR Table 18.12.2-1 (Minimum Inventory) that we discussed this morning. Also included is the change to SSAR 7.4.3 that was discussed this morning. These changes have been approved and will be included in the SSAR revision going to reproduction today. (Also sent to Jim Higgins.)

Steve Kerch

Phone Number of Receiving Equipment: Jim Bongarra 301-415-2222

Jim Higgins 516-344-4900

Table 18.12.2-1 (Sheet 1 of 2)

MINIMUM INVENTORY

Parameter ~~Instrument/Display~~	Control	Display	Alarm(2)
Neutron flux		x	x
Neutron flux doubling			x
Startup rate		x	x
RCS pressure		x	x
Wide range ~~WR~~ T_{hot}		x	
~~WR~~ T_{cold}		x	x
RCS cooldown rate compared to the limit based on RCS pressure		x	x
Change of RCS temperature by more than 5°F in the last 10 minutes			x
Containment water level		x	x
Containment pressure		x	x
Pressurizer water level		x	x
Pressurizer water level trend		x	
Pressurizer reference leg temperature		x	
Reactor vessel - Hot leg water level		x	x
Pressurizer pressure		x	
Core exit temperature		x	x
RCS subcooling		x	x
RCS cold overpressure limit		x	x
IRWST water level		x	x
PRHR flow		x	x
PRHR outlet temperature		x	x
PCS storage tank water level		x	
PCS cooling flow		x	
IRWST to RNS suction valve status		x	x
Remotely operated containment isolation valve status(3)		x	
Containment area high range radiation level		x	x
Containment pressure (extended range)		x	
Containment hydrogen concentration		x	
CMT level(1)		x	
Manual reactor trip (Also initiates turbine trip Figure 7.2-1, sheet 19.)	x		
Wide range T_{cold} compared to the limit based on RCS pressure		x	x

Table 18.12.2-1 (Sheet 2 of 2)

MINIMUM INVENTORY

Parameter ~~Instrument/Display~~	Control	Display	Alarm[2]
Manual safeguards actuation	x		
Manual CMT actuation	x		
Manual main control room emergency habitability system actuation[4]	x		
Emergency habitability system actuation			
Manual ADS actuation (1-3 and 4)	x		
Manual PRHR actuation	x		
Manual containment cooling actuation	x		
Manual IRWST injection actuation	x		
Manual containment recirculation actuation	x		
Manual containment isolation	x		
Manual main steamline isolation	x		
Manual feedwater isolation	x		
Manual containment hydrogen igniter (nonsafety-related)	x		

Notes:

1. Although this parameter does not satisfy any of the selection criteria of subsection 18.12.2, its importance to manual actuation of ADS justifies its placement on this list.
2. These parameters are used to generate visual alerts (safety-related displays for the main control room; nonsafety-related displays for the remote shutdown workstation) that identify challenges to the critical safety functions.
3. These instruments are not required after 24 hours. (Subsection 7.5.4 includes more information on the class 1E valve position indication signals, specified as part of the post-accident monitoring instrumentation.)
4. This manual actuation capability is not needed at the remote shutdown workstation.

displays, and alarms

One remote shutdown workstation is provided. The remote shutdown workstation contains controls, for the safety-related equipment required to establish and maintain safe shutdown. Additionally, control of nonsafety-related components is available, allowing operation and control when ac power is available. The design basis for the remote shutdown workstation does not require the installation of safety-related, dedicated, fixed-position displays, alarms, and controls. The controls, displays, and alarms listed in Table 18.12.2-1 are retrievable from the remote shutdown workstation. Subsection 18.12.3 provides more discussion on the remote shutdown workstation displays, alarms, and controls.

The remote shutdown workstation has the same capabilities as the reactor operator's workstation in the main control room.

The remote shutdown workstation is provided for use only following an evacuation of the main control room. No actions are anticipated from the remote shutdown workstation during normal, routine shutdown, refueling, or maintenance operations.

The remote shutdown workstation has sufficient communication circuits to allow the operator to effectively establish safe shutdown conditions. As detailed in subsection 9.5.2, communication is available between the following stations:

- Main control room
- Remote shutdown workstation
- Onsite technical support center
- Diesel generator local control station

Operator control capability at the remote shutdown workstation is normally disabled, and operator control functions are normally performed from workstations located inside the main control room; however, operator control capability can be transferred from the main control room workstations to the remote workstation if the control room requires evacuation. This operator control transfer capability can not be disabled by any single active failure coincident with the loss of offsite power.

The control transfer function is implemented by multiple transfer switches. Each individual transfer switch is associated with only a single safety-related or single nonsafety-related division. These switches are located behind an unlocked access panel. Entry into this access panel will result in alarms at the main control room and remote shutdown workstation. The access panel is located within a fire zone which is separate from the main control room. Actuation of these transfer switches results in additional alarms at the main control room and remote shutdown workstation, the activation of operator control capability from the remote workstation, and the deactivation of operator control capability from the main control room workstations. The operator displays located in the main control room and on the remote shutdown workstation are not affected by this control transfer function.

7.4.3.1.2 Controls at Other Locations

In addition to the controls and indicators provided at the remote shutdown workstation, the following controls are provided outside the main control room:

- Reactor trip capability at the reactor trip switchgear

** TX CONFIRMATION REPORT **   AS OF FEB 26 '97 14:48   PAGE.01

WETSO/RM 468 EC EAST

	DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	CMD#	STATUS
07	02/26	14:45	516 344 4900	G3--S	02'33"	004		OK

** TX CONFIRMATION REPORT **   AS OF FEB 26 '97 14:44   PAGE.01

WETSO/RM 468 EC EAST

	DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	CMD#	STATUS
06	02/26	14:41	301 504 2222	G3--S	02'25"	004		OK