RADIATION CENTER

OREGON STATE UNIVERSITY
100 Radiation Center, Corvallis, Oregon 97331-5903
Telephone 541-737-2341 Fax 541-737-0480

March 14, 2000

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington DC 20555

References:
1. Oregon State University TRIGA Reactor (OSTR), Docket No. 50-243, License No. R-106
2. 10 CFR 50.59 Safety Evaluation 99-09, Emergency Response Plan Revisions

Subject: Application for an Amendment of the OSTR Emergency Response Plan Submitted Under 10 CFR 50.90.

Gentlemen:

The purpose of this letter is to apply for an amendment to the OSTR Emergency Response Plan (ERP). There are five changes to the ERP which will result in a reduction of effectiveness of the plan, as determined by the provisions of 10 CFR 50.59. However, these changes are appropriate and are needed to make the ERP consistent with our operating procedures. A copy of the evaluation is enclosed.

The proposed amendment to the ERP has been reviewed by the OSTR operations staff and approved by the Reactor Operations Committee. If there are any questions regarding this amendment application, please let me know.

Sincerely,

Stephen E. Binney
Director

A045

c: Al Adams, Nuclear Regulatory Commission
Dave Stewart-Smith, Oregon Office of Energy
Steve Reese, OSU Reactor Administrator
Art Hall, OSU Reactor Supervisor

Enclosure

State of Oregon)
) ss
County of Benton)

Stephen E. Binney, being first duly sworn on oath, deposes and say that he has affixed his signature to the letter above in his official capacity as Director, Oregon State University Radiation Center; that he has signed this letter requesting Emergency Response Plan changes as required by 10 CFR 50.90; that in accordance with the provisions of 10 CFR 50.30(b), he is attaching this affidavit; that the facts set forth in the letter within are true to his best information and belief.

Stephen E. Binney, Director

Subscribed and sworn before me, a Notary Public, in and for the County of Benton, State of Oregon, this 14th day of March, A.D., 2000.

Notary Public of Oregon

My Commission Expires 9/9/01

OFFICIAL SEAL
SHIRLEY CAMPBELL
NOTARY PUBLIC - OREGON
COMMISSION NO. 304648
MY COMMISSION EXPIRES SEPTEMBER 09, 2001

ENCLOSURE 1

Oregon State University TRIGA Reactor (OSTR)
License No. R-106, Docket No. 50-243

Background Information:

Under the provisions of 10 CFR 50.59, it was determined that each of the following changes to the Emergency Response Plan constituted a reduction in effectiveness. However, these changes would not, in all practical terms, reduce our ability to handle an emergency. They will make the ERP consistent with our operating procedures and update it with respect to outside emergency support agencies.

Proposed Amendment:

Oregon State University (OSU) requests that following changes be made:

1) Section 10.4.2.c on page 10-3 of the ERP should be replaced with, "The instruments in the Good Samaritan Hospital are checked and calibrated on an annual basis."

2) Section 10.4.3.b on page 10-4 of the ERP should be replaced with, "Emergency equipment located in a cabinet at the Good Samaritan Hospital is inspected and inventoried semi-annually."

3) Appendix B, Section B.2.b on page B-1 should be deleted completely.

4) Appendix B, Section B of the Semi-Annual Emergency and Safety Equipment Inspection Checklist on pages B-4 through B-7 should be deleted completely.

Justification:

The proposed amendment would result in a reduction in the effectiveness of the Emergency Response Plan in that duplicate equipment belonging to OSU would be removed from the Corvallis Fire Department's (CFD) HAZMAT Response Vehicle. OSU originally placed equipment on this vehicle because CFD lacked any radiological monitoring equipment. The State of Oregon, through the Oregon Office of Energy, now supplies CFD and many other first responders with separately issued radiological monitoring equipment. This equipment is not only newer, but is calibrated by our staff annually through the program sponsored by the Oregon Office of Energy. Additionally, decontamination equipment owned by CFD and located on the HAZMAT Response Vehicle easily replaces identical equipment that appears on the checklist on page B-4.

The current ERP calls for the equipment at Good Samaritan Hospital to be calibrated semi-annually. We are asking that this be changed to an annual calibration. A reduction in calibration frequency would be a reduction in effectiveness. However, this equipment constitutes the only portable radiological instrumentation that we calibrate on a semi-annual basis at the OSTR, Radiation Center or otherwise. Experience has shown that an annual calibration for this instrumentation will adequately ensure that it is operable and accurate when needed. Although the calibration would be annual, the OSTR staff will continue to inspect and inventory the equipment on a semi-annual basis.

Proposed Amendment:

OSU requests that the Annual Emergency and Safety Equipment Inspection Checklist on pages B-12 and B-13 of Appendix B be delete completely.

Justification:

The equipment listed on this checklist is owned by the OSU Department of Nuclear Engineering, located in the Radiation Center with the OSTR. Required use of this equipment is not appropriate in that it is used for other activities (i.e., student laboratory exercises) and not dedicated to emergency situations only. The list also contains respiratory protection equipment when OSTR does not have a respiratory protection program in place. These reasons severely limit the use of some of the equipment by OSTR personnel. The OSTR has an adequate supply of emergency equipment pre-positioned throughout the Radiation Center without including the equipment in question.

Proposed Amendment:

OSU requests that section 8.3.3.b be replaced with, "There is a shower in room D206 which can be used for personnel decontamination. The water from this shower drains into the Radiation Center's liquid waste holdup tank."

Justification:

The current ESP references three showers in the Radiation Center which drain to the holdup tank, when this is only true for the room D206 shower. The other two showers could be used for decontamination by re-routing the drain (diverting to the holdup tank line) or setting up a catch basin to collect the water; otherwise they drain directly to the sanitary sewer. Setting up a catch basin or diverting the drains to the holdup tank can be done but may be untimely in a emergency

situation.

Proposed Amendment:

OSU requests that Sections 7.2.2.a and 7.3.2.3.a be replaced with, "Airborne radioactivity in the reactor bay initially will be assessed by the installed air monitors. A reactor top continuous air monitor (CAM) analyzes the air for particulate radioactivity. It is capable of detecting radioactive material concentrations above normal background beginning at about 10^{-10} μCi cm^{-3} for particulates. The alarm set point for the particulate channel is typically set at a small percentage of the applicable DAC for radionuclides normally expected."

Justification:

An initial release of radiological effluent would be easily detected by the combination of ARMs, stack gas/particulate CAM (Exhaust Gas Radiation Monitor) and reactor top particulate CAM radiological measuring systems that are currently in place. As referenced in Section 8.2.2.a, there are a number of additional air samplers which could be employed in an emergency, without the reactor top gas CAM.

The reactor top gas CAM is not a Tech Spec required radiation monitoring channel. The OSTR does not take credit for it operationally. It is kept calibrated and is located on the reactor top with the intent of replacing the stack gas CAM channel if it fails. In the event that this happens, the Tech Spec required stack gas CAM could be replaced with the reactor top gas CAM with a minimal amount of down time for the OSTR.

ENCLOSURE 2

Oregon State University TRIGA Reactor (OSTR)
License No. R-106, Docket No. 50-243

10 CFR 50.59 Safety Evaluation 99-09
Emergency Response Plan Revisions

OSU TRIGA REACTOR (OSTR)

Changes, Tests and Experiments
Evaluated Under the Provisions of 10 CFR 50.59

Number: 99-09

Date: October 1, 1999

Title: Emergency Response Plan Revisions

DESCRIPTION

The proposed revisions to the Emergency Response Plan (ERP) are given in the CONFORMAL PROCEDURAL CHANGES section. The revisions represent typo corrections, changes in personnel that have occurred in the last year and changes in reporting contacts with the NRC. However, there are several items that will reduce the effectiveness of the ERP. If the ROC agrees, the changes will require a 10 CFR 50.4 letter asking for approval prior to implementation. Each proposed change, which results in a reduction in effectiveness, is discussed below.

1. The Radiation Center's radiological equipment on the Corvallis Fire Department's (CFD) HAZMAT vehicle needs to be returned and any reference to it removed from the ERP. CPD already possesses radiological equipment supplied by the State of Oregon. The Radiation Center's equipment was placed there as part of a county emergency response program that the Radiation Center participated in. As this program is no longer in existence, the equipment should be returned.

2. All emergency GM survey meters and ion chambers are currently calibrated semi-annually. These should be calibrated annually, just like any other radiation-monitoring instrument the Radiation Center possesses. Experience has shown that an annual calibration more than adequately maintains radiation-monitoring instrumentation in good working condition.

3. All references to the reactor top CAM gas channel need to be removed from the document. The OSTR is not required to maintain a CAM gas channel and we do not take credit for it operationally. It is currently calibrated annually so that it may serve as a backup to the stack gas channel. In the event of an emergency, it could be used, just like any other piece of equipment, but it should not be referenced as a monitoring channel.

4. All references to the emergency equipment used by NE/RHP 484, Applied Radiation Safety, need to be removed from the document. This includes respiratory protection

equipment when the OSTR doesn't have a respiratory protection program in place. The Radiation Center should not be relying on emergency equipment owned by the Department of Nuclear Engineering.

5. We currently reference three showers within the Radiation Center Complex that can be used for personnel decontamination. In fact, only the shower in D206 drains to the holdup tank. Statements implying the other showers also drain to the holdup tank need to be removed.

SAFETY EVALUATION

The specific changes described above do, technically, reduce the effectiveness of the plan. Approval from the NRC will be required before implementation. However, they will not degrade the OSTR and Radiation Center's ability to deal with an emergency situation. These changes simply reflect our true emergency response capabilities, as some of this information is out-of-date, and make the plan consistent with the OSTR operating procedures.

CONFORMAL PROCEDURAL CHANGES

1) Replace the introduction with the introduction given in the Physical Security Plan. This will improve continuity between OSTR control documents.

2) Remove any reference to instrumentation or equipment on the Corvallis Fire Department's HAZMAT vehicle. This equipment was originally used for Radiation Center personnel who belonged to a Benton County radiation emergency response team. The program no longer exists and the HAZMAT vehicle already has radiation monitoring equipment provided by the State of Oregon.

3) Emergency equipment, which is calibrated on a semi-annual basis, should be calibrated on an annual basis. Experience has shown that annual calibration is more than adequately ensures instrument readiness.

4) Remove any reference to the reactor top CAM gas channel. We currently do not take credit for it in normal operations.

5) Remove any reference to the emergency equipment used by the NE/RHP 484, Applied Radiation Safety. It includes respiratory protection equipment when we don't have a respiratory protection program in place.

6) Change "Oregon Department of Energy" to "Oregon Office of Energy" everywhere it appears in the text.

7) Change "OSU Police and Security Services" or "OSU Campus Security" to "OSU Security Services" everywhere they appear in the text.

8) Change "Office Manager" to "Office Coordinator" everywhere it appears in the text.

9) Remove gender specific text everywhere it appears in the text.

10) Capitalize Emergency Response Plan everywhere it appears in the text.

11) Instead of using a " / " when showing units which are in the denominator, signify them with negative exponents everywhere they appear in the text.

12) The revision reference at the top of each page will be removed. Revisions will be signified by a line and a date positioned vertically and encompassing the revision location. This will improve continuity between OSTR control documents.

13) Delete underlining everywhere it appears in the text.

14) Capitalize Radiological Assessment Team everywhere it appears in the text.

15) Section 2.0 needs to be reformatted to be consistent with the rest of the document.

16) In section 2.0, include APEX/ATHRL in the definition of "Radiation Center Complex."

17) In section 3.1.2, replace "Radiation Control Section" with "Radiation Protection Services."

18) In section 3.1.3, replace "enforce- ment" with "enforcement", "...as they deem it necessary..." with "...as deemed necessary..." and "...Police Personnel, or... with "...Police personnel or..."

19) In section 3.1.4, replace "intrusion alarm" with "situation" and "...incidents to the Police Department..." with "...incidents to the City of Corvallis Police Department..."

20) Change "Oregon Department of Energy" to "Oregon Office of Energy" everywhere it appears in the text.

21) Change "ODOE" to "OOE" everywhere it appears in the text.

22) Under Oregon State Police and OSU Security Services in section 3.2.2.e, delete ", such as the Corvallis Police Department." There is no need to individually list all the law enforcement agencies that might be called by Oregon State Police.

23) Replace "T.V." with "television" everywhere it appears in the text.

24) Capitalize "Radiological Assessment Team" everywhere it appears in the text.

25) Under Public Information Officer in section 3.2.2, replace "University Relations" with "News and Communication Services."

26) Under Recovery Operations Coordinator in section 3.2.2, replace "...and Senior Health Physicist,..." with "...Senior Health Physicist,..."

27) In Figure 3.1, change "Chief Business Officer" to "Vice President for Finance and Administration" and "Vice Provost for Research and International Programs" to "Vice Provost for Research."

28) In Figure 3.2, change "Campus" to "University" and add a new line directly linking Oregon State Police between the university and state levels. The chart currently implies that Benton County Sheriff's Department calls Oregon State Police when, in fact, the opposite is true.

29) In the introduction of section 4.0, replace "lcoal" with "local" and "...we wish to make it clear..." with "...the Radiation Center asserts..."

30) Add a section 4.1.h, "An event which causes significant damage to the Radiation Center."

31) In the footnotes in section 4.2, 4.3, E-1-1, and E-2-1, replace, "We do not consider this EAL to be applicable." With, "This EAL is not considered to be applicable." Additionally, delete "(0.0008)" and "(0.00016)" from each respectively. These numbers are redundant.

32) Replace section 4.3.a with, "Loss of greater than 80% of the reactor tank water."

33) In section 6.0, delete "...outside of this area..." in the second paragraph.

34) In section 7.1.2.1, replace "...by the OSU person..." with "...by an OSU person..."

35) In section 7.1.2.3.a, replace "will" with "with."

36) In section 7.1.2.4.a, delete the word "installed." It is safe to assume that a detector not installed will not detect anything.

37) In section 7.1.3, replace "posed" with "posted."

38) In section 7.1.2.6.c, delete the last sentence. There is no need to identify LLDs for various detectors in the ERP.

39) In section 7.1.3.4.b, replace "...with the OSTR Emergency Operating Procedures (OSTROP 1.0)(ERIP 3.0)." with "...with OSTR Operating Procedure (OSTROP) 1.0, *Emergency Operating Procedures.*

40) All subsequent references to OSTROP 1.0 will be replaced with "...OSTROP 1.0, *Emergency Operating Procedures.*"

41) Replace sections 7.2.3.1.a, 7.2.3.2.a, and 7.2.3.3.a with "The reactor shall be shut down and secured."

42) The section entitled "Elevated Radiological Effluent Discharge to the Unrestricted Area" under section 7.2.3.3, should be given the section number 7.2.3.4.

43) In section 7.2.4.i, replace "reactor operations" with "Radiation Center staff."

44) Replace the last sentence in section 7.3.2.1.c with "The combined volumes of the holdup tank and the reactor by floor are sufficient to retain the entire volume of liquid in the reactor tank onsite."

45) Reorganize section 7.3.3.b.i such that it becomes section 7.3.3.a.iii. This requires that section 7.3.3.c becomes section 7.3.3.b. Additionally, the two main titles, Loss of Reactor Tank Water and High Radiation Levels at the Site Boundary, should be given section numbers 7.3.3.1 and 7.3.3.2 respectively.

46) Replace section 7.3.3.a.ii with "Shut off the primary circulating and demineralizer pumps."

47) Under High Radiation Levels at the Site Boundary in section 7.3.3, replace section b with, "The source of high radiation levels shall be sought out and shielded." Replace section c with, "Personnel will be sent to the site boundary, out of the radiation field, to minimize access to the general area."

48) Delete the word "identify" from section 7.5.a.

49) Delete the word "very" from section 8.2.3.a.

50) In section 8.2.3.a.i, replace "Ge(Li)" with "germanium" and "C123" with "B125."

51) In section 8.2.5.1.c, replace "over" with "of".

52) In section 8.2.5.1.d, hyphenate "float-operated" and replace "a ctivate" with "activate."

53) In section 8.2.5.2.b, replace "th e" with "the" and "ne arest" with "nearest." Also delete the words "of a" in the last sentence.

54) In section 8.2.5.2.c, replace "radition" with "radiation."

55) In section 8.3.2.a, replace "ther e" with "there."

56) In section 8.3.3.a, replace the second sentence with, "The typical contents of the small and large decontamination kits are given in Appendix B."

57) Replace section 8.3.3.b with, "There is a shower in D206 which can be used for personnel decontamination. The water from this shower drains into the Radiation Center's liquid waste holdup tank."

58) Replace section 8.3.3.c with, "In the event that this shower is not accessible or available, there are further personnel decontamination facilities at the Good Samaritan Hospital."

59) In section 8.3.5.a.ii, replace "p ersonnel" with "personnel" and "(polye thylene)" with "(polyethylene)".

60) In section 8.3.5.a.iii, replace "decont amination" with "decontamination".

61) In section 8.3.5.b, replace "center" with "Center" and "writte n" with "written".

62) In section 8.4.a.i, replace "include" with "includes" and "Th e" with "The".

63) In section 8.4.a.ii, replace "th e" with "the".

64) Create section 8.4.a.vii, "Cell phones".

65) In section 8.4.b, replace "vehicl es" with "vehicles".

66) In sections 10.0, 10.1.c, 10.2.c, 10.3.a, 10.3.b and 10.3.c, replace "emergency plan" with "Emergency Response Plan".

67) In section 10.2.c, replace "At least every two years, these drills..." with "Biennially, these drills..." The term biennially is specifically defined.

68) In section 10.3.c, replace "...Commission..." with "...NRC..." and "...Non-Power Reactors and Decommissioning Project Directorate." with "

69) In sections 10.4.1.b and 10.4.1.c, delete "at least". The term annually is specifically defined.

70) In section 10.4.2.a, replace, "The bullhorn, emergency cabinet cassette recorder, and two-way radios are functionally tested semiannually." with "The bullhorn, cell phones, pagers, emergency cabinet cassette recorder, and two-way radios are functionally tested semiannually."

71) On page E-0-1, replace (h) with, "An event which causes significant damage to the Radiation Center." and delete (I).

72) On page E-0-2, replace "Em." with "emergency".

73) On page E-0-3 and ED-2-3, capitalize "Administration".

74) On page E-0-4, replace "...and turn to the..." with "...and follow the..."

75) On page E-0-4, add "c) Student Health Center" and "d) PIO" under the section Consider Activation or Notification.

76) On page E-0-5 and E-0-6, add "e) PIO" under the section Consider Activation or Notification.

77) On page SHP-0-7, replace "Turn to the specific..." with "Follow the specific..."

78) On page PIO-0-13, PIO-1-15, and PIO-2-10, replace "...C100, then follow..." with "...C100 and follow..."

79) On page REC-0-14, delete the word "Officer" from the fourth item.

80) On pages H-0-15, H-1-17, and H-2-12, add the following sentence to the second item, "It maybe necessary or appropriate to be located away from the ESC."

81) On page E-1-1, replace "branch" with "breach".

82) On page E-1-2, replace "Rx" with "Reactor", "Em." with "Emergency" and "Public Info. Officer" with "PIO". Additionally, add "OOE" to those that need to be notified for an explosion or fire emergency.

83) On page EC-1-4, replace "...and turn to the..." with "...and follow the..."

84) On page EC-1-5, add "PIO" to those that need to be notified for a natural phenomenon emergency.

85) On page EC-1-6, add "PIO" and "ATHRL Coordinator" to those that must be notified of an explosion or fire emergency.

86) On page EC-1-7, add "PIO" to those that need to be notified for a radiological emergency.

87) On page SHP-1-9, replace "Turn to the..." with "Follow the..."

88) On page ED-2-3, replace "concurrance" with "concurrence".

89) On page EC-2-4, add "PIO" to those who are required to be activated and add "evacuation during the emergency." to the end of the seventh item.

90) On page SHP-2-6, replace "affect" with "effect".

91) Replace the title of ERIP 4 with, "ERIP 4: See RCHPP 34 - Emergency Procedures for Laboratories and Areas Where Radioactive Materials are Used"

92) Delete the first item from page E-5-1. Anyone should be able to initiate an evacuation.

93) In the second item of page E-5-1, capitalize "complex" and replace "control room" with "reactor control room".

94) In the third item of page E-5-1, replace "R.C." with "Radiation Center" and "...follow the procedure..." with "...follow the evacuation procedure..."

95) Replace the sixth item of page E-5-1 with, "During both evacuation drills and actual emergency evacuations, people with disabilities will be assisted out of the building."

96) Delete the seventh item of page E-5-1. It is redundant.

97) Delete Appendix B on E-5-6 and rename Appendix C as Appendix B.

98) In Appendix C (to be changed to Appendix B), delete the names of individuals in parentheses under each position. Everyone is aware which position they hold.

99) On page E-5-8, replace item 1 with, "Report to the Emergency Coordinator." Additionally, delete item 2 and renumber item 3 and 4 as 2 and 3 respectively.

100) On page E-5-9, replace "..., turn to the..." with "...and follow the..." and "...ERIP and continue from there." with "...ERIP section."

101) On page E-5-11, replace item four with, "Determine your role in the emergency organization. If acting as the Senior Health Physicist, follow the appropriate ERIP."

102) On page E-5-11, replace item five with, "If you are not acting as the Senior Health Physicist, then report to the Senior Health Physicist as a member of the Radiological Assessment Team."

103) On page E-5-11, delete the first two items and renumber the remainder accordingly.

104) On page E-5-12, replace the first item with, "Verify that the tasks of the reactor operator are completed."

105) On page E-5-12, replace the fifth item with, "Determine your emergency organization role. If you are acting as the Emergency Coordinator, classify the emergency and follow the appropriate ERIP."

106) On page E-5-12, delete the third item and remainder accordingly.

107) On page E-5-15, delete the first item.

108) On page E-5-16, delete the first two items.

109) On page E-5-17, replace "probably" with "possibly".

110) On page E-5-18, replace the table with the table below:

Corridor	Monitor	Alternate
A	R. H. Farmer	D. L. Harlan
B	K. M. Brock	R. L. Normandin
C	M. R. Conrady	A.C. Klein
D	A. D. Hall	G. M. Wachs
E	J. L. Robinson	K. A. Higley
APEX/ATHRL	J. T. Groome	C. E. Gunderson

111) On page E-6-1, replace the third item of the preamble with, "Bomb threats are also made to create panic, scare people or interrupt activities at the target area."

112) In the fourth item of the preamble on page E-6-1, replace "...to make a decision on evacuation or non-evacuation." with "...to make an decision to evacuate or not."

113) Replace the Emergency Organization Mobilization Chart with the table below:

Emergency Position	1st Choice	2st Choice	3st Choice
Emergency Director	S. E. Binney	J. F. Higginbotham	S. R. Reese
Emergency Coordinator	S. R. Reese	A. D. Hall	S. E. Binney
Senior Health Physicist	D. S. Pratt	K. M. Brock	R. H. Farmer
APEX/ATHRL Coordinator	J. T. Groome	C. E. Gunderson	J. N. Reyes
Radiological Assessment Team	K. M. Brock M. R. Conrady R. L. Normandin	R. H. Farmer A. D. Hall D. L. Harlan	E. G. Schütfort S. P. Smith G. M. Wachs
Public Information Officer	Designated Rep. From OSU News and Communication Services	J. F. Higginbotham	S. E. Binney
Recovery Operations Coordinator	S. R. Reese	A. D. Hall	S. E. Binney
Historian	D. L. Snow	L. M. James	J. M. Stueve
Chairman of Reactor Operations Committee	J. F. Higginbotham	J. C. Ringle	A. C. Klein (or any available ROC member
First Aid Responders	M. R. Conrady	K. M. Brock	

114) Update new home phone numbers for Kathy Brock and Stephen Swansen.

For procedural changes, one of the boxes below must be checked.

[X] This is a substantive procedural change which requires the approval of the ROC **prior to implementation.**

[ ] This is a procedural change which does not change the original intent. Such a change must be reviewed and approved by the **ROC within 30 days of the implementation date above.**

Extracted from 10 CFR 50.59(a)(2)

A proposed change, test or experiment shall be deemed to involve an unreviewed safety question:

(i) if the probability of occurrence or the consequence of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased;

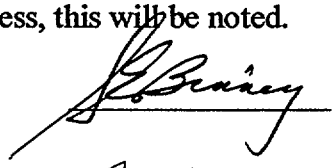
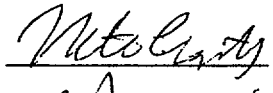
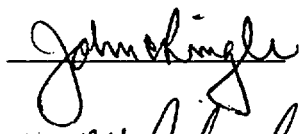
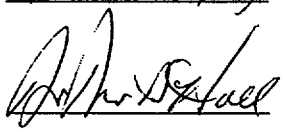
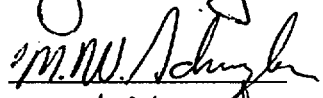
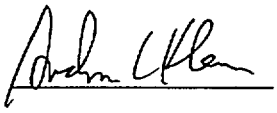
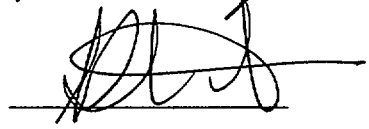
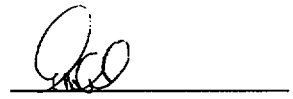
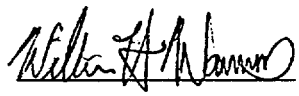
(ii) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or

(iii) if the margin of safety as defined in the basis for any technical specification is reduced.

APPROVALS

The changes described above were reviewed and approved by the Reactor Operations Committee (ROC) prior to being implemented. ROC approval included a review of this evaluation and the Committee's conclusion that the change does not require a change in the OSTR Technical Specifications and does not constitute an unreviewed safety questions as defined in 10 CFR 50.59(a)(2). This evaluation also included a review of applicable radiation protection aspects and was found to be consistent with the Radiation Center's commitment of ALARA.

The following signatures indicate review and approval by the Reactor Operations Committee and review by licensed operators. If any ROC member does not completely concur with or understand the proposed change, then that member should hold this form unsigned and notify the ROC Chairman. The matter will then be discussed at the next meeting of the Committee. If any individual ROC member is unable to sign the sheet due to absence or illness, this will be noted.

S. E. Binney*		W. J. Richards*	[see fax]
N. Carstens°		J. C. Ringle*	
A. D. Hall°*		M. W. Schuyler*	
A. C. Klein*		S. P. Smith°	
M. E. Magana*	(On Sabbatical)	G. M. Wachs°	
D. S. Pratt*		W. H. Warnes*	
S. R. Reese*°			

J. F. Higginbotham♦  Date: 11/19/99

♦Chairman, Reactor Operations Committee (Signs Last)
*Member, Reactor Operations Committee
°Licensed Operator

APPROVALS

The changes described above were reviewed and approved by the Reactor Operations Committee (ROC) prior to being implemented. ROC approval included a review of this evaluation and the Committee's conclusion that the change does not require a change in the OSTR Technical Specifications and does not constitute an unreviewed safety questions as defined in 10 CFR 50.59(a)(2). This evaluation also included a review of applicable radiation protection aspects and was found to be consistent with the Radiation Center's commitment of ALARA.

The following signatures indicate review and approval by the Reactor Operations Committee and review by licensed operators. If any ROC member does not completely concur with or understand the proposed change, then that member should hold this form unsigned and notify the ROC Chairman. The matter will then be discussed at the next meeting of the Committee. If any individual ROC member is unable to sign the sheet due to absence or illness, this will be noted.

S. E. Binney*	_____	W. J. Richards*	Wade J Richards
N. Carstens°	_____	J. C. Ringle*	John C Ringle
A. D. Hall°*	A D Hall	M. W. Schuyler*	_____
A. C. Klein*	_____	S. P. Smith°	_____
M. E. Magana*	(On Sabbatical)	G. M. Wachs°	_____
D. S. Pratt*	D S Pratt	W. H. Warnes*	W H Warnes
S. R. Reese*°	S R Reese		

J. F. Higginbotham* _____ Date:_____

*Chairman, Reactor Operations Committee (Signs Last)
*Member, Reactor Operations Committee
°Licensed Operator