

BAW-2257  
JULY 1995

RESPONSE TO PART (1) OF  
GENERIC LETTER 92-01, REVISION 1, SUPPLEMENT 1

Prepared by

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Prepared for

B&W Owners Group Reactor Vessel Working Group

Commonwealth Edison Company  
Duke Power Company  
Entergy Operations, Inc.  
Florida Power Corporation  
Florida Power & Light Company  
GPU Nuclear Corporation  
Rochester Gas and Electric Corporation  
Toledo Edison Company  
Virginia Power  
Wisconsin Electric Power Company

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## 1. INTRODUCTION

This document provides the Owners Group response to Part (1) of Nuclear Regulatory Commission (NRC) Generic Letter 92-01, Revision 1, Supplement 1, for the B&W Owners Group Reactor Vessel Working Group member plants as listed below.

Generic Letter 92-01, Revision 1, Supplement 1, was issued by the NRC on May 19, 1995 to holders of nuclear power plant operating licenses. The generic letter was issued to ensure that all licensees have all of the data relevant to the evaluation of the structural integrity of their RVPs and that all such data is appropriately included in their assessments of compliance with regulatory requirements regarding RPV integrity. Response to Part (1) is required within 90 days of the issue date; with a deadline of August 17, 1995. This document provides the required information in response to Part (1) of the request. for the following plants:

<u>Plant</u>	<u>Owner</u>
Arkansas Nuclear One Unit 1	Entergy Operations, Inc.
Crystal River Unit 3	Florida Power Corporation
Davis-Besse	Toledo Edison Company
R. E. Ginna	Rochester Gas and Electric Corp.
Oconee Unit 1	Duke Power Company
Oconee Unit 2	Duke Power Company
Oconee Unit 3	Duke Power Company
Point Beach Unit 1	Wisconsin Electric Power Co.
Point Beach Unit 2	Wisconsin Electric Power Co.
Surry Unit 1	Virginia Power
Surry Unit 2	Virginia Power
Three Mile Island Unit 1	GPU Nuclear Corporation
Turkey Point Unit 3	Florida Power & Light Company
Turkey Point Unit 4	Florida Power & Light Company
Zion Unit 1	Commonwealth Edison Company
Zion Unit 2	Commonwealth Edison Company

## 2. STATEMENT OF RESPONSE

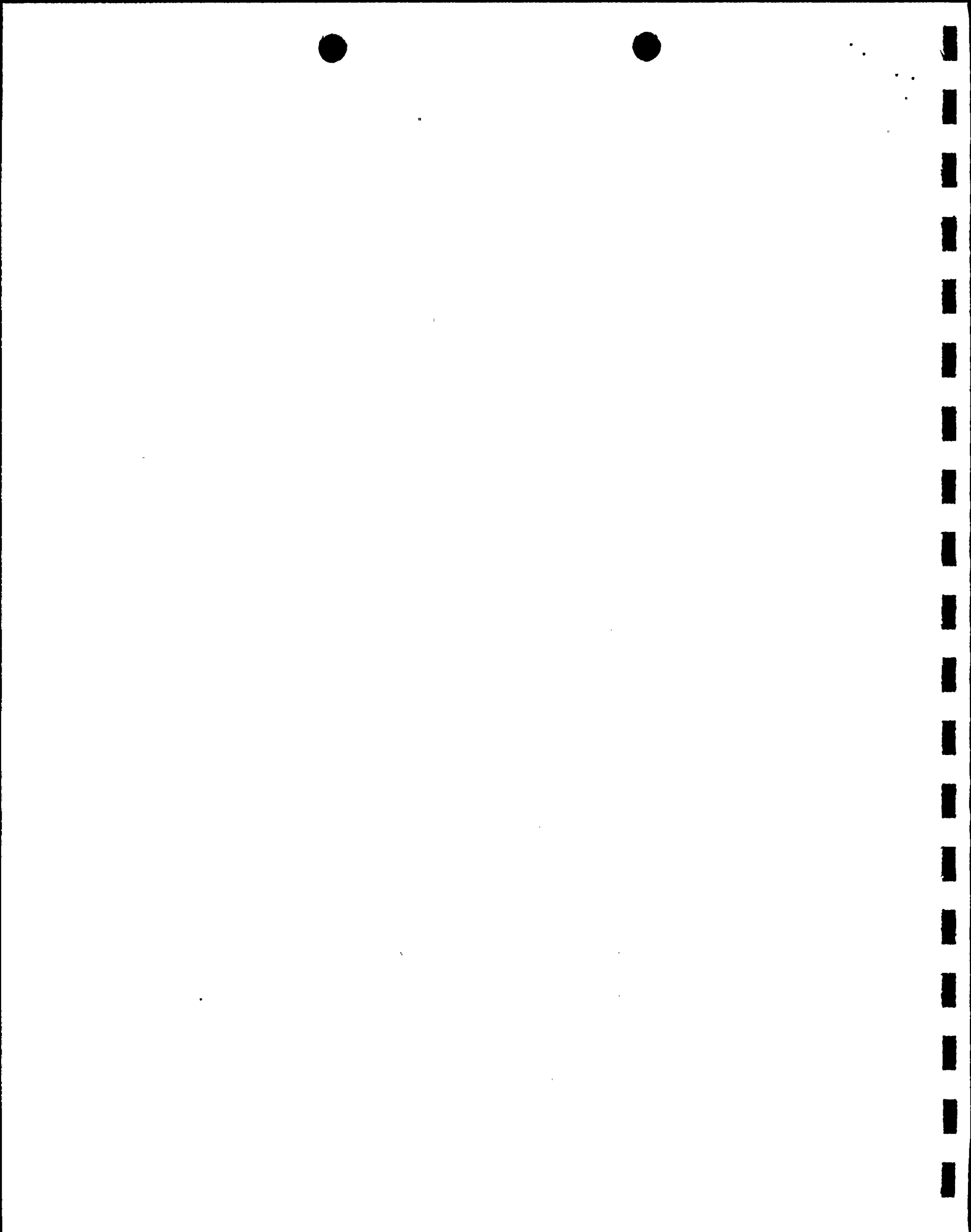
Part (1) of the Generic Letter requires the Addressees to provide the following information:

"a description of those actions taken or planned to locate all data relevant to the determination of RPV integrity, or an explanation of why the existing data base is considered complete as previously submitted"

The B&W Owners Group's Materials Committee initiated efforts in 1977 to resolve the reactor vessel integrity issue for high copper, Linde 80, automatic submerged arc welds. Its successor organization, the B&W Owners Group's Reactor Vessel Working Group (RVWG), has continued these efforts to acquire and document relevant data for determining reactor vessel integrity of its member plants. Appendix A provides a list of documents that are in the possession of the NRC and were considered in the development of the previous RVWG responses to Generic Letter 92-01, Revision 1 and associated requests for additional information.

Information for these documents was obtained from the following sources:

- o Babcock & Wilcox fabrication documentation (e.g., weld qualification reports)
- o Investigations sponsored by:
  - B&W Owners Group
  - Electric Power Research Institute (EPRI)
  - NRC (at the Oak Ridge National Laboratory)
- o Reactor vessel material surveillance program reports




The RVWG's Master Integrated Reactor Vessel Material Surveillance Program (MIRVP) links all the operating PWRs that contain high copper, Linde 80 welds and makes careful note of where the same weld, or its surrogate, is used in more than one reactor vessel. These data are shared for regulatory analyses regarding reactor vessel integrity.

A review of the list of reactor vessels fabricated by Babcock & Wilcox indicates that additional weld chemistry and initial Charpy V-notch and Drop Weight impact toughness data from a few domestic BWR and foreign PWR vessels may be available. The B&W Owners RVWG will make efforts to obtain and evaluate the relevance of these data. Nevertheless, the RVWG believes that the available data, relevant to the assessment of its member plant vessels, have been appropriately considered in the submitted reactor vessel integrity evaluations.

Written responses to Parts (2), (3), and (4) of Generic Letter 92-01, Revision 1, Supplement 1, shall be provided within 6 months of the issue date of the Generic Letter (May 19, 1995).


### 3. CERTIFICATION

This report accurately responds to the information requested in Part (1) to Generic Letter 92-01, Revision 1, Supplement 1.

  
\_\_\_\_\_  
M. J. DeVan, Engineer III  
Materials & Structural Analysis Unit


7/31/95  
Date

This report has been reviewed for technical content and accuracy.

  
\_\_\_\_\_  
S. Fyfitch, Supervisory Engineer  
Materials & Structural Analysis Unit

7/31/95  
Date

Verification of independent review.

  
\_\_\_\_\_  
K. E. Moore, Manager  
Materials & Structural Analysis Unit

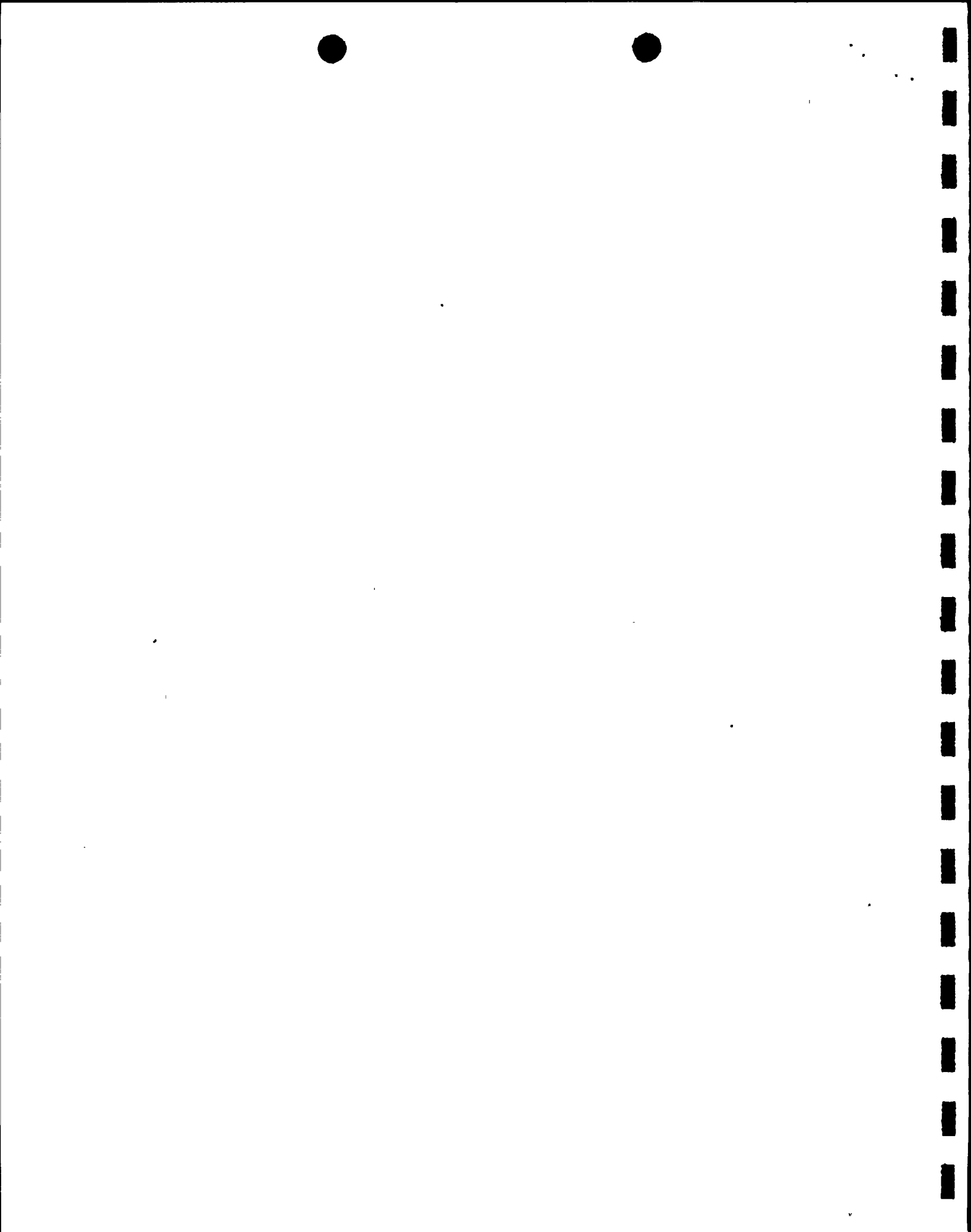
7/31/95  
Date

This report is approved for release.

  
\_\_\_\_\_  
D. L. Howell  
Program Manager

7/31/95  
Date

APPENDIX A  
DOCUMENT SUMMARY





Perrin, J.S., et al., "Final Report on Point Beach Nuclear Plant Unit No. 1 Pressure Vessel Surveillance Program: Evaluation of Capsule V," BMI-0673, Battelle Columbus Laboratories, Columbus, Ohio, June 15, 1973.

Perrin, J.S., et al., "Final Report on Point Beach Nuclear Plant Unit No. 2 Pressure Vessel Surveillance Program: Evaluation of Capsule V," BMI-0675, Battelle Columbus Laboratories, Columbus, Ohio, June 10, 1975.

Perrin, J.S., et al., "Surry Unit No. 1 Pressure Vessel Irradiation Capsule Program: Examination and Analysis of Capsule T," Battelle Columbus Laboratories, Columbus, Ohio, June 24, 1975.

Lowe, A.L., Jr., et al., "Analysis of Capsule OC1-F from Duke Power Company Oconee Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1421, Rev. 1, Babcock & Wilcox, Lynchburg, Virginia, September 1975.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OC1-E Duke Power Company Oconee Nuclear Station - Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1436, Babcock & Wilcox, Lynchburg, Virginia, September 1977.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OCII-C from Duke Power Company Oconee Nuclear Station, Unit 2 Reactor Vessel Material Surveillance Program," BAW-1437, Babcock & Wilcox, Lynchburg, Virginia, May 1977.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OCIII-A from Duke Power Company Oconee Nuclear Station, Unit 3 Reactor Vessel Materials Surveillance Program," BAW-1438, Babcock & Wilcox, Lynchburg, Virginia, July 1977.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule TMI-1E from Metropolitan Edison Company Three Mile Island Nuclear Station-Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1439, Babcock & Wilcox, Lynchburg, Virginia, January 1977.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule ANI-E from Arkansas Power & Light Company Arkansas Nuclear One -- Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1440, Babcock & Wilcox, Lynchburg, Virginia, April 1977.\*

Moore, K.E., and A.S. Heller, "Chemistry of 177-FA B&W Owners' Group Reactor Vessel Beltline Welds," BAW-1500, Babcock & Wilcox, Lynchburg, Virginia, September 1978.\*

Harbison, L. S., "Master Integrated Reactor Vessel Surveillance Program," BAW-1543, Revision 4, B&W Nuclear Technologies, Inc., Lynchburg, Virginia, February 1993.

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\* This report is available from B&W Nuclear Technologies, Inc., Lynchburg, Virginia.

Lowe, A.L., Jr., et al., "Analysis of Capsule CR3-B Florida Power Corporation Crystal River Unit 3 Reactor Vessel Materials Surveillance Program," BAW-1679, Rev. 1, Babcock & Wilcox, Lynchburg, Virginia, June 1982.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OCIII-B from Duke Power Company Oconee Nuclear Station, Unit 3 Reactor Vessel Materials Surveillance Program," BAW-1697, Babcock & Wilcox, Lynchburg, Virginia, October 1981.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule ANI-B from Arkansas Power & Light Company's Arkansas Nuclear One, Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1698, Babcock & Wilcox, Lynchburg, Virginia, November 1981.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OCII-A from Duke Power Company's Oconee Nuclear Station, Unit 2 Reactor Vessel Material Surveillance Program," BAW-1699, Babcock & Wilcox, Lynchburg, Virginia, December 1981.\*

Lowe, A.L., et al., "Analyses of Capsule TE1-F The Toledo Edison Company Davis-Besse Nuclear Power Station Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1701, Babcock & Wilcox, Lynchburg, Virginia, January 1982.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule RS1-B Sacramento Municipal Utility District Rancho Seco Unit 1 Reactor Vessel Material Surveillance Program," BAW-1702, Babcock & Wilcox, Lynchburg, Virginia, February 1982.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule RS1-D Sacramento Municipal Utility District Rancho Seco Unit 1 Reactor Vessel Material Surveillance Program," BAW-1792, Babcock & Wilcox, Lynchburg, Virginia, October 1983.\*

Lowe, A.L., Jr., and J.W. Pegram, "Correlations for Predicting the Effects of Neutron Radiation on Linde 80 Submerged-Arc Welds," BAW-1803, Rev. 1, B&W Nuclear Service Company, Lynchburg, Virginia, May 1991.\*

Aadland, J.D., "Babcock & Wilcox Owners' Group 177-Fuel Assembly Reactor Vessel and Surveillance Program Materials Information," BAW-1820, Babcock & Wilcox, Lynchburg, Virginia, December 1984.\*

Lowe, A.L., et al., "Analyses of Capsule TE1-B The Toledo Edison Company Davis-Besse Nuclear Power Station Unit 1 Reactor Vessel Material Surveillance Program," BAW-1834, Babcock & Wilcox, Lynchburg, Virginia, May 1984.\*

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\* This report is available from B&W Nuclear Technologies, Inc., Lynchburg, Virginia.



Lowe, A.L., Jr., et al., "Analysis of Capsule ANI-A Arkansas Power & Light Company Arkansas Nuclear One, Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1836, Babcock & Wilcox, Lynchburg, Virginia, July 1984.\*

Aadland, J.D., et al., "Analysis of Capsule OC1-A Duke Power Company Oconee Nuclear Station - Unit 1 Reactor Vessel Materials Surveillance Program," BAW-1837, Babcock & Wilcox, Lynchburg, Virginia, August 1984.\*

Lowe, A.L., et al., "Analyses of Capsule TE1-A The Toledo Edison Company Davis-Besse Nuclear Power Station Unit 1 Reactor Vessel Material Surveillance Program," BAW-1882, Rev. 1, Babcock & Wilcox, Lynchburg, Virginia, June 1989.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule CR3-C Florida Power Corporation Crystal River Unit 3 Reactor Vessel Materials Surveillance Program," BAW-1898, Babcock & Wilcox, Lynchburg, Virginia, March 1986.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule CR3-D Florida Power Corporation Crystal River Unit 3 Reactor Vessel Materials Surveillance Program," BAW-1899, Babcock & Wilcox, Lynchburg, Virginia, March 1986.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule TMI1-C GPU Nuclear Three Mile Island Nuclear Station-Unit 1 Reactor Vessel Material Surveillance Program," BAW-1901, Babcock & Wilcox, Lynchburg, Virginia, March 1986.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule CR3-LG1 -- Babcock & Wilcox Owners Group Integrated Reactor Vessel Materials Surveillance Program," BAW-1910P, Babcock & Wilcox, Lynchburg, Virginia, August 1986.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule DB1-LG1 -- Babcock & Wilcox Owners Group Integrated Reactor Vessel Materials Surveillance Program," BAW-1920P, Babcock & Wilcox, Lynchburg, Virginia, October 1986.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule CR3-F Florida Power Corporation Crystal River Unit 3 Reactor Vessel Materials Surveillance Program," BAW-2049, Babcock & Wilcox, Lynchburg, Virginia, September 1988.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OC1-C Duke Power Company Oconee Nuclear Station Unit-1 Reactor Vessel Materials Surveillance Program," BAW-2050, Babcock & Wilcox, Lynchburg, Virginia, October 1988.\*

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\* This report is available from B&W Nuclear Technologies, Inc., Lynchburg, Virginia.



Lowe, A.L., Jr., et al., "Analysis of Capsule OCII-E Duke Power Company Oconee Nuclear Station Unit-2 Reactor Vessel Material Surveillance Program," BAW-2051, Babcock & Wilcox, Lynchburg, Virginia, October 1977.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule RS1-F Sacramento Municipal Utility District Rancho Seco Unit 1 Reactor Vessel Material Surveillance Program," BAW-2074, Babcock & Wilcox, Lynchburg, Virginia, April 1989.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule ANI-C Arkansas Power & Light Company Arkansas Nuclear One, Unit 1 Reactor Vessel Materials Surveillance Program," BAW-2075, Rev. 1, Babcock & Wilcox, Lynchburg, Virginia, October 1989.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule Y Commonwealth Edison Company Zion Nuclear Plant Unit 1 Reactor Vessel Material Surveillance Program," BAW-2082, B&W Nuclear Service Company, Lynchburg, Virginia, March 1990.\*

Gross, L.B., "Chemical Composition of B&W Fabricated Reactor Vessel Beltline Welds," BAW-2121P, 77-2121-00, B&W Nuclear Service Company, Lynchburg, Virginia, April 1991.\*

Lowe, A.L., et al., "Analysis of Capsule TE1-D The Toledo Edison Company Davis-Besse Nuclear Power Station Unit 1 Reactor Vessel Material Surveillance Program," BAW-2125, Babcock & Wilcox, Lynchburg, Virginia, December 1990.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule OCIII-D Duke Power Company Oconee Nuclear Station Unit-3 Reactor Vessel Material Surveillance Program," BAW-2128, Rev. 1, B&W Nuclear Service Company, Lynchburg, Virginia, May 1992.\*

Lowe, A.L., Jr., et al., "Analysis of Capsule S Wisconsin Electric Power Company Point Beach Nuclear Plant Unit No. 1 Reactor Vessel Material Surveillance Program," BAW-2140, B&W Nuclear Service Company, Lynchburg, Virginia, August 1991.\*

Ouellette, C.A., "Materials Information for Westinghouse-Designed Reactor Vessels Fabricated by B&W", BAW-2150, B&W Nuclear Service Company, Lynchburg, Virginia, December 1990.\*

DeVan, M.J., Gross, L. B., and Lowe, A. L. Jr., "B&W Owners Group Response to Generic Letter 92-01," BAW-2166, B&W Nuclear Service Company, Lynchburg, Virginia, June 1992.

Yoon, K. K., "Low Upper-Shelf Toughness Fracture Mechanics Analysis of Reactor Vessels of B&W Owners Reactor Vessel Working Group for Level C & D Service Loads," BAW-2178PA, B&W Nuclear Technologies, Inc., Lynchburg, Virginia, April 1994.

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\* This report is available from B&W Nuclear Technologies, Inc., Lynchburg, Virginia.



Lowe, A.L., Jr., et al., "Evaluation of Capsules TMI2-C and TMI2-E Irradiated in Davis Besse Nuclear Power Station Unit 1 -- EPRI Reactor Vessel Embrittlement Program," BAW-2190, B&W Nuclear Technologies, August, 1993.

Yoon, K. K., "Low Upper-Shelf Toughness Fracture Analysis of Reactor Vessels of B&W Owners Group Reactor Vessel Working Group for Level A & B Conditions," BAW-2192PA, B&W Nuclear Technologies, Inc., Lynchburg, Virginia, April 1994.

Yoon, K.K., "Fracture Toughness Characterization of WF-70 Weld Metal," BAW-2202, B&W Nuclear Technologies, Inc., Lynchburg, Virginia, September 1993.

DeVan, M.J., and K.K. Yoon, "Response to Closure Letters to Generic Letter 92-01, Revision 1," BAW-2222, B&W Nuclear Technologies, Inc., Lynchburg, Virginia, June 1994.

Palme, H.S., et al., "Methods of Compliance with Fracture Toughness and Operational Requirements of 10 CFR 50, Appendix G," BAW-10046P, Babcock & Wilcox, Lynchburg, Virginia, March 1976.\*

Moore, K.E., et al., "Evaluation of the Atypical Weldment," BAW-10144A, Babcock & Wilcox, Lynchburg, Virginia, February 1980.\*

Fromm, E.O., et al., "Surry Unit No. 2 Nuclear Plant Reactor Pressure Vessel Surveillance Program: Examination and Analysis of Capsule W," BCL-585-026, Battelle Columbus Laboratories, Columbus, Ohio, February 1981.

Perrin, J.S., et al., "Zion Nuclear Plant Reactor Pressure Vessel Surveillance Program: Unit No. 1 Capsule T, and Unit No. 2 Capsule U," BCL-585-4, Battelle Columbus Laboratories, Columbus, Ohio, March 25, 1978.

Van Der Sluys, W.A., et al., "An Investigation of Mechanical Properties and Chemistry Within a Thick MnMoNi Submerged Arc Weldment," EPRI NP-373, Prepared by Babcock & Wilcox for the Electric Power Research Institute, Palo Alto, California, February 1977.

Letter from J. W. Williams, Florida Power & Light Company, to D. G. Eisenhut, Nuclear Regulatory Commission, Turkey Point Units 3 & 4, Docket Nos. 50-250 & 50-251, Pressurized Thermal Shock - Reactor Vessel Materials Data, dated February 10, 1984.

Mager, T.R., et al., "Analysis of Capsule V from the Rochester Gas and Electric R.E. Ginna Unit No. 1 Reactor Vessel Radiation Surveillance Program," FP-RA-1, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, March 1, 1973.

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\* This report is available from B&W Nuclear Technologies, Inc., Lynchburg, Virginia.



Nanstad, R.K., and R.G. Berggren, "Irradiation Effects on Charpy Impact and Tensile Properties of Low Upper Shelf Welds, HSSI Series 2 and 3," NUREG/CR-5696, Prepared by Oak Ridge National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, August 1991.

Nanstad, R.K., et al., "Chemical Composition and RT<sub>NDT</sub> Determinations for Midland Weld WF-70," NUREG/CR-5914, Prepared by Oak Ridge National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, December 1992.

Letter from S. A. Varga, Nuclear Regulatory Commission, to J. W. Williams. Florida Power & Light Company, Subject: Evaluation of Reactor Vessel Materials Data for Turkey Point Plant Units 3 and 4 Reactor Vessels, dated April 26, 1984.

Letter from G.E. Edison, Nuclear Regulatory Commission, to W.F. Conway, Florida Power and Light Company, Turkey Point Units 3 and 4 -- Issuance of Amendment RE: Pressure and Temperature (P/T) Limits (TAC Nos. 69390 and 69391), dated January 10, 1989.

Norris, E.B., "Reactor Vessel Material Surveillance Program for Turkey Point Unit No. 4 Analysis of Capsule T," SwRI-02-4221, Southwest Research Institute, San Antonio, Texas, June 14, 1976.

Norris, E.B., "Reactor Vessel Material Surveillance Program for Capsule S -- Turkey Point Unit No. 3, Capsule S -- Turkey Point Unit No. 4," SwRI-02-5131, SwRI-02-5380, Southwest Research Institute, San Antonio, Texas, May 1979.

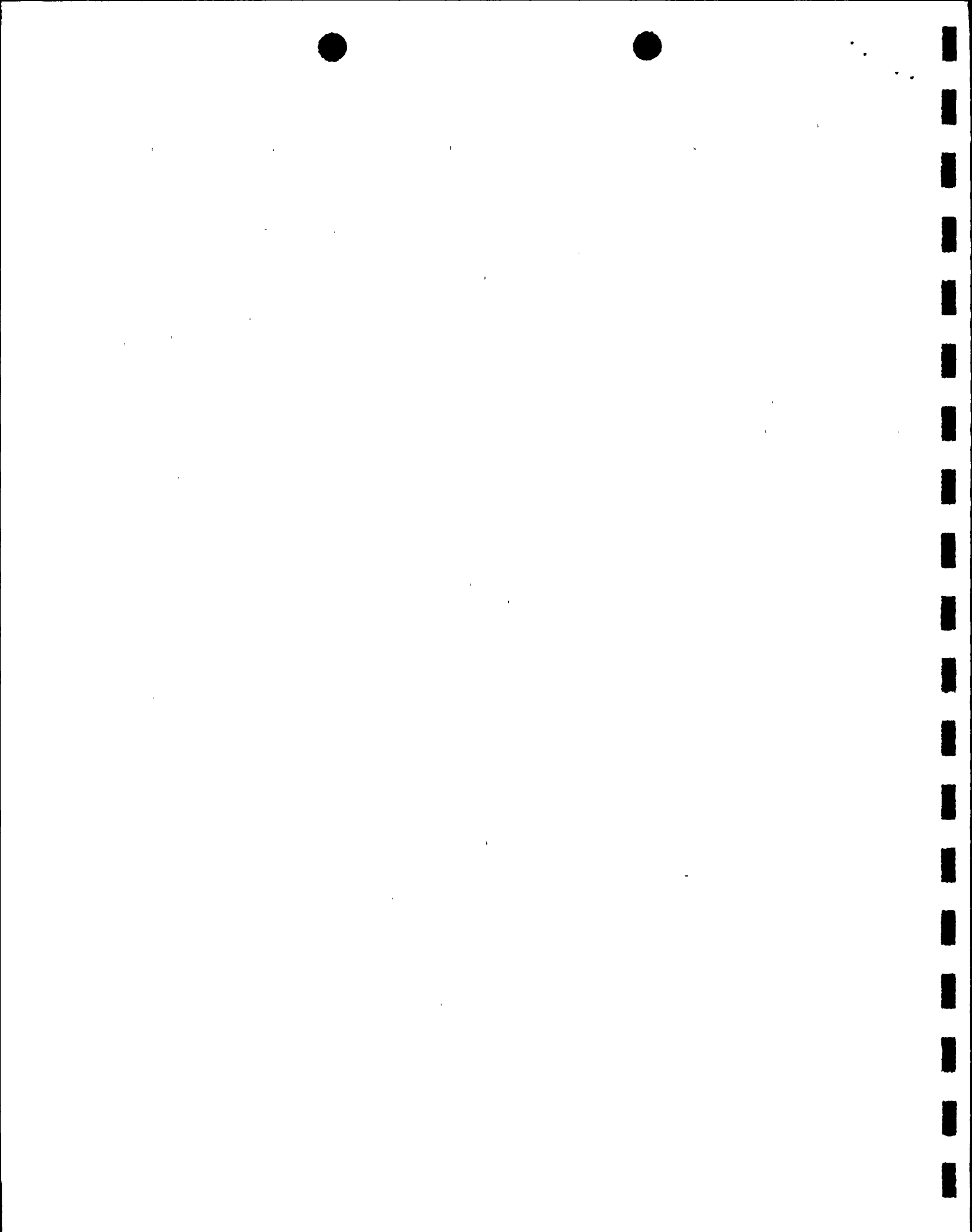
Norris, E.B., "Reactor Vessel Material Surveillance Program for Zion Unit No. 2 Analysis of Capsule T," SwRI-06-6901-001, Southwest Research Institute, San Antonio, Texas, July 6, 1983.

Norris, E.B., "Reactor Vessel Material Surveillance Program for Zion Unit No. 1 Analysis of Capsule X," SwRI-06-7484-001, Southwest Research Institute, San Antonio, Texas, March 1984.

Nair, P.K., and E.B. Norris, "Reactor Vessel Material Surveillance Program for Turkey Point Unit No. 3: Analysis of Capsule V," SwRI-06-8575, Southwest Research Institute, San Antonio, Texas, August 1986.

Yanichko, S.E., et al., "Analysis of Capsule R from the Rochester Gas and Electric R.E. Ginna Unit No. 1 Reactor Vessel Radiation Surveillance Program," WCAP-8421, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, November 1974.

Yanichko, S.E., et al., "Analysis of Capsule T from the Florida Power and Light Company Turkey Point Unit No. 3 Reactor Vessel Radiation Surveillance Program," WCAP-8631, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, December 1975.



Yanichko, S.E., and S.L. Anderson, "Analysis of Capsule S from the Wisconsin Electric Power Company and Wisconsin Michigan Power Company Point Beach Nuclear Plant Unit No. 1 Reactor Vessel Radiation Surveillance Program," WCAP-8739, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, November 1976.

Davidson, J.A., et al., "Analysis of Capsule T from the Wisconsin Electric Power Company Point Beach Nuclear Plant Unit No. 2 Reactor Vessel Radiation Surveillance Program," WCAP-9331, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, August 1978.

Yanichko, S.E., and S.L. Anderson, "Analysis of Capsule R from the Wisconsin Electric Power Company Point Beach Nuclear Plant Unit No. 1 Reactor Vessel Radiation Surveillance Program," WCAP-9357, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, August 1978.

Yanichko, S.E., et al., "Analysis of Capsule R from the Wisconsin Electric Power Company Point Beach Nuclear Plant Unit No. 2 Reactor Vessel Radiation Surveillance Program," WCAP-9635, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, December 1979.

Yanichko, S.E., et al., "Analysis of Capsule U from the Commonwealth Edison Company Zion Nuclear Plant Unit 1 Reactor Vessel Radiation Surveillance Program," WCAP-9890, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, March 1981.

Yanichko, S.E., et al., "Analysis of Capsule T from the Rochester Gas and Electric R.E. Ginna Nuclear Plant Reactor Vessel Radiation Surveillance Program," WCAP-10086, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, April 1982.

Yanichko, S.E., et al., "Analysis of Capsule T from the Wisconsin Electric Power Company Point Beach Nuclear Plant Unit No. 1 Reactor Vessel Radiation Surveillance Program," WCAP-10736, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, December 1984.

Yanichko, S.E., and V.A. Perone, "Analysis of Capsule V from the Virginia Electric and Power Company Surry Unit 1 Reactor Vessel Radiation Surveillance Program," WCAP-11415, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, February 1987.

Yanichko, S.E., and V.A. Perone, "Analysis of Capsule V from the Virginia Electric and Power Company Surry Unit 2 Reactor Vessel Radiation Surveillance Program," WCAP-11499, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, June 1987.

Terek, E., et al., "Analysis of Capsule Y from the Commonwealth Edison Company Zion Unit 2 Reactor Vessel Radiation Surveillance Program," WCAP-12396, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, September 1989.

Chicots, J.M., et al., "Analysis of Capsule S from the Rochester Gas and Electric Corporation R.E. Ginna Reactor Vessel Radiation Surveillance Program," WCAP-13902, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, December 1993.