

RESAR-41
AMENDMENT 25
INSTRUCTION SHEET

The following instructional information and check list is being furnished to insert Amendment 25 into the RESAR-41 Reference Safety Analysis Report.

Since in most cases the original RESAR-41 contains information printed on both sides of a sheet of paper, a new sheet is furnished to replace sheets containing superseded material. As a result, the front or back of a sheet may contain information that is merely reprinted rather than changed.

Discard the old sheets and insert the new sheets, as listed below. Keep these instruction sheets in the front of Volume I to serve as a record of changes.

Remove
(Front/Back)

3B-13/3B-14
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3B-35/3B-36
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Insert
(Front/Back)

3B 13/3B-13a
3B-14/---
3B-20a/---
3B-35/3B-35a
3B-36/---
3B-36a/---
3B-78a/---

Category I

Item

RG 1.31 Rev. 2

Control of Ferrite Content in Stainless Steel
Weld Metal

RESPONSE

Regulatory Guide 1.31, Revision 2, Control of Ferrite Content in Stainless Steel Weld Metal, describes a method for implementing General Design Criteria 1 of Appendix A 10CFR Part 50 and Appendix B 10CFR Part 50 with regard to control of welding austenitic stainless steel components and systems. The following paragraphs discuss the method to be used by Westinghouse to control delta ferrite in austenitic stainless steel welding; this method is in compliance with Revision 2 of the guide.

The welding of austenitic stainless steel is controlled to mitigate the occurrence of microfissuring or hot cracking in the weld. Although published data and experience have not confirmed that fissuring is detrimental to the quality of the weld, it is recognized that such fissuring is undesirable in a general sense. Also, it has been well documented in the technical literature that the presence of delta ferrite is one of the mechanisms for reducing the susceptibility of stainless steel welds to hot cracking. Available data indicates that a minimum delta ferrite level (expressed in Ferrite Number (FN)), above which the weld metals commonly used by Westinghouse will not be prone to hot cracking, lies somewhere between 0 FN and 3 FN.

The scope of these controls discussed herein encompasses welding processes used to join stainless steel parts in components designed, fabricated or stamped in accordance with ASME B&PV Code, Section III Class 1, 2, and CS components. Delta ferrite control is appropriate for the above welding requirements except where no filler metal is used or for other reasons such control is not applicable. These exceptions include electron beam welding, autogenous gas shielded tungsten arc welding, explosive welding, and welding using fully austenitic welding materials.

Westinghouse components are fabricated utilizing welding procedures qualified in accordance with ASME Code Section III; also delta ferrite content verification is required for welding materials used for welding qualification testing and for each welding process used in the production of austenitic stainless steel components. Specifically, undiluted weld deposits of the "starting" welding materials are required to contain a minimum delta ferrite level of 5 FN. The ASME Code permits the use of either a chemical analysis method or a magnetic measurement method to determine the delta ferrite content; however, in the fabrication of Westinghouse components, Ferrite Number is measured on an as-deposited weld pad using a calibrated magnetic measuring device, as recommended by Revision 2 of Regulatory Guide 1.31.

Category I

Item

RG 1.38 Rev. 2
5/77

Quality Assurance Requirements for Packaging,
Shipping, Receiving, Storage, and Handling
of Items for Water-Cooled Nuclear Power
Plants

RESPONSE

The Westinghouse position on compliance with Regulatory Guide 1.38, Rev. 2 is presented in WCAP-8370 Rev. 8A[1] and WCAP-7500 Rev. 5[2].

Category I

Item

RG 1.106 Rev. 1
1/28/77

Thermal Overload Protection for Electric
Motors on Motor Operated Valves

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RESPONSE

As noted in RESAR-41, Section 7A, thermal overload protection for safety-related system MOV's is not provided by Westinghouse. Any thermal overload protection provided for safety related MOV's must be discussed by the applicant.

Category II

Item

RG 8.8 Rev. 2
8/18/76

Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be as Low as Is Reasonably Achievable (Nuclear Power Reactors)

RESPONSE

RESAR 41 does not address Regulatory Guide 8.8 Rev. 2. However, the required information to address this regulatory guide is contained in a topical Westinghouse report, WCAP 8872[6], "Design, Inspection, Operation and Maintenance Aspects of the Westinghouse NSSS to Maintain Occupational Exposures As Low As Reasonably Achievable", April 1977. The information in this report will be included in safety analysis reports referencing the RESAR 41 design.

Category II

Item

BTP-ASB 9.5-1
3/18/76

Guidelines for Fire Protection for Nuclear
Power Plants Under Review and Construction

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RESPONSE

Design of fire protection systems is not within Westinghouse scope.
However, equipment supplied by Westinghouse will not preclude the
applicant from designing a fire protection system to meet the
requirements of BTP-ASB 9.5-1.

Category III

Item RG 1.99 Rev. 1
 9/15/76

Effects of Residual Elements on Predicted
Radiation Damage to Reactor Vessel
Materials

RESPONSE

Justification of the Westinghouse position on Rev. 0 and Rev. 1 of the Guide is detailed in references [7] and [8] respectively.

In summary, Rev. 1 of the Guide is substantially identical with Rev. 0, with minor clarifications and inclusion of a new position C.2, which had previously been included in the Discussion section of Rev. 0.

The Westinghouse letter of comment on Rev. 1 reiterates the comments of Rev. 0 and includes further clarification of hardship imposed by the Guide with respect to vessel material.

The Westinghouse position with respect to each of the Guide positions is as follows:

1. The basis as well as the scope of the Guide for predicting adjustment of reference temperature as given in Regulatory Position C.1 are inappropriate since the data base used was incomplete and included some data which were not applicable.
2. Westinghouse is in agreement with the Guide Position C.2a. However, with respect to Guide Position C.2b, Westinghouse believes that Figure 2 of the Guide is incorrect since the upper shelf energy for six-inch thick ASTM A302B reference correlation monitor material reported by Hawthorne indicates essentially a constant upper shelf at fluences above $\sim 1 \times 10^{19}$ n/cm². [8]
3. The Westinghouse position with reference to the Guide Position c.3, controlling residual elements to levels that result in a predicted adjusted reference temperature of less than 200°F at end-of-life, is that the stresses in the vessel can be limited during operation in order to comply with the requirements of Appendix G to 10CFR Part 50 even though the end-of-life adjusted reference temperature may exceed 200°F. By applying the procedures of Appendix G to ASME Section III, the stress limits including appropriate Code safety margin can be met.
4. Recent surveillance capsule data from the Point Beach and Connecticut Yankee reactor vessels [9] indicate a steady state condition of irradiation damage due to the annealing effect at operating temperature. As an alternative to R.G. 1.99, operating limits for Westinghouse plants will be determined by using the current radiation damage curves developed by Westinghouse [10]. It is expected that, as more surveillance capsule data is accumulated, both the R.G. 1.99 and Westinghouse damage curves will prove to be overly conservative.

Category III

Item

RG 1.114 Rev. 1
11/76

Guidance on Being Operator at the Controls
of a Nuclear Power Plant

RESPONSE

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Regulatory Guide 1.114 is not in Westinghouse scope. However, the design of the control panels for equipment supplied by Westinghouse will not preclude a control room design and layout in which all controls, instrumentation displays, and alarms required for the safe operation, shutdown, and cooldown of the unit are readily available to the operator in the control room.

Category IV-C

Item

19 Environmental Control Systems for Safety Related Equipment

RESPONSE

- 25 Environmental control systems for safety related equipment are not in Westinghouse scope. However, the environmental design of mechanical and electrical equipment supplied by Westinghouse is discussed in RESAR-41 Section 3.11. Environmental design requirements described in Section 3.11 cover equipment located inside containment, outside containment, and in the control room.