| IS-261 Item | Component | Exception |
|---|---|---|
| 6.4 | Bolting 2Ø | Not Applicable |
| 6.6 | Integrally Welded Valve Supports | Not Applicable |

4.2.3 The structural integrity of the reactor coolant system boundary shall be maintained at the level required by the original acceptance standards throughout the life of the station. Any evidence, as a result of the tests outlined in Table IS-261 of Section XI of the code, that defects have developed or grown, shall be investigated.

4.2.4 To assure the structural integrity of the reactor internals throughout the life of the unit, the two sets of main internals bolts (connecting the core barrel to the core support shield and to the lower grid cylinder) shall remain in place and under tension. This will be verified by visual inspection to determine that the welded bolt locking caps remain in place. All locking caps will be inspected after hot functional testing and whenever the internals are removed from the vessel during a refueling or maintenance shutdown. The core barrel to core support shield caps will be inspected each refueling shutdown.

4.2.5 Sufficient records of each inspection shall be kept to allow comparison and evaluation of future inspections.

4.2.6 Complete surface and volumetric examination of the reactor coolant pump flywheels will be conducted coincident with refueling or maintenance shutdowns such that within a 10 year period after start-up all four reactor coolant pump flywheels will be examined.

4.2.7 The reactor vessel material irradiation surveillance specimens shall be removed from Davis Besse Unit 1 and examined, to determine changes in material properties, at the intervals shown in Table 4.2-1. The results of these examinations and other pertinent radiation effects studies shall be used to determine the need for updating Specification 3.1.2.

4.2.8 Prior to initial operation in cycle 2, the reactor vessel surveillance specimen capsule lead time shall be determined. Subsequent lead time determinations shall be made at the intervals specified in Table 4.2-2 with the interval chosen based on the last determination made of capsule lead time. Following cycle 4 operation, if the lead time is less than 2.5 EFPY, a report describing the means of providing the necessary reactor vessel surveillance data shall be submitted for NRC review within 90 days of reaching a lead time of $\leq$ 2.5 EFPY.

Bases

The surveillance program has been developed to comply with Section XI of the ASME Boiler and Pressure Vessel Code Inservice Inspection of Nuclear Reactor Coolant Systems, 1971, including 1971 Winter Addenda edition.

Irradiation surveillance of reactor vessel material provides the capability of determining radiation induced changes in the mechanical and impact properties in the region of the reactor vessel surrounding the core Test specimens are installed in capsule assemblies placed inside the vessel at Davis Besse Unit 1 (DB-1). In accordance with the schedules of Table 4.2-1 specimens will be removed and tested. Changes in material properties will be determined, and appropriate alteration to plant operating parameters will be made.

The program will provide sufficient data on the radiation effects on the toughness properties of the irradiated materials to allow an evaluation of the toughness properties of this reactor vessel throughout of it's service life and determine safe operating pressure-temperature limits.

To assure the availability of adequate surveillance data for the ANO-1 reactor vessel, a program has been developed to monitor the irradiation of the surveillance specimen capsules at the DB-1 reactor, and compare this to the irradiation of the ANO-1 reactor vessel. Fluence estimates which are conservative in the appropriate direction are used for this comparison. The frequency of monitoring varies depending on the known neutron fluence lead factor between the capsules and the reactor vessel. This provides ample time for anticipating problems and initiating corrective action should operation of the DB-1 reactor be seriously delayed. The requirement that the lead factor be 2.5 EFPY by the end of the ANO-1 reactor, cycle 4, or corrective action be developed provides assurance that surveillance data will be available in a timely manner to allow revisions to Technical Specification 3.1.2.3. The lead time of 2.5 EFPY is based on an 80% capacity factor and thus provides over 3 calendar years for consideration and implementation of all alternatives. The requirement of a factor of 2.5 EFPY lead time need not be implemented prior to cycle 5 operation since Technical Specification 3.1.2.3 will be reviewed for adequacy and updated if needed. This is based on recent surveillance capsule test results, which justify a period of operation in excess of 4 cycles.

TABLE 4.2-2

SURVEILLANCE SPECIMEN CAPSULE IRRADIATION COMPARISON INTERVAL

| Capsule Lead Time (EFPY)* Found During Comparison | Next Required Comparison Interval |
|---|---|
| < 1 | 31 days |
| 1 < 3.5 | 62 days |
| 3.5 < 4.5 | 6 months |
| > 4.5 | 12 months |

*The equivalent effective full power years (EFPY) of predicted neutron fluence (E > 1 MEV) received by the ANO-1 reactor vessel at the surface location shall be subtracted from the equivalent EFPY of predicted neutron fluence (E > 1 MEV) received by the reactor vessel surveillance specimen capsules at the Davis Besse-1 reactor (the ANO-1 capsules inserted for initial operation at Davis Besse-1) to determine the capsule lead time.