No	Public Comment	Staff's Disposition of the Public Comment
1	AREVA NP Comment: Regulatory Position 8, 1st paragraph, sub-step (a) should be revised to state "monitoring sump level or flow" to be consistent with the specification of "two" in the first paragraph. It is assumed that Regulatory Position 8, 1st paragraph, sub-step (b) is the second required method.	The staff agreed with this comment and made the revision in the regulatory guide. The staff also included monitoring condensate flow as item (iii). The staff notes that substeps (i), (ii), and (iii) in Regulatory Position 2.3 are not intended to limit the licensee to these specific methods. These are examples of methods that were previously chosen by many licensees.
2	AREVA NP Comment: Regulatory Position 9 contains two separate regulatory positions. AREVA NP recommends that the two sentences be separated into individual regulatory positions to eliminate confusion regarding whether the two requirements are related in some manner. The phrase "In addition" should be deleted from the second sentence.	The staff agreed with this comment and revised the regulatory guide to retain the first sentence as a regulatory position. The staff deleted the second sentence (see public comment 3).

No	Public Comment	Staff's Disposition of the Public Comment
3	AREVA NP Comment: In the discussion of capabilities on page 9, DG-1173 has the following statement: "The overall response time of at least one leakage monitoring system should be sufficient to support leak-before-break (LBB) monitoring (if LBB is approved for the plant), such that sufficient time will be available for operators to place the facility in a safe condition prior to any potential gross structural failure of the leaking component." This capability is also referenced in Regulatory Position 9. The commenter recommends that the capability guidance for the LBB detection system be revised to be clear that it does not necessarily have to be able to detect the leakage determined from the LBB analysis within 1 hour. Rather, AREVA NP believes that the detection capability should be addressed in plant procedures and would be based on the type of detection system and its location.	The staff withdrew the proposed staff Regulatory Position 9, the second sentence in DG-1173. When approving an LBB analysis for the plant, the staff evaluates the proposal in accordance with the guidance provided in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (hereafter referred to as the SRP), Section 3.6.3, "Leak-Before-Break Evaluation Procedures." The SRP contains guidance related to leakage monitoring for implementing LBB analysis. Thus, there is no need for a staff position on leakage monitoring specific to LBB in this regulatory guide.
4	Nuclear Energy Institute (NEI) Comment: Page 8 of DG-1173 states, "Leakage Monitoring of Risk-Significant Areas in RCS—Critical components of the RCPB [reactor coolant pressure boundary] should be monitored for leakage." Please clarify the above recommendation to address whether indirect methods of monitoring the critical components of the RCPB are acceptable. For example, use of area radiation monitors to indicate potential component leakage.	Indirect methods (such as area radiation monitors) for monitoring risk-significant areas in the reactor coolant system (RCS) are acceptable. However, such methods might only indicate global leakage in the "general area." If either direct or indirect methods are used, they should provide information such that Regulatory Position 1.3 is implemented. In the case of indirect methods, this would require the licensee to assume that the indirect leakage is from the risk-significant area (unless some other direct method is used to indicate it was not coming from the risk-significant area).

No	Public Comment	Staff's Disposition of the Public Comment
5	NEI Comment: NRC Inspection Manual, IMC 2515, Attachment 1, "Assessing Reactor Coolant System (RCS) Unidentified leakage Rate Trend," uses a statistical approach (based on an inventory balance) to determine unidentified RCS leakage action levels. How does this approach relate to the "leakage detection instrumentation" action levels referred to throughout DG-1173? These two documents should be consistent; however, there is no indication that IMC 2515 was used as a developmental reference for the draft regulatory guide.	Inspection Manual Chapter (IMC) 2515 focuses on the action levels and actions to be taken by U.S. Nuclear Regulatory Commission (NRC) inspectors. The regulatory guide focuses on the actions to be taken by plant operators, who may have procedures similar to the ones detailed in IMC 2515 or equivalent or better procedures. As a result, the guidance in the two documents serves different purposes. The staff considered IMC 2515 during its revision of Regulatory Guide 1.45. The staff decided not to incorporate this reference into the regulatory guide for several reasons, including (1) the guidance in IMC 2515 may not always be conservative, (2) the guidance in IMC 2515 may be too restrictive in some instances, and (3) IMC 2515 may change more frequently than the regulatory guide.

No	Public Comment	Staff's Disposition of the Public Comment
6	Strategic Teaming and Resources Sharing (STARS) Comment: Page 3 of DG-1173, last paragraph: "Leakage to the containment atmosphere, which is not collected (such as from valve stem packing glands and other sources), increases the humidity of the containment. The moisture removed from the atmosphere by air coolers, together with any associated liquid leakage to the containment is known as 'unidentified leakage,' and should be collected in tanks or sumps separate from the identified leakage so that the flow rate and the trend in flow rate of the unidentified leakage can be established, monitored, and analyzed during plant operation." Steam leakage to containment atmosphere in pressurized-water reactors can be predominately secondary steam leakage. In current designs, leakage collected in the containment sump cannot be directly correlated to primary "unidentified leakage" without sampling.	The staff agreed with the comment and added the following sentences to the regulatory guide: "It is important to note that there may be leakage into the containment from systems other than the RCS (e.g., secondary-side steam leakage in a PWR). This non-RCS leakage may increase the unidentified leakage rate. Chemical analysis of samples of the unidentified leakage may provide an indication of whether the unidentified leakage is from the RCS or from other sources."

No	Public Comment	Staff's Disposition of the Public Comment
7	STARS Comment: Reference page 10, Regulatory Position 6: "Leakage to the primary reactor containment from unidentified sources should be collected so that the total flow rate can be detected, monitored, and quantified for flow rates greater than or equal to 0.05 to 0.05 gpm (0.19 lpm)." RCS inventory balance is the current method used to calculate RCS leak rate; however, the current equipment installed in some plants may not be sensitive enough to accurately measure an RCS leak rate of 0.05 gpm. While RCS leakage is collected in the containment sumps, the sumps would not be sensitive to an inflow of 0.05 gpm, especially in the early stages of a small RCS leak when most of the hot coolant (steam) would be present in the containment atmosphere.	Although implementation of this guide may provide a safety benefit for current operating plants, the staff did not intend it to be applicable to currently operating plants (since evaluations in response to the lessons learned from the Davis-Besse vessel head degradation indicated that such changes could not be justified). However, for plants licensed after the issuance of this revision to the guide, it is the staff's position that the leakage monitoring system would be capable of detecting a 0.05 gallon per minute (gpm) leak, given the potential safety significance of low levels of leakage. Such monitoring capability should be achievable using current instrumentation and monitoring methods.

No	Public Comment	Staff's Disposition of the Public Comment
8	STARS Comment: Reference page 6, paragraph 4: "Methods that monitor air temperature and pressure may also be used to infer leakage of the coolant to the containment. Containment temperature and pressure fluctuate slightly during plant operation, but a rise above the normally indicated range of values may indicate leakage of the reactor coolant into the containment. The accuracy and relevance of temperature and pressure measurements depend on containment free volume and detector location. Alarm signals from these instruments can be valuable in recognizing rapid and sizable leakage into the containment." The first sentence in paragraph 4 on page 6 indicates that containment temperature and pressure indicators can be used to infer leakage of coolant into containment. In current designs, containment temperature and pressure would only indicate very gross leakage. Design air leakage from air-operated valve positioners in containment contribute to containment pressure such that containment pressure raises at least 1 psi per week and must be vented. Containment temperature changes with the daily outside air temperature which also affects the efficiency of the containment cooling. STARS recommends this paragraph be removed, or discussed in the context of indication of large leaks.	The staff agreed with the comment and revised the first sentence to clarify that these methods can only detect large leaks: "Plants may also use methods that monitor air temperature and pressure to infer that large coolant leaks to the containment are occurring."

No	Public Comment	Staff's Disposition of the Public Comment
9	STARS Comment: Reference page 12, Regulatory Position 14 and 15: "14. During maintenance and refueling outages, efforts should be made to identify the source of any unidentified leakage. In addition, corrective action should be taken to eliminate the condition resulting in the leakage." "15. The technical specifications should include the limiting conditions for identified, unidentified, RCPB, and intersystem leakage, and should address the availability of various types of instruments to ensure adequate coverage during all phases of plant operation." The verbiage used in Regulatory Positions 14 and 15 leads the reader to believe that the NRC expects licensees to monitor RCS leakage during refueling outages. RCS operational leakage requirements in MODE 5 and 6 are currently not required because the reactor coolant pressure is far lower, resulting in lower stresses and a reduced potential for leakage. Regulatory Positions 14 and 15 either need further clarification and justification or they should be deleted. An explanation of acceptable leakage monitoring methods during refueling outages needs to be included if justification can be made for refueling outage monitoring.	The staff agreed that the RCS operational leakage requirements in Modes 5 and 6 are not required and clarified Regulatory Positions 3.4 and 4.1 as follows: "(3.4) During maintenance and refueling outages, the plant should take actions to identify the source of any unidentified leakage that was detected during plant operation. In addition, corrective action should take place to eliminate the condition resulting in the leakage." "(4.1) Plant technical specifications should include the limiting conditions for identified, unidentified, RCPB, and intersystem leakage, and they should address the availability of various types of instruments to ensure adequate coverage during all phases of the plant operation (not including cold shutdown and refueling modes of operation)."

No	Public Comment	Staff's Disposition of the Public Comment
10	STARS Comment: Page 14, last paragraph: "Based on this regulatory analysis, the staff recommends that the NRC should revise Regulatory Guide 1.45. The staff concludes that the proposed action will enhance reactor safety by properly considering the RCS component degradation mechanisms, including corrosion and wastage. It could also lead to cost savings for the industry, especially with regard to applications for standard plant design certifications and combined licenses." In the concluding paragraph, the NRC staff recommends revision of Regulatory Guide 1.45. The language implies that current licensees will automatically adopt the latest revision of the regulatory guide. In order to adopt the guide without exception, licensees would need to upgrade their equipment. Therefore, for many licensees adopting the revised regulatory guide would not be practical.	The SRP will reference Regulatory Guide 1.45, Revision 1, and the revised guide will be applicable only to new reactors, in accordance with the requirements of Title 10, Section 50.34(h), of the *Code of Federal Regulations* (10 CFR 50.34(h)). No backfit is intended or approved in connection with the issuance of Regulatory Guide 1.45, Revision 1.