U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

9.3.1 COMPRESSED AIR SYSTEM

REVIEW RESPONSIBILITIES

Primary - ~~Auxiliary Systems Branch (ASB)~~Plant Systems Branch (SPLB)[1]

Secondary - None

I. AREAS OF REVIEW

~~The compressed air system (CAS) provides air to safety-related equipment and also to plant equipment used only for normal facility operation. ASB reviews the entire compressed air system since there may be cases where two systems or subsystems are provided, i.e., a safety-related compressed air system (SRCAS), and a station service system for nonsafety-related equipment.~~ SPLB reviews the compressed air system (CAS) which provides compressed air to station service equipment and to safety-related and non-safety-related equipment. There may be cases where two systems or subsystems are provided, i.e., an instrumentation and control air system (ICAS) which provides control air to safety-related and non-safety-related components and systems, and a station service air system (SSAS) which provides compressed air for the operation of non-safety-related service equipment (e.g., pneumatic tools, cleaning, etc.).[2] If the two systems are interconnected, then the area of review will extend from the ~~safety-related portion~~ ICAS[3] to the outermost isolation valve on all interconnections between the two systems and will include evaluation of the quality of the compressed air supplied from the SSAS[4]. If the systems are not connected, then the review will be limited to the ~~SRCAS~~ ICAS[5]. The ~~ASB~~SPLB[6] reviews the portions of the ~~SR~~CAS described above[7] to ensure conformance with the requirements of General Design Criteria 1, 2, and 5. The SPLB also coordinates with other reviewers and reviews the CAS to ensure conformance with the requirements of 10 CFR 50.63[8].

1. SPLB reviews the ICAS to ensure that the safety-related portions of the system are correctly identified and are isolable from the non-safety-related portions of the system.[9]

~~3~~2. ~~ASB~~SPLB[10] reviews the ~~system to determine that the effects of failure of nonseismic Category I equipment or components will not affect the functioning of the SRCAS~~ ICAS to ensure that the effects of failure of the non-safety-related portions or non-seismic Category I equipment or components will not preclude operation of the safety-related portions of the ICAS.[11]

~~1~~3. ~~ASB~~SPLB[12] reviews the systems to identify the safety-related and non-safety-related[13] air-operated devices that are supplied by the ~~system~~ICAS[14] and whether each requires a source of supply air in order to perform the safety-related function.

~~2~~4. ~~ASB~~SPLB[15] then reviews the systems to ~~determine~~ ensure that a failure of a component or the loss of a compressed air source does ~~not negate functioning of a safety-related system~~not prevent any safety-related system, subsystem, or device from performing its safety-related function.[16]

~~4~~5. ~~ASB~~SPLB[17] reviews the design of the ~~SRCAS~~ ICAS[18] with respect to the following:

a. Capability to isolate portions or components of the system in case of component malfunction.

b. Instrumentation and control features provided to determine and verify that the system is operating in a correct mode (e.g., valve position indication, pressure).

c. Capability of the system to function in the event of adverse environmental phenomena, abnormal ~~operational requirements~~operation including station blackout[19], or accident conditions such as a loss-of-coolant accident (LOCA) or main steam line break concurrent with loss of offsite power. The duration considered with respect to such events/conditions includes the time interval from the onset of the event/condition until the ICAS safety function is no longer required.[20]

d. Capability of the system (including interconnected systems designed to provide backup capability to the ICAS)[21] to supply clean, dry, oil-free instrument air.

e. The provisions to allow periodic testing of the quality of the air delivered to the ICAS components.[22]

f. The provisions to allow periodic pressure, leakage, and functional testing of the safety-related portions of the ICAS.[23]

g. The provisions to ensure adequate inventory and quality for performance of ICAS functions when equipment is out of service for maintenance or repair.[24]

h. The potential for radiological contamination of the ICAS, and if applicable, reviews the means provided to detect leakage from radioactive systems to the ICAS and preclude releases to the environment.[25]

i. The air quality and overpressure protection from air or nitrogen accumulators, or nitrogen systems used for PWR primary and secondary system power operated relief valves (PORVs) and BWR safety relief valves (SRVs).[26]

j. The provisions to allow periodic pressure and leakage testing of the accumulators provided for PWR PORVs or BWR SRVs.[27]

Review Interfaces:[28]

~~5. ASB~~SPLB[29] also performs the following reviews under the SRP sections indicated:

1. Review of the protection against external events is performed as follows:

~~5.a~~a. Review of flood protection is performed under SRP Section 3.4.1~~;~~.

~~5.c~~b. Review of the structures, systems, and components to be protected against externally generated missiles is performed under SRP Section 3.5.2.~~, and~~

A statement to the effect that the system is located in a seismic Category I structure that is tornado missile and flood protected, or that components of the system will be located in individual cubicles or rooms that will withstand the effects of tornado winds, flooding, and missiles is acceptable.[30]

~~5.b.~~2. Review of the protection against internally generated missiles is performed under SRP Sections 3.5.1.1 (outside containment) and 3.5.1.2 (inside containment).~~,~~[31]

~~5.d.~~3. Review of the protection against[32] high- and moderate-energy pipe breaks is performed under SRP Section 3.6.1.

4. SPLB performs the review of the environmental qualification of equipment as part of its primary review responsibility for SRP Section 3.11.[33]

5. The review for fire protection is coordinated and performed by the SPLB as part of its primary review responsibility for SRP Section 9.5.1.[34]

In addition, the ~~ASB~~SPLB[35] will coordinate other branches' evaluations that interface with the overall review of the system as follows:

1. a. The Mechanical Engineering Branch (EMEB)~~(MEB) also~~[36] determines the acceptability of the seismic and quality group classifications for system components as part of its primary review responsibility for SRP Sections 3.2.1 and 3.2.2.

b. The ~~Mechanical Engineering Branch~~ EMEB~~(MEB)~~[37] determines that the components, piping, and structures are designed in accordance with applicable codes and standards as part of its primary review responsibility for SRP Sections 3.9.1 through 3.9.3.

c. The EMEB~~(MEB) also~~[38] reviews the adequacy of the inservice testing program of pumps and valves as part of their primary review responsibility for SRP Section 3.9.6.

d. The EMEB reviews the seismic qualification of Category I equipment as part of its primary review responsibility for SRP Section 3.10.[39]

2. The Civil Engineering and Geosciences Branch (ECGB) conducts the following:

a. The ECGB ~~The Structural Engineering Branch (SEB)~~[40] will determine the acceptability of the design analyses, procedures, and criteria used to establish the ability of seismic Category I structures housing the system and supporting systems to withstand the effects of natural phenomena such as the safe shutdown earthquake (SSE), the probable maximum flood (PMF), and tornado missiles as part of its primary review responsibility for SRP Sections 3.3.1, 3.3.2, 3.5.3, 3.7.1 through 3.7.4, 3.8.4 and 3.8.5.

b. The ECGB verifies that inservice inspection requirements are met for system components as part of its primary review responsibility for SRP Section 6.6.[41]

3. The Reactor Systems Branch (SRXB) reviews the capacity of air or nitrogen accumulators used for PWR PORVs and BWR SRVs as part of its primary review responsibility for SRP Section 5.2.2.[42]

4. The Materials and Chemical Engineering Branch (EMCB)~~(MTEB)~~[43] ~~verifies that inservice inspection requirements are met for system components as part of its primary review responsibility for SRP Section 6.6 and~~,[44] upon request, verifies the compatibility of the materials of construction with service conditions.

5. The Instrumentation and Controls ~~Systems~~ Branch (HICB)~~(ICSB)~~ and the Electrical Engineering Branch (EELB) ~~Power Systems Branch (PSB)~~[45] will determine the adequacy of the design, installation, inspection, and testing of all essential electrical components, system controls, and instrumentation as part of their primary review responsibility for SRP Sections 7.1 and 8.1, respectively.

6. EELB reviews station blackout considerations as part of its primary review responsibility for SRP Section 8.4 (proposed) and coordinates with the SRP Section 9.3.1 review with respect to the capability and capacity of the CAS for a station blackout.[46]

~~The Equipment Qualifications Branch (EQB) reviews the seismic qualification of Category I instrumentation and electrical equipment and the environmental qualification of mechanical and~~

~~electrical equipment as part of its primary review responsibility for SRP Sections 3.10 and 3.11, respectively.~~[47]

7. The Quality Assurance and Maintenance Branch (HQMB) reviews the initial test program as part of its primary review responsibility for SRP Section 14.2.[48] The HQMB also coordinates and performs the overall review for quality assurance as part of its primary review responsibility for SRP Chapter 17.[49]

~~The review for Fire Protection, Technical Specification, and Quality Assurance are coordinated and performed by the Chemical Engineering Branch, Licensing Guidance Branch, and Quality Assurance Branch as part of their primary review responsibility for SRP Sections 9.5.1, 16.0, and 17.0, respectively.~~[50]

8. The review for technical specifications is coordinated and performed by the Technical Specifications Branch (TSB) as part of its primary review responsibility for SRP Section 16.0.[51]

For those areas of review identified above as being ~~the responsibility of other branches~~part of the review under other SRP sections, the acceptance criteria and their methods of application are contained in the referenced SRP sections ~~identified as the primary review responsibility of those branches~~.[52]

II. ACCEPTANCE CRITERIA

Acceptability of the design of the ~~safety-related~~ compressed air system (CAS), as described in the applicant's Safety Analysis Report (SAR), is based on specific general design criteria and regulatory guides. The design of the ~~SR~~CAS[53] is acceptable if the integrated design of the system is in accordance with the following criteria:

1. General Design Criterion 1, as related to structures, systems,[54] and components important to safety being designed, fabricated, and tested to quality standards commensurate with the importance of the safety functions to be performed. Acceptance is based on meeting ~~ANSI MC 11.1-1976 (ISA S7.3)~~ANSI/ISA-S7.3-R1981 (Reference 9)[55], as related to minimum instrument air quality standards~~, meeting the guidance of Regulatory Guide 1.68.3 as related to testing of instrument air system~~[56].

2. General Design Criterion 2, as related to the safety-related compressed air system being capable of withstanding the effects of earthquakes. Acceptance is based on meeting the guidance of Regulatory Guide 1.29, ~~Position C-1, if any portion is deemed to be safety-related, and Position C-2, for nonsafety-related functions.~~Positions C-1 and C-2, as related to seismic classification.[57]

3. General Design Criterion 5, ~~as related to the capability of shared systems and components important to safety to perform required safety functions.~~as it relates to the sharing of structures, systems, and components important to safety. Acceptance is based on showing that the requirements set forth herein are met for compressed air systems shared among multiple units.[58]

4. 10 CFR Part 50, §50.63, "Loss of all alternating current power", as is relates to the ability of a plant to withstand for a specified duration and recover from a station blackout. Acceptance is based on meeting Regulatory Guide 1.155 as it relates to the design of the compressed air system.[59]

Technical Rationale:

The technical rationale for application of the above acceptance criteria to the compressed system is discussed in the following paragraphs.[60]

There may be cases where compressed air systems are divided into subsystems that provide control air to safety-related components and systems and subsystems that provide compressed air to non-safety-related components and systems. For the purposes of these technical rationales, those portions of compressed air systems that provide control air to safety-related components and systems are referred to as the instrumentation and control air system (ICAS).[61]

1. GDC-1 requires that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. The ICAS provides compressed air or nitrogen required to actuate or control equipment that perform safety-related functions during normal operations, transients, or accidents.

   Generic Issue 43, "Reliability of Air Systems", identified concerns regarding the reliability of safety-related equipment actuated or controlled by compressed air. As indicated in NUREG-1275 (Reference 7) and Generic Letter 88-14 (Reference 8) related to this generic issue, contamination (e.g., oil, particulate, water, etc.) of compressed air was identified as significant contributor to unreliability in safety-related equipment controlled or actuated by compressed air. In some plant designs, the ICAS or equipment supplied by ICAS may be supplied from backup compressed air sources outside the scope of the ICAS under certain operating conditions. In these cases there is the potential for a contaminated compressed air source to adversely affect the reliability of the ICAS or equipment supplied by the ICAS. Regulatory Guide 1.68.3 recognizes this potential and Position C.9 provides guidance that preoperational testing should verify that equipment designed to be supplied by the instrument and control air system is not being supplied by other compressed air supplies that may have less restrictive air quality requirements.

   ANSI/ISA-S7.3-R1981 provides air quality criteria that, if followed for the ICAS and backup compressed air sources, will help ensure that ICAS and the equipment supplied from the ICAS will reliably perform their intended safety functions.[62]

2. GDC-2 requires, in relevant part, that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena, including earthquakes, without loss of capability to perform their safety functions. The ICAS provides compressed air or nitrogen required to actuate or control equipment that perform safety-related functions during normal operations, transients, or accidents. Based on reviewing a number of safety analysis reports, a seismic design classification system was developed

for identifying those plant features that should be designed to withstand the effects of the safe shutdown earthquake (SSE). Regulatory Guide 1.29 describes an acceptable method for identifying and classifying those features of light-water reactor nuclear power plants that should be designed to withstand the effects of the SSE. Those structures, systems and components that should be designed to remain functional if the SSE occurs have been designated as Seismic Category 1. Position C.1 of the Regulatory Guide states that systems required for safe shutdown, including their foundations and supports, are designated as Seismic Category I and should be designed to withstand the effects of the SSE and remain functional. Position C.2 of the Regulatory Guide states that structures, systems, or components whose continued function is not required but whose failure could reduce the functioning of any seismic Category I plant feature to an unacceptable safety level, or could result in incapacitating injury to occupants of the control room, should be designed and constructed so that the SSE would not cause such failure. Compliance with Regulatory Guide 1.29, Positions C.1 and C.2, assures that the ICAS will remain functional during an earthquake and provide compressed air necessary for the actuation and control of safety-related equipment.[63]

3. GDC 5 prohibits the sharing of structures, systems and components among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, an orderly shutdown and cooldown of the remaining units. The ICAS provides compressed air or nitrogen required to actuate or control equipment that perform safety-related functions during normal operations, transients, or accidents. The ICAS needs to be designed such that the ability of systems and components to perform these safety-related functions are not compromised for each unit regardless of compressed air system equipment failures or other events that may occur in another unit. Meeting the requirements of GDC 5 provides assurance that unacceptable effects of equipment failures or other events occurring in one unit of a multi-unit site will not propagate to the unaffected unit(s).[64]

4. 10 CFR 50.63 requires that each light-water-cooled nuclear power plant licensed to operate must be able to withstand for a specified duration and recover from a station blackout. Depending on the design-specific approach for demonstrating the ability to withstand and recover from a station blackout, the compressed air system may provide compressed air or nitrogen to actuate or control equipment necessary to provide core cooling and decay heat removal or maintain containment integrity following a station blackout. Regulatory Guide 1.155 describes a method acceptable to the NRC staff for complying with 10 CFR 50.63. Regulatory Guide 1.155, Position 3.2.2, indicates that the capability of all systems and components necessary to provide core cooling and decay heat removal following a station blackout should be determined, including compressed air capacity, when determining the plant's capability to cope with a station blackout. Position 3.3.3 of the Regulatory Guide provides guidance regarding the use of alternate compressed air sources if the compressed air capacity is not sufficient to cope with a station blackout. Position 3.5 of the Regulatory Guide provides guidance for the quality assurance (QA) activities and specifications for non-safety-related equipment used to meet the requirements of 10 CFR 50.63 and not already covered by existing QA requirements of 10 CFR 50, Appendix B. Compliance with 10 CFR 50.63 and the

positions of Regulatory Guide 1.155 regarding the ability to withstand or cope with, and recover from a station blackout provides additional defense-in-depth against unacceptable offsite consequences should both offsite and onsite emergency ac power systems fail concurrently.[65]

III. REVIEW PROCEDURES

The procedures below are used during the construction permit (CP) review to determine that the design criteria and bases and the preliminary design as set forth in the preliminary safety analysis report meet the recommendations and requirements given in subsection II of this SRP section. For operating license (OL) reviews, the procedures are used to verify that the initial design criteria and bases have been appropriately implemented in the final design as set forth in the final safety analysis report. The procedures for OL and DC[66] reviews include a determination that the content and intent of the technical specifications prepared by the applicant are in agreement with the requirements for system testing, minimum performance, and surveillance developed as a result of the staff's review.

Upon request from the primary reviewer, the coordinating review branches will provide input for the areas of review stated in subsection I of this SRP section. The primary reviewer obtains and uses such input as required to ensure that this review procedure is complete.

As a result of various CAS designs provided for different plants, there will be variations in system requirements. For the purpose of this SRP section, a typical ~~system is assumed that has two independent systems, the plant service air system and a safety-related compressed air system (SRCAS)~~CAS is assumed to have two independent systems, a SSAS and an ICAS.[67] For cases where there are variations from this arrangement, the reviewer adjusts the review procedures given below. However, the system design would be required to meet the recommendations and requirements in subsection II of this SRP section. The reviewer will select and emphasize material from this SRP section as appropriate for a particular case.

~~1. The SAR is reviewed to identify from information in the system description section and the piping and instrumentation diagrams (P&IDs) the SRCAS equipment used for normal operation and for safety feature operation.[68] The reviewer determines that the systems affected by the loss of offsite power and subsequent loss of air supply will fail in a safe position.[69]~~

The SAR is reviewed to determine from information in the system description section whether the SSAS is used as a backup instrumentation and control air source and connected to the ICAS. If the two systems are interconnected, then the area of review described below will extend from the ICAS to the outermost isolation valves on all interconnections between the two systems. The drawings and descriptions are reviewed to verify that two automatically operated isolation valves in series separate the SSAS from the ICAS and that these isolation valves are classified Quality Group C and seismic Category I. The quality of the air supplied from the SSAS will be reviewed in accordance with the air quality requirements of ANSI/ISA-S7.3-R1981. If the systems are not connected, then the review described below will be limited to the ICAS.[70]

~~2.~~1. The system description,[71] system P&IDs, layout drawings, and component descriptions and characteristics are reviewed to determine the following:

a. ~~Essential~~Safety-related portions of the ~~SRCAS~~ICAS are correctly identified and are isolable from the ~~nonessential~~non-safety-related portions of the system. The P&IDs are reviewed to verify that they clearly indicate the physical division between each portion. System drawings are also reviewed to verify that they show the means for accomplishing isolation and the system description is reviewed to identify minimum performance requirements of the isolation valves. For the typical system, the drawings and descriptions are reviewed to verify that two automatically operated isolation valves in series ~~separate the nonessential from the essential portions and components~~ are provided to separate the non-safety-related portions from the safety-related portions of the system.[72]

b. ~~Essential~~Safety-related portions of the ~~SRCAS~~ICAS, including the isolation valves separating ~~essential~~safety-related portions from ~~nonessential~~non-safety-related[73] portions, are classified Quality Group C and seismic Category I. Component and system descriptions in the SAR that identify mechanical and performance characteristics are reviewed by the ~~ASB~~SPLB[74] to verify that the above classifications have been included and that the P&IDs indicate points of change in any design classification. The review for seismic design, ~~is performed by the SEB~~ and the reviews for seismic and quality classification, ~~is~~are performed ~~by the MEB~~ as indicated in subsection I of this SRP section.[75]

c. In addition to the SSAS described above, other interconnected systems including air or nitrogen accumulators and nitrogen system that are designed to provide backup nitrogen or compressed air to the ICAS are identified.[76]

d. If an air or nitrogen accumulator is provided as a compressed air supply or backup air source, a review of the effects on the system and components (e.g., safety-relief valves, solenoid actuators, etc.) due to potential overpressurization will be performed.[77]

2.[78] The ~~SRCAS~~ICAS[79] is reviewed to verify the system meets ~~ANSI MC 11.1-1976, (ISA-S7.3)~~ANSI/ISA-S7.3-R1981[80], including interconnected or backup systems such as air or nitrogen accumulators, nitrogen systems, or other air systems that are designed to backup the ICAS[81]:

~~1.~~a. The dew point at line pressure for outdoor installations (where any part of the instrument air system is exposed to the outdoor atmosphere) shall be at least 10°C (18°F) below the minimum local recorded ambient temperature at the plant site. The dew point at line pressure for indoor installations (where the entire instrument air system is installed indoors) shall be at least 10°C (18°F) below the minimum temperature to which any part of the instrument air system is exposed at any season of the year. In no case should the dew point at line pressure for indoor installation exceed 2°C (approximately 35°F).

~~2.~~b. The maximum particle size in the air stream at the instrument shall be three (3) micrometers.

~~3.~~c. The maximum total oil or hydrocarbon content, exclusive of noncondensables, shall be as close to zero (0) w/w (weight ratio) or v/v (volume ratio)[82] as possible; and under no circumstances shall it exceed one (1) ppm w/w or v/v under normal operating conditions.

~~4.~~d. The instrument air shall be free of all corrosive contaminated and hazardous gases, flammable or toxic, which may be drawn into the instrument airstream.

e.[83] A regular periodic check should be made to assure high quality instrument air.

An acceptable ~~SRCAS~~ICAS[84] consists of non-oil lubricated (dry) compressors and automatic molecular sieve air dryers with input and output filters.

3. ~~The reviewer verifies that the system has been designed so that system function will be maintained, as required, in the event of adverse environmental phenomena, certain pipe breaks, or a loss of offsite power.~~ The reviewer evaluates the system ~~using engineering judgment and the results of~~ failure modes and resulting effects ~~analyses~~ to determine that~~:~~

~~a. T~~ the failure of ~~nonessential~~non-safety-related portions of the system or of other systems not designed to seismic Category I standards and located close to ~~essential~~safety-related portions of the ~~SRCAS~~ICAS, or of nonseismic Category I structures that house, support, or are close to the ~~SRCAS~~ICAS, will not preclude operation of the ~~essential~~safety-related portions of the ~~SRCAS~~ICAS. Statements in the SAR to the effect that the above conditions are met are acceptable.~~-~~

~~b. The essential portions of the SRCAS are protected from the effects of floods, hurricanes, tornadoes, and internally or externally generated missiles. The location and the design of the system, structures, or cubicles are reviewed to determine that the degree of protection is adequate. A statement to the effect that the system is located in a seismic Category I structure that is tornado missile and flood protected, or that components of the system will be located in individual cubicles or rooms that will withstand the effects of tornado winds, flooding, and missiles is acceptable. The details of this portion of the review are contained in the Chapter 3 SRP sections.~~[85]

4. The reviewer evaluates the ICAS to determine that an adequate ICAS air supply source is available to cope with the following events:

a.~~3.c.~~ Loss of offsite power. ~~An adequate SRCAS air supply source is available, considering the loss of offsite power.~~ If the minimum performance requirements stated in the SAR are met, the system design will be acceptable assuming a concurrent failure of a single active component, including an emergency power source. Statements in the SAR and the results of failure modes and effects analyses are considered to ensure that the system meets these requirements.

These will be acceptable verification of system functional reliability. In addition, the reviewer determines that the equipment affected by the loss of offsite power and subsequent loss of air supply will fail in a safe position.[86]

b. Station Blackout. The review of station blackout is performed using the guidance of Regulatory Guide 1.155, and is coordinated with the review of a station blackout event under SRP Section 8.4 (proposed). If the capability and capacity of the ICAS are sufficient with respect to the plant's ability to withstand or cope with (for the specified duration), as applicable, and recover from a station blackout event, the system will be deemed acceptable. If the capability or capacity of the ICAS is not sufficient, additional guidance is provided in Regulatory Guide 1.155, Position 3.3.3 and Position 3.5.[87]

5. The reviewer verifies that an adequate maintenance, periodic testing, and surveillance program is planned to ensure continuous reliable functioning of the ~~SRCAS~~CAS.[88] The reviewer also verifies that adequate design provisions exist to permit the appropriate periodic pressure, leakage, air quality, and functional testing of the ICAS to assure the structural integrity, leak tight ability, operability and performance of the active components, and capability of the system to function as intended during design basis events, loss of offsite power, or station blackout.[89]

~~4.~~6. The descriptive information, P&IDs, ~~SRCAS~~ICAS drawings, and failure modes and effects analyses in the SAR are reviewed to ensure that the ~~SRCAS~~ICAS[90] portion of the compressed air system will function following design basis accidents assuming a concurrent single active failure. The reviewer evaluates the information presented in the SAR to determine the ability of required components to function, traces the availability of these components on system drawings, and checks that the SAR contains verification that minimum compressed air flow requirements are met for each degraded situation for the required ~~time spans~~duration.[91] In addition, the reviewer verifies air operated components will function as intended during design basis events, loss of offsite power, or station blackout by verifying the following:

a. The functional design of the ICAS, including air or nitrogen accumulators, is in accordance with its intended function.

b. Air-operated component failure positions are correct for assuring required functions upon a sudden as well as a gradual loss of air pressure.

c. Periodic testing leakage limits have been established that ensure air-operated components will function as intended for required durations.[92]

For each case the design will be acceptable if minimum system requirements are met.

7. The reviewer verifies that ICAS systems and components important to safety are not shared among nuclear power units unless it is shown that such sharing will not impair their ability to perform their safety functions, including, in the event of an accident in one unit, an orderly shutdown and cooldown of the remaining units.[93]

8. The reviewer determines whether the compressed air system could possibly become contaminated through interfaces with radioactive systems (e.g. contaminated due to leakage, valving errors or faulty operation in other radioactive systems, etc.). If the system could become contaminated, the reviewer ensures that there are provisions for detection, collection, and control of system leakage and means provided to detect leakage of activity from one system to another and preclude its release to the environment.[94]

For standard design certification reviews under 10 CFR Part 52, the procedures above should be followed, as modified by the procedures in SRP Section 14.3 (proposed), to verify that the design set forth in the standard safety analysis report, including inspections, tests, analysis, and acceptance criteria (ITAAC), site interface requirements and combined license action items, meet the acceptance criteria given in subsection II. SRP Section 14.3 (proposed) contains procedures for the review of certified design material (CDM) for the standard design, including the site parameters, interface criteria, and ITAAC.[95]

IV. EVALUATION FINDINGS

The reviewer verifies that sufficient information has been provided and that his review supports conclusions of the following type, to be included in the staff's safety evaluation report:

The ~~compressed air system~~ICAS[96] includes all components and piping and the points of connection or interfaces with other systems. The ~~safety-related compressed air system~~ICAS[97] ~~requires~~provides[98] a continuous air supply to safety-related components and is classified seismic Category I and Quality Group C.

The basis for acceptance in the staff review has been conformance of the applicant's design and design criteria for the ~~safety-related compressed air system~~ICAS[99] to the Commission's regulation as set forth in the general design criteria, and to applicable regulatory guides, staff technical positions, and industry standards.

The staff concludes that the design of the compressed air system is acceptable and conforms to the requirements of General Design Criteria 1, 2, and 5 with respect to quality standards, seismic design, and sharing of systems and components and 10 CFR 50.63 with respect to station blackout[100]. This conclusion is based on the following:

1. The applicant has met the requirements of General Design Criterion 1 with respect to quality standards by meeting ~~ANSI MC 11.1-1976 (ISA S7.3)~~ANSI/ISA-S7.3-R1981[101] as related to minimum instrument air quality standards for the ICAS and compressed air sources that backup the ICAS.[102] ~~and meeting Regulatory Guide 1.68.3 as related to testing of instrument air systems.~~[103]

2. The applicant has met the requirements of General Design Criterion 2 with respect to seismic design by meeting Regulatory Position C-1 or C-2 in Regulatory Guide 1.29.

3. The applicant has met the requirements of General Design Criterion 5 with respect to the capability of shared systems and components important to safety to

perform required safety functions since a failure in the system will not impair the system's safety function for either unit.

4. The applicant has met the requirements of 10 CFR 50.63 with respect to station blackout by conforming with the guidance of Regulatory Guide 1.155 relative to the compressed air system.[104]

For design certification reviews, the findings will also summarize, to the extent that the review is not discussed in other safety evaluation report sections, the staff's evaluation of inspections, tests, analyses, and acceptance criteria (ITAAC), including design acceptance criteria (DAC), site interface requirements, and combined license action items that are relevant to this SRP section.[105]

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

This SRP section will be used by the staff when performing safety evaluations of license applications submitted by applicants pursuant to 10 CFR 50 or 10 CFR 52.[106] Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

The provisions of this SRP section apply to reviews of applications docketed six months or more after the date of issuance of this SRP section.[107]

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guide.

VI. REFERENCES[108]

1. 10 CFR Part 50, §50.63, "Loss of All Alternating Current Power."[109]

~~1~~2. General Design Criterion 1, "Quality Standards and Records," of Appendix A to 10 CFR Part 50.

~~2~~3. General Design Criterion 2, "Design Bases for Protection Against Natural Phenomena," of Appendix A to 10 CFR Part 50.

~~3~~4. General Design Criterion 5, "Sharing of Structures, Systems, and Components," of Appendix A to 10 CFR Part 50.

~~4.~~5. Regulatory Guide 1.29, "Seismic Design Classification."

6. Regulatory Guide 1.155, "Station Blackout."[110]

6. ~~Regulatory Guide 1.68.3, "Preoperational Testing of Instrument Air Systems" (formerly Regulatory Guide 1.80).~~[111]

7. NUREG-1275, Volume 2, "Operating Experience Feedback Report - Air Systems Problems."[112]

8. NRC Letter to All Holders of Operating Licenses or Construction Permits for Nuclear Power Reactors, "Instrument Air Supply System Problems Affecting Safety-Related Equipment (Generic Letter No. 88-14)," August 8, 1988.[113]

~~5.~~9. ~~ANSI MC 11.1-1976 (ISA-S7.3)~~ANSI/ISA-S7.3-1976, Reaffirmed 1981[114], "Quality Standard for Instrument Air."

SRP Draft Section 9.3.1
Attachment A - Proposed Changes in Order of Occurrence

Item numbers in the following table correspond to superscript numbers in the redline/strikeout copy of the draft SRP section.

Item	Source	Description
1.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
2.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised the introductory paragraph of Areas of Review to reflect changes in the terminology used to differentiate different scopes of a compressed air system. The PRB requested changes in terminology summarized as follows. "Essential" portions of the system are now referred to as "safety-related". "Non-essential" portions of the system are now referred to "non-safety-related". The compressed air system in general is abbreviated "CAS". Those portions of the CAS with safety-related functions are referred to as the "ICAS". Those portions of the CAS that are non-safety-related are referred to as the "SSAS".
3.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
4.	**Integrated Impact 23**	Modified Areas of Review to indicate that the quality of the air supplied from the SSAS to the ICAS is within the scope of the review.
5.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
6.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
7.	Editorial	Revised sentence to eliminate implication that the review is limited to the safety-related portion of the CAS. The preceding discussion details the design-specific circumstances that determine the scope of review related to compliance with the cited GDCs.
8.	**Integrated Impact 65**	Added identification of 10 CFR 50.63 (Station Blackout rule) to the discussion of applicable regulations in Areas of Review.
9.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Added new Area of Review discussion item based on PRB comment. This new Area of Review item relates to Review Procedure 1.a and does not affect the scope of the review currently described in the SRP section.
10.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.

Item	Source	Description
11.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised Area of Review discussion item based on PRB comment. This change reflects new terminology and adds: "non-safety-related portions" (of the CAS), to the discussion of those items that are verified not to affect a safety-related function in the event of failure.
12.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
13.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Incorporated editorial clarification to existing SRP text as indicated in PRB comments.
14.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
15.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
16.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised Area of Review discussion item based on PRB comment. This change reflects new terminology and clarifies the existing text: "safety-related system", as meaning to say: "safety-related system, subsystem, or device".
17.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
18.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
19.	**Integrated Impact 65**	Added identification station blackout to the discussion of events considered during the review.
20.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised Area of Review discussion item based on PRB comment. This change clarifies the duration of events to be considered during the review.
21.	**Integrated Impact 23**	Modified Areas of Review item to indicate that the review of compressed air quality includes air supplied to the ICAS from the SSAS.
22.	**Integrated Impact 73**	Added Areas of Review item, related to Generic Letter 88-14, to address the review of design provisions for periodic testing.
23.	**Integrated Impact 73**	Added Areas of Review item, related to Generic Letter 88-14, to address the review of design provisions for periodic pressure, leakage, and functional testing.

Item	Source	Description
24.	**Integrated Impact 73**	Added Areas of Review item, related to Generic Letter 88-14, to address the review of design provisions for periodic testing or repairs.
25.	**Integrated Impact 22**	Added Areas of Review item to address the review of CAS interconnections with radiologically contaminated systems.
26.	**Integrated Impact 12, Integrated Impact 23**	Added Areas of Review item to address the review of overpressure protection and gas quality for backup high-pressure compressed gas sources supplying PORVs or SRVs. The gas quality portion of the new Area of Review is from integrated impact 23 and the overpressure protection aspect is from integrated impact 12.
27.	**Integrated Impact 73**	Added Areas of Review item, related to Generic Letter 88-14, to address the review of design provisions for periodic pressure and leakage testing of PORV or SRV accumulators.
28.	SRP-UDP format item, Reformat Areas of Review	"Review Interfaces" heading added to "Areas of Review" subsection. Review Interfaces were divided into two groups; those performed by SPLB under other SRP sections (formerly item 5 of Areas of Review) and those performed by PRBs other than SPLB (formerly the last paragraph of Areas of Review). Review interfaces were renumbered/numbered accordingly.
29.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
30.	**Integrated Impact 13**	The description of the review performed for adequate protection from external events was taken from Review Procedures (formerly III.3.b) and moved to Areas of Review. This review for external event protection is performed under the acceptance criteria described in the identified Chapter 3 SRP sections.
31.	**Integrated Impact 13** and PRB Comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Added a related missile protection review interface to SRP Section 3.5.1.2 and clarification of the scope of the reviews under the cited SRP sections.
32.	Editorial, **Integrated Impact 13**	Added words "the protection against" to make description of the review consistent with preceding review descriptions.
33.	**Integrated Impact 13**, SRP-UDP format item, Reformat Areas of Review	This review interface item was moved from the list of reviews performed by other branches to the list of reviews performed by the primary review branch for this SRP section.

Item	Source	Description
34.	SRP-UDP format item, Reformat Areas of Review	This review interface item was moved from the list of reviews performed by other branches to the list of reviews performed by the primary review branch for this SRP section.
35.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
36.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for the indicated SRP Sections. The word "also" removed since this is now a separate review interface item.
37.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for the indicated SRP Sections.
38.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 3.9.6. The word "also" removed since this is now a separate review interface item.
39.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 3.10 and to combine with other stated EMEB interfaces.
40.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for the indicated SRP Sections.
41.	PRB Assignments	Relocated the interface to SRP 6.6 to reflect reassignment from EMCB to ECGB.
42.	Editorial - Potential Impact Nos. 12868, 14772, 18862, 19066, 19067, 22498, and 24328	Added review interface regarding the capacity of certain air accumulators with functions important to safety. This interface item is based on documents identified in the listed potential impacts. These potential impacts were determined to be related to the compressed air system review, however, the appropriate acceptance criteria and procedures related to the issues involved are contained in SRP Section 5.2.2. A review interface was added to identify this relationship.
43.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for review of materials compatibility.
44.	PRB Assignments	Relocated the interface to SRP 6.6 to reflect reassignment from EMCB to ECGB.
45.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibilities for SRP Sections 7.1 and 8.1.
46.	**Integrated Impact 65**	Review interface added to acknowledge that the principal review for compliance with 10 CFR 50.63 (Station Blackout rule) is performed as part of the SRP Section 8.4 review.

Item	Source	Description
47.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Sections 3.10 and 3.11. The review interface for SRP Section 3.11 was relocated to review interfaces performed by the PRB for this SRP section. The review interface for SRP Section 3.10 is reflected in interface 1.d.
48.	Editorial, Disposition of Potential Impact Nos. 13002 and 13009	The potential impacts identify preoperational testing issues specifically related to the CAS. The appropriate acceptance criteria and review procedures associated with this issue are covered in SRP Section 14.2. A review interface was added to identify this relationship.
49.	SRP-UDP Format Item, Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibilities for SRP Chapter 17 and to combine with another interface for HQMB. The reference to SRP Section 17.0 was changed to SRP Chapter 17 since there is no SRP Section 17.0.
50.	SRP-UDP format item	Relocated these interfaces into numbered paragraphs and edited as appropriate to reflect current PRB and SRP section designations.
51.	SRP-UDP format item	Relocated this interface from above and edited as appropriate to reflect current PRB designation.
52.	SRP-UDP format item	Revised to reflect standard end paragraph for the Review Interfaces subsection where the subsection covers both interfaces with other reviews by the PRB and interfaces with other PRBs.
53.	Editorial	Removed references to "safety-related". As indicated in the revised first paragraph of Areas of Review, certain criteria (e.g., air quality) may be applied outside the scope of the safety-related portion of the CAS depending on the design-specific interface between the ICAS and SSAS. See Integrated Impact 23 and the technical rationale for GDC 1 that relate to this issue. Also, 10 CFR 50.63 added to acceptance criteria as described in Integrated Impact 65 is not necessarily limited in application to the safety-related scope of the CAS.
54.	Editorial	Minor change made to more closely follow the text of the GDC.
55.	**Integrated Impact 713**	Updated standard citation to a reaffirmed version of the standard.
56.	Editorial	The appropriate acceptance criteria and review procedures associated with the review of pre-operational testing are covered in SRP Section 14.2. A review interface was added to identify this relationship (see new item 7 of Review Interfaces).

Item	Source	Description
57.	Editorial	Text clarified to indicate that, from the perspective of the 9.3.1 review, compliance with GDC 2 is determined from appropriate classification of CAS components per the positions of Reg. Guide 1.29.
58.	Editorial	Revision made to provide editorial consistency with the other acceptance criteria citations.
59.	**Integrated Impact 65**	Added 10 CFR 50.63 (the Station Blackout rule) to Acceptance Criteria.
60.	SRP-UDP format item, Develop Technical Rationales	Added Technical Rationale section. Technical Rationale is a new feature added to the SRP.
61.	SRP-UDP format item, Develop Technical Rationales	Added paragraph to Technical Rationales to explain the use of the term ICAS in the following paragraphs.
62.	SRP-UDP format item, Develop Technical Rationales	Added Technical Rationale for GDC 1 and ANSI/ISA-S7.3-1975-R1981. Technical Rationale is a new feature added to the SRP.
63.	SRP-UDP format item, Develop Technical Rationales	Added Technical Rationale for GDC 2 and Regulatory Guide 1.29. Technical Rationale is a new feature added to the SRP.
64.	SRP-UDP format item, Develop Technical Rationales	Added Technical Rationale for GDC 5. Technical Rationale is a new feature added to the SRP.
65.	SRP-UDP format item, Develop Technical Rationales	Added Technical Rationale for 10 CFR 50.63 and Regulatory Guide 1.155. Technical Rationale is a new feature added to the SRP.
66.	SRP-UDP format item, Make editorial changes to implement 10 CFR 52 process	Statement was modified to indicate that Technical Specification reviews are also part of the review of design certification applications. Technical Specifications are part of the DC application as established in 10 CFR 50.34(b)(vi)(6) and 10 CFR 52.47(a)(1)(i).
67.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
68.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	This statement is replaced with a more detailed description of the nature of the reviews performed for the SSAS and ICAS that depend on the design-specific nature of the CAS. See specific changes related to this item in the following paragraph.
69.	Editorial	Deleted reference to the review of loss of offsite power and the failure position of valves. Now addressed more completely in Review Procedure 4.

Item	Source	Description
70.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	This change clarifies the ICAS and SSAS scopes of the CAS and how separation, classification, and air quality criteria are applied to these different scopes of the system. The description contains: 1) information from previous Review Procedure item 1, 2) classification and separation information from previous Review Procedure 2.b, and 3) verification of compliance with air quality criteria as modified by Revision Options Checklists #23 and #713. This change is a clarification and does not reflect any change in position (other than as described in Revision Options Checklists #23 and #53).
71.	Editorial	Added reference to the "system description" contained in the applicant's SAR to be consistent with the above discussion of what the reviewer refers to.
72.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
73.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
74.	SRP-UDP Format Item - Update PRB names and responsibilities	Editorial change made to reflect current PRB name and responsibility for SRP Section 9.3.1.
75.	Editorial	Reference to specific PRBs was removed. This information is contained in subsection I which is referenced in the text.
76.	**Integrated Impact 23**	Added Review Procedure to identify potential sources of air supplied to the ICAS.
77.	**Integrated Impact 12**	Added Review Procedure for the effects of possible overpressurization from high-pressure compressed gas sources.
78.	Editorial	Added a Review Procedure item number. Text in previous Review Procedure was a revision insert and was not numbered. The subitems of this Review Procedure were changed from numbers to letters to be consistent with other Review Procedures.
79.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
80.	**Integrated Impact 713**	Updated standard citation to a reaffirmed version of the standard.

Item	Source	Description
81.	**Integrated Impact 23**	Modified Review Procedure to indicate that the air quality of backup sources to the ICAS need to be reviewed in addition to the ICAS itself.
82.	Editorial	Provided clarification for terms "w/w" and "v/v" used in the Review Procedure.
83.	Editorial	Existing item 4 was broken-up into two separate items.
84.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
85.	**Integrated Impact 13** and editorial changes.	Modified the review procedure as it relates to protection from internal and external events. The review for issues are addressed in Chapter 3 review interfaces described in subsection I. The review of loss of offsite power is now addressed in separate Review Procedure 4. Terminology in the remaining text was updated.
86.	Editorial	New Review Procedure 4.a, related to loss of offsite power. Was developed from previous Review Procedure III.3.c and a portion of deleted Review Procedure III.1.
87.	**Integrated Impact 65**	Added Review Procedure for 10 CFR 50.63 (Station Blackout rule).
88.	**Integrated Impacts 23 and 65**	Revised statement to indicate that the review of proposed air system testing may involve consideration of non-safety-related portions of the CAS.
89.	**Integrated Impact 73**	Added Review Procedure, related to Generic Letter 88-14, to address the review of design provisions for periodic testing.
90.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
91.	Editorial	Changed "time-spans" to "duration" for editorial consistency.
92.	**Integrated Impact 73**	Added Review Procedures, related to Generic Letter 88-14, related to ensuring reliable operation of the compressed air system.
93.	**Integrated Impact 14**	Added Review Procedure related to GDC 5, Acceptance Criteria item 3.
94.	**Integrated Impact 22**	Added Review Procedure to address the review of CAS interconnections with radiologically contaminated systems.

Item	Source	Description
95.	SRP-UDP Guidance, Implementation of 10 CFR 52	Added standard paragraph to address application of Review Procedures in design certification reviews.
96.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
97.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
98.	Editorial	Changed "requires" to "provides" to reflect that the system supplies air.
99.	Editorial change reflecting PRB comments - Letter from Conrad E. McCracken to Anthony T. Gody, dated December 22, 1993	Revised terminology used to differentiate different scopes of a compressed air system.
100.	**Integrated Impact 65**	Added 10 CFR 50.63 (Station Blackout rule) to the list regulatory requirements in Evaluation Findings.
101.	**Integrated Impact 713**	Updated standard citation to a reaffirmed version of the standard.
102.	**Integrated Impact 23**	Modified Evaluation Findings related to air quality to provide a finding that air supplied from the SSAS to the ICAS meets appropriate acceptance criteria.
103.	Editorial	The appropriate acceptance criteria and review procedures associated with the review of pre-operational testing are covered in SRP Section 14.2. A review interface was added to identify this relationship (see new item 7 of Review Interfaces and related change description).
104.	**Integrated Impact 65**	Added Evaluation Finding for 10 CFR 50.63 (Station Blackout rule).
105.	SRP-UDP format item, Make editorial changes to implement 10 CFR 52 process	Added discussion of additional items that should be reflected in Evaluation Findings for DC and COL application reviews.
106.	SRP-UDP Guidance, Implementation of 10 CFR 52	Added standard sentence to address application of the SRP section to reviews of applications filed under 10 CFR Part 52, as well as Part 50.
107.	SRP-UDP Guidance	Added standard paragraph to indicate applicability of this section to reviews of future applications.
108.	SRP-UDP format item	Reordered references to reflect order required by SRP-UDP format.
109.	**Integrated Impact 65**	Added 10 CFR 50.63 to References.

Item	Source	Description
110.	**Integrated Impact 65**	Added Regulatory Guide 1.155 to References.
111.	Editorial	Deleted Reference citation. RG 1.68.3 is no longer cited in this SRP section. The appropriate acceptance criteria and review procedures associated with the review of pre-operational testing are covered in SRP Section 14.2. A review interface was added to identify this relationship (see new item 7 of Review Interfaces and related change description).
112.	SRP-UDP format item, Develop Technical Rationales	Added reference related to the development of the Technical Rationale for GDC 1.
113.	**Integrated Impacts 23 and 73**	Added Generic Letter 88-14 to References.
114.	**Integrated Impact 713**	Updated standard citation to a reaffirmed version of the standard.

SRP Draft Section 9.3.1
Attachment B - Cross Reference of Integrated Impacts

Integrated Impact No.	Issue	SRP Subsections Affected
12	Include a review that addresses the potential for overpressurization of air actuated components.	Areas of Review Added item 5.i Review Procedures Added item 1.d
13	Modify Review Interfaces and Review Procedures as necessary to appropriately reflect the CAS review performed for compliance with GDC 4.	Areas of Review Added Review Interface items 1 through 4 Review Procedures Modified Item 3 Deleted 3.b of previous version
14	Add a Review Procedure to verify compliance with GDC 5.	Review Procedures Added item 7
22	Include a review that addresses non-radioactive compressed air system that may become contaminated through connections to radiologically contaminated systems.	Areas of Review Added item 5.h Review Procedures Added item 8
23	Include a review that addresses related to air quality of interconnected compressed air systems.	Areas of Review Modified introductory paragraph Modified item 5.d Added item 5.i Review Procedures Added item 1.c Modified items 2 and 5 Evaluation Findings Modified item 1 References Added item 8

SRP Draft Section 9.3.1
Attachment B - Cross Reference of Integrated Impacts

Integrated Impact No.	Issue	SRP Subsections Affected
65	Add Acceptance Criteria and Review Procedures for station blackout (10 CFR 50.63).	Areas of Review Modified introductory paragraph Modified item 5.c Added Review Interface item 6 Acceptance Criteria Added item 4 Review Procedures Modified item 5 Added item 4.b Evaluation Findings Modified fourth paragraph Added item 4 References Added items 1 and 6
66	Add an Area of Review related to the potential use of pneumatic power and the relevant guidance of Regulatory Guide 1.153.	No changes in this draft revision.
73	Include a review related to Generic Letter 88-14 concerning the improvement of compressed air system reliability.	Areas of Review Added items 5.e, f, g, and j Review Procedures Modified item 5 Modified item 6 Added items 6.a, 6.b, and 6.c References Added items 7 and 8
713	Update citations of ANSI MC 11.1 / ISA S7.3 1976	Acceptance Criteria Modified item 1 Review Procedures Modified item 2 Evaluation Findings Modified item 1 References Modified item 9