SAFETY EVALUATION BY THE OFFICE OF NEW REACTORS

RELATED TO EXEMPTION AND AMENDMENT NO. 58

TO THE COMBINED LICENSE NOS. NPF-93 AND NPF-94

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3

DOCKET NOS. 52-027 AND 52-028

1.0 INTRODUCTION

By letter dated September 8, 2016 (Agencywide Documents Access and Management System Accession No. ML16252A200), proposed license amendment request (LAR) 16-13, South Carolina Electric & Gas Company (SCE&G) on behalf of itself and the South Carolina Public Service Authority (both hereafter called the licensee) requested that the U.S. Nuclear Regulatory Commission (NRC) amend the combined licenses (COL) for Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3, COL Numbers NPF-93 and NPF-94, respectively, regarding changes to the required fire pumps head and the Diesel Fuel Day Tank capacity as the result of changes to the Turbine Building elevation .

The proposed amendment (LAR 16-13) would revise the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2 information and involves related changes to the VCSNS Units 2 and 3 COL Appendix C (and corresponding plant-specific DCD Tier 1) information.

The licensee has also requested an exemption from the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, Appendix D, “Design Certification Rule for the AP1000 Design,” Section III.B, “Scope and Contents.” This exemption request will allow a departure

from the corresponding portions of the certified information in Tier 1 of the generic DCD.[1]

In order to modify the UFSAR (the plant-specific DCD) Tier 1 information, the NRC must find the licensee's exemption request included in its submittal for the LAR to be acceptable. The staff's review of the exemption request, as well as the LAR, is included in this safety evaluation.

The NRC staff's proposed no significant hazards consideration determination was published in the *Federal Register* on October 11, 2016 (81 FR 70175).

2.0 REGULATORY EVALUATION

10 CFR Part 50, Appendix A, General Design Criterion (GDC) 1 requires that structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. Where generally recognized codes and standards are used, they shall be identified and evaluated to determine their applicability, adequacy, and sufficiency and shall be supplemented or modified as necessary to assure a quality product in keeping with the required safety function. A quality assurance program shall be established and implemented in order to provide adequate assurance that these structures, systems, and components will satisfactorily perform their safety functions. Appropriate records of the design, fabrication, erection, and testing of structures, systems, and components important to safety shall be maintained by or under the control of the nuclear power unit licensee throughout the life of the unit.

GDC 2 requires that structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and (3) the importance of the safety functions to be performed.

GDC 4 requires that structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.
GDC 16 requires that reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the

[1] While the licensee describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from Tier 1 information in the generic DCD. In the remainder of this evaluation, the NRC will refer to the exemption as an exemption from Tier 1 information to match the language of Section VIII.A.4 of 10 CFR Part 52, Appendix D, which specifically governs the granting of exemptions from Tier 1 information.

environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

GDC 35 requires that a system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts.

GDC 36 requires that the emergency core cooling system shall be designed to permit appropriate periodic inspection of important components, such as spray rings in the reactor pressure vessel, water injection nozzles, and piping, to assure the integrity and capability of the system.

GDC 37 requires that the emergency core cooling system shall be designed to permit appropriate periodic pressure and functional testing to assure (1) the structural and leaktight integrity of its components, (2) the operability and performance of the active components of the system, and (3) the operability of the system as a whole and, under conditions as close to design as practical, the performance of the full operational sequence that brings the system into operation, including operation of applicable portions of the protection system, the transfer between normal and emergency power sources, and the operation of the associated cooling water system.

GDC 50 requires that the reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect consideration of (1) the effects of potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam generators and as required by 10 CFR 50.44 energy from metal-water and other chemical reactions that may result from degradation but not total failure of emergency core cooling functioning, (2) the limited experience and experimental data available for defining accident phenomena and containment responses, and (3) the conservatism of the calculational model and input parameters.

GDC 54 requires that piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

Appendix D, Section VIII.A.4 to 10 CFR Part 52 states that exemptions from Tier 1 information are governed by the requirements in 10 CFR 52.63(b)(1) and 10 CFR 52.98(f). It also states that the Commission will deny such a request if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design.

Appendix D, Section VIII.B.5.a to 10 CFR 52 states that an applicant or licensee who references 10 CFR Part 52, Appendix D may depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2*

information, or Technical Specifications, or requires a license amendment under paragraphs B.5.b or B.5.c of 10 CFR Part 52, Appendix D, Section VIII.

10 CFR 52.63(b)(1) allows the licensee who references a design certification rule to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it determines that the exemption will comply with the requirements of 10 CFR 52.7, which, in turn, points to the requirements listed in 10 CFR 50.12 for specific exemptions. In addition, the Commission must consider whether special circumstances, as required by 10 CFR 52.7 and 50.12, outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 52.7, and 52.63(b)(1).

10 CFR 52.98(f) states that any modification to, addition to, or deletion from the terms and conditions of a COL, including any modification to, addition to, or deletion from the inspections, tests, analyses, and acceptance criteria (ITAAC) contained in the license is a proposed amendment to the license. Appendix C of COLs NPF-91 and NPF-92 contain information that the licensee is proposing to modify. Therefore, the proposed changes require a license amendment.

3.0 TECHNICAL EVALUATION

3.1 EVALUATION OF EXEMPTION

The regulations in Section III.B of Appendix D to 10 CFR Part 52 require a holder of a COL referencing Appendix D to 10 CFR Part 52 to incorporate by reference and comply with the requirements of Appendix D, including certified information in Tier 1 of the generic AP1000 DCD. Because the licensee has identified changes to plant-specific Tier 1 information, with corresponding changes to the associated COL Appendix C information during design finalization of the fire protection system (FPS) fire pumps and to the minimum volume of the diesel-driven fire pump's fuel day tank, resulting in the need for a departure, an exemption from the certified design information within plant-specific Tier 1 material is required under 10 CFR 52.63(b)(1) to implement the LAR. Also, the exemption is needed because Section VIII.A.4 of Appendix D to 10 CFR Part 52 requires a licensee to obtain an exemption to depart from the Tier 1 information of the generic AP1000 DCD.

The Tier 1 information for which a plant-specific departure and exemption was requested includes corresponding changes to COL Appendix C information during reconfiguration of the FPS, including the FPS fire pumps. The result of this exemption would be that the licensee could implement modifications to Tier 1 information described and justified in LAR 16-13 if, and only if, the NRC approves LAR 16-13. This exemption is a permanent exemption limited in scope to the particular Tier 1 information specified.

As stated in Section VIII.A.4 of Appendix D to 10 CFR Part 52, an exemption from Tier 1 information is governed by the requirements of 10 CFR 52.63(b)(1) and 52.98(f). Additionally, Section VIII.A.4 of Appendix D to 10 CFR Part 52 provides that the Commission will deny a request for an exemption from Tier 1 if it finds that the requested change will result in a significant decrease in the level of safety otherwise provided by the design. Pursuant to 10 CFR 52.63(b)(1), the Commission may grant exemptions from one or more elements of the certification information, so long as the criteria given in 10 CFR 52.7, which, in turn, references

10 CFR 50.12, is met and that the special circumstances, which is defined by 10 CFR 50.12(a)(2), outweigh any potential decrease in safety due to reduced standardization.

Pursuant to 10 CFR 52.7, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 52. As 10 CFR 52.7 further states, the Commission's consideration will be governed by 10 CFR 50.12, "Specific exemptions," which states that an exemption may be granted when: (1) the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security; and (2) special circumstances are present. Specifically, 10 CFR 50.12(a)(2) lists six special circumstances for which an exemption may be considered. It is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The licensee stated that the requested exemption meets the special circumstances of 10 CFR 50.12(a)(2)(ii). That subparagraph defines special circumstances as when "[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule." The staff's analysis of each of these findings is presented below.

3.1.1 AUTHORIZED BY LAW

This exemption would allow the licensee to implement a revision to Tier 1, Table 2.3.4-2 in the plant-specific DCD. This exemption is a permanent exemption limited in scope to particular Tier 1 information. Subsequent changes to Tier 1, Table 2.3.4-2 or any other Tier 1 information would be subject to the exemption process specified in Section VIII.A.4 of Appendix D to 10 CFR Part 52 and the requirements of 10 CFR 52.63(b)(1). As stated above, 10 CFR Part 52, Appendix D, Section VIII.A.4 allows the NRC to grant exemptions from one or more elements of the Tier 1 information. The NRC staff has determined that granting of the licensee's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, or other laws, as amended, or the Commission's regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

3.1.2 NO UNDUE RISK TO PUBLIC HEALTH AND SAFETY

The underlying purpose of Appendix D to 10 CFR 52 is to ensure that a licensee will construct and operate the plant based on the approved information found in the DCD incorporated by reference into a licensee's licensing basis. The changes proposed by the licensee do not add or delete systems or equipment as described in Tier 1 of the AP1000 DCD. These changes will not impact the ability of the systems or equipment to perform their design function. Because they will not alter the operation of any plant equipment or systems, these changes do not present an undue risk from existing equipment or systems. These changes do not add any new equipment or system interfaces to the current plant design. The description changes do not introduce any new industrial, chemical, or radiological hazards that would represent a public health or safety risk, nor do they modify or remove any design or operational controls or safeguards intended to mitigate any existing on-site hazards. Furthermore, the proposed changes would not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures. Accordingly, these changes do not present an undue risk from any new equipment or systems. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that there is no undue risk to public health and safety.

3.1.3 CONSISTENT WITH COMMON DEFENSE AND SECURITY

The proposed exemption would allow changes to elements of the FPS, as presented in the system and non-system based ITAAC table in the plant-specific DCD Tier 1, thereby departing from the AP1000 certified (Tier 1) design information. The change does not alter or impede the design, function, or operation of any plant structures, systems, or components associated with the facility's physical or cyber security and, therefore, does not affect any plant equipment that is necessary to maintain a safe and secure plant status. In addition, the changes have no impact on plant security or safeguards. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the common defense and security is not impacted by this exemption.

3.1.4 SPECIAL CIRCUMSTANCES

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the Tier 1 information is to ensure that a licensee will safely construct and operate a plant based on the certified information found in the AP1000 DCD, which was incorporated by reference into the VCSNS's licensing basis. The proposed changes would reconfigure the FPS, as presented in Tier 1 ITAAC table. These changes will enable the licensee to safely construct and operate the AP1000 facility consistent with the design certified by the NRC by clarifying the information mentioned above and found in Tier 1, Table 2.3.4-2 of the DCD.

Special circumstances are present in the particular circumstances discussed in LAR 16-13 because the application of the specified Tier 1 information does not serve the underlying purpose of the rule. The proposed change implements changes to reconfigure the FPS, as presented in Tier 1 ITAAC table. This exemption requests and associated revisions to Tier 1 Table 2.3.4-2 demonstrate that the applicable regulatory requirements will continue to be met. Therefore, the staff finds that the special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from the Tier 1 information exist.

3.1.5 SPECIAL CIRCUMSTANCES OUTWEIGH REDUCED STANDARDIZATION

This exemption would allow the implementation of changes to Tier 1, Table 2.3.4-2 in the DCD. The design functions of the system associated with this request will continue to be maintained because the associated revisions to Table 2.3.4-2 demonstrate that the applicable regulatory requirements will continue to be met. This exemption will allow the increase of the fire pump capacity and the fuel oil storage tank volume for the fire protection system in order to meet its design function demands and to facilitate construction design changes. Consequently, the safety impact that may result from any reduction in standardization is minimized, because the proposed design change does not result in a reduction in the level of safety. Based on the foregoing reasons, as required by 10 CFR Part 52.63(b)(1), the staff finds that the special circumstances outweigh the effects the departure has on the standardization of the AP1000 design.

3.1.6 NO SIGNIFICANT REDUCTION IN SAFETY

This exemption would allow the implementation of changes to Tier 1, Table 2.3.4-2 in the DCD. The exemption request proposes to depart from the certified design by reconfiguring the FPS. The changes for consistency will not impact the functional capabilities of this system. The proposed changes will not adversely affect the ability of the FPS to perform its design functions, and the level of safety provided by the current systems and equipment therein is unchanged. Therefore, based on the foregoing reasons and as required by 10 CFR Part 52, Appendix D, Section VIII.A.4, the staff finds that granting the exemption would not result in a significant decrease in the level of safety otherwise provided by the design.

3.2 TECHNICAL EVALUATION OF PROPOSED CHANGES

3.2.1 Change in Fire Protection System

In LAR 16-13, the licensee proposed to make changes that would affect the COL Appendix C, the corresponding plant-specific Tier 1 information, as well as the UFSAR. As described in the UFSAR Subsection 9.5.1, the FPS encompasses the following nonsafety-related functions:

1. Detection systems for early detection and notification of a fire.

2. A water piping system including the fire pumps, yard main, and interior distribution piping.

3. Fixed automatic fire suppression (i.e., sprinkler) systems.

4. Manual fire suppression systems and equipment, including hydrants, standpipes, hose stations and portable fire extinguishers.

Due to construction design changes to increase the height of the three turbine building elevations by three feet at each level and the addition of platforms above the operating deck, and the incorporation of the beyond design basis requirement to provide 800 gallons per minute (gpm) of FPS water to be supplied to the spent fuel pool (SFP) for cooling, heat removal, and inventory makeup, LAR 16-13 proposes that the capacity of the two fire pumps (one motor-driven and one diesel-driven) be increased to meet the FPS demand. As a result of the increased pump capacity, the diesel fuel day tank volume must also be increased to accommodate the increased fuel consumption. The changes to the FPS include increasing the fire pumps' head ratings from 300 feet at 2000 gpm to 350 feet at 2000 gpm and increasing the diesel-driven fire pump fuel day tank minimum capacity from 240 gallons to 385 gallons. The proposed changes to the licensing basis are summarized below:

USFAR Tier 2, Table 9.5.1-2 would be revised to increase the required head for the two (motor-driven and diesel-driven) fire pumps to 350 feet.

USFAR Tier 2, Table 9.5.1-2 would be revised to increase the minimum required capacity of the diesel-driven pump fuel day tank to 385 gallons.

USFAR Tier 2, Table 14.3-4 would be revised to change the minimum total head of the motor-driven and diesel-driven fire pumps to 350 feet to conform with the changes to Table 9.5.1-2.

COL Appendix C (and plant-specific Tier 1), Subsection 2.3.4, Design Description 8, and Table 2.3.4-2, Item 8 (ITAAC No. 2.3.04.08) would be revised to verify that the two fire pumps each provide at least 2000 gpm at the revised total head of at least 350 feet.

COL Appendix C (and plant-specific Tier 1), Subsection 2.3.4, Design Description 9, and Table 2.3.4-2, Item 9 (ITAAC No. 2.3.04.09) would be revised to identify the minimum required capacity of the FPS diesel-driven fire pump fuel day tank as 385 gallons.

3.2.1.1 Evaluation of Changes to Fire Pumps' Capacity

The FPS fire pumps are currently designed in accordance with National Fire Protection Association (NFPA) 20, *Standard for the Installation of Stationary Pumps for Fire Protection,* 1999 Edition, to provide fire suppression water flow of 2000 gpm at 300 feet head, which are to be confirmed in ITAAC No. 2.3.04.08. However, due to design changes to the turbine building elevations and SFP cooling and makeup demand, the fire pumps head rating must be increased to 350 feet at a rated flow of 2000 gpm to meet its fire suppression system flow demand. This fire pump design change results in a corresponding change in DCD Tier 1, Table 2.3.4-2 (ITAAC No. 2.3.04.08).

The licensee stated in LAR 16-13 that the revised design calculation demonstrates the most demanding flow requirement for the FPS is 315 feet pump head at 2000 gpm flow. This is bounded by the proposed 350 feet pump head at 2000 gpm flow demand for the fire pumps. In addition, the licensee stated that the above proposed pump head and flow demand is below the maximum allowable 370 feet pump head at 2000 gpm, and thus is bounded by the maximum design pressure of the FPS system piping.

Based on the above, the staff concluded that the increased fire pumps' head rating and corresponding horsepower rating adequately maintain the flow requirement of the fire suppression system without challenging the maximum design pressure of the FPS piping system, and therefore, has no adverse impact on the FPS.

3.2.1.2 Evaluation of Change in Diesel-Driven Fire Pump Fuel Day Tank Capacity

The increase in the diesel-driven fire pump head rating requires an increase in the horsepower rating of the pump. As the result, the minimum required capacity of the diesel-driven fire pump fuel day tank as calculated by the licensee is increased from 240 gallons to 385 gallons to facilitate the increase in fuel consumption. As stated by the licensee in LAR 16-13, since the subject day tank is currently designed with a capacity of 440 gallons, the physical dimension and footprint of the tank remain unchanged. Furthermore, the licensee stated that, according to manufacturer-provided diesel engine fuel consumption rate, the minimum volume of 385 gallons provides greater than 21 hours of run time at the rated capacity of 2000 gpm. Therefore, this change only results in a corresponding change in DCD Tier 1, Table 2.3.4-2 (ITAAC No. 2.3.04.09), to verify the minimum tank capacity.

Based on the above, the NRC staff concluded that the current diesel-driven fire pump fuel day tank can hold more than the required minimum amount of fuel to run the pump for at least 8 hours as required by NFPA 20. Therefore, the increase in the minimum fuel capacity requirement for the diesel-driven fire pump has no adverse impact on the operation of the fire pumps and consequently on the FPS.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations in 10 CFR 50.91(b), the designated South Carolina State official was notified of the proposed issuance of the amendment. The State of South Carolina had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20, *Standards for Protection Against Radiation.* The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite. Also, there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on the finding (*Federal Register,* 81 FR 70175 (October 11, 2016)). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

Because the exemption is necessary to allow the changes proposed in the license amendment, and because the exemption does not authorize any activities other than those proposed in the license amendment, the environmental consideration for the exemption is identical to that of the license amendment. Accordingly, the exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the exemption.

6.0 CONCLUSION

The staff has determined that pursuant to Section VIII.A.4 of Appendix D to 10 CFR Part 52, the exemption (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) presents special circumstances, (5) the special circumstances outweigh the potential decrease in safety due to reduced standardization, and (6) does not reduce the level of safety at the licensee's facility. Therefore, the staff grants the licensee an exemption from the Tier 1 information requested by the licensee.

The staff has concluded, based on the considerations discussed in Section 3.2 and confirming that these changes do not change an analysis methodology, assumptions, or the design itself, that there is reasonable assurance that: (1) the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. Therefore, the staff finds the changes proposed in this license amendment acceptable.

7.0 REFERENCES

1. SCE&G, VCSNS Units 2 and 3, "Request for License Amendment and Exemption: Fire Pump Head and Diesel Fuel Day Tank Changes (LAR 16-13)," dated September 8, 2016 (ADAMS Accession No. ML16252A200).

2. VCSNS UFSAR, Revision 3, Tier 1, dated July 1, 2015 (ADAMS Accession No. ML15196A196).

3. AP1000 DCD, Revision 19, dated June 13, 2011 (ADAMS Accession No. ML11171A500).

4. COL NPF-93 for VCSNS Unit 2, SCE&G (ADAMS Accession No. ML14100A092).

5. COL NPF-94 for VCSNS Unit 3, SCE&G (ADAMS Accession No. ML14100A101).