



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 12, 2022

Mr. James Barstow
Vice President, Nuclear Regulatory
Affairs and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A-C
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2; AND WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2 – AUTHORIZATION OF ALTERNATIVES TO CERTAIN INSERVICE TESTING REQUIREMENTS IN THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE FOR OPERATION AND MAINTENANCE (EPID L-2022-LLR-0048)

Dear Mr. Barstow:

The U.S. Nuclear Regulatory Commission (NRC) has authorized your use of an alternative to certain inservice testing (IST) requirements in the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), Section IST, "Rules for Inservice Testing of Light-Water Reactor Power Plants," associated with the pump IST program for the Sequoyah Nuclear Plant, Units 1 and 2 (Sequoyah) and the Watts Bar Nuclear Plant, Units 1 and 2 (Watts Bar). This action is in response to your request HNP-IST-004-RR1, dated April 26, 2022, as supplemented by letter dated September 2, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML22117A008 and ML22249A064, respectively).

Specifically, pursuant to subparagraph (2) in paragraph (z) in Part 50 to Title 10 of the *Code of Federal Regulations* (10 CFR 50.55a(z)(2)), the licensee requested that the NRC authorize Alternative Request RP-11 for Sequoyah and Alternative Request IST-RR-9 for Watts Bar, on the basis that compliance with a specific requirement in the ASME OM Code would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

The NRC staff concludes that the licensee has justified in Sequoyah Alternative Request RP-11 and Watts Bar Alternative Request IST-RR-9 that a hardship would exist without a compensating increase in the level of quality or safety to perform a comprehensive or Group A test of the Motor Driven Auxiliary Feedwater pumps listed in Table 1 of the enclosed safety evaluation during Modes 4 or 5 to meet ASME OM Code, paragraph ISTB-3310, following repair, replacement, or routine servicing of those pumps. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2).

Therefore, the NRC staff authorizes Sequoyah Alternative Request RP-11 for the remainder of the Sequoyah Fourth 10-Year IST Program interval, which is scheduled to end on June 30, 2026; and Watts Bar Alternative Request IST-RR-9 for the remainder of the Watts Bar, Unit 1 Third 10-Year IST Program interval and Watts Bar, Unit 2 First 10-Year IST Program interval, which are scheduled to end on October 18, 2026.

All other ASME OM Code requirements as incorporated by reference in 10 CFR 50.55a for which relief or an alternative was not specifically requested, and granted or authorized (as appropriate), in the subject requests remain applicable.

If you have any questions, please contact Kimberly Green at 301-415-1627 or via email at Kimberly.Green@nrc.gov.

Sincerely,

David J. Wrona, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-327, 50-328,
50-390, and 50-391

Enclosure:
Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ALTERNATIVE REQUEST RP-11

FOURTH 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

ALTERNATIVE REQUEST IST-RR-9

THIRD 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

WATTS BAR NUCLEAR PLANT, UNIT 1

FIRST 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

WATTS BAR NUCLEAR PLANT, UNIT 2

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-327, 50-328, 50-390, AND 50-391

1.0 INTRODUCTION

By letter dated April 26, 2022 (Agencywide Documents and Access Management System (ADAMS) Accession Number ML22117A008), and supplemented by letter dated September 2, 2022 (ML22249A064), Tennessee Valley Authority (TVA, the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for authorization to implement Alternative Requests RP-11 and IST-RR-9 related to certain Inservice Testing (IST) requirements in the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants*, (OM Code) Section IST, "Rules for Inservice Testing of Light-Water Reactor Power Plants," associated with the pump IST program at Sequoyah Nuclear Plant, Units 1 and 2 (Sequoyah or SQN), and Watts Bar Nuclear Plant, Units 1 and 2 (Watts Bar or WBN), respectively.

Specifically, pursuant to subparagraph (2) in paragraph (z) in Part 50 to Title 10 of the *Code of Federal Regulations* (10 CFR 50.55a(z)(2)), the licensee requested that the NRC authorize Alternative Request RP-11 for Sequoyah and Alternative Request IST-RR-9 for Watts Bar on the basis that compliance with a specific requirement in the ASME OM Code would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

Enclosure

2.0 REGULATORY EVALUATION

The NRC regulations in 10 CFR 50.55a(f)(4), "Inservice testing standards requirement for operating plants," state, in part, that throughout the service life of a boiling or pressurized water-cooled nuclear power facility, pumps and valves that are within the scope of the ASME OM Code must meet the inservice test requirements (except design and access provisions) set forth in the ASME OM Code editions and addenda that are incorporated by reference in 10 CFR 50.55a(a)(1)(iv), to the extent practical within the limitations of design, geometry, and materials of construction of the components.

The NRC regulations in 10 CFR 50.55a(z) state, in part, that alternatives to the requirements of 10 CFR 50.55a(f) may be used, when authorized by the NRC, if the licensee demonstrates (1) the proposed alternatives would provide an acceptable level of quality and safety, or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The Sequoyah Fourth 10-Year IST Program interval began on September 1, 2016, and is scheduled to end on June 30, 2026. The Watts Bar, Unit 1 Third 10-Year IST Program interval and the Watts Bar, Unit 2 First 10-Year IST Program interval began on October 19, 2016, and is scheduled to end on October 18, 2026.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Alternative Requests RP-11 and IST-RR-9

3.1.1 Applicable Code Edition and Addenda

The applicable ASME OM Code of Record for the Sequoyah Fourth 10-Year IST Program interval, the Watts Bar, Unit 1 Third 10-Year IST Program interval, and the Watts Bar, Unit 2 First 10-Year IST Program interval is the 2004 Edition through 2006 Addenda of ASME OM Code, as incorporated by reference in 10 CFR 50.55a.

3.1.2 ASME Code Components Affected

In its submittal, the licensee proposed alternative testing for the following Motor Driven Auxiliary Feedwater (MDAFW) pumps as listed in below Table 1:

Table 1

| Site/Unit | Pump ID | Pump Description | Pump Type | Code Class | OM Group |
|------------------|--------------------|-------------------------|------------------|-------------------|-----------------|
| Sequoyah 1 | SQN-1-PMP-003-0118 | MDAFW Pump 1A-A | Centrifugal | 3 | A |
| Sequoyah 1 | SQN-1-PMP-003-0128 | MDAFW Pump 1B-B | Centrifugal | 3 | A |
| Sequoyah 2 | SQN-2-PMP-003-0118 | MDAFW Pump 2A-A | Centrifugal | 3 | A |
| Sequoyah 2 | SQN-2-PMP-003-0128 | MDAFW Pump 2B-B | Centrifugal | 3 | A |

| Site/Unit | Pump ID | Pump Description | Pump Type | Code Class | OM Group |
|-------------|----------------------|------------------|-------------|------------|----------|
| Watts Bar 1 | WBN-1-PMP-003-0118-A | MDAFW Pump 1A-A | Centrifugal | 3 | A |
| Watts Bar 1 | WBN-1-PMP-003-0128-B | MDAFW Pump 1B-B | Centrifugal | 3 | A |
| Watts Bar 2 | WBN-2-PMP-003-0118-A | MDAFW Pump 2A-A | Centrifugal | 3 | A |
| Watts Bar 2 | WBN-2-PMP-003-0128-B | MDAFW Pump 2B-B | Centrifugal | 3 | A |

3.1.3 Applicable Code Requirements

The IST requirements in the ASME OM Code, as incorporated by reference in 10 CFR 50.55a, related to these alternative requests are as follows:

ASME OM Code, Subsection ISTB, "Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants"

Table ISTB-3000-1, "Inservice Test Parameters," provides various parameters to be measured during a pump's preservice test, Group A test, Group B test, and Comprehensive test.

Paragraph ISTB-3100, "Preservice Testing," states in part, the following:

During the preservice test period or before implementing inservice testing, an initial set of reference values shall be established for each pump. These tests shall be conducted under conditions as near as practicable to those expected during subsequent inservice testing. Except as specified in ISTB-3310, only one preservice test is required for each pump. A set of reference values shall be established in accordance with ISTB-3300 for each pump required to be tested by this subsection. Preservice testing shall be performed in accordance with the requirements of the following paragraphs:

(a) centrifugal pump tests (except vertical line shaft centrifugal pumps) in accordance with ISTB-5110.

Paragraph ISTB-3300, "Reference Values," specifies requirements for obtaining initial reference values, and new or additional reference values, for pump performance.

Paragraph ISTB-3310, "Effect of Pump Replacement, Repair, and Maintenance on Reference Values," states:

When a reference value or set of values may have been affected by repair, replacement, or routine servicing of a pump, a new reference value or set of values shall be determined in accordance with ISTB-3300, or the previous value reconfirmed by a comprehensive or Group A test run before declaring the pump operable. The Owner shall determine whether the requirements of ISTB-3100, to reestablish reference values, apply. Deviations between the previous and new set of reference values shall be evaluated, and verification that the new values represent acceptable pump operation shall be placed in the record of tests (see ISTB-9000).

Paragraph ISTB-5121, "Group A Test Procedure," states, in part, the following:

Group A tests shall be conducted with the pump operating at a specified reference point. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph.

Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria," provides Group A test, Group B test, and Comprehensive test acceptable ranges, alert ranges, and required action ranges for various parameters (i.e., flow, differential pressure, and vibration).

3.1.4 Applicable Sequoyah and Watts Bar Technical Specification (TS) Requirements

TS 3.7.5, "Auxiliary Feedwater (AFW) System," Condition B, requires that with one AFW train inoperable in Modes 1, 2, or 3, for reasons other than Condition A, an AFW train must be restored to operable status within 72 hours.

TS Surveillance Requirement (SR) 3.7.5.2 states that the licensee must "[v]erify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head." The frequency is in accordance with the IST program.

3.1.5 Reason for Request

The licensee specifies the reason for the alternative requests as follows:

If repair, replacement, or routine servicing that could affect reference values of an MDAFW pump is performed during an outage, then ISTB-3310 requires a Group A, comprehensive, or preservice test to be performed to confirm existing reference values or establish new reference values before declaring the pump operable. SQN and WBN TS [limiting condition for operation] LCO 3.7.5 requires the MDAFW pump to be operable in Modes 1, 2, 3, and 4 when steam generator (SG) is relied upon for heat removal. Previous efforts to perform the periodic MDAFW comprehensive test during start-up from a refueling outage have experienced difficulty in maintaining consistent and stable test conditions. Performing the comprehensive or preservice test in Modes 6 or 5, with no heat load from the primary side, risks overfilling the SG, and can cause interruptions of testing to drain the SG. Additionally, performing the comprehensive or preservice test in Mode 4 risks excessive cooldown, which could lead to an inadvertent mode change. Performance of a Group A test with a flow rate high enough to fully assess the mechanical and hydraulic performance or a preservice test both require flow to the SG and are expected to have the same issues as the comprehensive test.

Conversely, performance in Mode 1 allows sufficient reactor heat and main steam flow to support main feedwater flow. Flow from the MDAFW pump is marginal in comparison to the flow volume from main feedwater. The SG level change from inducing full flow from one MDAFW pump is controlled automatically by the main feed water regulating valves and main feed pump (MFP) speed controller (i.e., does not require operator action). The operator challenges of manual control of plant parameters are not necessary in Mode 1 due to the availability of the MFPs.

Compliance with ISTB-3310 under the circumstances described above represents a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, this request for alternative testing is being submitted in accordance with 10 CFR 50.55a(z)(2).

As noted in Reference 3, the SQN Unit 1 MDAFW pump 1B-B was replaced on May 31, 2021, due to a fire in the inboard pump bearing on MDAFW pump 1B-B, while operating in support of a forced outage with SQN Unit 1 in Mode 3. The replacement pump is a low margin pump and is scheduled to be replaced with an improved efficiency pump during the upcoming SQN Unit 1 Cycle 25 refueling outage (U1R25) scheduled for October 2022.

The proposed alternative is needed to support the SQN Unit 1 MDAFW pump 1B-B replacement and any future repairs or replacements of the SQN and WBN MDAFW pumps. The vendor's qualification process of the replacement pump involves the submittal of a repair plan by the vendor to TVA for review and approval. Once the pump has been repaired or refurbished, the pump is tested to ensure it can meet the TVA design test curve prior to acceptance. A new design test curve has been submitted for this replacement pump to regain operating margin. The vendor will submit a final report once acceptance testing is complete.

3.1.6 Licensee Proposed Alternative

The licensee describes the proposed alternative as follows:

1. If repair, replacement, or routine servicing that could affect reference values of an MDAFW pump is performed during an outage, then initial pump operability for compliance with TS LCO 3.7.5 and SR 3.7.5.2 will be established by performance of a Group A pump test in Modes 4 or 5. The Group A pump test will be performed using the fixed resistance pump minimum flow recirculation path in which pump flow is set, and differential pressure and vibration are measured and compared to acceptance criteria established in accordance with ISTB-3300, ISTB-5121, and Table ISTB-5121-1. This acceptance criterion is truncated, if necessary, to ensure the pump minimum design limits are met.
2. If repair, replacement, or routine servicing that could affect reference values of an MDAFW pump is performed during an outage, following the Group A test in Modes 4 or 5, the ISTB-3310 required comprehensive or preservice test will be performed in Mode 1 during power ascension at an appropriate power level within ten days of reaching Mode 1. If the required comprehensive or preservice test is not performed within these timeframes, the unit will enter the required Action Statement of TS 3.7.5.
3. In accordance with ISTB-3100, the preservice test method is in accordance with ISTB-5110, which requires flow and differential pressure to be measured at a minimum of five points. If practicable, these points shall be from pump minimum flow to at least pump design flow.

The Group A reference value for flow and differential pressure will be essentially the same point as the minimum flow and differential pressure used as the minimum flow point for the preservice test. Acceptance criteria will be established in accordance with Table ISTB-5121-1.

3.1.7 Licensee Basis for Use

The licensee describes the basis for the use of the alternative as follows:

Sequoyah 2 TS Bases for SR 3.7.5.2 state:

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref. 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing discussed in the ASME Code (Ref. 2) (only required at 3 month intervals) satisfies this requirement.

This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.

Watts Bar TS Bases for SR 3.7.5.2 state:

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the American Society of Mechanical Engineers (ASME) OM Code (Ref. 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing discussed in the ASME OM Code (Ref. 2) (only required at 3 month intervals) satisfies this requirement. The 31 day Frequency on a STAGGERED TEST BASIS results in testing each pump once every 3 months, as required by Reference 2.

This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there may be insufficient steam pressure to perform the test.

The licensee further states:

The TS Bases provided above demonstrate the inservice test performed at the recirculation flow point on the pump design curve is adequate to confirm component operability. The TS SR and Bases do not place additional requirements on AFW pumps that have undergone repair, replacement, or routine servicing.

The performance of SR 3.7.5.2 is adequate to identify any significant issues resulting from a repair, replacement, or routine servicing and provide reasonable assurance the MDAFW pump is capable of performing its safety-related function until plant conditions are stable enough to complete the ISTB-3310 required comprehensive or preservice test.

It should be noted that proposed alternative is consistent with the recent ASME approved methodology in Subsection ISTB-3313, "Baseline Test Deferral," of the ASME OM Code 2020 Edition.

3.2 NRC Staff Evaluation

The MDAFW pumps at Sequoyah and Watts Bar are classified as Group A pumps in accordance with the requirements in ASME OM Code, Subsection ISTB, paragraphs ISTB-1400 and ISTB-2000, as incorporated by reference in 10 CFR 50.55a. Table ISTB-3400-1 requires that Group A pumps be tested quarterly during a Group A test and biennially during a comprehensive test. Table ISTB-3000-1 requires the measurement of the pump's speed, differential pressure, discharge pressure, flow rate, and vibration during Group A tests and comprehensive tests. Paragraph ISTB-3310 states that for a reference value or set of values that may have been affected by repair, replacement, or routine servicing of a pump, a new reference value or set of values shall be determined, or the previous value reconfirmed by a comprehensive test or Group A test run before declaring the pump operable.

The licensee proposes that if repair, replacement, or routine servicing that could affect reference values of an MDAFW pump is performed during an outage, then initial pump operability for compliance with TS LCO 3.7.5 and SR 3.7.5.2 will be established by performance of a Group A test in Modes 4 or 5. The Group A test will be performed using the fixed resistance pump minimum flow recirculation path in which pump flow is set, and differential pressure and vibration are measured and compared to acceptance criteria established in accordance with ASME OM Code, paragraphs ISTB-3300 and ISTB-5121, and Table ISTB-5121-1. Following the Group A test in Modes 4 or 5, the ISTB-3310 required comprehensive or preservice test will be performed in Mode 1 during power ascension at an appropriate power level within 10 days of reaching Mode 1. If the required comprehensive or preservice test does not occur within the 10-day timeline, the licensee will enter the applicable TS condition.

The licensee states that in accordance with ASME OM Code, paragraph ISTB-3100, the preservice test method will be in accordance with paragraph ISTB-5110, which requires flow and differential pressure to be measured at a minimum of five points. If practicable, these points shall be from pump minimum-flow to at least pump design-flow. The Group A reference value for flow and differential pressure will be essentially the same point as the minimum-flow and differential pressure used as the minimum-flow point for the preservice test. Acceptance criteria will be established in accordance with Table ISTB-5121-1.

In its supplement dated September 2, 2022, the licensee states that the proposed Sequoyah Alternative Request RP-11 and Watts Bar Alternative Request IST-RR-9 for the MDAFW pumps can be implemented concurrently with the previously NRC-authorized alternative requests for the MDAFW pumps in Sequoyah, Unit 1 RP-04 (ML16123A131), Sequoyah, Units 1 and 2 RP-07 (ML15329A186), Watts Bar, Unit 1 IST-RR-1 (ML16057A863), and Watts Bar IST-RR-1 (ML14289A222) with no adverse consequences.

Based on the information described above for MDAFW pumps at Sequoyah and Watts Bar listed in Table 1 of this safety evaluation, the NRC staff finds that (1) following repair, replacement, or routine servicing of those pumps, a hardship would exist without a compensating increase in the level of quality or safety to perform a comprehensive or Group A test of those pumps during Modes 4 or 5 to meet ASME OM Code, paragraph ISTB-3310; (2) following their repair, replacement, or routine servicing, a Group A test of the MDAFW pumps in accordance with the ASME OM Code during Modes 4 or 5 using the pump minimum flow recirculation path will provide reasonable assurance of their operational readiness for the short time period until the ISTB-3310 required comprehensive or preservice test is performed in Mode 1 during power ascension at an appropriate power level within 10 days of reaching Mode 1; and (3) the licensee will verify that the MDAFW pumps are operating acceptably during the ISTB-3310 required comprehensive or preservice test as specified in paragraph ISTB-5110 with the acceptance criteria in Table ISTB-5121-1.

4.0 CONCLUSION

As described in this safety evaluation, the NRC staff finds that the licensee has justified in Sequoyah Alternative Request RP-11 and Watts Bar Alternative Request IST-RR-9 that a hardship would exist without a compensating increase in the level of quality or safety to perform a comprehensive or Group A test of the MDAFW pumps listed in Table 1 of this safety evaluation during Modes 4 or 5 to meet ASME OM Code, paragraph ISTB-3310, following repair, replacement, or routine servicing of those pumps.

The NRC staff also finds that performance of a Group A test of the applicable MDAFW pumps in accordance with the ASME OM Code during Modes 4 or 5 using the pump minimum flow recirculation path, following their repair, replacement, or routine servicing, will provide reasonable assurance that the MDAFW pumps will be operationally ready to perform their safety function until the ISTB-3310 required comprehensive or preservice test is performed within 10 days of reaching Mode 1 at Sequoyah and Watts Bar.

Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2) for Alternative Requests RP-11 and IST-RR-9 for Sequoyah and Watts Bar, respectively. Therefore, the NRC staff authorizes Sequoyah Alternative Request RP-11 for the remainder of the Sequoyah Fourth 10-Year IST Program interval, which is scheduled to end on June 30, 2026; and Watts Bar Alternative Request IST-RR-9 for the remainder of the Watts Bar, Unit 1 Third 10-Year IST Program interval and Watts Bar, Unit 2 First 10-Year IST Program interval, which are scheduled to end on October 18, 2026.

All other ASME OM Code requirements as incorporated by reference in 10 CFR 50.55a for which relief or an alternative was not specifically requested, and granted or authorized (as appropriate), in the subject requests remain applicable.

Principal Contributors: G. Bedi, NRR/DEX/EMIB
T. Scarbrough, NRR/DEX/EMIB

Dated: October 12, 2022

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2; AND WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2 – AUTHORIZATION OF ALTERNATIVES TO CERTAIN INSERVICE TESTING REQUIREMENTS IN THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE FOR OPERATION AND MAINTENANCE (EPID L-2022-LLR-0048) DATED OCTOBER 12, 2022

DISTRIBUTION:

PUBLIC

PM File Copy

RidsNrrDorLpl2-2

RidsNrrPMSequoyah

RidsNrrPMWattsBar

RidsNrrLARButler

RidsACRS_MailCTR

RidsRgn2MailCenter

GBedi, NRR

TScarbrough, NRR

ADAMS Accession No.: ML22272A568

| | | | |
|--------|---------------------|---------------------|--------------------|
| OFFICE | NRR/DORL/LPLII-2/PM | NRR/DORL/LPLII-2/LA | NRR/DEX/EMIB |
| NAME | MMahoney | RButler | KHsu (SBailey for) |
| DATE | 10/06/2022 | 10/03/22 | 09/19/2022 |
| OFFICE | NRR/DORL/LPLII-2/BC | | |
| NAME | DWrona | | |
| DATE | 10/12/2022 | | |

OFFICIAL RECORD COPY