March 31, 2021

Dear Mr. Bryan Parker,

This letter is in reference to License No. 21-35622-01, Federal-Mogul (Tenneco), ADDITIONAL INFORMATION FOR CN623938. Federal-Mogul is submitting the following response:

1) Federal-Mogul will propose that Karly St. Aubin, EHS Analyst at Federal-Mogul (Tenneco) be the Radiation Safety Officer (RSO) in replacement of Brad Pritchett. The training and experience of the proposed is in the attachments "RSO Qualifications" and "RSO Cert."
2) The Delegation of Authority for Karly St. Aubin, proposed RSO, is in the attachment "DoA Lic. 21-35622-01." The DoA is signed by a member of management and the proposed RSO.
3) Specific radiation safety training for each proposed Authorized User, Troy Kantola and Tyler Bennett, is in the respective attachments "TCK AU Application March 2021" and "Authorized User Tyler."
4) Clarification for Attachment D – Training Program Summary, under Radiation Safety Training "Competency" section demonstrating how Federal-Mogul (Tenneco) will accomplish competency and understanding of training, including hands-on training, is addressed below.
5) In reference to re: Item 16.7 in Att. E – Radiation Safety Manual (RSM), Federal-Mogul has removed the self-imposed requirement to notify NRC annually in writing of scrap metal transfers. In lieu of this, Federal-Mogul will retain records of the transfer and disposal of engines and engine parts. The updated language in re: Item 16.7 in Att. E – Radiation Safety Manual (RSM) is included below.

Thank you,

Karly St. Aubin

EHS Analyst, RSO
Tenneco
Plymouth Technical Center

T: (734) 928-0424
E: Karly.StAubin@Tenneco.com

Karly St. Aubin
Signature

March 31, 2021
Date

1) **In your license application dated November 24, 2020 (Item 7 and Attachment B), you proposed that Bradley Pritchett would be your Radiation Safety Officer (RSO). However, you indicated during our phone discussion on February 25, 2021, that you now plan to have a different individual named as your RSO. Please provide the training and experience of the new proposed.**

   Federal-Mogul will propose that Karly St. Aubin, EHS Analyst at Federal-Mogul (Tenneco) be the Radiation Safety Officer (RSO) in replacement of Brad Pritchett. The training and experience of the proposed is in the attachments "RSO Qualifications" and "RSO Cert."

2) **Please provide a Delegation of Authority (DoA) for the new proposed RSO. You can find a "model" DoA in Appendix D of NUREG-1556, Vol. 7, Rev. 1, "Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope."**

   The Delegation of Authority for Karly St. Aubin, proposed RSO, is in the attachment "DoA Lic. 21-35622-01." The DoA is signed by a member of management and the proposed RSO.

3) **In your license application dated November 24, 2020, Attachment C – Authorized User (AU) Qualification and Training, you described each proposed AU's training and experience. Please provide specific radiation safety training for each proposed AU. For example, you indicated during our phone discussion on February 25, 2021, that you plan to have certain individuals complete a 40-hour Radiation Safety Officer training course in March 2021.**

   Both Tyler Bennett and Troy Kantola have completed the Nevada Technical Associates 40-hr Radiation Safety office training in preparation for their roles as Authorized Users. The certificates demonstrating completion of this training are in the respective attachments, "TCK AU Application March 2021" and "Authorized User Tyler." Tyler, as well as the Radiation Workers, will be trained further by Troy Kantola according to the procedures defined in answer 4 of this RAI.

4) **In your license application dated November 24, 2020, you indicated in Attachment D – Training Program Summary, under Radiation Safety Training, "Competency" section, that:**
   Each employee shall demonstrate an understanding of the training and the ability to safely work with and around licensed materials before being allowed to handle, transport, dispose of, otherwise work with licensed materials.
   Please clarify further how this will be accomplished and include a description of types and amounts of "hands-on" and/or on-the-job training that will be provided.

   The following types of hands-on training exercises will be conducted on-the-job by Troy Kantola, Authorized User, to Radiation Workers who perform these duties. This training will be required before assuming duties

with, or in the vicinity of, radioactive materials; whenever there is a significant change in duties, regulations, or the terms of the license; or annually. Refresher training for these three regiments is at the discretion of the RSO, and/or Authorized User and will be provided contingent on Radiation Worker performance. After completion of training, the Radiation Worker will sign a document demonstrating that they have been trained in accordance with limitations of License No. 21-35622-01.

1. Mixing Tritiated PAO
    a. Required PPE
    b. Oil dilution prior to testing
    c. Using closed mixing system (barrel)
    d. Agitation/heating process
    e. Mixing/diluting of tritiated PAO
    f. Cleaning and storage of mixing equipment
    g. Proper dispose sundry materials in marked waste containers
2. Running Tritium LOC test
    a. Required PPE
    b. Setting up and using sample-train for exhaust condensate collection
    c. Load sample vials into valve set and make sure all valves are set in by-pass mode
    d. test cell safeties
    e. Transporting tritiated oil & filling engine sump
    f. Run oil in via break-in schedule to distribute tritiated oil
        i. Gasoline - FMT-WI-0123
        ii. Diesel - FMT-WI-0124
    g. Collecting oil sample from engine sump
    h. Run engine test schedule & collect exhaust samples
    i. Prep condensate vials and transport to Chemical Lab (Scintillation analysis)
    j. Shut down engine, hold for results
    k. Once results are approved, start the flushing process
3. Flushing Engine of Tritiated Oil - After the test data is approved (see above) the engine is drained of oil and recharged with non-tritiated motor oil
    a. Drain tritiated oil
    b. Run engine 15-20 min of low speed OC-10 cycle
    c. Turn off the engine, and collect 20ml min oil sample from the sump
    d. a – c (above) is repeated until the oil samples read below 3x10-2 microcuries/ml (usually ~ 3 flushes)
    e. Provide the chemist with oil samples for scintillation counting (20ml, usefully 3 samples)
    f. Wiping engine for release (3 locations)
    g. Once released, the engine is scrapped or rebuilt for the next test

Items 1, 2, 3, are defined in internal Federal-Mogul standard operating procedures: FMT-WI-00011, FMT-WI-00012, and FMT-WI-00013. Note: these work instructions are typical and in compliance with the Plymouth

Technical Center (PTC) Radiation Safety Program (RSP). PTC will revise and update as necessary to support the authorized licensed activities.

5) **In your license application dated November 24, 2020, you indicated in Attachment E – Radiation Safety Manual, Item 16.7, Exempt Transfers, that:**
PTC shall notify the NRC in writing annually to report the quantity of metal shipped as authorized exempt transfers for metals recycling. Controls for exempt transfers shall be addressed in specific instructions and incorporate the specific license conditions authorizing such transfers.
Please clarify this statement and/or remove the self-imposed requirement from your Radiation Safety Manual to notify the NRC in writing annually. Maintenance of records of exempt transfers for recycling for review during NRC inspection will suffice.

In reference to re: Item 16.7 in Att. E – Radiation Safety Manual (RSM), Federal-Mogul has removed the self-imposed requirement to notify NRC annually in writing of scrap metal transfers. In lieu of this statement, Federal-Mogul will retain records of the transfer and disposal of engines and engine parts. The updated language in re: Item 16.7 in Att. E – Radiation Safety Manual (RSM) is:

16.7 Exempt Transfers
PTC will retain records of the transfer and disposal of engine and engine parts.

Request for Additional Information

Federal Mogul Powertrain, LLC (CN623938)

Proposed License No. 21-35622-01

Proposed Docket No. 030-39257

1) In your license application dated November 24, 2020 (Item 7 and Attachment B), you proposed that Bradley Pritchett would be your Radiation Safety Officer (RSO). However, you indicated during our phone discussion on February 25, 2021, that you now plan to have a different individual named as your RSO. Please provide the training and experience of the new proposed

2) Please provide a Delegation of Authority (DoA) for the new proposed RSO. You can find a "model" DoA in Appendix D of NUREG-1556, Vol. 7, Rev. 1, "Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope." This Volume can be found on the NRC public website at this link:

   https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v7/index.html

   Discussion of the RSO and the use of the DoA can be found in Subsection 8.7.1 of the Volume 7 guidance document. The DoA must be signed by a member of management, and by the RSO, accepting the appointment.

3) In your license application dated November 24, 2020, Attachment C – Authorized User (AU) Qualification and Training, you described each proposed AU's training and experience. Please provide specific radiation safety training for each proposed AU. For example, you indicated during our phone discussion on February 25, 2021, that you plan to have certain individuals complete a 40-hour Radiation Safety Officer training course in March 2021.

4) In your license application dated November 24, 2020, you indicated in Attachment D – Training Program Summary, under Radiation Safety Training, "Competency" section, that:

   Each employee shall demonstrate an understanding of the training and the ability to safely work with and around licensed materials before being allowed to handle, transport, dispose of, otherwise work with licensed materials.

   Please clarify further how this will be accomplished and include a description of types and amounts of "hands-on" and/or on-the-job training that will be provided.

5) In your license application dated November 24, 2020, you indicated in Attachment E – Radiation Safety Manual, Item 16.7, Exempt Transfers, that:

   PTC shall notify the NRC in writing annually to report the quantity of metal shipped as authorized exempt transfers for metals recycling. Controls for exempt transfers shall be addressed in specific instructions and incorporate the specific license conditions authorizing such transfers.

   Please clarify this statement and/or remove the self-imposed requirement from your Radiation Safety Manual to notify the NRC in writing annually. Maintenance of records of exempt transfers for recycling for review during NRC inspection will suffice.

Karly St. Aubin

Has successfully completed the 40 hour technical short course entitled

Radiation Safety Officer

March 15, 2021 - March 19, 2021

This certificate presented in Las Vegas, NV., March 19, 2021

By Nevada Technical Associates, Inc.

Approval codes for CE units are: ASRT, Class A, NVZ0143001, 43 Units. AAHP 2008-00-005, 32 Units. ABIH 08-1362, 4.5 Units

JACOB KAMEN, PH.D.

CERTIFICATE NUMBER: 1615820456

ASRT CEU EXPIRATION DATE: SEPTEMBER 1, 2022

ITEM 7: INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

Radiation Safety Officer:
Karly St. Aubin – EHS Analyst

I. PRINCIPLES AND PRACTICES OF RADIATION PROTECTION

Training in this area was given by Dr. Jacob Kamen, who is the Chief Radiation and Laser Safety Officer for one of the largest Medical Centers in the US. Professor of Radiology at Icahn School of Medicine at Mount Sinai. A 40-hour technical course followed by a comprehensive exam was taken by Karly St. Aubin in March 2021.

II. RADIOACTIVITY MEASUREMENT STANDARDIZATION AND MONITORING TEHCNIQUES AND INSTRUMENTS

Training was presented by Dr. Jacob Kamen during the 5-day RSO training course, provided by Nevada Technical Associates. Lesson 4: 'Radiation Detection and Measurement' covered operating principles and detection issues with gas-filled chambers, scintillation detectors, semi-conductors and photographic emulsions. Lesson 7: 'Personnel Dosimetry' covered internal/external monitoring, internal dose assessments and external dose evaluations.

III. MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIOACTIVITY

Training was presented by Dr. Jacob Kamen during the 5-day RSO training course, provided by Nevada Technical Associates. Lesson 2: 'Radioactive Decay' detailed the radioactive decay equations, decay processes, chart of the nuclides, and decay statistics.

IV. BIOLOGICAL EFFECTS OF RADIATION

Training was presented by Dr. Jacob Kamen during the 5-day RSO training course, provided by Nevada Technical Associates. Lesson 5: 'Biological Effects of Ionizing Radiation' included dose limits, mechanisms of biological damage, deterministic vs. stochastic effects, and evaluation of risk.

V. EXPERIENCE

Karly St. Aubin has worked with Tenneco, parent company of Federal Mogul Powertrain since September 2019, during which time has led continuous improvement efforts for the company's EHS Management System including the machine ionization radiation safety program. Karly is well-versed in radiation safety and is involved with implementing/reviewing radiation procedures, completing risk assessments, conducting leak checks, reviewing occupational exposure records, and interfacing with legal authorities during site inspections. She also helped to author and implement the radiation safety program for the tritium LOC process.

Memo To: Radiation Safety Officer
From: Keri Westbrooke, Vice President Chief Technical Officer
Subject: Delegation of Authority

You, Karly St. Aubin, have been appointed radiation safety officer and are responsible for ensuring the safe and secure use of radiation. You are responsible for managing the Radiation Protection Program, identifying radiation protection problems, initiating, recommending, or providing corrective actions, verifying implementation of corrective actions, stopping unsafe activities, and ensuring compliance with regulations. You are hereby delegated the authority necessary to meet those responsibilities, including prohibiting the use of byproduct material by employees who do not meet the necessary requirements and shutting down operations, when justified, to maintain radiation safety. You are required to notify management if staff does not cooperate and does not address radiation safety issues. In addition, you are free to raise issues with the U.S. Nuclear Regulatory Commission at any time. It is estimated that you will spend up to 20 hours per week conducting radiation protection activities.

Signature of Management Representative

3-1-2021
Date

I accept the above responsibilities,

Karly St. Aubin
Signature of Radiation Safety Officer

3-1-2021
Date

cc: Troy Kantola, Chief Engineer Technical Services

Item 4.1:

Authorized User; Individuals named herein demonstrate adequate radiation safety and their associated training and experience.

Radiation Safety Officer: Karly St. Aubin – EHS Analyst.

I. Authorized User' Name:
Troy Kantola (Chief Engineer Shared Services)

II. Quantity and Nature of Isotope:
2400mCi tritium, covalently bound to motor-oil

III. Formal Radiation Training:
Radiation training was given by Dr. Jacob Kamen, PhD, NRRPT, CHP, CMLSO, Chief Radiation Officer Mount Sinai Health System. This training was performed on March 15-19, 2021 (35hrs). This training complies with the required training regulations and standards. Continual consultation is available by Dr. Jacob Kamen and Karly St. Aubin (RSO). *[See certification p. 2 of this document]*

This formalized training addressed the following subjects:

a. Radioactivity Measurements and Monitoring Techniques
b. Computations and Formulas Used for Basic Measurements of Radioactivity
c. Radiation and Biological Effects

IV. **Practical Experience:**
Troy Kantola has worked with Tenneco, parent company of Federal Mogul Powertrain LLC since 9-04. Prior to that Mahle (formally Dana) from 2-91 to 10-03 where, as Research Supervisor, managed the Tritium Lube Oil Consumption testing process. Troy Kantola is well versed and instructed in the Tenneco radiometric tritium measurement methods and safety procedures having operated and published documents referencing the technique.
Managing personnel since: 10-02
Engine testing since: 2-91

Troy Kantola

Has successfully completed the 40 hour technical short course entitled

Radiation Safety Officer

March 15, 2021 - March 19, 2021

This certificate presented in Las Vegas, NV., March 19, 2021

By Nevada Technical Associates, Inc.

Approval codes for CE units are: ASRT, Class A, NVZ0143001, 43 Units. AAHP 2008-00-005, 32 Units. ABIH 08-1362, 4.5 Units

J. Kamen

JACOB KAMEN, PH.D.

CERTIFICATE NUMBER: 1615820457

ASRT CEU EXPIRATION DATE: SEPTEMBER 1, 2022

Item 4.1: **Authorized User; Individuals named herein demonstrate adequate radiation safety and their associated training and experience.**

Radiation Safety Officer: Karly St. Aubin – EHS Analyst.

I. Authorized User' Name:
Tyler Bennett

II. Quantity and Nature of Isotope:
2400mCi tritium, covalently bound to motor-oil

III. Formal Radiation Training:
Radiation training was given by Dr. Jacob Kamen, PhD, NRRPT, CHP, CMLSO, Chief Radiation Officer Mount Sinai Health System. This training was performed on March 15-19, 2021 (35hrs). This training complies with the required training regulations and standards. Continual consultation is available by Dr. Jacob Kamen and Karly St. Aubin (RSO). *[See certification p. 2 of this document]*

This formalized training addressed the following subjects:

a. Radioactivity Measurements and Monitoring Techniques
b. Computations and Formulas Used for Basic Measurements of Radioactivity
c. Radiation and Biological Effects

IV. Computations and Formulas Used for Basic Measurements of Radioactivity:
Tyler Bennett has had formal education in mathematics and calculations obtained prior to receiving BS Mechanical Engineering in 2019 from The University of Toledo. The curriculum included Calculus I & II, Multivariable Calculus and Differential Equations.

V. Practical Experience:
Tyler Bennett has worked with Tenneco, parent company of Federal Mogul Powertrain since January 2015. At which time has worked as a Test Engineer. Tyler is well versed and instructed in the Tenneco Radiometric tritium measurement methods and safety procedures.

Tyler Bennett

Has successfully completed the 40 hour technical short course entitled

Radiation Safety Officer

March 15, 2021 - March 19, 2021

This certificate presented in Las Vegas, NV., March 19, 2021

By Nevada Technical Associates, Inc.

Approval codes for CE units are: ASRT, Class A, NVZ0143001, 43 Units. AAHP 2008-00-005, 32 Units. ABIH 08-1362, 4.5 Units

CERTIFICATE NUMBER: 1615820458

ASRT CEU EXPIRATION DATE: SEPTEMBER 1, 2022

J. Kamen

JACOB KAMEN, PH.D.