ENERGY LABORATORIES
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August 31, 2016

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-001

SUBJECT: Reply to a Notice of Violation, License: 49-26846-01, Docket: 030-29502

Energy Laboratories Inc. is a commercial environmental laboratory that performs radiochemical analysis of environmental samples classified as NORM (Naturally Occurring Radioactive Material). Our laboratory also accepts for analysis limited quantities of source material (per 10 CFR, § 40.22 no more than 15.4 lb. of uranium and thorium at any one time) and on occasion, samples identified by the client as 11e.(2) byproduct material.

The NRC has stated that one violation pertaining to waste disposal by release to the sanitary sewerage was noted during an inspection performed in March of 2016. NRC states that Energy Laboratories Inc. (ELI) disposed of specific licensed liquid waste that was not demonstrated to be soluble. Additionally, NRC states that the disposal records did not indicate the date, location and name of the individual who discharged the licensed material to the sanitary sewer.

The ELI Radiochemistry Department discharges to the sanitary sewer the following waste streams in approximately the following proportions, all of which is soluble aqueous waste: <0.1% specific licensed material, 25% unused NORM sample waste and 75% reagent waste. Of the unused sample waste, greater than 90% are water samples. The remaining sample waste is composed of filtered liquids from the digestion of solid samples such as soil, filters or vegetation, which have been converted to an aqueous form by the use of wet ashing, acid leaching, or acid dissolution (digestion).

Wet ashing and acid dissolution are terms used to describe sample decomposition using hot, concentrated acid solutions by which radionuclides in environmental samples are converted to the soluble form. For example, dissolution of radium may be achieved by extraction with nitric acid and the generation of soluble radium nitrate. ELI's SOPs (Standard Operating Procedures) are available for review, detailing the procedures used to achieve solubility of the radionuclides of interest.

Specific Licensed Material:
The materials listed on Energy Laboratories Inc.'s NRC license 49-26846-01 include calibration and reference standards used for the organic and inorganic analysis of samples. Energy Laboratories Inc. has records available upon request that list the dates on which specific licensed material is disposed of into the sanitary sewer. These records also indicate the location where the licensed standard material is discharged, along with the names of the individual (s) who discharges the waste. Samples identified by the client as 11e.(2) byproduct material are returned to an authorized recipient (the client).

Concerning the solubility of specific licensed material, ELI has certificates and SDS (Safety Data Sheets) available for review for the expired calibration and reference standards that are discharged to the sanitary sewer. Liquid reference standards contain soluble radionuclides, as they are received in a solution of nitric acid ranging from 0.5-1.0M or in a solution of hydrochloric acid ranging from 0.1-1.0M.

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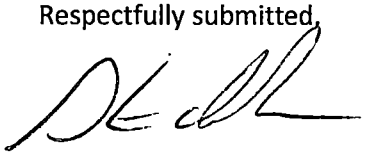
Unused Sample Waste:
The disposal of NORM liquid waste to publicly owned treatment works (POTW) is regulated by the Clean Water Act (CWA; 33 USC 1251 to 1387). However, ELI takes the initiative to track the disposal of liquid NORM sample waste that is discharged to the sanitary sewer and compares it to the limits listed in 10 CFR 20, Appendix B, Table 3. No wastewater is discharged which contains any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the city in compliance with applicable regulations. Per the Casper Municipal City Code, no sample waste which is solid or viscous substances or may cause obstruction to the flow in a sewer is disposed of into the sanitary sewer.

Reagent Waste:
State and city regulations allow elementary neutralization (pH adjustment) and discharge to the POTW under the domestic sewage exclusion (§261.4(a) (1)). Under this exclusion, waste may be discharged down the drain as long as it is in compliance with all applicable wastewater standards. Because the final step of radiochemical analysis involves separation and isolation of the target analytes, the end result is reagent waste which does not contain specific licensed material.

Summary:
Per our 2013 renewal application under Waste Management "ELI elects to utilize several waste disposal options that are published in Appendix N to NUREG-1556, Vol. 18 including: Release to Sanitary Sewerage, Short-term Storage, and Transfer to Authorized Recipient". The sewer disposal of specific licensed material is tracked by date, location and the individual discharging the licensed material. Per 10 CFR, 20.2003, licensed material which is discharged is readily soluble in water. The quantity of licensed material that is released to the sewer in one month divided by the average monthly volume of water released into the sewer does not exceed the concentration listed in Table 3 of Appendix B to part 20.

NRC has requested and we have begun recording the dates, individual disposing and location on which reagent and NORM sample waste are disposed of into the sanitary sewer. ELI will also confirm the solubility of representative batches of this discharge by filtration and radiometric analysis of the suspended solids. We expect the solubility testing to be completed by December 31, 2016.

Respectfully submitted,



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Cc: Regional Administrator, Region IV
Wyoming Radiation Program Director