DEQ
Montana Department
of Environmental Quality

Memo

DATE: December 7, 2015

TO: Interested Persons

FROM: Ed Thamke, Chief
Waste and Underground Tank Management Bureau

SUBJECT: **NORM/TENORM Policy Change**

This memo is to explain the proposed change to the Montana Department of Environmental Quality's (DEQ) policy document entitled, "Requirements for the Management of Special Waste Associated with the Development of Oil and Gas Resources" (last revised May, 2012). DEQ has been following with interest the research and rule making for naturally occurring radioactive material (NORM) and technologically enhanced radioactive material (TENORM). In order to be commensurate with regional States, DEQ is proposing in policy to increase disposal limits for NORM and TENORM from 30 picocuries per gram (pCi/gm) to less than or equal to 50 pCi/gm for Ra-226 and Ra-228 for landfills with leachate collection and removal system with a synthetic liner.

DEQ believes this increase enables Montana to stay conservative yet consistent with nearby states for landfill acceptance criteria while remaining protective of public health and the environment. DEQ will initiate the formal rulemaking process in 2016 and seek public involvement in vetting this or if another standard is appropriate to be promulgated as an Administrative Rule of Montana. The rulemaking process will follow the structure set by the Montana Administrative Procedures Act.

NORM and TENORM waste is not nuclear waste. NORM is naturally occurring radioactive material present in the environment that is not man-made. TENORM is the same group of NORM radionuclides that has been modified or "technologically enhanced" by human activity. In general terms, NORM/TENORM only poses a radiation health risk if inhaled or ingested because the vast majority of the radiation emitted is in the form of alpha particles. Compared to other particles, alpha particles undergoing decay do not have high penetration rates and can be stopped by something as simple as a sheet of paper or skin protecting the human body. Therefore, burying or landfilling NORM/TENORM waste poses minimal risk from external exposure.

Scientific studies, such as the one conducted in North Dakota by Argonne National Laboratory, indicates that TENORM concentrations of 50 pCi/gm are safe for site workers and the public (Harto, Christopher B., et al. *Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota*. Argonne National Laboratory, 2014, http://www.ndhealth.gov/ehs/tenorm/). Consequently, the North Dakota Department of Health is in the process of updating their state's TENORM limit to allow for the disposal of up to 50 pCi/gm.

Other professional fields, such as medical research safely use radioactive materials that are often in the range of millicuries, which is a billion times more concentrated than picocuries. Natural radioactivity is present in common household items. Examples include: bananas 4 pCi/gm, brazil nuts 6 pCi/gm, cat litter 5 pci/gm, coffee 27 pCi/gm, granite countertops 27 pCi/gm, and phosphate fertilizer 123 pCi/gm. Increasing the limit to 50 picocuries per gram creates a cross-border level playing field for the regulated community and will not negatively impact the environment or public health.

DEQ wants to ensure adequate stakeholder participation in the upcoming rulemaking process. DEQ will continue to strive to keep interested persons informed. Please do not hesitate to contact me at 406-444-6748 or ethamke@mt.gov if you have any questions or concerns. Thank you for your participation and/or interest.