Interim Policy and Guidance Pending Rulemaking for Control and Disposition of Technologically-Enhanced Naturally Occurring Radioactive Materials in Colorado, February 2007

This revised document serves two purposes related to TENORM management:

- to clarify existing Department policy, and
- to provide guidance acceptable to the Department for water treatment facilities and others that may generate TENORM.

The Department's Radiation Control Program regulates TENORM management as part of the broad authority established by the state legislature in the Radiation Control Act. In 1988, the program standardized their approach to management of TENORM; however, decisions on management alternatives were made on a case-by-case basis in conjunction with the Solid Waste Unit and Water Quality Control Division, as is currently practiced. That policy has evolved over time to accommodate new information and practices.

This case-by-case approach has been adequate in the past due to the limited number of circumstances where TENORM was created. However, in 2004 new maximum contaminant levels (MCLs) for drinking water prescribed by the U.S. Environmental Protection Agency became effective, and these levels require greater treatment of drinking water for certain naturally occurring radioactive materials that are often present in raw water supplies. Several treatment processes can generate concentrated radioactivity in residuals. This increased treatment removes trace levels of these materials and concentrates them in sludges, media or filters to levels that may require different management approaches.

The case-by-case analysis of TENORM materials requires characterization of the specific materials and evaluation of the specific management alternative. Normally, a dose assessment is required to evaluate hazards that may exist both at the generating and receiving facility for worker safety, management or disposal. For example, this case-by-case analysis has been required of the cities of Arvada, Colorado Springs, Cañon City and Englewood, and Denver Water, and in each case has required significant time and effort by both the entity and the regulators. Additional evaluations are required of the facilities that receive the residuals to ensure protection of the workers and the environment.

In anticipation of an increase in the number of cases where TENORM would be generated, the radiation program worked with the Department's Solid Waste and Water Quality Control programs, stakeholders and the Colorado Water Utility Council to implement a process for developing guidance for TENORM management. The methodology for the guidance process was developed at a stakeholder workshop held in March 2005. Eight workgroups consisting of regulator and stakeholder representatives were established to address different aspects of the policy and guidance. Each workgroup was responsible for sections of the guidance related to the workgroup's focus. A straw man document served as the starting point and written materials were posted on a web site for stakeholder access as they were developed or modified.

One of the key requests from the stakeholders was that the regulatory process be simplified to make it equitable, consistent and predictable, and that the guidance provide generic steps for TENORM management and disposal decisions. Thus, a stepwise approach to evaluation of residuals and materials was established, and a tiered system for determining default management options was defined. In addition, the stakeholders wanted the option of reverting to the existing case-by-case approach for those facilities with the resources to pursue a more detailed evaluation.

The document was compiled by the Department, and following integration of comments from work group participants, the guidance was submitted for public comment. Public comment meetings were held in Pueblo, Grand Junction and Northglenn. The public comment period was extended based on requests from the cities of Colorado Springs and Englewood. Comments continued to be accepted primarily from the cities of Colorado Springs, Greeley and Englewood, and Denver Water through May 2006. During this period, TENORM management decisions by the Department have continued on a case-by-case basis for the cities of Colorado Springs, Cañon City and Englewood.

The final version, Interim Policy and Guidance Pending Rulemaking for Control and Disposition of Technologically-Enhanced Naturally Occurring Radioactive Materials in Colorado, provides a mechanism for entities to determine their TENORM management options. The guidance sets forth minimum data needs and mechanisms acceptable to the Department for data collection, provides tools for evaluating options for management of TENORM, and sets tiered levels for management options that do not require specific analysis. Thus, facilities can evaluate their management options using the standardized approach with minimal expenditure of resources. Alternately, entities that choose to perform site and alternative specific evaluations can continue to follow the existing regulatory practice.

As discussed with the Colorado Water Utilities Council and stakeholders throughout the process, it is expected that successful implementation of this guidance will likely result in new or modified statutory or regulatory language, thus the change in name. This process should supplement the existing policy, codify the guidance, and address issues not adequately addressed by current authority. In addition, the policy and guidance are "living documents," and are expected to change over time to reflect lessons learned, efficiencies, and unanticipated issues. Comments on the document should be submitted to:

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The document is available at:
http://www.cdphe.state.co.us/wq/drinkingwater/TENORM.html