NORTH DAKOTA TENORM UPDATE

North Dakota Department of Health
and
Argonne National Laboratory

Williston – January 20, 2015
Bismarck – January 21, 2015
Fargo – January 22, 2015
Who Regulates TENORM?

- Not regulated by US Environmental Protection Agency
- Not regulated by US Nuclear Regulatory Commission
- Regulated by individual states
- Many states have no TENORM rules
- NDDH is agency that regulates radioactive materials here
Why are we studying TENORM?

- North Dakota should manage waste generated here to the extent practical.
- Must still protect human health and the environment.
- Little documentation of TENORM limits in other states – not directly applicable to North Dakota.
- The study was not directed by industry.
Why was Argonne National Laboratory selected?

- ANL is a recognized world expert on radiation and radioactive materials
- ANL developed most of the methods to evaluate radiation risk
- ANL is completely independent of the North Dakota oil industry and NDDH
Two-Part Study

- Primary – evaluate whether landfills in North Dakota can safely accept any level of TENORM
- Secondary – evaluate possible TENORM exposure to workers and public even if landfill limit is not changed
Landfill Risk Evaluation

- Maximum TENORM concentration was back-calculated from recommended maximum exposure of 100 mrem/year to the general public
- Sample data is not necessary for these calculations
Several worker and public exposure scenarios were evaluated.

The study did not include any sample collection and analysis.

Available sample data was used to give a “ballpark” range of potential exposure.
Data Limitations

- Not intended to be a comprehensive study of the full range and variation of TENORM in North Dakota
- Report acknowledges that sample data is limited
- Report states that the scenarios are not representative of all possible exposures
- All real-life situations will be different
What is TENORM?

- “TENORM” means naturally occurring radioactive material whose radionuclide concentrations are increased by or as a result of past or present human practices. TENORM does not include background radiation or the natural radioactivity of rocks or soils. TENORM does not include "source material" and "byproduct material"...
Common TENORM Materials

- Filter Socks
- Pipe and Boiler Scale
- Tank Sludge and Filter Cake
- Lead-210 Deposits in Gas Equipment

- Drill Cuttings are **not** TENORM
  - Soil and rock dug out of a vertical hole
  - Drill cuttings may be NORM
  - All samples collected are in the range of natural soil in western North Dakota
Conference of Radiation Control Program Directors (CRCPD) has developed suggested state regulations that address TENORM.

CRCPD Part N is the model used in developing the TENORM rules for North Dakota.

Rules establish radiation protection standards for TENORM.
Proposed Rules
Radiation Control Program
NDAC Chapter 33-10-23

- Licensure required for transporters of TENORM
- Licensure required for Treatment and Disposal facilities
- Establish standards for Radiation Protection
- Establish record keeping requirements
- Describes financial assurance requirements
- Sets out Radiation Safety Officer requirements
- Outlines worker training requirements
Proposed Rules
Solid Waste Program
NDAC Chapter 33-20-11

Landfill disposal requirements

- Maximum 50 pCi/g total Ra-226+Ra-228
- Maximum 25,000 tons per year
- Covered by 1 foot of non-TENORM waste or daily cover material each day
- 10 feet below surface of final cover
- If final cover slope >15%, then final cover must be at least 5 feet thick
A rule change in TENORM limit would not automatically increase the limit at all landfills.

Will only apply to Special Waste and Industrial Waste landfills.

Will not apply to Municipal Solid Waste landfills.

Each landfill would have to apply for a major permit modification.
Proposed Rules
Solid Waste Program
NDAC Chapter 33-20-11

- Leachate and groundwater monitoring are required.
- Quarterly reporting to the NDDH.
- Worker training and safety program required.
- Record of notice attached to property deed will indicate volume of TENORM disposed.
Comments may be stated into the record during the comment hearing at 7:00 p.m.

Comments may be submitted in writing until February 6, 2015, to:

ND Dept. of Health
918 E. Divide Avenue
Bismarck, ND 58501

or

sradig@nd.gov
NDDH and Argonne National Laboratory staff will be available to answer questions until 7:00 p.m., when the official Public Comment Hearing will start.