

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

Worker and Public Risk Evaluation

- ▣ 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

Proposed Rules

Radiation Control Program

NDAC Chapter 33-10-23

- ▣ 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

Proposed Rules

Solid Waste Program

NDAC Chapter 33-20-11

- ▣ 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.

Public Comment

- ▣ 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

Questions

- ▣ 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.