Radig, Scott A.

From: Roger and Anne Lowers [redacted]
Sent: Monday, February 09, 2015 7:43 PM
To: Radig, Scott A.
Subject: radioactive waste

I can't imagine why anyone who lives in western North Dakota would want the proposed radioactive waste limits increased for what would be deposited into our landfills. We have oil and brine and God only knows what else being dumped all over our land already. No one has regulated these pipelines, so why would we believe that anyone would regulate radioactive material, or even that the people who want to do this have even researched what has happened where this is being allowed in other states. Why don't they put this radioactive stuff somewhere in eastern N D, and let them have a taste of what we live with daily. I bet you would have opposition at every turn. I think the Bakken residents are finally getting their fill of "everything to make it easier for the oil companies because look how much revenue they are generating." Have you ever stopped to think what our state will look like after the oil companies get what they want and leave us with land that can't produce, contaminated water sources, and ruined grazing land for ranchers. All the revenue that is left won't begin to be enough to restore our state. Protect the people who elected you, and let the oil companies live with it!!!

Anne Lowers
Williston, N D 58801

Radig, Scott A.

From: Information [information@bakkenwastewatchcoalition.org]
Sent: Tuesday, December 16, 2014 2:27 PM
To: Smith, Karen P.
Cc: Radig, Scott A.; Harto, Christopher B.; Fals, Denise R.
Subject: Re: Inquiry regarding North Dakota TENORM Landfill Study

Our Response:

Our bad. The Argonne report was not on the DoH website when we prepared our letter to you. We have now downloaded, printed and made 6 copies of the 140 page "report" which were mailed this morning to our 6 committee members for review (the Bismarck Post Office is a nut house right now !). I can tell you that given the DoH's current testing and inspection routine--which is to say that the DoH continues to hide behind the "visual inspection" exemption given to them by the EPA in 1994--that the DoH should prepare and present to the public just exactly what your test and inspection requirements are going to be given the DoH's intent in raising the radioactivity level by 1000%. I can say that after a very brief review of the Argonne report this morning that the "results" that the DoH seems to think fit the DoH's effort to allow a 10 fold increase in the picocurie landfill waste cannot be concluded with the Argonne report. The reason no such conclusion can be made is that there was no data stream provided to Argonne of the current landfill waste parameters (like BTEX, Free Liquids to say nothing of current radioactive waste) and of course the reason no such data was provided to the Argonne study is that no such data exist. You can't have it both ways, you can continue with the "visual inspection" cop-out but at the same time can only provide the Argonne people with imaginary data--because you've never collected any data to begin with.
The Argonne study is flawed from the outset.

Beverly Ronstadt, Chair
Bakken Waste Watch Coalition

From: Smith, Karen P.
Sent: Tuesday, December 16, 2014 10:21 AM
To: information@bakkenwastewatchcoalition.org
Cc: Radig, Scott A. ; Harto, Christopher B. ; Fals, Denise R.
Subject: Inquiry regarding North Dakota TENORM Landfill Study

I received your request for a copy of the recently released study of TENORM disposal in North Dakota-licensed industrial waste and special waste landfills. A copy of the report is attached. You may also want to look at the NDDH website on this topic: http://www.ndhealth.gov/EHS/TENORM/. The report is available there, along with the draft TENORM rule changes and other relevant information.

Sincerely,
Karen Smith

Karen P. Smith
Environmental Science Division

Argonne National Laboratory
Denver, Colorado
Ph: 630-252-0136
smithk@anl.gov

Radig, Scott A.

From: Information [information@bakkenwastewatchcoalition.org]
Sent: Tuesday, December 16, 2014 9:49 PM
To: Radig, Scott A.
Subject: Re: Bakken Waste Watch Coalition

Follow Up Flag: Follow up
Flag Status: Completed

To: Scott Radig, North Dakota Department of Health December 17, 2014
From: Beverly Ronstadt, Bakken Waste Watch Coalition

Mr. Radig,
Please provide our organization with copies of all correspondence including emails between you and the Argonne National Laboratory regarding a recent study conducted by ANL and DoH. Consider this an Open Records Request.

Forward the information to our attorney:
Blaine Nordwall
Nordwall Law Firm
723 N. 2nd Street
Bismarck, ND 58501

Please provide this information in the most expeditious manner possible so that we may review it prior to the public hearings scheduled by DoH next January.

Thank you.

From: Radig, Scott A.
Sent: Tuesday, December 16, 2014 10:21 AM
To: Information
Subject: RE: Bakken Waste Watch Coalition

Ms. Ronstadt,

1) The full final report was placed on the Department website last week and can be found at : www.ndhealth.gov/ehs/tenorm/. It is under the Argonne National Laboratory TENORM Study heading and is titled: "Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota."

2) North Dakota solid waste rules require that waste materials be tested by laboratories certified by the department of health, using approved analytical methods. A list of the labs approved for radiological testing can be found on our website at: http://www.ndhealth.gov/AQ/RAD/. The solid waste rules do not have specific testing requirements for all types of facilities and waste streams. Testing requirements and waste limitations are included in each permit. Specific testing requirements and implementation policies for the various TENORM

waste streams will be determined when the rules are finalized. If you have specific comments or suggestions on testing requirements for TENORM waste materials please submit them to the department during the public comment period.

Sincerely,

Scott A. Radig
ND Dept. of Health, Div. of Waste Management
(701) 328-5166

From: Information [mailto:information@bakkenwastewatchcoalition.org]
Sent: Monday, December 15, 2014 3:52 PM
To: Radig, Scott A.
Subject: Re: Bakken Waste Watch Coalition

Dear Mr. Radig, December 15th, 2014

We are in receipt of your email/letter in response to our request of December 12. I am going to put the contents of that request, verbatim, in to this letter:

1) Please provide the Bakken Waste Watch Coalition a copy of the Argonne National Laboratory study you refer to in your December 12 news release.

2) Please identify the testing regimen you intend to use to determine said "50 picocuries/gram" level, when, where and how often these tests are to be conducted, by whom they are to be conducted and whether any other sampling, such as BTEX or free liquids testing will be tested for at the same time.

You know full well what we want. Your response of today "guides" us to a generalized promotion of the DoH's NORM position . We want what we want and what we want is exactly what we asked for on December 12 and again today. We want the actual Argonne report and we want your answers to our question #2. You can provide the report to us or we will have our attorney file an Open Records Request. Your choice.

Beverly Ronstadt, Chair

From: Radig, Scott A.
Sent: Monday, December 15, 2014 1:28 PM
To: Information ; Glatt, Dave D.
Subject: RE: Bakken Waste Watch Coalition

Dear Ms. Ronstadt,

The Department encourages the public to review the scientific based information from Argonne National Laboratory, background information and proposed rules in evaluating this important issue. This information can

be found on our website at www.ndhealth.gov/ehs/tenorm. Additional information on general solid waste management, rules, and department guidelines can be found at www.ndhealth.gov/wm. The Department encourages all interested parties to participate in the public review/comment period by accessing and reviewing the information on our web page and to provide comment on the proposed rules and implementation issues which you have raised.

Scott A. Radig
ND Dept. of Health, Div. of Waste Management
(701) 328-5166

From: Information [mailto:information@bakkenwastewatchcoalition.org]
Sent: Friday, December 12, 2014 3:46 PM
To: Glatt, Dave D.; Radig, Scott A.
Subject: Bakken Waste Watch Coalition

Dear Sirs,

1) Please provide the Bakken Waste Watch Coalition a copy of the Argonne National Laboratory study you refer to in your December 12 news release.

2) Please identify the testing regimen you intend to use to determine said "50 picocuries/gram" level, when, where and how often these tests are to be conducted, by whom they are to be conducted and whether any other sampling, such as BTEX or free liquids testing will be tested for at the same time.

Thank you.

Beverly Ronstadt

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503
PHONE: 701-223-0441 FAX: 701-557-5336

VIA E-MAIL: sradig@nd.gov

February 25, 2015

North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

Re: Proposed New and Amended Rules under NDAC 33-10-23, Regulation and Licensing of Technologically Enhanced Naturally Occurring Radioactive Material, and NDAC 33-20, Solid Water Management and Land Protection.

Dear Mr. Radig:

As an owner/operator of special waste facilities in North Dakota, we are concerned that the above noted North Dakota Department of Health (Department) rulemaking is overly-broad, with new requirements for special waste landfills that do not accept Technologically Enhanced Naturally Occurring Radioactive Material (TENORM). The Department's stated purpose of the proposed rule is "to implement regulations to properly manage TENORM". It is unclear why additional requirements for facilities that do not accept TENORM are proposed.

We are specifically concerned about the proposed amendment of NDAC Chapter 33-20-07.1, which states in part:

4. Any new or lateral expansion of an industrial waste landfill or special waste landfill must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit.

   a. The liner and leachate removal system must be compatible with the waste and leachate.

   b. The liner and leachate removal system must maintain its integrity during the operating period and through the postclosure period.

   c. The system must have a collection efficiency of ninety percent or better and must be capable of maintaining a hydraulic head of twelve inches [30.5 centimeters] or less above the liner.

   d. For landfills that receive wastes containing water soluble constituents, the liner must consist of at least four feet [1.2 meters] of compacted natural soil having a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second. ~~This requirement does not apply to landfills receiving only oil field drilling cuttings and drilling mud.~~

e. A composite liner is required for landfills receiving TENORM waste or wastes which may contain leachable organic constituents. The liner must consist of at least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1 x 10^{-7} centimeters per second overlain with at least a sixty mil flexible membrane liner.

f. The drainage layer must have a hydraulic conductivity of 1 x 10^{-3} centimeters per second or greater throughout. The drainage layer must have a sufficient thickness to provide a transmissivity of 3 x 10^{-2} centimeters squared per second or greater.

g. The liner and leachate removal system in combination with the final cover must achieve a site efficiency of at least ninety-eight and one-half percent or better for collection or rejection of the precipitation that falls on the site.

h. The requirements of this subsection for a liner, leachate collection system, or both liner and leachate collection system may be modified by the department if the permit applicant demonstrates that, based on factors such as geology and hydrology of the site, characteristics of the waste, and engineering design, any leachate migration can be prevented or controlled.

The insertion of the text "or special waste landfill" adds all of the requirements of this subsection, requirements that were not previously applicable to special waste facilities. To clarify this apparent issue, we suggest a slight modification to the wording, such as "or special waste landfill *receiving TENORM waste*". Italics added for emphasis.

Also of concern is the Department's use of the term "coal combustion byproducts" in the proposed NDAC Chapter 33-10-23. While we concur with the Department's apparent intent to exempt these materials, we suggest the term "coal combustion byproducts" be defined in the proposed rule. Alternatively, the Department may wish to use the term "coal combustion residuals", a term defined in EPA's new coal ash rule.

As currently proposed, the Department's new rules would increase the regulatory requirements for electric utility special waste landfills. Since the Department's stated purpose of the proposed rules is "to implement regulations to properly manage TENORM". It is clear that additional requirements for facilities that do not accept TENORM are not necessary nor appropriate. Finally, the Department should define the term "coal combustion byproducts" or adopt a more broadly accepted term, i.e., "coal combustion residuals."

We appreciate this opportunity to comment on the Department's proposed rules.

Sincerely,

Kevin L. Solie, P.E.
Environmental Administrator

/ser
cc: Claire Olson, OGC

LET IT be KNOWN THAT I AM against ALLOWING HIGHER LEVELS OF RADIOACTIVE MATERIALS TO BE DISPOSED OF IN N DAKOTA

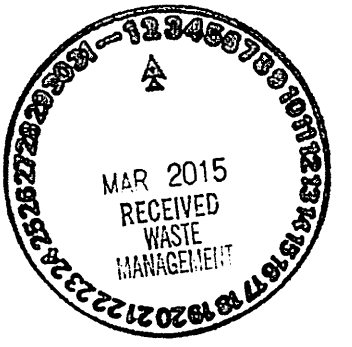
I LIVE TO CLOSE TO THE SAWYER LANDFILL AND THE OIL COMPANYS HAVE TO MUCH SAY IN N. DAKOTA.

BEN SCHMALZ
MINOT N. DAK 58701

Radig, Scott A.

From: [redacted]
Sent: Thursday, January 29, 2015 11:18 AM
To: Radig, Scott A.
Subject: TENORM

We strongly urge you to leave the radioactive waste or TENORM at 5 Picocuries per gram. Our land and water are already being affected, as is our wildlife, the fish, from saltwater spills, and millions of gallons of oil that has spilled into our soil and water. That will be with us for generations, our grandchildren and great-grandchildren.
Thank You
Bob and Ev Poppe



February 27, 2015

Brenda Jorgenson
Box J Ranch
9645 76th St NW
Tioga ND 58852-9687

Mr. Scott Radig
ND Department of Health (NDDoH)
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501-1947

Dear Mr. Radig,

I attended the discussion and hearing with Argonne Labs and the ND Dept of Health (NDDoH) in Williston at the ARC on 1/20/15, which started at 5:30 p.m.

There was no mention of the land or the landowners being left with the radiation. There was a mention of 30 years to monitor the sites, however, that should not be the case. The sites need to be monitored for the life of the radiation, thorium, and radons, etc. And it should most certainly be more than visual observation as is the only requirement for inspecting loads and waste pits. The NDDoH does not regulate those pits though, I was told by you, Scott Radig, at the meeting on 1/20/15. That is the Dept of Mineral Resources. Another problem!

There was documentation in the presentation saying that there is heavy radiation left in pipes and in tanks and at compressor stations - that are greater sources of radiation than the filter socks! What happens when all these things deteriorate - and they will? They will be left in and on the land, which will ultimately affect our food sources - soil, water, and air. Who will be responsible to clean up that? Why would we consider leaving that as our legacy? One person I visited with said, "When the pipes don't qualify to go into the *landfill*, they'll be given away for playgrounds to use and for farmers/ranchers to build corrals, etc." Someone should check the radiation at the Tioga track and other places known to have old pipe already donated to them years ago. Proposed rules do not address the concerns I raise here.

There was valuable conversation missed when Scott Radig, Waste Management NDDoH, asked us all to come to the back of the room and to ask questions at the booths set up there. It was a mumbo-jumbo cloud of noise. I still cling to what I've learned by watching webinars by Dr. Jerome Paulson, MD FAAP, "There is no pill, no potion, no nothing to treat the effects of environmental health hazards. We have to be preventive..use prevention!". So my question is, "Why increase the risk of Cancer, when Prevention is the Answer?"

It's not my responsibility to be an expert on radiation. I do know the health department

doesn't have a handle on radioactive oilfield waste now, and nothing makes me think that increasing the level of radioactivity will alleviate this problem. There is no testing done now on individual well locations and all the miles of pipeline that could protect the landowner and, ultimately, the food sources.

Environmental Health Perspectives Feb 2014 issue states: "At the federal level, radioactive oil and gas waste is exempt from nearly all the regulatory processes the general public might expect would govern it. Neither the Atomic Energy Act of 1954 nor the Low-Level Radioactive Waste Policy Act covers NORM. The Nuclear Regulatory Commission has no authority over radioactive oil and gas waste. State laws are a patchwork. Workers are covered by some federal radiation protections, although a 1989 *safety bulletin* from the Occupational Safety and Health Administration noted that NORM sources of exposure "may have been overlooked by Federal and State agencies in the past." Where does that leave TENORM? Quoting from the last paragraph in the same report, Radionuclides in Fracking Wastewater: "the current patchy understanding of radioactive fracking waste's fate in the environment precludes making good decisions about its management." Which brings another failure of the rule-making and that is not addressing radioactive liquid waste.

The state and federal government are pushing for more and more advantages for the oil and gas industry. These advantages are burdens to those of us trying to be good stewards of the land and producing wholesome food for the masses. We are farmers and ranchers, and taking care of God's creation allows for you, (the general public), to have food and water as a public convenience and necessity. Instead your decisions allow the corporations to get a Certificate of Public Convenience and Necessity to get their ways through for their financial benefits and with little regard for public well-being.

When pipes are laid through our land, the pipes hold the radiation in them. Over the years the pipelines will deteriorate and will no longer be useful. When you permit locations on our land, tanks and much other equipment are put on our land - the tanks and other equipment that holds radiation in them. Over the years, the tanks and other equipment will deteriorate and will no long be useful. You put the burden of proof on us, you put industrial risk on us, you put the future generations in environmentally hazardous predicaments, and you leave us to deal with all of that as a result of your decisions! These are forever decisions! These cause lasting risks, stresses, and expenses to us. We are sometimes compensated with a one-time payment that leaves our lands devalued and scarred. We are also not compensated, and the state and federal government allow the companies making money by using our land to condemn it and take it and leave us with the stresses and everything I've mentioned above.

We need the North Dakota Department of Health to stand up to the oil and gas industry! NDDoH's job is to protect public health - not industry profits. I support ND's current health-protective 5 picocurie limit on radioactive oil waste. "Radioactivity limits for municipal landfills are set by states and range from 5 to 50 pCi/g." per the source above. Why increase the level from the minimum to the maximum? The state will increase our own tonnage of waste and will be having waste hauled in from other states at the

increased maximum level. ***If you want that increase, let me know so your property can be marked on the map for a future dumping site!***

There's more - always is,

Brenda Jorgenson

[redacted]

Radig, Scott A.

From: [redacted]
Sent: Wednesday, January 21, 2015 10:51 PM
To: Radig, Scott A.
Subject: TENORM

Hi my name is Brian Lee. I am not going to act as if I know much about TENORM but this is what I have a problem with. I live by a Clean Harbor Waste site which accepts contaminated soil from the oil field. I was also around when the site was suppose to be used for ash disposal from Hennepin County. I was highly involved at the time in school in understanding how the linear system would work. We also did water testing every year in the Souris River by Sawyer. My family will be using water for our garden that could be contaminated by this type of waste as I live within the watershed of the waste facility. I never thought that my house would be vulnerable to being contaminated by radioactive waste and put my family at risk. The ability to be able to participate in the discussion was limited by the fact that there where few opportunities to join the discussion. I don't understand why all of the major cities in the oil field would not be included as possible sites for public comment. Minot North Dakota being one of those cities in the heart of the oil field. I also don't think it is a good time to allow more waste in the state that is already pushed to it limits in growing and containing all that comes with the growth of the oil industry. If there are facilities in other states that are willing and capable of handling the waste I don't think it is a good idea to take the chance that everyone will follow the new rules if the state allows the higher levels. I point to the situation in Noonan where contaminated sock where left behind and the state cut the penalty to the companies to go after individuals which is a total statement of how the oil industry and the state work hand in hand to protect the oil industry. Companies set up to handle waste were not held responsible for not doing their job. If a company can not keep track of its own waste how will allowing higher levels increase the safety of the citizens of North Dakota. If the employees were the problem as the state sees it why did the company not fire the employees when they did not return with the socks and dispose of them properly. It because the companies where not doing their job. I see this as a continual problem as the state allows more waste that is more hazardous. If there are facilities accepting the waste allow them to do what they do well it is not the job of the State of North Dakota to help oil companies dispose of waste that they will not be here to deal with once the oil is gone or the price is not profitable. I would ask for more public comment. I would also ask for a 2year waiting period on any changes as the oil industry may go away and is there the state employees to test and make sure all the rules are being followed. I believe there is a cost to the choices we make this is not a choice I wish to find out what the cost are to the State of North Dakota and for that fact my family. We must put the State of North Dakota before any industry.

Sincerely,

Brian Lee

Radig, Scott A.

From: Candace Kraft [redacted]
Sent: Saturday, February 28, 2015 6:50 PM
To: Radig, Scott A.
Subject: TENORM public comment

545 Clement St., Apt. 4
Green Bay, WI 54302

February 28, 2015

Scott A. Radig
Director, Division of Waste Management
N.D. Department of Health
918 East Divide Ave.
Bismarck, ND 58501

I have spent my entire life living all over North Dakota, climbing bluffs in the Badlands, roaming hills in the north-central Missouri Coteau region, hiking forests of the Turtle Mountains and Pembina Gorge and watching birds down by the Red River in Fargo. I only recently moved to Wisconsin to attend graduate school in a more integrated environmental science and policy program than what NDSU or UND could currently offer, in case there was any curiosity regarding my Wisc. mailing address.

I applaud NDDOH for initiating a potential rule requiring TENORM producers register with the agency, tracking the contaminated refuse from cradle-to-grave and making sure this hot waste is buried at least 10 feet from the top of authorized landfills. However, I am vehemently against raising the in-state landfill disposal limit to 50 picocuries per gram at this particular point in time.

From my understanding, the Argonne National Laboratories study is the only basis for this component of the proposed change. Although I trust the professional opinion of the impartial researchers, I would feel more comfortable with the decision to change the current radiation limit when other scientific endeavors corroborate its findings. It's just too risky to gamble with people's health over the results of one study.

Since acceptance of these TENORM items at any individual special oilfield or industrial waste landfill would be capped at 25,000 tons/year, it's only a matter of time before the state would eventually have to export the contaminated refuse anyway. A more rational course of action is to keep the radiation disposal limits low since the landfills will eventually get filled up, as oil development continues briskly. Even though oil prices have been low presently due to worldwide oversupply, they won't stay that way forever. Production and waste will continue again since the companies have so much capital invested, filling up the landfills at the more sustainable limit of 5 picocuries/gram.

Another element of the higher radiation disposal limit that concerns me is the 10-foot soil shield covering the top of these industrial and special oilfield landfills. Shielding in itself is a relatively ineffective method of protecting people from the hazardous effects of radiation, but widely used due to its relatively low implementation expense. Granted the vast majority of citizens would not be direct contact with these landfills, it does not seem quite logical to allow even more toxic materials and then resolve to make up for that by covering it over with a larger pile of dirt in an area with such high soil erosion potential.

Additionally, I am in complete agreement some actions must be taken to relieve the dilemma of dangerous, illegal dumping of used filter socks and other TENORM articles, but raising the disposal limit provides only temporary relief to an increasing problem. If NDDOH finds it necessary to accommodate industry by raising the disposal limits for radioactive materials, I implore you to go the way of six other states and elevate to no more than 30 picocuries/gram. After repeated scientific studies have deemed it safe to go higher than that amount, adjustments can be made at that

time. A wise, proactive method is to incrementally raise limits once more information is available, instead of arriving at a level that may be too high and more dangerous than initially anticipated.

North Dakota is always going to be home for me; my entire family lives there. I worry that some state leaders are so concerned about the oil money to be made and that development is happening much too fast to keep pace with ancillary problems, such as TENORM production, accumulation and export. But the oil, and its accompanying waste, is not going anywhere. In fact, the hazardous waste will remain around a lot longer than the oil will. That said, there is time to research these things the right way and forego needless, unseen dangers for future generations of N.D. residents. Please take my educated opinions into account when making a decision to finalize the disposal limit portion of the rule.

Sincerely,

Candace E. Kraft

Radig, Scott A.

From: Carol Davis [redacted]
Sent: Friday, February 27, 2015 7:29 AM
To: Radig, Scott A.
Subject: Radioactive waste

Please count me as one person who is opposed to increasing the amount of radioactive waste allowed to be disposed in our landfills. Who is going to pay for the increased health problems that this will cause to the people living within a 50-mile radius of these landfills? You and I both know it won't be the oil companies who stand to benefit from this outlandish proposal. Haven't we given the oil companies enough? How much more will they demand?

Thank you!

Carol Davis
4241 BIA Road 10
Belcourt, ND 58316

Radig, Scott A.

From: Carol Davis [redacted]
Sent: Wednesday, January 28, 2015 8:39 AM
To: Radig, Scott A.
Subject: Radioactive Socks

Dear Mr. Radig:

My name is Dr. Carol Davis. I am a tribal elder on the Turtle Mountain Reservation and I am very concerned with the reckless legislating and administering of laws that pertain to the Bakken in ND. I am totally against increasing the amount of radioactive material allowed to be dumped into landfills. Those materials have a million year life span. Do you honestly believe it will sit in that one spot that long?

Those of you who continue to make it easier for the oil companies to contaminate to our state need to back away from the money and take a long hard look at what you are doing. The oil companies are buying aquifers in countries where they are not fracking. They know what they are doing to the water supply and the environment in the USA. They are insuring their future by planning to sell water to us after they destroy our water. Is that what ND is going to do with the money they are generating in the Bakken? Are they intending to use it to buy water? And, you and your children will be left looking for water like the rest of us.

Our ancestors told us to be aware that we had to be vigilant because someday there would be no water to drink. Is this what they warned us about?

Please mark me as one that is totally against increasing the amount of radioactive material (TENORM) in our landfills and in other places they intend to hide these hazardous materials.

Carol Davis

February 22, 2015

To: Scott Radig
Environmental Health Section, North Dakota Department of Health

I am against increasing the picocurie limit for radioactive waste disposal in North Dakota. I live in western North Dakota, where we live with the risks of contamination of land, air, and water on a daily basis. When the water in the shower smells of gasoline, and the drinking water from the faucet has a strange taste and odor (as was my experience recently in Williston) the hypothetical risk becomes a reality, and we are confronted with the unintended consequences of oil activity. At the hearing in Williston regarding radioactive waste, I heard references to relying on oil companies to manage waste in a responsible manner. Judging by the daily spills of oil and saltwater, there is room for improvement. There needs to be stronger regulation of every aspect of the oil industry (true regulation, not just on paper) before allowing 25,000 tons of radioactive waste per year into each of ten sites, especially when some are near bodies of water. I have been a nurse in North Dakota for over thirty years, and I have held the North Dakota Department of Health in high regard. I see the environmental section as the guardian of the safety of resources (especially water). It seems counter to the mission of the Health Department to be campaigning to allow more hazardous waste to be dumped in western North Dakota. Please reconsider this proposal.

Carol Ventsch

Carol Ventsch

New Town, ND

Radig, Scott A.

From: [redacted]
Sent: Thursday, February 19, 2015 2:56 PM
To: Radig, Scott A.
Subject: Raising the Picocurie

If the limits are raised it is the opinion of my husband and I that it will be a blatant and irresponsible move .

The Department of Health was created to keep the citizens and environment of North Dakota safe. If the limits are changed you have opened up our state to not only our waste, but the waste of other states.

Please, our state, especially in the Northwest corner has been decimated by oil spills, broken roads, etc. Please don't add one more thing that we need to worry about.

Thank you

Chris Olson

Radig, Scott A.

From: Christopher Coen [redacted]
Sent: Wednesday, January 28, 2015 4:33 PM
To: Radig, Scott A.
Subject: Proposed TENORM rule changes

January 28, 2015

Scott Radig
North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND, 58501
sradig@nd.gov

RE: Proposed technologically enhanced naturally occurring radioactive material (TENORM) rule changes

Dear Mr. Radiq:

As a North Dakota resident I am opposed to the rule changes. Raising the allowable radioactive levels of this material will allow it to be dumped in North Dakota landfills that are not suited to handle it....these landfills have been known to leak. Because radium is highly soluble in water, rain water percolating throughout the landfill will allow the radioactive constituents of the material to leach out into the environment and potentially into aquifers or surface water for drinking water supplies.

Sincerely,
Christopher Coen

19 8th St. S.
PMB 114
Fargo ND 58103
justchris63@hotmail.com

Jan, 25, 2015

Good Morning:

I am not sure if I should be writing this letter to you and your department of to another. It is concerning the changing of the radiation gauge in oderto allow dumping areas to accept higher amounts of radio active debris.

I sort of feelwe are selling our state andits people down the river for the sake fo the oil. We both know that in changing the levels, will not stop the dumping of ilegal radio active materials.. they will get to the place where they will just dump higher levels of raidio active stuff in deserted farms, and small town buildings..

For the almighty dollar we are alreadys selling our state and people down the river.

I was deputy Ward County Auditor for 30 years. I was also secretary of the Ward County Planning Commission. We had to deal with some items such as this.. but, not on such a grand scale..

I just ask that you please, please, keep our people in mind whyle making these major decisions regarding our lives, lifestyles, and our state.

Ordinarily, I like to hand write my letters, but I have parkinsons, and can no longer write.

May God Bless,

Clay

Dr. Clay Rein, OSB, Ph.D

Deus Caritas Est-God is Love
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February 27, 2015

Mr. Scott Radig, Director
Division of Waste Management
North Dakota Department of Health
918 East Divide Avenue
Bismarck, ND 58501-1947

Mr. Radig,

Thank you for the opportunity to comment on the draft TENORM administrative rules. It is the belief of Clean Harbors that landfills regulated under chapter 33-20-07.1 should be prohibited from managing any NORM or TENORM materials unless they are constructed to the standards of chapter 33-20-10.

The design for a landfill to safely and effectively manage TENORM should be a composite liner system which includes: At least three feet of recompacted clay with a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second; (2) A synthetic flexible membrane liner at least sixty mil; (3) A secondary drainage layer with a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout and with sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater; (4) A single Geocomposite Clay Liner (GCL); (5) A synthetic flexible membrane liner at least eighty mil; and (5) A drainage layer with a hydraulic conductivity of 1×10^{-3} centimeters per second or greater and with sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

Additionally, landfills that manage TENORM should have a full time, onsite inspector employed by the NDDH. The inspector should be trained in operations and safety procedures on handling and disposal of TENORM.

Chapter 33-10-23-04 identifies exemptions to regulation and licensing of TENORM. Item 7 reads "Persons who possess TENORM in the form of coal combustion byproducts from energy conversion facilities are exempt from this chapter." Is the word posses used interchangeably

with generate in item 7? Are special waste landfills that manage coal combustion ash exempt from the TENORM regulation?

The laboratory methods currently approved by the NDDH do not allow for an immediate or real time result of the level of radioactively of a waste material. A field method and instrument must be approved that demonstrates an equivalency to the laboratory method. This will prevent mismanagement, illegal storage and disposal as samples will not sit in labs for 20-30 days awaiting results.

Chapter 33-10-23 does not specifically address decontamination or cleaning of bulk containers, such as roll off boxes and dump trailers that haul TENORM impacted waste. Rules and procedures must be developed that address the removal of all impacted materials and that an "all clean" scan is completed prior to the waste container or trailer being placed back in surface. Tires of dump trailers must be cleaned prior to exiting a disposal unit to prevent "tracking" of waste materials. Both of these issues could be addressed in a facilities individual operating permit.

Sincerely,
CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
SAWYER DISPOSAL SERVICES, LLC

Bruce Bogenrief
General Manager

Continental
RESOURCES

March 2, 2015

VIA ELECTRONIC MAIL (sradig@nd.gov)

Mr. Scott A. Radig, Director
Division of Waste Management
North Dakota Department of Health
Gold Seal Center, 918 East Divide Avenue
Bismarck, ND 58501-1947

Re: Comments on the Proposed New and Amended Rules Under N.D. Admin. Code Chapter 33-10-23, Regulation and Licensing of Technologically Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management and Land Protection

Dear Mr. Radig:

Continental Resources, Inc. (CLR) appreciates the opportunity to comment on the North Dakota Department of Health's (NDDoH) proposed and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulation and Licensing of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM), and N.D. Admin Code Article 33-20, Solid Waste Management and Land Protection (collectively, the "TENORM Rules"). In addition to the comments we have provided in this letter, we endorse and incorporate by reference the separate comments submitted by the North Dakota Petroleum Council.

First and foremost, we believe more time is needed to ensure the TENORM Rules are appropriately focused, scientifically sound, and reasonably achievable. While we are cognizant of the pressure NDDoH is under to adopt tougher TENORM rules as quickly as possible, we believe it is far more important for NDDoH to take a more deliberate approach and get the rules right the first time. Therefore, we respectfully request NDDoH either reopen and establish a more robust comment period or, drawing upon comments received thus far, propose and solicit comments on revised TENORM Rules before adopting final rules.

Despite our well-intentioned plea for the additional time necessary to facilitate NDDoH's promulgation of reasonable TENORM Rules, we have attempted in the following pages to share some of our initial observations of and concerns about the TENORM Rules. We are committed to provide far more extensive comments if NDDoH creates the opportunity for us and other members of the public and regulated community to do so.

I. The TENORM Rules Will Create Unnecessary Burdens on the Regulated Community

A. Application of Regulation to Oil and Gas Industry

NDDoH is using rules regulating radiation from medical devices and processes and attempting to apply them to oil and gas TENORM waste. Of significant concern is Section 33-10-04.2-07 of the Radiological Health Rules *(Standards for Protection Against Radiation*, presenting *Additional requirements - Vacating premises)*, a new section with an effective date of January 1, 2015, and one which NDDoH appears to have promulgated without having complied with public notice and comment requirements. The section requires licensees to notify NDDoH prior to vacating or transferring premises which may have been contaminated with radioactive material, and it further requires licensees to permanently decontaminate the premises pursuant to Table 4.2-07.1 (*Standards for Unrestricted Release for NORM and TENORM*), a table which applies Nuclear Regulatory Commission standards in 10 CFR Part 20, Subpart E. Furthermore, the new Section 33-10-04.2-07, which addresses NORM and TENORM, conflicts with other sections in this chapter, all of which address radiation from medical equipment.

B. Purpose and Scope

The defined "Purpose" of the TENORM Rules in Section 33-10-23-01 requires clarification and should be revised to remove the reference to "disposal" since this chapter does not regulate or license the disposal of TENORM. CLR recommends the purpose of the TENORM Rules be revised as follows: "This chapter establishes radiation protection standards and licensing requirements for the possession, use, processing, manufacture, distribution, and transfer of technologically enhanced naturally occurring radioactive material (TENORM). This chapter is not intended to regulate or license the disposal of TENORM."

The defined "Scope" of the TENORM Rules in Section 33-10-23-02 should be revised to remove the reference to "disposal." CLR recommends the scope of the TENORM Rules be revised as follows: "Except as otherwise provided, this chapter applies to any person who receives, possesses, uses, processes, transfers, or distributes TENORM. The provisions of this chapter are in addition to the definitions and applicable requirements of Radiological Health Rules Chapters 33-10-01 *General Provisions*, 33-10-04.2 *Standards for Protection Against Radiation*, 33-10-10.1 *Notices, Instructions, and Reports to Workers - Inspections*, and 33-10-13.1 *Packaging and Transportation of Radioactive Material.*"

C. Landfill Limits & Disposal Screening Technology

Currently, there are no North Dakota landfills permitted to take TENORM waste at concentrations of 50 pCi/gr. Although the proposed disposal limit of 50 pCi/gr is consistent with some states, there will continue to be a lack of facilities located in North Dakota capable of accepting common oil field wastes, such as used filter socks, that have moderate levels of TENORM contamination. Establishing the disposal limit solely on a scientific study does not give proper consideration to economic or public policy. Considering the well-documented

transportation problems within the state related to truck traffic, NDDoH should consider providing additional flexibility for in-state landfills to accept more oilfield wastes by adopting disposal limits and landfill standards similar to California.

Since the landfill quantity limit for TENORM is based on radioactive concentration (i.e., radioactive decay measurement in pCi/gr), which requires a minimum five day laboratory analysis, any instantaneous exposure measurements (i.e., gamma radiation exposure measurement in μR/hr) of incoming loads taken in the field will provide inaccurate measurement of TENORM concentration and/or quantity. While it is appropriate to use an exposure reading to indicate the presence of TENORM, there is no correlation between the TENORM concentration and exposure levels. But recent experience has confirmed that landfills are incorrectly using the exposure measurement technique (i.e., using a NORM survey meter rather than an analytical laboratory test) to monitor the existing 5 pCi/gr limit. The TENORM Rules should address this reality by revising the standard to include a radioactive exposure limit for TENORM waste of 100 μR/hr in addition to the proposed radioactive concentration limit of 50 pCi/gr, thereby establishing a dual compliance pathway.

Currently, technology does not exist to provide for real-time screening of TENORM concentrations at oil and gas facilities or permitted landfills in order to meet the proposed disposal limit of 50 pCi/gr. Therefore, the TENORM Rules as written are not achievable because they assume the availability of technology which does not yet exist.

D. Delinquent Manifest Notification

The requirement for providing notice of delinquent manifests within 45 days does not give enough consideration to transportation variability and logistics. Even though the TENORM Rules may provide for some in-state disposal of TENORM waste (if disposal facilities are permitted to take TENORM), there will continue to be a need to transport many TENORM waste materials to approved out-of-state disposal facilities. With these shipments, additional time should be granted to accommodate long haul transportation, transfers, and potential mailing delays caused by holidays and weekends. As such, the delinquent manifest notification requirement should be relaxed to 60 days.

E. Delinquent Manifest Investigation Reporting

While the obtaining completed manifests is an important part of waste tracking, requiring a written report of all delinquent manifests is unnecessary. Manifests that are received shortly after investigation is initiated would illustrate a completed documentation trail. In these instances providing a written report to the agency that shows that the situation was investigated and a copy of the completed manifest was received simply does not make sense. Considering that licensees will be required to retain manifests for a period of five years further illustrates that the proposed written reporting requirements would add little to no value in demonstrating compliance with the TENORM Rules. A more appropriate requirement would be for the delinquent manifest written report to only be required when a final copy of the manifest is not obtained within 30 days of initiating investigation.

F. Quarterly Summary Reporting of TENORM Transfers

Requiring reporting of each TENORM transfer would create a significant burden to the regulated community as this requirement could potentially apply to movement of all TENORM contaminated pipe, pumps, vessels, filters, scrap metal, and any time any TENORM contaminated equipment or material is moved. As the TENORM Rules already cover notification criteria and requirements for transfers of material, equipment, or real property the quarterly summary reporting of TENORM should be specific to transfer for disposal.

G. General Licenses Notification

The 60-day notification requirement to obtain coverage under the general license is overly burdensome and inconsistent with other regulations. Since oil and gas well sites are typically located in rural areas without designated streets, obtaining unique addresses would be impractical for many sites. In addition, since the most readily available data for the presence of TENORM at a location is based on surveys that illustrate exposure rates, accurately estimating the quantity of TENORM contamination would involve extensive analytical testing of materials contained within active process equipment. Lastly, comparable Texas and the Conference of Radiation Control Program Directors (CRCPD) regulations do not specify that an individual or entity to provide notification or site specific information to obtain coverage under a general license. Short of granting automatic coverage via rule language, a more appropriate standard would be to require individuals and entities to provide an annual notification with a list of facilities that are eligible for coverage under the general license.

H. Unrestricted Use and Conditional Release Notice

Considering the number of potential sites with TENORM contamination, the requirement to provide 30 day notice to the agency before vacating or relinquishing possession or control of premises that has been contaminated with TENORM may have a significant impact on agency resources. This impact may be further exacerbated without a well-defined administrative process that should include standardized forms for notice and dedicated agency staff. Furthermore, countless property transactions may be at risk if a licensee will not be able to sell or transfer real property intended for similar use until the agency reviews and approves the transaction. A more appropriate standard would be to require notice and approval of sites that are intended to be vacated. The requirements for property transfers could then follow the standards that are set forth within later sections of the TENORM Rules.

II. The TENORM Rules Will Produce Regulatory Redundancies

A. Conflict with North Dakota Industrial Commission Jurisdiction

The TENORM Rules do not provide exemptions for oil and gas facilities, activities, and waste which are already being managed by the North Dakota Industrial Commission (NDIC),

thereby creating regulatory redundancy and conflict with NDIC requirements. Specific exemptions which the TENORM Rules should recognize are discussed below in Section III.

B. Radioactive Material Labeling

The requirement to label each container as "radioactive material" may be confusing and overly conservative. Since the United States Department of Transportation sets forth requirements for classification and labeling of radioactive materials in Part 49 of the Code of Federal Regulations Chapter 172, the proposed labeling requirement may create unnecessary confusion with existing federal rules. Furthermore, as TENORM is defined as low level naturally occurring radiative material, requiring that each container be labeled as "radioactive material" may create unnecessary concern if the container were to be viewed by a member of the general public or person unfamiliar with the nature of TENORM.

C. Container Labels

Absent further definition of generator, the requirement to include the address of the generator on each container label is onerous and a potentially duplicative requirement. For the upstream oil and gas industry, each well site could be construed as an individual generator. As such, this could result in a requirement to add a unique address to a container label for hundreds of rural well site locations at the point of generation. As transfers of TENORM waste from one licensee location to another are afforded within the rule, it would be more appropriate to indicate a shipping address at the time waste shipment to an offsite disposal facility. Since the proposed rule already requires a generator to include its address on each shipment manifest, requiring the address of the generator on the container label would be a duplicative requirement. A simpler and more effective approach would be to only require the individual or company name as the generator and contents of the container on the label.

III. The TENORM Rules Should Recognize Additional Exemptions

The TENORM Rules should be revised to incorporate additional exemptions for the following:

A. "the possession, storage, use, transportation, and commercial distribution of natural gas and natural gas products and of crude oil and crude oil products containing NORM are exempt from the requirements of this chapter";

B. "the possession of produced waters from crude oil and natural gas production is exempt for the requirement of this chapter if the produced waters are injected in a well approved by the agency having jurisdiction to regulate such reinjection or if the produced waters are discharged under the authority of the agency having jurisdiction to regulate such discharge";

C. "tanks, vessels, containers, and materials located on oil and gas drilling, completions, and production facilities, and saltwater disposal wells under the authorization and jurisdiction of North Dakota Industrial Commission";

D. "materials and equipment used in the recycling process contaminated with NORM scale or residue not otherwise exempt from the requirement of this chapter if the maximum radiation exposure level does not exceed 50 μR/hr including background level, at any accessible point"; and

E. "pipe (tubulars) and other downhole and surface equipment used in oil and gas drilling, completions, and production operations contaminated with NORM scale or residue not otherwise exempted from the requirements of this chapter if the maximum radiation exposure level does not exceed 50 μR/hr including background level, at any accessible point."

IV. The TENORM Rules Create Regulatory Uncertainty

A. Landfill Disposal Volume Limits

It is unclear how the 25,000 tons per year or 3,000 tons per month quantity limit for TENORM waste will be monitored by landfills and communicated to the regulated community for disposal option decision-making.

B. Undefined or Poorly Defined Terms

Throughout the TENORM Rules there are several terms that are used to describe circumstances or actions required for compliance, yet the terms are either undefined or poorly defined. These terms are as follows:

- Decommissioning
  - The term is undefined in the TENORM Rules. We recommend defining "decommissioning" as the "withdrawing (someone or something) from service."

- Decontamination
  - The term is undefined in the TENORM Rules, and it may be difficult to differentiate between activities that are considered to be routine maintenance and not subject to decontamination standards. We recommend "decontamination" as "the process of removing or reducing residual radioactivity to an acceptable level for reuse or disposal."

- Oil and Gas Equipment
  - The term is undefined in the TENORM Rules. We recommend defining "oil and gas equipment" as "equipment used for drilling, completions, and production operations and disposal, including but not limited to pipes

(tubulars), tanks, vessels, pumps, valves, flow lines, wellheads, and connectors such tees and elbows, provided that such equipment is or has been in contact with oil and gas waste or produced fluids or substances."

- Oil and Gas Waste
  - The term is undefined in the TENORM Rules. We recommend defining "oil and gas waste" as "materials to be disposed or decontaminated which have been generated in connection with activities associated with the exploration, development, and production of oil or gas, or waste or wastewater injection, and materials to be disposed of or reclaimed which have been generated in connection with activities associated with the solution mining of brine. The term 'oil and gas wastes' includes, but is not limited to, saltwater, other mineralized water, sludge, spent drilling fluids, cuttings, waste oil, spent completion fluids, and other liquid, semiliquid, or solid waste material. The term 'oil and gas wastes' includes waste generated in connection with activities associated with gasoline plants, natural gas or natural gas liquids processing plants, pressure maintenance plants, or repressurizing plants unless that waste is a hazardous waste as defined by the administrator of the United States Environmental Protection Agency pursuant to the federal Solid Waste Disposal Act, as amended (42 United States Code §6901 et seq.)."

- NORM Contaminated Oil and Gas Equipment
  - The term is undefined in the TENORM Rules. We recommend defining "NORM contaminated oil and gas equipment" as "oil and gas equipment that, at any accessible point, exhibits a minimum radiation exposure level greater than 50 μR/hr including background radiation level."

- Reclaiming
  - The definition is poorly defined in the TENORM Rules and should be removed.

- Unrestricted Use
  - The term is undefined in the TENORM Rules. We recommend defining "unrestricted use" as "a use not subject to or subjected to any restrictions."

V. Conclusion

We appreciate being given the opportunity to submit these comments to the TENORM Rules, but we respectfully request NDDoH either reopen and establish a more robust comment period or, drawing upon comments received thus far, propose and solicit comments on revised TENORM Rules before adopting final rules. Although we have not submitted an exhaustive list of the TENORM Rules' numerous deficiencies, we believe those we have highlighted are sufficient to convey the legitimate need for NDDoH's continued development of the rules in consultation with experienced and knowledgeable stakeholders like CLR.

Sincerely,

CONTINENTAL RESOURCES, INC.

J. Roger Kelley
Director of Regulatory Affairs

Radig, Scott A.

From: Croitiene ganMoryn [redacted]
Sent: Friday, December 19, 2014 5:23 PM
To: Croitiene ganMoryn
Subject: Allowable TENORM Level Increase

Take a lesson from other states having problems with fracking....

https://www.youtube.com/watch?v=MJLG1H-_FeU#t=2324

Please don't increase these levels!

Radig, Scott A.

From: Croitiene ganMoryn [redacted]
Sent: Friday, December 19, 2014 4:45 PM
To: Croitiene ganMoryn
Subject: Proposed TENORM Rule Changes

Follow Up Flag: Follow up
Flag Status: Completed

Scott A. Radig, P.E., Director
North Dakota Department of Health
Division of Waste Management
918 East Divide Avenue, 3rd Floor
Bismarck, ND 58501-1947

Dear Mr. Radig,

Considering an increase in TENORM allowances is preposterous. All the best studies can't tell you what will happen. It's an unknown being foisted on the population; PEOPLE with lives that they would rather not have interrupted by severe health issues and/or death. Long-term exposures to radioactivity are a known trigger of bone and lung cancer. That's only the known results. Would you build your home next to one of these sites?

Take a lesson from Ohio and Michigan. This will cost the state more than it will benefit it in the long run.

Sincerest Regards,

Cree ganMoryn
6211 SE 24th Ave.
Ocala, FL 34480

To: Attn: Scott Radig
North Dakota Department of Health,
Environmental Health Section,
918 East Divide Avenue,
Bismarck, ND 58501

From: Don Morrison
Dakota Resource Council
1200 Missouri Ave, Suite 102
Bismarck, ND 58501

February 24, 2015

Subject: Official Comments for: Draft Rule Changes regarding TENORM waste. 33-10-23, 33-20, and 33-20-07.1

Mr. Radig:

Dakota Resource Council (DRC) supports implementing cradle to grave tracking of all radioactive and other waste streams produced throughout oil and gas operations. We are concerned that the data used in the Argonne National Laboratory study commissioned by the Department of Health has several significant omissions that could likely result in a failure to provide for the health and safety of those living and working in North Dakota. These omissions are: 1) the study did not include contaminated soil and 2) did not use public and worker exposure models representative of real life contact with radioactive waste.

In addition, the proposed rules exclude radioactive drill cuttings and fail to address radioactive liquid waste. These need further evaluation or they could likely result in significant, additional threats to public health and safety.

Most significantly, Dakota Resource Council members oppose increasing allowable levels of radioactive waste in landfills from the current 5 pci/g to 50 pci/g. “There is no safe level of exposure to ionising radiation, and the search for quantifying such a safe level is in vain,” according to epidemiologist Rosalie Bertell, PhD.

The track record of state regulators and the industry during the past eight years is full of significant oversights and lack of will and expertise to deal with oil waste generated by the rapid growth in oil development in North Dakota. The Department has shown an inability to regulate, often dramatically reducing fines on the false

hope that companies will not continue to violate North Dakota laws and rules designed to protect the health and safety of the people who live and work in the state. Rather than making sure state rules and laws are followed, the Department has given permits to waste companies riddled with violations to actually increase the level of waste handled.

Likewise, even though documented public actions show the Department of Health has neither the will nor the expertise to deal with radioactive waste in landfills at 5 pci/g or less, these public officials propose to increase by ten times the level of radioactivity they would be responsible to regulate. DRC has previously commented and records show the Department has failed in its duty of protecting public health. Increasing responsibilities will further burden the Department with tasks it cannot fulfill.

Comments on Argonne Study

The study, "Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota" falls short of providing realistic data on which to base future rules.

1. Contaminated soil was excluded from analysis because it was not deemed a significant source of waste. One example is Secure Energy's 13 mile landfill taking 2,519 tons of waste from a "salt water release" in a 15 day period. Instances like this are provided in most bi-monthly reports. The Department's own online spill database shows 200 reported spills in January 2015. This further asserts the conclusion: contaminated soils are a significant waste stream.
2. Public exposure, and worker exposure models were not representative of real life contact with radioactive waste. An example of a realistic exposure is the process of installing and using down hole drill stem as fencing. Further, Argonne chose to only use one sensitivity parameter at maximum value while leaving others at their mean. With no direct knowledge of what exposures are, this is inadequate modeling. More analysis must be conducted to establish what realistic exposures are. A survey informed by and distributed to oilfield residents and workers is one option to assist in collection of this data.

Overview of Proposed Rules

1. Drill cuttings, which are also known to be radioactive, are not included in rule updates. It is known that drill cuttings will be used as daily cover for TENORM loads in landfills. This will compound the level of radioactivity at

any designated site increasing the risk of airborne material contaminating adjacent homes, pastures, crops and livestock.

2. No action is made to deal with previous years of mishandled and misplaced radioactive waste disposed of in improper facilities. Actions to remediate these problems must also be considered in rulemakings.
3. The rules lack specified procedures for testing protocol, equipment to be used, what parties will be responsible for testing and how this information will be made available to the public. The Oil and gas industry in North Dakota has a well-documented history of non-compliance and failure to act responsibly.
4. None of the proposed rules address procedures to follow for waste that exceeds the proposed increased levels. The five-day reporting window for landfills to notify the NDDH of rejection of a load creates ambiguity for what happens to the load once it is turned away and where it will be stored until a permanent disposal location is found. Outlining procedures for this process are necessary for accountability.
5. Proposed rules do not address tracking and disposal of high-level radioactive waste.
6. The Department of it's own accord, or by way of rules, needs a public education program to facilitate access to information on radiation exposure and how to proceed if exposed to radiation from oil and gas waste is critical for public health.
7. No penalties are set out in the rule makings. Specific and quantifiable fines and suspension actions must be set out to encourage proper procedures are followed and ensure contamination cleanup does not come at the cost of the taxpayers.
8. Procedures for measuring the intensity of radiation fail to adequately set standards of operation that would provide quality assurance, quality control.

Comments on Specific Sections

<u>Chapter 33-10-23</u>

1. **33-10-23-04. Exemptions.**
    a. Part five- Regulation by the Comprehensive Environmental Response, Resource Conservation and Recovery, and Compensation and Liability Acts set minimum standards, which the state can strengthen. No exemptions from tracking.
    b. Part six- The Department's proposed ability to exempt persons based on the minimal language, "upon it's own determination…" provides no standards for determining what an acceptable case may be.

c. Part seven- Coal combustion byproducts are known to be radioactive and are a public health concern. Using these byproducts to bind oil and gas waste would increase the intensity of radiation.

2. **33-10-23-05. Standards for radiation protection for members of the public.**
    a. Language here is ambiguous. No standards are set to address how exposure is monitored. Testing protocols and frequency for air, water and soil sampling should be established for surrounding communities.
3. **33-10-23-06. Protection of Workers during operations.**
    a. It is unclear whether cited laws are applicable to oil and gas.
        i. 33-10-04.2 applies to people working in medical industry, not oil and gas.
        ii. 33-10-10.1 deals with NRC regulated material. The EPA not NRC regulates radiation from oil and gas waste. The sections of federal code chosen do not apply.
4. **22-10-23-07. Unrestricted use of conditional release.**
    a. Part one- Decontamination survey requirements are not explicit; this eliminates standardization and complicates reporting and monitoring abilities for the Department.
    b. Part two- Requirements for the survey are not clear.
    c. Part five- Two years of inactivity is too long a period for a radioactive waste site to be left with no permanent remediation or decontamination efforts.
    d. Part seven- Specific testing requirements to find the maximum exposure level of TENORM on equipment should be more specific.
5. **33-10-23-08. Disposal and transfer of waste for disposal.**
    a. Part two- Containers should have specific design criteria that has been reviewed and tested for compatibility by independent agencies or by regulatory authorities in other states dealing with similar levels of radioactivity. DRC recommends independent or regulatory experts on disposal of radioactive waste are consulted to inform rules on transportation.
        i. Part two, subpart H- Location of records be kept and available for public viewing are not written.
        ii. There are no qualifications for lids on containers, or covering during transport.
    b. Part three- No frequency or reporting procedures for inspections based on type of TENORM being stored, tank construction material and the type of erosion and corrosion that may exist are set.

c. Part four- Standard procedures for testing for radioactivity are not established. Procedures for testing radioactivity at site generated are not prescribed.

6. **33-10-23-09. Prohibition- purposeful dilution.**
   a. There is no set procedure for how the department will allow dilution. Stipulations on the quantity of waste allowed to be diluted and the frequency at which an interested person may dilute loads is critical for proper management. Limits on the level or intensity of the radioactive load must also bear weight in determining if a load is permitted for dilution.
7. **33-10-23-10. General licenses.**
   a. Part one- Information similar to what is required to apply for a specific license should be included in the application process.
   b. Part two- Proposed rules do not provide standards for which employees are informed of the radioactive nature of materials they are working with, or sets standards for personal protective equipment, monitoring devices, and training. As stated in the review of worker safety protocols, it is necessary to provide an outline for worker safety programs, education and continuing education. Also, including an emergency action plan and public education programs would help companies proactively address exposure concerns.
   c. Part three- Sixty days before operations begin would allow the Department time to determine if a persons qualifies to interact with TENORM as applicable under law.
   d. Part four- No requirement for tracking the intensity of radiation in TENORM is prescribed.
   e. Part four, subsection D- There is no situation in which all radiation will be removed from any site. A clause for "unrestricted use" causes confusion.
8. **33-10-23-11. Specific licenses.**
   a. Given the exemptions from 33-10-23-04, it is unclear if standards for specific licenses will apply to oil and gas waste handlers.
   b. Part three- Specifics on what would allow for an "otherwise authorization to store, treat or dispose of TENORM" is not detailed.
9. **33-10-23-12. Application and background review for specific licenses.**
   a. A procedure for public input should be written into licensing procedures.
10. **33-10-23-13. Requirements for the issuance of specific licenses.**
   a. Part one- The "Will be" language forces the Department to issue a permit if conditions are met. Changing to "May be" allows for greater discretion in denying permits for public health and safety reasons.

b. Part two- The "Will be" language forces the NDDH to issue a permit if conditions are met. Changing to "May be" allows for greater discretion in denying permits for public health and safety reasons.
c. Part two, subsection B- No standards are set to decide what constitutes "food, beverage, cosmetic, drug or other commodity."

11. 33-10-23-17. Conditions of specific licenses.

a. Part one, subsection D- Licensee should be required to notify the Department before a transfer occurs.
b. Part one, subsection E- Requiring full bond amount to be held in an account separate from other company money is necessary if and when a company files bankruptcy so remediation and decontamination does not become a burden of the tax payers. Ensure 33-10-23-25 is applicable and held in all cases.
c. Part 1, subsection G- Two years of abandonment or use is too long for a facility with radioactive waste to go without commencing final decontamination and reclamation.
d. Part one, subsection H- Placement of temporary storage, quantity of waste to be stored, monitoring equipment and protocols, and duration of site to be deemed temporary are all standards the Department needs to establish. DRC is not in favor of temporary storage sites due to the radioactive nature of materials addressed. Ensuring public safety requires expedient disposal to a permanent facility.
e. Part two- Adequate control measures are not articulated and no requirements for parameters in intensity of radioactivity is required for transfer.

12. 33-10-23-18. Expiration and termination of specific licenses.

a. Part four- "To the extent practicable" gives leeway for licensees in deeming what is acceptable radiation left on a site.
b. Part five- Quality assurance, quality control protocol and standards are not written out. No specific requirements for standardizing monitoring are written.

13. 33-10-23-23. Record keeping requirements for site reclamation.

a. All records should be publicly available.
b. Part one- No records on spills should be limited.

14. 33-10-23-25. Financial assurance arrangements.

a. Part two- No procedure is established to determine what a sufficient bond amount is. It is not prescribed as a specific duty of an officer of the Department.
b. Part four- Standards for appropriate detectors, frequency of monitoring and calibration should be established in rulemakings.
c. A procedure for non-compliance needs to be written in rulemaking.

d. There is no procedure for licensees failing to comply with acceptable surface contamination levels.
e. Part five- A process for handling radioactive material that is above a "removable" does not exist.

15. 33-10-23-26. Acceptable surface contamination levels for TENORM.

a. Part two- Standards for appropriate detectors, frequency of monitoring and calibration should be established in rulemakings.
b. There is no set procedure for licensees failing to comply with acceptable surface contamination levels. Procedures for non-compliance need to be written in rulemaking. A scale of financial penalties and restrictions of operations and revocation of operating permits would provide greater incentive for companies to comply.

16. 33-10-23-27. Specific licenses- radiation protection program required.

a. The Department should set standard procedures for radiation protection programs. It is our recommendation to consult with the Occupational Health and Safety Administration (OSHA) for assistance in worker protection qualification standards.

17. 33-10-23-28. Radiation safety officer- qualifications.

a. No requirements for continued education are included. It is our recommendation to consult with the Occupational Health and Safety Administration (OSHA) for assistance in worker protection qualification standards.

<u>Article 33-20. Solid Waste Management and Land Protection</u>

33-20-01.1-03. Definitions

1. Exclusion of drill cuttings from TENORM is a significant oversight for public safety by the Department and is a decision that should be reconsidered immediately. Drill cutting are known to be radioactive and adding this waste to TENORM waste will change the level of radioactivity in a landfill.

33-20-07.1-01. Performance and design criteria.

1. Six months is too long for radioactive loads to remain uncovered. Given the extreme weather fluctuations in North Dakota, this time should be lessened to account for precipitation, wind and other external factors.
2. Landfill requirements for barriers in transmitting radioactive elements into the environment are not sufficient for public safety.

Chapter 33-20-10 Large Volume Industrial Waste and MSW Ash Landfills

33-20-10-03. Waste disposal.

1. As oil and gas waste that is not classified as TENORM is still radioactive, landfill requirements for barriers do not take this into account and are not sufficient for public safety.
2. Part two, subsection C- Open impoundments will encourage the transmission of radiation and other hazardous chemicals through the air significantly elevating the risk to public health of nearby residents and communities.

Major Recommendations

DRC recommends that the allowable level of radioactive waste remain at 5 pci/g. As people who live and work in North Dakota, we do not have any confidence that current state regulators can protect the public's health and safety. Increasing the allowable level of radioactivity will only compound the inability to handle radioactive waste.

Information from residents and workers living in the Bakken oilfield should be collected to determine the extent of exposures. Input from experienced state and federal entities would assist in creating robust regulations which protect the public from undue harm.

Both liquid and solid radioactive oil and gas waste need further evaluation. There should be no exceptions. The comingling of exempt radioactive waste and regulated radioactive waste in landfills poses a significant, additional threat to public health and safety, as does the proper monitoring and disposal of higher-level radioactive waste.

We suggest the Department partner with an institution of higher education and begin comprehensive air and water quality monitoring.

Through review of the documents provided by the Department and from consultation with landowners and experts on radiation, we submit our fact-based comments and offer solutions for serious deficiencies in the study and proposed rules.

As a native of North Dakota, I am very concerned in regards to the spills that have occurred in the oil patch. I believe to truly obtain the opinions' of those of us who live in North Dakota there need to be MORE meetings relating to these issues, such as fracking brine, benzene, argon among other chemicals that potentially have lethal effects on the human body as well as our beautiful North Dakota environment. Three meetings were held, one in Williston, Bismarck and the final meeting was held in Fargo . . . what happened to the opinions of the people in Mandan, Dickinson, Watford City, New Town, Jamestown, Valley City and Grand Forks? These are only a FEW of the communities which would provide valuable insight to these issues. There are people that care about the health of North Dakota. Currently, our health department is recommending that the radioactive waste level be raised from 5 PICOCURIES TO 50. That is similar to stating you had just shot a doe VERSUS A 5 POINT BUCK!

Also, NO changes should be made concerning our current regulations until THE STATE OF NORTH DAKOTA IS CAPABLE OF FULLY ENFORCING THE OIL LAWS WE CURRENTLY HAVE ON THE BOOKS. In addition, there SHOULD be NO negotiating fines given to the oil companies when our regulations are violated. These are areas of apprehension not only due to the oil in our state, but also ANY LIQUID OR SOLID WASTE DUMP!

DeAnn Miller, Ph.D.

Underwood, ND

January 26- 15

North Dakota Dept.
of environmental Health
918 East Divide Ave.
attention:

We are appalled by the response of the state in finding radioactive socks in Noonan. Raising the levels accepted 10 times the prior amount + keeping it all in state! That is outrageous.

That plus reading in the paper almost every day of another oil or salt water spill is a great concern. Who if anyone is checking on these oil companies?

If this continues, our Children + Grand Children will inherit nothing but a barren dessert in the west. Please hold the powers that be responsible.

Sincerely
Dora Riepoldie
Donald J Riepolder

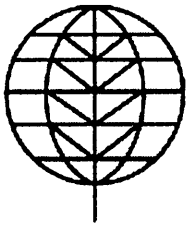
Radig, Scott A.

From: Dorothy Ventsch [redacted]
Sent: Sunday, March 01, 2015 6:32 PM
To: Radig, Scott A.
Subject: comments for draft rule changes-TENORM waste

Mr. Radig,

I am opposed to the proposed increase in radiation level in waste accepted in landfills in North Dakota. I am not reassured by the results of the Argonne Study. There are too many unanswered questions, and too many vague areas in the proposed changes. I feel we should continue to send it to facilities that have been accepting such waste before. I have lost faith in the ability of our state agencies to do such things properly. I have gotten the impression that their usual objective is to look out for the oil industry's concerns, not the health and safety of the people of North Dakota or the workers that would be dealing with the most exposure to the radioactive waste.

Dorothy Ventsch
New Town ND



EARTHWORKS

March 2, 2015

Scott A. Radig, Director, Division of Waste Management
North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

VIA ELECTRONIC MAIL SENT TO: sradig@nd.gov

Director Radig and Colleagues:

On behalf of Earthworks' Oil & Gas Accountability Project please accept the following comments regarding North Dakota's proposed rule changes for Technologically Enhanced Normally Occurring Radioactive Material (TENORM) tracking and disposal.

Earthworks' Oil & Gas Accountability Project is a national nonprofit organization dedicated to working with communities to protect their environment and public health when oil and gas development occurs. We have over 340 members in North Dakota and Montana, and 54,000 members nationwide.

Our members recognize the numerous reports and investigative news articles that have highlighted the overwhelming impacts of the Bakken oil boom. They also understand the resulting pressures on state and federal regulatory resources. Earthworks, and our members, support the State of North Dakota in establishing and enforcing effective oil and gas regulations that are protective of health, environment and communities.

As the second highest oil producing state in the country, North Dakota bears a responsibility for creating leading regulatory frameworks for oil and gas development. The state must permit oil and gas activities only at a pace by which it can effectively carry out inspection and enforcement of the development inside North Dakota. In addition, we believe that regulators must ensure that negative impacts from the development do not leave the state.

Managing Volumes of Waste

A primary concern is whether North Dakota can handle the TENORM waste it is generating. Increasing concentration limits for TENORM to 50 pCi/g at special waste and industrial landfills will enable North Dakota officials to begin managing waste streams rather than

shipping the waste out of state. It may also help stop some illegal dumping. However, North Dakota should address the substances that operators and/or landfills will utilize to down-blend TENORM to meet regulatory limits. The State should evaluate, monitor and regulate the practice of combining substances like coal ash with pipe scale, sludge, filter socks, and other TENORM waste. It should also calculate the additional amounts and volumes of waste that will be produced from down-blending and make this information available to the public.

The proposed rule excludes drill cuttings from the definition of TENORM. While Earthworks recognizes that this is a current operating procedure nationwide, disposing drill cuttings on well sites "exposes this material to the accessible environment", which is part of EPA's definition of TENORM. Therefore, drill cuttings must be evaluated and included in North Dakota's TENORM definition.

The exclusion of drill cuttings from the TENORM rule was addressed by the Department of Health (DoH) at their public meeting in Williston, North Dakota in January 2015. The DoH explained their reasoning to exclude drill cuttings was because adding drill cuttings to the rule would mean that soil excavated from house foundations would also need to be identified as TENORM. Earthworks encourages the State to evaluate and articulate the differences between these activities, including depth and chemical differences. We believe that such an evaluation will show that the State should adhere to EPA's definition of TENORM with regard to drill cuttings.

Very little is known about the levels of TENORM found in drill cuttings or their rate of degradation. In addition, minimal information is available about the radioactive daughter products, granddaughter products and leads that occur through the TENORM decay process. Data is needed to determine the amount of TENORM that will occur in the breakdown products as the drill cuttings are brought to surface through the drilling process and then buried and disposed of.

In a 2011 environmental impact statement, the New York State Department of Environmental Conservation found that approximately 5,000 pounds of drill cuttings were produced from each well in the Marcellus Shale. Although the study did not identify how much TENORM was present in the cuttings or what the daughter and granddaughter products are when the TENORM is brought to surface, it did raise concerns about both. In a paper from Oklahoma State University titled, An Introduction to the Land Application of Drilling Mud in Oklahoma, where drill cuttings were included in the description of drilling muds, the same conclusion was reached. "Little to no data is available on the metals and NORM content of drilling mud." In June, 2014, Allison Ritter, oil and gas division public information officer, said in a Bismarck Tribune article, " 'A typical Bakken well could produce approximately 25 semi loads of dry cuttings,' Ritter described, 'which could be buried on-site depending on the site's environmental conditions. If not stored on-site, they're dried and disposed of at special landfills within North Dakota.' "

It is extremely important to evaluate drill cuttings and their disposal. TENORM will degrade into daughter products that will potentially increase in radioactivity. Without enough scientific information on drill cuttings, the State should err on the side of caution.

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The proposed rule does not include evaluation or disposal of drill stem, drill pipe or downhole equipment. Earthworks encourages the State to evaluate the TENORM levels of all downhole equipment, including drill stem and drill bits. In addition, the disposal of this equipment and all byproducts produced by the re-conditioning, cleaning and grinding of this equipment must be addressed in the proposed rule to ensure the protection of workers and the public.

The proposed rule does not include evaluation of storage tank bottom sludge or byproducts from gas refining separation processes, which are recognized as largely unregulated TENORM material(s). Earthworks encourages the State to evaluate the TENORM levels of these sludge and byproducts at production facilities, as well as drilling facilities, and include methods for their disposal in the proposed rule.

Logistical and Enforcement Issues

In the Argonne National Laboratory report titled, Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota, disposal of TENORM in its special waste and industrial landfills is discussed. Although Earthworks supports the construction and monitoring guidelines for landfills outlined in the report, we encourage the State to require TENORM to be disposed of in a separate area of the landfill, specifically engineered to accept TENORM waste. This would ensure TENORM waste is isolated when there is a need to reinforce containment of the waste, or should any type of down-blending or remediation be undertaken.

Earthworks also encourages the State to identify and evaluate the landfills already being used as disposal facilities, in order to determine any threat to the environment, workers and public from these existing disposal sites. Where needed, clean up must be conducted and monitoring put in place in and around the sites.

Without full investigation of equilibrium status of the waste, it is unknown how the waste stream will change. The radioactivity could significantly increase over time. To adequately investigate equilibrium status, radiation detection systems with specific characteristics are needed in all current, proposed and previously used TENORM disposal sites.

Worker Health Issues

In addition to protection of the general public, we recommend the State pay particular attention to the exposures of TENORM for workers in the oil and gas industry. Outside of uranium or other mining operations, there are no strict national building codes that require evaluation of occupational exposure to radon decay products or TENORM. Earthworks encourages the State of North Dakota to investigate the impacts and exposures to TENORM for all people working in the oil and gas industry from exploration to the refinery.

In closing, Earthworks asks that all data and information used to construct this proposed rule, along with the methods and calculations used to develop the information, be made available to the public.

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Thank you for your consideration of these comments. We look forward to your written response.

Sincerely,

Deb Thomas
Earthworks

Jennifer Goldman
Earthworks

1612 K ST. N.W. / SUITE 808 / WASHINGTON, DC 20006 / P 202 887 1872 F 202 887 1875 / WWW.EARTHWORKSACTION.ORG

Radig, Scott A.

From: Treesa Parker [tparker@energysolutions.com]
Sent: Monday, January 26, 2015 11:42 AM
To: Radig, Scott A.
Cc: Dan Shrum
Subject: EnergySolutions LLC Comments on North Dakota Dept of Health Proposed Rule Changes for TENORM Tracking and Disposal
Attachments: CD15-0020 Mr. Scott Radig, NDDH 01-26-2015.pdf

Mr. Radig,
Please see the attached comments from Energy*Solutions* LLC, regarding the North Dakota Department of Health Proposed Rule Changes for TENORM Tracking and Disposal: Proposed Nuclide Disposal Concentration Limits. Please contact Dan Shrum at 801-649-2109 or dshrum@energysolutions.com with any questions you may have. A printed copy is forthcoming via USPS.

Thank you,
Treesa Parker on Behalf of
Daniel B Shrum
Sr. Vice President, Regulatory Affairs

ENERGYSOLUTIONS

CD15-0020 January 26, 2015

Mr. Scott Radig
Environmental Health Section
North Dakota Department of Health
918 East Divide Avenue
Bismarck, ND 58501

SUBJECT: Comment on the North Dakota Department of Health Proposed Rule Changes for TENORM Tracking and Disposal: Proposed Nuclide Disposal Concentration Limits

Dear Mr. Radig:

Energy*Solutions* is a leading nuclear services company and we own and operate radioactive waste transportation, processing, recycling, and disposal facilities throughout the United States and Canada. Our capabilities include processing facilities to verify that lightly contaminated wastes meet US Environmental Protection Agency, Resource Conservation and Recovery Act (RCRA), Subtitle D, Industrial Disposal Facility exempt disposal criteria in the State of Tennessee. This regulatory approval, known as Bulk Survey for Release (BSFR) ensures that performance objectives are met during the operation and subsequent closure of the Subtitle D disposal facility. Energy*Solutions* also owns and operates low-level sites for higher activity wastes for management and disposal under NRC 10 CFR Part 61 or agreement state programs.

The North Dakota proposed rule allows radionuclide concentration limits (i.e., 50 pCi/g Ra-226) in North Dakota Subtitle D landfills which were modeled using RESRAD and TSD-Dose software using an unprecedented 100 mrem/year acceptable dose pathway. Our comments are specific to the use of 100 mrem/year as a performance objective for the disposal of TENORM in unlicensed facilities.

Energy*Solutions* is supportive of the appropriate use of radioactive waste disposal exemption approval processes for limited concentrations of radionuclides in engineered and permitted landfills. However, the proposed rule for North Dakota TENORM wastes

423 West 300 South, Suite 200 • Salt Lake City, Utah 84101
(801) 649-2000 • Fax: (801) 321-0453 • www.energysolutions.com

would establish a much higher precedent for the acceptable modeled doses to a member of the public and/or untrained radiological workers of 100 millirem (mrem)/year. Lower regulatory limits were allowed for exempting radioactive wastes regulated by the US Nuclear Regulatory Commission or Agreement States as outlined below.

1. US Nuclear Regulatory Commission (NRC) 20 CFR 20.2002 Exemption of LLW for Alternate Disposal Approval, excerpt from SECY-06-0056, March 2006.

   "Licensee[Waste Generator] must demonstrate that potential dose to public and workers are less than "a few millirem" [Most examples implemented are at a 1 mrem/year model dose limit].

2. US Nuclear Regulatory Commission (NRC) 10 CFR 61.41 Protection of the general public from releases of radioactivity (this pertains to licensed and monitored low-level radioactive waste disposal faculties in the United States).

   "Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable."

3. The State of Utah, in its implementation of 10 CFR 61:41 for licensed, low level radioactive waste facilities, adopted a more stringent standard of 4 mrem/year for a groundwater dose pathway for 500 years.

4. Tennessee Department of Radiological Health (TDRH), Bulk Survey for Release Licensing Guidance - Landfill Analysis Requirements , March 2010

   "For each radionuclide and concentration requested, perform and submit an analysis verifying that the dose, to the maximally exposed individual, will not exceed 1 millirem per

year (mrem/yr) total effective dose equivalent (TEDE). A separate analysis shall be submitted for each operation identified above and shall include the delivery driver, landfill workers affected and post landfill use, as outlined below, using the most current RESRAD computer code. For each analysis, use the entire useable disposal area of the landfill beginning when the conditional disposal program started."

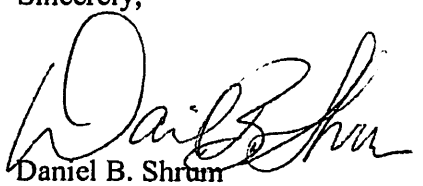
4 International Atomic Energy Agency (IAEA) Application of the Concepts of Exclusion, Exemption and Clearance, RS-G-1.7, August 2004

" 3.4. The primary radiological basis for establishing values of activity
concentration for the exemption of bulk amounts [more than 1 ton] of material and for clearance is that the effective doses to individuals should be of the order of 10 μSv [1 mrem] or less in a year"

Energy*Solutions* recommends that North Dakota regulation should re-evaluate the disposal concentration limits, with the new limits being based upon <1 mrem/year RESRAD and TSD-Dose modeling. The risk based models should examine both non-radworker landfill worker/disposal dose pathways and also dose pathways to affected members of the public consistent with NRC, Agreement State, and IAEA International protocols. The current proposition to establish nuclide disposal concentrations limits derived from a 100 mrem/year modeling is 100 times higher than all accepted nuclear exemption regulation and should be reconsidered prior to promulgation.

Thank you for the opportunity to comment on this rule making. Questions regarding these comments may be directed to me at (801)-649-2109 or dshrum@energysolutions.com.

Sincerely,



Daniel B. Shrum
Senior Vice President
Regulatory Affairs

January 27, 2015

TO: NORTH DAKOTA DEPARTMENT OF HEALTH

Environmental Health Section

This letter is in regards to the proposed changes that would allow higher levels of radioactive material to be disposed of in North Dakota.

We ask: WHAT ARE YOU THINKING? We have a big enough mess in our State with all the Oil leaks, oil spills, saltwater spills, etc, etc, etc, etc...

Please take into consideration the health & welfare of ALL the residents in the State of ND and use some COMMON SENSE... Please STOP listening to the "ND PETROLEUM COUNCIL".

Why were Public meetings only held in Williston, Bismarck & "*FARGO*"????? Will Fargo allow a special waste landfill in their backyard to bury radioactive waste? You can bet they would not allow such a thing on their precious land.

We strongly OPPOSE the State of North Dakota to increase the allowed picocuries of Radio active waste to be buried in the State.

Sincerely,

Gary Weisenburger

Cheryl Weisenburger

P.O. Box 203

Stanley, ND 58784

February 26, 2015

Mr. Scott Radig, Director

North Dakota Department of Health

Division of Waste Management

918 East Divide Avenue - 3rd Floor

Bismarck, ND 58501-1947

Dear Mr. Radig,

This communication is in response to the proposed rule change regarding an increase to the TENORM Limit increase from 5 picocuries to 50 picocuries in approved large quantity and special waste landfills in the North Dakota.

We fully support this rule change allowing improved management and control of waste generated by oil and gas exploration and production in North Dakota. The rule change decreases the potential for improper disposal, improves the cost for exploration and production, reduces the risk to the public by decreasing the distance material is transported for proper disposal and improves the protection of public health and the environment. Additionally, it improves the ability of the Agency's ability to oversee TENORM management.

One area of consideration in development of the final rule would be an increase to the annual volume restriction of 25,000 tons at any one approved disposal locations. The demand for disposal may be supported currently by this volume and the anticipated landfills that will seek permit modifications and ultimately be approved. Future demands resulting from increased development and operation will likely increase this demand. The rule allows for a variance to accommodate a large volume project but does not provide for increased and or future demands for this disposal. Resultant could be increased request to the Department for annual limit variances and/or increases in improper disposal. These issues could create a situation where the rule needs amendment for volume changes. Determining the required volume of future disposal is difficult but an increase volume initially will delay the aforementioned issues.

Thank you for your time and consideration.

Respectfully submitted,

Chuck Slaughter

Gibson Energy

4903 2nd Ave. West

Williston, ND 58801

charles.slaughter@gibsons.com

January 23, 2015

Mr. Scott Radig,
North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

RE: Proposed TENORM rules and requirements

Dear Mr. Radig:
Please find herein my comments on the proposed rules. I have reviewed the proposed N.D. Admin. Code Chapter 33-10-23 and Article 33-20 and have the following comments. In general, I believe the change in radiation limits for certain landfills in North Dakota is completely appropriate. Thank you for your work to get this needed policy in place. I attended the Williston Public Hearing and supported the comments of some of the speakers, primarily Ms. Laura Erikson, so I will not cover any of the comments she made. I look forward to working with the Department to become one of the authorized facilities for acceptance of this waste stream. Please take into consideration my additional comments and feel free to contact me to discuss them if needed.

The basis for the need to provide an additional 2 feet of cover on facilities that have final cover slopes in excess of 15% is unclear in the documents. This requirement is found in 33-20-11-01 Paragraph 5. At the hearing you indicated that the department is concerned with erosion of the cover exposing the waste over a large time period (i.e. 1,000 years). As is the case with our facility, engineering calculations were provided with the design that demonstrated the stability of our design slopes that are in excess of 15%. The RUSLE2 calculation showed that 25 percent slopes at our facility, with our diversion berm designs, indicate a maximum erosion potential of 0.045 tons/acre/year. So, given the fact that an acre foot of cover soil weighs in excess of 2000 tons, the likelihood of exposing the waste due to natural causes is extreme. The estimated time to erode 1 foot of material over an acre is 45,000 years. The half life of Radium is 1,600 years. If acute erosion (washout) is the concern due climate changes or other events, the RESRAD Argonne National Lab model uses an exposure scenario that puts a man in the basement of a house for his entire life without exposures in the dangerous category. I submit that this 2 foot additional requirement is over regulation for the situation and should be discarded.

If, however if the two additional feet of cover material cannot not be discarded, then please consider this option: instead of additional thickness to the cover of a facility that has accepted TENORM waste, I would suggest you add another 2 feet to the depth of disposal requirement found in Paragraph 4 of that section. You may also want to add to paragraph 4 "as measured at a right angle to the surface of the final cover" in order to more fully explain the intent of the requirement. This then will negate the need to redesign the facility in order to take this waste stream.

I failed to find 33-10-03 that is cited in 33-20-11-01 and 33-20-11-03. Is this a typo, have I missed something or is it a new regulation: as 33-10-03 appears to have been repealed?

Under the licensing regulations, I believe there is regulatory support to raise the limit for the requirement of a license, from 5 Picocuries per gram to 15 pCi/g. The section 33-10-23-04 Exemptions could be raised to 15 pCi/g without adverse effects to the environment; or to those around the waste or material. Under EPA's Radiation Guide for CERCLA clean-up, sub soils with up to 15 pCi/g are allowed to remain in place. The assumption is that: being under 6 inches of topsoil, this radiation level does not present an issue. All waste at a landfill will be under much more soil than that. Many places across the country including North Dakota can have NORM levels at or above 15 pCi/g naturally. Many household products also fit into this higher level of radioactivity. This seems like a common sense modification.

While entities required to obtain a specific license are identified in 33-10-23-11, it is less clear who would need to, or be subject to the general license requirements of 33-10-23-10. Are people or entities handling or possessing TENORM materials in excess of 5pCi/g (or as I propose 15 pCi/g), subject to the licensing requirements? In other words, how does one know when they become subject to the general license? Are contractors responding to a spill subject to any licensing? It seems to me that every operator, used equipment dealer, oil company, recycler, etc. will need a license of one form or another.

The subject of screening for wastes that may contain levels of radioactivity subject to the regulation was raised by a couple of the speakers at the hearing. I would like to add to those discussions the suggestions that the Department consider adopting a maximum reading on a Geiger counter that would trigger the requirement to test. This could take the form of a mutable over background at a given distance from the waste with no barriers between the waste and instrument or an actual reading on a given instrument type (i.e. 75 micro/r). There are other screening methods such as the use of Marinelli Beaker and a 2x2 scintillation detector using counts per minute. However, the simpler the better.

33-10-23-12 paragraph 3.c.1.c & 2.e requires that any entity holding more than 10 % of the applicant's debt, submit personal and business information related to their environmental compliance. Do you really want information from a Bank? I might suggest financial institutions be exempted.

I believe Paragraph (2) of 33-10-23-28 has a typo: "on the". In this same paragraph a requirement for apprenticeship is being set up. Since no one in the solid waste business in North Dakota would have had experience disposing of wastes over 5 pCi/g, how do you propose that an entity meet this requirement? I think it would be appropriate to Grandfather in those entities with Radiation Safety Officers who had worked at the subject facility for at least one year and accept the certification of such an RSO who had taken and passed the RSO 40 hour course from other accredited institutions and/or instructors.

I appreciate the opportunity to provide input on this rule making process, and hope that the information you gather helps flesh out a useful tool for the State of North Dakota.

Chris Kreger, District Manager

121 48th Ave. SW, Williston, ND 58801
Phone: (701) 774-8511

9980 County 21
Noonan, ND 58765-9508
February 1, 2015

North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

To Whom It May Concern:

I am very concerned about the possibility of allowing higher levels of radioactive material to be disposed of in North Dakota. I am a lifelong resident of this beautiful state and I intend to continue to live here. One of the reasons I like it is because North Dakota is not spoiled yet by industrial waste and pollution in huge quantities.

Dumping higher levels of radioactive material in the state would not be helping the state's residents and citizens, but it would be beneficial to the oil industry by not requiring the companies to haul the waste to out-of-state sites like they are currently doing.

Please vote in favor of North Dakota residents and our health by not allowing higher levels of radioactive material to be buried in state. If this is allowed to happen, when will the standards again be changed in favor of big industry? Stop this now so it doesn't set a precedent to listen to the oil industry instead of the residents of North Dakota.

Sincerely,

James A. Kimball

Trussell, Diana A.

From: jay mosbrucker [jaymosbrucker@hotmail.com]
Sent: Tuesday, February 24, 2015 9:22 PM
To: Trussell, Diana A.
Subject: Radiation Limit Increase Proposal

Diana,

I am writing you in regards to the ND Department of Health's proposal to raise the allowable radiation limits that certain landfills can accept. I attended the Fargo meeting and heard the background from Argonne National Lab. I am against the proposal for a few reasons.

1) I am not confident in the findings provided by Argonne. I have earned a Bachelor's and Master's degree in Mechanical Engineering from NDSU. The thesis of my Master's degree was to work with existing mechanics of materials predictive models for fire degradation and impact events on composite materials. I then experimentally tested composite materials to determine how well the predictive models fit the experimental results. My background in developing a thesis has taught me that results from models need to be scrutinized.

Even the best predictive model is only as good as the data that is used. In the case of the Argonne model, the data used was not collected by Argonne. Argonne freely admitted that fact. The data was taken from the oil companies themselves. This is not only a conflict of interest, but in my opinion not always a reputable source. There is a lot riding on this decision and to not collect data to be used in the model is a poor choice. There is a saying in Engineering, garbage in equals garbage out. **Have an out of state, third party randomly collect actual data to verify the data used in the Argonne model is accurate.** If the collected data is not significantly different than the data used in the Argonne model, ND can be more confident in the results provided by Argonne.

2) No one at the Fargo meeting provided enough background on how the current 5 picocuries per gram limit came into effect. All that was stated was that it was chosen because it "was similar to background soil radiation." **More information should be provided by why 5 picocuries/gram was selected in the first place.**

3) There should be more meetings held in the communities that are directly affected if the proposal is put into place. People need to be educated about the dangers and acceptable limits. **Hold meetings in Williston, Watford City, New Town, etc. to educate the people most directly affected.** A meeting is Fargo is great for me, but I don't believe living in Fargo I'll be greatly affected by the rule change...unless I decide to move back West or visit.

4) Last but not least, **THE PEOPLE DO NOT WANT THIS INCREASE**. At the Fargo meeting, there were only four people that testified in favor of the increase. Three of the four had direct links the oil industry. The rest of the twenty plus people who testified were against it. The people that opposed it were from different industries, both young and old, and probably different income levels. The people of ND do not want this increase. I see this proposal as yet another of example of our state government is working for the oil and coal industries and not for the people of the state. The 5 picocuries/gram has protected the people of ND for all this time and now we want to change it based solely on one study. I believe the people of ND deserve better.

Thank you for your time,
Jay Mosbrucker

West Fargo

Radig, Scott A.

From: ibbison2[redacted]
Sent: Monday, March 02, 2015 3:56 PM
To: Radig, Scott A.
Subject: "TENORM" rules & regulations(proposed changes)

March 2, 2015

Scott Radig, Director, Division of Waste Management ND Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

Hi Scott-
I don't imagine you will recall our conversation of 2 years ago when I called you about the Solid Waste Landfill near Fairfield, some 15 or so miles south of my badlands ranch. At the time, my concerns were related to that landfill and its operations, including what kinds of "solid" waste were to be disposed of there. You graciously said you'd give me a tour at some point when you came out this way.
That said, I'm writing about our state's proposed rule changes regarding Technologically Enhanced Normally Occurring Radioactive Materials(TENORM), and am very concerned that your rules for tracking and disposing of those oil industry by-products will not be sufficient to the task at hand, that is insuring that North Dakota will not be awash in radioactive wastes for days and centuries on end. My university degree includes a minor in geology, so I know a few things about the thousands of feet of sedimentary rock which lie beneath my feet as I write to you. My family also had an oil well drilled on our land in 1980, down to the Red River formation at some 14,000 feet deep. That well was capped & plugged a few years later, the waste pit simply covered up and left, as was an assortment of additional oil well dirt, tank sludge and what not. That well was then re-drilled in the mid-nineties, and abandoned about 3 years ago, the site "reclaimed" and left, though I insisted that the site again grow grass and shrubs as it did before oil activity- so that my Herefords plus local elk and mule deer could again use the land as had always been the case. With both of those oil well disturbances, all kinds of oil drilling waste and what-not were left on the site, generally buried in a hasty fashion with no regard to present or future environmental considerations, including hazardous and/or radioactive waste disposal.
Consequently, your rules cannot be too strict with regard to the wastes- especially with any kind of radioactive/TENORM byproducts- generated by industrial oil activity from the "spudding" of the well to its final destination at an oil refinery, that includes drill cuttings, storage tank sludge, and the generally contaminated dirt, gravel and scoria which is associated with the oil industry. Your Division of Waste Management clearly needs sufficient personnel to inspect all that happens out here in my backyard with regard to TENORM and all other oil industry solid wastes- if you cannot assure me that your division is up to the job, then it will be obvious that drilling permits need to be greatly diminished or stopped until your Division of Waste Management can get its work done, that is ensuring that the environment and the people out here are not awash in TENORM or other such solid wastes for time immemorial. You have a big job, good luck with giving North Dakota impeccable rules regarding all solid wastes, including the TENORM kind.

Sincerely,

John A. Heiser
91 125th Avenue Southwest
Grassy Butte, ND 58634

[redacted]

_____ Information from ESET NOD32 Antivirus, version of virus signature database 11257 (20150302) _____

The message was checked by ESET NOD32 Antivirus.

http://www.eset.com

Radig, Scott A.

From: Jon Starkey [redacted]
Sent: Tuesday, January 27, 2015 5:37 PM
To: Radig, Scott A.
Subject: tenorm changes

I am writing this email to express my sincere outrage at the proposal to change these levels and store this material in ND. No change should be our stand. I do not want any part of North Dakota to be a radioactive waste site. So what if it costs the oil companies more? They can certainly afford it. They will be long gone when this is done and our children will be stuck with this mess.

Sent from Jon's iPhone

9980 County 21
Noonan, ND 58765-9508
February 1, 2015

North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

To Whom It May Concern:

Please do not let the residents of North Dakota down by allowing higher levels of radioactive waste to be buried in state. The citizens of ND deserve to have standards maintained for their health and welfare and not changed for the pocketbooks of the oil industry. Raising the levels of radioactive waste that could be buried in the state will open the door wider for further loosening of restrictions. North Dakota residents need your department to stand up for them and not for the oil industry.

Please vote to keep the levels of radioactive waste allowed in ND to stay the same and then the oil companies will continue to take the waste out of state to already established sites.

Sincerely,

Jordan Kimball

Jordan Kimball

Relaxing our regulations is not going to protect the health and safety of our state. Please don't do this to us.

Jordan

Radig, Scott A.

From: Karen Olson [redacted]
Sent: Saturday, February 28, 2015 9:09 AM
To: Radig, Scott A.
Subject: TENORM rule changes

Dear Scott, I am opposed to the proposed changes for increasing the amount of radioactive material that can be disposed of here in ND. Please do not allow it to increase.

Thank you,
Karen Olson
32900 128th St. SW
Douglas, ND 58735

[redacted]

Tillotson, Steve J.

From: Kevin Solie [KSolie@bepc.com]
Sent: Friday, January 16, 2015 2:49 PM
To: Tillotson, Steve J.
Subject: TENORM rule and AVS SP-025 permit renewal

Steve,

I guess I was mistaken in my thought that the proposed TENORM rule would require us to use a composite liner. As you can see below, however, the proposed TENORM rule does add quite a few additional requirements for special waste landfills (highlighted in yellow). In 6 months, it wonôt make any difference, since the Federal rule will be in effect.

Iôd suggest a slight modification (in green highlight): Any new or lateral expansion of an industrial waste landfill or special waste landfill receiving TENORM waste must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit.

Also, howôs the AVS SP-025 permit renewal coming? I was hoping it would be a fairly easy one for the DoH to complete. SP-025 expires on January 21st.

Thanks--KLS

Any new or lateral expansion of an industrial waste landfill or special waste landfill must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit.

a. The liner and leachate removal system must be compatible with the waste and leachate.

b. The liner and leachate removal system must maintain its integrity during the operating period and through the postclosure period.

c. The system must have a collection efficiency of ninety percent or better and must be capable of maintaining a hydraulic head of twelve inches [30.5 centimeters] or less above the liner.

d. For landfills that receive wastes containing water soluble constituents, the liner must consist of at least four feet [1.2 meters] of compacted natural soil having a hydraulic conductivity not to exceed 1 x 10^{-7} centimeters per second. ~~This requirement does not apply to landfills receiving only oil field drilling cuttings and drilling mud.~~

e. A composite liner is required for landfills receiving TENORM waste or wastes which may contain leachable organic constituents. The liner must consist of at least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1 x 10^{-7} centimeters per second overlain with at least a sixty mil flexible membrane liner.

f. The drainage layer must have a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout. The drainage layer must have a sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

g. The liner and leachate removal system in combination with the final cover must achieve a site efficiency of at least ninety-eight and one-half percent or better for collection or rejection of the precipitation that falls on the site.

h. The requirements of this subsection for a liner, leachate collection system, or both liner and leachate collection system may be modified by the department if the permit applicant demonstrates that, based on factors such as geology and hydrology of the site, characteristics of the waste, and engineering design, any leachate migration can be prevented or controlled.

Kevin L. Solie, P.E.
Environmental Administrator
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, ND 58503
e-mail: ksolie@bepc.com
phone: 701.557.5495 (office) 701.202.5096 (cell)
web: basinelectric.com

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

Trussell, Diana A.

From: Radig, Scott A.
Sent: Tuesday, January 20, 2015 8:38 AM
To: Lana Fredrickson
Subject: RE: radioactive oil waste dumping in ND

Ms. Fredrickson,

Thank you for submitting your comment. It will be placed into the record and evaluated with all other comments received.

Scott A. Radig
ND Dept. of Health, Div. of Waste Management
(701) 328-5166

-----Original Message-----
From: Lana Fredrickson [redacted]
Sent: Monday, January 19, 2015 9:32 PM
To: Radig, Scott A.
Subject: radioactive oil waste dumping in ND

Scott Radig -
I am a North Dakota native and a landowner there. I am extremely concerned by the radioactive oil waste dumping already going on in ND, as well as the prospect of increasing this. I don't want a radioactive waste dump in ND at all!
I want more public hearings, a longer public comment period and no increase in radioactivity allowed. The acceptable radioactive pic level needs to stay @ 5. Why would we want to jeopardize the land, air and water that we love in ND? We don't!
Sincerely,
Lana Fredrickson
[redacted]

Sent from my iPhone

Comment for proposed rule changes for TENORM levels and tracking

North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, N.D. 58501

The portion of the new proposed regulation to increase the level of radioactive waste able to be disposed of in North Dakota (N.D.) should **NOT** be approved. However, the portion of the regulation that increases tracking of the waste is a prudent idea to ensure that it gets disposed of out of state. Increasing the amount of radioactive waste allowed to be disposed of in N.D. is not a good way to increase public safety since it is only making disposal of these items legal. Disposing of these wastes in N.D. is not necessary since the industry has alternative sites to dispose of the wastes in other states such as Idaho and Texas. Using these alternative sites has not stopped industry expansion as evidenced by record setting oil production taking place in N.D., which has thus shown that shipping waste out of N.D. is an affordable way to deal with this waste.

N.D. has not yet proven its ability to effectively police waste disposal or fine companies in violation. Detection for fining companies for illegal waste being sneaked into landfills has been left up to individual landfill operators for too long. Fines have also commonly been negotiated down to a level that effectively amounts to a slap on the wrist. The Wall Street Journal on April 15, 2014 in the article titled "Radioactive Waste is North Dakota's New Shale Problem" states, "Illegal disposal or storage of radioactive waste in North Dakota is subject to fines of up to $10,000 per incident in addition to a $1,000 fine for standard illegal dumping, state officials say." If the illegal dumping is the issue, the fines need to be enforced or increased or better tracking needs to be implemented to deter the illegal activity. According to an article in the Basin Bits Fall 2014 issue regarding the new filter sock disposal container regulations addressing illegal dumping (this is "The Official Publication of the North Dakota Association of Oil and Gas Producing Counties"), "With the new regulations, Radig thinks the number of incidences has already been reduced." This backs up the idea that more regulation is needed and not just "solving" the problem by increasing allowable levels of radioactive waste being dumped in N.D.

The proposal to allow disposal in N.D. is being pushed by the oil industry and it appears to not be supported by the majority of N.D. residents. In an article on bismarcktribune.com from Feb. 13, 2013 titled "Radioactive Waste May be Buried" it states, "The North Dakota Petroleum Council may propose new state rules for burying radioactive waste generated in the oil patch. The council will meet Thursday with the State Health Department to evaluate a change in rules so radioactive waste that builds up on disposal well filters and other oil field equipment can be buried in specially-permitted landfills instead of hauled out of state." It appears this is being advocated by the oil industry (including the N.D. Petroleum Council) to reduce costs. The Oil Patch Dispatch article "New State Rules Call for Leak-Proof Containers for Filter Socks" on April 9, 2014 estimated the cost to clean up the Noonan, N.D. site at $12,600, but it also quotes Ron Ness' information (he's from the N.D. Petroleum Council) as estimating the cost to dispose of a filter sock out of state at $180-$600. Mr. Ness' estimate appears to be too high when he is trying to build a case that the filter socks are too expensive to dispose of out of state. It is not true that

it is too expensive for the industry to dispose of this waste out of state. The Journal on November 26, 2014 reported that 60 cubic yards of waste were removed from the Noonan site at a cost of $12,595 (estimates were that there were more than 100 55-gallon trash bags at the site stuffed mainly with filter socks). If Mr. Ness was correct, $12,595 divided by $600 per sock would mean that only 21 socks were disposed of or that $12,595 divided by $180 would mean that at most, 70 socks could have been disposed of for the sum of $12,595. His cost estimates are apparently exaggerating the costs when over 100 bags of waste were actually disposed of out of state for $12,595 (especially when it appears likely that more than one filter sock can be fit in one 55-gallon bag). The actual costs to dispose of the Noonan, N.D. illegal dumping waste makes it clear that the actual costs to the oil industry are not exorbitant if the waste is disposed of properly in the first place before requiring a cleanup team to be hired.

As a resident and land owner in North Dakota, I desire the state to maintain its heritage of taking care of the natural resources and oppose changing the regulations to allow disposing more radioactive waste in North Dakota. We do not want radiation over time or radiation accumulators to affect our residents or environment adversely when there are other options that are currently being used to legally dispose of this waste while oil production continues to expand.

Sincerely,

Landon Kimball

Landon Kimball

February 26, 2015
Maddock, North Dakota

RE: Request for public records, ND CC 44-04-18,
related to the public oral comments at ND DoH's hearings
TENORM Proposed New and Amended Rule Changes
Comments and Requests

Mr. Scott A. Radig, Director
Division of Waste Management
North Dakota Department of Health,
Environmental Health Section,
918 East Divide Avenue
Bismarck, ND 58501

Dear Mr. Radig,

I would like to thank you for your timely response to my January 20, 2015, letter of request and comments, requesting the complete Argonne National Laboratory TENORM study (the Study), with your letter dated, January 27, 2015, that included the complete Study.

The complete, non peer reviewed, Study consisting of approximately 131 pages, including cover page, back page, blank pages and appendixes (approximately 44 pages), with the approximate cost of $200,000.00 to the North Dakota taxpaying citizens it is truly a beneficial, virtual scientific document, a real price bargain for the good of all North Dakotan's. At approximately $1,526.72 per page any rational, reasonable minded, correct thinking North Dakotan cannot disagree with the Study's value.

I attended both the North Dakota Department of Health's (ND DoH) field hearings (the Hearings) for the proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulations And Licensing Of Technological Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection (Proposed New and Amended Rules) based on the data obtained within the ND DoH's commissioned, complete Argonne National Laboratory TENORM study, Bismarck, January 21, 2015 and the Fargo, January 22, 2015. I signed the sign-in sheet at both the Hearings, including my name, address, phone number and E-mail address. At both of the Hearings, the ND DoH employee supervising the sign-in sheet, alerted the public that in addition to signing the sign-in sheet declaring that an individual had attended the Hearing, that the public, by signing an additional space provided, would receive the transcript(s) of the public oral comment(s) {Transcript(s)} presented at the ND DoH's Hearings, as the Hearings were to be audibly cassette recorded. Though my personal observation at the

Hearings, the Hearings were indeed, audibly cassette recorded. It was implied by the ND DOH employee, that the Transcript(s) of the public oral comment(s) would be available to the public before the closing of the ND DoH's comment period, March 2, 2015.

I have been patiently waiting to receive the Transcript(s) of the public oral comment(s) of the ND DoH's Hearings. As this date, February 25, 2015, I have not received the Transcript(s). This appears to be an inexcusable, excessive amount time since the January 21, 22, 2015 hearings. Yesterday, February 24, 2015, I called the ND DoH, 701-328-5164, spoke with ???, inquiring about the availability of the Transcript(s) to public before the closing of ND DoH's comment period, March 2, 2015. The ND DoH telephone answering employee stated the public oral comments presented at the Hearings were still being transcribed and would not be released to the public until after the closing of ND DoH's comment period, March 2, 2015.

I would very much like to factually comment on the ND DoH Proposed New and Amended Rules based on comments to the Study and expansions upon the public's oral comments at the Hearings. I am unable to do so at this time, for the lack of the Transcript(s) of the Hearings. This lack of access to verifiable, public documents causes the public incalculable damages to forum fact based public comments to the ND DoH Proposed New and Amended Rules.

The oral public comment(s) presented at the Hearings are in the possession of the ND DoH, whether they be in the forum of audio cassettes or Transcript(s) of the Hearings, they are public documents, so, in the spirit of Openness, Transparency and Accountability, I formally request under North Dakota Century Code, 44-04-18, that the Transcripts and audio recordings of the ND DoH Hearings be sent to me and be posted on the ND DoH's website for the benefit to the public as soon as possible, before the public comment period closing date of March 2, 2015.

If this is not possible, I, also, hereby request that the closing date of the ND DoH Proposed New and Amended Rules be extended a minimum of 30 (thirty) days to a maximum of 180 (one hundred eighty) days after the date the Transcript(s) have been made available to me and the public.

This is a time sensitive issue, time is of the essence.

Sincerely,

Mr. Leo Walker
5376 39th Street North East
Maddock North Dakota 58348-9682

Cc: Wayne Stenehjem

March 2, 2015
Maddock, North Dakota

RE: TENORM Proposed New and Amended Rule Changes
Additional Comments

Mr. Scott A. Radig, Director
Division of Waste Management
North Dakota Department of Health,
Environmental Health Section,
918 East Divide Avenue
Bismarck, ND 58501

Dear Mr. Radig,

Good rules must be based on sound science and the law. The TENORM, new and amended rule changes proposed by the North Dakota Department of Health (ND DoH) are neither.

An approximate $200,000.00, very narrowly focused, very limited number of submitted study samples, obtained by the use of questionable methodology (by those requesting the study), commissioned study by the ND DoH (Argonne National Laboratory TENORM study [the study]) is only a virtual scientific study until it has been professionally peer reviewed by at least 5 professional scientific peer groups. A large price tag does not equal quality, no matter whom the check has been made out to. Attempting to corrupt the process and implying that the creation of acceptable sound science has been achieved by only asking the general public citizens of North Dakota to review the ND DoH's TENORM, new and amended rule changes is an insult to the taxpaying citizens of North Dakota. The general citizens of North Dakota are not professional scientific peers.

Then, there is the mystery of the ND DoH attempting to change North Dakota law by independently submitting before the Government and Veterans Affairs Committee, **House bill 1113**, licensing and regulation of TENORM. The bill would restrict public view of open records and leaves public hearings regarding the storage of TENORM waste at the discretion of the Health Dept. Committee Chairman Jim Kasper R-Fargo stated that he, "didn't like the process where we give up the statutory authority and let [entities] set the rules because who knows what the rules are going to be?" Openness, Transparency and Accountability are at the heart of all forums, all levels, federal to local, including all of their entities, of the United States of American government(s). It is questionable, if this attempt by the ND DoH's to obtain secrecy, at the risk of public health and safety, is even constitutional. The ND DoH's decision to act alone on the attempted law change, through the submission of House Bill 1113, was arbitrary, capricious and unreasonable. Has this even been vetted by Homeland Security yet?

Again, the TENORM, new and amended rule changes proposed by the North Dakota Department of Health (ND DoH) based on sound science and the law is neither.

The lacking of simple, technological capabilities of live streaming and archiving of records possessed by the ND DOH, to timely and freely, provide the public with the records, under ND CC 44-04-17.1 is disconcerting, to say the least, when it appears that even naive adolescents and high school coaches can (see below). Those without these simple capabilities should not be, in no way, shape or forum, be considered nuclear radiation experts, proposing any type of public health and safety rule changes.

And I again, request that until the oral public comment(s) presented at the ND DoH's TENORM public Hearings, that the closing date of the ND DoH Proposed New and Amended Rules be extended a minimum of 30 (thirty) days to a maximum of 180 (one hundred eighty) days after the date the Transcript(s) have been made available to me and the public.

Sincerely,
Mr. Leo Walker

Mr. Leo Walker
5376 39th Street North East
Maddock North Dakota 58348-9682

Cc: Jim Kasper, Dick Dever

The following was taken from the March 2, 2015;

Minot Daily New;
page A 5;
Region under Briefly.

Wyndmere woman offers live streams of high school events

Wyndmere (AP) – A teacher and coach at a Wyndmere school is offering a free live stream of sporting events to fans who can't make it to games.

Shelly Orth has been broadcasting high school games and activities for the past few months. She uses her IPad to capture the action and then shares the video in real time through a streaming service called Cube. Orht's broadcasts include pregame interviews with coaches, play-by-plays of the action and keys to the games.

Scores of fans across the country and world tune in to the broadcasts. Viewers include people who go south for the winter and would otherwise miss seeing family play.

"I've received so many emails from the snowbirds who don't get to see their grandkids," Orth Said.

Orth said there are viewers in 27 U.S. states, Germany, Australia, Japan, Sweden and Denmark. Wyndmere girls basketball coach Mikal Kern has family in China watching games.

"I'm the youngest, so it's a chance for them to see what their little brother is up to," Ken said.

The broadcasts are free, and Orth said she's heard from thankful fans.

"I've been sent flowers, thank-you's, I've had parents crying from other teams," Orth said.

January 20, 2015
Maddock, North Dakota

RE: TENORM Proposed New and Amended Rule Changes
Comments and Requests

Mr. Scott A. Radig, Director
Division of Waste Management
North Dakota Department of Health,
Environmental Health Section,
918 East Divide Avenue
Bismarck, ND 58501

Dear Mr. Radig,

I would very much like to factually comment on the North Dakota Department of Health's (ND DoH) proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulations And Licensing Of Technological Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection based on the data obtained within the ND DoH's commissioned, complete Argonne National Laboratory TENORM study (the study) but am not able to do so at the present time. Because, I am unable to locate the full, complete and final Argonne National Laboratory TENORM study on the NDoH's website.

I am sure this is a simple, honest oversight on the NDoH part and *not a conscious* effort on the ND DoH's part to limit the North Dakota citizens' ability to factually base comments on the ND DoH's proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulations And Licensing Of Technological Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection {this is a comment}.

At this time, I would like to request that the complete Argonne National Laboratory TENORM study, including all addendums to the study and any & all related material, data used to conclude the study be posted on the ND DoH's website.

Also, I would like to request, under North Dakota North Dakota Century Code 44-04-18, that a written hard copy of the full, complete and final Argonne National Laboratory TENORM study be sent to me;

Mr. Leo Walker
5376 39th Street North East
Maddock North Dakota 58348-9682,

within five (5) business days of today's date, January 20, 2015, time is of the essence for this request.

If for some unforeseen reason(s) the above mentioned, simple *request(s) cannot* be accomplished by the ND DoH with in the suggested, reasonable time mentioned above, I would like to request that an extension of the closing of the ND DoH's public comment period for the North Dakota Department of Health's (ND DoH) proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulations And Licensing Of Technological Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection be extended a minimum of 180 days.

And, I will conclude with a comment for now, until the study is readily available to the North Dakota citizens. The disposal of TENORM (Technologically Enhanced Naturally Occurring Radioactive Materials) is not a North Dakota problem; it is the dilemma of those person(s), entities that created the TENORM from the NORM (Naturally Occurring Radioactive Materials) occurring from deep subsurface locations. The NORM at those deep subsurface locations was safe for the citizens of North Dakota until the NORMs *were* brought to the surface. The person(s), entities that created the TENORM(s) knew or should have known of N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection requirements at the time of their TENORMs creations and included the cost of the disposal of their TENORMs in their business plans.

Sincerely,

Mr. Leo Walker

Mr. Leo Walker
5376 39th Street North East
Maddock North Dakota 58348-9682

4/26/15

Dept of Health —

To Whom it May Concern —

Please don't raise the limit of radioactive waste to be in N D - Health Concerns are too great — I have Kidney Cancer - Husband Prostate Cancer & Hrt disease - (2) Triple By PASSES & Angioplasties - Stent + now Atrial fib - Others will be impacted by what you do - Please don't do it —

Yours truly —

Leonard & Shirley Fettig

[redacted]

Leonard & Shirley Fettig
5620 County Road 19 S
Minot ND 58701-2318

9980 County 21
Noonan, ND 58765-9508
February 2, 2015

North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

To Whom It May Concern:

Please take a stand for the current residents of North Dakota and for the future generations. Do not raise the levels of radioactive material that can be disposed of in landfills in this state. I do not want this state to become a bigger dumping ground by relaxing the levels allowed at the present time.

North Dakota has seen many changes due to the oil industry---some good and some not so good. The oil and salt water spills and the increased litter in western ND are just some of the visible ill effects. If the companies are allowed to dispose of higher levels of radioactive waste, that may not be visible on the surface. However, it may cause pollution to our ground and water systems that will be felt in the future and therefore cause health problems for the residents.

Hold the standards for the North Dakota citizens and protect our health by not allowing the oil industry to dump higher levels of radioactive material to be buried in state. The companies already have established sites out of state that they can continue to use. I am also concerned that by raising radioactive levels and making it more convenient for the oil industry, it will help to soften future regulations to support industry and toss the ND residents' concerns aside.

Sincerely,

Linda Kimball

Linda Kimball

I would like to comment on the new proposed regulations regarding oilfield radiation disposal.

I have three main points and I will introduce myself first. I am a life long resident of nw North Dakota. I am 58 years old and currently run a cow-calf operation, farm around 2000 acres of land, and assist my wife in the operations of a retail greenhouse. I have worked in the oil industry in the '80s and also during the current Bakken boom.

1. The State of North Dakota does not currently know who the generators are or how much is being generated! I found this admission astounding. Were I to build a CAFO for my cattle herd, I would have to apply for many different permits from both the state, federal and local government agencies. I would also be given a identification number for my herd. And this is all to track cowpies, which could be burned in a pot belly stove to keep me warm in the winter! You are not tracking radiation pies which everyone at the public meeting in Williston stated as dangerous.

2. What is the purpose of the public meetings? Was it to gauge the public opposition, to garner media attention, or to show the public that you are involved in the process? My understanding is that the health dept. proposes and enacts the rules with no oversight. You are the judge. jury, and executioner!

3. Much time was spent at the meeting on exposure and limits. No one mentioned the fact that radiation has a culmulative effect on mammals. Also no mention was made of the setbacks in the placing of these landfills!

In closing let me state that I am in opposition to these new rules. Hire more inspectors, find out who, what, when, where, and how much is being generated. Agree on a method of measurement that is quick and accurate. We are now 6-8 years into this boom and it is time for the rest of the state govt. agencies to catch up to the drilling permit dept!

Thank you,

Lorin and Debbie Weisz
10070 65th st nw
Tioga, ND 58852

12/12/14

Dear Mr. Radig,

Please accept these comments related to the proposed rules:

- DRAFT Solid Waste TENORM Rule Changes - NDAC 33-20
- DRAFT TENORM Rules - NDAC 33-10-23

I applaud the effort made to educate the public about radioactivity and the potential (as well as relative) risks associated with exposure from various sources, many of which occur daily. I also appreciate the general concept that those producing the waste should take responsibility for the safe removal and containment of the hazard.

I am very much in favor of developing a robust, well-enforced tracking system for this waste disposal, while at the same time using more rational standards for how the waste is handled.

None the less, I have a couple concerns that should be considered (unless I missed that they have already been addressed).

1) The acceptable limit of 50 picocuries for industrial land fills, while less than the 51.6 estimated to be the maximum that would result in exposure levels below the 100 millirem limit for landfill workers....this limit seems uncomfortably close to the calculated limit. Like all recommendations, this is based on modeling and calculations that could be inherently flawed (our understanding is never perfect). Most acceptable exposure limits error on the side of caution, by setting limits perhaps 10 fold or more below exposures of documented risk. Perhaps this has already been calculated into the 100 millirem annual exposure that this seeks to avoid; but this should be considered.

2) A potential solution to the above concern would be dosimetry monitoring of landfill workers. This would provide an objective indication of the accuracy of the modeling; and could even be discontinued at some distant point in the future, if it was demonstrated that these workers were, in fact, not exposed to any significant degree.

3) The only other suggestion I would make, is that basing your estimates on a standard 2000 hours per year work exposure, may not be realistic in the oil field jobs that are going on out here. I realize that many workers will have 2 weeks on and 2 weeks off; but suspect their total hours per year still go over the typical 2080 for full time employment.

4) One last suggestion is to put the limits of the various states in a table for easy comparison on your website (I think I did see it in some news account). The way it is now, the hyperlinks take you to specific state documents that one has to wade through to find the comparable limit.

Thank you.

Sincerely,

Lyle G. Best, MD 1935 118th Ave NW, Watford City, ND lbest@restel.com

Radig, Scott A.

From: Marian Courtney [redacted]
Sent: Friday, February 06, 2015 5:30 PM
To: Radig, Scott A.
Subject: TENORM

Hello,

As a health conscious resident of North Dakota, I am appalled that the Department of Health has proposed a 1000% increase on the radioactive waste limit.

Federal drinking standards limit radioactive waste to 5pCi/L. If North Dakota raises the limit to the proposed 50pCi/L, the state's ground water would be at risk for contamination. Argonne's study is not nearly in depth enough to even be considered research in the area, and should not be considered a reliable source to encourage an increase in the radioactive waste limit.

Why is TENORM being controlled under ND's Department of Health? How can they be the governing body encouraging a health hazard when they should be the ones preventing and protecting the health and lives of North Dakotans? There doesn't seem to be a checks and balance in place with this order.

I request that more hearings be made across the state, including one in Grand Forks, ND.

I refuse to waste my time and yours with what has already been shared by my peers, please note that I am a concerned North Dakota resident and that **I do not condone increasing the radioactive waste limit.**

Thank you for your time,

Marian Courtney

North Dakota Resident - Grand Forks
University of North Dakota Graduate Student
[redacted]

Marvin Baker

410 1st St. E
Carpio, N.D., 58725
[redacted]

January 5, 2015

Division of Waste Management
ATTN: Scott Radig
918 E. Divide Ave. Third Floor
Bismarck, N.D., 58501-1947

Mr. Radig,

I have some genuine concerns about the increasing of the limit on radioactive waste allowed in landfills; concerns that follow, prioritized in numerical order.

No. 1: Thus far there has been a blatant disregard for making the oil companies, or the third-party vendors who cater to the oil companies, follow the rules of disposal. If the limits are raised, the illegal dumping will be increased in parallel. I would use the analogy of speeding, when the speed limit is raised, people will exceed it. It's human nature to do this. And with practically zero enforcement now, we'll discover years down the road how the "increased" levels will have been abused.

No. 2: I'm sure you know, but I'll remind you anyway that radiation will never cease to exist. Yes, the radioactivity in these filter socks is minute, however, it will always remain and as radiation is cumulative, over time the radiation will outpace the half life and it will begin to increase to levels that will leave localized areas nothing more than wasted space.

No. 3: I was working on the Fort Berthed Reservation when these filter socks began to mysteriously appear in ditches in the Mandaree area. I don't recall the state Health Department doing anything about it, making any statement or attempting to locate who was responsible. And when young children started to play with the socks, the tribal environmental department stepped in to take care of it.

No. 4: Noonan! What took place in the wake of the discovery in Noonan was a total disaster. The reluctance of the state Health Department to take action, the outrage of the people of Noonan and Divide County that wasn't addressed properly, the Industrial Commission's handling of this as if it was a little extra garbage on someone's curb and Lynn Helms reducing the fines levied, are all just ludicrous examples of how increased levels of waste will be handled in the future. The last time I checked, Noonan was a community in North Dakota and needs to be respected as such. I have no connection to Noonan but I'm outraged at how this situation was handled and have lost a lot of respect

for the Health Department, the Industrial Commission and especially Lynn Helms for the handling of this situation that makes absolutely no professional sense whatsoever.

No. 5: Why is one of the public meetings concerning this being held in Fargo? What does Fargo have to do with this? Why not Noonan or Crosby? My guess is of course the people of Fargo will endorse this because of the positive spin placed on the entire scenario.

No. 6: It would be far better for the Health Department's public image to respond to people's concerns. I for one have contacted the Health Department on several occasions regarding situations like this and have been given no response. Perhaps I'm like the people of Noonan to you and I don't matter. Well I do matter. I'm a taxpayer, a citizen of North Dakota, have been my entire life, and as these ridiculous attempts of favoring the oil companies continue, it just makes me want to distance myself from North Dakota.

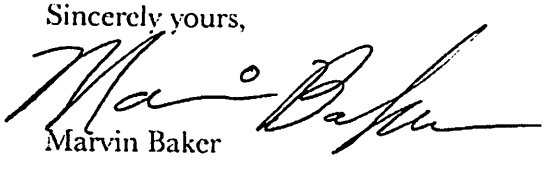
No. 7: Mr. Radig, have you ever sat down in your office and seriously thought about what is happening in the western third of North Dakota? It's being systematically and methodically turned into an industrial wasteland and if it isn't bad enough already, we're going to allow more radioactive waste to be dumped into our landfills. It's just like Lynn Helms' handling of Noonan, it makes no professional sense whatsoever, except to make it easier on the oil companies.

No. 8: The oil companies make enough money that they can afford to take their radioactive waste to Utah or wherever it has to go. That's part of their job, that's a consequence of their work. A dairy farmer has to remove manure from the barn. It's part of the consequence of milking cows. Don't make it easier for the oil companies, hold them accountable. They've had a free ride for too long. Make them responsible as the rest of us have to be.

No. 9: My guess is this letter will carry about as much weight as that of the residents of Noonan, but I'm writing it anyway to provide my public comment, suggesting to you that I'm disgusted at how the state of North Dakota has handled the oil industry in general and more so, this radioactive waste situation. To me, an increase in levels just means an increase in violations and more reductions in fines. Keep the levels where they are now. We need to start thinking about our environment and the lasting impact this radiation is going to have on the west and the future generations who are going to be reluctant to live there.

No. 10: How would you like to have a radioactive waste dump in your alley, down the street, anywhere in Bismarck? I didn't think so. Restore the public's confidence, make the right decision. Don't increase radioactive waste levels at landfills.

Sincerely yours,



Marvin Baker

Radig, Scott A.

From: Maxine Buffalo[redacted]
Sent: Monday, February 02, 2015 2:07 PM
To: Radig, Scott A.
Subject: Concerned

I am sending in hopes that your Department will listen.

I oppose the Radioactive material being place in ND. It may not seem like much to this Board, but would you
like to live next to one of them sites? Ask yourself that and I know you wouldn't want you family, grandparents
and any family members harmed from the effects of this.

They need to find a place out of state and make oil companies responsible for their waste and take care of it
properly.

Oppose this strongly and I am a Member of the tat on Ft. Berthold Reservation and I am an Elder

Thank you

February 9, 2015

Mr. Scott Radig
Environmental Health Section
North Dakota Department of Health
600 E. Boulevard Avenue
Department 301
Bismarck, ND 58505-0200

RE: Comments to the Proposed TENORM Rule Changes

Dear Mr. Radig:

The McKenzie County Solid Waste Department strongly supports the proposed technologically enhanced naturally occurring radioactive material (TENORM) rule changes. Although the Department strongly supports the rule changes, we believe rule changes alone are not going to improve TENORM waste management in North Dakota. There also needs to be strong enforcement of the rules.

The following describes the Solid Waste Department's support of the proposed rules, as well as a recommendation for greater enforcement, and a concern related to the 25,000 tons per year limit per special waste landfill.

Support of Proposed Rules

Based on our review of the proposed rules, we believe the proposed changes create the following means for improved management of TENORM waste in North Dakota:

- The proposed rules provide a means to track TENORM waste from generation to disposal, creating accountability of the generator, transporter and disposal facility.
- The proposed rules provide a means for generators to dispose of TENORM wastes less than 50 picocuries/gram at approved North Dakota special waste landfills.

A manifest system as proposed in the new rules should reduce the potential for mismanagement of TENORM waste. The manifest system should also provide a way to correlate an illegally dumped load of waste with a hauler and generator.

With regards to the concentration limit change to 50 picocuries/gram, currently only wastes with TENORM concentration of 5 picocuries/gram or less are allowed to be disposed of in North Dakota landfills. The remainder is transported out of state. Unfortunately, some haulers and generators have

mismanaged TENORM waste and have looked for ways to save money by illegally disposing of TENORM waste in North Dakota. The proposed rule changes will provide a means for special waste landfills to accept TENORM waste with higher concentrations, which will provide alternatives for disposing of elevated TENORM wastes and should reduce the incentive for those looking to save money by illegally disposing TENORM wastes.

Recommendation for Greater Enforcement

Although the Solid Waste Department strongly supports the proposed rule changes, it is our belief that rules alone will not improve TENORM waste management in North Dakota. There also needs to be strong enforcement. This past year there were multiple instances where haulers attempted to dump filter socks and other TENORM waste that are not allowed by permit at the McKenzie County Landfill. These cases were caught by County staff and the haulers were turned away, or required to clean up their dumped waste and take it offsite. For each of these cases a Waste Rejection Report form was completed and sent to the DENR. This form includes information about the company or individual that brought the unacceptable waste to the landfill. NDDH could use these forms to investigate these instances and determine if there are repeat offenders of deliberate intention by some customers to dump these wastes illegally.

We understand that staff limitations do not allow for your Department to follow-up on all of the Unacceptable Waste Report forms submitted to NDDH. We urge state officials and politicians to provide additional funding to your Department such that you can have the staff resources to provide strong enforcement of the TENORM rules. Without stronger support from the state, some generators and haulers will continue to look for ways to save money by mismanaging the disposal of the waste.

Furthermore, we believe that NDDH should open a satellite office in Watford City to aid in rule enforcement. An office in Watford City would also increase NDDH's visibility in the region, as well as make it more approachable to regional citizens, companies, and public entities. Watford City is at the center of the Bakken region, which makes it a prime location for a satellite office.

Concern Associated with the Proposed Rules

Lastly, we are concerned that the 25,000 tons per year limit on TENORM waste disposal at the approved special waste landfills may not provide North Dakota special waste facilities with enough capacity to dispose of all of the TENORM waste generated in North Dakota. This could create a situation similar to right now where some will look to save money through illegally disposal of the TENORM waste.

Closing

Public Works Department, McKenzie County
Suhail Kanwar, P.E. Director
201 5th ST NW, Suite 750, Watford City, North Dakota 58854
Telephone: (701) 444-2600 Fax: (701) 444-4113

As stated above, the McKenzie County Solid Waste Department strongly supports the proposed rules. However, without strong enforcement of the rules the Department does not believe there will be significant improvement in TENORM waste management in North Dakota.

McKenzie County Solid Waste Department appreciates the opportunity to comment on the proposed rule changes. If you have any questions regarding our comments or would like additional information regarding our experience operating the McKenzie County Landfill, please do not hesitate to call either Suhail Kanwar or Rick Schreiber at 701-444-7415 or 701-586-3455, respectively.

Sincerely,

Rick Schreiber
Solid Waste Department Director

Public Works Department, McKenzie County
Suhail Kanwar, P.E. Director
201 5th ST NW, Suite 750, Watford City, North Dakota 58854
Telephone: (701) 444-2600 Fax: (701) 444-4113

Radig, Scott A.

From: Robert Morris [robert_morris@mhchew.com]
Sent: Monday, March 02, 2015 3:53 PM
To: Radig, Scott A.
Subject: Comments on North Dakota New and Amended TENORM Rules

Dear Mr. Radig:

M. H. Chew & Associates, Inc. offers the following comments in response to proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulation And Licensing Of Technologically Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management and Land Protection. These comments also pertain to the Argonne National Laboratory (ANL) Report titled *Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota* which was prepared in support of the new and amended rules.

1. The proposed limit of 50 pCi/g of total radium is an appropriate value for the kind of TENORM landfill in the proposed regulations.

2. The proposed limit for equipment contaminated with TENORM of 100 μR/h seems relatively high, especially when large amounts of this kind of item are handled in one load or stockpiled in one area. No documented basis for this value has been presented and no exposure scenario for this limit was developed in the ANL report. We suggest that you publish the basis for this proposed rule.

3. Regarding the proposed limit for contaminated equipment, it is not clear if this limit applies to each individual piece or to an entire load. The dose rate from one length of tubular material will be different than the dose rate from a trailer load containing 20 lengths of the same tubular material. The distance at which the exposure rate must be measured is not defined, but it should be because that will have a profound effect on the measurement result. We suggest that the measurements be made "at contact" with the object. We suggest that the definition of equipment be clarified so that it is consistent with the definition of "Surface Contaminated Object" found in US Department of Transportation regulations. It could also be clarified to so that tubular materials that may be plugged with scale are explicitly recognized as being included in this. It should also be clarified that the contents of a tank filled with TENORM sludge is not subject to this limit and instead is subject to the 50 pCi/g concentration limit. After the tank is emptied of the sludge it would be subject to the exposure rate limit.

4. According to the presentation made by ANL, the data in Table A.1 were not collected for the purposes of this study. Instead these data were used because they were available. Consequently there is no assurance that they are representative of the waste streams under consideration. The data in Table A.1 have no information regarding the sampling method, the analytical method, the method detection limits and the origin (who collected the sample, date, location, who analyzed, etc.). None of the data include an uncertainty (a ± value) associated with the results and are therefore only marginally useful in a scientific report. A fundamental concept regarding all scientific measurement data is "A measurement result is complete only when accompanied by a quantitative statement of its uncertainty" (NIST Technical Note 1297).

5. It is likely that the Th-232 data are not useful and instead are an artifact of the gamma spec method. The average ratio of Th-232 to total radium is highly suspect and may not be useful at all. Here are the reasons:

    a. it is not clear that thorium-232 can be accurately assessed by gamma spectroscopy, the method which is most likely used to acquire these data. Actinium-228, the signature gamma ray of thorium-232, can be confidently assumed to be in equilibrium with thorium-232 only if the mixture has been undisturbed for almost 30 years.

    b. the detection limit for thorium-232 seems to be high and inconsistent.

    c. 26 of the 81 results for thorium-232 are "less than" values, which means that in those cases the reported value could be the method detection limit instead of an accurate analysis result.

    The questionable thorium-232 data have already been referred to by others. On February 13, 2105, the "Michigan TENORM Disposal Advisory Panel White Paper" was issued. The white paper included the following statement: "The presence of Thorium-232 in the North Dakota TENORM study suggests that it may be a contributor to some exposure pathways. Its potential health effects on worker health and safety may warrant further studies." This points out that the quality of data included in the ANL report is important.

6. The radon emanation coefficient shown in Table B.6 is 4%, which is appropriate for pipe scale. A higher value, perhaps 20% or 30%, would be appropriate for sludge and soil-like materials. The default value recommended in RESRAD is 25% which is 6 times higher that the value assumed by ANL for the landfill model. By selecting a value of 4% the model acts as if all of the radon in the TENORM waste is tightly bound as it would be in the scale. But most of the waste will not be scale. This assumption of 4% could result in a substantial underestimate of radon dose from the landfill.

7. It is not appropriate to define a waste *acceptance* screening criteria for a trailer load of waste based on a measurement of external exposure rate on the side of trailer or above a pile of material. This kind of measurement is not quality-assured, like a laboratory analysis, and there is not a strong linear relationship between exposure rate on the side of trailer and the pCi/g concentration of radium in the waste, especially at lower concentrations. A better approach might be for each waste generator to develop and certify a "waste profile," which is a description of the characteristics of a waste stream that is expected to remain consistent (at least consistent enough to make the correct waste acceptance decision) over a period of time. Then have the landfill operator and landfill RSO evaluate the waste profile and agree to accept it without a check on each load from that waste stream (occasional QA spot checks by the landfill operator might be needed) for some limited time. Each different waste stream would need to have its own waste profile.

8. The TDS-DOSE code, which was developed at ANL is not a maintained computer code and ANL no longer distributes this program to members of the public. Therefore the public has no means of obtaining the program and checking the results of the TSD-DOSE calculations in the ANL report. Please advise how the public can gain access to this computer code.

9. The *source density* input variable is different for many of the model inputs, with no clear basis for the difference. For example a value of 0.7 is used for one section of TSD-DOSE and a value of 1.4 is used at a different part of TSD-DOSE. A value of 1.6 is used in RESRAD-Build and value of 2.0 is used for the landfill future use scenarios.

10. Use of a waste *rejection* screening criteria for a trailer load that is based on a small multiple of background (i.e. "twice background") may be too restrictive, will vary depending on location in the state where the measurement is made, and could result in waste loads being needlessly rejected from landfill disposal. If a load of waste fails to pass waste rejection screening criteria that should not necessarily mean the waste cannot be accepted into the landfill, it should mean that additional sampling and analysis may be needed before a definitive acceptance or rejection decision is made.

11. The minimum quality assurance criteria for the laboratory analysis used to demonstrate that TENORM waste complies with the landfill limit should be defined. Currently this is achieved by providing a list of approved laboratories, but if the minimum requirements were specified there may be opportunity for laboratories to streamline their QA process and reduce the cost of the analysis.

12. The process used to obtain a sample of the waste should be defined. Does each load need to be sampled? Can samples be composited? How many samples are required to characterize a waste shipment? Answers to these questions could have a major effect on the cost of determining waste acceptance.

13. Who is responsible for collecting and analyzing samples and ensuring the sample is accurately analyzed? Is it the waste generator or the landfill operator?

14. How will compliance inspection sampling and analysis be done? It would be useful for waste generators and landfill operators to have a defined enforcement process.

15. Proposed regulations require that the landfill be monitored for 30 years after closure. Longer duration for monitoring and institutional control may be necessary because landfill effluent is not likely to reach monitoring locations within a 30 year post-closure period.

16. The well site operations scenarios used in the ANL risk assessment discount the possibility of any well site operations worker ever inhaling radioactive material. Excluding the inhalation pathway is not appropriate. The exclusion of inhalation is based on the assumption that the maximally exposed individual always wears respiratory protection. The following information is taken from Table B1:

Exposure Scenario	Status of Inhalation Pathway
Well pad workers mixing hydraulic fracturing fluid	"The inhalation and ingestion pathways are excluded because of the use of personal protective equipment...."
Well pad workers produced water filtration	"The inhalation pathway is excluded because of the wet nature of the process."
Equipment cleaners pipe cleaning	"The inhalation and ingestion pathways are excluded because of the use of PPE."
Equipment cleaners storage tank cleaning	"The inhalation and ingestion pathways are excluded because of the use of PPE."
Equipment cleaners gas	"The inhalation and ingestion pathways are excluded because

processing	of the use of PPE."
Disposal well worker filtration	"Exposure pathways and parameter values are the same as for well pad workers except for the exposure time."
Sludge treatment plant workers exposed to sludge	"...No exposure from the inhalation and ingestion pathways."

Inhalation should not have been excluded from these scenarios based on the assumption that an OSHA-compliant workplace would require workers to wear respiratory protection. In some cases an employer's respiratory protection programs will be inadequate or workers will fail to use respirators as required. Also, OSHA regulations (20 CFR 1910.1096) require that external doses to workers be controlled at a level of 1,250 mrem/quarter (much higher than the 100 mrem/y value used in the ANL study) and OSHA regulations require that exposure to airborne radioactivity be limited to the average concentration in air listed in 10 CFR 20. Appendix B, Table 1. For radium-226 this airborne concentration limit is 3×10^{-10} µCi/mL, which is much higher than is likely to occur during well site operations. Therefore an employer could be easily be compliant with OSHA ionizing radiation regulations without requiring that respiratory protection be used for radioactive material exposure. By eliminating inhalation pathway from consideration the ANL study provides no information about doses that could if respirators fail, or are simply not used for whatever reason. An RSO, under a graded approach to radiation safety, may choose to require respiratory protection only for prolonged activities in an area where there is airborne radioactivity and allow short term jobs to be done without respiratory protection. This is done in the nuclear industry when the overall hazard level of a job would increase by use of respiratory protection, perhaps due to impairment of vision or other factors.

17. Worker dose during response to a spill is not a modeled exposure scenario, but it should be considered. On January 6, 2015, three million gallons of saltwater spilled from a pipeline 15 miles north of Williston, so this might be a scenario to consider. Another possible spill scenario worthy of consideration would be loss of a trailer load of soil-like materials along a public road.

18. A radon scenario should be considered in which workers perform well site operations indoors or inside a tent. One example might be saltwater transfer from a truck to holding tanks for disposal well injection. At some facilities pumps and transfer stations are located indoors. Evaluation of this scenario may require new winter-time radon measurements to be made.

19. Was the possibility of misuse of soil-like proppant and sludge being as fill material in building construction considered? In this scenario if misuse of TENORM were to occur, the maximally exposure individual might live for decades in a home in which there were elevated levels of radon from TENORM. A similar situation involving uranium mill tailings occurred in Grand Junction, and a multi-year, taxpayer-funded remediation program was required to cure the problem.

20. The sandbox exposure scenario involving children should be corrected. Section 3.2.1 subsection "Proppant Used at a Playground" states that "Children were exposed by direct external exposure, *inhalation*, and ingestion pathways". However the reported doses on page 53 do not include inhalation: "Children were exposure by direct external exposure and ingestion of pathway." Note that Table B.2 confirms this: "Ingestion and direct external exposure pathways are included." Of course children

playing in a sandbox will inevitably inhale particulate material and this is likely to be the dominant exposure pathway for this scenario.

21. Each of the RESRAD codes (RESRAD-BUILD, RESRAD, RESRAD-OFFSITE) enable a Monte Carlo probabilistic assessment of the dose to be performed. This is different from the sensitivity analysis which is done to identify which input parameters should be refined to improve the analysis. Probabilistic assessment is useful for defining the uncertainty associated with any calculated value. It does not appear that this was used and as a result there is no uncertainty characterization associated with the reported numerical values. An uncertainty analysis is a necessary part of any scientific evaluation. What is the rationale for not conducting the probabilistic analysis since this is part of the analytical tools built into the modeling programs?

22. RESRAD-OFFSITE input data, including details of the "site-specific" data, are not included in the report. The detailed input files for this, and for all of the other code inputs, should be reported in sufficient detail so that the results of the calculation can be repeated and evaluated.

23. Table B.6 lists the plant/soil transfer factors for radium, lead and thorium and cites "A&A (1996)" as the source of the data. These factors are not listed in the A&A (1996) report.

24. Table 6.14 should have included the dose from the polonium-210, which will be present with lead-210 (Pb-210) and approaching equal activity in 2 to 3 years. Both of these radionuclides would be present in pipes and components containing natural gas. In fact because lead-210 is more volatile that polonium-210 there may be situations in which polonium-210 can be found by itself in equipment.

25. We understand the most recent revision of TSD-DOSE occurring in 1998. This suggests that the ICRP dosimetry system included in TSD-DOSE is outdated and not consistent with the most recent recommendations of the ICRP. The impact of this is likely to be negligible, but it should be discussed in the report.

26. The radon pathway through the leachate collection system has not been considered. This is potentially an important source of effluent from the landfill. Radon can be actively transported by water as evidenced in this quote from the EPA website. *"Radon gas can also dissolve and accumulate in water from underground sources (called ground water), such as wells. When water that contains radon is used in the home for showering, washing dishes, and cooking, radon gas escapes from the water and goes into the air. It is similar to carbonated soda drinks where carbon dioxide is dissolved in the soda and is released when you open the bottle. Some radon also stays in the water."* We understand that there is no pathway model of radon movement through a leachate collection system in the modeling programs used in this study. A good response to this issue would be to monitor radon concentration in the standpipes of leachate collections systems. It may also be possible to appropriately model atmospheric pressure-driven transport of radon using Nuclear Regulatory Commission-approved computer codes.

Robert L. Morris, CHP, CIH, MS
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January 28, 2015

Scott Radig, Director
Division of Waste Management
North Dakota Department of Health
918 E. Divide Ave., 3rd Floor
Bismarck, ND 58501-1947

RE: Proposed Revisions to NDAC 33-20 and Adoption of NDAC 33-10-23

Dear Mr. Radig:

Minnkota Power Cooperative, Inc. supports the proposed creation of Chapter 33-10-23 and the revisions to Article 33-20 of the North Dakota Administrative Code. However, we do have concerns as discussed below.

Chapter 33-10-23 does not currently contain a definition of "coal combustion byproducts". Therefore, in order to clarify the exemption in Section 33-10-23-07 relating to persons who possess TENORM in the form of coal combustion byproducts from energy conversion facilities, we recommend rewording this exemption as follows: "Persons who possess TENORM in the form of fly ash, bottom ash, boiler slag, and flue gas desulfurization waste from coal energy conversion facilities are exempt from this chapter."

Chapter 33-20-07.1, states "...Any new or lateral expansion of an industrial waste landfill or special waste landfill must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit." The inclusion of "special waste landfill" in this subsection adds all of the requirements of this subsection to all special waste landfills, not just those receiving TENORM wastes. We believe this should be reworded to clarify that this is only applicable to special landfills receiving TENORM wastes.

Should you have any questions concerning the above, please contact me at jgraves@minnkota.com or at 701-795-4221.

Yours truly,

MINNKOTA POWER COOPERATIVE, INC.

John T. Graves, P.E.
Environmental Manager

C: Gerad Paul

MONTANA-DAKOTA
UTILITIES CO.
A Division of MDU Resources Group, Inc.

400 North Fourth Street
Bismarck, ND 58501
(701) 222-7900

February 27, 2015

Scott Radig, Director
Division of Waste Management
North Dakota Department of Health
918 E. Divide Ave. 3rd Floor
Bismarck, ND 58501-1947

Re: Comments on the Proposed Revisions to NDAC 33-20 and Adoption of NDAC 33-10-23

Dear Mr. Radig:

Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc. (Montana-Dakota) submits these comments in response to the North Dakota Department of Health (NDDH) proposed rules to regulate Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) and its disposal in North Dakota using the Proposed Revisions to NDAC 33-20 and Adoption of NDAC 33-10-23. Montana-Dakota appreciates the opportunity to comment on the proposed rule. Please see the comments and revisions we propose below that are meant to address unintended impacts from the proposed rule on the management and disposal of coal combustion residuals (CCR) or coal combustion byproducts from coal energy conversion facilities.

Montana-Dakota owns and operates R.M. Heskett Station and is also a co-owner of Coyote Station. These electric generating stations, or coal energy conversion facilities, produce and manage CCR and have permits through the NDDH to manage and dispose of CCR in Special Waste landfills. The proposed rule would create significant changes in operation and management of the permitted Special Waste CCR landfills. The proposed rule would increase costs for managing CCR that Montana-Dakota believes was not intended by the NDDH in proposing the TENORM rule.

Montana-Dakota notes that the NDDH did not include any evaluation of CCR in the Argonne National Laboratory Study that was used to develop the proposed rule, and that the NDDH is then not adequately considering regulation of CCR under the proposed TENORM rule. CCR is already regulated through Special Waste landfill permits, which Montana-Dakota believes includes adequate landfill liner and closure requirements for CCR at coal energy conversion facilities. The additional requirements in the proposed TENORM rule that would inadvertently apply to CCR management are excessive and should not apply. Further, Montana-Dakota believes these requirements would lead to more confusion for regulators and the CCR regulated community.

To address this concern, Montana-Dakota recommends an edit to the exemption found in 33-10-23-04 that would further clarify the exemption for CCR.

33-10-23-04. Exemptions
7. Persons who possess TENORM in the form of coal combustion ~~byproducts~~ **residuals** from energy conversion facilities are exempt from this chapter.

In addition, Montana-Dakota recommends that the proposed rule include examples of coal combustion residuals, considering the edit proposed above in Section 33-10-23-04 (Exemptions), for the NDDH to provide more clarity and will avoid unintended increases in permitting and management of CCR. The following are recommended to be included as examples of coal combustion residuals:

"coal combustion ~~byproducts~~ residuals" include fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, and beneficial uses of these materials.

Montana-Dakota believes the definition clarification will not detract from the intent of this rule to regulate the management of TENORM materials and wastes from the oil and gas industry. The Argonne National Laboratory Study materials related to this rulemaking that are placed on the NDDH website do not provide support to increased regulation of CCR, or coal combustion byproducts. It is clear that the intent of this rulemaking is to address TENORM created by the oil and gas industry and is not meant to impact coal energy conversion facilities.

Montana-Dakota also believes that the inclusion of "or special waste landfill" found in 33-20-07.1-01 (Performance and design criteria section) is intended to only apply to special waste landfills that accept TENORM waste as defined under Section 33-10-23, considering the exemption for CCR, or coal combustion byproducts.

Montana-Dakota appreciates the opportunity to comment on the proposed TENORM rule. In conclusion, we do not believe the intent of the rule was to create more stringent requirements for the management and disposal of CCR, or coal combustion byproducts, and Montana-Dakota requests the NDDH clarify that in the final rulemaking. If you have any questions, please contact me at 701-222-7844.

Sincerely,

Abbie Krebsbach
Director of Environmental

cc: Jay Skabo – Vice President Electric Supply
Alan Welte – Director of Generation
Tony Stroh – R.M. Heskett Station Manager
Kalle Godel – Senior Environmental Engineer
Geoff Simon – MDU Resources Group Inc. Governmental Affairs

NORTH DAKOTA
PETROLEUM
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March 1, 2015

Scott Radig, Director
North Dakota Department of Health
Division of Waste Management
918 East Divide Avenue, 3rd Floor
Bismarck, ND 58501-1947

RE: Comments on Proposed Rules on TENORM

Dear Mr. Radig:

The North Dakota Petroleum Council (NDPC) is a trade association that represents more than 550 companies involved in all aspects of the oil and gas industry including oil and gas production, refining, pipeline, transportation, mineral leasing, consulting, legal work, and oil field service activities in North Dakota, South Dakota, and the Rocky Mountain Region. Petroleum Council members produced 98% of the oil produced in North Dakota in 2014.

We appreciate the time and effort required to arrive at a set of TENORM rules that will be robust and stand the test of time. Only 15 other states currently have disposal regulations specifically governing TENORM wastes. North Dakota is at the forefront of defining responsible regulation of TENORM waste disposal.

Thank you for the opportunity to provide comments on the proposed rule changes to include TENORM. To formulate comments on behalf of the industry, the NDPC solicited input from our member companies and requested the NDPC regulatory committee to develop the attached comprehensive comments on behalf of our membership.

NDPC has supported changes in TENORM rule making for the past four plus years. The NDPC supported the requirement to place waterproof and lined bins at each well site, a protocol already in use by many of our members. The NDPC supports the "cradle-to-grave" rules that require the tracking of each and every filter sock used in oil and gas activities because it will help prevent illegal disposal of these materials. The NDPC supports higher thresholds for special waste landfills that will allow waste to be disposed of within the state and help prevent the temptation by less than reputable contractors to illegally dispose of this waste.

And the NDPC supports the North Dakota Department of Health's (ND DoH) choice to pursue the science of risk assessment by Argonne National Laboratory as the basis for new draft regulations. Argonne National Lab (ANL) is the recognized leader in radiation risk assessment modeling. The ANL study focuses on use of activity concentration in picoCuries per gram (pCi/g) as an input to a computational model that generates an exposure estimate for humans in the vicinity of TENORM waste. As is common with modeling, real world application is often difficult.

A significant downside to the ANL modeling, is that it ignores the fact that there is no rapid field measurement yet verified and approved for accurate determination of (pCi/g). Instead the only reliable method is a 21-day gamma spectroscopy method which can only be performed at labs outside North Dakota. Therefore, rule making using a pCi/g threshold requirement as a determining factor in whether a particular waste can be disposed at a particular location leaves the waste manager with a potential compliance issue. This rule does not provide industry with a measurable threshold that can be used to quickly, efficiently and definitely segregate waste.

A solution to this quandary would be to establish a dual path to regulation that provided not only a concentration limit but also an exposure limit, measureable in the field. NDPC is aware that ND DoH is already on the path to solving this field measurement issue. NDPC applauds ND DoH in its proactive approach to solving this dilemma.

The oil and gas industry in North Dakota is heavily regulated and we recognize the need to adapt regulations to address issues as they arise. However, we must keep in mind that today's economics are impacted by every rule change implemented. The NDPC supports rule changes made on the basis of sound scientific and engineering principals. Overregulation in a volatile national and global economy could lead to undesirable effects if we are not diligent in monitoring the ever-changing regulatory and economic climate.

Sincerely,

Kari Cutting

Kari Cutting
Vice President

Chapter 33-10-23 is created as follows:

CHAPTER 33-10-23
REGULATION AND LICENSING OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL

33-10-23-01. Purpose. This chapter establishes radiation protection standards for technologically enhanced naturally occurring radioactive material (TENORM). These standards include the possession, use, processing, manufacture, distribution, transfer, and disposal of TENORM and of products containing TENORM. This chapter also provides for the licensing of TENORM, including license termination. The provisions of this chapter are in addition to the definitions and applicable requirements of chapters 33-10-01, 33-10-03.1, 33-10-04.2, 33-10-10.1, and 33-10-13.1.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-02. Scope.

1. Except as otherwise provided, this chapter applies to any person who receives, possesses, uses, processes, transfers, distributes, or disposes of TENORM.

2. The manufacture and distribution of products containing TENORM, in which the TENORM's emitted radiation is considered beneficial to the products, are licensed pursuant to the provisions of chapter 33-10-03.1.

3. This chapter addresses the introduction of TENORM into products in which the radiation emitted from the TENORM is not considered to be beneficial to the products.

4. This chapter does not apply to source material and byproduct material as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-03. Definitions. The terms used throughout this chapter have the same meaning as in North Dakota Century Code chapter 23-20.1, except:

1. "Applicant" means a person applying for a license under this chapter and includes any individual or entity that owns or controls the applicant.

2. "Beneficial to the product" means that the radioactivity of the TENORM is necessary to the use of the product.

3. "Conditional release" means release by a licensee for a specified use other than release for unrestricted use.

4. "Consumer" means a member of the public exposed to TENORM from final end- use products available on a retail basis.

5. "Consumer or retail product" means any product, article, or component part thereof, produced, distributed or sold for use by a consumer in or around a permanent or temporary household or residence, or for the personal use, consumption, or enjoyment of a consumer, or for use in or around a school or playground.

6. "Critical group" means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

7. "Decontamination" means the process of removing or reducing residual radioactivity to an acceptable level for reuse or disposal.

No definition for "decontamination" is provided, which is common in state NORM/TENORM regulations. The differentiation between decontamination and routine maintenance is not discussed until 33-10-23-10 General Licenses. References to decontamination are listed in 33-10-23-07 Unrestricted Use and Conditional Release. Defining "decontamination" would be useful in the front of the document, which dictates the need for specific licensure in the beginning.

8. "Generator" means any person whose act or process produces TENORM waste or whose act first causes the TENORM waste to become subject to regulation.

9. "NORM Contaminated Oil and Gas Equipment" means oil and gas equipment that, any any accessible point, exhibits a minimum radiation exposure level greater than 50 μR/hr including background radiation.

10. "Oil and Gas Equipment" means any apparatus associated with the potential for or actual enhancement of NORM including but not limited to tanks, valves, flow lines, wellheads, connectors such as tees and elbows tubular goods, piping, vessels, wellheads, separators and condensors provided such equipment is or has been in contact with oil and gas waste or produced fluids or substances.

11. "Oil and Gas Wastes" means materials to be disposed of or reclaimed which have been generated in connection with activities associated with the exploration, development, and production of oil or gas or geothermal resources, such as those activities associated with:

    (A) the drilling of exploratory wells, oil wells, gas wells, or geothermal resource wells;

    (B) the production of oil or gas or geothermal resources, including:

        (i) activities associated with the drilling of injection water source wells that penetrate the base of usable quality water;
        (ii) activities associated with the drilling of cathodic protection holes associated with the cathodic protection of wells and pipelines subject to the jurisdiction of the commission to regulate the production of oil or gas or geothermal resources;
        (iii) activities associated with gasoline plants, natural gas or natural gas liquids processing plants, pressure maintenance plants, or repressurizing plants;
        (iv) activities associated with any underground natural gas storage facility,
        (iv) activities associated with any underground hydrocarbon storage facility,

(v) activities associated with the storage, handling, reclamation, gathering, transportation, or distribution of oil or gas prior to the refining of such oil or prior to the use of such gas in any manufacturing process or as a residential or industrial fuel;

(C) the operation, abandonment, and proper plugging of wells subject to the jurisdiction of the commission to regulate the exploration, development, and production of oil or gas or geothermal resources; and

(D) the discharge, storage, handling, transportation, reclamation, or disposal of waste or any other substance or material associated with any activity listed in subparagraphs (A) - (C) of this paragraph, except for waste generated in connection with activities associated with gasoline plants, natural gas or natural gas liquids processing plants, pressure maintenance plants, or repressurizing plants if that waste is a hazardous waste as defined by the administrator of the United States Environmental Protection Agency pursuant to the federal Solid Waste Disposal Act, as amended (42 United States Code §6901, et seq.).

(E) And materials to be disposed of or reclaimed which have been generated in connection with activities associated with the solution mining of brine.

(F) The term "oil and gas wastes" includes, but is not limited to, saltwater, other mineralized water, sludge, spent drilling fluids, cuttings, waste oil, spent completion fluids, and other liquids, semiliquid, or solid waste material. The term "oil and gas wastes" includes waste generated in connection with activities associated with gasoline plants, natural gas or natural gas liquids processing plants, pressure maintenance plants or repressurizing plants unless that waste is a hazardous waste as defined by the administrator to the United State Environmental Protection Agency pursuant to the federal Solid Waste Disposal Act, as amended (42 United States Code §6901 et seq.).

12. "Purposeful dilution" means a deliberate act of the mixing of clean or unlike materials with contaminated materials for the purpose of changing waste classification or concentration of waste.

13. "Product" means something produced, made, manufactured, refined, or beneficiated.

14. "Radiation safety officer" means an individual with the responsibility for the overall radiation safety program on behalf of the licensee and who meets the requirements of section 33-10-23-28.

15. "Reasonably maximally exposed individual" means a representative of a population who is exposed to TENORM at the maximum TENORM concentration measured in environmental media found at a site along with reasonable maximum case exposure assumptions. The exposure is determined by using maximum values for one or more of the most sensitive parameters

affecting exposure, based on cautious but reasonable assumptions, while leaving the others at their mean value.

16. ~~"Reclaiming" means returning property to a condition or state such that the property no longer presents a health or safety hazard or threat to the environment; the term "reclaiming" includes those activities necessary to decommission the licensed facility (i.e., to remove, as a facility, safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of the license).~~ Adding definitions for decommissioning and decontamination are more consistent with the regulation.

17. "Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of chapter 33-10-04.2.

18. "Tank" means a stationary device, other than a container as described in subsection 2 of section 33-10-23-08, designed to contain an accumulation of TENORM waste, which is constructed primarily of nonearthen materials (e.g., wood, concrete, steel or plastic), which provide structural support.

19. "Technologically enhanced naturally occurring radioactive material (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" as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

20. "Transfer" means the physical relocation of TENORM within a business' operation or between general or specific licensees. This term does not include commercial distribution or a change in legal title to TENORM that does not involve physical movement of those materials.

21. "Total effective dose equivalent" or "TEDE" means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

22. "Unrestricted Use" means a use not subject to or subjected to any restrictions.

No definition for "unrestricted use" is provided, which is also common in state NORM/TENORM regulations. Section 33-10-23-07 Unrestricted Use and conditional release addresses both designations, but unrestricted use is not defined and definition will lead to greater clarity.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-04. Exemptions.

1. Persons who receive, possess, use, process, transfer, distribute, or dispose of TENORM are exempt from the requirements of this chapter with respect to any combination of radium-226 and radium-228 if the materials contain, or are contaminated at, concentrations less than one hundred eighty five becquerel per kilogram [five picocuries per gram (5.0 pCi/g)] excluding natural background. The progeny of the exempt TENORM radium-226 and radium-228 are also exempt.

2. Persons who receive products or materials TENORM distributed in accordance with a specific license issued by the department pursuant to subsection 1 of section 33-10-23-11, or to an equivalent license issued by another licensing state, are exempt from this chapter with regard to those products or materials.

3. Persons who receive, possess, use, process, transfer and distribute, including preparation of custom blends for distribution, phosphate or potash ore-based fertilizers containing TENORM are exempt from this chapter.

4. Persons who receive, possess, use, process, transfer, dispose into a permitted landfill, and distribute, including preparation of custom blends for distribution, zirconia, zircon, and products of zirconia and zircon containing TENORM are exempt from this chapter. A facility that manufactures zirconia or zircon from ore is not exempt from this chapter. A facility that chemically processes zirconia or zircon resulting in increased environmental mobility of TENORM is not exempt from this chapter.

5. Persons who possess TENORM waste regulated by the Comprehensive Environmental Response, Compensation and Liability Act, as amended [42 U.S.C. 9601 et seq.] or by the Resource Conservation and Recovery Act, as amended [42 U.S.C. 6901 et seq.] or equivalent state authority are exempt from this chapter for the TENORM waste regulated by either of these federal acts.

6. Other persons who possess or use TENORM shall be exempt when the department makes a determination, upon its own initiative or upon request for such determination, that the reasonably maximally exposed individual will not receive a public dose with a total effective dose equivalent (TEDE) of more than one millisievert [one hundred millirem] in one year from all licensed or registered sources of radiation including TENORM.

7. Persons who possess TENORM in the form of coal combustion byproducts from energy conversion facilities are exempt from this chapter.

Under the licensing regulations, there is regulatory support to raise the limit for the requirement of a license, from 5 Picocuries per gram to 15 pCi/g. The section 33-10-23-04 Exemptions could be raised to 15 pCi/g without adverse effects to the environment; or to those around the waste or material. Under EPA's Radiation Guide for CERCLA clean-up, sub soils with up to 15 pCi/g are allowed to remain in place. The assumption is that: being under 6 inches of topsoil, this radiation level does not present an issue. All waste at a landfill will be under much more soil than that. Many places across the country including North Dakota can have NORM levels at or above 15 pCi/g naturally. Many household products also fit into this higher level of radioactivity.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-05. Standards for radiation protection for members of the public.

1. All licensees shall conduct operations with TENORM so that individual members of the public will not exceed one millisievert [one hundred millirem] TEDE in a year, exclusive of the dose contributions from background radiation, from all licensed or registered sources of radiation, including TENORM. Doses from inhalation of indoor radon and its short half-life (less than one hour) progeny shall not be included in calculations of the TEDE, except when the dose is due to releases from licensed operations involving the handling or processing of TENORM.

2. Persons subject to a specific or general license under this chapter shall comply with chapter 33-10-04.2's radiation protection standards.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-06. Protection of workers during operations. Each person subject to a specific or general license under this chapter shall conduct operations so that protection of workers complies with chapter 33-10-04.2 and 33-10-10.1's radiation protection standards.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-07. Unrestricted use and conditional release. Each general or specific licensee shall, no less than thirty days before vacating or relinquishing possession or control of premises which may have been contaminated with TENORM as a result of the licensee's activities, notify the department in writing of intent to vacate. When deemed necessary by the department, the licensee shall decontaminate the premises in accordance with the following or in such other manner as the department may specify.

1. Each licensee before vacating or transferring any premises shall permanently decontaminate the premises to meet the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall make a survey shall after the decontamination and provide a copy to the department and any landlord,

subsequent tenant or transferee. The premises may not be vacated, sold, or transferred until the department verifies and accepts the decontamination survey.

2. No machinery, instruments, laboratory equipment, or any other property used in contact with, or close proximity to TENORM at a licensed premise may be assigned, sold, leased, or transferred to an unlicensed person unless such property has been permanently decontaminated below or equal to the standards specified in table 4.2-07.1. The licensee shall make a survey after the decontamination and provide a copy to the department and subsequent transferee or owner. The equipment may not be assigned, sold, leased, or transferred until the department verifies and accepts the decontamination survey.

3. Persons with a specific license shall comply also with the requirements of subdivisions f and g of subsection 1 of section 33-10-23-17 and section 33-10-23-18 that are applicable to remediation and license termination.

4. Persons with a general license shall notify the department in writing before beginning activities to reclaim the site. Decontamination activities require a specific license under 33-10-23-11.

5. Notification of site or area closure. When the general licensee has permanently ceased use of radioactive materials at a site or portion of a site or facility or when an area has not been used for a period of two years, the licensee shall, within sixty days, provide the following information in writing to the department:

   a. The location of the site or area; and

   b. The plan for reclaiming or decontaminating the site or area.

6. Actions taken to confine TENORM on site or to remediate sites shall be based on expected longevity-related controls for one thousand years or longer.

7. Conditional release of metal for recycle. Conditionally released metal for recycle shall be done only under the condition that metal contaminated with TENORM does not exceed a maximum exposure level of fifty microroentgens per hour, including background radiation, at any accessible location of the metal surface prior to release from the site.

8. Equipment not released for unrestricted use. Equipment contaminated with TENORM in excess of levels specified in section 33-10-23-26 may be transferred pursuant to subsection 4 of section 33-10-23-10.

9. Other transfers of TENORM. Other transfers of TENORM shall be in accordance with sections 33-10-23-08, 33-10-23-10, or 33-10-23-11.

This section lists notification requirements to the department of intent to vacate no less than thirty (30) days before vacating or relinquishing possession or control of premises that have been contaminated with TENORM as a result of the licensee's activities. Will the department generate a standard notification form?

This section requires each licensee to have equipment and property decontaminated prior to vacating the premises. The department must verify and accept decontamination surveys after property and equipment has been decontaminated. Will there be a standard notification form?

This process may be difficult until an appropriate number of decontamination companies have been licensed in North Dakota. Decontamination activities require a specific license, however no definition was provided by ND DH for "decontamination" has been provided.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-08. Disposal and transfer of waste for disposal.

1. Each person subject to this chapter's general and specific licensing requirements shall manage and dispose of wastes containing TENORM:

2. By transfer of the wastes for storage, treatment, or disposal at a facility authorized to accept wastes containing TENORM by the department or other applicable state or federal agency;

    a. By transfer for disposal in another state as otherwise approved by the applicable governmental authority; or

    b. In accordance with alternate methods authorized by the department or other applicable state or federal agency.

This section is for "waste" and creates confusion over tanks and vessels in use that might contain NORM sediment. Suggest adding a definition of waste in Section 33-10- 23-03 to avoid inclusion of process equipment.

3. Containers:

    a. TENORM waste shall be kept in a leak-proof container.

    b. The licensee shall use a container made of, or lined with, materials that will not react with, or be incompatible with the TENORM waste to be stored so that the ability of the container to contain the waste is not impaired or compromised.

    c. A container containing TENORM waste shall always be closed and sealed during storage, except when it is necessary to add or remove waste.

    d. A container containing TENORM waste shall not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.

    e. At least quarterly, the licensee shall inspect areas where containers of TENORM waste are stored, looking for leaking or deteriorating

containers or containment systems.

f. All containers of TENORM waste shall be stacked in such a manner that each container identification label can be read from the access aisle or area.

g. Each container of TENORM waste shall be labeled with the following information prior to storage:

(1) Name and address of generator.

(2) Type of material (e.g., sludge, scale, dirt, scrap metal, et cetera).

(3) Date stored.

(4) Labeled as radioactive material.

h. Records of inspections shall be maintained by the licensee for inspection by the department for five years.

4. Tanks containing TENORM.

a. The licensee shall develop a schedule and procedure for assessing the condition of each tank containing TENORM waste. The schedule and procedure must be adequate to detect cracks, leaks, corrosion and erosion that may lead to cracks, leaks, or wall thinning to less than the required thickness to maintain vessel integrity. Procedures for emptying a tank to allow entry, procedures for personnel protection, and inspection of the interior must be established when necessary to detect corrosion of the tank sides and bottom. The frequency of these inspections will be determined based on the type of TENORM being stored, the tank construction material and the type of erosion or corrosion that may exist.

Proposed NDAC § 33-10-23-08(3) requires an inspection schedule and procedure for assessing the condition of each tank containing TENORM. The "frequency of these inspections must be determined based on the type of TENORM being stored…". What does NDDH mean by "type" of TENORM being stored? The type of TENORM material (e.g. scale) or the type of contaminated equipment (e.g. separator)?

Does this section just pertain to tanks containing TENORM at transfer and disposal facilities, or does it pertain to any tank containing TENORM waste (e.g. produced water tanks at a central tank battery)? If it pertains to the latter, this would represent a significant cost increase to the oil and gas industry. Most produced water tanks at a majority of central tank batteries do not require integrity testing, beyond visual inspection. If a mechanical integrity test is being required, these vessels would be more heavily regulated than required by the federal Spill Prevention, Control and Countermeasure Rules. Operational costs at these facilities would be significantly increased due to this requirement.

5. Each shipment of TENORM shall be accompanied by a manifest with a minimum of four carbon copies containing all of the following information prior to leaving the licensee's site:

   a. The licensee's (generator's) name, physical site address and telephone number;

   b. The name, address, telephone number and radioactive material license number of each transporter;

   c. The name, address and telephone number of the designated disposal facility;

   d. The description of the waste material; and

   e. The total quantity of all TENORM waste by units of weight in tons and the number and type of containers.

6. The following certification must appear on the manifest and be signed and dated by the licensee as follows:

   "I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport according to applicable international and national government regulations."

7. The licensee shall:

   a. Sign and date the manifest upon initial transporter acceptance of the waste material;

   b. Obtain the signature of the initial transporter and date of the acceptance of the manifest;

   c. Retain one copy;

   d. Provide the initial transporter the remaining copies of the manifest; and

   e. Receive the fully signed copy of the manifest from the designated disposal facility within forty-five days from the delivery to the initial transporter. In the event the licensee does not receive the signed manifest within this period, the licensee shall:

      (1) Notify the department within seven days;

      (2) Conduct an investigation into the reason the manifest was not received; and

      (3) Report the results of the investigation to the department within thirty (30) days.

8. The licensee shall file with the department a quarterly summary report stating the date, type and total quantity by weight in tons, generator and final disposal facility of each TENORM waste transferred . Each report shall be filed within thirty days of the end of each quarter. If no transfers of TENORM have been made during the reporting period, the report must so indicate.

Proposed § 33-10-23-08(7) requires general licensees to submit quarterly summary reports to NDDH, providing the "type and total quantity by weight in tons…" of each TENORM transferred for disposal. What does NDDH mean by "type" – the type of TENORM material or the type of contaminated equipment? And, is NDDH requiring the weight of TENORM material or the weight of TENORM-contaminated equipment?

NDPC is concerned about the requirement for ALL TRANSFERS to be reported to the department. Is transfer defined as "the physical relocation of TENORM within a business' operation or between general or specific licensees?" Moving equipment from one (1) location to another that is TENORM-contaminated will require notification to the department. This will be a significant administrative issue for industry. This could apply to all contaminated pipe, pumps, vessels, filters, scrap metal, wastes, soils, any time any contaminated equipment or material is moved?

Commercial distribution and change in legal title to TENORM that does not involve physical movement of those materials should not warrant notification.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-09. Prohibition - purposeful dilution. Purposeful dilution to render TENORM exempt shall not be performed without prior department approval.

NDPC believes this rule needs greater clarification and should include exceptions for actions that may unintentionally result in dilution as a part of normal operations, such as the additiona of bulking agent for transport stabilization and for final disposal.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-10. General licenses.

1. A general license is hereby issued to possess, use, transfer, distribute or dispose of TENORM without regard to quantity, except for those activities requiring a specific license.

2. Employees or contractors under control and supervision of a general licensee may perform routine maintenance on equipment, facilities, and land owned or controlled by the general licensee. Maintenance that provides a pathway for exposure different from that found in periodic maintenance operations and that increases the potential for additional exposure is not considered routine

maintenance. The decontamination of equipment, facilities, and land shall be performed only by persons specifically licensed by the department, an agreement state, or another licensing agency to conduct such work.

Proposed § 33-10-23-10(2) prohibits general licensees from performing anything beyond "routine maintenance" on equipment, facilities, and land owned or controlled by the general licensee. NDDH does not clarify what type of equipment, facilities or land is included in the prohibition (suspected contamination or proven contamination?). NDDH goes on to define what is not routine maintenance ("[m]aintenance that provides a pathway for exposure different from that found in periodic maintenance operations and that increases the potential for additional exposure"), please provide specific examples.

Decontamination of equipment can only be performed by persons specifically licensed by the NDDH . How does this apply to construction activities that currently clean/flush tanks and treaters on location will this be considered "routine maintenance?" If only licensed contractors can clean vessels and tanks, we will be required to develop a testing program to determine TENORM presence/absence prior to cleaning of equipment. Additionally, it is unclear what protocols we will need to follow for worker exposure. We suggest adding a definition for "routine maintenance" to clarify the State's intent to ensure that all operators are handling this in a consistent manner. We note that a reference to "routine maintenance" is also included in Section 33-10-23- 11.2.

3. Any person subject to the general license issued under this section shall notify the department within sixty days of the effective date of this chapter or of becoming subject to the general license. The notification shall include the following:

   a. Name and address of the licensee;

   b. Location and description of the facility, facilities, or portion of a facility where the TENORM is situated; and

   c. Description of the TENORM including estimates of the amount and extent of TENORM.

4. Transfer of material, equipment or real property.

   a. The transfer of TENORM, not exempt from article 33-10, from one general licensee to another general licensee is authorized if:

      (1) The equipment and facilities contaminated with TENORM are to be used by the recipient for a similar purpose, provided that no member of the public shall receive a dose in excess of that allowed under subsection 1 of section 33-10-23-05; or

      (2) The transfer of control or ownership of land contaminated with TENORM includes an annotation of the deed records to indicate the presence of TENORM.

b. For transfers not made in accordance with subdivision a, the transferor shall obtain the department's prior written approval for the transfer.

c. For transfers made under subdivision a, the transferor shall assess the amount and extent of TENORM contamination or material present, inform the general licensee receiving the TENORM of these assessments prior to such transfer, and maintain records that include:

(1) The date, recipient name and location;

(2) A description and quantity of the material; and

(3) A description of the procedures and mechanisms used to ensure that material will not be released in another manner, such as an unrestricted release.

d. A general licensee intending to transfer material or real property for unrestricted use shall document compliance with the requirements of section 33-10-23-07. Records of such compliance shall be maintained for ten years.

5. Distribution of TENORM products between general licensees. The distribution of TENORM products from one general licensee to another general licensee is authorized provided the product is accompanied by labels or manifests which identify the type and amount of TENORM.

6. The department may, by written notice, require any person authorized by a general license to apply for and obtain a specific license if the department determines that specific licensure is necessary to ensure that exposures do not exceed the criteria of sections 33-10-23-05 and 33-10-23-06. The notice shall state the reason or reasons for requiring a specific license.

The transfer of control or ownership of land contaminated with TENORM must be noted in the deed, however the section 33-10-23-07 unrestricted use and conditional release requires decontamination prior to vacating or transferring premises. The property should be decontaminated prior to vacating or transfers, deeming the deed stipulation immaterial.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-11. Specific licenses.

1. A specific license is required to manufacture and distribute any consumer or retail product containing TENORM unless the manufacture and distribution are:

a. Authorized as specified by section 33-10-23-10;

b. Licensed under the provisions of chapter 33-10-03.1; or

c. Otherwise exempt in accordance with another chapter of article 33-10.

2. A specific license is required to decontaminate equipment or land not exempted under the provisions of section 33-10-23-04 or to decontaminate facilities contaminated with TENORM in excess of the levels in section 33-10-23-07. For purposes of this subsection, the term "decontaminate" shall not include routine maintenance which results in the incidental removal of contamination.

3. A specific license is required to receive TENORM from other persons for storage, treatment or disposal unless otherwise authorized in writing by the department.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-12. Application and background review for specific licenses.

Does the Department propose a formal process by which applications are reviewed, and does it propose a method of recourse should the need arise? Does the Department view its licensing as preeminent to current and future local statutes?

1. Applications for specific licenses shall be in English and filed in a manner and on a form prescribed by the department.

2. The department may at any time after the filing of the original application, and before the termination of the license, require further statements in order to enable the department to determine whether the application shall be granted or denied or whether a license shall be modified or revoked.

3. An applicant must provide information required by the department to complete an environmental compliance background review, including:

a. Consent to a criminal history check under North Dakota Century Code section 12-60-24.

b. Disclosure of personal and business information on a form provided by the department, executed under oath or affirmation, which includes:

(1) The person's name and address;

(2) A description of the person's experience in managing the type of TENORM that will be managed under the license;

(3) A description of every civil and administrative complaint against the person for the violation of any state or federal environmental protection law which has resulted in a fine or penalty of more than ten thousand dollars within five years before the date of the submission of the application;

(4) A description of every settlement agreement entered into by the person with a federal or state agency to resolve any alleged violation of any state or federal environmental protection law which has resulted in a payment of more than ten thousand dollars within five years before the date of the submission of the application;

(5) A description of every pending notice of violation, civil complaint, administrative complaint, or criminal complaint alleging the violation of any state or federal environmental protection law;

(6) A description of every judgment of criminal conviction entered against the applicant within five years before the date of submission of the application for the violation of any state or federal environmental protection law;

(7) A description of every judgment of criminal conviction of a felony constituting a crime involving fraud or misrepresentation under the laws of any state or of the United States which has been entered against the applicant within five years before the date of submission of the application; and

(8) Any other information the department deems relevant.

c. In addition to the applicant, the following related individuals and entities may be required to submit ~~personal and~~ business disclosure information: this is a "may be required" section, NDPC suggests that it not apply to publicly traded companies that already undergo significant scrutiny.

(1) Each entity that is, or is proposed to be:

(a) A partner;

(b) An entity contracted with the applicant to operate, manage or supervise the facility or activities for which approval is being sought;

(c) An entity holding of 10% or more of the applicant's debt;

(d) An entity holding 10% or more of the applicant's equity;

(e) The parent corporation, holding corporation, and any

other entity that exercises control over the facility or activities for which approval is being sought;

(2) Each individual which has, or is proposed to have, any of the following relationships with the applicant:

(a) Director;

(b) Partner;

(c) Officer;

(d) All individuals having managerial or supervisory or substantial decision-making authority and responsibility for the management of operations involving TENORM;

(e) Holder of 10% or more of the applicant's debt;

(f) Holder of 10% or more of the applicant's equity.

4. The department may deny an application for the issuance, renewal, transfer, or major modification based on its environmental compliance background review.

a. Circumstances justifying denial include:

(1) The applicant has intentionally misrepresented or concealed any material fact in a statement required under this section;

(2) The applicant or related individual or entity has been convicted of a felony or pleaded guilty or nolo contendere to a felony involving the laws of any state or the federal government within five years preceding the application for the license;

(3) The applicant or related individual or entity has been adjudicated in contempt of an order of any court enforcing the laws of this state or any other state or the federal government within five years preceding the application for the license; or

(4) The applicant or related individual or entity has repeatedly violated any state or federal environmental protection laws.

b. The department shall consider the relevance of the offense to the business to which the license is issued, the nature and seriousness of the offense, the circumstances under which the offense occurred, the date of the offense, and the ownership and management structure in place at the time of the offense.

5. Each application shall be signed by the applicant or a person duly authorized

to act for and on the applicant's behalf.

6. An application for a license may include a request for a license authorizing one or more activities.

7. Each application for a specific license shall be accompanied by the fee prescribed in chapter 33-10-11.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-13. Requirements for the issuance of specific licenses.

1. A license application will be approved if the department determines that:

   a. The applicant is qualified by reason of training and experience to use the TENORM in question for the purpose requested in accordance with article 33-10 in such a manner as to protect the public health and safety or property;

   b. The applicant's proposed equipment, facilities, and procedures are adequate to protect the public health and safety or property;

   c. The issuance of the license will not constitute a significant risk to the health and safety of the public;

   d. The applicant satisfied all applicable special requirements in this chapter;

   e. The applicant has met the financial assurance requirements of section 33- 10-23-25;

   f. The applicant has adequately addressed the following items in the application:

      (1) Procedures and equipment for monitoring and protecting workers;

      (2) An evaluation of the radiation levels and concentrations of contamination expected during normal operations;

      (3) Operating and emergency procedures, including procedures for waste reduction and quality assurance of items released for unrestricted use; and

      (4) A method for managing the radioactive material removed from contaminated equipment, facilities, and land.

   g. For each location to be listed on the license as an authorized use

location, the applicant shall submit either:

(1) A statement that the applicant owns the facility where radioactive material is to be used or stored; or

(2) A statement verifying that the facility owner has been informed, in writing, of the use or storage of radioactive material at the facility, and that the use of such material is subject to the rules of the department.

2. An application for a specific license to transfer or manufacture or distribute consumer or retail products containing TENORM to persons exempted from this chapter under subsection 2 of section 33-10-23-04 will be approved if:

a. The applicant satisfies the general requirements specified in subsection 1;

b. The TENORM is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being; and

c. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, and conditions of handling, storage, use, and disposal of the TENORM product to demonstrate that the product will meet the safety criteria set forth in section 33-10-23-14. The information shall include:

(1) A description of the product and its intended use or uses;

(2) The type, quantity, and concentration of TENORM in each product;

(3) The chemical and physical form of the TENORM in the product, and changes in chemical and physical form that may occur during the useful life of the product;

(4) An analysis of the solubility in water and body fluids of the radionuclides in the product;

(5) The details of manufacture and design of the product relating to containment and shielding of the TENORM and other safety features under normal and severe conditions of handling, storage, use, reuse, and disposal of the product;

(6) The degree of access of human beings to the TENORM product during normal handling, use, and disposal;

(7) The total quantity of TENORM expected to be distributed annually in the product;

(8) The expected useful life of the product;

(9) The proposed method of labeling or marking each unit of the product with identification of the manufacturer or initial transferor of the product and the radionuclides and quantity of TENORM in the product;

(10) The procedures for prototype testing of the product to demonstrate the effectiveness of the containment, shielding, and other safety features under both normal and severe conditions of handling, storage, use, reuse, and disposal;

(11) The results of the prototype testing of the product, including any change in the form of the TENORM contained in it, the extent to which the TENORM may be released to the environment, any change in radiation levels, and any other changes in safety features;

(12) The estimated external radiation doses and committed dose equivalent relevant to the safety criteria in section 33-10-23-14 and the basis for such estimates;

(13) A determination that the probabilities with respect to doses referred to in section 33-10-23-14 meet the safety criteria;

(14) The quality control procedures to be followed in the processing of production lots of the product, and the quality control standards the product will be required to meet; and

(15) Any additional information, including experimental studies and tests, required by the department to facilitate a determination of the radiation safety of the product.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-14. Safety criteria for consumer and retail products. An applicant for a license under subsection 2 of section 33-10-23-13 shall demonstrate that the product is designed and will be manufactured so that:

1. In normal use and disposal of a single exempt item, and in normal handling and storage of the quantities of exempt items likely to accumulate in one location during marketing, distribution, installation, and servicing of the product, it is unlikely that the dose in any one year, to a suitable sample of the group of individuals expected to be most highly exposed to radiation or radioactive material from the product will exceed the doses in column I of section 33-10-23- 15.

2. In use and disposal of a single exempt item and in handling and storage of the quantities of exempt items likely to accumulate in one location during marketing, distribution, installation, and servicing of the product, the probability is low that the containment, shielding, or other safety features of the product would fail under such circumstances that a person would receive an external radiation dose or committed dose equivalent in excess of the dose to the appropriate part of the body as specified in column II of section 33-10-23-15 and the probability is negligible that a person would receive an external radiation dose or committed dose equivalent in excess of the dose to the appropriate part of the body as specified in column III of section 33-10-23-15.

3. It is unlikely that there will be a significant reduction in the effectiveness of the containment, shielding, or other safety features of the product from wear and abuse likely to occur in normal handling and use of the product during its useful life.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-15. Table of doses. The dose limits in this section are the doses above background from the product.

1. Column I doses are:

   a. For the whole body; head and trunk; active blood-forming organs; gonads; or lens of eye - fifty microsieverts [five millirem].

   b. For the hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one square centimeter - seven hundred fifty microsieverts [seventy five millirem].

   c. For other organs - one hundred fifty microsieverts [fifteen millirem].

2. Column II doses are:

   a. For the whole body; head and trunk; active blood-forming organs; gonads; or lens of eye - five millisieverts [five hundred millirem].

   b. For the hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one square centimeter - seventy five millisieverts [seven thousand five hundred millirem].

   c. For other organs - fifteen millisieverts [one thousand five hundred millirem].

3. Column III doses are:

a. For the whole body; head and trunk; active blood-forming organs; gonads; or lens of eye - one hundred fifty millisieverts [fifteen rem].

b. For ankles and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one square centimeter - two thousand millisieverts [two hundred rem].

c. For other organs - five hundred millisieverts [fifty rem].

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-16. Issuance of specific licenses.

1. Upon a determination that an application meets the requirements of article 33-10, the department will issue a specific license authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary.

2. The department may incorporate in any license at the time of issuance, or thereafter by amendment, such additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of TENORM subject to this chapter as it deems appropriate or necessary in order to:

   a. Protect public health and safety or property;

   b. Require such reports and the keeping of such records, and to provide for such inspections of activities under the license as may be appropriate or necessary; and

   c. Prevent loss, theft, or loss of control of TENORM subject to this chapter.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-17. Conditions of specific licenses.

1. General terms and conditions.

   a. Each specific license issued under this chapter shall be subject to all the provisions of North Dakota Century Code chapters 23-20, 23-20.1, 23- 20.2, and 23-20.5, now or hereafter in effect, and to all rules and orders of the department.

   b. No specific license issued or granted under this chapter and no right to possess or utilize TENORM granted by any license issued under this chapter shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through

transfer of control of any license to any person unless the department shall, after securing full information, find that the transfer is in accordance with the provisions of North Dakota Century Code chapters 23-20, 23-20.1, 23- 20.2, and 23-20.5, and shall give its consent in writing.

c. Each person specifically licensed by the under this chapter shall confine use and possession of the TENORM licensed to the locations and purposes authorized in the specific license.

d. Transfer of control.

Within thirty (30) days of the existence of any new controlling individual or entity, the licensee shall submit to the department the name of the controlling individual or entity and a statement signed by the controlling individual or entity in which the controlling individual or entity agrees to accept responsibility for the license. The controlling individual or entity must undergo an environmental compliance background review under section 33-10-23-12.

e. Notification of bankruptcy.

(1) Each licensee shall notify the department, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapters of Title 11 (Bankruptcy) of the United States Code by or against:

(a) The licensee;

(b) An entity [as that term is defined in 11 U.S.C. 101(15)] controlling a licensee or listing the license or licensee as property of the estate; or

(c) An affiliate [as that term is defined in 11 U.S.C. 101(2)] of the licensee.

(2) This notification shall indicate:

(a) The bankruptcy court in which the petition for bankruptcy was filed; and

(b) The date of the filing of the petition.

f. Each licensee shall notify the department in writing prior to commencing activities to reclaim the licensed facility and site.

g. Notification of site or area closure. When a licensee has permanently ceased use of radioactive materials at a site or portion of a facility and the licensee has not decontaminated the area, or when an area has not

been used for a period of two years, the licensee shall, within sixty days, provide the following information in writing to the department:

(1) The location of the facility, site, or area;

(2) The plan for reclaiming or decontaminating the facility, site or area; and

(3) An evaluation of any changes to the financial assurance submitted in accordance with section 33-10-23-25.

h. Temporary jobsites.

(1) When temporary jobsites are authorized on a specific license, TENORM may be used at temporary jobsites throughout North Dakota in accordance with the reciprocal recognition provisions of section 33-10-23-24 or chapter 33-10-19, in areas not under exclusive federal jurisdiction.

(2) Before TENORM can be used at a temporary jobsite at any federal facility within North Dakota, the jurisdictional status of the jobsite shall be determined as it pertains to the TENORM. Authorization for use of TENORM at jobsites under exclusive federal jurisdiction shall be obtained from the applicable federal agency.

2. Quality control, labeling, and reports of transfer. Each person licensed under subsection 2 of section 33-10-23-13 shall:

a. Carry out adequate control procedures in the manufacture of the product to assure that each production lot meets the quality control standards approved by the department;

b. Label or mark each unit so that the manufacturer, processor, producer, or initial transferor of the product and the TENORM in the product can be identified; and

c. Maintain records identifying, by name and address, each person to whom TENORM is transferred for use under subsection 2 of section 33-10-23-04 or the equivalent rules of another licensing state, and stating the kinds, quantities, and uses of TENORM transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the department. Each report shall cover the year ending December 31, and shall be filed within ninety days thereafter. If no transfers of TENORM have been made pursuant to subsection 2 of section 33-10-23-13 during the reporting period, the report shall so indicate.

General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-18. Expiration and termination of specific licenses.

1. Except as provided in subsection 2 of section 33-10-23-19, the authority to engage in licensed activities as specified in the specific license shall expire at the end of the specified day in the month and year stated therein. Any expiration date on a specific license applies only to the authority to engage in licensed activities. Expiration of a specific license shall not relieve the licensee of responsibility for decommissioning its facility and terminating the specific license.

2. Each licensee shall notify the department immediately, in writing, and request termination of the license when the licensee decides to terminate all activities involving radioactive materials authorized under the license. This notification and request for termination shall include the documents required by subsection 4 and shall otherwise substantiate that the licensee has met all of subsection 4's requirements.

3. No less than thirty days before the expiration date specified in a specific license, the licensee shall either:

   a. Submit an application for license renewal pursuant to section 33-10-23-19; or

   b. Notify the department, in writing, if the licensee decides not to renew the license. The licensee requesting termination of a license shall comply with the requirements of subsection 4;

4. Termination of licenses.

   a. If a licensee does not submit a complete application for license renewal pursuant to section 33-10-23-19, the licensee shall, on or before the expiration date specified in the license:

      (1) Terminate use of the TENORM specified in the license;

      (2) Remove radioactive contamination to the level outlined in section 33-10-23-07, to the extent practicable;

      (3) Properly dispose of the TENORM specified in the license;

      (4) Submit a completed department form "certificate: disposition of radioactive material" (SFN 18941); and

      (5) Submit a radiation monitoring report to confirm the absence of TENORM specified in the license or to establish the levels of residual radioactive contamination, unless the licensee demonstrates the absence of residual radioactive contamination

in some other manner acceptable to the department. The radiation monitoring report shall specify the instrumentation used and certify that each instrument was properly calibrated and tested. The licensee shall, as applicable, report levels or quantities of:

(a) Beta and gamma radiation at one centimeter from surfaces in units, multiples, or subunits of sieverts or rem per hour or microroentgens per hour;

(b) Gamma radiation at one meter from surfaces in units, multiples, or subunits of sieverts or rem per hour or microroentgens per hour;

(c) Removable radioactivity on surfaces in units, multiples, or subunits of becquerels or curies per one hundred square centimeters of surface area or in disintegrations (transformations) per minute per one hundred square centimeters of surface area;

(d) Fixed radioactivity on surfaces in units, multiples, or subunits of becquerels or curies per one hundred square centimeters of surface area or in disintegrations (transformations) per minute per one hundred square centimeters of surface area;

(e) Radioactivity in contaminated liquids such as water, oils or solvents in units, multiples, or subunits of becquerels or curies per milliliter of volume or per gram of liquid; and

(f) Radioactivity in contaminated solids such as soils or concrete in units, multiples, or subunits of becquerels or curies per gram of solid.

b. If levels of residual radioactive contamination attributable to activities conducted under the license are less than those established in section 33- 10-23-07, the licensee shall so certify. If the department determines that this certification and the information submitted under subdivision a is adequate and monitoring confirms the findings, then the department will notify the licensee, in writing, of the termination of the license.

c. If residual radioactive contamination attributable to activities conducted under the license are not in conformance with criteria established in section 33-10-23-07:

(1) The license continues in effect beyond the expiration date, if necessary, with respect to possession of residual TENORM present as contamination until the department notifies the

licensee in writing that the license is terminated. During this time the licensee is subject to the provisions of subsection 5.

(2) In addition to the information submitted under subdivision a of subsection 4, the licensee shall submit a plan for decontamination and disposal, if required, as regards residual TENORM contamination remaining at the time the license expires.

5. Each licensee who possesses TENORM under subdivision c of subsection 4, following the expiration date specified in the license, shall:

a. Limit actions involving TENORM as specified in the license to those related to decontamination and other activities related to preparation for release for unrestricted use; and

b. Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the department notifies the licensee in writing that the license is terminated.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-19. Renewal of specific licenses.

1. Applications for renewal of specific licenses shall be filed in accordance with section 33-10-23-12.

2. In any case in which a licensee, not less than thirty days prior to expiration of an existing license, has filed an application in proper form for renewal or for a new license authorizing the same activities, the existing license shall not expire until final action by the department.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-20. Amendment of specific licenses at request of licensee. Applications for amendment of a license shall be filed in accordance with section 33-10-23-12 and shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-21. Department action on applications to renew and amend specific licenses. In considering an application by a licensee to renew or amend the license, the department will apply the criteria set forth in section 33-10-23-13.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-22. Modification and revocation of specific licenses.

1. The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to North Dakota Century Code chapters 23-20, 23-20.1, 23-20.2, or 23-20.5, or by reason of rules and orders issued by the department.

2. Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or because of conditions revealed by such application or any report, record, or inspection or other means which would warrant the department to refuse to grant a license on an original application, or for violation of, or failure to observe any of the terms and conditions of North Dakota Century Code chapters 23-20, 23-20.1, 23-20.2, or 23-20.5, or of the license, or of any rule or order of the department.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-23. Record keeping requirements for site reclamation. Each licensee shall keep records of information important to the safe and effective reclamation of a facility in an identified location until the license is terminated by the department. If records of relevant information are maintained for other purposes, reference to these records and their locations may be used. The records must include the following information:

1. Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records shall include any known information on identification of involved radionuclides, quantities, forms and concentrations.

2. As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used or stored, and of locations of possible inaccessible contamination, such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

3. If required by section 33-10-23-25, records of this reclaiming cost estimate prepared for the amount approved by the department for

reclaiming.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-24. Reciprocal recognition of specific licenses.

1. Any person who holds a specific license from another agreement state or licensing state, issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within North Dakota for a period not in excess of one hundred eighty days in any 12 month period, provided that:

   a. A current copy of the licensing document or equivalent authorization is on file with the department and the authorized activities are not limited to specified installations or locations;

   b. The out-of-state licensee notifies the department at least three days before engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within North Dakota. Upon receipt from the out-of-state licensee of a written request containing a schedule of activities to be conducted within North Dakota, the department may waive the requirement for additional notifications during the twelve-month period following the receipt of the initial notification;

   c. The out-of-state licensee complies with all applicable rules of the department and with all the terms and conditions of the licensing document or equivalent authorization, except any such terms and conditions which may be inconsistent with article 33-10;

   d. The out-of-state licensee supplies any other information necessary to show compliance with article 33-10; and

   e. The out-of-state licensee shall not transfer or dispose of TENORM possessed or used under the general license, except by transfer to a person:

      (1) Specifically licensed by the department or by another licensing state to receive such TENORM; or

      (2) Exempt from the requirements for a license for such TENORM under section 33-10-23-04.

2. The department may withdraw, limit or qualify its acceptance of any specific license or equivalent authorization issued by a licensing state, or any product distributed pursuant to such license or equivalent authorization, if the

department determines that, had the out-of-state licensee been licensed by North Dakota, the licensee's license would have been subject to action under section 33-10-23-22.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-25. Financial assurance arrangements. Each licensee or applicant for a specific license shall post with the department financial assurance, or security, to ensure the protection of the public health and safety and the environment in the event of abandonment, default, or other inability or unwillingness of the licensee to meet the requirements of article 33-10 and North Dakota Century Code chapter 23-20.1. Financial assurance arrangements shall:

1. Consist of surety bonds, government securities, irrevocable letters of credit, corporate guarantees, insurance, state funds, or any combination of these;

2. Be in an amount sufficient to meet the applicant's or licensee's obligations under article 33-10 and North Dakota Century Code chapter 23-20.1 and shall be based upon department approved cost estimates;

3. Be established prior to issuance of the license or the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the facility;

4. Be continuous for the duration of the license and for a period coincident with the applicant or licensee's responsibility under article 33-10 and North Dakota Century Code chapter 23-20.1;

5. Be available in North Dakota subject to judicial process and execution in the event required for the purposes set forth; and

6. Be established within ninety days of the initial effective date of this chapter for licenses in effect on that date.

Each licensee or applicant for specific licensure shall post with the department financial assurance within ninety (90) days of the effective date of the rule. This is rare to request for specific licensees that only work at temporary jobsites. This infers that decontamination companies will have the ability to decontaminate at their facilities, typically referred to as a fixed facility. Will a difference in licensing fee distinguish between temporary jobsite authority and a fixed facility?

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-26. Acceptable surface contamination levels for TENORM.

1. Where surface contamination by both alpha and beta-gamma emitting

nuclides exists, the limits established for alpha and beta-gamma emitting nuclides shall apply independently.

2. As used in this section, "disintegrations per minute" means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

3. Average contamination level.

   a. For surface contamination by alpha emitting nuclides, the average contamination level shall not exceed five thousand disintegrations per minute per one hundred square centimeters of surface area.

   b. For surface contamination by beta-gamma emitting nuclides, the average contamination level shall not exceed five thousand disintegrations per minute per one hundred square centimeters of surface area.

   c. Measurements of average contamination level shall not be averaged over more than one square meter. For objects of less surface area, the average shall be derived for each object.

   d. The average radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed two microgray per hour [two tenths millirad per hour] at one centimeter and ten microgray per hour [one millirad per hour] at one centimeter, respectively, measured through not more than seven milligrams per square centimeter of total absorber.

4. Maximum contamination level.

   a. For surface contamination by alpha emitting nuclides, the maximum contamination level shall not exceed fifteen thousand disintegrations per minute per one hundred square centimeters of surface area.

   b. For surface contamination by beta-gamma emitting nuclides, the maximum contamination level shall not exceed fifteen thousand disintegrations per minute per one hundred square centimeters of surface area.

   c. The maximum contamination level applies to an area of not more than one hundred square centimeters.

   d. The maximum radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed two microgray per hour [two tenths millirad per hour] at one centimeter and ten microgray per hour [one millirad per hour] at one centimeter, respectively, measured through not more than seven milligrams per square centimeter of total absorber.

5. Limits on removable contamination.

   a. For surface contamination by alpha emitting nuclides, the removable contamination shall not exceed one thousand disintegrations per minute per one hundred square centimeters of surface area.

   b. For surface contamination by beta-gamma emitting nuclides, the removable contamination shall not exceed one thousand disintegrations per minute per one hundred square centimeters of surface area.

   c. Measurements of average contamination level shall not be averaged over more than one square meter. For objects of less surface area, the average shall be derived for each object.

   d. The amount of removable radioactive material per one hundred square centimeters of surface area shall be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area A (where A is less than one hundred square centimeters) is determined, the entire surface shall be wiped and the contamination level multiplied by the quantity [one hundred divided by A] to convert to a "per one hundred square centimeter" basis.

   e. The maximum radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed two microgray per hour [two tenths millirad per hour] at one centimeter and ten microgray per hour [one millirad per hour] at one centimeter, respectively, measured through not more than seven milligrams per square centimeter of total absorber.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-27. Specific licenses – radiation protection program required.

1. A licensee shall appoint a Radiation Safety Officer, who agrees, in writing, to be responsible for implementing the radiation protection program. The licensee, through the Radiation Safety Officer, shall ensure that radiation safety activities are being performed in accordance with licensee-approved procedures and regulatory requirements.

2. A licensee shall establish, in writing, the Radiation Safety Officer's authority, duties, and responsibilities.

3. A licensee shall provide the Radiation Safety Officer sufficient authority, organizational freedom, time, resources, and management prerogative, to--

   a. Identify radiation safety problems;

   b. Initiate, recommend, or provide corrective actions;

   c. Stop unsafe operations; and

   d. Verify implementation of corrective actions.

4. A licensee shall retain a record of actions taken under subsections 1 and 2 of this section for five years.

Radiation Protection Program

Please provide further explanation of NDAC 33-10-23-27. There is some confusion as to whether these requirements pertain to specific licensees (NDAC 33-10-23-11) or general licensees (NDAC 33-10-23-10), or both. If the NDDH intends to apply this rule to general licensees, which most of the oil and gas, exploration and production industry would fall under, the requirement for a Radiation Safety Officer ("RSO") would present several challenges. Exploration and Production companies do not currently employ RSOs, and if a company does have a RSO on staff, they are most likely not located within North Dakota. There are also a limited number of individuals who can be considered qualified RSOs located in North Dakota, let alone located within the United States. This presents a significant challenge to find this type of personnel. Costs to hire a RSO with appropriate qualifications and training are high.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-28. Radiation safety officer – qualifications.

1. Except for licenses exclusive to the transport of TENORM waste, the licensee shall require an individual fulfilling the responsibilities of the Radiation Safety Officer as provided in 33-10-23-27 to be an individual who:

   a. Has completed a department approved training program consisting of both:

      (1) Forty hours of classroom training in the following areas:

         (a) Characteristics of radiation;

         (b) Units of radiation dose and quantity of radioactivity;

         (c) Hazards of exposure to radiation;

(d) Radiation detection and measurement;

(e) Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);

(f) Use and types of personnel-monitoring equipment;

(g) Proper use of protective equipment; and

(h) Transportation of licensed material; and

(2) One year of on-the-job training under the supervision of a qualified individual (authorized user, radiation safety officer) that includes supervised experience performing the task(s) authorized ~~on the~~ during routine and emergency situations.

2. For licenses exclusive to the transport of TENORM waste, the licensee shall require an individual fulfilling the responsibilities of the Radiation Safety Officer to be an individual who:

a. Has completed a department approved training program consisting of:

(1) Eight hours of classroom training in the following areas:

(a) Characteristics of radiation;

(b) Units of radiation dose and quantity of radioactivity;

(c) Hazards of exposure to radiation;

(d) Radiation detection and measurement;

(e) Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);

(f) Use and types of personnel-monitoring equipment;

(g) Proper use of protective equipment; and

(h) Transportation of licensed material.

Paragraph (2) of 33-10-23-28 has a typo: "on the". In this same paragraph a requirement for apprenticeship is being set up. Since no one in the solid waste business in North Dakota would have had experience disposing of wastes over 5 pCi/g, how do you propose that an entity meet this requirement? Propose a clause to grandfather Radiation Safety Officers who have worked at a facility for at least one year and accept the certification of such an RSO who had taken and

passed the RSO 40 hour course from other accredited institutions and/or instructors.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

Article 33-20 is amended as follows:

ARTICLE 33-20

SOLID WASTE MANAGEMENT AND LAND PROTECTION

CHAPTER 33-20-01.1
GENERAL PROVISIONS

AMEND Section 33-20-01.1-02 Applicability as follows:

1. This article does not apply to the following:

...

h. Disposal of TENORM solids and TENORM contaminated equipment in Oil and Gas wells which are to be plugged and abandoned, provided such procedures are performed in a manner to protect the environment, public health, and fresh waters; and occur below the lowermost underground source of drinking water.

i. Disposal of TENORM into wells permitted to do so under approved permits.

j. Any Oil and Gas TENORM disposal method approved by NDDOH shown to be protective of public health, welfare, and the environment.

Section 33-20-01.1-03 is amended as follows:

33-20-01.1-03. Definitions. The terms used throughout this title have the same meaning as in North Dakota Century Code chapter 23-29, except:

. . .

51. "Technologically enhanced naturally occurring radioactive material (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" as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

~~51.~~52. "Transfer station" means a site or building used to transfer solid waste from a

vehicle or a container, such as a rolloff box, into another vehicle or container for transport to another facility.

~~52.~~53. "Treatment" means a method or process designed to change the physical, chemical, or biological character or composition of a solid waste or leachate so as to neutralize the waste or leachate or so as to render the waste or leachate safer for public health or environmental resources during transport, storage, or disposal. The term does not include resource recovery.

~~53.~~54. "Used oil" means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

~~54.~~55. "Waste pile or pile" means any noncontainerized accumulation of nonflowing solid waste.

History: Effective December 1, 1992; amended effective August 1, 1993; October 1, 1994; May 1, 1999; _____, 2015.

General Authority: NDCC 23-29-04, 61-28-04
Law Implemented: NDCC 23-29-04, 61-28-04

Section 33-20-01.1-09 is amended as follows:

33-20-01.1-09. Radioactive waste. Every person who handles and disposes of radioactive waste shall comply with article 33-10. Every person who handles and disposes of TENORM shall also comply with the applicable requirements of this article.

History: Effective December 1, 1992; amended effective ,2015.
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

. . .

CHAPTER 33-20-07.1
SMALL VOLUME INDUSTRIAL WASTE LANDFILLS AND SPECIAL WASTE LANDFILLS

Section
33-20-07.1-01 Performance and Design Criteria
33-20-07.1-02 Closure Criteria

Section 33-20-07.1-01 is amended as follows:

33-20-07.1-01. Performance and design criteria. In addition to the requirements of section 33-20-01.1-08 and chapter 33-20-04.1, the owner or operator of an industrial waste landfill or a special waste landfill shall comply with the design, construction, and operating standards as follows:

1. On all areas of the landfill where final cover or additional solid waste will not be placed within six months, eight inches [20.3 centimeters] or more of compacted clay-rich soil material, similar material, or a synthetic cover must be placed to prevent ponding of surface water, to minimize infiltration of surface water, and to control windblown dust.

2. Solid waste disposal in industrial waste landfills and special waste landfills must be limited to those wastes identified in the permit application or permit. Regulated infectious waste, used oil as a free liquid, and hazardous waste~~, and~~ radioactive waste may not be accepted for disposal at the landfill. TENORM waste may only be accepted under the provisions of chapter 33-20-11.

3. All solid wastes deposited at the landfill must be spread and compacted as densely as practicable to minimize waste volume and promote drainage of surface water.

4. Any new or lateral expansion of an industrial waste landfill or special waste landfill must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit.

    a. The liner and leachate removal system must be compatible with the waste and leachate.

    b. The liner and leachate removal system must maintain its integrity during the operating period and through the postclosure period.

    c. The system must have a collection efficiency of ninety percent or better and must be capable of maintaining a hydraulic head of twelve inches [30.5 centimeters] or less above the liner.

    d. For landfills that receive wastes containing water soluble constituents, the liner must consist of at least four feet [1.2 meters] of compacted natural soil having a hydraulic conductivity not to exceed 1×10^{-7} centimeters per

second. ~~This requirement does not apply to landfills receiving only oil field drilling cuttings and drilling mud.~~

e. A composite liner is required for landfills receiving TENORM waste or wastes which may contain leachable organic constituents. The liner must consist of at least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second overlain with at least a sixty mil flexible membrane liner.

f. The drainage layer must have a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout. The drainage layer must have a sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

g. The liner and leachate removal system in combination with the final cover must achieve a site efficiency of at least ninety-eight and one-half percent or better for collection or rejection of the precipitation that falls on the site.

h. The requirements of this subsection for a liner, leachate collection system, or both liner and leachate collection system may be modified by the department if the permit applicant demonstrates that, based on factors such as geologynd hydrology of the site, characteristics of the waste, and engineering design, any leachate migration can be prevented or controlled.

History: Effective December 1, 1992; amended effective August 1, 1993, October 1, 1994; ,2015.
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04, 23-29-07

CHAPTER 33-20-10
LARGE VOLUME INDUSTRIAL WASTE AND MSW ASH LANDFILLS

Section 33-20-10-03 is amended as follows:

33-20-10-03. Waste disposal. In addition to the requirements of section 33-20-01.1-08 and chapter 33-20-04.1, the owner or operator of a landfill shall comply with the performance and design criteria as follows:

1. Any new or lateral expansion of a landfill must be designed with a hydraulic barrier and leachate management system.

    a. Synthetic liners, leachate detection systems, and leachate removal systems must be compatible with solid waste disposed and the waste=s leachate.

    b. Leachate removal and management systems must be capable of collecting and removing leachate and contaminated surface water.

    c. Synthetic liners and leachate removal systems must withstand all physical and chemical stresses during the operating period and through the postclosure period.

    d. The synthetic liners and leachate removal systems must have a collection efficiency of ninety-seven percent or better of precipitation falling on the fill area before closure and must be capable of removing leachate to limit the hydraulic head above the upper liner, exclusive of collection sumps, to twelve inches [30.5 centimeters] or less within thirty-six hours of a precipitation event.

    e. A composite liner is required which includes at a minimum from bottom to top:
        (1) At least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second;

        (2) A synthetic flexible membrane liner at least sixty mil thick;

        (3) A secondary drainage layer with a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout and with sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater;

(4) A synthetic flexible membrane liner at least eighty mil thick; and

(5) A drainage layer with a hydraulic conductivity of 1×10^{-3} centimeters per second or greater and with sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

f. No composite liner may be exposed to freezing more than one winter season. At least three feet of solid waste or other material approved by the department must be placed above the upper drainage layer on all lined areas by December first. No disposal may take place after December first in areas which have not met this requirement without first testing the composite liner's integrity and receiving approval from the department.

2. The facility must include a leachate detection and removal system and an onsite leachate management system or offsite leachate management.

a. The amount of leachate collected for onsite or offsite management must be measured and recorded.

b. The quality of the leachate must be periodically evaluated on a schedule proposed by the facility owner and approved by the department.

c. The department may require the construction of onsite surface impoundments to achieve the equivalent or better design standards of onsite landfills, based on site specific factors such as hydrogeological characteristics, anticipated leachate quality, anticipated static head or expected duration of use.

d. The department may require an owner or operator to control wildlife access to onsite surface impoundments based upon leachate quality and site circumstances.

3. Runoff must be contained, collected, and transferred to an onsite surface impoundment, unless another management method is approved by the department.

4. Solid waste disposal in landfills must be limited to those wastes identified in the permit application, waste acceptance plan, or permit. Regulated infectious waste, used oil as a free liquid which can be recovered or recycled, and hazardous waste~~, and radioactive waste~~ may not be accepted for disposal at the landfill. TENORM waste may only be accepted under the provisions of chapter 33-20-11.

5. All solid wastes deposited at the landfill must be placed, spread or compacted to minimize or prevent settlement and to promote drainage of surface water. The

sequence and direction of below-grade operations must be conducted to prevent surface water from entering the active fill area.

6. On all areas of the landfill where final cover or additional solid waste will not be placed within one month, eight inches [20.3 centimeters] or more of compacted clay-rich soil material, similar material, or a synthetic cover must be placed to prevent ponding of surface water, to minimize infiltration of surface water, and to control windblown dust.

33-20- 1 1-0 1.3 states: TENORM must be covered by at least one foot of non-TENORM waste or daily cover material by the end of each operating day. This is misleading as it could cause the licensee to believe that they could place 1 foot of non-TENORM waste or daily cover material without also adding the 8 inches of compacted clay required in 33-20-10-03.6 if the licensee stops using the area for more than a month. We want to ensure that licensees follow both requirements and suggest adding clarifying language to tie these two requirements together.

Chapter 33-20-11 is created as follows:

CHAPTER 33-20-11
LANDFILL DISPOSAL OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL WASTE

Section
33-20-11-01 Radioactive Waste Disposal
33-20-11-02 Prohibition
33-20-11-03 Authorization
33-20-11-04 Monitoring
33-20-11-05 Reporting
33-20-11-6 Worker Training and Safety
33-20-11-07 Record of Notice

Two sections of this proposed Chapter (NDAC 33-20-11-01 and NDAC 33-20-11-03) include reference to NDAC 33-10-03 – Licensing of Radioactive Material, which was repealed effective January 1, 2011. ***This citation may be in error and NDPC wanted to draw attention to this oversight.***

Disposal Limit Measurement

These regulations create a disposal limit of TENORM as determined in picocuries per gram (pCi/g). There is no rapid field measurement currently available for accurate determinations of pCi/g. The only reliable method is a 21 day laboratory analysis. This presents a significant compliance burden, not only for operators, but for disposal facilities receiving TENORM waste. In order for operators to segregate waste economically, and for disposal facilities to accept this waste with confidence, real-time radiation measurements must be achievable. The units of measurement for rapid field measurement are typically in microroentgens per hour (mR/hr). There is no accurate conversion between microR/hr and pCi/g, which is problematic since the proposed Chapter 33-20-11 only provides a disposal limit in pCi/g. Without a means for a rapid field measurement, disposal facilities will be reluctant to accept TENORM waste, and operators will have difficulty segregating

TENORM waste for disposal within North Dakota. Due to these radiation measurement concerns affecting compliance under the proposed rule, operators will most likely continue to dispose of TENORM waste outside of North Dakota, ***NDPC suggest a dual-path regulatory framework, to permit a disposal limit threshold in either pCi/g or microR/hr or approve field measurement technology that can accurately determine pCi/g in the field.***

33-20-11-01. Radioactive waste disposal. Disposal of radioactive waste subject to regulation under chapter 33-10-03, meeting the definition of TENORM, into special waste or industrial waste landfills shall comply with the following requirements and limitations:

1. TENORM waste up to, but not exceeding 50.0 picocuries per gram of Radium-226 plus Radium-228, may be disposed in a landfill which complies with chapter 33-20-07.1 or chapter 33-20-10, except that the accumulated amount must not exceed twenty-five thousand tons [22,679.22 metric tons] per year or three thousand tons [2,721.55 metric tons] in any one month unless larger amounts in one month resulting from special cleanup projects are pre-approved by the department. Drums or shipping containers of TENORM waste which are not of uniform concentration must not exceed an average concentration of 50.0 picocuries per gram of Radium-226 plus Radium-228.

Though studied by Argonne, Lead 210 (Pb-210) is not stated within the legislative rule updates for picocurie limits. The draft Section 33-20-11-01 (1) reads, "*TENORM waste up to, but not exceeding 50.0 picocuries per gram of Radium-226 plus Radium-228, may be disposed in a landfill...*" Based on this statement, it is assumed that Pb-210 does not fall under the 50 picocurie per gram limit applied to Ra-226 and Ra-228. The NDDH should outline within the rules the types of TENORM constituents it expects waste to be tested for. As well, within current operating permits Pb-210 is listed as an acceptable waste as long as the picocurie limit is below 5. The NDDH should confirm whether this permitted limit will be retained or will change based on the new rules.

Currently, TENORM waste exhibiting two times background levels require additional screening (laboratory analysis) to confirm if waste is acceptable. However, this is just a "rule of thumb" practiced within North Dakota. The NDDH should specify accepted practice within the proposed rule.

The NDDOH should confirm whether "spent filter socks" from oilfield waste filtration will be an acceptable waste stream according to the disposal facility's permit. Currently, acceptable wastes are listed in the Operations Plan included as part of the facility application, but are not specifically referenced within the issued permit for the site. By including "spent filter socks" as an acceptable waste stream, it can be expected that the proper disposal of this waste would increase. In addition, further clarification is requested on whether filter socks under the 50 picocurie per gram level require segregation and independent analysis, or if incorporation with solids is acceptable practice.

NDPC is concerned that the disposal facility volume limits, as proposed, in NDAC 33-20-11-01(1), are too low. Our members estimated per operator generation volume of TENORM waste presented above represents approximately half of the proposed disposal facility allowable volume, on a per facility basis.

These volume limits could become an issue, depending on the number of disposal facilities permitted by the NDDH. Based on these volume estimates, disposal facilities will be at capacity very quickly, if there are not numerous permitted facilities by the NDDH.

These volume limit assumes all accepted waste into a landfill will be 51.6 picocuries per gram; this seems to be a manipulation of conditional probabilities. Could safe volume limits be derived from more basic axioms of likelihood, specifically the probability that on average TENORM material to be delivered to a disposal facility will be in fact below the level assumed in the study? Additionally the study itself mentions alternative methods for risk mitigation, both through worker exposure monitory and through a cap placed on TENORM waste. Would disposal volumes be based on employee exposure rates incorporated into a Radiation Safety Program (RSP)? This method could be regulated through applicants Specific License, after NDDH review and in accordance with 33-10-23-12.2.

2. Equipment contaminated with TENORM which does not exceed a maximum exposure level of one hundred microroentgen per hour, including background radiation, at any accessible location may be disposed in a landfill which complies with chapter 33-20-07.1 or chapter 33-20-10.

3. TENORM waste must be covered by at least one foot of non-TENORM waste or daily cover material by the end of each operating day. For landfills that operate continuously (24 hours per day), all TENORM waste shall be covered at least once every twenty four hour period.

4. TENORM waste must be disposed at depth greater than ten feet below the surface of the final landfill cover.

5. For a landfill that is subject to chapter 33-20-07.1, if any part of the final cover has slope greater than fifteen percent, then the final cover must have an additional two feet as measured at a right angle to the surface of the final cover . of low permeability soil, for a total minimum cover thickness of five feet.

The basis for the need to provide an additional 2 feet of cover on facilities that have final cover slopes in excess of 15% is unclear in the documents. At the hearing you indicated that the department is concerned with erosion of the cover exposing the waste over a large time period (i.e. 1,000 years). As is the case with our facility, engineering calculations were provided with the design that demonstrated the stability of our design slopes that are in excess of 15%. The RUSLE2 calculation showed that 25 percent slopes at our facility, with our diversion berm designs, indicate a maximum erosion potential of 0.045 tons/acre/year. So, given the fact that an acre foot of cover soil weighs in excess of 2000 tons, the likelihood of exposing the waste due to natural causes is extreme. The estimated time to erode 1 foot of material over an acre is 45,000 years. The half life of Radium is 1,600 years. If acute erosion (washout) is the concern due climate changes or other events, the RESRAD Argonne National Lab model uses an exposure scenario that puts a man in the basement of a house for his entire life without exposures in the dangerous category. I submit that this 2 foot additional requirement is over regulation for the situation and should be discarded.

General Authority: NDCC 23-20.1-04, 23-29-04

Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-02. Prohibition. Disposal of TENORM waste subject to regulation under article 33-10 is prohibited in all municipal solid waste landfills and inert landfills. Disposal of radioactive waste subject to regulation under article 33-10, which does not meet the definition of TENORM, or TENORM waste that is greater than 50.0 picocuries per gram of Radium-226 plus Radium-228 is prohibited in all landfills. If prohibited TENORM waste is delivered to a landfill for disposal, the waste must be rejected. The owner or operator of the landfill shall note the source, amount, generator and other identifying information about the rejected waste and shall notify the department within five (5) days of the rejection of such material.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-03. Authorization. Approval for acceptance of TENORM waste by a landfill not previously authorized to accept such waste in its permit shall follow procedures in section 33-20-02.1-06. The facility is also subject to applicable approval and licensure requirements of chapter 33-10-03.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-04. Monitoring. The leachate collection system and groundwater monitoring network shall be analyzed for background concentration of radionuclide parameters prior to receipt of any TENORM waste. Leachate shall be analyzed for radionuclides at the same frequency as groundwater samples are collected. If radionuclides are detected in the leachate at a concentration greater than drinking water maximum contaminant levels then the groundwater monitoring network must begin analysis for radionuclide parameters.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-05. Reporting. Landfills approved for the disposal of TENORM waste must file with the department a quarterly summary report stating the date, type, quantity by weight in tons, source and generator of all TENORM loads accepted for that period. Each report shall be filed within thirty days of the end of each quarter. If no TENORM waste has been disposed during the reporting period, the report must so indicate.

Often measurements of waste made at the point of generation are based on estimates, and will differ from measurements made with the use scales found at disposal facilities. We suggest language be added to both this section and 33-10-23-08.7-8 that recognized the Department's anticipation of incongruent manifested weights.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-06. Worker training and safety. Landfills approved for the disposal of TENORM waste shall implement a worker training and safety program so that no individual shall receive an annual dose greater than one hundred millirems per year from activities conducted in the landfill. The training and safety program shall be approved by the department prior to

receipt of any TENORM waste.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-07. Record of notice. The records of notice required by section 33-20-02.1-04 shall specify that the landfill is approved to accept TENORM waste. The final record of notice shall indicate the total quantity of TENORM waste disposed in the landfill.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

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OTTER TAIL
POWER COMPANY

March 2, 2015

VIA E-MAIL: sradig@nd.gov

North Dakota Department of Health
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501

Re: Proposed New and Amended Rules under NDAC 33-10-23, Regulation and Licensing of Technologically Enhanced Naturally Occurring Radioactive Material, and NDAC 33-20, Solid Water Management and Land Protection.

Dear Mr. Radig:

In regards to the above referenced proposed rules, Otter Tail Power Company (Otter Tail) appreciates the opportunity to submit the following comments for consideration. Otter Tail co-owns and operates the Coyote Station near Beulah, North Dakota. Otter Tail also supports the Lignite Energy Council comments submitted in this matter.

Otter Tail is concerned that the above noted North Dakota Department of Health (Department) rulemaking is overly-broad, with new requirements for special waste landfills that do not accept Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) waste. The Department's stated purpose of the proposed rules is "to implement regulations to properly manage TENORM..."; it is unclear why additional requirements for facilities that do not accept TENORM are proposed.

We are specifically concerned about the proposed amendment of NDAC Chapter 33-20-07.1, which states in part:

4. Any new or lateral expansion of an industrial waste landfill or special waste landfill must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit.

a. The liner and leachate removal system must be compatible with the waste and leachate.

b. The liner and leachate removal system must maintain its integrity during the operating period and through the postclosure period.

c. The system must have a collection efficiency of ninety percent or better and must be capable of maintaining a hydraulic head of twelve inches [30.5 centimeters] or less above the liner.

d. For landfills that receive wastes containing water soluble constituents, the liner must consist of at least four feet [1.2 meters] of compacted natural soil having a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second. ~~This requirement does not apply to landfills receiving only oil field drilling cuttings and drilling mud.~~

e. A composite liner is required for landfills receiving TENORM waste or wastes which may contain leachable organic constituents. The liner must consist of at least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second overlain with at least a sixty mil flexible membrane liner.

f. The drainage layer must have a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout. The drainage layer must have a sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

g. The liner and leachate removal system in combination with the final cover must achieve a site efficiency of at least ninety-eight and one-half percent or better for collection or rejection of the precipitation that falls on the site.

h. The requirements of this subsection for a liner, leachate collection system, or both liner and leachate collection system may be modified by the department if the permit applicant demonstrates that, based on factors such as geology and hydrology of the site, characteristics of the waste, and engineering design, any leachate migration can be prevented or controlled.

The insertion of the text "or special waste landfill" adds all of the requirements of this subsection, requirements that were not previously applicable to special waste facilities. Thus, this could include adversely impact future expansions of Coyote Station's special waste permit for the Blue Pit (SP-182). To clarify this apparent issue, we suggest a slight modification to the wording, such as "or special waste landfill *receiving TENORM waste*" (Italics added for emphasis).

Also of concern is the Department's use of the term "coal combustion byproducts" in the proposed NDAC Chapter 33-10-23. While we concur with the Department's apparent intent to exempt these materials, we suggest the term "coal combustion byproducts" be defined in the proposed rule. Alternatively, the Department may wish to use the term "coal combustion residuals", a term defined in EPA's new coal ash rule. In any case, the TENORM rules must be abundantly clear that coal combustion byproducts (or residuals), such as produced at Coyote Station, are not included in the definition of TENORM waste.

As currently proposed, the Department's new rules would increase the regulatory requirements for electric utility special waste landfills. Since the Department's stated purpose of the proposed rules is "to implement regulations to properly manage TENORM..." it is clear that additional requirements for facilities that do not accept TENORM waste are neither necessary nor appropriate. Finally, the Department should define the term "coal combustion byproducts" or adopt a more broadly accepted term, i.e., "coal combustion residuals."

We appreciate this opportunity to comment on the Department's proposed rules.

Sincerely,

Mark Thoma
Manager, Environmental Services

North Dakota Department of Environmental Health

New rules under code 33-10-23

Dear Sir

In regards to proposed new tenorm rules, I ask that enhanced security measures be taken to protect members of the public from inhalation of tenorm. Inhalation is by far the most damaging to the human body. I believe your study grossly and deliberately underestimates the amount of inhalation to truck drivers, members of the public and people living close to dump sites.

If these regulations are passed, most all tenorm will be delivered by bulk truck or dumpsters with no control of dust. As a truck driver who has delivered many loads to landfills, I can tell you that the dust on dry windy days is almost unbearable. This dust, debris and fumes travel far beyond the boundaries of the dump site.

As a member of the Turtle Mountain Tribe, many of my family and tribal members live in close proximity to these dump sites around the Trenton area. Enhanced dust control will allow our elderly, young and frail members to use and enjoy this area without fear. Some measures that can be taken are enclosed transfer buildings, foam dust suppressants, water trucks, particulate measuring stations and closing the dump to tenorm on windy days.

I ask that management take a serious look into this matter and respond with a suitable solution to provide a safer and more secure environment. Please keep in mind that if an employee or member of the public sustains physical damage after the state or dump site management becomes aware that the property is unsafe, and chooses not to act, the injured party may be able to sue and recover compensation.

Sincerely Yours

Paul Azure

1/12/2015

499 14th street north apartment 101 Wahpeton North Dakota 58075

R360 Environmental Solutions, LLC
3 Waterway Square Place, Suite 110
The Woodlands, Texas 77380
281.872.(R360)7360 Office
r360es.com

February 24, 2015

Scott Radig, Director
North Dakota Department of Health
Division of Waste Management
918 East Divide Avenue, 3rd floor
Bismarck, ND 58501-1947

RE: Response to public comment request regarding proposed TENORM rules

Dear Mr. Radig:

R360 Environmental Solutions (R360) is a key component to North Dakota's oilfield environmental services. Providing high performance waste disposal, recycling and treatment solutions to some of the world's top oil and gas producers, R360 helps operators ensure environmental performance and compliance throughout North Dakota.

R360 commends the North Dakota Department of Health (NDDOH) for its efforts in developing a TENORM program, and for engaging the Argonne National Laboratory (ANL) to perform a thorough study of the TENORM issue. We believe this study can be a catalyst for objective rulemaking shaped through evidence based research.

Today's exploration and production environment presents ever changing technical and economic challenges that effect how waste is managed. With each new regulation comes an economic impact, with this in mind we look to the State of North Dakota and the North Dakota Department of Heath (NDDOH) to find a balance that will reduce the potential for unintended consequences through overregulation.

R360, though supportive of proposed rulemaking, has some concerns for items we believe may have been overlooked or not clearly defined within the proposed rules. We hereby submit the following attached comments and recommendations for your consideration.

Respectfully,

Luke Bross
Legislative & Regulatory Affairs

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r360es.com

Section 33-10-23-09: Purposeful dilution.
We believe this rule needs greater clarification and should include exceptions for actions that may unintentionally result in dilution as a part of normal operations, such as the addition of bulking agent for transport stabilization and for final disposal.

Chapter 33-10-23-12: Licensing and applications.
Does the Department propose a formal process by which applications are reviewed, and does it propose a method of recourse should the need arise? Does the Department view its licensing as preeminent to current and future local statutes?

Section 33-20-11-01.1: Volume limits.
This proposed rule, based on the ANL study, limits disposal to 25,000 tons annually and 3,000 tons monthly. It appears this limit assumes all waste accepted into a landfill will be 51.6 picocuries per gram; this method appears to be overly conservative. Could safe volume limits be derived from more basic axioms of likelihood, specifically the probability that on average TENORM material delivered to a disposal facility will in fact be far below the level assumed in the study? Additionally the study itself mentions alternative methods for risk mitigation, both through worker exposure monitoring, and through a cap placed on TENORM waste. We believe it would be reasonable to allow for disposal volumes to be based on employee exposure rates incorporated into a Radiation Safety Program (RSP). This method could be regulated through applicants Specific License, after NDDOH review and in accordance with 33-10-23-12. 2.

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Section 33-20-11-01.1: Screening.
As the Department is aware no commonly available instantaneous screening method exists for accurate measurement in (pCi/g). This raises questions for precise measurement, timely accurate reporting, and day to day operational procedures. We suggest a method congruent with our aforementioned proposal related to the RSP. We believe this proposal would simplify the process by allowing an action limit coupled with a fixed radiation meter set at a specified distance. We believe this method would promote accurate reporting and efficient operations while maintaining the highest degree of safety for those involved.

Section 33-20-11-05: Reporting, related to section 33-10-23-08.7-8
Often measurements of waste made at the point of generation are based on estimates, and will differ from measurements made with the use scales found at disposal facilities. We suggest language be added to both rules that recognizes the Departments anticipation of incongruent manifested weights.

We would like to thank the North Dakota Department of Health for allowing comment from interested parties, and for their time in hosting open comment forums. We look forward to working with the Department to develop methods for protecting the environment while continuing the promotion of worker safety.

NOTICE OF EXTENSION OF PUBLIC COMMENT PERIOD TO ADOPT AND AMEND ADMINISTRATIVE RULES RELATING TO TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL

TAKE NOTICE that the North Dakota Department of Health will extend the public comment period for proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulation And Licensing Of Technologically Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection.

The purpose of the proposed rules is to implement regulations to properly manage Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM), including registration of generators and transporters, tracking of waste, reporting, and landfill disposal. The proposed rules are not expected to have an impact on the regulated community in excess of $50,000.

The proposed rules may be reviewed at the office of the North Dakota Department of Health, Environmental Health Section, 918 East Divide Avenue, Bismarck, ND 58501. A copy of the proposed rules may be requested by writing the above address, emailing to sradig@nd.gov, or calling 701-328-5150. The proposed rules and additional related information are also available on the Department of Health website at www.ndhealth.gov/EHS/TENORM.

Written comments on the proposed rules sent to the above address, email or telephone number and received by March 2, 2015 will be fully considered.

Dated this 26th day of January, 2015.

Scott A. Radig, Director
Division of Waste Management
North Dakota Department of Health

Radig, Scott A.

From: Robert Arusell [redacted]
Sent: Friday, February 13, 2015 3:08 PM
To: Radig, Scott A.
Subject: TENORM

I am a nearly retired radiation oncologist practicing in Fargo past 30 years. I have training in use of radioisotopes as well as experience. I have read the proposal for tracking and disposing of TENORM as well as the Argonne report and have reviewed the EPA website.
It seems reasonable to dispose of the low level radioactive waste in the state. The fact that a worker may receive the maximum allowable radiation dose for the public does not bother me as this number is very conservative.
I do have a concern however, about the state health department and whether you will the the resources and staff to help communities expand their landfill and supervise the operation.

Robert Arusell,MD
2857 Lilac Ln
Fargo, ND

2/10/15

Scott Rading

We do not need special waste land fills raised from 5 to 50 for oil fields radioactive waste.

(1.) It will cost All people in North Dakota more in garage bills because the land fills will raise the garage bills on everyone.

Why

A. Will need more employees

B. Need to buy more land for land fills

C. Will cut the cost to oil co. so the little people will pay more

No Special Waste Landfills

Thank you

Robert M Hamers

Mr Robert Hamers
315 Broadway St
Palermo ND 58769

Radig, Scott A.

From: Ron Kraft [redacted]
Sent: Thursday, January 29, 2015 10:30 AM
To: Radig, Scott A.
Subject: oil/brine spills out of control

Mr. Radig....what world does ND live in??

We hear of ONLY the oil/brine spills that media alludes to. Those are the only spills happening, (ya u-betya).

The state wants to up the TENORM %, NO WAY should this be consider.

Why not have state of ND rubber stamp another 25,000 wells, before they get existing flaring reduce /pipelines inspected.

Who & why are flow meters being rejected????

Now ND health department wants to up % of TENORM,

I thought health department was to help protect the lives & land for the present / next generation of people, how stupid of me to think
the HEALTH DEPARTMENT would have publics back on this.

Why not put this matter on a ballot issue?? I VOTE NO ON IDEA OF RAISING TENORM %.

ron kraft

Dr. Sebastian Braun
812 Almonte Ave.
Grand Forks, ND 58201

Mr. Scott Radig
ND Department of Health (NDDoH)
Environmental Health Section
918 East Divide Avenue
Bismarck, ND 58501-1947

February 27, 2015

Re: TENORM changes

Dear Mr. Radig,

I am writing to comment on the proposed changes to the TENORM rules. I oppose the proposed rule change.

The North Dakota Petroleum Council has made a deceptively simple analogy to support the changes:

"To put it into context, a donut contains 200 calories. Let's liken that to radiation. Those calories cannot be absorbed by simply sitting next to the donut or touching it; it must be eaten. Once that donut is eaten, those calories are absorbed and you might gain weight as a result. This would be similar to radiation dose equivalent. Oil field TENORM is the same way. The chances of a person, especially from the general public to ever eat or inhale TENORM is very, very unlikely"

If TENORM really were donuts, that would work, perhaps. Unfortunately, TENORM is not. People do not have to eat TENORM. As the Argonne National Laboratory powerpoint presentation points out, "When a person is exposed to radiation, the energy penetrates the body." Being exposed to radiation does not imply the conscious act of eating something - that is, I might not have a choice in the matter, especially if I live around a site where TENORM becomes concentrated, either from filter socks, or pipes, or in any other way. This will probably not affect the general public, but it will affect the farmers and ranchers and those North Dakotans who live in the Williston Basin area.

The question is whether or not the state of North Dakota and its Health Department should be concerned with the average health of North Dakotans or with the health of all North Dakotans. I would strongly urge the latter. Will TENORM changes affect the average health? Probably not. Will it affect the health of individuals? Probably. Should the state listen to those individuals? Not if the overarching purpose of the state is to maximize profits. However, as I hope any North Dakotan would agree,that is not the purpose of any state.

As the Association of State and Territorial Waste Management Officials noted in their 2011 report on TENORM, "The issues related to TENORM storage and disposal are far reaching and expansive." The research on TENORM issues seems to still lag far behind the application of rules. In 2002, Paschoa and Godoy wrote that, "The need for further research concerning TENORM in consumer products, and in wastes, is becoming clearer as national and international regulatory bodies are paying more attention to the problem. The environmental implications of TENORM wastes also need to receive further

attention, as far as radioecological and radiological aspects are concerned." In 2014, an article in Environmental Health Perspectives comes to the conclusion that, "the current patchy understanding of radioactive fracking waste's fate in the environment precludes making good decisions about its management." This is especially so because pollution cannot be simply undone. "Once you have a release of fracking fluid into the environment, you end up with a radioactive legacy," as one specialist put it. This should be of special concern to North Dakota, in light of recent pipeline brine spills. Salinity is not the only legacy of such spills, and might not even be the most dangerous one. This despite the fact that oil brine from production storage in 1920s is still deeply impacting environments, for example in Arkansas.

If short term profits are the only factor weighed in this decision, the TENORM changes should indeed be passed. I hope that the state of North Dakota has a different goal: that to preserve the health of its citizens and its environment into the future. Making oil production cheaper in a trade with endangering personal and environmental health does not make sense from that perspective. Oil companies will try to get the oil. Perhaps not right now. But they will. The state should have the courage to regulate them in the best interest of its citizens and its environment. The most vulnerable deserve the most protection, the most powerful the most regulation. It is the ranchers, workers, and those who live in the oilfields as well as the environment that deserve protection, not the energy companies.

The proposed changes subsidize oil companies by putting the state at risk. This is why I oppose the changes.

Sincerely,

Dr. Sebastian Braun

Article 33-20 is amended as follows:

ARTICLE 33-20

SOLID WASTE MANAGEMENT AND LAND PROTECTION

CHAPTER 33-20-01.1
GENERAL PROVISIONS

Section 33-20-01.1-03 is amended as follows:

33-20-01.1-03. Definitions. The terms used throughout this title have the same meaning as in North Dakota Century Code chapter 23-29, except:

. . .

51. "Technologically enhanced naturally occurring radioactive material (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" as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

~~51.~~52. “Transfer station” means a site or building used to transfer solid waste from a vehicle or a container, such as a rolloff box, into another vehicle or container for transport to another facility.

~~52.~~53. “Treatment” means a method or process designed to change the physical, chemical, or biological character or composition of a solid waste or leachate so as to neutralize the waste or leachate or so as to render the waste or leachate safer for public health or environmental resources during transport, storage, or disposal. The term does not include resource recovery.

~~53.~~54. “Used oil” means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

~~54.~~55. "Waste pile or pile" means any noncontainerized accumulation of nonflowing solid waste.

History: Effective December 1, 1992; amended effective August 1, 1993; October 1, 1994; May 1, 1999; ,2015.
General Authority: NDCC 23-29-04, 61-28-04
Law Implemented: NDCC 23-29-04, 61-28-04

Section 33-20-01.1-09 is amended as follows:

33-20-01.1-09. Radioactive waste. Every person who handles and disposes of radioactive waste shall comply with article 33-10. Every person who handles and disposes of TENORM shall also comply with the applicable requirements of this article.

History: Effective December 1, 1992; amended effective ,2015.
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

. . .

CHAPTER 33-20-07.1
SMALL VOLUME INDUSTRIAL WASTE LANDFILLS AND SPECIAL WASTE LANDFILLS

Section
33-20-07.1-01 Performance and Design Criteria
33-20-07.1-02 Closure Criteria

Section 33-20-07.1-01 is amended as follows:

33-20-07.1-01. Performance and design criteria. In addition to the requirements of section 33-20-01.1-08 and chapter 33-20-04.1, the owner or operator of an industrial waste landfill or a special waste landfill shall comply with the design, construction, and operating standards as follows:

1. On all areas of the landfill where final cover or additional solid waste will not be placed within six months, eight inches [20.3 centimeters] or more of compacted clay-rich soil material, similar material, or a synthetic cover must be placed to prevent ponding of surface water, to minimize infiltration of surface water, and to control windblown dust.

2. Solid waste disposal in industrial waste landfills and special waste landfills must be limited to those wastes identified in the permit application or permit. Regulated infectious waste, used oil as a free liquid, and hazardous waste~~, and~~ radioactive waste may not be accepted for disposal at the landfill. TENORM waste may only be accepted under the provisions of chapter 33-20-11.

3. All solid wastes deposited at the landfill must be spread and compacted as densely as practicable to minimize waste volume and promote drainage of surface water.

4. Any new or lateral expansion of an industrial waste landfill or special waste landfill must be designed with an appropriate hydraulic barrier and leachate management system capable of collecting and removing leachate and contaminated surface water within the disposal unit.

    a. The liner and leachate removal system must be compatible with the waste and leachate.

    b. The liner and leachate removal system must maintain its integrity during the operating period and through the postclosure period.

    c. The system must have a collection efficiency of ninety percent or better and must be capable of maintaining a hydraulic head of twelve inches [30.5 centimeters] or less above the liner.

    d. For landfills that receive wastes containing water soluble constituents, the liner must consist of at least four feet [1.2 meters] of compacted natural soil having a hydraulic conductivity not to exceed 1×10^{-7} centimeters per

second. ~~This requirement does not apply to landfills receiving only oil field drilling cuttings and drilling mud.~~

e. A composite liner is required for landfills receiving TENORM waste or wastes which may contain leachable organic constituents. The liner must consist of at least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second overlain with at least a sixty mil flexible membrane liner.

f. The drainage layer must have a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout. The drainage layer must have a sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

g. The liner and leachate removal system in combination with the final cover must achieve a site efficiency of at least ninety-eight and one-half percent or better for collection or rejection of the precipitation that falls on the site.

h. The requirements of this subsection for a liner, leachate collection system, or both liner and leachate collection system may be modified by the department if the permit applicant demonstrates that, based on factors such as geologynd hydrology of the site, characteristics of the waste, and engineering design, any leachate migration can be prevented or controlled.

History: Effective December 1, 1992; amended effective August 1, 1993, October 1, 1994; ,2015.
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04, 23-29-07

CHAPTER 33-20-10
LARGE VOLUME INDUSTRIAL WASTE AND MSW ASH LANDFILLS

Section 33-20-10-03 is amended as follows:

33-20-10-03. Waste disposal. In addition to the requirements of section 33-20-01.1-08 and chapter 33-20-04.1, the owner or operator of a landfill shall comply with the performance and design criteria as follows:

1. Any new or lateral expansion of a landfill must be designed with a hydraulic barrier and leachate management system.

    a. Synthetic liners, leachate detection systems, and leachate removal systems must be compatible with solid waste disposed and the waste=s leachate.

    b. Leachate removal and management systems must be capable of collecting and removing leachate and contaminated surface water.

    c. Synthetic liners and leachate removal systems must withstand all physical and chemical stresses during the operating period and through the postclosure period.

    d. The synthetic liners and leachate removal systems must have a collection efficiency of ninety-seven percent or better of precipitation falling on the fill area before closure and must be capable of removing leachate to limit the hydraulic head above the upper liner, exclusive of collection sumps, to twelve inches [30.5 centimeters] or less within thirty-six hours of a precipitation event.

    e. A composite liner is required which includes at a minimum from bottom to top:
        (1) At least three feet [91.4 centimeters] of recompacted clay with a hydraulic conductivity not to exceed 1×10^{-7} centimeters per second;

        (2) A synthetic flexible membrane liner at least sixty mil thick;

        (3) A secondary drainage layer with a hydraulic conductivity of 1×10^{-3} centimeters per second or greater throughout and with sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater;

(4) A synthetic flexible membrane liner at least eighty mil thick; and

(5) A drainage layer with a hydraulic conductivity of 1×10^{-3} centimeters per second or greater and with sufficient thickness to provide a transmissivity of 3×10^{-2} centimeters squared per second or greater.

f. No composite liner may be exposed to freezing more than one winter season. At least three feet of solid waste or other material approved by the department must be placed above the upper drainage layer on all lined areas by December first. No disposal may take place after December first in areas which have not met this requirement without first testing the composite liner's integrity and receiving approval from the department.

2. The facility must include a leachate detection and removal system and an onsite leachate management system or offsite leachate management.

a. The amount of leachate collected for onsite or offsite management must be measured and recorded.

b. The quality of the leachate must be periodically evaluated on a schedule proposed by the facility owner and approved by the department.

c. The department may require the construction of onsite surface impoundments to achieve the equivalent or better design standards of onsite landfills, based on site specific factors such as hydrogeological characteristics, anticipated leachate quality, anticipated static head or expected duration of use.

d. The department may require an owner or operator to control wildlife access to onsite surface impoundments based upon leachate quality and site circumstances.

3. Runoff must be contained, collected, and transferred to an onsite surface impoundment, unless another management method is approved by the department.

4. Solid waste disposal in landfills must be limited to those wastes identified in the permit application, waste acceptance plan, or permit. Regulated infectious waste, used oil as a free liquid which can be recovered or recycled, and hazardous waste~~, and radioactive waste~~ may not be accepted for disposal at the landfill. TENORM waste may only be accepted under the provisions of chapter 33-20-11.

5. All solid wastes deposited at the landfill must be placed, spread or compacted to minimize or prevent settlement and to promote drainage of surface water. The

sequence and direction of below-grade operations must be conducted to prevent surface water from entering the active fill area.

6. On all areas of the landfill where final cover or additional solid waste will not be placed within one month, eight inches [20.3 centimeters] or more of compacted clay-rich soil material, similar material, or a synthetic cover must be placed to prevent ponding of surface water, to minimize infiltration of surface water, and to control windblown dust.

Chapter 33-20-11 is created as follows:

CHAPTER 33-20-11
LANDFILL DISPOSAL OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL WASTE

Section
33-20-11-01 Radioactive Waste Disposal
33-20-11-02 Prohibition
33-20-11-03 Authorization
33-20-11-04 Monitoring
33-20-11-05 Reporting
33-20-11-6 Worker Training and Safety
33-20-11-07 Record of Notice

- **Disposal facilities should be required to have portal monitoring equipment that closely monitors TENORM activity levels at the point of entry. Without consistent monitoring and enforcement (and preferably automated, electronic reporting) the state cannot hope to truly regulate TENORM in its approved landfills. Currently approved disposal facilities should have their licenses amended accordingly (requiring portal monitoring), especially those who are not submitting major permit modifications for acceptance of TENORM waste. The public deserves a good faith effort by Solid Waste to enforce the TENORM regulations as a majority of the waste processors have already proven that they have not pursued licensing and compliance on their own.**

- **Scrap yards and recyclers should also be enveloped under these same rules. Current compliance with TENORM guidelines by recyclers is haphazard at best. More consistent and accurate reporting and proof of compliance should be required.**

- **Additionally, disposal facilities approved to receive TENORM waste must be required to show that they possess the ability to identify TENORM impacted waste streams quickly and they should be required to have a fully qualified RSO on staff in ND. Eight hours of training is insufficient to oversee the licensing requirements of a TENORM facility. The state should move to approve and endorse quick screen methodologies that are proven to accurately measure and project**

actual activity levels. Technologies that can automate reporting to the state, especially for rejected loads should be given preference.

33-20-11-01. Radioactive waste disposal. Disposal of radioactive waste subject to regulation under chapter 33-10-03, meeting the definition of TENORM, into special waste or industrial waste landfills shall comply with the following requirements and limitations:

1. TENORM waste up to, but not exceeding 50.0 picocuries per gram of Radium-226 plus Radium-228, may be disposed in a landfill which complies with chapter 33-20-07.1 or chapter 33-20-10, except that the accumulated amount must not exceed twenty-five thousand tons [22,679.22 metric tons] per year or three thousand tons [2,721.55 metric tons] in any one month unless larger amounts in one month resulting from special cleanup projects are pre-approved by the department. Drums or shipping containers of TENORM waste which are not of uniform concentration must not exceed an average concentration of 50.0 picocuries per gram of Radium-226 plus Radium-228.

   - **Pb-210 should be specifically listed as an isotope of concern and should be subject to the 50 pCi/g limit.**
   - **Is it safe to assume that filter socks from oilfield waste filtration will be an acceptable waste stream at an approved TENORM disposal facility? Is it safe to assume that filter socks over 50 picocurie per gram will require segregation and independent analysis and that incorporation with solids or other waste streams are unacceptable (no combining of waste streams for convenience or down-blending purposes)?**
   - **Will the major permit modifications detail the acceptable (and unacceptable) waste streams? We know enough now about the impact of geography and typified waste streams to ascertain which waste streams and regions deserve extra scrutiny. Tank bottoms should require analytical prior to acceptance with dilution should be explicitly forbidden. Filter socks, scaling in pipes/equipment, and virtually all TENORM-impacted waste streams from the Watford City/Alexander area deserve extra scrutiny and analysis as they are displaying very high levels of radioactivity.**
   - **Proposed in-state TENORM disposal facility volume limits (at 25,000 tons annually) may be too low to handle total volume, especially considering the anticipated difficulty of getting major permit modifications approved by local and county officials.**

2. Equipment contaminated with TENORM which does not exceed a maximum exposure level of one hundred microroentgen per hour, including background radiation, at any accessible location may be disposed in a landfill which complies with chapter 33-20-07.1 or chapter 33-20-10.

   - **This rule needs clarification. Accepting individual pieces of equipment at**

< 100 uR/hr can work but truckloads can be problematic. For example, a single joint of TENORM impacted tubing may read less than 100 uR/hr, but a truck load going to landfill could easily read 20x this value. Landfill operators will need more detailed direction to ensure compliance.

3. TENORM waste must be covered by at least one foot of non-TENORM waste or daily cover material by the end of each operating day. For landfills that operate continuously (24 hours per day), all TENORM waste shall be covered at least once every twenty four hour period.

4. TENORM waste must be disposed at depth greater than ten feet below the surface of the final landfill cover.

5. For a landfill that is subject to chapter 33-20-07.1, if any part of the final cover has slope greater than fifteen percent, then the final cover must have an additional two feet of low permeability soil, for a total minimum cover thickness of five feet.

- **When compared with a *blanket* state limit on TENORM activity levels and annual volumes limits for landfill, SECURE Energy would generally be an advocate for site-specific RESRAD modeling and landfill design that would, potentially, produce higher acceptable levels of radioactivity and/or volumes of TENORM-impacted waste in specific landfills.**

History:
General Authority: NDCC 23-20.1-04, 23-29-04

Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-02. Prohibition. Disposal of TENORM waste subject to regulation under article 33-10 is prohibited in all municipal solid waste landfills and inert landfills. Disposal of radioactive waste subject to regulation under article 33-10, which does not meet the definition of TENORM, or TENORM waste that is greater than 50.0 picocuries per gram of Radium-226 plus Radium-228 is prohibited in all landfills. If prohibited TENORM waste is delivered to a landfill for disposal, the waste must be rejected. The owner or operator of the landfill shall note the source, amount, generator and other identifying information about the rejected waste and shall notify the department within five (5) days of the rejection of such material.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-03. Authorization. Approval for acceptance of TENORM waste by a landfill not previously authorized to accept such waste in its permit shall follow procedures in section 33-20-02.1-06. The facility is also subject to applicable approval and licensure requirements of chapter 33-10-03.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-04. Monitoring. The leachate collection system and groundwater monitoring network shall be analyzed for background concentration of radionuclide parameters prior to receipt of any TENORM waste. Leachate shall be analyzed for radionuclides at the same frequency as groundwater samples are collected. If radionuclides are detected in the leachate at a concentration greater than drinking water maximum contaminant levels then the groundwater monitoring network must begin analysis for radionuclide parameters.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-05. Reporting. Landfills approved for the disposal of TENORM waste must file with the department a quarterly summary report stating the date, type, quantity by weight in tons, source and generator of all TENORM loads accepted for that period. Each report shall be filed within thirty days of the end of each quarter. If no TENORM waste has been disposed during the reporting period, the report must so indicate.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-06. Worker training and safety. Landfills approved for the disposal of TENORM waste shall implement a worker training and safety program so that no individual shall receive an annual dose greater than one hundred millirems per year from activities conducted in the landfill. The training and safety program shall be approved by the department prior to

receipt of any TENORM waste.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

33-20-11-07. Record of notice. The records of notice required by section 33-20-02.1-04 shall specify that the landfill is approved to accept TENORM waste. The final record of notice shall indicate the total quantity of TENORM waste disposed in the landfill.

History:
General Authority: NDCC 23-20.1-04, 23-29-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04, 23-29-04

Chapter 33-10-23 is created as follows:

CHAPTER 33-10-23
REGULATION AND LICENSING OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL

33-10-23-01. Purpose. This chapter establishes radiation protection standards for technologically enhanced naturally occurring radioactive material (TENORM). These standards include the possession, use, processing, manufacture, distribution, transfer, and disposal of TENORM and of products containing TENORM. This chapter also provides for the licensing of TENORM, including license termination. The provisions of this chapter are in addition to the

definitions and applicable requirements of chapters 33-10-01, 33-10-03.1, 33-10-04.2, 33-10-10.1, and 33-10-13.1.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-02. Scope.

1. Except as otherwise provided, this chapter applies to any person who receives, possesses, uses, processes, transfers, distributes, or disposes of TENORM.

2. The manufacture and distribution of products containing TENORM, in which the TENORM's emitted radiation is considered beneficial to the products, are licensed pursuant to the provisions of chapter 33-10-03.1.

3. This chapter addresses the introduction of TENORM into products in which the radiation emitted from the TENORM is not considered to be beneficial to the products.

4. This chapter does not apply to source material and byproduct material as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-03. Definitions. The terms used throughout this chapter have the same meaning as in North Dakota Century Code chapter 23-20.1, except:

1. "Applicant" means a person applying for a license under this chapter and includes any individual or entity that owns or controls the applicant.

2. "Beneficial to the product" means that the radioactivity of the TENORM is necessary to the use of the product.

3. "Conditional release" means release by a licensee for a specified use other than release for unrestricted use.

4. "Consumer" means a member of the public exposed to TENORM from final end-use products available on a retail basis.

5. "Consumer or retail product" means any product, article, or component part thereof, produced, distributed or sold for use by a consumer in or around a permanent or temporary household or residence, or for the personal use, consumption, or enjoyment of a consumer, or for use in or around a school or playground.

6. "Critical group" means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

7. "Generator" means any person whose act or process produces TENORM waste or whose act first causes the TENORM waste to become subject to regulation.

8. “Purposeful dilution” means a deliberate act of the mixing of clean or unlike materials with contaminated materials for the purpose of changing waste classification or concentration of waste.

9. "Product" means something produced, made, manufactured, refined, or beneficiated.

10. “Radiation safety officer” means an individual with the responsibility for the overall radiation safety program on behalf of the licensee and who meets the requirements of section 33-10-23-28.

11. "Reasonably maximally exposed individual" means a representative of a population who is exposed to TENORM at the maximum TENORM concentration measured in environmental media found at a site along with reasonable maximum case exposure assumptions. The exposure is determined by using maximum values for one or more of the most sensitive parameters affecting exposure, based on cautious but reasonable assumptions, while leaving the others at their mean value.

12. “Reclaiming” means returning property to a condition or state such that the property no longer presents a health or safety hazard or threat to the environment; the term “reclaiming” includes those activities necessary to decommission the licensed facility (i.e., to remove, as a facility, safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of the license).

13. "Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee’s control. This includes radioactivity from all licensed and unlicensed

sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of chapter 33-10-04.2.

14. "Tank" means a stationary device, other than a container as described in subsection 2 of section 33-10-23-08, designed to contain an accumulation of TENORM waste, which is constructed primarily of nonearthen materials (e.g., wood, concrete, steel or plastic), which provide structural support.

Some may contend that the tanks were not "designed" to contain TENORM as TENORM is an incidental byproduct of the clarifying/filtration (and stratified solids accumulation) process. You may want to refine so as to not open up a loophole.

15. "Technologically enhanced naturally occurring radioactive material (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" as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

- **Defining "decontamination" would be useful in the front of the document, which dictates the need for specific licensure in the beginning.**
- **A definition for "unrestricted use" may be helpful.**
- **Examples of places where TENORM is typically found may be helpful in the definition, such as scale in pipe, tank bottoms, pigging equipment, filter socks, heater treaters and other oilfield equipment used in midstream and exploration and production oil and gas activities.**

16. "Transfer" means the physical relocation of TENORM within a business' operation or between general or specific licensees. This term does not include commercial distribution or a change in legal title to TENORM that does not involve physical movement of those materials.

17. "Total effective dose equivalent" or "TEDE" means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-04. Exemptions.

1. Persons who receive, possess, use, process, transfer, distribute, or dispose of TENORM are exempt from the requirements of this chapter with respect to any combination of radium-226 and radium-228 if the materials contain, or are contaminated at, concentrations less than one hundred eighty five becquerel per kilogram [five picocuries per gram (5.0 pCi/g)] excluding natural background. The progeny of the exempt TENORM radium-226 and radium-228 are also exempt.

2. Persons who receive products or materials TENORM distributed in accordance with a specific license issued by the department pursuant to subsection 1 of section 33-10-23-11, or to an equivalent license issued by another licensing state, are exempt from this chapter with regard to those products or materials.

3. Persons who receive, possess, use, process, transfer and distribute, including preparation of custom blends for distribution, phosphate or potash ore-based fertilizers containing TENORM are exempt from this chapter.

4. Persons who receive, possess, use, process, transfer, dispose into a permitted landfill, and distribute, including preparation of custom blends for distribution, zirconia, zircon, and products of zirconia and zircon containing TENORM are exempt from this chapter. A facility that manufactures zirconia or zircon from ore is not exempt from this chapter. A facility that chemically processes zirconia or zircon resulting in increased environmental mobility of TENORM is not exempt from this chapter.

5. Persons who possess TENORM waste regulated by the Comprehensive Environmental Response, Compensation and Liability Act, as amended [42 U.S.C. 9601 et seq.] or by the Resource Conservation and Recovery Act, as amended [42 U.S.C. 6901 et seq.] or equivalent state authority are exempt from this chapter for the TENORM waste regulated by either of these federal acts.

6. Other persons who possess or use TENORM shall be exempt when the department makes a determination, upon its own initiative or upon request for such determination, that the reasonably maximally exposed individual will not receive a public dose with a total effective dose equivalent (TEDE) of more than one millisievert [one hundred millirem] in one year from all licensed or registered sources of radiation including TENORM.

7. Persons who possess TENORM in the form of coal combustion byproducts from energy conversion facilities are exempt from this chapter.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-05. Standards for radiation protection for members of the public.

1. All licensees shall conduct operations with TENORM so that individual

members of the public will not exceed one millisievert [one hundred millirem] TEDE in a year, exclusive of the dose contributions from background radiation, from all licensed or registered sources of radiation, including TENORM. Doses from inhalation of indoor radon and its short half-life (less than one hour) progeny shall not be included in calculations of the TEDE, except when the dose is due to releases from licensed operations involving the handling or processing of TENORM.

2. Persons subject to a specific or general license under this chapter shall comply with chapter 33-10-04.2's radiation protection standards.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-06. Protection of workers during operations. Each person subject to a specific or general license under this chapter shall conduct operations so that protection of workers complies with chapter 33-10-04.2 and 33-10-10.1's radiation protection standards.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-07. Unrestricted use and conditional release. Each general or specific licensee shall, no less than thirty days before vacating or relinquishing possession or control of premises which may have been contaminated with TENORM as a result of the licensee's activities, notify the department in writing of intent to vacate. When deemed necessary by the department, the licensee shall decontaminate the premises in accordance with the following or in such other manner as the department may specify.

- **Suggest adding to this section: Licensed and approved 3rd party service providers may also be used for conducting requisite surveys and decontamination activities.**

1. Each licensee before vacating or transferring any premises shall permanently decontaminate the premises to meet the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall make a survey ~~**shall**~~ after the decontamination and provide a copy to the department and any landlord, subsequent tenant or transferee. The premises may not be vacated, sold, or transferred until the department verifies and accepts the decontamination survey.

- **Suggested wording change for sentence 2 above: The licensee shall have a radiological survey performed and documented by a qualified personnel (e.g. RSO) after the decontamination…..**
- **As deemed appropriate and at its sole discretion, the department may also require the licensee to prepare and submit, prior to the start of any decontamination and decommissioning work, a Work Plan, Sampling and Analysis Plan, Data Quality Objectives, and a Quality Assurance Plan.**

2. No machinery, instruments, laboratory equipment, or any other property used in contact with, or close proximity to TENORM at a licensed premise may be assigned, sold, leased, or transferred to an unlicensed person unless such property has been permanently decontaminated below or equal to the standards specified in table 4.2-07.1. The licensee shall make a survey after the decontamination and provide a copy to the department and subsequent transferee or owner. The equipment may not be assigned, sold, leased, or transferred until the department verifies and accepts the decontamination survey.

3. Persons with a specific license shall comply also with the requirements of

subdivisions f and g of subsection 1 of section 33-10-23-17 and section 33-10-23- 18 that are applicable to remediation and license termination.

4. Persons with a general license shall notify the department in writing before beginning activities to reclaim the site. Decontamination activities require a specific license under 33-10-23-11.

5. Notification of site or area closure. When the general licensee has permanently ceased use of radioactive materials at a site or portion of a site or facility or when an area has not been used for a period of two years, the licensee shall, within sixty days, provide the following information in writing to the department:

   a. The location of the site or area; and

   b. The plan for reclaiming or decontaminating the site or area.

6. Actions taken to confine TENORM on site or to remediate sites shall be based on expected longevity-related controls for one thousand years or longer.

7. Conditional release of metal for recycle. Conditionally released metal for recycle shall be done only under the condition that metal contaminated with TENORM does not exceed a maximum exposure level of fifty microroentgens per hour, including background radiation, at any accessible location of the metal surface prior to release from the site.

- **This rule will be an issue if a single piece of equipment is < 50 uR/hr, but multiple pieces on a truck are well above 50 uR/hr. For example, a single joint of TENORM impacted tubing may read less than 50 uR/hr, but a truckload going to recycling could easily read 20x this value. Rule needs clarification if this is for each piece of equipment or each shipment.**

~~7.~~8. Equipment not released for unrestricted use. Equipment contaminated with TENORM in excess of levels specified in section 33-10-23-26 may be transferred pursuant to subsection 4 of section 33-10-23-10.

~~8.~~9. Other transfers of TENORM. Other transfers of TENORM shall be in accordance with sections 33-10-23-08, 33-10-23-10, or 33-10-23-11.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

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33-10-23-08. Disposal and transfer of waste for disposal.

1. Each person subject to this chapter's general and specific licensing requirements shall manage and dispose of wastes containing TENORM:

2. By transfer of the wastes for storage, treatment, or disposal at a facility authorized to accept wastes containing TENORM by the department or other applicable state or federal agency;

   a. By transfer for disposal in another state as otherwise approved by the applicable governmental authority; or

   b. In accordance with alternate methods authorized by the department or other applicable state or federal agency.

3. Containers:

   a. TENORM waste shall be kept in a leak-proof container.

   b. The licensee shall use a container made of, or lined with, materials that will not react with, or be incompatible with the TENORM waste to be stored so that the ability of the container to contain the waste is not impaired or compromised.

   c. A container containing TENORM waste shall always be closed and sealed during storage, except when it is necessary to add or remove waste.

   d. A container containing TENORM waste shall not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.

   e. At least quarterly, the licensee shall inspect areas where containers of TENORM waste are stored, looking for leaking or deteriorating containers or containment systems.

   f. All containers of TENORM waste shall be stacked in such a manner that each container identification label can be read from the access aisle or area.

   g. Each container of TENORM waste shall be labeled with the following information prior to storage:

      (1) Name and address of generator.

      (2) Type of material (e.g., sludge, scale, dirt, scrap metal, et cetera).

      (3) Date stored.

May be worth clarifying. Date stored could be a reference to when a specific licensee receives the material from the generator or it could be the date that the label was first put on the container and the first time material was placed in it. Or it could be the time when it became full and was ready

for final transport and disposal.

(4) Labeled as radioactive material.

h. Records of inspections shall be maintained by the licensee for inspection by the department for five years.

4. Tanks containing TENORM.

   a. The licensee shall develop a schedule and procedure for assessing the condition of each tank containing TENORM waste. The schedule and procedure must be adequate to detect cracks, leaks, corrosion and erosion that may lead to cracks, leaks, or wall thinning to less than the required thickness to maintain vessel integrity. Procedures for emptying a tank to allow entry, procedures for personnel protection, and inspection of the interior must be established when necessary to detect corrosion of the tank sides and bottom. The frequency of these inspections will be determined based on the type of TENORM being stored, the tank construction material and the type of erosion or corrosion that may exist.

- **Oil and gas operators like clarity. We would recommend annual, documented TENORM surveys to include visual inspections for tank integrity with records kept on file at each facility. It may also be prudent to dictate a 3- or 5-year requirement for emptying tank contents at which time a complete tank inspection could be performed. Who is qualified to do these inspections? Do operators have that expertise? A qualified third party inspector would add an additional layer of protection for the public and environment.**
- **A sample survey and inspection form could be provided as a resource to licensees.**

5. Each shipment of TENORM shall be accompanied by a manifest containing all of the following information prior to leaving the licensee's site:

   a. The licensee's (generator's) name, physical site address and telephone number;

- **Most sites do not have physical site addresses and rely on the latitude/longitude and site name for clearly establishing the location. The new rules should explicitly make allowances for the absence of a physical address. Many sites will not have a hard phone line to them and some clarity should be added as to the expected telephone number.**

   b. The name, address, telephone number and radioactive material license number of each transporter;

   c. The name, address and telephone number of the designated disposal facility;

   d. The description of the waste material; and

   e. The total quantity of all TENORM waste by units of weight in tons and the number and type of containers.

- **5e above: Establishing the weight in tons is not feasible in the field as there is no ready access to weigh scales. It is realistic to document the yardage of material and number of and type of containers.**

6. The following certification must appear on the manifest and be signed and dated by the licensee as follows:

"I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport according to applicable international and national government regulations."

7. The licensee shall:

a. Sign and date the manifest upon initial transporter acceptance of the waste material;

- **Many private (non-commercial) saltwater disposals are unmanned so obtaining a signature from the licensee every time is impractical. If a representative of the licensee is not available, the transporter could provide the name and contact information of the licensee's representative who requested the transport and disposal of the TENORM impacted waste.**

b. Obtain the signature of the initial transporter and date of the acceptance of the manifest;

c. Retain one copy;

- **Copies of the incomplete manifest can be made available to licensees at the time the impacted material is picked up. However, multi-part forms should not be dictated. Forms need to be able to be delivered initially to drivers electronically due to the vast territory being served. Hand-written forms introduce the potential risk for duplicate manifest numbers, which is less than ideal. The best outcome is for a manifest to be created and distributed from a central location (dispatcher) and for the original, complete copy of the manifest to be collected at the point of disposal.**

d. Provide the initial transporter the remaining copies of the manifest; and

e. Receive the fully signed copy of the manifest from the designated disposal facility within forty-five days from the delivery to the initial transporter. In the event the licensee does not receive the signed manifest within this period, the licensee shall:

(1) Notify the department within seven days;

(2) Conduct an investigation into the reason the manifest was not received; and

(3) Report the results of the investigation to the department within thirty (30) days.

8. The licensee shall file with the department a quarterly summary report stating the date, type and total quantity by weight in tons, generator and final

disposal facility of each TENORM transferred . Each report shall be filed within thirty days of the end of each quarter. If no transfers of TENORM have been made during the reporting period, the report must so indicate.

- **At final disposal we are typically charged by yardage and not by tons. Tons can be approximated at final disposal but total yards by each licensee or generator is the information we can collect due to the limited availability of scales.**
- **Recommendation to simplify the entire process:**
  1. **Obtain a list of all NDIC approved SWDs**
  2. **Require each licensed SWD to initially report their designated, licensed TENORM transporter and disposal provider. If the licensed SWD ever changes their designated provider they could complete a simple form with the change in provider date to the department.**
  3. **Rely on the few TENORM service providers to do all reporting on their customers and simply audit for any omissions. This would eliminate the need to audit submissions from 400+ SWD's every quarter and instead**

- **It may be beneficial to designate the required duration for retention of records.**
- **Utilization of the NRC Form 540 (Low Level Radioactive Waste Manifest) is strongly encouraged to minimize the creation of additional, new forms that may conflict with other state requirements.**

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-09. Prohibition - purposeful dilution. Purposeful dilution to render TENORM exempt shall not be performed without prior department approval.

- **We are in full agreement with the department's position prohibiting dilution. How will this be monitored and enforced?**
- **Suggest using a couple of simple examples that help operators/licensees better understand what dilution activities are expressly prohibited (vs. like-material downblending).**

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-10. General licenses.

1. A general license is hereby issued to possess, use, transfer, distribute or dispose of TENORM without regard to quantity, except for those activities requiring a specific license.

- **Does not transport of and disposal of TENORM require a specific license? A general license should not apply to these activities. Additional distinctions**

and/or clarification between general and specific licenses is important.

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2. Employees or contractors under control and supervision of a general licensee may perform routine maintenance on equipment, facilities, and land owned or controlled by the general licensee. Maintenance that provides a pathway for exposure different from that found in periodic maintenance operations and that increases the potential for additional exposure is not considered routine maintenance. The decontamination of equipment, facilities, and land shall be performed only by persons specifically licensed by the department, an agreement state, or another licensing agency to conduct such work.

- **Tanks and piping that are being maintained or replaced will routinely (not the exception) be TENORM-impacted. Maintenance, cleaning, and decontamination should only be performed by service providers with a specific license. Anyone else will not understand the relevant issues nor have the experienced personnel who can conduct surveys, pull samples and complete analysis, properly label impacted equipment/tanks, ensure proper containment, transport and disposal, and safeguard the site from contamination from improper management and/or ingress/egress.**

3. Any person subject to the general license issued under this section shall notify the department within sixty days of the effective date of this chapter or of becoming subject to the general license. The notification shall include the following:

   a. Name and address of the licensee;

   b. Location and description of the facility, facilities, or portion of a facility where the TENORM is situated; and

   c. Description of the TENORM including estimates of the amount and extent of TENORM.

- **We would recommend addressing further in this section the prohibition of transporting, ~~g and~~ consolidating and disposal of TENORM waste streams and impacted equipment at sites not approved by the department.**

4. Transfer of material, equipment or real property.

   a. The transfer of TENORM, not exempt from article 33-10, from one general licensee to another general licensee is authorized if:

      (1) The equipment and facilities contaminated with TENORM are to be used by the recipient for a similar purpose, provided that no member of the public shall receive a dose in excess of that allowed under subsection 1 of section 33-10-23-05; or

      (2) The transfer of control or ownership of land contaminated with TENORM includes an annotation of the deed records to indicate the presence of TENORM.

b. For transfers not made in accordance with subdivision a, the transferor shall obtain the department's prior written approval for the transfer.

c. For transfers made under subdivision a, the transferor shall assess the amount and extent of TENORM contamination or material present, inform the general licensee receiving the TENORM of these assessments prior to such transfer, and maintain records that include:

(1) The date, recipient name and location;

(2) A description and quantity of the material; and

(3) A description of the procedures and mechanisms used to ensure that material will not be released in another manner, such as an unrestricted release.

d. A general licensee intending to transfer material or real property for unrestricted use shall document compliance with the requirements of section 33-10-23-07. Records of such compliance shall be maintained for ten years.

Distribution of TENORM products between general licensees. The distribution of TENORM products from one general licensee to another general licensee is authorized provided the product is accompanied by labels or manifests which identify the type and amount of TENORM.

5. The department may, by written notice, require any person authorized by a general license to apply for and obtain a specific license if the department determines that specific licensure is necessary to ensure that exposures do not exceed the criteria of sections 33-10-23-05 and 33-10-23-06. The notice shall state the reason or reasons for requiring a specific license.

- **It should be clearly stipulated in the rules that those with a general license may not store TENORM-impacted material or debris for others including general licensees.**

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-11. Specific licenses.

1. A specific license is required to manufacture and distribute any consumer or

retail product containing TENORM unless the manufacture and distribution are:

a. Authorized as specified by section 33-10-23-10;

b. Licensed under the provisions of chapter 33-10-03.1; or

c. Otherwise exempt in accordance with another chapter of article 33-10.

2. A specific license is required to decontaminate equipment or land not exempted under the provisions of section 33-10-23-04 or to decontaminate facilities contaminated with TENORM in excess of the levels in section 33-10-23-07. For purposes of this subsection, the term "decontaminate" shall not include routine maintenance which results in the incidental removal of contamination.

3. A specific license is required to receive TENORM from other persons for storage, treatment or disposal unless otherwise authorized in writing by the department.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-12. Application and background review for specific licenses.

1. Applications for specific licenses shall be in English and filed in a manner and on a form prescribed by the department.

2. The department may at any time after the filing of the original application, and before the termination of the license, require further statements in order to enable the department to determine whether the application shall be granted or denied or whether a license shall be modified or revoked.

3. An applicant must provide information required by the department to complete an environmental compliance background review, including:

a. Consent to a criminal history check under North Dakota Century Code section 12-60-24.

b. Disclosure of personal and business information on a form provided by the department, executed under oath or affirmation, which includes:

(1) The person's name and address;

(2) A description of the person's experience in managing the type of TENORM that will be managed under the license;

(3) A description of every civil and administrative complaint against the person for the violation of any state or federal environmental protection law which has resulted in a fine or penalty of more than ten thousand dollars within five years before the date of the submission of the application;

(4) A description of every settlement agreement entered into by the person with a federal or state agency to resolve any alleged violation of any state or federal environmental protection law which has resulted in a payment of more than ten thousand dollars within five years before the date of the submission of the application;

(4) A description of every pending notice of violation, civil complaint, administrative complaint, or criminal complaint alleging the violation of any state or federal environmental protection law;

(5) A description of every judgment of criminal conviction entered against the applicant within five years before the date of submission of the application for the violation of any state or federal environmental protection law;

(6) A description of every judgment of criminal conviction of a felony constituting a crime involving fraud or misrepresentation under the laws of any state or of the United States which has been entered against the applicant within five years before the date of submission of the application; and

(7) Any other information the department deems relevant.

c. In addition to the applicant, the following related individuals and entities may be required to submit personal and business disclosure information:

(1) Each entity that is, or is proposed to be:

(a) A partner;

(b) An entity contracted with the applicant to operate, manage or supervise the facility or activities for which approval is being sought;

(c) An entity holding of 10% or more of the applicant's debt;

(d) An entity holding 10% or more of the applicant's equity;

(e) The parent corporation, holding corporation, and any other entity that exercises control over the facility or activities for which approval is being sought;

(2) Each individual which has, or is proposed to have, any of the

following relationships with the applicant:

(a) Director;

(b) Partner;

(c) Officer;

(d) All individuals having managerial or supervisory or substantial decision-making authority and responsibility for the management of operations involving TENORM;

(e) Holder of 10% or more of the applicant's debt;

(f) Holder of 10% or more of the applicant's equity.

4. The department may deny an application for the issuance, renewal, transfer, or major modification based on its environmental compliance background review.

a. Circumstances justifying denial include:

(1) The applicant has intentionally misrepresented or concealed any material fact in a statement required under this section;

(2) The applicant or related individual or entity has been convicted of a felony or pleaded guilty or nolo contendere to a felony involving the laws of any state or the federal government within five years preceding the application for the license;

(3) The applicant or related individual or entity has been adjudicated in contempt of an order of any court enforcing the laws of this state or any other state or the federal government within five years preceding the application for the license; or

(4) The applicant or related individual or entity has repeatedly violated any state or federal environmental protection laws.

b. The department shall consider the relevance of the offense to the business to which the license is issued, the nature and seriousness of the offense, the circumstances under which the offense occurred, the date of the offense, and the ownership and management structure in place at the time of the offense.

5. Each application shall be signed by the applicant or a person duly authorized to act for and on the applicant’s behalf.

6. An application for a license may include a request for a license authorizing one or more activities.

7. Each application for a specific license shall be accompanied by the fee prescribed in chapter 33-10-11.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-13. Requirements for the issuance of specific licenses.

1. A license application will be approved if the department determines that:

   a. The applicant is qualified by reason of training and experience to use the TENORM in question for the purpose requested in accordance with article 33-10 in such a manner as to protect the public health and safety or property;

   b. The applicant's proposed equipment, facilities, and procedures are adequate to protect the public health and safety or property;

   c. The issuance of the license will not constitute a significant risk to the health and safety of the public;

   d. The applicant satisfied all applicable special requirements in this chapter;

   e. The applicant has met the financial assurance requirements of section 33-10-23-25;

   f. The applicant has adequately addressed the following items in the application:

      (1) Procedures and equipment for monitoring and protecting workers;

      (2) An evaluation of the radiation levels and concentrations of contamination expected during normal operations;

      (3) Operating and emergency procedures, including procedures for waste reduction and quality assurance of items released for unrestricted use; and

(4) A method for managing the radioactive material removed from contaminated equipment, facilities, and land.

g. For each location to be listed on the license as an authorized use location, the applicant shall submit either:

(1) A statement that the applicant owns the facility where radioactive material is to be used or stored; or

(2) A statement verifying that the facility owner has been informed, in writing, of the use or storage of radioactive material at the facility, and that the use of such material is subject to the rules of the department.

2. An application for a specific license to transfer or manufacture or distribute consumer or retail products containing TENORM to persons exempted from this chapter under subsection 2 of section 33-10-23-04 will be approved if:

a. The applicant satisfies the general requirements specified in subsection 1;

b. The TENORM is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being; and

c. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, and conditions of handling, storage, use, and disposal of the TENORM product to demonstrate that the product will meet the safety criteria set forth in section 33-10-23-14. The information shall include:

(1) A description of the product and its intended use or uses;

(2) The type, quantity, and concentration of TENORM in each product;

(3) The chemical and physical form of the TENORM in the product, and changes in chemical and physical form that may occur during the useful life of the product;

(4) An analysis of the solubility in water and body fluids of the radionuclides in the product;

(5) The details of manufacture and design of the product relating to

containment and shielding of the TENORM and other safety features under normal and severe conditions of handling, storage, use, reuse, and disposal of the product;

(6) The degree of access of human beings to the TENORM product during normal handling, use, and disposal;

(7) The total quantity of TENORM expected to be distributed annually in the product;

(8) The expected useful life of the product;

(9) The proposed method of labeling or marking each unit of the product with identification of the manufacturer or initial transferor of the product and the radionuclides and quantity of TENORM in the product;

(10) The procedures for prototype testing of the product to demonstrate the effectiveness of the containment, shielding, and other safety features under both normal and severe conditions of handling, storage, use, reuse, and disposal;

(11) The results of the prototype testing of the product, including any change in the form of the TENORM contained in it, the extent to which the TENORM may be released to the environment, any change in radiation levels, and any other changes in safety features;

(12) The estimated external radiation doses and committed dose equivalent relevant to the safety criteria in section 33-10-23-14 and the basis for such estimates;

(13) A determination that the probabilities with respect to doses referred to in section 33-10-23-14 meet the safety criteria;

(14) The quality control procedures to be followed in the processing of production lots of the product, and the quality control standards the product will be required to meet; and

(15) Any additional information, including experimental studies and tests, required by the department to facilitate a determination of the radiation safety of the product.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-14. Safety criteria for consumer and retail products. An applicant for a license under subsection 2 of section 33-10-23-13 shall demonstrate that the product is designed and will be manufactured so that:

1. In normal use and disposal of a single exempt item, and in normal handling and storage of the quantities of exempt items likely to accumulate in one location during marketing, distribution, installation, and servicing of the product, it is unlikely that the dose in any one year, to a suitable sample of the group of individuals expected to be most highly exposed to radiation or radioactive material from the product will exceed the doses in column I of section 33-10-23-15.

2. In use and disposal of a single exempt item and in handling and storage of the quantities of exempt items likely to accumulate in one location during marketing, distribution, installation, and servicing of the product, the probability is low that the containment, shielding, or other safety features of the product would fail under such circumstances that a person would receive an external radiation dose or committed dose equivalent in excess of the dose to the appropriate part of the body as specified in column II of section 33-10-23-15 and the probability is negligible that a person would receive an external radiation dose or committed dose equivalent in excess of the dose to the appropriate part of the body as specified in column III of section 33-10-23-15.

3. It is unlikely that there will be a significant reduction in the effectiveness of the containment, shielding, or other safety features of the product from wear and abuse likely to occur in normal handling and use of the product during its useful life.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-15. Table of doses. The dose limits in this section are the doses above background from the product.

1. Column I doses are:

   a. For the whole body; head and trunk; active blood-forming organs; gonads; or lens of eye - fifty microsieverts [five millirem].

b. For the hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one square centimeter - seven hundred fifty microsieverts [seventy five millirem].

c. For other organs - one hundred fifty microsieverts [fifteen millirem].

2. Column II doses are:

a. For the whole body; head and trunk; active blood-forming organs; gonads; or lens of eye - five millisieverts [five hundred millirem].

b. For the hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one square centimeter - seventy five millisieverts [seven thousand five hundred millirem].

c. For other organs - fifteen millisieverts [one thousand five hundred millirem].

3. Column III doses are:

a. For the whole body; head and trunk; active blood-forming organs; gonads; or lens of eye - one hundred fifty millisieverts [fifteen rem].

b. For ankles and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one square centimeter - two thousand millisieverts [two hundred rem].

c. For other organs - five hundred millisieverts [fifty rem].

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-16. Issuance of specific licenses.

1. Upon a determination that an application meets the requirements of article 33-10, the department will issue a specific license authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary.

2. The department may incorporate in any license at the time of issuance, or thereafter by amendment, such additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of TENORM subject to this chapter as it deems appropriate or necessary in order to:

a. Protect public health and safety or property;

b. Require such reports and the keeping of such records, and to provide for such inspections of activities under the license as may be appropriate or necessary; and

c. Prevent loss, theft, or loss of control of TENORM subject to this chapter.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-17. Conditions of specific licenses.

1. General terms and conditions.

a. Each specific license issued under this chapter shall be subject to all the provisions of North Dakota Century Code chapters 23-20, 23-20.1, 23-20.2, and 23-20.5, now or hereafter in effect, and to all rules and orders of the department.

b. No specific license issued or granted under this chapter and no right to possess or utilize TENORM granted by any license issued under this chapter shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the department shall, after securing full information, find that the transfer is in accordance with the provisions of North Dakota Century Code chapters 23-20, 23-20.1, 23-20.2, and 23-20.5, and shall give its consent in writing.

c. Each person specifically licensed by the under this chapter shall confine use and possession of the TENORM licensed to the locations and purposes authorized in the specific license.

d. Transfer of control.

Within thirty (30) days of the existence of any new controlling individual or entity, the licensee shall submit to the department the name of the controlling individual or entity and a statement signed by the controlling individual or entity in which the controlling individual or entity agrees to accept responsibility for the license. The controlling individual or entity must undergo an environmental compliance background review under

section 33-10-23-12.

e. Notification of bankruptcy.

(1) Each licensee shall notify the department, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapters of Title 11 (Bankruptcy) of the United States Code by or against:

(a) The licensee;

(b) An entity [as that term is defined in 11 U.S.C. 101(15)] controlling a licensee or listing the license or licensee as property of the estate; or

(c) An affiliate [as that term is defined in 11 U.S.C. 101(2)] of the licensee.

(2) This notification shall indicate:

(a) The bankruptcy court in which the petition for bankruptcy was filed; and

(b) The date of the filing of the petition.

f. Each licensee shall notify the department in writing prior to commencing activities to reclaim the licensed facility and site.

g. Notification of site or area closure. When a licensee has permanently ceased use of radioactive materials at a site or portion of a facility and the licensee has not decontaminated the area, or when an area has not been used for a period of two years, the licensee shall, within sixty days, provide the following information in writing to the department:

(1) The location of the facility, site, or area;

(2) The plan for reclaiming or decontaminating the facility, site or area; and

(3) An evaluation of any changes to the financial assurance submitted in accordance with section 33-10-23-25.

h. Temporary jobsites.

(1) When temporary jobsites are authorized on a specific license, TENORM may be used at temporary jobsites throughout North Dakota in accordance with the reciprocal recognition provisions of section 33-10-23-24 or chapter 33-10-19, in areas not under exclusive federal jurisdiction.

(2) Before TENORM can be used at a temporary jobsite at any federal facility within North Dakota, the jurisdictional status of the jobsite shall be determined as it pertains to the TENORM. Authorization for use of TENORM at jobsites under exclusive federal jurisdiction shall be obtained from the applicable federal agency.

2. Quality control, labeling, and reports of transfer. Each person licensed under subsection 2 of section 33-10-23-13 shall:

a. Carry out adequate control procedures in the manufacture of the product to assure that each production lot meets the quality control standards approved by the department;

b. Label or mark each unit so that the manufacturer, processor, producer, or initial transferor of the product and the TENORM in the product can be identified; and

c. Maintain records identifying, by name and address, each person to whom TENORM is transferred for use under subsection 2 of section 33-10-23-04 or the equivalent rules of another licensing state, and stating the kinds, quantities, and uses of TENORM transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the department. Each report shall cover the year ending December 31, and shall be filed within ninety days thereafter. If no transfers of TENORM have been made pursuant to subsection 2 of section 33-10-23-13 during the reporting period, the report shall so indicate.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-18. Expiration and termination of specific licenses.

1. Except as provided in subsection 2 of section 33-10-23-19, the authority to engage in licensed activities as specified in the specific license shall expire at the end of the specified day in the month and year stated therein. Any expiration date

on a specific license applies only to the authority to engage in licensed activities. Expiration of a specific license shall not relieve the licensee of responsibility for decommissioning its facility and terminating the specific license.

2. Each licensee shall notify the department immediately, in writing, and request termination of the license when the licensee decides to terminate all activities involving radioactive materials authorized under the license. This notification and request for termination shall include the documents required by subsection 4 and shall otherwise substantiate that the licensee has met all of subsection 4's requirements.

3. No less than thirty days before the expiration date specified in a specific license, the licensee shall either:

    a. Submit an application for license renewal pursuant to section 33-10-23-19; or

    b. Notify the department, in writing, if the licensee decides not to renew the license. The licensee requesting termination of a license shall comply with the requirements of subsection 4;

4. Termination of licenses.

    a. If a licensee does not submit a complete application for license renewal pursuant to section 33-10-23-19, the licensee shall, on or before the expiration date specified in the license:

        (1) Terminate use of the TENORM specified in the license;

        (2) Remove radioactive contamination to the level outlined in section 33-10-23-07, to the extent practicable;

        (3) Properly dispose of the TENORM specified in the license;

        (4) Submit a completed department form "certificate: disposition of radioactive material" (SFN 18941); and

        (5) Submit a radiation monitoring report to confirm the absence of TENORM specified in the license or to establish the levels of residual radioactive contamination, unless the licensee demonstrates the absence of residual radioactive contamination in some other manner acceptable to the department. The radiation monitoring report shall specify the instrumentation used and certify that each instrument was properly calibrated and tested. The

licensee shall, as applicable, report levels or quantities of:

(a) Beta and gamma radiation at one centimeter from surfaces in units, multiples, or subunits of sieverts or rem per hour or microroentgens per hour;

(b) Gamma radiation at one meter from surfaces in units, multiples, or subunits of sieverts or rem per hour or microroentgens per hour;

(c) Removable radioactivity on surfaces in units, multiples, or subunits of becquerels or curies per one hundred square centimeters of surface area or in disintegrations (transformations) per minute per one hundred square centimeters of surface area;

(d) Fixed radioactivity on surfaces in units, multiples, or subunits of becquerels or curies per one hundred square centimeters of surface area or in disintegrations (transformations) per minute per one hundred square centimeters of surface area;

(e) Radioactivity in contaminated liquids such as water, oils or solvents in units, multiples, or subunits of becquerels or curies per milliliter of volume or per gram of liquid; and

(f) Radioactivity in contaminated solids such as soils or concrete in units, multiples, or subunits of becquerels or curies per gram of solid.

b. If levels of residual radioactive contamination attributable to activities conducted under the license are less than those established in section 33-10-23-07, the licensee shall so certify. If the department determines that this certification and the information submitted under subdivision a is adequate and monitoring confirms the findings, then the department will notify the licensee, in writing, of the termination of the license.

c. If residual radioactive contamination attributable to activities conducted under the license are not in conformance with criteria established in section 33-10-23-07:

(1) The license continues in effect beyond the expiration date, if necessary, with respect to possession of residual TENORM present as contamination until the department notifies the licensee in

writing that the license is terminated. During this time the licensee is subject to the provisions of subsection 5.

(2) In addition to the information submitted under subdivision a of subsection 4, the licensee shall submit a plan for decontamination and disposal, if required, as regards residual TENORM contamination remaining at the time the license expires.

5. Each licensee who possesses TENORM under subdivision c of subsection 4, following the expiration date specified in the license, shall:

a. Limit actions involving TENORM as specified in the license to those related to decontamination and other activities related to preparation for release for unrestricted use; and

b. Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the department notifies the licensee in writing that the license is terminated.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-19. Renewal of specific licenses.

1. Applications for renewal of specific licenses shall be filed in accordance with section 33-10-23-12.

2. In any case in which a licensee, not less than thirty days prior to expiration of an existing license, has filed an application in proper form for renewal or for a new license authorizing the same activities, the existing license shall not expire until final action by the department.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-20. Amendment of specific licenses at request of licensee. Applications for amendment of a license shall be filed in accordance with section 33-10-23-12 and shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment.

History:

General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-21. Department action on applications to renew and amend specific licenses. In considering an application by a licensee to renew or amend the license, the department will apply the criteria set forth in section 33-10-23-13.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-22. Modification and revocation of specific licenses.

1. The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to North Dakota Century Code chapters 23-20, 23-20.1, 23-20.2, or 23-20.5, or by reason of rules and orders issued by the department.

2. Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or because of conditions revealed by such application or any report, record, or inspection or other means which would warrant the department to refuse to grant a license on an original application, or for violation of, or failure to observe any of the terms and conditions of North Dakota Century Code chapters 23-20, 23-20.1, 23-20.2, or 23-20.5, or of the license, or of any rule or order of the department.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-23. Record keeping requirements for site reclamation. Each licensee shall keep records of information important to the safe and effective reclamation of a facility in an identified location until the license is terminated by the department. If records of relevant information are maintained for other purposes, reference to these records and their locations may be used. The records must include the following information:

1. Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to

inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records shall include any known information on identification of involved radionuclides, quantities, forms and concentrations.

2. As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used or stored, and of locations of possible inaccessible contamination, such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

3. If required by section 33-10-23-25, records of this reclaiming cost estimate prepared for the amount approved by the department for reclaiming.

- **Throughout the proposed rules there are times when it is unclear whether the guidance is intended for general licensees and specific licensees. It may be worthwhile to systematically review every reference to a licensee to make sure that this distinction is evident.**

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-24. Reciprocal recognition of specific licenses.

1. Any person who holds a specific license from another agreement state or licensing state, issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within North Dakota for a period not in excess of one hundred eighty days in any 12 month period, provided that:

   a. A current copy of the licensing document or equivalent authorization is on file with the department and the authorized activities are not limited to specified installations or locations;

   b. The out-of-state licensee notifies the department at least three days before engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within North Dakota. Upon receipt from the out-of-state licensee of a written request containing a schedule of activities to be conducted within North Dakota, the department may waive the requirement for additional notifications during the twelve-month period following the receipt of the initial notification;

   c. The out-of-state licensee complies with all applicable rules of the

department and with all the terms and conditions of the licensing

document or equivalent authorization, except any such terms and conditions which may be inconsistent with article 33-10;

d. The out-of-state licensee supplies any other information necessary to show compliance with article 33-10; and

e. The out-of-state licensee shall not transfer or dispose of TENORM possessed or used under the general license, except by transfer to a person:

(1) Specifically licensed by the department or by another licensing state to receive such TENORM; or

(2) Exempt from the requirements for a license for such TENORM under section 33-10-23-04.

2. The department may withdraw, limit or qualify its acceptance of any specific license or equivalent authorization issued by a licensing state, or any product distributed pursuant to such license or equivalent authorization, if the department determines that, had the out-of-state licensee been licensed by North Dakota, the licensee's license would have been subject to action under section 33-10-23-22.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-25. Financial assurance arrangements. Each licensee or applicant for a specific license shall post with the department financial assurance, or security, to ensure the protection of the public health and safety and the environment in the event of abandonment, default, or other inability or unwillingness of the licensee to meet the requirements of article 33-10 and North Dakota Century Code chapter 23-20.1. Financial assurance arrangements shall:

1. Consist of surety bonds, government securities, irrevocable letters of credit, corporate guarantees, insurance, state funds, or any combination of these;

2. Be in an amount sufficient to meet the applicant's or licensee's obligations under article 33-10 and North Dakota Century Code chapter 23-20.1 and shall be based upon department approved cost estimates;

3. Be established prior to issuance of the license or the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the facility;

4. Be continuous for the duration of the license and for a period coincident with the applicant or licensee's responsibility under article 33-10 and North Dakota Century Code chapter 23-20.1;

5. Be available in North Dakota subject to judicial process and execution in the event required for the purposes set forth; and

6. Be established within ninety days of the initial effective date of this chapter for licenses in effect on that date.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-26. Acceptable surface contamination levels for TENORM.

1. Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides shall apply independently.

2. As used in this section, “disintegrations per minute” means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

3. Average contamination level.

   a. For surface contamination by alpha emitting nuclides, the average contamination level shall not exceed five thousand disintegrations per minute per one hundred square centimeters of surface area.

   b. For surface contamination by beta-gamma emitting nuclides, the average contamination level shall not exceed five thousand disintegrations per minute per one hundred square centimeters of surface area.

   c. Measurements of average contamination level shall not be averaged over more than one square meter. For objects of less surface area, the average shall be derived for each object.

   d. The average radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed two microgray per hour [two tenths millirad per hour] at one centimeter and ten microgray per hour [one millirad per hour] at one centimeter, respectively, measured

through not more than seven milligrams per square centimeter of total absorber.

4. Maximum contamination level.

   a. For surface contamination by alpha emitting nuclides, the maximum contamination level shall not exceed fifteen thousand disintegrations per minute per one hundred square centimeters of surface area.

   b. For surface contamination by beta-gamma emitting nuclides, the maximum contamination level shall not exceed fifteen thousand disintegrations per minute per one hundred square centimeters of surface area.

   c. The maximum contamination level applies to an area of not more than one hundred square centimeters.

   d. The maximum radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed two microgray per hour [two tenths millirad per hour] at one centimeter and ten microgray per hour [one millirad per hour] at one centimeter, respectively, measured through not more than seven milligrams per square centimeter of total absorber.

5. Limits on removable contamination.

   a. For surface contamination by alpha emitting nuclides, the removable contamination shall not exceed one thousand disintegrations per minute per one hundred square centimeters of surface area.

   b. For surface contamination by beta-gamma emitting nuclides, the removable contamination shall not exceed one thousand disintegrations per minute per one hundred square centimeters of surface area.

   c. Measurements of average contamination level shall not be averaged over more than one square meter. For objects of less surface area, the average shall be derived for each object.

   d. The amount of removable radioactive material per one hundred square centimeters of surface area shall be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area A (where A is less than one

hundred square centimeters) is determined, the entire surface shall be wiped and the contamination level multiplied by the quantity [one hundred divided by A] to convert to a "per one hundred square centimeter" basis.

e. The maximum radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed two microgray per hour [two tenths millirad per hour] at one centimeter and ten microgray per hour [one millirad per hour] at one centimeter, respectively, measured through not more than seven milligrams per square centimeter of total absorber.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-27. Specific licenses – radiation protection program required.

1. A licensee shall appoint a Radiation Safety Officer, who agrees, in writing, to be responsible for implementing the radiation protection program. The licensee, through the Radiation Safety Officer, shall ensure that radiation safety activities are being performed in accordance with licensee-approved procedures and regulatory requirements.

2. A licensee shall establish, in writing, the Radiation Safety Officer's authority, duties, and responsibilities.

3. A licensee shall provide the Radiation Safety Officer sufficient authority, organizational freedom, time, resources, and management prerogative, to--

   a. Identify radiation safety problems;

   b. Initiate, recommend, or provide corrective actions;

   c. Stop unsafe operations; and

   d. Verify implementation of corrective actions.

4. A licensee shall retain a record of actions taken under subsections 1 and 2 of this section for five years.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-03, 23-20.1-04

33-10-23-28. Radiation safety officer – qualifications.

1. Except for licenses exclusive to the transport of TENORM waste, the licensee shall require an individual fulfilling the responsibilities of the Radiation Safety Officer as provided in 33-10-23-27 to be an individual who:

    a. Has completed a department approved training program consisting of both:

        (1) Forty hours of classroom training in the following areas:

            (a) Characteristics of radiation;

            (b) Units of radiation dose and quantity of radioactivity;

            (c) Hazards of exposure to radiation;

            (d) Radiation detection and measurement;

            (e) Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);

            (f) Use and types of personnel-monitoring equipment;

            (g) Proper use of protective equipment; and

            (h) Transportation of licensed material; and

        (2) One year of on-the job training under the supervision of a qualified individual (authorized user, radiation safety officer) that includes supervised experience performing the task(s) authorized ~~on the~~ during routine and emergency situations.

2. For licenses exclusive to the transport of TENORM waste, the licensee shall require an individual fulfilling the responsibilities of the Radiation Safety Officer to be an individual who:

    a. Has completed a department approved training program consisting of:

        (1) Eight hours of classroom training in the following areas:

            (a) Characteristics of radiation;

            (b) Units of radiation dose and quantity of radioactivity;

(c) Hazards of exposure to radiation;

(d) Radiation detection and measurement;

(e) Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);

(f) Use and types of personnel-monitoring equipment;

(g) Proper use of protective equipment; and

(h) Transportation of licensed material.

History:
General Authority: NDCC 23-20.1-04
Law Implemented: NDCC 23-20.1-04

While SECURE Energy Services prepared most of its own comments, we have reviewed input that was accumulated and presented by the North Dakota Petroleum Council (NDPC) and generally supports their comments and those of its constituency.

Radig, Scott A.

From: Sharon Krieger [redacted]
Sent: Sunday, March 01, 2015 6:16 PM
To: Radig, Scott A.
Subject: Comments on radioactive waste

>
>> On Jan 20, 2015, at 10:22 PM, Sharon Krieger <skdc1955@icloud.com> wrote:
>>
>> Some points I thought were important about the increase in the
>> radioactive limit of waste in the state:
>>
>> 1. Radiation in the human body is accumulative. There are medical
>> limits for people receiving radiation for medical treatments. Won't the increase in the limit by the health department for waste negatively affect people who have already been exposed to radiation thru x-rays, CT scans, radio-nuclide studies and other sources.
>>
>> 2. We have had radiation (perhaps called background radiation by the
>> health department) in the past from the strontium fallout received in
>> the 60's during the nuclear bomb testing in the western states that
>> migrated to North Dakota. Surely the health department has some information that was broadcast on NPR a few years ago about how the strontium was affecting the grass and the cows that ate the grass and the humans who drank the cow's milk and ate the cows or who were exposed directly. What were the lessons learned from that radiation poisoning?
>>
>> 3. Radiation is carcinogenic. Given the increased toxic load we
>> have from the environment of living in the oil patch including H2S, benzene, toluene, V.O.S., etc. all of which can be deadly, not to mention the chemicals injected into the drilling holes isn't this just adding to our health burden to have the limit raised to 50 microcuries per gram? Look for more deaths from cancer due to these environmental poisons.
>>
4. Recently I have been doing 24-hour urine catches on patients and have found cesium
showing up on those. This is a radioactive element that I was surprised to find. However, when you google cesium it says it is associated with fracking waste. I am hoping that this information is taken seriously by the health department.

Sincerely,
Dr. Sharon Krieger, Tioga, ND
>> Sent from my iPad

DATE: February 20, 2015

TO: Scott Radig, Director NDDoH, Division of Waste Management

FROM: Shelly Ventsch

RE: Raising the limit of picocuries in special waste landfills

COMMENTS: "The mission of the North Dakota Department of Health is to protect and enhance the health and safety of all North Dakotans and the environment in which we live. To accomplish our mission, the NDDoH is committed to improving the health status of the people of North Dakota, improving access to and delivery of quality health care, preserving and improving the quality of the environment..." One would have to question the actual push behind the proposal to increase picocuries from 5 to 50 per gram of TENORM waste. I don't believe it is in the best interest of the state and its residents to be doing this.

We know radioactive material causes cancer and genetic mutations, as well as affecting bone marrow. Scientific American (February 2015) states "Most scientists agree that there is no such thing as a 'safe' dose of radiation, no matter how small. And the small doses are the ones we understand the least." If the NDDoH feels 50 picocuries/gram will be a safe number for humans, what about the life in the surrounding environment? Protection of the environment is part of the mission statement and the state is failing in that. The assault on western ND's environment is being done with the state's blessing. An excerpt from the Scientific American: (Professor of Biology Timothy Mousseau) "Sensitivity to radiation varies greatly in living things and among individuals of the same species, which is one reason it is important not to extrapolate from butterflies to barn swallows or from voles to humans. Butterflies are particularly radiosensitive." All of the scientists agreed "Clearly, there's something going on with the butterflies that's radiation-induced. Multi-generational exposure does result in an altered genome." Thirteen years after Chernobyl, birds were suffering from reduced life-spans, diminished male fertility, smaller brains, tumors, genetic mutations, and cataracts. More than 60 papers were published over 13 years and it has been shown exposure to low-level radiation has had "a negative impact on the zone's entire biosphere, from microbes to mammals, from bugs to birds." I understand what the NDDoH is proposing doesn't compare to Chernobyl or Fukushima, but radiation exposure is linked to elevated mutation rates and an accumulation of genetic damage. There is not a "one size fits all" for tolerance of exposure to radiation within any species.

By allowing increased levels of TENORM, I do not think the state is doing its job as it is spelled out. Waste has not been tracked up to this point. More waste, and more dangerous waste, will add to the problems. You don't try to run a marathon when you haven't yet mastered the mile.

As part of my comments, I am enclosing a letter to the editor which I submitted to various publications. Thank you for taking my comments and I hope you honor the mission statement.

Letter to the editor

The ND Dept. of Health's mission statement is to protect the health of people and environment. Many laws have been implemented over the years for health and safety--no smoking in public buildings, car seats for little ones, seat belts for older ones, stronger penalties for drunk driving, etc. Now, the NDDoH is taking a step backward by considering raising special waste landfills'picocurie limit from 5 to 50 for oil field's radioactive waste. Their reasons for this? Hauling waste out of state costs too much for the industry, illegal dumpings will decrease, and ND should be responsible for its own waste. Because some companies are cheap and irresponsible, the DoH decided if they can't follow current rules, then the rules will be changed to accommodate industry's inadequacies. It will appear as if everyone is doing a good job. But as a result, safety and health become secondary, while helping oil companies becomes the priority. Proponents of increased picocuries say it is unknown how long other states will accept ND's waste. However, NDDoH has stated that if the picocurie limit is raised, by federal law ND cannot refuse out-of-state waste. If so, federal law applies to all states, so the states in question couldn't refuse ND's waste. If the limit is increased, waste from the Fairview/Sidney, MT area will not go to Glendive when there are several ND disposal sites just across the border, seven of which are located near the Missouri River and its tributaries. Contamination of the water could find its way south to Bismarck and beyond. Encouraging more toxic waste and truck traffic in ND doesn't protect health and safety.

While the questionable Argonne study claims 50 picocuries is safe, it cannot claim 50 is safer than 5. How legitimate is a study where samples are taken by oil companies and DoH? Thanks to open record laws, correspondence between Argonne and NDDoH is available, which discusses wording of the results--what to include or omit. The results were not released to the public until DoH approved them.

Maybe NDDoH should leave picocuries at 5, track and regulate waste, and share in the cost of transporting radioactive waste out-of-state to those with capabilities to handle it. It would show acceptance of responsibility, as well as benefit industry and residents.

Please send your comments opposing increasing picocuries, by March 2, to: Scott Radig, Director NDDoH, Division of Waste Mgt. 918 E. Divide. Ave.-3rd Floor Bismarck, ND 58501-1947 or email: sradig@nd.gov.

Holly Vanstad
8861-34th St. NW
New Town, ND 58763

March 1, 2015

Scott Radig,
Director, NDDoH
Environmental Health Section
918 East Divide Ave
Bismarck, ND 58501
sradig@nd.gov

Dear Mr. Radig:

I am writing to oppose the implementation of the N.D. Administrative Code Chapter 33-10-23, Regulation And Licensing Of Technologically Enhanced Naturally Occurring Radioactive Material and N.D Administrative Code Article 33-20, Solid Waste Management And Land Protection, which will increase the current 5 picocuries per gram of radioactive waste up to 50 picocuries per gram.

There is no safe level of radioactive materials; low levels of radiation are proven to be carcinogenic. If this increase is allowed to take place the general public and environment will be at great risk:

1) Contamination of soil
2) Contamination of groundwater and surface water
3) Public exposure, either by airborne releases or direct exposure. Exposure from the downwind transport of re-suspended particulates.
4) ND's inability to track low levels of radioactive and toxic waste
5) ND's inability to develop policy / regulations and enforce regulations regarding radioactive waste
6) Negative and adverse effect on rural landowners and communities
7) Degradation of the (local) rural way of life through increased vehicle traffic, noise, environmental pollution, and increased community risk from increased levels of radioactive materials
8) Occupational Safety and Health (NIOSH) identified TENORM as an occupational health risk

Sincerely,

Terry Schaunaman
1314 6th Ave S
Fargo, ND 58103
[redacted]

Radig, Scott A.

From: Rodych, Andrew [arodych@tervita.com]
Sent: Wednesday, January 21, 2015 12:05 PM
To: Radig, Scott A.
Cc: Hofseth, Kyle; Girard, Suzanne; Cieply, David
Subject: Comments - Proposed TENORM Rule Change - Tervita
Attachments: TENORM Rule Change Response Letter - Tervita.pdf

Hello Scott,

Hope your week is going well!

Please find attached Tervita's comments regarding the proposed rule changes for TENORMs in North Dakota.

If you have any questions, please let us know.

Thanks for your time.

Andrew Rodych
Strategic Issues/Policy Advisor
Health, Safety, & Environment (HSE) - Central Support
D: (587) 233-3473 C:(403) 815-3537

Tervita Corporation
500, 140 10th Avenue S.E., Calgary, AB Canada T2G 0R1

www.tervita.com

EARTH MATTERS – Please think before you print

January 21, 2015

Scott Radig
Director, Division of Waste Management
North Dakota Department of Health
918 E. Divide Ave.
Bismarck, ND 58501
(701) 328-5166
sradig@nd.gov

Re: Proposed TENORM Tracking and Disposal Rules Comments

Dear Mr. Radig,

As request by the North Dakota Department of Health (NDDOH) Division of Waste Management, Tervita would like to provide the following comments regarding the proposed TENORM Tracking and Disposal Rules.

To begin with, Tervita supports the NDDOH proposal requiring 'cradle to grave' manifesting, alongside raising the TENORM threshold from 5 picocurries per gram to 50 picocurries per gram based on the RESRAD modeling conducted by Argonne National Laboratory (Argonne). This limit increase will allow for more disposal options throughout North Dakota and therefore reduce the risk associated with out of state transportation and illegal disposal of TENORM waste.

Though Tervita agrees with the overall objective of the legislative rule updates, we do have a few comments that require further consideration and clarification.

1. Though studied by Argonne, Lead 210 (Pb-210) is not stated within the legislative rule updates for picocurie limits. The draft Section 33-20-11-01 (1) reads, "*TENORM waste up to, but not exceeding 50.0 picocuries per gram of Radium-226 plus Radium-228, may be disposed in a landfill…*" Based on this statement, it is assumed that Pb-210 does not fall under the 50 picocurie per gram limit applied to Ra-226 and Ra-228. The NDDOH should outline within the rules the types of TENORM constituents it expects waste to be tested for. As well, within current operating permits Pb-210 is listed as an acceptable waste as long as the picocurie limit is below 5. The NDDOH needs to confirm whether this permitted limit will be retained or will change based on the new rules.

2. Currently, TENORM waste exhibiting two times background levels require additional screening (laboratory analysis) to confirm if waste is acceptable. However, this is just a

Tervita Corporation

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500, 140 – 10th Avenue SE
Calgary, AB T2G 0R1
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F: (403) 261-5612

"rule of thumb" practiced within North Dakota. The NDDOH should specify accepted practice within the proposed rule.

3. The NDDOH should confirm whether "spent filter socks" from oilfield waste filtration will be an acceptable waste stream according to the disposal facility's permit. Currently, acceptable wastes are listed in the Operations Plan included as part of the facility application, but are not specifically referenced within the issued permit for the site. By including "spent filter socks" as an acceptable waste stream, it can be expected that the proper disposal of this waste would increase. In addition, a clarification is required on whether filter socks under the 50 picocurie per gram level require segregation and independent analysis, or if incorporation with solids is acceptable practice.

Tervita appreciates the opportunity to comment on these proposed rule updates. Furthermore, we look forward to continued discussions and inclusion in the TENORM rule development.

Thank you for your consideration.

Sincerely,

Kyle Hofseth
Manager, Operational Compliance
Tervita Corporation

Towner, North Dakota
February 24, 2015

Scott Radig
Director, Division of Waste Mgt.

As a lifelong citizen of North Dakota (with the exception of two years teaching high school in Minnesota) I am opposed to the proposed change that would allow higher levels of radioactive material to be disposed of in North Dakota. It seems to me that we have already had enough illegal dumping of waste.

Virginia Hill Fairbrother

January 27, 2015

To N.D. Dept of Health
Environmental Health Section

I am strongly opposed to the N.D. Petroleum Council lobbying for - approving the increase in the allowed picocuries in Radioactive waste in the STATE of ND.

Please protect the Health & Welfare of all the people in the STATE of North DAKOTA

That is your job.

Sincerely,

Wanda M. Weinbar
P.O. Box 685
Stanley, N. Dak. 58784

TENORM Comment from Scott Radig's Voice Mail Avaya Phone System
Message received 01/28/15 @7:39 a.m.

My name is Michael Frank; I'd like to leave a message on the TENORM rule change. I don't think it should change. I think you should hold them to what the law states and I don't think they should have been let off the hook the last time they polluted our North Dakota by shoving this crap into buildings. And who knows, they're probably buried or sitting on the bottom of ponds. I think we should regulate these guys and you know, I think they should be paying fines. Thank you very much listening and let's keep aware of this. Thank you. (END)

TENORM Comment from Scott Radig's Voice Mail Avaya Phone System
Message received 02/02/15 @2:52 p.m.

This is Jim Torkelson calling from Minot at [redacted], and I'm calling about those filter socks and I want to know why we want to accept them into the landfills here. Thank you, bye. (END)

TENORM Comment from Scott Radig's Voice Mail Avaya Phone System
Message received 02/05/15 @2:15 p.m.

Hello Scott, this is Lyle Larson from Watford City. My background is I was pre-med, I have a natural science degree and I'm a pharmacist. I am opposed to raising the radiation for any place in North Dakota from 5 to 50 picocuries. It's not good. All radiation is cumulative. If you want some good information, there is a gentleman named Christopher Busby, he's in the UK. You can check out on some of his stuff that has been archived on Genesis Communication Network, go to gcnlive.com and look up Christopher Busby from the UK. He will cover some of that. He is really good on reporting from Fukushima on what's been happening. And also, if you go to Jeff Rentz (spelling?) or rentz.com, he would cover also some more of the radiation problems.

A word for the federal government: With the Navy and that and from my background is that all radiation is cumulative and harmful and it doesn't matter whether its electrical or what have you, nuclear or whatever, it's not helpful to the body or biological systems. And if you just want to look at one cell towers have been doing to people and what has been covered up, there's a very good book out by Martin Blank. It's called "Over Powered" and you might find that interesting. So these are topics that will not be touched by any health department, EPA or the CDC, but they are issues of concern. And having more radiation in the state is not at all helpful. There are places that have better subterranean granite deposit areas that are safer and will not get into our ground water. There I sit; so thank you very much. Phone number here is [redacted], and you take care. Thank you very much, bye. (END)