Transcript of Public Hearings related to TENORM Rule Revisions
In Williston, Bismarck, and Fargo, North Dakota
January 2015

North Dakota Department of Health
Division of Waste Management
TENORM Public Hearing for Rule Revisions of the
North Dakota Administrative Codes 33-10 and 33-29
January 20, 2015 - 7:00 p.m. CST
Williston Area Recreation Center - 822 18th Street East
Williston, North Dakota 58801

Speaker Scott Radig: My name is Scott Radig, I am the Director of the North Dakota Department of Health, Division of Waste Management, and I will be acting as the hearing officer for this public hearing. It is now 7:01 p.m. on January 20, 2015, in Williston, North Dakota. I'll begin with a short opening statement and explain the hearing format and we will then open for comments.

First, I would like to ask everyone to turn off their cell phone ringers as a courtesy to those providing testimony. This public hearing has been called for the purpose of allowing all interested individuals an opportunity to submit information and comments concerning the proposed new and amended Administrative Rules regarding management and disposal of technologically enhanced naturally occurring radioactive materials in North Dakota Administrative Code Article 33-10 Radiological Health Rules, and Article 33-29 Solid Waste Management of Land Protection Rules.

Information gathered at this hearing will be used by the North Dakota Department of Health and the State Health Council for its deliberation and final decision. This hearing is being conducted according to the procedures for hearings on proposed administrative rules. It is not an adjudicative proceeding under Chapter 28-32, which means the persons providing comment will not be cross-examined and the department will not be responding to comments at this hearing.

The comments received today will be considered with all written comments that are received and the Department of Health will present its consideration of all the comments in writing. You may request a copy of the written consideration of comments, and one will be provided to you. After consideration of all the comments, the Department of Health and State Health Council will make a determination on the Draft Rules, either to approve as proposed, approve with modifications based on comments received; or to withdraw the rule. Everyone present will be given an opportunity to speak and provide as many comments and as much information as they would like.

This hearing is being taped and we ask that everyone use the microphone at the podium so that the tape will be of good quality for transcribing purposes. Please sign the registration sheets for commenter's, which is placed at the microphone and identify yourself for the record before you begin with your comments. If you have a prepared statement, a written copy of your statement is appreciated and will be helpful. In order to save time, if someone has previously made the same comments you are planning to make, it is not necessary or advantageous to state them again into the record. If you have lengthy written comments or information to present, please summarize what is being submitted and the written information will be fully reviewed, considered and responded to. If you would like to receive a copy of the written consideration of comments, please print your contact information on the sign-up sheet located at the information table.

At this point the hearing is open for comments on the proposed rules and anybody that would like to is free to start. (END)

Speaker Jay Almlie: (Mr. Almlie provide a written copy, presented here, of his oral testimony):

January 20, 2015

Mr. Radig and Mr. Glatt:

Thank you for the opportunity to provide testimony regarding the North Dakota Department of Health's proposed regulations on the topic of in-state disposal of TENORM wastes. As you know, this is a complex issue that rests on deep science, not emotionalism or conjecture. I often say that radiation is one of the most complex topics within the study of physics.

I elected to provide testimony today in the hope that my contribution will help to add clarity to this often misrepresented topic. I stand before you as an engineer with a professional background in radiation science, interested only in promoting unbiased science to achieve the best regulations possible for the people of North Dakota, for the environment in which we live, and for the continued economic prosperity of this state.

I begin my testimony by applauding the pathway your department chose to pursue regarding development of the proposed regulations presented on December 15. Your department sought the support of Argonne National Laboratory to provide the risk assessment that drove these new draft regulations. Argonne National Laboratory possesses acknowledged expertise in radiation risk assessment. Indeed, this organization developed and validated one of the premier computer codes now widely employed to predict radiation exposure to surrounding populations, given complex inputs that define multiple, specific scenarios (RESRAD®). I have studied the detailed report produced by Argonne National Laboratory, and I believe that their work provides valuable estimates of expected radiation dosages. This science is, unquestionably, a required component in your efforts to achieve reasoned, defensible rulemaking.

I am a senior research manager at the Energy & Environmental Research Center (EERC), located in Grand Forks, North Dakota. My job at this facility and state asset is to advance the state of technology related to the energy sector. As part of this job, I am now working on multiple research projects related to North Dakota's oil fields. I work for the State of North Dakota, the federal government, and for multiple industrial partners. My function for my clients is to provide unbiased, highly defensible, science-based research across a broad variety of topics.

Prior to my work at the EERC, I was employed at NASA's Johnson Space Center in Houston, Texas, where I participated in projects involving radiation science and protection of human health in the presence of radiation fields. Continuing in that vein, much of my work at the EERC during the past 2 years has been directly related to the topic of discussion at today's hearing. I feel that my collective work experience allows me to offer confident testimony today, in hopes of helping your department refine and defend the wording of these new regulations.·

I would like to first submit to the public record a very brief summary of the fundamentals of radiation and TENORM science. TENORM is "technologically enhanced naturally occurring radioactive material." TENORM is created when industrial activity increases the concentrations of

radioactive materials that are found in the natural environment. TENORM is not inherently "bad" or "hazardous," it is simply a relocation of that which already existed.

In the oil industry, TENORM is typically associated with tank bottoms, pipe scale, drilling mud, and used filtration socks at saltwater disposal wells. In the coal industry, TENORM is typically associated with fly ash and bottom ash, which are the residues of coal combustion. Food processing, pharmaceutical manufacturing and medical diagnostics also result in streams of TENORM wastes. TENORM is neither unique to the oil industry, nor is it the extreme hazard publicized by individuals with insufficient physics knowledge to speak authoritatively on this subject.

TENORM is, by definition, radioactive waste. Unfortunately, the term "radioactive" evokes a very emotional reaction from those with inadequate understanding of the science of radioactivity. Nearly everything in nature is radioactive to some extent. Radioactivity is the natural decay of atoms, an inherently unstable process. Less than 18% of all known isotopes of all elements are perfectly stable. To understand the regulations proposed, we must understand the various units of measurement used in the regulation language.

"Radioactivity" is the amount of ionizing radiation released by an unstable, decaying atom and can be quantified by how many atoms in the material decay in a given time period. The proposed regulation cites units of picoCuries per gram (pCi/g) to denote the amount of radioactivity in a given mass of material. This can be contrasted with "exposure," which is the amount of radiation traveling through the air (technically, the amount of ionizations produced in air by photon radiation). In the United States, exposure is often measured in units of microRoentgens per hour (mR/hr). This unit reflects only exposure due to a form of radiation called gamma (y) radiation and therefore does not provide a complete picture. Most radiation monitors used in the field measure exposure and do so in units of microRoentgens per hour.

Except in rare situations, one cannot directly convert between measurements of radioactivity and exposure. They do not generally correlate in a predictable manner because of the mitigating effects of distance and shielding.

"Radiation dose" describes the amount of energy that a radioactive source actually deposits in materials through which it passes. Dose units typically used include rads, sieverts and rems. It is critical in discussions of radiation in general, or TENORM wastes specifically, that we understand the differences between these measurements. Misuse of the measurements quickly negates the effectiveness of any statement made about the safety of waste material disposal.

As I mentioned, radiation is everywhere in our environment. A brief list of everyday radioactive items includes cat litter, coffee grounds, granite countertops and tile, phosphate fertilizer, smoke detectors, cigarettes, many food items, and the human body itself. Additionally, we are exposed to radiation in many everyday activities-flying at altitude in airplanes, sleeping next to our mates, inhaling secondhand smoke, receiving medical diagnostics such as x-rays and CAT scans, or working in many industries.

This is not stated to minimize the importance of handling TENORM wastes correctly but rather to put it all in proper perspective. The fact that a material is radioactive does not necessarily make it hazardous. In an environment densely populated by radioactive materials, we strive for a radiation protection concept called ALARA: "as low as (is) reasonably achievable." ALARA

acknowledges the pervasiveness of radiation and guides individuals toward minimizing activities that lead to exposure. In my experience, it is with this concept in mind that responsible industry is currently handling TENORM wastes.

Although I am sincere in my expression of appreciation for the Department of Health's thoughtful approach to development of the proposed regulations, I do have significant concerns about their efficacy and enforceability. Specifically, I am troubled by the compliance predicament presented by the regulatory language. Execution of these standards hinges upon a threshold value of 50 pCi/g of two isotopes of radium: ^{226}Ra and ^{228}Ra (ND Administrative Code Chapter 33-20- 11-01.1). To my knowledge and that of other experts in this field, there is currently no field-deployable technology that can achieve this measurement directly and in a timely manner. This measurement can only be performed at one of eight North Dakota Department of Health-approved labs using a quantitative test method that takes 21 days to complete. This method does not facilitate in-field segregation of TENORM wastes and therefore leaves both industry and the Department of Health with an unresolved question of whether the 50 pCi/g threshold has been exceeded. Both parties must wait 21 days before definitive results are available. With daily waste segregation tasks, this quickly becomes unworkable for both industry and regulators at the Department of Health.

It is recognized that the Department of Health has approved an alternate 5-day test, but this option does not eliminate the predicament. Daily waste segregation needs are still not served by this 5-day test. The duration of these tests are driven by the physics of atomic decay. Therefore, the flaw lies not with the tests, themselves, but in tying regulations to a measurement that cannot be achieved in the field.

While the pCi/g measurement serves the Argonne National Laboratory modeling effort well and helps that organization produce valid estimates of radiation exposure to surrounding populations, it does not readily enable compliance with the regulation in the field. In my opinion, an alternate method of measurement that can be executed in the field and that can result in determinate action should be included in the proposed regulatory language.

As one example of an alternate method, I submit to you that other states with TENORM-specific waste disposal regulations have opted to include an alternate gamma exposure rate threshold (__ mR/hr) that is measureable in the field and allows for immediate segregation of wastes. Naturally, employment of this alternate measurement would likely require additional analysis by Argonne National Laboratory or other qualified professionals, but it may result in improved compliance efforts. I recommend that the Department of Health investigate inclusion of this, or another, alternate measurement in the regulations to better enable compliance with the regulation.

The Department of Health did include in its proposed regulatory language (ND Administrative Code Chapter 33-20-11-01.2) an exposure level of 100 mR/hr, including background radiation, but this regulation applies only to "equipment." The regulation fails to define what materials are considered to be equipment. Without this definition, this regulation presents an additional, and separate, compliance predicament. It is doubtful that "equipment" would be defined broadly enough to include all TENORM wastes of concern in North Dakota. Therefore, I refer to my earlier recommendation to include an alternate measurement that facilitates in-field segregation of all TENORM wastes.

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. The North Dakota Department of Health has before it the opportunity to establish sound regulations that serve as the model for all other states wrestling with this same issue. It is only fitting that the new energy capital of our nation also lead the way in defining sound regulations governing wastes from the energy industry. Other states are looking toward us for leadership.

It is with deepest and most sincere respect that Ioffer this testimony for your consideration. I humbly offer my assistance to the Department of Health as it develops new, responsible, effective, and scientifically grounded regulations governing safe disposal of TENORM waste in the great state of North Dakota.

Sincerely,

Jay C. Almlie
Senior Research Manager
Energy & Environmental Research Center

JCA/bjr

(END OF WRITTEN TESTIMONY BY JAY ALMLIE)

Speaker Robert Morris: Hello, my name is Robert Morris. I'm a certified health physicist…that's a person who specializes in radiation safety. I have just a couple of comments to make especially, and that is that I think once there is a public review of the Argonne National Laboratory Report, it's quite likely that you'll find areas for that report could be corrected or improved. And I think it's important for the integrity of the regulatory process that those corrections go forward.

The second comment I would make is to validate some extent the comment that Mr. Almlie just made regarding the importance of making field measurements in order to make appropriate decisions about what material can be accepted in a landfill and what material is inappropriate for that landfill. We understand that the importance here is to make correct decisions; not just fast decisions. And it's not clear to me who is required to make the decision. Who is actually certifying what is coming into the landfill. Is it the generator? Or is it the person who owns the landfill who is disposing of it? Now, sometimes people will say that we can make a field decision based on some kind of gamma ray measurement that is twice background. Oftentimes we'll hear that kind of phrase. But background changes between morning and noon; between winter and summer, and so you've got a nonstandard, if that's the standard you choose. Beyond that, there is really no strong correlation between the measurement, let's say with the Ludlum micro R meter and the concentration of waste that might be sampled from the inside of a truck load. Unfortunately, that's just not the way it works. There is no direct relation between micro R per hour and picocuries per gram, when it's being measured through the side of a truck. So I would encourage you to take that into consideration.

Now, I would like to contradict to some extent, with my experience, what Mr. Almlie just said about the 21-day, 5-day quality assured laboratory measurement. In fact, there is a new measurement technology that's been approved at the state of Pennsylvania, state of Ohio and the same technology listed in your website as being acceptable. It's the one that (word unclear) Technology Services, I think, makes, and that is a one-day turnaround of a sample that can be done with field measurements.

So getting back to the point, who makes the measurements? Who's responsible for the measurements being correct? And how do you enforce that measurement to make sure that's it's actually being made and that you know it's being made right? That's the real crux of it. Frankly, I like the number that has been chosen, 50 picocuries per gram; I think it's appropriate. You need this material to be controlled and you need it to go to the right landfill. But you need to make sure that if it's exceeding that number, it goes to a more appropriate location.

And finally the last thing I would say is that your rule as it currently stands, says monitoring is a 30-year period post closure, but radioactive landfills around the nation have post closure monitoring that goes many, many years beyond that. Thanks for your time. (END)

Speaker Darrell Dorgan: My name is Darrell Dorgan and my qualifications are pretty slim when compared to Mr. Almlie and some of the other people here, but I'm a reporter or a free-lance journalist and I make documentary films and I have reported on two oil booms, now this is the third one so I've kind of watched things over the years. Another qualification is that I've done news in Williston once 44 years ago. But I'm a little uneasy about a couple of things that took place here.

First of all I've talked to people from the Argonne National Laboratory, and the laboratory itself has a wonderful reputation, I think that everyone concedes to that. I asked him however because he seemed to show us some reluctance when talking about certain aspects of the study when he qualified it by saying if the information we were given is correct. I asked him where the samples came from, and the gentlemen indicated that the samples had come from the health department. I asked him if any samples had come from the oil industry and he said yes. To me, if the oil industry provides the samples for the study, it completely invalidates the study. So I feel very uneasy about that.

Next thing that bothers me is we're making all of these proposed changes; we don't even have any idea how much radioactive waste we generate in North Dakota every day. For a number of years, the figure was used as 75 tons per day. Recently, in a newspaper story, I saw the figure used between 10 and 75 tons per day. That's showing a little ankle. If you don't know how many tons of radioactive waste you're generating every day, how can you regulate it? That would be the first thing that you would want to do.

Second thing I'd like to know is what happens to the radioactive waste? In 2013, I believe in McKenzie County Landfill, they rejected 1000 loads of oilfield waste that were coming in because they were measuring it, using a Geiger counter or some kind or another. I would like someone from the health department to tell me what happened to those 1000 loads, and I have asked. I would like to know where the radioactive waste from North Dakota has been going for the last five years. And is it really 10 tons or 75 tons a day, or could it be as high as 200 tons per day. For the last week I have called several people involved in the waste industry, handling of this kind of waste, they indicate that it could well be 200 tons of radioactive waste that is generated in the state of North Dakota per day. That's a lot of waste and I'm not sure that this thing is geared up to handle that.

Lastly, let me just say there would be some confusion I guess, over how these hearings got started and why we're even talking about making these changes. I'm not going there but let me just say this; I think they ought to be halted right now. I think three hearings are ridiculous when you're talking about something that's going to affect this state for 10,000 years. People that I do business with have asked for additional hearings; nobody has commented. But you certainly need more than three hearings. So I think that rather than be talking about changes that you're going to make that are going to impact us all for years and years and years. Let's just hold the thing, let's put a year's time limit on it. Let's get a real study done; and then let's go back and let's take a look at it. But to go with this point, just doesn't cut it. That's all I have to say and do you have any questions? (END)

Speaker Scott Radig: I'd like to ask you a clarifying question. When you say you recommend waiting another year, is that for all the rules or only the disposal regulations, or…

Speaker Darrell Dorgan: That would be for all the rules. I would like the chairman of the legislative committee; you're not going to write a bill as we go along. So it would be for everything. This initially

got going at the first meeting that I attended, was because the oil industry had asked that the increase be made to cut costs. And so as a citizen, I'm saying hold it, let's stop and let's take a good look at this thing and let's rewrite the whole thing, get it out there in the open. You can't do something as you're going along. Thank you. (END)

Speaker Kathryn Hilton: Good evening, Kathryn Hilton, Dakota Resource Council. First of all, health physicists across the world agree there is no safe dose of radiation.

First we are definitely in favor of tracking TENORM, that's definitely very important for the health and safety of North Dakotans. We don't believe at this time an increase in the allowable radioactivity in landfills is appropriate given the current inability to regulate, given the levels that we have.

We would also like to request additional hearings, specifically, in the Bakken region since those folks who live here will most likely disproportionately be affected.

We'd also like to see an extension in the comment period. The health department had 120 days to review the Argonne Study before it was released to the public, yet we have had a month to go through that same material.

The post closure bonds on extending that period of the half-life history is 14 billion years, that far exceeds 30 years, and the impacts that may come from that.

We're concerned with the reliance of self-recording by generators. The current trend is that we don't have much faith in self reporting. We would also like to see additional staff at the health department to assist in the monitoring of these landfills and in reporting aspects.

Public exposure scenarios we don't believe were adequate representations of real-life scenarios that those living in the oil fields experience. And while there may be already rules for dealing with liquid waste that has radioactivity, if solid waste rules are going to updated, we would like to see that liquid waste are included as well, particularly brine. There are some studies that have just come out of Ohio, in particular, that show pretty high levels of radioactivity in brine that's produced from oil and gas operations there. We will submit additional comments in written form. Thank you. (END)

Speaker Laura Erickson (Ms. Erickson provide a written copy, presented here, of her oral testimony):

North Dakota Department of Health
Public Hearings for TENORM rules
January 20, 21, 22, 2015

Good morning and thank you for the opportunity to comment on the proposed rules for proper management of TENORM in North Dakota.

My name is Laura Erickson, owner of Plains Energy Technical Resources, LLC, an oil and gas regulatory consultancy and training firm in Williston, ND. We represent a sizeable share of waste management companies in the state and over the past few years have assisted several of these operators through the regulatory processes to allow for safe treatment and disposal of E&P waste. In addition, one of our course offerings is TENORM Awareness training which has provided me an opportunity to hear from

industry HSE specialists, oilfield workers, municipal and special waste landfill operators and other stakeholders in western North Dakota and listen to their concerns about TENORM in North Dakota.

One thing that has been made clear in those conversations is that there is significant misunderstanding about TENORM and a need for broader education about the subject – so thank you for providing some education in this forum this evening.

I am here today to comment both generally and specifically about both sets of proposed rules.

My general comments are as follows:

With regard to TENORM and the current practice of transporting our waste to other states for disposal, we need to understand that there are no long-term guarantees that other states will continue accepting OUR waste. Therefore, I believe it is imperative to provide North Dakota's oil and gas industry with a TENORM waste management system that will appropriately support industry activity while ensuring a safe and healthy environment for the public and all future generations. It is my feeling that these proposed rules attest to the vision and leadership within the North Dakota Department of Health, the agency obligated to protect North Dakota's human and environmental health and safety.

Roughly three years ago, when we were close to our peak rig count, our municipal landfills began waving a red flag – something was amiss with waste coming across their gates. A number of waste loads had been deemed to be radioactive, creating widespread concern about the source. We quickly learned that the culprits causing these high readings included filter socks, frac sand and, at times, the empty super sacs within which the prop pant had been delivered.

While most E&P companies had previously established protocols and were already transporting sludge and pipe scale and other E&P waste to appropriate facilities out of state, other operators, without any legal recourse for in-state disposal, commenced the process of out-of-state truck transport of TENORM waste, a practice that has increased traffic density to our already congested roads, overtaxing our already burdened infrastructure.

Out of state truck transport also puts the traveling public at higher risk and has significantly increased costs to an industry that has generated thousands of jobs, overflowed our state coffers, and, despite our obvious growing pains, has improved the quality of life for numerous North Dakota citizens, mineral owners and communities.

I believe that these proposed rules provide us the framework to respond effectively to various scenarios that might arise in this industry by not only defining what TENORM is, but also providing detail about who, what, where, when, and how the waste can be safely handled and disposed.

With these proposed rules, the North Dakota Department of Health is meeting its most basic obligations providing an *environmentally acceptable* and *economic* means of solid waste management for this waste stream. Both terms are critical in this statement. The term "economic" is as important as the term "environmentally acceptable." Since the discovery of the level of TENORM generation in our region, operators have been collecting and disposing of TENORM out of state – at a cost of nearly $10,000 per waste bin per site. Imagine if we determined that *"used coffee filters"* for example, presented a potential threat to our health, safety, and environment, and that we, as consumers, were required to segregate and ship that waste to Montana or Colorado and bear the cost of the transportation and disposal ourselves. We as consumers would be crying for help. Some of us might

also decide to throw caution to the wind and find a place to dispose of the waste ourselves when "no one is looking." The problem of waste management in the oil and gas industry is only slightly akin to this make believe scenario but the scenario illustrates the difficulty, concern, confusion and, sometimes desperation that many operators have experienced as a result of having no disposal option available within our state boundary.

Establishing TENORM regulation is critical - and these proposed rules will allow the Department of Health to:

1. Plan for and regulate storage, collection, transportation, and disposal of TENORM

2. Protect public health, safety, and the environment from risks associated with TENORM

3. Provide planning and technical assistance for TENORM management

4. Authorize plans and issue permits for facilities associated with all stages of TENO RM management.

The proposed "Landfill Disposal of TENORM waste" rules are important in that they establish:

- quantifiable limits for TENORM waste and equipment,
- specific criteria for safe landfill operations to minimize risk to landfill workers and future uses of that land,
- reasonable and responsible reporting protocols, and
- parameters for training and safety programs for landfill workers,

In my professional opinion, these proposed rules do not represent a conspiratorial "pandering" to industry ~~as some might suggest~~, but rather a responsible framework for safe management of this waste, supported by evidence through Argonne's research. This research was conducted by scientists and engineers who are renowned worldwide for their ability to blend fundamental and applied science with engineering practices while providing a scientifically sound solution to this complex problem for our industry and state.

While I support the larger goal of establishing a regulatory framework to properly define and manage TENORM in North Dakota, I do have specific comments on the rules as drafted and offer the following suggestions for improvement:

With regard to Chapter 33-10-23 REGULATION AND LICENSING OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURING RADIOACTIVE MATERIAL:

1. Chapter 33-10-23-03: Definitions:
    a. Radiation Safety Officer – In personal communications with the Department of Health, I've been told that the RSO for an applicant must be employed by the applicant. This condition is not explicitly stated in the regulations and I would encourage the acceptance of third-party RSO's for safety programming and licensing protocols.
    b. Definition of "tank" – is this definition intended to include E&P tanks

that may accumulate TENORM?

c. Paragraph 5 of Chapter 33-10-23-12 refers to a "person duly authorized to act for and on the applicant's behalf;" it might be prudent to add "authorized agent" to the list of definitions.

2. Chapter 33-10-23-07: Unrestricted use and conditional release:

a. Will there be a standard form for submitting decommissioning intents

b. 10 CFR part 20, subpart E in paragraph 1(this is NRC code – and the decommissioning limit differs from values we've been discussing.... Less than 50 pCi/g).

c. Table 4.2-07.1identified in Paragraph 2 cannot be found in this document?

d. Paragraph 4: Decontamination activities require a specific license under 33-10-23-11. *I'm interpreting this to mean that any spill response company -for example a company that is called to cleanup an SWD struck by lightning – will require a specific permit if TENORM is found to be present?*

e. Paragraph 6: Actions taken to confine TENORM onsite or to remediate sites shall be

based on expected longevity-related controls for one thousand years or longer.

i. Can someone elaborate on this? How will this impact industry waiting on analyses prior to shipping out TENORM?

3. Chapter 33-10-23-08.l paragraph c: Alternate methods may be accepted – so would this allow for grind/inject down a Class II disposal well? Or encapsulation during E&P plugged and abandoned procedures? And if so, it appears there would be joint or shared jurisdiction (NDDH/NDIC) on procedures and oversight?

4. Chapter 33-10-23-11.2 -the reference to Section 33-10-23-07 is vague - is this referring to Table 4.2-07. 1? If so, the table is missing from the regulation.

5. Chapter 33-10-23-12 – with regard to review and approval of general and specific licenses: will general and specific license applicants have an opportunity for a hearing? Will the final decision be made by a committee?

General Licenses:

- Possess, use, transfer, distribute, or dispose of TENORM without regard to quantity, except for those activities requiring a specific license.
- Can also be directed to obtain specific license if warranted.

Specific Licenses:

- Manufacturers and distributors of any consumer or retail product containing TENORM;
- Decontamination companies
- Any person or company that receives TENORM from other persons for storage, treatment or disposal.

6. Chapter 33-10-23-25: Financial Assurance Arrangements: As we've been assisting clients through regulatory processes, including zoning, for E&P facilities, some of whom may now be required to obtain a general or specific license, we've become aware that operators

are at times having to provide multiple reclamation bonds across: a reclamation bond for the NDIC (I've seen as high as $500,000), a reclamation bond for zoning (I've seen as high as $125,000), and now, a bond for TENORM licensing "to ensure the protection of the public health and safety and the environment in the event of abandonment.). This multitude of bonds seems redundant and excessive – we would like to see a single financial assurance requirement that satisfies all regulatory stakeholders.

7. Chapter 33-10-23-28: Radiation Safety officer - qualifications:
    a. Does this paragraph only apply to specific licensees or all licensees?
    b. Paragraph 1.a.1: Forty hours of classroom training – no issues there;
    c. Paragraph 1.a.2: One year of on the job training under an authorized user, radiation safety officer.
        i. One year of on-the-job training seems excessive if the Department will be soliciting Radioactive Materials Licenses from numerous operators of existing E&P facilities who do not currently have an RSO on staff and will not be allowed to contract with a third party RSO.
        ii. How is "authorized user" defined?

With regard to Chapter 33-20-11-LANDFILL DISPOSAL OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURING RADIOACTIVE MATERIAL WASTE:

1. Section 33-20-11-01.1: "accumulated amount must not exceed twenty-five thousand tons per year or three thousand tons in any one month..." On page 72 of the Argonne Study, researchers concluded that workers involved in receiving and handling or waste placement activities would receive the highest dose. Mitigation recommendations included placing a cap on total waste disposed of in a year in a single landfill *or alternatively,* limit the number of hours that workers are exposed to the TENORM wastes. Despite both alternatives, only the former, capping annual waste receipts at 25,000 tons (and 3,000 tons per month), made it into the rule. I believe that the waste limit can be effectively raised with proper controls in place to limit worker exposure. Employee exposure limits are a key component to the ALARA (As Low As Reasonably Achievable) principle and are employed by other industries, including the medical services industry.

2. Section 33-20-11-01.1: Defines acceptable waste at TENORM waste up to but not exceeding a SO pCi/g combined Ra 226, Ra 228). I understand the science and logic behind establishing this limit; however, this limit will create segregation concerns for industry: sludges exceeding SO pCi/gm vs. sludges that fall below that number; filter socks exceeding SO vs. filter socks that do not. For example, are ALL sludges going to be considered TENORM suspect and require TENORM analysis despite some sludges NOT exhibiting TENORM activity?

SLUDGES THAT DO NOT TYPICALLY TEST HIGH FOR TENORM:

- Hydro vac cuttings on location
- mixtures of wastes in super suckers
- residuals in vac trucks
- super suckers
- dump trucks
- side dumps

Further – since there is no rapid (meaning "instant result") test for TENORM, is the expectation that all suspect TENORM will be staged or set aside until TENORM analyses can be completed? Or will all TENORM waste require analytics prior to leaving the generator site. If this is not well defined in the rules, it needs to be.

Segregation requirements may make TENORM management too labor and logistically intensive, and operators may decide to continue with current practice of shipping all waste outside ND.

3. Section 33-20-11-01.1: Similar to EPA's published list of RCRA Exempt E&P waste, or the list of Class II injection fluids, the Health Department, should publish a comprehensive and detailed list of products that will be considered "TENORM suspect."

4. Section 33-20-11-01.2: The rules need to define the term "Equipment," so there is no confusion over whether a filter sock, for example would be considered equipment or not....
   a. Will tubulars be considered equipment, fragments of pipe, a casing collar or a scaled-up packer....

5. Section 33-20-11-03: Authorization. This section details the procedures that must be followed to apply for approval for acceptance of TENORM waste by a landfill not previously authorized to accept such waste in it permit. This section directs the operator to permit modification procedures defined in 33-20-02.1-06 (Permit modification, suspension, or revocation, and *within that rule,* to full application procedures as identified in 33-20-03.1-02. This process appears to be a full re- application for a facility. Is there not a way to streamline this permit modification process to allow special and industrial waste landfills to be responsive to industry needs? And can the department provide any information with regard to processing timelines?

   Currently, clients report that a typical special waste landfill permit modification, depending on scope, can take from 1-3 years to move through the regulatory process start to finish and with engineering, hydrogeologic investigations and permitting costs close to $400k.

6. Section 33-20-11-04: Monitoring - The reference to "drinking water maximum contaminant levels" should provide a regulatory reference to the respective, and presumed, North Dakota code.

7. Section 33-20-11-05. Reporting - This section is nearly, but not quite identical to the reporting requirements in Chapter 33-10-23-08.7 of the Regulation and Licensing TENORM rules. To streamline operator reporting efforts, is it possible to kill two birds with one stone and allow one report to satisfy both rule sets? If so, I think a statement to such affect should be added to the respective sections of the proposed rules.

8. Section 33-20-11-06: Worker training and safety: This section currently reads: "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."*

   I am not aware of any safety training program in any industry that offers similar guarantees. This language needs to be revised to restructure this rule taking the focus off any perceived guarantee. In addition, I believe "training requirements" should be segregated from "safety program" and specific expectations identified for each component (e.g., required PPE, training logs, specifications for exposure times, etc.)

9. Both rules will require a significant shift in administrative paperwork relative to manifesting, reporting, permit modifications. Has the Department budgeted for web-based improvements, online reporting, data retrieval, etc that can improve efficiencies for both the regulators and the regulated industry?

CONCLUDING COMMENTS:

Community education is critical. While I'm of the understanding that filter sock dumping has ceased since the bin requirement went into effect last June, I do believe ongoing public awareness campaigns about TENORM are important. People need to understand that there is very little risk to individuals unless they ingest or inhale particulates. The public should know who to call if they come across TENORM waste, and emergency responders should be trained in radiation safety like a TENORM transporter might.

The Department should establish a conduit between themselves and local citizens - similar to the Report all Poachers program, we need a Report Illegal Dumping "RID" hotline or a high visibility button on a website, or an smart-phone app - that allows our citizens to assist regulators with compliance by reporting those that break the law….with a system to gather as much information to make a defensible case against those that break the rules.

Is there an existing MOU between the NDIC and NDDH – will there be a protocol to follow for responding to TENORM related incidents?

I appreciate the opportunity to comment on these rules this evening. Thank you.

Models:
HELP (EPA)
MODFLOW (USGS)
MT3DMS (Corps Eng)
Robert Morris, CHP
PA, OH - Shale Testing Solutions - one day turn.
OH Study on brine stated by DRC rep.

(END OF WRITTEN TESTIMONY BY LAURA ERICKSON)

Speaker Kurt Rhea: Hi my name is Kurt Rhea and I'm going to save all our specific comments I will submit those in writing that'll give everybody time to go get dinner tonight. I did want to take just a couple of minutes and offer some feedback from a field perspective.

In 2010 we started our company, Next Generation Solutions, later bought/partnered by Secure, and we set out specifically to manage radioactive waste. We felt like it was an underserved area, we were passionate about protection public health and the environment, and so about four years ago we were licensed in the state of North Dakota to manage TENORM on the front lines and we've been doing it ever since.

We've been conducting radiological surveys in the oilfield we also work in the drinking water treatment arena. We have trained hundreds of workers and basic radiation safety, and we've participated in cleanups through the state; Noonan gas station most notably and other things. So bottom line, we've been on the front lines. We've manifested every load, we have certificates of disposal for every single customer that we serve and our hope our company's been trained to how radiation waste can be managed safely.

At any rate, over that period of time I think we've learned a few things. First, that the highest levels of TENORM are really not found in filter socks even though that has kind of been the symbol of radioactivity in North Dakota. Certainly things like tank bottoms and pipe scale show much, much higher levels. And in general, we can safely say from observation that TENORM, and gamma exposure in particular from TENORM, is really not a health risk, that levels are simply just not high enough. It's not nuclear waste, it's naturally occurring that's been concentrated. And so we pay attention in our training to things like inhalation and ingestion as Laura mentioned a few minutes ago, so basic principles that we see in the health arena; things like washing our hands, wearing disposable gloves, respirators when there's any risk of ventilation, those things become important and we pay attention to those things. And certainly I advocate those things in field operations.

But at the end of the day, the general public is simply not at risk, and the waste in fact can be disposed of and managed by folks that have the right expertise, we also would say that people are much more likely to comply if it's easier and more economical to comply and we appreciate the Department's effort to do those things. So at the end of the day how do we know what we know? We've had radiation safety officers in the field virtually every day since we've been in operation. We use tools like dosimetry badges (shows example) to take actual measures of exposure in the field. Even working with the material every day, we've never had an employee that showed 100 millirem level that is targeted by the Department; I think that's worth noting. And so, the public all the more, should feel assured that there is not an immediate and eminent risk in having oilfield operations in North Dakota and the resulting TENORM waste.

We also had survey meters on the ground, we've been surveying trucks as they left and we can validate, in fact, that Argonne's data is correct that even in-cab readings are not sufficient to present a risk to drivers. We also have an abundance of lab test analytical by independent third-party labs approved by the state of North Dakota, as well as other states, so we have empirical data that I believe substantiates the data that was found by Argonne and reflected in the tables. So I'd like to validate that the data and observations that were provided, in fact do reflect reality in the oilfield.

So what is important? It is special waste that deserves specials handling, landfill design matters, and we believe that Steve Tillotson, Brad Torgerson have the expertise to monitor landfill design and to evaluate permits and applications. The principals of radiation protection even in (words unclear) revolve around distance and shielding, and we believe the guidelines that have been submitted, the rule drafts that have been submitted, address those things. And that professional management of waste is ultimately important. We also believe in accountability, because we have seen things that have not gone well over the last few years. So those who manage and generate waste do need some over site because people sometimes don't do the right things. But if we are worried as members of the general public about radiation in general we should focus our attention on other things. In fact, the average citizen is more

likely to be exposed, in fact 37 percent of their exposure is from radon in the home, and so if you're worried about it you should have your homes tested. Up to 48 percent comes from nuclear medicine and x rays and other medical procedures so we should limit the number of X rays; melanoma is a potential risk, you might want to put on sunscreen, but TENORM is not the biggest of our concerns.

So I think we're all here today for the same reasons. And I really would like to commend everyone here for their civility. I've been in other states and seeing much less professionalism and for the professionalism of the regulators that we've worked with for the past few years, I want to commend Scott and Dale Patrick, and Steve and their entire teams…thank you guys, you've conducted yourselves very well. You live here too, I think you've got skin in this game and I appreciate the things you've done. And we want to help in any way we can, we've tried to certainly display that as a company over the years. I do think that the 5 picocuries per gram was somewhat arbitrary, creates some real problems in the field because literally, you're trying to distinguish certain materials from background and when the levels are that low, in fact it becomes very problematic for operators to even try to comply. So I think 50 picocuries per gram makes sense from a RESRAD modeling perspective. Again I think it's reasonable, it's way, way lower still than many, many states across the country. I think it's reasonable for the state and I think you guys are headed in the right direction as you attempt to not only set forth new rules, but also to raise the accountability as you try to license everybody that touches TENORM products. I appreciate your efforts in that regard.

In conclusion I'd just like to say that proper disposal closer to where the waste is generated and increase the accountability will give us a cleaner, safer environment, which is a great outcome for the public and all of us. Thank you very much. (END)

Speaker Scott Radig: Are there any further comment…none at all? Okay it's now 7:57 p.m. If no one else present desiring to provide comments, this hearing will be closed. The record will be open for all written comments which are postmarked on or before February 6, 2015, and we'll take into consideration that requests send within the comment period. If you need the address for mailing comments, please contact the health department's desk. The hearing in now closed, thank you very much. (END)

End of Williston Public Hearing Testimony 01/20/2015.

North Dakota Department of Health
Division of Waste Management
TENORM Public Hearing for Rule Revisions of the
North Dakota Administrative Codes 33-10 and 33-29
January 21, 2015 – 7:00 p.m. CST
EHS Environmental Training Center – 2639 E Main Avenue
Bismarck, North Dakota 58501

Speaker Scott Radig: My name is Scott Radig, I am the Director of the North Dakota Department of Health, Division of Waste Management, and I will be acting as the hearing officer for this public hearing. It is now 7:02 p.m. on January 21, 2015, in Bismarck, North Dakota.

First, I would like to ask everyone to turn off their cell phone ringers as a courtesy to those providing testimony. This public hearing has been called for the purpose of allowing all interested individuals an opportunity to submit information and comments concerning the proposed new and amended Administrative Rules regarding management and disposal of technologically enhanced naturally occurring radioactive materials in North Dakota Administrative Code Article 33-10 Radiological Health Rules, and Article 33-29 Solid Waste Management of Land Protection Rules.

Information gathered at this hearing will be used by the North Dakota Department of Health and the State Health Council for its deliberation and final decision. This hearing is being conducted according to the procedures for hearings on proposed administrative rules. It is not an adjudicative proceeding under Chapter 28-32, which means the persons providing comment will not be cross-examined and the Department will not be responding to comments at this hearing.

The comments received today will be considered with all written comments that are received and the Department of Health will present its consideration of all the comments in writing. You may request a copy of the written consideration of comments, and one will be provided for you. After consideration of all the comments, the Department of Health and State Health Council will make a determination on the Draft Rules, either to approve as proposed, approve with modifications based on the comments received; or to withdraw the rule. Everyone present will be given an opportunity to speak and provide as many comments and as much information as they would like.

This hearing is being taped and we ask that everyone use the microphone at the podium so that the tape will be of good quality for transcribing purposes. Please sign the registration sheets for commenter's at the podium which is also placed at the microphone and identify yourself for the record before you begin with your comments. If you have a prepared statement, a written copy of your statement is appreciated and will be helpful. In order to save time, if someone has previously made the same comments you are planning to make, or if you have provided comments last night at the previous hearing, it is not necessary or advantageous to state them again into the record. If you have lengthy written comments or information to present, please summarize what is being submitted and the written information will be fully reviewed, considered and responded to. If you would like to receive a copy of the written consideration of comments, please print your contact information on the sign-up sheet located at the information table.

At this point the hearing is open for comments on the proposed rules and anybody that would like to is free to start. (END)

Speaker Carel Two-Eagle: Good evening, for the record my name is Carel Two-Eagle. Please put the hyphen in otherwise computer make Eagles Two. Thank you. My background is chemistry, math and physics and I've done work with radioactive substances. Most of my work has been done with cobra

venom and we basically handle the two of them alike. Because my knowledge is somewhat old, I did an extensive online search before coming here to find out about current data and information from concerned scientists regarding these levels. And common sense and the consensus fall in line with my own personal view of this. And that is that we don't know enough to know what a safe level is, therefore, we should error on the side of a chicken and that chicken should glow in the dark or can.

No matter how we call it, and people are going to say oh this is a terrible thing to say, but North Dakota's leadership is blinded by dollars and if they think they can get away with it especially since they did not have a waste dump where these things can be dumped off anywhere near them, then it doesn't really matter. And it does really matter. If it doesn't happen to us, it'll happen to our children and grand children and to all the nonhuman species as well. I think we need to tread very softly and stay down at the size level or close to it just because we don't have enough information to make a wise decision that's going to have ramifications for the future. Thank you very much, you have a good night. (END)

Speaker Theodora Bird Bear: Hello, my name is Theodora Bird Bear and I'm from Mandaree on the Fort Berthold Indian Reservation. I'm a mineral owner and I'm also a surface owner. I'm a tribal member of the Three Affiliated Tribes and also a Dakota Resource Council member.

I'm here to say that I'm requesting an extension on the public comment period deadline to be extended sixty days. This is complex information for lay people, for ranchers, for rural residents...we are the ones who are going to be impacted by this. We're the ones who are going to be dealing with 50 picocuries radioactive waste sites. I want more public comment hearings held, especially in western North Dakota.

I want a public hearing held by the North Dakota Department of Health at New Town, North Dakota within the Fort Berthold boundaries. Fort Berthold has a million acres within the boundary, less than half of those million acres are trust lands. So potentially there could be some radioactive oil waste dump sites through the state of North Dakota within the Fort Berthold boundaries. So we have a valid concern about this process. I also know that Tervita, has a Blue Buttes landfill that was specifically identified in the Argonne Study that Tervita Blue Buttes waste sites is just outside of the Fort Berthold boundary on the west side is within driving distance of Mandaree, and I understand that there's a drainage area that leads to Mandaree from that area. So I'm concerned about that.

I support keeping the current 5 picocuries per gram limit on radioactive waste in North Dakota, and all on Trust Land within Fort Berthold. I read a published article on line, RW Watch (??) , where Dave Glatt, the top regulator of the North Dakota Department of Health said that due to the federal commerce clause, North Dakota will have to start accepting out-of-state radioactive waste if North Dakota proceeds with this policy.

We already have enough radioactive waste out in western North Dakota; we don't need more. From what the Argonne Study, the presentation today, apparently it's safe for children to play with used radioactive filter socks. I guess I question the study. I question how much the surrounding land is going to be devalued by a radioactive oil waste dump site. North Dakota as the regulatory agency, has demonstrated repeatedly since 2006 or 2007, when the oil and gas development started, that it's been unable to regulate the industry. It's been unable to enforce penalties. It compromises the penalty process. We're talking about public health out in western North Dakota; we're talking about public safety. So those are my comments. Thank you. (END)

Speaker Marie Hoff: (Ms. Hoff provide a written copy, presented here, of her oral testimony):

TO: North Dakota Department of Health, Environmental Health Section.
Testimony on Proposed Changes in Radioactive Waste Levels

By: Marie D. Hoff, Ph.D., MSW, Bismarck, ND
January 21, 2015

The State has not allowed sufficient time for citizens of ND to read the Argonne Laboratories report and to have input into the proposal. The Dept. had a copy of the report for 120 days, now we are allowed only 45 days for public participation, and we do not know what was redacted from the Argonne study. Only 3 hearings in North Dakota in the middle of winter are not enough. The public needs more time and more places in which to offer testimony. Release the original Argonne Study!

1) The public trust responsibility of the NDDH is to *protect the health of the people and the environment in ND; it* is *not to facilitate* the *profits of the oil industry.* Disposal expense is a cost of doing business one of the worlds' most profitable industries. The cost of delivering waste to nationally-approved and adequately-monitored sites in other places is not a proper criterion for the State's decisions. The proposed increase in pCi level allowed does nothing for the people of ND.

2) The State does not adequately regulate waste at the current 5pCi level. As a citizen the state has given me no reason to trust that it can or will adequately regulate waste at a 1000% increased level (10-fold increase).

3) According to nuclear scientists, *there are* NO safe *levels of exposure to radioactive [RA] materials.* The claim that drilling-induced RA waste is "naturally-occurring" (& thus not dangerous), is simply not true, and is a red herring to distract people from the well proven records of serious health effects from exposure to RA materials, beginning with the atomic bomb experience during and after WW II, and continuing into contemporary disasters.

The proposed special waste sites *in* western *ND amount to a plan to turn beautiful western ND into a Superfund* site. Waste sites inevitably leak and release dangerous materials into the air, land and water, endangering people, especially children, plant life and wild and domestic animals. Would Governor Dalrymple be willing to support a radioactive waste dump site in Casselton? If not why not if it is so safe?

4) Mr. Glatt commented publicly that the NDDH has only completed review of 50% of the proposed rule changes to regulate the proposed increases in pCi levels. I believe the State doesn't even know how much RA waste there is now already circulating or being dumped illegally in western North Dakota. How are you now measuring pCi's and monitoring operators in the oil patch?

5) Western ND has been gob-smacked, run-over by the oil companies which take the majority of their huge profits out of state. Our state government has been co-opted to facilitate this process. ND has many other sources of wealth - its people, its rich land, its (formerly) clean air and water. WHY ARE OUR STATE LEADERS SELLING US OUT FOR an industry with a known history of reckless and feckless operations all over the world? (Nigeria, the Exxon Valdez, the Gulf oil spill, etc, .not to mention the daily experience right here in ND) Our elected officials owe us careful protection of our heritage. They have no obligations to "help" the oil industry. I strongly reject the proposal to increase allowed levels of RA waste.
Marie Hoff /s/ (END)

Speaker Jarid Kelley: Good evening, my name is Jarid Kelley. I hold a degree in nuclear engineering. I am a board-certified health physicist. I have a 20-year long career in monitoring and cleaning radioactive waste. My clients have included the Department of Defense, Department of Energy and weapons facilities. I've supported the cleanup of the radioactive waste in Japan Fukoshima. I'm very experienced with a lot of the science that was discussed tonight.

I have two comments to make: One, as a health physicist, the study conducted by Argonne appears to be complete and accurate and clearly shows the low risks from the activity levels being considered for in-state disposal.

Secondly, and having worked with producers of oil and gas as well as water treatment companies, we've noticed the trend in the last couple years of various states have clarified regulations on TENORM. We have seen a dramatic increase in industry involvement and corporation and control of materials. To my perspective, regulations and clarity of regulations has been a good thing, industry has responded and the dollars used for waste and waste disposal will still continue to be a very small portion of most producers. Bottom line, I do not understand how this is a financial decision or would financially benefit producers here in North Dakota. Thank you**.** (END)

Speaker Gene Wirtz: Good evening, I am here to testify and my opinion is that I don't think we should raise the level. I'm a dirt farmer; I farm up by Underwood two miles from a dump that was going to be there two years ago. Our county government said no to it, our township government recommended the no to the county, our soil conservation district in South McLean - Turtle Lake voted against it, and our county commissioners voted against it. I see this whole thing is an end run to get that dump back and I'm not happy about it. I happened to drink the water that comes out of this land, I'm one of the few people actually in my area that does that. And my grandkids will probably be drinking the water unless this comes about.

No amount of radiation is good. I mean, anybody knows that. Anytime you raise the amount of radiation that you are exposed to, you're going to have a higher risk of cancer. The trouble with this waste if it contains this 50 picocuries of radiation, it's not just going to be the radiation; it's going to come with all kinds other stuff so it's a punitive thing.

The other thing I'm really upset about, it seems to me…here's my analogy. My dad one time when started soil testing he said, you're welcome to come out here and soil test this land, huh? And I said yea dad, the fertilizer company said they'd come out and test it for us and recommend to us what we should put on. And my dad said, well, why would you do that? I'm thinking they want to sell you more fertilizer? You have no idea of knowing what the heck!" And I think that's exactly what has happened here. The industry has given the health department, the way it sounds, the numbers, and we're supposed to take that as gospel? This is the same industry that apparently is disposing of these filter socks in a Noonan abandoned gas station; doesn't show me a lot of trust or confidence in the health department watching this stuff.

I also heard there's like a 100 or thousand loads of waste that were rejected from Watford city's dump. Where did they go? Someone told me that they asked the health department where did those loads go that were rejected because they were too high (radiation levels). The health department has yet said, we don't know. It doesn't create a lot of confidence. I think this should be stopped. And I went on the website last night trying to find out the time of this meeting was and it was like it was hidden and there was a calendar there and I didn't see this anywhere. There are a lot of people in my hometown that don't have a clue about this; they didn't know about it. And I think a lot of North Dakota people don't know a thing about this. That's my comments and I appreciate you meeting here. Thank you. (END)

Speaker Vivian Hall: My name is Vivian Hall, I'm from Mandaree, North Dakota. I'm a member of the Fort Berthold Indian Reservation with a membership of 14,000 people. We have not had adequate notification of this. I came here not really knowing what it was about, but listening to both sides I do commend the department of health for doing this, it's a good thing. It's unclear whether industry is involved in the movement of it, remains unsaid, but my comment is we definitely need more time and if I

were to make a recommendation now, I'm not going to quote my credentials, I served on North Dakota World Leadership in 2011, which allowed me to go into the rural towns for economic development. We definitely need more time and there is no safe level of exposure. I hope you take that into consideration and for the state of North Dakota, I don't understand why it had to be moved from 5 to 50 levels and where this proposal is coming from. Thank you. (END)

Speaker Thomas Abe: My name is Thomas Abe, I'm a science instructor in New Town, North Dakota. I teach at the community college and I'm not an expert but I've talked to the people at the health department here about the levels and the unsafe levels of the radiation here and the members that I talked to at the health department, they're not too clear about this either. A lot of people are not sure of what's safe and not safe. And as far as the regulations go, the industry has not regulated itself as good as it should be. The industry not provided a clear picture of the total damages impacting this area. We really have to do a better assessment.

We know that there are spills occurring; some which haven't been recorded to this day, some large spills that are coming into our water ways. And we don't have a proponent where someone from the state who can stand up for our concerns. Our state health department should have that function. All they are, it seems to be, is an analysis function of some of the levels that occur here, but there's no proactive positive force to help correct the impact in this area. I'm just an ordinary person and not an expert on anything and I'm unprepared because of the short notice and I guess others have said this hasn't had a notification for the public as it should have. I would like to see the North Dakota Health Department plus any agency in the state be proactive in looking out for the welfare of the people. We're taken aback; we're not used to this. We're a small government ourselves on the reservation, we may have income coming in, but at this point we haven't been able to organize to utilize this to address the large impact that we have here. So we've got to do better and I totally agree with the previous speakers. Thank you. (END)

Speaker Representative Marvin Nelson: Good evening, my name is Marvin Nelson, I'm District 9 Representative from Rolette County, and I was hoping I could maybe add something to the discussion. Living in and representing Rolla, I have a dosimeter plant there where you can directly read your exposure to radiation. I also own a Geiger counter and I've been an Ag consultant my whole life and done quite of bit of testing of different things.

The problem I have with the regulations as proposed is there's really no system there to where a landfill operator to be able to know when something's coming in that is 50 picocuries of radon. There's no meter that I'm aware of that can tell you there's 50 picocuries of radon. You can use a Geiger counter like the landfills do and you get your clicks per minute, but you're not picking up any at all that offer radiation with that, and probably through the side of a truck none of the data radiation either. So you're down to the gamma radiation now, very similar to X ray.

That with packing the load and so on, it would be possible to put very much higher than 50 picocuries material and still pass by those sensors. So unless there's a system where that material is somehow taken some place and stored, and then sampled by some sort of certified sampler and sent to some sort of certified laboratory, and then we wait several weeks to get the results back, you really have something that a good landfill operator who wants to obey, has no ability to do this. He takes the sample, let's say then he sends it in, two weeks later it comes back that that load was too high. What do you? Break open the whole landfill and dig the load up? I don't think that's very plausible. So there needs to be something or something in the standards, some way to really create a system where we know this was 50 picocurie material would be going in.

And when you talk to the landfill operators through the state, most of the loads that go through are no problem; a few are slightly radioactive but some are very radioactive. Well, if you have a system here

that allows slop like that, we have the danger of becoming an assembly point for very radioactive material because we can't catch it as it comes in except, unless you know, if the guy is you know is being straight up he'll catch it, but again there's opportunities there for an unscrupulous operator to get around.

And so, like the alpha radiation now, for exposure through the air just a couple of inches of the air will stop most alpha radiation, your skin will stop it if not, it's not really dangerous at all. But if you inhale it, it's really way more dangerous than gamma radiation or beta radiation would be. So stuff that is highly radioactive that comes in a container where the container's not broken and it's put intact into the landfill, that would represent very little danger to the workers and the public. But if that would come in a bunch of loose material that would be pushed around with a Caterpillar or something it would probably be the most dangerous material you'd have. So there's nothing in the standards that they're really talking about handling the different materials that we would be taking.

So at this point my big thing is that it really has to have more of a system built into it because it would be unworkable for a operator who was trying to meet (build?) the standards. Thank you. (END)

Speaker Kari Cutting: My name is Kari Cutting and I'm with the North Dakota Petroleum Council and I think that the one that thing the industry is prepared to provide extensive comments on is along the same lines the Representative just mentioned that we certainly need to push for some sort of field measurement tool that would give operators the confidence that what they're sending into the landfill meets the regulations; we would give the landfill operators that confidence and also with the confidence of industry and landfill operators in the state of North Dakota, the confidence the public is looking for. Thank you. (END)

Speaker Linda Sachy: Hi, I'm Linda Sachy. We live along the Missouri River; it gives me great concern for what's happening up the river at Yellowstone; that wasn't supposed to happen. The experts were supposed to be in charge; but it happened. And I heard this gentlemen say, I'm not an expert. We are all experts. We are the experts…no one knows, you guys don't know what a safe level is. That's like a cigarette company saying that cancer is not caused by cigarette smoke, or the football coach that said, you know, on concussions, they're good things, it's okay, no problem, don't worry. So I don't take anything that the petroleum council said because they have their agenda and their agenda is to make money and go to the next place where they can make money.

Our agenda is we are living here and we want this place to be safe forever. You can't guarantee that. It's like in Japan. They didn't know a tsunami coming, but it came. They probably didn't even think about that. But after it happens it's too late. So you can't say that 50 is safe; you can't even say that 5 is safe. And another thing, why do you think that back in the 50's when they were testing all the bombs they only tested when the winds were blowing towards unpopulated parts of the country like Montana, North Dakota and Minnesota. They know that radiation is not good. We took that hit, remember back in the 90's when it was milk? We have a lot of radon in the soil and this is a very high radon area…we've taken our hit from radioactivity. I don't think we need anymore.

So my question is if you guys aren't protecting us and it sounds that you're just cushy with these guys. If you're not protecting us who is? That's all I have to say. Thank you. (END)

Speaker Winona LaDuke: My name is Winona LaDuke and I'm from the White Earth Reservation in Northern Minnesota, I'm not from North Dakota. I'm here for a number of reasons. It turns out I live over there and I think that this is happening in North Dakota and it's going to be okay by the time it hits Minnesota. It has not really turned out like that for us.

I used to look the coal plants out here and say that's too bad. North Dakota has all that wind power potential and they have all those dirty coal plants over here, well now we have fish consumption advisories in most of the lakes in Northern Minnesota and it's from North Dakota coal plants.

I used to say gosh that oil, look at that fracking out there. They're going to make a mess of North Dakota. That's what they're going to do, they're going to make a mess, crack the bedrock, explode it and fill it full of radiation and 600 and some chemicals because they don't want to regulate it. It's really sad what's happening in North Dakota. I would say I really hope that someone's going to fix that because I really don't like and thought it's really not my problem. It turns out it's my problem now because I've got a pipeline headed for my reservation from North Dakota.

So it doesn't make me feel very good what you guys are talking about right here. I have to be honest about it. What I know are a couple of things; first of all there's no safe level of radiation exposure. You guys want to explain to me the recommended daily allowance? You want to tell me how much I should take every morning and how much I should have. The fact is none. There's a reason that we don't have any nuclear power plants in this country is because you can't taste it, you can't smell it and it's going to kill you and it lasts 13 million years. You may not want to have it around you. That's why we all stood out there and protested. You guys don't have any street cred on regulations. (Words unclear) you guys got spills all over the state, you've got spills coming down the Missouri River. It took a day and a half or two days that that stuff in Montana is going to hit you. Good luck, right. So how are we supposed to feel about this.

I've been thinking about my children and my grandchildren. I'm a grandma, just like these other ladies. I like to feel like that I don't mess things up for them. I'd like to feel like that somebody in some regulatory agency can do a little math. Like it turns out that if you go from 5 to 50, and then you bioaccumulate that because it does not disappear, it just keeps adding up. But that's really not going to work out for any of us. I'd like to think that at some point the state of North Dakota would say that they're giving the people of the state of North Dakota a very short period of time to discuss something of such deep concern, with billions of years of impact on people. Not just a 20-year history of some oil companies, but billions of years of impact, that you would give these people more than 45 days and that you would show up in New Town, in a place that is going to be the most affected. People who have been treated really poorly. Let us be honest, the state of North Dakota treats Native people pretty badly. And now this will add to all of it. Now if you think this is just a North Dakota problem the fact is that is absolutely not true. Not only do you put the rest of us at risk, anybody who is downstream from you with all of this. Besides that, where is all this stuff going to get transported from. If the truth is that stuff is going to get transported into the state because you have set yourself up in your infinite enlightenment to bring in more radioactive waste or to set it up so you can be just keep adding stuff.
Which state is next to you? That will be mine. What do I got to watch every day, your pipeline going across my reservation. What do I got to look at every day…the proposal for your oil to go right across my front steps.

So I'm here as North American citizen. I'm here as a person who is technically from Minnesota, but I will tell you that my people have been here for tens of thousands of years. When you guys make policy, you know I heard this friend of mine talk, and he said it seems we don't want to hang around another thousand years. That's what I feel like. You know, do you want to hang around? Do not set us up. Do not set up your people. Do not set up your animals. Do not set up the rest of your relatives to perish because of poor decision making they'll have now, and a lack of ability to think about where we're actually going. That's why I'm here. I wish you all the best. And can you guys please try not to mess this up, I'd really appreciate it. Thank you. (END)

Speaker Ted Lone Fight: [Spoke for several minutes in Native American language then began in English:] Thank you. My name is Ted Lone Flight and I'm from Mandaree, North Dakota. And what I said in Indian is that I asked my creator to ask your creator to watch over us and we're still poor here. Two hundred years ago President Jefferson, by his sole decision, that we're going to need to keep those Indians on the other side of the Mississippi, and he sends a fellow by the name of Saint Peter with buffalo robes infested with small pox and we had no say. But Indians are here as Indians own this land all of our sacred objects are here; all of our people are living and buried in our home land. We're indigenous from North Dakota to St. Louis. How could you say instead of with small pox say picocuries…basically the same thing. But the difference today is I have a right, along with my white brothers, non-Indians, them days those Indians had no say. But this was home to us. Just like you go to your home every evening, you eat a good meal, you enjoy good scenery. We would do the same thing, but we suffered.

We suffered, you could say atrocity, that's a term they used in World War II against Nazis, they called it atrocities. It happened to us under the current termination policy…extermination, relocation, boarding schools. The government could not do away with us. The Mandan, Hidatsa, and the Arikara and every other Nation that's living around the Missouri all the way to the West Coast, and today we hold hearings to decide if we are going to be poisoned, or poison our unborn yet. And you've already poisoned the lands. Pipelines are built right through our burial grounds. They are unreported by the state, they don't know where they are; we know. And still they didn't give two shits worth, where was the Indian consultation act. Well, when was that enacted, when did that happen to us? President after President say there's a problem on Indian Country and sent the Bureau of Indian Affairs. "We're the Bureau of Indian Affairs, how can I help?" Get the hell out of here. But you know, they are not the government, you are a state government and we are still Native Americans. And we say no to this poisoning. It will get us in the long run. But we survived, and again we'll survive. We survived up to now, after all the atrocities, oilfield happenings on Fort Mandaree and in New Town killed one of us every week in car accidents with a semi-truck. Sometimes they kill three a week, and have killed families of four and five from two years old to mother and father with a head-on collisions on Highway 22, going north and south from Killdeer to New Town. Those kinds of atrocities are happening; and now you want to do this.

I understand it's a greed for money. If you look at the North Dakota Industrial Commission, the small trigger to the large trigger (??) and that's scheduled to happen next month that will deprive the state of North Dakota 25 million, and Indian Tribes, it's not estimated yet how much we're going to lose to the Fort Berthold Reservation. We are in the prime of the Bakken area. What does the state do? Federal government put us in the residence land; they say you can live on useless land. That was our home…little did they know. And now oil is here. And we are in two jurisdictions, state jurisdiction and tribal jurisdiction and we answer directly to the federal government and we haven't been consulted in any way, fashion or form. I got notice yesterday that this hearing was happening. It took me two hours to get here and I didn't know what I was going say and I had to understand what the word picocurie meant. I didn't know how to pronounce it, so to me its poison as small pox.

My recommendation is no. No to the increase. You increased it from 5 levels to 50 and I believe you've got more than ten sites in North Dakota. You add that up…what does that come up to? A thousand something poisoned units or whatever? We don't want that. No. We will seek alliance from the other three reservations and to my kind of government, that they said no, we don't want this. Do it but do it on Mars or wherever you guys have jurisdiction at. Thank you. Thank you for coming. (END)

Speaker Raquel Campbell: Hi, my name is Raquel Campbell, this is my daughter Navaeh she's two years old and now that I know what's going on, how am I going to guarantee that she will survive in the next 20 years? I'm only 22 right now, how much longer do I have to live? Please do not raise the count. None of the radioactive poison is going to guarantee each and every one of us safety or life. That's all I have to say. (END)

Speaker Joletta Bird Bear. Hello, my name is Joletta Bird Bear, I am a member of the Mandan Hidatsa and Arikara Tribe. I am a relative of the (unclear word) Indian. I am also a member of the Dakota Resource Council. I am also a member of Save Our Aboriginal Resources for Fort Berthold. I am also a member of the Fort Berthold Alliance, and I am a grandmother. And I am a permanent resident of my land; and I will remain so. And because I am a permanent resident of my land, I will do everything I can to protect it.

The first comment I want to make to you tonight is the lack of proper notification to the public and citizens of North Dakota, and that includes all the communities in the state of North Dakota. I come from one of those communities. I traveled here three hours to get to this meeting tonight. I would like to see you travel to come to my community and hold a meeting such as this, a public hearing, to collect the comments of people back home who don't know what you are up to. They will find out. If you are wise and smart, you're going to remember what your duty is as a North Dakota state health department official. From your own words today, you told me that the industry came to you and asked for this. I know that no North Dakota citizen came to you asking for an increase in radioactivity to poison themselves, or their children or grandchildren, or those to come behind them.

I am requesting tonight an extension on this process that you hold additional hearings in North Dakota – in the western part in North Dakota. I live in the most impacted area of North Dakota -- the Mandaree community. The Mandaree community is one of the towns and villages of the Fort Berthold Indian Reservation. We are the targeted federal lands of hydraulic fracturing in North Dakota. The amounts that you receive to pay for your coffee at this hearing come from my minerals. You derive your funds from me. I support the North Dakota 5 picocuries limit (level) in North Dakota, and I ask you to do the same.

The Argonne Study sampling is questionable until you can permit to obtaining of studies from an independent source from the petroleum company's industries, then your study is worth considering.

Tonight, by providing the people in this building for questioning is a reflection that is quite troubling when you are the North Dakota Department of Health. The public here asks that all benefit from the questions of other North Dakota citizens and yet you deny that. Why would you do that? If we can all benefit from each others' knowledge why would you do that?

We are aware of so many underground pipelines that the state of North Dakota and the federal pipeline regulatory agency has no knowledge where they are buried. This is on federal land as well as state patent land. We're aware a building is being constructed on these pipelines that do not show up in anyone's record. We're aware of that already. Not something new…so why are you placing an additional burden of increasing the radioactive level to 50, or even increasing it to anything greater than 5? It has already been stated in the media, by yourselves and other North Dakota state officials that you do not have the ability to provide compliance to the oil development that is happening within the state of North Dakota. You have already admitted that. We know that, because we live with it.

Your job, in the state of North Dakota would be to focus on health – protection of people. I did not see that. I did see you talk about the workers, but there are people up here in North Dakota who will live here forever. A part of that radioactive material that you're talking about has a very long life. It's not going to disappear, it's going to remain in the earth and it's going to be emitting radiation and when you portray the intruder's scenario that probably wouldn't happen. How do you know? You're not going to be around. But the radioactive waste will be around. People will live on it; people will dig into it. You're setting up a scenario for North Dakota that is horrific. This land is beautiful and it's got good people here. They're here tonight. They are telling you if you're going to pursue this, you need to have had open it up and have hearings across North Dakota. People don't know what's coming. They don't know what

you're doing. They need to know. If you're going to the dentist, why do they cover you with a big heavy bib if radioactivity can't hurt you? Thank you. (END)

Speaker Bill Sorenson: Good evening, my name is Bill Sorenson from Bismarck, North Dakota. And at one time in my life I was considered to be a public policy expert on landfills. That was so long ago that now I don't think there are very many people in this room that were around at that time. But I did have the opportunity to be involved in the National League of Cities.

My perspective on this is a little bit different than all those that are here tonight. I understand that the state has a problem that you are going to regulate, but my only concern is that I have recently become aware of some technologies that I think would take care of some of the problems presented here this evening. And as recently as last week, I think some testing at Idaho labs regarding some ceramic cement that allow you to greatly reduce the impact of radioactive waste long term in landfills. And so I would like to get the results of that study and have those added into the record, because I want to make sure I think North Dakota has the opportunity to be the model for a lot of states and I would like to make sure we are using the best available technology and doing the best that we can to protect our citizens. Thank you. (END)

Speaker Linda Weiss: My name is Linda Weiss, I'm from western North Dakota and I live along Highway 85. I support extending the time for the public to review the Argonne Study and to spend more time on the North Dakota health website. I support more meetings in western North Dakota and I support not raising the picocuries per gram from 5 to 50. I have served, back in the 90's, an assistance group when you were doing the UMTRA Study, when you were planning to move hot dirt from one area to the other, and it was one meeting after another but all we were to do was to observe. And that was only dirt, we're talking something way different now and there was a big concern then about the radioactivity. Thank you for your time. (END)

Speaker Michaela Alexander: Hi, my name is Michaela Alexander, I'm 21 years old and I've lived in North Dakota all my life. I'm originally from Minot and when the oil boom first started here. You can do the math to figure out how old I was I was in high school. I didn't think much of it but then I started hearing all these cases of animals on affected lands that were getting sick and dying, how the oil was affecting the water table. And you can deny that all you want, but we all know the truth.

I definitely don't support the oil being in our state at all. It's not benefitting any citizens, we have to live here and it's the oil company that drills the oil, lines their pockets and once the oil is gone, they'll leave and go home living the lavish lifestyle. The only people that it's benefitting that live here are the property owners, which have shot up their rent because people can afford it because most of the people who are coming in are renting and are oil workers and they can afford it. I myself had a hard time, I'm married, and even with the both of us working, we had a hard time finding a place to live that we could afford without having a roommate. We have been blessed with an apartment, very, very tiny apartment, but it's under a $1000 a month and pet friendly, and that is very, very hard to find especially in today's economy. You know where I stand…I'm against anything oil related. (END)

Speaker Marla McMonagie: My name is Marla McMonagie and I found out about this meeting tonight on Facebook, which really surprises me because I read the paper every day. I think we need to give these people more time. I think you need to go up to New Town and tell the people up there what you're planning on doing. Why do we need to change this? It's working. Mr. Sorenson said we could be a model with our new technologies and stuff. Maybe we should be a model, a model and say that our government puts our people first. We need to come first. We pay our taxes. We share our land.

I grew up in Devils Lake, Grand Forks, I moved here, and moved away and came back; I wanted to raise my kids here. My kids/grandkids were here and we don't need to poison our water. We don't need to poison our earth. It's the only one we have. We need to think about what we're doing here. And error on the side of caution and get more opinions and do what the people want for a change. They don't ask for the raise, somebody else did. Not the people of North Dakota. Not the people in New Town and Mandaree. Look at how proud they are; they're here. And they found out about it today.

You need to give more time and more notice to people and respect the people of North Dakota and listen to what we have to say. And to the North Dakota health department, right now we don't have the money. We don't have the funding to keep track of this. I know there are a couple programs that we want to get through with the North Dakota health department and we can't because the funding is not there. We can't fund people that we need to cover the legislation and the laws and the orders that are already in place. You have to think about that, take some time. I mean, what's the rush? We're going be there a long time. We need to worry about the health of our people that are going to be here. This is all I have to say. (END)

Speaker Sara Jumping Eagle: Hello, my name is Sara Jumping Eagle, I'm an Oglala Lakota and I'm a pediatrician. I currently reside in Fort Yates, North Dakota and originally from South Dakota on the Pine Ridge Reservation. I'm very concerned about the trend of what is happening right now here in the Northern Plains.

I too am a parent and friend here speaking not only as a physician or somebody that's interested in public health, but also as a human being, a parent and interested in the long-term health of the land, water and the environmental for health. I've been very disappointed in how the state has handled the issues as far as public health is concerned. I took an active interest in what's been happening with the water and land and have asked questions from Gov. Dalrymple about what things were happening. I've attended Industrial Commission meetings and watched what was going on.

I've been an active citizen I believe and so oftentimes I've felt that the Industrial Commission was so unaware of what was happening that they didn't even know the correct questions to ask. So at this point, I haven't seen the Industrial Commission or the Department of Health be able to manage the current level of 5 picocuries. So, to them a study that has been only a few months going, and then ask the public to comment and talk about expanding the level to me is offensive. When we're talking about potential risks to public health, we know that the effects of radiation at a population level can take 20 to 50 years needed to study a large population based and to my knowledge that isn't even being discussed at this point before the level is even talked about being raised. So maybe you should start with the level that we have and making sure that's being managed correctly. Nationally, the fact that we aren't able to regulate our current regulations, we're currently being laughed at from what I can tell.

And the fines that we do enforce are then reduced to the level that is not even effective to multibillionaires. We are the people who are going to left with the effects on the animals, plants. I think one time I can't even say whether it's safe to drink our water when I call Bismarck water and they're following the most basic EPA guidelines of only testing whether there's hydrocarbons in our drinking water if there's a flood in the spring. That's the only time they're testing this.

And so every time I hear about a spill every other week in Lake Sakakawea, I'm not even sure if we're not drinking organic hydrocarbons. And those are basic things that anyone with common sense in the department of health, and you know maybe you should think about those standards before we start increasing our risk with raising our level of radiation exposure. Those are the basic public health issues that I would think about doing before I would increase the risk to the public health in North Dakota.

And really I challenge telling the North Dakota Department of Health somehow to have a separate source of funding that isn't threatened by a governor and a state that has been bought. When our department of health maybe doesn't feel that they can speak up because their fundings will be cut, and that's only what I can see the reason that this is happening right now. Because why aren't these people being protected? But I do challenge the North Dakota Department of Health to stop being used a tool for the Industrial Commission and the petroleum companies. Where are the checks and balances? Because down the road really, the studies are laughable, it's ineffective and it's basically for show and to me things will just go on because they're going to do what they do anyway.

And so where would those landfills be located? And we know historically as Native people the tendency is going to be the place right next door to us, or amongst people of poverty or next to water. And so who's downstream…we are. And so what will we be drinking? We've started hording water because of what just happened in Glendive, Montana…we think when is that going to happen to us? I asked that to Dahlrymple last year. When are we going to have a West Virginia? Is that going to happen with radiation? I don't want it to happen. We don't want it to happen so we need to stop it now. Thank you. (END)

Speaker Laura Erickson: Good evening, my name is Laura Erickson with Plains Energy Technical Resources in Williston, North Dakota. I spoke pretty extensively last night, during which I provided commentary just generally speaking on the two sets of rules that are before us to comment on, and the commented specifically after reading through on both sets of rules that have been proposed, I am not going into the same amount of detail, I won't reread everything I submitted last night since it's already on the record. So I've been just scribbling down observances and additional comments to make on some of this commentary that already has been discussed.

I live in Williston, so I traveled here this morning and ironically on the way down here, I passed a big van that had "Healthcare Environmental Services" below alongside the vehicle and a biohazard sticker on the backside. It got me thinking that in the medical industry, every time we go in get ourselves swabbed or anything medical, we are generating waste. I'm saying to you and oil and gas or any other industry in our daily lives. I did a quick check on the rules around medical/pharmaceutical/infectious waste today to see when those rules went into effect in 1992, and correct me if I'm wrong on that. But what I want to point out is that the reason we are here tonight is to provide comment on the establishment of rules around the process and waste generation of problems that we have right now. I think it's imperative that we get these rules established.

There's been a lot of focus tonight on the picocurie limit; 5 versus 50, and what I mentioned last night was that there needs to be a greater amount of education, probably coming from the health department, a website would be specifically developed for TENORM education, public service campaigns, website development, links placed on a website that people can learn more, or maybe even contact an expert. We've got lots of great technology available to us today and I think some of that information would be great.

I took my daughter last February to Mayo Clinic because she was having all kinds of trouble with her UI tract and she wouldn't want me to repeat this or even say this publically, but she had a CAT scan in which she had taken some radioactive product in the process and I did a quick check again on millirem dosage that she would have received from that one test out of multitudes of tests she had that week. And so that one test, milligrams dosage was 405 millirems. Compare that to the number that's been presented, 100 millirems per year, you look at the scale presented by our labs and available through any OSHA site, its worker related data, these numbers that area being provided, the picocurie one, that is a very conservative number. And I know there's a lot of distrust about the science, but there are experts here tonight you can consult and talk with, look at their table, there's a thick publication of their report out on

the website. I encourage anyone who has concerns about the conspiracy type theory behind this to talk to the experts who consult with the health department get more information that will help you with a decision and possible comment further.

We need to put the regulatory wheels in motion because we have 12,000 wells in western North Dakota that have been drilled that are active right now. Those wells are producing a lot of oil, water and the radioactive materials that we are talking about tonight are generated from the water streams coming out of the ground, and filter socks, the waste generated from the filtering of the water, the various processes that ultimately lead to the gas pumps where we are putting gas in our cars that got us here today; those processes need these rules so that those processes can be properly regulated. I think that's all I've got to say. Thank you. (END)

Speaker Harriet Good Iron: My name is Harriet Good Iron; I'm from Mandaree, North Dakota, on the Fort Berthold Indian Reservation. But I still didn't know about the meeting until a few days ago and would need more time to go back to our people and inform them what's going on because not knowing much about what I'm seeing here, looking at the reports that have been done, it appears to me that they are minimizing a lot of stuff that's going on. You know for us not knowing it and just like the lady before me, saying that the radiation level is too high…5 (picocuries) is too high. We need to stick with the five or lower or zero. You know, we have people from out-of-state coming to tell us, sure this is good, this is okay, it's going to work, and it's alright. But who's going to suffer from it? It's going to be us and my great grandchildren that are coming down the line. How do we know that the cancers not going to be there? How do we know that the deformities aren't going to be there? You know, there's a lot more to think about than just the cancer. We need to put a lot more thought into this and listen to us people from North Dakota; not the outside people that are coming in, and what they're looking at is the money of course, the money and compromising our health and in great grandchildren. So I just thank you and I ask God to be with you when you make your decision. Thank you. (END)

Speaker Jay Almlie: Good evening Mr. Radig, Mr. Tillotson, thank you for hosting this in Bismarck tonight. I think it is a good public forum, it's obviously allowing opinions to be expressed. Mr. Radig, my name is Jay Almlie. I work at the Energy and Environmental Research Center (EERC) in Grand Forks, North Dakota. I'm a senior research manager there, a bit about me and why I have a little bit of confidence speaking at this microphone, my history is that prior to working at the EERC, I worked at NASA Johnson space center on some radiation protection projects for manned space flights. That started me in this area. Since coming to the EERC I've continued to obtain research and I've worked on something we call the Bakken Production Optimization Program, which includes a waste management confluent. Under that waste management confluent I've been studying the issue of TENORM for a couple of years now.

Thank you for your comments at the beginning Mr. Radig. We have talked for a couple of years; I'll have to acknowledge that. I also want to hand out a few kudos; I sincerely believe the Department of Health has taken the right approach to this study. First of all let me say that both the Department of Health and our friends from Argonne National Laboratory did an excellent job in digesting a very complex subject. I often say that radiation physics is probably the most difficult portion of physics and for both you and Argonne to boil it down to terms that the public can understand; kudos on that job.

Next I'd also like to say the Department of Health took a very good approach. I admire the approach you took to this study. You could have hired in-state and brought with it some of the questions of hiring in-state. Instead, you chose Argonne National Laboratory, and I think that's great for a couple of reasons. First of all, they are the acknowledged experts nationwide, and in fact world-wide experts. If you're going to go to someone to model the health effects and model the exposure of certain radioactive wastes,

there's no one better than Argonne…they wrote the code that does this. This code is accepted worldwide; so kudos on that.

And finally, kudos for taking an approach that puts science in front of the emotionalism. I really appreciate that as an engineer, as a scientist myself, I think science has to reign and I think you've done that.

What I would like to say, I did offer quite a few comments last night but I would like to add just a few comments that I've noted in listening to everyone tonight. First of all, you did explain TENORM pretty well, I agree with everything you said. I'm not sure if everyone here knows the extent of radioactive material in our environment. For instance, does everyone know that less than 18 percent of all isotopes of all known elements are stable? That means about 72 percent are radioactive. It's all around us. We keep talking about the 5 picocuries versus 50 picocuries, either one in my mind is near the bottom end of the scale. We absorb much more radiation than those picocuries are inducing on a daily basis from every day activity; whether it's flying in a airplane, sleeping next to your mate, eating a banana, standing next to a granite counter top…the list goes on. And you did a good job and Argonne did a good job of summarizing that on one of their slides.

I would like to say that we're talking about confusing units tonight. We talk about picocuries per gram; it's a measure of radioactivity. We talk about millirems. That was talked about extensively in the Argonne Study because that was their goal. They're trying to take picocurie per gram input into a well-defined model and come up with some exposure to the general public and to workers. They covered both by the way; and they did so very well.

A picocurie per gram is a radioactivity per unit mass and we need to understand that so we don't get the units confused with the millirems that are the goal of that study. The millirems are really what impact us and our health. The picocuries per gram are mitigated by buildings, by distance, by the air, by lots of things before they get to our body. It's important to understand those fundamentals of radiation.

I would like to say, well I guess reiterate what I said last night, and that is the Honorable District Nine Representative also alluded to it, we need a solid system in place of measuring picocuries per gram in the field so that waste disposal can be monitored, can be achieved, and I believe the oil companies want this as well. They want to know that what they're doing isn't going to cause harm to the environment. They want to know that what they're doing isn't going to incur a fine…yes, there's a financial aspect to that. They want to know these firm limits.

Right now, we don't have a device that will measure in the field picocuries per gram of radium 226 and 288. We have some screening devices that have been approved by the department of health, but we don't have any analytical measuring tools that will actually measure with accuracy, in a timely manner and cost-effect manner, that level, low level of picocuries per gram. Therefore, I recommended to you last night and it's in the record now, that we look at an alternate measure. We could follow the model offered by several states, Texas is one of them. And that model offers a separate pathway where you can measure something called micro Roentgen per hour, or essentially millirems per hour. And that's been with a survey meter. If we offer that alternate pathway, I'm confident that better decisions on segregation of waste will be made in the field which will not only allow compliance from the operators and service providers in the field, but also allow your office to do an easier job of assuring compliance.

Finally, I'd like to say that several of us in the room here have attended several conferences on this very topic…nationwide conferences. At last year's, in Houston, several other states said they're looking to North Dakota for leadership. I think you're beginning to provide it; I encourage you to stay on this path. Good luck in your efforts. Thanks for hearing me out. (END)

Speaker Darrell Dorgan: My name is Darrel Dorgan and I'm a free-lance journalist and I made some comments last night, but after hearing this testimony tonight I wanted to add a few things if I could please.

I think the one thing that stands out here that we're hearing tonight from people was that they just point don't want an increase in radioactive waste in North Dakota. They don't want it around them. The other thing that needs to be pointed out is we simply have lost control in North Dakota at this point, of how much radioactive waste there is. For a long time we were told that we generated about 75 tons a day. Well, that has now changed. Now we're told that it's 10 to 75. We don't know how much waste we generate in North Dakota. I talked to some industry people the other day and they told me it could be high as 200 tons per day.

We've also lost control of what's happening to this waste. We all know the horror stories with the filter socks and the waste that's being dumped around the state and it's worth noting, that I think, that we have had about 50 spills of toxic waste and oil in North Dakota since January. There have been thousands of acres contaminated this month. And now we're faced with the situation in Montana and the benzene that's coming down the river in North Dakota.

I would ask this group, first of all to, to take consideration of this study, and I have heard nice things about Argonne over the years, but this study is basically flawed. Last night when we talked to Argonne, in that period when you could talk to people, the one thing that I asked was "Where did you get the information, where did you get the samples?" The samples and the information that they talked about were given to them by oil industry. You don't give a test to a kid who's going to take that test a week later. This thing is simply compromised, and it's flawed, and it should not be used.

If you go through western North Dakota, we've almost become a national sacrifice zone. We are very close to becoming a superfund site in about five years. Prove to me that you can handle 5 picocuries of waste safely and then come back and ask about 50. But prove that first. And that's not asking a lot.

The other thing is I really think because of the faulty study that was done, that we will notice that what has been given people is they need to halt the process. Give it a year, sit on it. Go out there and develop some protocols for handling the radioactive waste; get a good study done and then come back. But don't go the way it's going now. I mean clearly people are telling you, they don't want this. The oil companies want it. That's how this whole thing got started. They asked for an increase for the number of picocuries so they could save money for transporting it out of state. State law says anything above 5 picocuries goes to an approved waste dump out of state. That is not happening. That's all I've got to say but I'm serious about it, let's halt this thing, let's not go any further with it until you can prove that you can handle 5. Thank you. (END)

Speaker Kurt Rhea: My name is Kurt Rhea and about five years ago in 2010, we started an environmental firm. And specifically, we set out to manage radioactive waste and we thought our target at the time was to manage radioactive waste from drinking water systems. We wanted to make sure that people had safe drinking water because, in fact, uranium and radium exists naturally in the ground, and when you pull drinking water from the ground, you're going to get some radioactive isotopes. No difference whether you're talking about drinking water, or whether you are talking about oil and gas production. The same principles apply…its physics at work.

We were committed from the start to help provide a safer environment. Over the last four years, we've been licensed in the state of North Dakota to manage radioactive waste produced in the oilfield and other places. We've trained hundreds of workers in radiation safety. We helped, in fact, cleaned up the Noonan

North Dakota) gas station, and other situations here in the state and we've worked in partnership, really, although we have no affiliation to work in partnership with state health officials to make sure that we have a safe environment to the greatest extent possible. We've also transported thousands of tons of waste out of state. And we've manifested every load and provided certificates of disposal for every single company, for single load. (Note: speaker's voice is barely audible at this point.) In fact it can be done right and it has been done right in so many situations.

We've also served an industry, that frankly, has the biggest and best operators that are committed to doing the right thing for the right reasons and guess what, there are some rogue people out there, and there's always going to be somebody trying to do something wrong. And in fact, I commend the state regulators, after the four/five years we've been up here working with them, the result of all this work and effort is not being presented for us, in the form of new rules and regulations they're presenting.

So a lot of focus tonight is been around 5 to 50, and we understand that sounds like a big leap. In fact, if you read the new rules and regulations in their entirety, there's a bunch of new rules and regulations that are being introduced that in fact make it much more difficult for compliance by the industry and hold them much more accountable. And we see that's good for the industry and good for the public and environment as well.

At the end of the day, what do we know? I've got three radiation safety officers in the room tonight that have all been active in working in the state. We have been in the field working for four years now and we understand some things about radiation, NORM and TENORM that hopefully, brings us some level of expertise and helps us to either validate or invalidate what's been presented. And what we do know is that we were using dosimeters when we were in the field, and these dosimeters measure the dose level of our workers in the field. And these four-plus years, have not had anybody in the working environment be exposed to TENORM that gives them dose rates of more than 100 millirems per year. Which, a long time ago, that was at a safe level for the environment and for workers as well for the general public.

We also have taught people, again, hundreds of workers, how to be safe and practice some of the same principles that we do in our health care facilities, right, we wear disposable gloves, we wash our hands, sometimes we wear masks to help protect ourselves. We work hard to help contain some of the radioactive waste and to put it in a proper place.

We've used survey meters to make sure that we understand, to the greatest way possible, what material we're dealing with and what those radiation levels actually are. And one of our biggest challenges in doing that is that the levels have been so low, that we can't hardly distinguish between the ground that we walk on and what we presume to be impacted material. And in fact they're so low as we work in other states…Texas, Illinois in Colorado…the levels are much, much, much higher there, so it's presented to me as challenges when we try to work in North Dakota under such stringent guidelines, that we can't tell what's impacted or what's not impacted.

We've also done all sorts of laboratory analysis through independent third parties. We have no labs of our own; it goes out to third parties who use methodologies that are reviewed and approved by the state. We in fact provide some of the data that the state used and we have no skin in the game, whether there's oil in North Dakota or whether there is not. We are simply a service company and yet we've provided data to help advance study and we can tell you that based on the documented results of the study even the samples that we didn't take, that the levels that are shown in the studies in fact are what we observed in the fields day in and day out. So if you critique this study too much, I can guarantee you it will stand up to scrutiny because it's what we've observed day-by-day while we are working.

What is important to know that in fact, most of the waste that we dispose of out of state today, in the future will continue to be disposed out of state. It's either impacted or it's not by virtue of the processes that is used, it's either impacted or it's not. So much of the waste is going to continue to go out of the state even though we might consider raising the limit.

Tank bottom residuals, pipe and equipment, and clays with elevated levels likely will exceed the 50 picocuries per gram level. And so are we introducing a significant new hazardous state? I don't believe so. You're getting a fairly subjective opinion, in fact the more material that stays in the state, the less money we get paid for handling it. Yet, we've founded our company based on science and we're going to continue to advocate for that regardless of the outcome in our bottom line.

So context is always important, detection is important, segregation of waste is important and putting the right materials in the right place for the safety of the public and for the environment is an important thing. There's a lot of people out there in the industry that are committed to making sure that we get it right, and I think we've worked hand-in-glove with the regulators and they've wrestled with this topic and done their best to protect the environment and the public. So what was originally said is the fairly arbitrary frankly level of 5 picocuries per gram, has now been changed or is being proposed to be changed to 50 picocuries per gram. And this time it's actually being supported by science instead of an arbitrary low level. I believe the state has taken the high road in establishing a very conservative level going out and finding an independent survey, excuse me, the most highly regarded of institutions with a history in radiation safety, and that they understand the science and have come about with good results as a result of those efforts.

For those of you who have not followed it, this has been a process years in the making and the one thing we've asked of the state, is that they continue to level the playing field and make sure that there is enforcement on the ground level and that they have done that. So again I appreciate the state's efforts, I appreciate the comments frankly of everybody that spoke here tonight, because the regulators live here and you live here, and we've been with you as a service company advocating for the same things you are concerned about.

So in closing I think I'd like to say that proper disposal closer to where the waste is generated and increase the accountability will give you the outcome that you guys desire in the way of a cleaner, safer environment. And those are great outcomes for public health and for the environment. Thank you very much. (END)

Speaker Kathryn Hilton: Good evening again, I'm Kathryn Hilton. I will not reiterate the points I made in the Williston hearing yesterday evening, but for those who are here I'm a Dakota Resource Council staff person, I'm also a Dakota Resource council member, also a resident of North Dakota and before I lived here I was in Pennsylvania in the shale fields there and I have a relevant information from studies there that I will be presenting during my course of a few minutes here. I have not read every word of the Argonne Study or the proposed rules but I have read a considerable deal of it and there are definitely areas of it that need improvement.

First of all, using computer models I think is a huge flaw in how data was collected when it would have been very easy to use the dosimeters that even this man's company has to get accurate levels of what worker exposures are. I'm not going to spend any more time on that.

Secondly, contaminated soil was not included in the scope of the Argonne Study. In just this month, and this number has probably has increased, because I looked at it last week; 51 spills were reported. And this is just what's reported and it goes in soil and also in water. I can't tell you which of the 51 spills were

on either. But that's going to wind up being a lot of contaminated soil, and the fact it was excluded from this study is bothersome to me and to someone that lives here.

Going along the line of spills, and the fact that there were 51, and also tying in industry self regulating, and looking at some of the spill reports who has supported them has talked to me about in Missouri, I don't believe that the health department employees is providing that information which their last column when the spills were reports, that have no number associated with it. So how am I to be expected to believe that industry is going to properly account for the radioactive waste even if we have in place system tracking?

Continuing on with the spills, these rules are specifically for solids. I would really like to see an update to liquid materials. I will consult a report, and this is called "Hydraulic Fracturing Radiological Concerns for Ohio." And this is prepared by Marvin Resnikoff, Ph.D., who works at Radioactive Management Associates of Vermont, and I'll leave this copy with you. Samples from flowback water from Marcellus shale wells shows that liquid contained radioactive concentrations as has 267 times the limit for discharge into the environment and thousands of times the limit for drinking water. So what are we going to do in terms of dealing with radioactive liquid waste? Because that is also the issue, and here brine that is separated from natural gas will be much more radioactive (quoted from this reference book).

Additionally, drill cuttings are not going to be included in this because drill cuttings were considered NORM. And they will also, from my understanding, be used in some of the non-TENORM contaminated materials to provide the daily cover for the loads that are considered TENORM. So from this same study, drill cutting material from a truck had a radiation dose rate of 96 microrems per hour of Radium 226 content, well 96 microrems per hour…anyone being exposed to that…that seems like they're going to pretty quickly going to reach that 100 mrem level. Now I do understand that…never mind.

Another issue I have is that fly ash is exempted from the proposal. Fly ash is radioactive. It's often used to solidify things like drill cuttings. So that is just going to expeditiously add to the amount of radioactivity that a landfill is going to be able to accept. I really would like to take the time to reiterate how extremely important I think it is that when dealing with radioactivity, that the water issues are also addressed. Solids are in water, the sediment in water, and we are ingesting that and it's very clear, ingestion is one of the worst ways that we're going to be receiving the radioactivity and it will cause water problems.

Additionally, folks who are going to be living in proximity to this landfill are not going to be receiving single isolated doses, unfortunately, oh like people taking medical tests and things like that. This is going to be prolonged toxicity exposure to radioactivity. And that is a very serious concern especially for female bodied persons, women who would like to have their reproductive systems working for them and for young children.

In terms of how sampling of radioactive material will be conducted, it was my understanding from information last night, that it would be the generator of the radioactive waste that would be doing that sampling. How that would be conducted is not spelled out. I think it's very important to include that actual samples were taken; it's not a measurement that's done outside of a steel container or something like that. Also from the same study, sampling and testing of materials from special landfills yield best results if conducted by a third disinterested party from an official at the receiving landfill and would be held liable for any radioactivity material from the facility. Now this is a recommendation that is coming from the state of Ohio that is also dealing with radioactive waste and Dr. Marvin Resnikoff did us also a much respected individual in terms of knowledge of radioactive issues.

Because I will be providing extensive written comments, is that this is also from the same study. Because radium is highly soluble in water, rainwater percolating through the landfill will allow the radioactive material to leach out into the environment, potentially into aquifers with surface water used for drinking water. So I do drink the water in North Dakota and I do have great concern about what I'm drinking.

Further support I have is again going back to radioactivity in the water, are studies that Duke University just put out, Dr. Abner-Vindashy (??) that contaminants found in oil and gas waste water, and when those go to treatment plants, wastewater treatment plants generally aren't having the capabilities to take out all of the radioactive elements and also the other contaminants that we're not even addressing this evening, that are going back into the water. And if it does have the ability to take out this material, then that is the solid waste that is being created that is not also being addressed in the proposed rules. So things that are treated, where are those going to go? (END)

Speaker Scott Radig: Is there anyone else? … Last call?
It is now 8:57, with no one else present to provide comments, this hearing will be closed.
The record will be open for all to make comments that are postmarked on or before February 6, 2015, and the address to mail those comments is in the Public Notice on our website. Thank you very much.
(END)

End of Bismarck Public Hearing Testimony 01/21/2015.

North Dakota Department of Health
Division of Waste Management
TENORM Public Hearing for Rule Revisions of the
North Dakota Administrative Codes 33-10 and 33-29
January 22, 2015 – 7:00 p.m. CST
Fargo Public Safety Building – 4630 15th Avenue North
Fargo, North Dakota 58102

Speaker Scott Radig: My name is Scott Radig, I am the Director of the North Dakota Department of Health, Division of Waste Management, and I will be acting as the hearing officer for this public hearing. It is now 7:02 p.m. on January 22, 2015, in Fargo, North Dakota. I'll give you some format here and then we'll open for comments.

First, I would like to ask everyone to turn off their cell phone ringers as a courtesy to those providing testimony. This public hearing has been called for the purpose of allowing all interested individuals an opportunity to submit information and comments concerning the proposed new and amended Administrative Rules regarding management and disposal of technologically enhanced naturally occurring radioactive materials in North Dakota Administrative Code Article 33-10 Radiological Health Rules, and Article 33-29 Solid Waste Management of Land Protection Rules.

Information gathered at this hearing will be used by the North Dakota Department of Health and the State Health Council for its deliberation and final decision. This hearing is being conducted according to the procedures for hearings on proposed administrative rules. It is not an adjudicative proceeding under Chapter 28-32, which means the persons providing comment will not be cross-examined and the Department will not be responding to comments at this hearing.

The comments received today will be considered with all written comments that are received and the Department of Health will present its consideration of all the comments in writing. You may request a copy of the written consideration of comments, and one will be provided for you. After consideration of all the comments, the Department of Health and State Health Council will make a determination on the Draft Rules, either to approve as proposed, approve with modifications based on the comments received; or to withdraw the rule. Everyone present will be given an opportunity to speak and provide as many comments and as much information as they would like.

This hearing is being taped and we ask that everyone use the microphone at the podium so that the tape will be of good quality for transcribing purposes. Please sign the registration sheets for commenter's at the podium which is also placed at the microphone and identify yourself for the record before you begin with your comments. If you have a prepared statement, a written copy of your statement is appreciated and will be helpful. In order to save time, if someone has previously made the same comments you are planning to make, or if you have provided comments last night at the previous hearing, it is not necessary or advantageous to state them again into the record. If you have lengthy written comments or information to present, please summarize what is being submitted and the written information will be fully reviewed, considered and responded to. If you would like to receive a copy of the written consideration of comments, please print your contact information on the sign-up sheet located at the information table.

At this point the hearing is open for comments on the proposed rules and anybody that would like to is free to start. (END)

Speaker Roger Kelly: I would like to thank the North Dakota Department of Health the opportunity to present comments on these proposed regulations at this hearing today. My name is Roger Kelly; I'm here today representing the Domestic Energy Producers Alliance. We are an association or an alliance of oil

and gas producers, about 10,000 independent producers and about 15 trade associations of oil and gas producers across the United States. And I'm commenting today because this not only affects North Dakota, there's a lot of states looking at this issue at this time in considering the regulations. I want to make a few comments to begin with and I'm going to explain, because you're going to say well, how did you know that, and I'm going to explain to you that later.

Number one, not all filter socks that are on location have any radioactive material in them, some do it depends on the well. Not all propant material has radioactive material in it. If anybody has that impression, it's not on all well locations, not all produced water has radioactive material in it. And not all drilling cuttings have natural occurring radioactive material. I'll explain why I understand all that or know those things. I began my career having a degree in biology, my master's degree in environmental management and a bachelor's degree in chemical engineering. I began working for the Texas Air Control Board in 1976, and to give you an idea of the history of what was going on a bit, at that time the Clean Air Act was passed in 1971, Clean Water Act became effective in 1972, the Endangered Species Act in 1973, the Safe Drinking Water Act, which protects our drinking water, in 1974, and the Nuclear Regulatory Commission was created in 1975.

Now we first started looking at the regulation of NORM or Naturally Occurring Radioactive Material in the oil patch in 1987. I was working for Kerr-McGee at the time, in their corporate staff. We went to the several different radiation safety officers in different states and asked them what they were doing about NORM. Their comment unilaterally was that Nuclear Regulatory Commission had looked at natural occurring radioactive material, and deemed that it was not hazardous, it was not harmful at the levels it was being produced in oil and gas wells, and decided not to regulate it. The EPA doesn't regulate it and there was consequently no science was developed around natural occurring radioactive material because it wasn't, nobody thought there was a hazard associated with it. The (unclear words) Committee was organized in 1987, I was part of that. They started looking at NORM at 2 millirem per hour, because they determined that was about what the equivalent of a tooth X ray would give if you had a tooth X ray taken, so they wanted to look at that.

I left Kerr-McKee when the consulting, when it came back it was down to 25 micro Roentgen, which is 0.25 millirems I think…let's see if I got my math right. They said the only real exposure in NORM is if you breathed it in or ingested it and it would bioaccumulate in your body. The main source of was equipment pipe scale. Pipe scale accumulates primarily as barium sulfate, barium sulfates is a very inert material, if you take a gallon of produced water and put it through a NORM test, you probably won't find anything in it. You have to run thousands of barrels of this produced water through either a filter sock (got a filter sock here), okay so everybody knows what a filter sock looks like, through a filter sock or through whatever and it takes a long time to accumulate barium sulfate scale. The only problem with barium sulfate scale is it is very inert. You can't get it out of the pipe with hydrochloric acid, which is what we used a lot of times to (unclear word) our wells. It takes sulfuric acid, which we don't want to use. We generally have to wrap the pipe physically; knock the scale out of the pipe.

So this barium sulfate scale is probably not going to migrate the environment too much. It's very inert, it's a mineral. Most of the scale you're getting inside your house and your fresh water is calcium-based scale, which tends not to have NORM in it, doesn't contain it, but it looks about the same.

I got worried a little bit about the ingesting of this. At one X ray, an Oklahoma doctor, Jerry Renfroe, who's an osteopathic surgeon, friend of mine, it was like 100 micro Roentgen per hour, which was the highest that they were looking at at that time how would it effect you if you swallowed that, and he looked at me and he said , Roger if you swallowed enough scale at a 100 micro Roentgen per hour to hurt your system with radiation before you got enough radiation, you'd probably die because you shut down your digestive tract. And that's being (unclear words) it just that it's not…the level is so low.

Louisiana came out with a rule of 25 micro Roentgens per hour; it was based on gamma ray exposure. The state of Texas came out with 25 micro Roentgens per hour to mimic Louisiana until they determined that the state of Texas capitol was made out of granite. And the granite in the capitol of the state of Texas was over 25 micro Roentgens per hour and so they had to raise the limit to 50, so they could operate in the state capitol. The Texas regulation is I think 30 picocuries per gram, if I'm right, it's 50 micro Roentgens per hour and their disposal methodology is that you can bury it onsite at 30 picocuries per gram.

In my experience as a consultant for the last 20 years before coming to my current job, I was looking at oil and gas wells for purchase and acquisition and part of the job we had to do was look at the NORM contamination to make sure we weren't buying a risk of NORM contamination, which is quite expensive. I used a Ludlum model gamma ray detection device with a 442 (??) probe which was recommended by the EPA and NRC for looking for low-level radioactive material. On one site in Wyoming, I recall I had looked at several wells on one location and several pieces of equipment and found no NORM contamination until I got into a building and found a large canister about the size of three barrels of oil, about three barrels of oil volume rather. It had scaling on the outside of it and I took my meter and put it on this container and it pegged out at over a 100 micro Roentgens per hour, and so I asked the pumper what was in that filter, it was a fresh water filter. So I guess that tells me that in that part of the country if you filter fresh water, you're going to get NORM scale.

My point in saying that is that NORM can occur in different areas. It can occur in fresh water, it can occur in ground water. If you run it through a filter over a period of time when the pressure drops, and the scaling out of minerals, you're going to accumulate scale and that scale may contain low-level radioactive material. By that I don't mean harmful radioactive material, I mean low-level radioactive material. In California, in comparison to this regulation, California has a regulation, and everybody knows that California is highly regulated, of 1800 picocuries per gram, now that's not TENORM, that's just NORM in their landfills. Other states have very high levels, a lot higher than 50.

I did some research, phosphate fertilizer, which we put on our crops and we use a lot. North Dakota has ranges from 120 to 150 picocuries per gram. Some is higher than that. I'm sure not all phosphate fertilizer has NORM in it either, but it can have that level of radiation and it's put on there, built on every year. In most states and this state also…well, not this state but in Texas and other oil producing states, agriculture has existed because those levels are deemed not a dangerous level.

DEPA(??) is okay with 50 picocuries per gram, I think the study that was performed by Argonne was very conservative; I think it was based on good science, it had good comparative data. I don't agree at all a lot with the way that this would move that much in the environment. I don't think it's going to wind up in our rivers, it's not going to wind in our groundwater because it doesn't move; it's inert.

This is not a financial issue for our industry; I want to make that clear. For oil producers, yeah it costs a lot to get rid of NORM is costing a lot less than it used to because there's more places that take it when we first started. You can go to Gulf Coast and you could go to Utah, and that's about it. Now there's many places we can take our NORM material, but it's a social issue with us. We try to operate prudently, we keep a clean environment, we're very cognizant of the way we operate in the things we handle and we try stress safety for our employees and the environment. So having said that we're producing radiation out of the soil or earth, we are but it's very low level. It's not harmful to the body. This is not a radioactive filter sock, if it had NORM material in it and had a lot, if I were standing from a dumpster full of filter socks this far out and had my Ludlum model meter here, I probably wouldn't measure anything. If I got closer, it would get higher, as I got right here I could measure it; at least what was inside that dumpster.

So I've done that, many times with tanks, I've had tanks that had 30 micro Roentgens, I've had tanks that had 30 micro Roentgens, some 200 to 300, but until I get within 3 or 4 feet of that tank, I don't get any exposure. I don't get any gamma ray emissions, okay. So when we're talking about NORM exposure, we're talking about NORM in oilfield waste, there may be some there. We're not denying there's some there, but it's not harmful at the level it's at, unless we're hugging that tank or we're holding this filter sock close to us; we're not getting exposed to it, and exposure is minimal.

We'd like to see a higher level for disposal for disposal. We'd like to see a measurable level in gamma ray emissions. We'd like to be able to look at our equipment on site and determine whether we have NORM…whether it's 50, 100 micro Roentgens per hour…that's much lower than any other exposure that we voluntarily submit ourselves to. A picocurie is about a trillionth of a curie and just for comparison, a Cat Scan a unit in a hospital, as we go to all the time, has 3 curies, 3 curies source, so 3000 picocuries in that source. So what we're dealing with is very low. It's not hazardous, it's not a health hazard and I encourage you maybe raising the 50 picocuries, and I really strongly encourage you to come out with a measurement technology that we could use to determine what we have in the field and use that as our licensing device. Thank you very much. (END)

Speaker Dean Hulse: My name is Dean Hulse; I live in Fargo. With all due respect to your secretary, I don't have written comments here, so I'll be brief. I just wanted to state a few comments based on the previous gentleman's statement. The acronym TENORM, for some who got here late, stands for Technically Enhanced Naturally Occurring Radioactive Material. I don't know who originated that acronym, but it sounds about as Orwellian as it could possibly be. I think the word enhanced typically implies an improvement in something. In an earlier statement, this says it's concentrated. So it is a concentrated radioactive naturally occurring material. It's naturally occurring after it's concentrated. So that might be some of the reason for concern here tonight.

Also, the health department provided some information on states that have differing requirements for their landfills in North Dakota. One of the states that was not included in the table was South Dakota and its disposal limit in terms of picocuries per gram is 5, which is the same as North Dakota's is currently. And California does indeed allow 1800 picocuries per gram as does Colorado is 2000, Idaho has 1500, but there is specific disposal sites in the state to receive this material. It's not a state-wide situation like is being proposed here in North Dakota. I guess that's it. I just wanted to clarify that and have that in the record because it wasn't obvious in your printed material. Thanks. (END)

Speaker Larry Heilman: (Mr. Heilman provide a written copy, presented here, of his oral testimony):

My name is Larry Heilmann. I am a retired biochemist and geneticist with the USDA and NDSU. I have about thirty years of experience working with radioactive isotopes. I do not fear radioactive materials. Properly used, properly stored, and properly disposed of they can be handled safely. But properly is not a word I would use to describe most of the Health Department's proposal for the disposal of radioactive waste North Dakota. In the interest of time I will confine my comments here to a few points.

First - You propose here the development and operation of a multi site landfill system for the disposal of low level radioactive waste from the oil industry. However you do not have the basic information needed to even start this process. Because the Health Department has not enforced current rules on radioactive waste disposal for many years, you do not have an accurate knowledge of just how much waste is being generated in the oilfields.

I have heard at different times NDDOH saying daily production is 20 tons or 70 tons. This is a very wide variation. I have seen no estimates of just how much radiation in picocuries is being produced daily. ~~Apparently you don't even have estimates for that~~. The size, number and design of disposal sites will depend on how many tons of material needs to be disposed of and how radioactive that material is. That information is either totally missing or of doubtful accuracy. You need to go back to enforcing the current rules and find out these numbers before you change the rules and begin dumping potentially hazardous waste around North Dakota. You need to know how much you are dumping and how hazardous it is before you build the landfills!

Second- You start by simply assuming that this waste can be accommodated in already existing industrial landfills. Radioactive waste and chemical or industrial waste are very different and require different disposal techniques. They should not be mixed or disposed of together. The sites suggested are almost all in Williams and McKenzie counties. What happens to these counties when all these sites become superfund cleanup sites as they almost inevitably will? Radioactive waste dumps require special geologic features that will prevent leakage over time. The waste must be confined for a long time. Before any sites are selected or used, there needs to be a full geologic survey of the entire state to determine where the safest places are if any exist.

Most of North Dakota is covered with loose glacial till, soil and gravel through which water percolates with ease. Only in the southwest is there any areas of bedrock and these are mostly soft shale, crumbly and water permeable.

Radium salts are very water soluble and can migrate with water flows. Putting plastic liners in the bottom of the pit is at best a very temporary control. There needs to be a full survey to determine if there are any places in North Dakota suitably safe for geologic storage and this must be done before any places are selected or before any waste is disposed of.

We have heard all about how radiation is natural and not at all dangerous. We really can't do much about Brazil nuts or granite countertops but why add to the total lifetime exposure that individuals receive. If I eat a Brazil nut that is one small exposure for a small amount of time. Living next to a waste dump or working in one is a constant, continuous exposure. The problem with radiation is that lifetime exposure. So why increase it.

This proposal will do nothing to increase the health of the citizens of North Dakota. ~~This proposal was not requested by the people of North Dakota.~~ The purpose of the Health Department is to enhance the health and welfare of the citizens of North Dakota. It is not to enhance the profits of the oil industry which is about the only thing this proposal will do. Thank you for this opportunity to speak. (END)

Speaker Jerry Jernberg: My name is Jerry Jernberg. I don't represent anybody, I'm just a citizen and I read a lot, I read the papers, I hear things. It seems to me like the health department has a lot of issues on their plate that they need to address and I respect what they're doing and I respect the view from the other gentlemen. I think you need more time, you're rushing this. What you're talking about here, you're talking about something isn't harmful one group says and the other group says it is harmful. I don't think you should just get one opinion from one company that's paid by a certain group, I think you should spend a little time on this because I read the paper and I see that we've got all kinds of oil spills, I see where the companies have fines and then they get slapped on the wrist and they pay two cents on the dollar. You guys have got to wake up and do your jobs. That's all I've got to say. Have a good day. (END)

Speaker Paul Azure: My name is Paul Azure; I'm a member of the Turtle Mountain Reservation. Many members of my Tribe live around the Trenton area in western North Dakota. Trenton is part of our

Reservation and is very close to many of the landfills that will be accepting higher levels of radiation. It is a known fact that radiation dust is carried on the land. This report does not even mention the effects in North Dakota winds and completely downplays the effects of inhalation.

I ask that the health department require adequate dust suppression with no visible dust emissions and to include dust monitoring. On the other hand, I agree that this waste needs to be controlled and confined in a controlled manner. So I am in favor of raised limits with additional controls. Thank you. (END)

Speaker Dr. Michael Yellowbird: Good evening, my name is Dr. Michael Yellowbird; I'm a citizen of the Three Affiliated Tribes, the Mandan Hidatsa & Arikara, located on the Fort Berthold Reservation. I'm also a professor of sociology and anthropology and the director of the Tribal and Indigenous Peoples Studies Program at North Dakota State University.

I want to begin my comments by saying that I am categorically opposed to the North Dakota State Health Department's proposal to raise the level of radioactivity in the waste that comes from the oil industry. The North Dakota Department of Health's proposal to raise the level is premature, dangerous and lacks foresight. Indeed it appears that this agency must be reminded that the U. S. oil industry has been responsible for catastrophic spills that have contaminated our oceans, rivers, streams and lands, as well as causing the death of millions of wildlife and fish.

The same can be said of the nuclear industry. The most recent catastrophe, the Fukushima melt down in Japan in March 2011, is still a major threat to the health of the planet. Perhaps the agency is not aware of these events. What this agency is asking of its citizens is to trust its judgment to raise the level of acceptable radiation in a way so that it can continue to be buried in landfills in our state and on our reservations. It is asking us to trust its expertise based upon what I understand is a single study and through a few hearings. The agency must be reminded that the Fukushima reactor was built by some of the best minds in the industry and it failed due to poor planning, taking short cuts and political tampering. The same can be said about the BP spill in the Gulf of Mexico. The best minds took shortcuts, planned poorly and didn't listen to critical evaluators that provided warnings that this particular well had a high probability of failure, which would lead to a catastrophic event.

The scope of this issue is complicated and lacks sufficient hard data, which should be overwhelming given the seriousness of the toxicity of radiation. To be sure burying the waste won't make the problem go away. Just like throwing all the plastic bottles in the ocean will not make the problem of plastics go away. The North Dakota Department of Health states on its website that its mission quote "Is committed to improving the status of the people and improving the quality of the environment." I seriously doubt how this agency can live up to this mission given its current proposal. How does allowing higher levels of radioactive waste improve the quality of the environment? I ask that this issue be given more time and much, much more hard convincing data be gathered before moving forward.

I am vehemently opposed to burying this toxic waste in Mother Earth no matter what the level of radiation. I have one more comment based on tonight's presentation, I want to point out in my testimony, that the models that were presented tonight to assess the risk of radiation exposure to humans are based on simply on predictive statistical analyses upon some factors. My concern is cumulative risk, that these models do not include critical variables such as blood draws from subjects that would confirm the claims of possible exposure in the different scenarios of the models.

In order for the science to hold up, the models need to reach a level of reliability and they must be replicated. As I understand, there is no current large study in North Dakota of how much radiation exposure oil workers have. In other words, there's no baseline that can be drawn from it. The North

Dakota State Health Department should immediately fund such a study, and until these results are in, suspend their current proposal. Thank you. (END)

Speaker Winona LaDuke: We met briefly last night. My name is Winona LaDuke and (spoke in Native language first). I came to give a little bit more formal testimony tonight. As I did mention last night, I do come from the White Earth Reservation in Northern Minnesota and in my experience, things happen in North Dakota that effect me. First it started with the coal plants, which now have put a lot of mercury in the lakes of Northern Minnesota, so we have fish consumption advisories in most of our lakes. Then, came the pipeline proposals, the most recent of which the Sandpiper is proposed to cut through our Wild Rice Lakes on the reservation.

And I do not believe that the additional nuclear waste proposals for North Dakota are only going to be limited to the state. I think it has broader implications. So a little bit of my history…I didn't give you much. I'm a graduate of Harvard University in Massachusetts Institute of Technology. I've a master's degree in rural development. Most of my work is in the field of energy policy. My first research project was for the Center for Science in International Affairs at Harvard University, where I worked mostly on nuclear radiation. I largely put aside a lot of that data because as most of us know, it's a bad idea that if you can't see it you can't taste it, and it lasts ten thousand to a million years and it's going to kill you. But I remember something from when I was a young woman. In 1978, Los Alamos Scientific Labs came out with a study that said, "Perhaps a solution to the radon emission problem is to zone the land into uranium mining and milling districts so as to forbid human habitation (Los Alamos Scientific Lab)."

So if we reflect on the proposal to create essentially low-level nuclear waste dumps in North Dakota, all I can reflect on this is that the allowable dosages, as I asked you last night, what's my recommended daily allowance for radiation? The recommended allowances have not increased in all of those years. That is because radiation is incredibly lethal and there is no safe level of exposure. It makes no sense whatsoever for the department of health to propose risking the lives of North Dakotans, and it's not just North Dakotans, it's anyone who comes out here and anyone who would be contaminated by the water that comes out of North Dakota.

I was a little bit upset this morning when I woke up and realized I was leaving Bismarck a little relieved because of course the Glendive (Montana) spill was hitting the water system of Bismarck tomorrow. And I think about how water flows, and I think about underground aquifers and the amount of fracking and fracturing of bedrock which goes on in North Dakota, and in the end I'm pretty sure we don't know what's going to happen. The best proposal of waste is to do the least and to cause the least damage. I spent a good portion of the morning with some people from the Fort Berthold Reservation, who told me quite clearly that there are new birth defects appearing on that Reservation, that could be one in a 100,000 or 500,000 or one in a million and there are two of them. And they're both next to a low-level waste dump that is occurring on that Fort Berthold Reservation.

So I think about that and if I was the department of health in North Dakota, I would be pretty concerned about the present health impacts of the wide-spread contamination that is occurring in the Bakken and the impact of that on people, not only this generation, but the generations ahead, because as the previous people have testified most of this is cumulative. So the effects that are now will be one thing but the effects that will be on our children and grandchildren, and the impacts that are going to be over the next years, are going to be increased significantly. So I think it's a bit folly of you to suggest something in such a time period.

I'm also a bit dismayed frankly at the one coming from…to see…I'd like to believe that your systems work. I like to believe that we have government that protects people. I like to believe that in North Dakota, for instance, and elsewhere, you don't have to sue your government to protect you. I would like

to think your government would protect you from corporation or from private interest or from maybe nuclear contamination. It doesn't seem to be the case. Now, why would you do a study that you know is largely at the request of oil companies and further interests, because it is clear that increasing radiation dosages for the general public is not in the public's best interest. Why would you do such a study, send the announcement out at around Christmas time, and hold only three hearings in this state during the middle of winter? How would that invite public participation in any way?

You are having three of them, the Williston meeting, many of the people from Fort Berthold could not attend because the weather was not good and the roads were not good. The other two meetings, one is held in Bismarck and one is held here. This is far, of course, from the Bakken, but I would suggest that if one wanted to have at least the semblance of a process which reflected public participation, one would in fact seek to have hearings that were spread out and over a longer period of time; not in the middle of winter expecting that people would have the resources or the ability to participate. Even in inclement weather. So that is one process suggestion for you, so at least it looks as if you are attending to the interest of the people of North Dakota.

But in addition to that, I have to stand by the testimony in many of the previous people. There is no safe level of radiation exposure. A prudent government would not encourage increased levels of exposure. A prudent government would not set up low-level nuclear waste dumps throughout the state, which may or may not be subject to only the waste from this state. It may be other states that would wish to dump here because it's pretty convenient, you know, nobody lives in western North Dakota is apparently what people think.

But in addition to that, the long-term impacts on all of us is something we need to consider, and you know I'm just really encouraging you to be a little more prudent in your process and to have a little common sense. Because in 1978, if Los Alamos told us all, and those guys did a lot of nuclear testing, that we should zone the land into uranium mining and milling districts, so as to prevent radium 226 from getting into households and schools; why would we want to put more of it into any of our communities? Thank you again for your time. (END)

Speaker Tessa Sandstrom: Hi my name is Tessa Sandstrom, I'm with the North Dakota Petroleum Council but I'm here kinda on my own behalf. A little bit about myself I'm originally from New Town, North Dakota, which many people know, is one of the communities that is in the middle of a lot of the oil and gas activity. My dad and my brother both still live back there and are landowners south of New Town. So they know very well what's going on and they understand the concerns. I understand the concerns, I go back about every weekend to go hunting, fishing, enjoy the outdoors, horseback riding and so on. So I definitely have a little more skin in the game than some may think.

A little bit more background; my degree is in journalism and English, so I don't have a lot of scientific expertise but objectivity is a pretty high value of mine having studied journalism so it's with that view that I do come here. (tape skips here) With that objectivity I really want to take a look at the science and facts that are behind this and in past life before I worked with the Petroleum Council I recognized Argonne and you are a very reputable organization as I believe in the presentation here. With the US Department of Energy a lot of resources that were recorded from the US Nuclear Regulatory Commission, EPA and other reputable organizations with the federal government. When this all started out I'm not going to lie when I heard about NORM I was a little apprehensive, nervous and unsure what it was and what made me think that is mainly because a lot of my perceptions about radioactivity are based on popular culture. I grew up watching the Teenage Mutant Ninja Turtles, we all know Godzilla, Spiderman and that's really the knowledge that I have, that's the knowledge that a lot of people have, but that's based on fiction and not on science and fact and so I really want to thank Argonne Laboratories (tape malfunctions here). So I want to thank you for taking the time to do this study, I know it's been

probably two years in the making, so really a lot of time has been spent on this topic I know. So like I said I do find science pretty fascinating and I like to learn how things work and I like to be able to explain it. And so in a lot of my reading of this topic, I've come across a lot information again from those resources like the Nuclear Regulatory Commission and others.

You know you can stand next to a dumpster full of filter socks all day, all night, through the year, and still not exposed to radiation that we might receive from eating, breathing living in every-day life, just being in existence, right? How about a house, you know, it's got a basement, radioactivity in there…not too concerned…natural background radioactivity, right? I'm working on a kitchen remodeling, thinking about putting in a granite counter top. I know there's a comparison of that earlier, I wouldn't think twice about preparing it. Let's say I want to get rid of that granite counter top, I wouldn't be able to take it landfill, I'd have to find some special way to get it out probably because it's five times higher than the current limit. So the point I'm making is that radioactivity is everywhere, and I believe people providing testimony yesterday said 70 percent of everything around us. So it doesn't need to be scary, it's a lot less like Godzilla and a lot more like NORM in the TV series Cheers just there hanging out.

So now as explained in the testimony provided by Argonne, and what I want to reiterate, and I think we have to continue to do this because we often get taken off again on that fear of what radiation is based on what we know in popular culture. What we're talking about is not something that's manmade, it's not some green goo, and it's not manmade nuclear waste. We're talking about sediment, we're talking about silt, we are talking about things that were in the earth that are brought up to the surface of the earth through drilling, and some of it has become concentrated in filter socks, or tanks or pipe scale. But it doesn't change the fact that these are sediments, silts, these are particles of rock basically. One of the testifiers yesterday said they wouldn't want this on our earth but it is our earth. It is our soil; it is our sediment, so really it is natural.

For TENORM, especially as it relates to oil and gas, to pose a risk as we've heard a lot of scientists say and I'm sure we'll have a few others talk about is that if TENORM is going to cause you harm it's because you inhaled, ingested or swallowed it, and I was talking about this topic with some friends and they had some questions about picocuries versus millirems or micro Roentgens, and I was trying to think how do you explain this in a way, that's kind of easily understand. We're eating, and I would stop and say that's a perfect example. You think of a donut, it has 200 calories, these calories are not going hurt you, and you are not going to absorb them if you touch them. It's when you eat it then you're going to absorb those calories and gain a little bit of weight and that's the risk to your health. TENORM is really kind of the same way. If you have a filter sock sitting there, you're probably not going to have any kind of exposure even if you touch it. You just follow the typical hygiene that you would if you have a cold or take out the trash; wash your hands.

You know it acts in the same way. We have…the important thing is to the exposure of radiation are the barriers, time, distance, when we're talking about TENORM as I mentioned you have to inhale it you have to ingest it so you have the fear that's serving as a barrier, you have your own skin, you have your own clothing all serving as barriers. Workers who are working out in the oil field have personal protection equipment that they use if they're working with particularly high levels of radiation and there's a chart that shows what kind of levels of radiation that people working with nuclear materials have and it's again, much higher that what we're talking about now. So I just, I stress this not to downplay what we're talking about or the importance of what we're talking about, just to put things into perception, things that we all work with every day and understand.

So, you know as we generate this TENORM in this state, we don't have a place to dispose in this state. It's kind of like what I'm talking about remodeling my kitchen and have all these boxes because I don't

feel like dealing with it in my garage to put it on my neighbor's stuff, you know. We need a way to properly handle that material here.

Other states have much higher levels, I think one, several have been mentioned, but one that wasn't mentioned was the fact that Minnesota has a limit of 270 picocuries per gram so that's higher than what we're talking about here.

I mentioned I'm from New Town, my dad's a landowner and I was talking to him on the phone the other day and he's kind of like me you know, he likes to read upon things and become informed about what the science and facts are and likes to base his decision, so on this NORM issue, when are we going to come up with the regulations to deal with that here in the state? When are we going to be responsible for our own activities? It doesn't make any sense to put it on a truck, put that truck on roads that are already congested, add to the traffic we have here, truck it across the state when this could be safely disposed here within the state. And I think we have numerous studies that do show it is possible, in fact North Dakota is very lucky to have geological formations that you could have a natural protective barrier.

So in looking at this, I don't think you can ignore the signs, it is possible to safely handle and store NORM here in this state and I think we really have to continue to look at the science. I've worked with some really good people in industry and unfortunate we sometimes get a bad rap for some people may not act responsibly or who are just victims of accidents, or just in one case, vandalism. So you know when we consider those things, so we also need to mention we have these rules that we're developing as resources responsibly.

One of the comments I've heard consistently last night, was that well, I don't live in western North Dakota, I don't work in industry, I don't benefit from oil. I took a little bit of an inventory on everybody here and everyone is wearing pretty much synthetic fibers. Everyone's got their hair combed, I have polyester, and this is petroleum based fiber. I brush my teeth every morning with toothpaste, toothbrush both of which are petroleum-based products. I use this phone every day, I use a lap top every day; all petroleum-based products. I could go on and on…medicine is petroleum based, medical materials that we have at the hospital, all petroleum-based products and we all benefit greatly with this great quality of life that we do have in the United States because of petroleum products. And that's on top of the jobs; the economic impact the small businesses that have their businesses supported by oil and gas development, tax revenues that go to the funding of our schools and roads. Yes we all do benefit from oil and gas activities, so I just wanted to make that clarification one more time. And so I just want to say on behalf of not just the North Dakota Petroleum Council but really myself, my family members back home, thank you for considering these rules putting forth some common sense regulations that can help North Dakota really find a solution to what is essentially a North Dakota challenge. (END)

Speaker Todd Leake: Hello my name is Todd Leake; I live on a farm near Emerado, North Dakota in Grand Forks County. I'm also the state's chair of the Sierra Club for the North Dakota Chapter. My comments here are going to be restricted, not so much to radionuclides, but to the health department's ability to site landfills and to properly enforce Subtitle D of the EPA Part 40 regulations. In the Dalrymple administration, the North Dakota Department of Health has had state primacy on Part 40 Subtitle D which refers to the construction of landfills for quite some time, and it has a poor history of regulating landfills under Part 40. The North Dakota Health Department has no authority for siting landfills; that's left to the counties in North Dakota and townships in North Dakota.

I'd like to talk a little bit about an experience we had in Grand Forks County when the city of Grand Forks was trying to make an 800-acre solid waste municipal landfill and the inadequacy of the reaction of the department of health in guiding that process. In the end the Turtle River Township of Grand Forks County had to require the equivalent of an environmental impact statement under national governmental

policy act to get the answers they needed about siting the landfill in their township. The reaction of that was Grand Forks to haul them into court to prevent that, the state health department had no input into that whatsoever but to stand aside and say basically nothing.

And finally, the court forced the city of Grand Forks to conduct an environmental impact study and that was done by a company of their own choosing, which said that if they would have sited it on the site that they were proposing, that the weight of the landfill would have collapsed, the substrate underneath the leachate collection system would have been destroyed, the liner would have been ruined, and what would have ensued would have been an environmental catastrophe for the Red River. Yet the state health department stood by and did nothing in the waste department.

So basically what these are, these special waste sites, these special industrial waste sites and industrial waste landfills are independent cells that solid waste municipal landfills in various places that are being talked about for these radionuclides in western North Dakota. However, there's no reason that they can't go anywhere in the state of North Dakota. These liners fail whether they are plastic, geotextile or clay. They are not impermeable and they are designed to allow water to go through, along with anything they would alluviate.

Leachate collection systems fail on a regular basis, even when they're working they get the leachate collection going on, the leachate, there's class A, B and C depending on where it comes from inside the landfill, from on top of the landfill, or from the landfill site, those must be treated and there has been no explanation of anything so far about how the leachate containing radionuclides will be treated. Basically you've got a liquid radioactive material which you have to deal with. At these landfills, there's no training, no budget or protocols or oversight by the state department of health making sure that the protocols are put forth by both the Nuclear Regulatory Commission and by the EPA through the Resource Conservation Recovery Act are enforced.

To think that the North Dakota petroleum industry and its origins, have been disposing of these filter socks in old garages, in ditches and dumpsters behind Wal-Mart and other retail outlets is insulting. What's even more insulting is we do a study talking about our children in North Dakota finding and playing with radioactive filter socks. If the state department of health thinks that is an acceptable scenario, then I would say basically that we shouldn't have the state health department enforcing any federal regulations from the Nuclear Regulatory Agency or EPA, or anybody else for that matter.

One last thing to say about this is that if these rules are established, any of these types of landfills, what is the long-term prognosis? The long-term prognosis is that all things are constructed by man fail. And this is particularly true of landfills; out-of-sight, out-of-mind. And they are not regulated very well by health department and long after the health department is done, these will still be radioactive sites. In the meantime, they will fail, they will have leachate that will fail, the liners will fail and everything will move towards the Missouri River. So we have to look then at the federal responsibility, the Corps and every other jurisdiction along the Missouri River and down-stream states from this big, huge industrial waste dump that's become the Bakken. And that will be a problem for every down-stream state all the way to Louisiana and beyond.

So for the North Dakota Health Department to promulgate rules saying that we can just throw 50 picocuries per gram material, whatever it might be, even if they can tell what's going into these landfills, then as these landfills are established, these landfills are creating a long-term radioactive problem for the entire Missouri/Mississippi River system from now to time in memorial into the future (unclear words). That is my comment. Thanks. (END)

Speaker Mark Strand: My name is Mark Strand; I'm in the Masters in Public Health Program at NDSU. I have three comments; first I'd like to commend you, for this time around, for at least doing a semblance of a health impact assessment. Unlike the oil industry overall, I've seen when it was getting started, and I'm afraid the health department is largely acting very much in a reactive manner without a significant amount of consideration for the health impact of rural development on the people who live there. And that not only includes the physiological feature, but also the mental health issues that are as important as anything else. So I'd like to, although commending your attempts to do a better job this time, and I appreciate that, I'd like to ask you to continue to move forward by establishing more thorough and more valid baseline health information on the people who are affected by all aspects of the oil industry development so that we can be just and fair in the way in which we then monitor the potential impacts on their health over time.

Secondly, I'm somewhat skeptical that neighboring states will, if we were to raise our limits to 30 picocuries per gram. I'm skeptical that neighboring states would not necessarily match our higher level, and so to raise to 50 and I'd like to encourage, at a minimum, to have a secure agreement that our neighboring states will do the same so that North Dakota doesn't become the official and cheap radioactive waste dumping ground.

Third comment is that there is a reason that the oil barons themselves don't live in the oil patch (laughter). And the oil industry itself is a high-risk industry with a limited concern for the long-term impact of their development on the people who live there. So I would implore you to give soul and thorough consideration to the people of western North Dakota who have been frequently left out of the equation.

And then finally related to that is, rather than having sort of a generalized notion that any county or whatever has the right to apply to have a landfill to receive this waste, I'd like to encourage you to consider perhaps one or two or a very limited number of designated sites so that we can be assured that there is a sufficient amount of expertise and equipment necessary to manage it well for the thousands of years that it needs to be taken care of and so that might be a better way to manage it.

Finally, if a community is going to be considering such a waste site, what's the plan for community involvement? I'd like to make sure that although it seems there's a growing aristocracy, the state of North Dakota at one time was very much a folksy place where people could sit down and talk over coffee. But there's a growing aristocracy in the state of North Dakota, and many of them aren't even from North Dakota, who may or may not really care about what the community members think about living within even a mile or few miles of radioactive waste sites. So I'd like to implore you to give due consideration to all community members of affected regions. Thank you. (END)

Speaker Bette Steieglitz: My name is Bette Steieglitz; I live here in Fargo. I'm a graduate at NDSU and for the past 26 years I've been working with parents and young children. My specialty is child development and family science. And I'm asking you to please think about our future. Think about our future children. We have many families that are concerned about the pollution that's taking place in North Dakota; and I am as well.

I'm asking you to be thinking about the saltwater brine in the Little Muddy River that is now soon flowing into the Missouri River, and I'm asking the health department and industrial commission to do the right thing for the citizens of North Dakota on tracking radioactive waste and holding companies accountable before they invite more radioactive waste disposal into our state.

I'm asking for an extension of public comment period, I would like more meetings in towns throughout our state. Please protect public health and not industry profit. (END)

Speaker Bryce Heustis: Hello, my name is Bryce Heustis; I'm currently a student at NDSU and I'm here representing myself and no other affiliation or organization. I think that I, as a 21-year old, have you know one of the most unique perspectives on where the oil boom and where our health and longevity is going forward in the state of North Dakota. I remember growing up in high school or even in middle school, and everyone was talking about how you've got to stay in the state, and I realize that the only reason my teachers pounded that in my head, was because in reality, there wasn't much opportunity when I was growing up in middle or high school, and most of the students then were leaving the state, and that's why we saw a decrease in our population year over year. However, we are in a particular time where we have the fastest state growing population, and a lot is thanks to the energy industry and as a student who is going to be graduating from NDSU, I realize that I have the most interesting employment opportunities of a life time in the state of North Dakota at this time. That's why I'm in support of these improvement regulations as it makes more common sense and scientific approach to how we deal with radioactive material.

As I said I represent nobody but I think that if I were to represent somebody , it would be my age group and my demographic as people are looking to become employable in the next few years. It's an interesting time that I live in and my generation because I live in the digital age where anybody with a Facebook page has a political opinion and they will share it with you if they have that opinion. I can assure you that nearly thousand Facebook friends, you know none the young people are complaining about radioactivity in North Dakota and it's simply not an issue to young people, at least one that they vocally feel strong enough to share and my Facebook pages and friends are not necessarily a scientific representation of the state of North Dakota's population. However, I do see that zero, if any, people of my age group are demographically complained about the longevity of our state's health well being from the oil and gas industry, specifically when it comes to radioactivity.

As a college student, I mentioned that I'm going to school at NDSU and have some of my most popular meals that are from the microwave…the box radiation so you know we have to realize that everything we have in our household can be radioactive and produce radiation. You know we talk about granite counter tops and things of that nature, and it's all about taking a scientific approach to looking at it. For example, these filter socks which can be under 5 picograms or whatever the scientific representation is that we're talking about, but I think the important issues is that we have hard and concrete data to use from the previous speakers have a scientific background and have done extensive studies on this issue, and that's why I support this improvement regulation to use a more scientific approach to how we can live in this world or North Dakota economy that we have in an appropriate manner.

That's why, as a young person, I'm really looking forward to the longevity within the state of North Dakota. Not only in the health wellness and safety issues, because my father as a roofer, actually has worked in the Bakken and is able to make a great living working in the Bakken and that's something that has hit home to me because he is a high school dropout and for him to find employment in the Bakken, making upwards of 70 thousand dollars a year, is a very important issue to me. And it's not only a very important issue to me and my family, but also important to many other families who have seen the benefits of the oil and gas industry and have worked in it safely as well.

For that reason as a 21-year old, I really want this new department regulation move forward and that somebody who wants to see not only the health and well being, but also for the economy of the state of North Dakota move forward; I support these new regulations. (END)

Speaker Janessa Veach: Hello my name is Janessa Veach and I am a student at the University of North Dakota studying in environmental geo science as well as sustainable studies. First off I would like to say that not all of our generation is represented by one person. Being an American student in response to some of the previous statements, the fact that I was born an indentured servant to petroleum may be true,

but does that make it right or ethical? Being as radium 226 has a half life of 1600 years, not only is this issue for my generation but it will be an issue for several generations to come. So I don't understand why that would give anyone the right to make such a hasty, big decision. As I said I agree with the concept of precautionary principals, I'm wondering if there is in fact any scientific evidence that radioactivity in high concentrations is not detrimental to human health or to the environment.

My other concern is that when radium 226 decays and produces radon gas that cannot be smelled, tasted or seen, if you do plan on raising the limit, what devices have you in place to implement for the workers and public safety to test for the radon levels or do you plan on having every individual citizen having to provide their own?

Another concern that I have, because radium is highly soluble in water, I'm wondering how frequently, and how you plan on testing the nearby soil for contamination as well as nearby water sources and aquifers or if you plan on waiting for an incident to occur similar to other cases as is the norm. Thank you. (END)

Speaker Al Coen: My name is Al Coen and I'm a citizen from Fargo, North Dakota and I have no dog in the fight except that I'm concerned about the health of the people of North Dakota, especially those in western North Dakota. And in all due respect to a couple of the speakers, they give certain facts and so on how radiations is not going to affect us but you could almost use it as a pillow to sleep on if you wanted to at night (laughter). I just don't trust them. But I do trust you as the department of health and I think one of the things you have to be concerned about is your reputation. Because this is a serious thing and if you…I hate to use the word rollover…but if you just roll over and cave in, I think it would hurt your reputation seriously as the department of health and so I would hope you would give this consideration and be concerned…and I know you're concerned about the people of North Dakota and their health, but this is a specific issue that I wish you would reconsider and as many of the other people have stated, I would hope that you would lengthen out the period of time for testimony and so on so that more people have time to testify. Thank you. (END)

Speaker Lissa Yellow Bird-Chase: Good evening my name is Lissa Yellow Bird-Chase and I'm from Fargo here. I am also a member of the Three Affiliated Tribes on the Fort Berthold Reservation and I own land in the Mercer, Mountrail and McKenzie County. I haven't really spent much time on my own land or in the Mandaree area until three years ago. I started searching for a missing boy who was an oilfield worker. During that time that I started searching for this young man, I found out that there was a lot of people out west that were going missing. And so, me and my children started a pact with each other that we would go out and maybe cover and find some of these missing people. During the time that we were doing some of these searches especially in Mandaree, part of the land that I own is also in the Bearden area. I am sure you were aware that there was a large brine spill that has really affected the environment out there. The animals, the vegetation and presumably if not now soon enough the water. On some of the searches we have gone to, on one particular search, now I don't know any big scientific words and I don't know nanograms, I can tell you on this search, in the Mandaree area. Me and my son who is 14 years old at the time, we were out looking for basically a grave site. While we were doing this, we ran across a pile of we don't know what, but in order to make sure that we were checking everything. We started moving them around, later on after the search within a day or so, that evening my son started having breathing problems. He is already compromised with asthma and there was dust and what not in these filter socks that we found out they were later. Both of us ended up with a rash that ended up having to be treated with antibiotics. My son breathing, he had an asthma exacerbation that lasted almost 2 weeks and just about needed hospitalization. We didn't know until the interview on the person that was missing that the things we were moving around were actually socks that this guy, that were benign socks, that this guy was (words unclear) that were full with this non-threatening dust. So I can tell you that contrary to what anyone else is telling you, that me and my son were affected. We go out three to four

times a month out west from Fargo and we see these socks laying around, piled here and there. People dumping them wherever. This tells me that the Health Department already has a full plate so why would we want to add any other thing to that. There is so much contamination out west that people are being poisioned and they don't even know it. If we hadn't found out from the NY Times what we were being exposed to, we never would have found out. That's not fair to us. That's like taking our alienable rights that a human to enjoy our land, our (words unclear) that's taking our rights away. And it's the health department's responsibility to be following up, there is a mess out there. I don't know if you have ever been out there, but I have. We have been out in the trenches and maybe some of the health department people need to come out and go on a search with us because we spend a lot of time worrying about our own health, just from whats going on in the environment from the oil production, from the frac socks, from the contaminants, from the chemicals coming in by the train full. Basically what I am saying is with all that's going on in the oil industry and other things, they are not able to take care of the responsibilities that they have so why would we want them to assume anymore. (END)

Speaker: Stewart Herman: My name is Stewart Herman; I live in Fargo, have for about 25 years, I'm not a native of the area. I've been out west a little bit in western North Dakota for some cycling and I absolutely love it out there. I'm representing nobody here and the hour is late so I just want to make two short comments.

First of all it concerns the raising of the picocuries level, an earlier speaker raised the question whether that was not going to encourage dumpers from out-of-state, especially in South Dakota which has much a lower limit than what is being proposed. So if no interstate compacts are made, I would certainly suggest that North Dakota not allow, to simply impose a higher fee out out-of-state dumpers in order to let them to dump here. I don't like the idea of North Dakota becoming a kind of a national sacrifice ground, which is what would be the case if it was the cheapest cost dumping ground.

The second comment I want to make and will try to make this short also, is that several speakers have encouraged you to think about the long-term, given the half-life of the radionuclides in question. I teach in a liberal arts context and one of the things that we do is to try to encourage students to situate themselves by looking backwards and looking forward. And I would encourage the department of health, perhaps as kind of an exercise in strategic thinking, is to review the history of public health in North Dakota, I mean I know Fargoan's regularly got cholera 100 years ago because the river water was so bad. Things have gotten better in some respects; things have gotten worse in other respects. And I think it would make a very interesting, perhaps helpful, context for the department of health itself to engage in a kind of reflective exercise about where we came from, from a100 years ago, and what things are going to look like 100 years from now if given the kind of trends we have. So I would just recommend that as a kind of a staff exercise to help you all develop a sense of context for what you're proposing in terms of regulations. Thank you. (END)

Speaker Ed Gruchalla: Hello, my name is Ed Gruchalla; I live here in Fargo. I did not plan on testifying tonight but I came here just out of interest in the subject, but I'm a former legislator and I just want everybody to know that the health department is trying to do a good job. They have good people working there. But they have their limitations, they're state employees, they answer to the critical people in Bismarck and they're just doing their job; however, they have their limitations.

During a couple of the industry business and members committee meetings that I attended when I was on the committee when the oil business first started in 2007 of my first session, an issue came up where a couple members of the committee thought that there was an issue in Theodore Roosevelt National Park with air quality, and there were some air monitoring sites that were supposedly moved so that we would stay within the limits that EPA set. But a member's committee said what we really should be doing is having our own health department monitor the air quality in the state of North Dakota, and we should get

the federal government and EPA out of here. So after the hearing I was out in the hallway talking to some of the people from the health department that were there, and they said we don't have the training, we don't have the education, we don't have the equipment; there's no way in the world that we could ever take on this assignment without a lot of training and more people. That was one issue that came up.

Another one was when the drill sites were just starting, there were waste ponds that sit on the drill sites to capture the liquid that comes out of the ground. I think it was the first (or second) winter when these things were really taking off, there was a heavy snow that winter. Well, the people that were doing the drilling didn't know how to handle what happened so guess what, when the snow melted in the spring of the year, the holding ponds, many of them washed over, they got overfilled because of melting snow. Several of them washed into these contaminated fluids into the river and ravines out there. Some of them got into Lake Sakakawea. The Oil and Gas Division was notified and in fact Lynn Helm's started a committee on that, and we asked him why weren't these sites monitored and he said I have asked for more people. He only had like a handful of inspectors to go watch these sites and they were supposed to be periodically checked. And he said I just do not have the manpower to do it. He asked for more people that time and he got turned out because the evil word of "expanding state government" was brought up and boy, they killed that.

The next session, the governor's budget came in and I think he asked for 17 more inspectors. And after some of these catastrophes happened, boom, they were passed right through. So my point is this is a new issue for North Dakota just like fracking and how to deal with all these fracking fluids were during earlier times. And I think like several people here have said, we need more time, we need more expertise, and we need more concentration of what this really means for the long-term effects of North Dakota. Thank you. (END)

Speaker Rob Lindberg: (Mr. Lindberg provided a written copy, presented here, of his oral testimony):

Hello, my name is Rob Lindberg and I am the director of Bakken Backers, an advocacy group for the importance that the development of the Bakken brings to the state's other businesses and citizens.

This is my second night at these hearings and what is abundantly clear is the lack of scientific basis in most of the criticism of the new rules. The science behind the rules is established, clear and ensures that the public remains safe. What we hear from most critics ignores any practicality in developing safe practices for a necessary industry. The larger goal is not to find the safest practice, and is instead aimed at shutting down all activity.

Yet, we know modern society is primarily achieved by our ability to utilize natural resources, especially those in energy and farming. We can't avoid the use of these key resources without reducing our standard of living. Together over 100 years, they have bettered our quality of life, increased lifespan, and reduced poverty in our country and across the globe.

We know that modern life, and life in any time period - modern or prehistoric - involves levels of risk. Luckily, today's risks, including NORM, are greatly lessened by the our understanding of the world and, through that understanding, we know that the risks of the proposed limits are almost nonexistent to the public and negligible to workers with proper practices.

In fact, we understand that much of the risk discussed tonight around these materials is less than what we purposefully expose ourselves to on an airplane, throughout a day at the beach, or prolonging our lives with modern medicine.

So I commend the health department for proactively and purposefully studying the issue. The rules are not yet perfected, but they were developed by scientific study, not fear of scary words like radiation and affiliated propaganda or speculation. I hope you and the public stands committed to developing safe, practical rules through the scientific process that allow us to continue our small part within modern society and its advancement.

Rob Lindberg
Director, Bakken Backers (END)

Speaker Jeremy Wirtz: Good afternoon; my name is Jeremy Wirtz, I'm 20 years old and a sophomore at NDSU studying agriculture. I grew up on a farm in between Bismarck and Minot, and two summers ago we denied a waste dump that was proposed 2-1/2 miles from my house. So I have a couple of things to comment tonight.

First of all the study that was conducted, a quote from the power point, "This was not intended to be a comprehensive study of full range in variation of TENORM exposure." And the data that was given to you, it was not stated, or I may have misheard that it was not stated; where the samples came from, who gave them to people that conducted these scientific studies. We've talked about long-term risks tonight and one of the longest expansions of time mentioned in the study was 100 hours, there is 8,640 hours in one year and that's much higher than 1000 and relative to a life time. I don't even want to look at that number.

My next comment is on safety. I didn't see anything on post accident, no cleanup plan if something should wrong. I can only imagine if there was a leachate out of the pit for confinement that it would require deep excavation of soil. It's almost ridiculous to think about. And I want to reiterate the comments another gentleman made about risk downstream that we're currently dealing with from Montana, and that what this could do actually to states all the way down to Louisiana. Most of these are proposed in tributaries from the Missouri and Mississippi Rivers.

As far as oil development goes, my personal believe is incredibly fast. I've only been around contributing to society for the last 3 or 4 years publicly, and it seems that everything is so quick and going as fast as you can. And as a farmer, we mentioned earlier that this is a great time for people and I agree with that. There are a lot of my friends getting jobs back home that they would not have had otherwise, but I also look at other industries that are being cut off. We're waiting at my house, we've had to twice triple the amount of storage we have for grain because we can't get rail cars to haul the commodities out of the elevators fast enough.

So what I've seen just from sitting back and kind of watching and whatnot, that the administration today hasn't proved that it's able to handle the regulations that it has in place already and I don't see a reason why we should increase them and see what happens after that because others said there's no qualifications for safety or anything so are we just going to do it on the fly?

My last comment is about local control, that we denied it and we rally together as a county and we denied the waste dump that we did not want and that was at a much lower level than 50. As a county we decided that we did not want it where we lived and we feel as a group that was against it that you're just going around what we've decided and that we've already shut this down in our area and we just do it. We were just pushed off to the side like we don't know anything of what's going on in our area and I don't think that's right.

I also agree with the longer time that's been asked for tonight and also want to say that I don't feel anything that's been asked for is unreasonable at all but absolutely necessary. Thank you. (END)

Speaker Lynn Wolff: My name is Lynn Wolff; I live in Fargo, North Dakota, I'm a member of the Dakota Resource Council. Kind of out-of-character for me, I used to be the fellow on the background that helped our members speak and gave them the confidence to get up and talk to folks like you.

But tonight I've got a number of things to talk about but have already been spoken on, which is taking more time, giving us more time to speak and to study the paper work that you've produced for us folks who don't understand so that we can have a better report back to you and comment properly. The thing that I have that I want to hand to you is actually some work that the Dakota Resource Council did having to do with other states and their radioactive waste they have. I think it's a little more comprehensive than what I saw in the plan that you have put forward. I'm going to hand it to you and we also have other copies for other folks here if they'd like a copy (copy attached at end of Mr. Wolff's testimony).

Again, landfill issues are important to me like Todd Leake said earlier. I didn't grow a lot of confidence in the health department in managing landfills in Turtle River Township, as I worked with that group up in Grand Forks called the Grand Forks Citizens' Coalition, or GFC3. But I think again we need more time and we need more personnel because this is an important job that you're doing; it's the health of the state of North Dakota. And as I work with members in your department, it's very important that they could get their work done but they were always short of time and the ability to cover the bases that they needed to cover. So if you need some help to get the governor to give you more money, let us know and we'll help you get that done too; plus the personnel you need to get the job done. (END) Handout follows:

Dakota Resource Council — watchdogs of the prairie

Radioactive Limits in Other States

STATE RADIOACTIVE DISPOSAL LIMITS FOR RADIUM 226
(measured in picocuries by gram)

What the ND Department of Health says are minimal limits in other states:	In reality, here are the limits in other states:
Utah: 10,000 pC/g	*10,000 pC/g is only allowed in ONE State-licensed Class A low-level radioactive waste disposal facility; Radium may NOT be disposed in other landfills.*
Washington: 10,000 pC/g	*10,000 pC/g is only allowed in ONE State-licensed Class A low-level radioactive waste disposal facility; Radium may NOT be disposed in other landfills.*
Colorado: 2,000 pC/g	*The number is actually 220 pC/g in ONE State-licensed RCRA Subtitle C landfill. Radium may ONLY be disposed in other landfills with a specific safety assessment.*
California: 1,800 pC/g	*The number is actually 180 pC/g in TWO RCRA State-licensed landfills. Radium may not be disposed in other landfills.*
Idaho: 1,500 pC/g	*In ONE State-Permitted RCRA Subtitle C landfill. Radium may NOT be disposed in other landfills. +*
Illinois: 200 pC/g	
Michigan: 50 pC/g	
Wyoming: 50 pC/g	
Minnesota: 30 pC/g	
Texas: 30 pC/g	*ONLY with specific analytical and case-by-case State review and concurrence the material is Exempt.*
New Mexico: 30 pC/g	
Mississippi: 30 pC/g	
Louisiana: 30 pC/g	

"There is no safe level of exposure and there is no dose of radiation so low that the risk of a malignancy is zero"--Dr. Karl Z. Morgan, dubbed the father of Health Physics.

Speaker Carlie Hughes: My name is Carlie; I actually wasn't going to say anything but I'm self inclined to. I represent the Council on Environmental Sustainability at UND, and there are lots of students at UND are concerned about the environment. In response to the previous comments from the gentlemen from Fargo, job creation isn't everything and ultimately human health trumps the importance of job creation. You can't work if you are sick, so I don't think that should be our main focus especially, you two are going to take over their jobs for us.

In response to the public health department being under a higher level of control, just doing a job isn't guaranteed to be in an ethical position even though it's challenging. To do the right thing sometimes, I am going to bring up Nazis, it's an extreme example, but in comparison it makes sense. During the Nazi trials, specifically, Eichmann … ah, he claimed that he bore no responsibility because he was simply doing his job. He not only obeyed orders, he also obeyed the law. This revealed that humans are capable of committing horrifying and harmful acts on other people and taking absolutely no personal responsibility because they are caught up in the machine, and they're just doing their job.

I ask the public health department to take full personal responsibility for their decision and to do the right thing for the public and that's all. (END)

Speaker Maxine Buffalo: Hello, my name is Maxine Buffalo; I'm from Fort Berthold. I'm an elder of the community and I oppose this issue. I live in Mandaree where they have the highest oil traffic; this has to do with our safety, our well being. We are concerned and we need more time, we're asking for that time. I think you should consider that and there are a lot of issues that everybody's voicing. I don't have a prepared speech, I don't have anything. I'm here because I'm concerned because I have grandchildren and nieces and nephews that live in this area and I think that you people need to look at all the concerns of everyone, because we live on that land. That's our land. So you need to consider. We need time to go through this with our tribe. All this oil stuff is new to a lot of our area, and it just came up and there's a lot of problems that are a concern and came out of this. So we need to be heard, that's why I'm here, I'm a elder, a grandmother, a community member, I'm a U. S. citizen, so I want to be heard and I want something to change for everyone, not just us on the reservation, the whole state for the state to consider. Thank you. (END)

Speaker Ruth Buffalo: Good evening, my name is Ruth Buffalo. I am also from Mandaree, North Dakota. That's my mother that spoke. I'm also a public health student studying here at NDSU, so we look at the different impacts that the oil has on our health of the individual, the families and communities and future generations to come. I'm also an enrolled member of the Mandan Hidatsa and Arikara Tribe, a citizen of the MHA nation. I'm here to also say I oppose the new proposal that is from the governor, I understand, and also asking for an extension of the public comments. One thing that comes to mind also is all the current disposal sites are located in western North Dakota, but yet these public comment hearings are held outside of the Bakken area.

This is kind of hard to understand, I apologize for getting here late and not being able to hear the informational sessions because I just came from class. So that's a concern too, so it would be appropriate I feel to offer an extension for the public comment period. I also feel that we have the opportunity as the other lady mentioned from UND, to do the right thing. Like you know everybody is watching the oil industry in North Dakota…across the world and the decision you make today of course are going to affect our future generations. Like my mother said, always thinking generations ahead because my mother lives this thing day in and day out, living in Mandaree where people have to plan their daily life around the truck schedules because it's so dangerous. There are so many fatalities around that area. But we hope you do the right thing, the extension would be great if we could get an extension to get public comment from everybody in the Western side of the state so that we can have the chance to voice their concerns.

I think we have a grand opportunity to do the right thing because you're going to be known forever for these decisions that you will make that will impact our future generations. Thank you. (END)

Speaker Jane Owen: Good evening, my name is Jane Owen. I live in Grand Forks, I'm not from here, I'm from Oconomowoc, Wisconsin. We had a large dispute on energy with the pipeline coming through, where my father lives next door in Ashippun, Wisconsin.

I got sent here by Uncle Sam. My claim to this is I worked on the nuclear missiles. I got exposed to more radioactivity than probably the rest of the room combined. And I'm still holding it. This needs to stop now at 5 picocuries, or even bring it down; do not raise it.

First of all, I'd like to take an article from the Bismarck Tribune to read the (words unclear) on radioactive bill. You've done got fooled already by the House Government (words unclear) Committee that you could not bypass state regulations. Where are you taking the liberties? This is not your right. We need to work with the state and the people. And like you just got told, you need to work with the people in the oilfield, you need to hold hearings in more places, and you need to get more research.

I'm going to refer back to Mr. Lindberg, if you were here earlier in this session, you were told or you should have been told by your constituents, all the people who did not get to speak the other night, get to speak first. You're disrespecting the rest of us in the room because this is would be your second time speaking.

In regard to Lissa Yellow Bird-Chase, her New York Times article, she stated…I have it here, that she didn't find out what she was dealing with until the New York Times reported. If you want the article, I will be happy to send it to you; it's December 28, as the title aptly states "In North Dakota, a Tale of Oil, Corruption and Death" we can go from there.

In regards to fracking, I'm not against energy development, we all use a little bit every day, however, you've got another New York Times article and they are not the only source of news. I refer to a lot of sources. Citing health risks, (words unclear) bans oil fracking from New York state….you need to be much more careful with what you're doing.

Moving on, a Grand Forks Herald article, Saturday January 10th, if you think you have enough to do this job?", page 5, "North Dakota workplace deaths examined in TV report. An employee North Dakota oil worker tells one of the reporters he spent as many as 69 hours straight on the job site. You're given statistics based on a 40-hour work week. He spent 69 straight hours on one job. That increases your exposure exponentially. OSHA, Occupational Safety & Health Administration, does not regulate how many hours employees work out there, as well as OSHA has only nine full-time compliance officers assigned to the Bismarck area office. Some estimates say it would take decades for OSHA to inspect every workplace in North Dakota. That doesn't even cover the dumping sites.

OSHA fines the oil companies with safety violations are also not substantial enough to be punitive. First of all, you people don't even have any idea of how many filter socks have brought, existing, how much they're filled with , where have they been placed, in what form, how much radioactivity to they have right now? How in the world can you look forward? You're being reactive, you haven't been proactive in taking care of this in the last two years. This is not new, it's been going on for 6, 7, 8, 9 ten years. It's not a new issue, it's not that time. Step up to the plate.

For us average citizens, it feels like we're guilty until we're proven innocent. We have to state our name, our address, where were the ones that live close to where all this effects? Are close are you people here in Fargo to where this oil pipeline is going through, or these dump waste sites? No where near. I have

somebody who has lived in Grand Forks since '95, and they're talking about bringing the pipeline right through the Red River. We already have nuclear sites out there, supposedly no longer with nuclear missiles. We already have a Superfund site in Grand Forks. Come and live with us…walk the walk for just a little while. Not just talk the talk.

I got to testify a year ago in February at the Public Service Commission meeting at UND. And I stated, it's not when, it's not if there's a matter of an accident or a spill, it's how soon. We're already there. Look at Glendive…what are you people doing? Where are you? How much of it becomes Montana versus North Dakota public health. When it crosses the Red River, how much is going to be North Dakota's responsibility or Minnesota's responsibility. And how are you going to collaborate. There's been no talk of that.

In regards to the Glendive cleanup, why is ice tampering it? Apparently they didn't put the factor in that we have six months winter up here…what is your plan to take care of wintertime, or when blizzard (word unclear) hits and everything shuts down and you can't get in there to even approach it. When it comes to radioactivity leaking, when there's no travel, you can't get over there to deal with it and it's going to spread with the wind.

Also being an Air Force veteran, and being on the nuclear missile sites, this is how serious to radioactivity is. Anybody who works in the nuclear missile category, you didn't have to be on top a nuclear missile like I was. I was stationed on top of a nuclear missile for 12 to 15 hours a day, 3, 4, 5 days straight directly on top of it; sometimes in it. If you were a cook out on the missile field in the houses where we stayed, or if you were a launch control officer, which the officers two stories underground, with the keys and codes, should it ever come to a launch, if the woman got pregnant, they were immediately pulled out their assignment to go back to the base for a different duty. What does that tell you when the federal government leads you off the nuclear missiles from radioactivity exposure. If you were pilot, they could still fly if they were still pregnant up in the air on most missions with combat…no issues. And it's not like they're gonna land a military jet at the next little tiny airport that they find. But as soon as one is next to radioactivity, women get yanked out right away.

This is much more serious than you have any idea. Most of you probably don't even realize, I got to live abroad for three years before I went into the military. Russia, the Republic of Russia, which most people don't even think of this first-world country, banned microwave ovens. You can't have them in your homes in the country at all. Because this is radiation because you're absorbing in your food that you directly eat. This needs to be much more controlled.

Do we fly private drones over the drill sites and watch how much you are monitoring, and how much Continental is monitoring, or the Norweigan companies or anybody else out there? What if it comes to the article in the paper this week about needing a warrant to be able to use drones in the information you gather from there. What's the citizen rights? What's the public health department rights? Where are we going with this?

Another thought in the good old days when I was a little kid in the 60's and 70's, if you wanted to use a resource for example, 24-case bottle of beer, you paid a 10 cent deposit on every glass bottle. When you brought it back you got $2.40 back for 24 glass bottles. Ten cents a bottle. You use your resources, you don't break anything, you don't dump it anywhere. How about you guys? Do you try to put a deposit on a fracking cap? So that you know where it goes and need to bring it back and you know how much is in it? You can't even control what you've got now.

What about the (unclear words)? Once they're radioactive in a fracking (words unclear), where they already radioactive in the fracking (words unclear)? What's the range of picocuries? What's moderate?

What's acceptable? What's the lowest you've seen? What's the highest you've seen? Are you going to track it and once you track it, is it public knowledge and how do access it? Can we come to Fargo and look at the records? Do we have to go on line? Can we submit a FOIA, Freedom of Information Act, request? How are we the citizens, living and breathing and working with this every day are going to access this information?

My analogy is you got the random kid coming over for dinner, lets say you got a big family, 3, 4 or 5 kids, they invite a friend over. All of a sudden you got random kids coming over (words unclear). Well, in North Dakota we're kinda having steak and veggies, we've got it pretty good here. We weren't hurting for jobs before the oil development came; we're not hurting for jobs now. This kid's got no manners, doesn't converse at dinner, doesn't follow the family guidelines on how to behave. Gets up from dinner, doesn't push his chair in, leaves the table with food all over, doesn't eat it, doesn't like it. Where's the consequences, where's the repercussions, where's the accountability, where's the responsibility. I don't see any of it happening here.

One prior comment here is we don't want to become the nation's dumping ground, we already have. We had 150 nuclear missiles at Grand Forks, we have 150 live missiles at Minot. The ad in the radioactivity from the fracking socks; we're already the dumping ground of the country for nuclear waste. That's all I have right now. Thank you for listening. (END)

Speaker Nicole Donaghy: Good evening, my name is Nicole Donaghy? And I'm Native-born resident of North Dakota. I grew up in Fort Yates, North Dakota. I'm also a staff person at the North Dakota Resource Council, but that's not why I'm here. I'm here as a mom, a relative and a friend to the people in western North Dakota. I have family members out in North Dakota and I feel that it's great injustice to my children should I not say anything about this topic.

Like I said I have family and friends that live in western North Dakota and many of them cannot be here tonight because of the short notice of the hearings, and the great distances that they have to travel to some of these hearings, such as the ones in Bismarck and here in Fargo. How fair is that? How fair is that we don't have the fair representation of the people that are actually impacted, the people that are actually living out in western North Dakota that are breathing in the fumes from the flares. The people that are going to be subjected to all of this stuff that you guys are pulling out of the ground and calling safe enough to have our children play with.

You know, many people don't need a scientific background to understand that radioactivity material causes cancer, and deliberately increasing our exposure, I feel, is an egregious act against us and our generations. Last night there was a comment that we as concerned North Dakotans are conspiracy theorists. I'm sorry but when you've been slapped in the face so many times by regulators that are supposed to have your best interest in mind, you get a little bit untrusting.

We keep hearing that we are exposed to radiation from bananas, walnuts, granite counter tops, or even TENORM that is labeled as something as innocuous as NORM, it does not mean that we should expose ourselves to additional radiation when it's high levels such as the stuff that comes up well pads.

I believe the Argonne Study is flawed and based on hypothetical scenarios that are not represented to all scenarios as represented as stated. It's ridiculous to deem that any exposure to radioactive material is considered safe. So I am against raising the level if there's not information on the health effects of what is already going on in western North Dakota. I ask that you leave the levels as they are and our administration does not even regulate at the 5 picocurie level. I also ask, just as others did, to have more

meetings out in western North Dakota. I ask that we go out there and spend time with the people that are actually living out there and that are exposed to this stuff day in and day out.

Dave Glatt was quoted in the papers today saying about the spill up at northwestern North Dakota, that this is not what we wanted to happen in North Dakota. Well, this is not what I ever wanted to happen in North Dakota. So I'm concerned as a mother and as a citizen of North Dakota. I just hope that you take everybody that you represent into account when you make that decision. That's the end of my testimony. Thank you. (END)

Speaker Ron Jaeger: My name is Ron Jaeger; I live in Fargo and I'd just like to make a few comments. Some of these things have been touched on before, but I'm going over some again. One question that's come up in the past is how much of this kind of waste is generated every day. We heard from varying 10 to 75 tons a day, we've heard 200 tons a day from an industry person; that's a lot of stuff. One thing with this regulation, it says that each landfill cannot exceed 25 thousand tons per year. That doesn't take long at those rates to hit some of these limits. It continues there's a monthly limit of how much can go into one, but it also gives you a grants of wavier right in there. As a former military person I always look for a loopholes in the regulations because you get in trouble if you violate a regulation, unless you get some lady who'll wiggle your way out of it. So the limit per month on each one of these sites is 3000 tons, unless larger amounts in one month resulting from special cleanup projects are preapproved by the department. So there's a loophole right there, they come ask you and they say yea, and then they can do whatever they want. I don't see any limit on that.

Also, when this stuff is brought to a landfill, the limit is supposed to be 50 picocuries per gram, however, if you bring in a bunch of containers full of bad stuff, and you got some that are really rated up there, you just add a few more low content containers, because you get to average it and so who knows how much is going to end up in there. Another nice convenient loophole that's going to hold a lot of stuff, and you can come up with the right quantities to make your averages.

The other thing that the regulation doesn't do, these sites that you put out, California has two high-level sites and actually the number should be 180, not 1800. They have two sites that will accept that product, Colorado has one, Idaho has one, Utah has one, Washington has one, and other sites are not allowed to accept radium or they have to be done on a case-by-case basis by being specifically evaluated. According to what I see here, there is no limit. You just make one choice/landfill. As was eluded to earlier, if other states get this stuff, they just come here. They can build a landfill here; they'll get permitted. Why do we care in Fargo? Well we already live in the highest radon gas part in North Dakota. There are probably very few houses in North Dakota that would fall below the recommended level of 4 picocuries per gram of radiation. Whereas, anything above that it's recommended that you do some kind of mitigation to deal with it because it was one of the industry spokesman said, "This stuff won't hurt you unless you inhale or ingest it." People living in Fargo are probably inhaling it every day, so we're adding to it.

Also, people have talked about water sources, people in the west may be unaware, but water is a big issue here in the east and we already drink water out of the Red River, we take water out of Sheyenne just for the Fargo municipal system. And a lot of people don't realize we drink that Sheyenne water, when you guys backed off on the standards so that when the Devils Lake water was being dumped that gave us a problem to deal with here.

The other thing we've been actually been working on for a number of years, is bringing water from the Missouri. And that is still ongoing and it will happen in just a matter of time. So if there is contamination out there, we'll be getting it here also. Another reason for people in Fargo to pay attention.

Another thing that people may not realize is that federal guidelines require that if we have a place capable of taking this product, we have to take it regardless where it's from, doesn't matter what state. So we could become a real dumping ground. Thank you. (END)

Speaker Jay Almlie: Mr. Radig, thanks again for offering the opportunity to comment tonight. I was in Williston and Bismarck. I've listened to the dialog that's been ongoing with great interest and tonight, well first all I did submit to you already my detailed comments on the particulars of measurement science involved in the 50 picocuries per gram limit, so you can consider those.

Tonight my comments will be limited to two or three comments, hopefully in the vein of adding some clarity to the discussion tonight. I should start, my name is Jay Almlie; I'm a senior research manager at the Energy and Environmental Research Center (EERC) in Grand Forks, North Dakota. Prior to working at the EERC, I worked at NASA Johnson Space Center, at both NASA and EERC I've had the good benefit of, a blessing really, of being paid to study this stuff for 20 years it's been a part of my job. So with that in mind, I will make these comments.

First of all, I want to say for the record, that I'm pretty proud of us North Dakotans. The imputents for the movement from 5 to 50 picocuries per gram is a threshold for the limit really came from DNA. It's buried in our DNA that we want to handle our problems ourselves not to sluff them off on some other states. So I'm pretty proud of that and I want to state that for the record. I also want to say that I applaud the pathway taken by the department of health.

I'm here to testify loudly and clearly that the department of health, did in fact, follow a science route in coming up with these proposed regulations. I think it's really difficult to impune Argonne National Laboratory; they are world recognized experts in this area. I have studied it in depth, the study was not flawed, the study was thorough. I want to add that in a sense that it contributes to my notion that the department of health has followed a patch of science; not emotion. Thank you for that.

My next point is I've heard it said numerous times over the past three days that there is no safe limit of radiation. And I also wish to state clearly that it's not true. The 100 millirems per year threshold that was used in the ANL study, in your own regulations and then several other studies, I could make a stack this high of studies, that number is actually woven through the radiation protection language from several, several, different agencies here and abroad. I'll list just a few:

The International Committee on Radiation Protection
The National Committee on Radiation Protection
The Nuclear Regulatory Commission
The Environmental Protection Agency
The International Atomic Energy Agency

All of these use that same number or variation thereof in their language in the effort to protect the public from radiation. So stating that there's no safe limit runs in conflict with what all those agencies say.

And finally, just to draw this fairly short, I would like to say sort of anecdotally is that if I were concerned about 50 picocuries, or 5 picocuries, or 3 picocuries per gram, any of those, I wouldn't be standing here. As I walked up the stairway outside here, I noticed this was largely a cement structure. Roughly, that level is in cement as I noticed the walls, that are sheetrocked. Roughly that level is in sheetrock. I point that to minimize the concern of radiation. It needs to be handled carefully, appropriately, responsibility and with a science base. But my point is also to put this in context that radiation is all around us. And if that wasn't conveyed in the numerous presentations and testimonies to make, I don't know how else to convey it. Thank you for your time. (END)

Speaker Laura Erickson: Hi, my name is Laura Erickson with Plains Energy Technical Resources in Williston, North Dakota. I've testified the last two nights and the first night gave my full summary of line-by-line going through the rules what I thought were, I gave suggestions to make, both rule sets stronger. As I've been listening the last couple evenings, we've had a number or quite a representation from the Fort Berthold Indian Reservation and various other tribal members. And one thing I think that needs to be clarified in your communications with this rulemaking is whether these rules apply to tribal areas, or would that have to go through EPA. I'm not aware right now, even though there is some testimony to the fact of occurrence of birth defects and other things on the reservation. But I'm not aware of any special waste landfills or industrial waste landfills that are permitted by the North Dakota Department of Health that currently are located within reservation boundaries. I might be wrong but I've done a decent review of various locations and I am in the regulatory business, I handle a lot of the permitting for various companies out in the western part of the state and so we work very closely not only with state agencies, the NDIC, the health department, I have on occasion made phone calls and worked with some of the tribal authorities, mainly on the environmental side and I do have to say tribal authorities, especially on the environmental side of things, have their own challenges that they're facing right now. And I'm not so sure that they're well equipped to handle this type of activity within the boundaries of the reservation.

On numerous occasions for other projects, I've attempted to call the environmental divisions within the energy department, the MHA, and don't receive phone calls back. I'm told people are out and not sure when they'll return. I do know that any spills happen within the boundaries of the reservation are referred to by your (NDDH) staff back to the tribal authorities and the control of reclamation of those incidents.

I do also want to make mention of the fact that a lot of the filter sock incidents that we have heard about in the paper have been the result of a lot of the service companies that jump in and you know were roustabout companies that were willing to take waste away from a lot of these locations. And the problem with not having the rules set in place where there had to be manifests and cradle to grave tracking, which these rules will put in place is that some of those companies would take that waste and take that money and they'd dump waste in the middle of fields or down a ravine, or on tribal lands, or store it somebody's barn; and those are concerns that have been appropriately raised, but I do believe that these rules will fix. Since the rule that went into effect June 1st of last year that all flowback, or flowback sites, and saltwater disposal facilities have to have containment for those filter socks. It's my understanding there have been no reported, additional reported, cases of filter socks randomly disposed.

And I do know that Secure Energy Services for one, possibly other waste management companies, who are tapped to your waste management companies that have been very active and are highly regarded by Canadian environmental authorities, they will take filter socks that are found randomly on the side of the road and that's something that I don't think very many citizens know that if they find something, they can call an emergency services person and that waste can be properly placed in a bin where it needs to be.

So those are all comments I wanted to make and I really do think there needs to be some clarification as to who has jurisdiction if and when a facility is proposed on tribal land. Thank you. (END)

Speaker Jeremy Wirtz: I just wanted to say thanks for having these hearings on behalf of the people that are concerned about what is going on our state. Thank you. (END)

Speaker Dean Hulse: This is Dean Hulse again from Fargo; I want to make one more comment about this statement that you made that we take care of our own messes. There's a law in North Dakota books, Century Code 49-02-23 that deals with environmental externalities: "It is against the law in North Dakota for the public service commission to consider the future cost of carbon dioxide emissions when siting

coal-fired power plants." North Dakota doesn't want to take care of us (unclear words) facilities. They want to ignore it and they codified it in law. (END)

Speaker Scott Radig: Is there anybody else that would like to provide additional comments. Okay, now it is now 9:22 p.m., if no one else present or would like to provide comment, this hearing will be closed. The record will be open for written comments, which are postmarked on or before February 6, 2015. If you need the address, please contact us. Thank you very much. (END)

End of Fargo Public Hearing Testimony 01/22/2015.