

2015 HOUSE GOVERNMENT AND VETERANS AFFAIRS

HB 1113

2015 HOUSE STANDING COMMITTEE MINUTES

Government and Veterans Affairs Committee
Fort Union, State Capitol

HB 1113
1/16/2015
22072

- Subcommittee
 Conference Committee

Committee Clerk Signature

Carmen Hart

Explanation or reason for introduction of bill/resolution:

Relating to custody of land used for disposal of radioactive material

Minutes:

Attachments #1-5

Chairman Kasper opened the hearing on HB 1113.

David Glatt, Section Chief of the Environmental Health Section for the ND Department of Health, appeared in support and presented Attachment 1. (:14-6:21)

Rep. B. Koppelman You talked about the civil penalty being increased from \$10,000 to \$12,500. You say it is consistent with other policies. What was the reason for the increase in other areas? Where do the civil penalties go?

David Glatt, In the previous session, we had increased that to \$12,500 from I think, \$5,000. We looked at what other states were charging. We were finding out that the state of North Dakota was very low, and so we adjusted that to be consistent with where other states were at. Also other state agencies like the Water Commission were significantly higher. Penalties go to the general fund.

Rep. Mooney Drill it down and summarize what this is intending to do.

David Glatt When we looked at other statute that references the radiation program and how you go through an appeal process, it wasn't included in the statute that has all our other environmental programs. There is an appeal process if we reject the permit, modify it, or give them a permit.

Rep. Mooney The permit is for what?

David Glatt The permit can be for a lot of things. Primarily what we look at is, in our other programs like the waste program, it is the landfill permit. In this particular case, it could be a recycler that stores some material at their facility that could be considered TENORM. We are proposing to develop a process to allow public to have comment to that. Also, it would allow them to appeal it.

Rep. Mooney Then would allow for the storage of that end product to remain here in North Dakota?

David Glatt There are a lot of different types of permits. Depending upon the permit, there would be a process by which they would have public input and being able to challenge it based on the appeal.

Rep. Mooney What does the rest do?

David Glatt Some of it is housekeeping. Where it would be now is any place that would accept TENORM and would be required, once they are closed, to turn that title over to the US government or to the state. What we are saying is that is not appropriate for TENORM. That is not regulated by the federal government. We would treat it like we would our other solid waste management facilities--that if you accept it, following the law, you maintain ownership. The big one deals with the public hearing process. As it is stated now, we would have to go through an adjudicated hearing which is court reporter, transcripts, all those type of things. Because of the wide range of permits and licenses that we give, that is not appropriate in every case. We want to differentiate between just the day by day, following the law, can I get a license to move waste versus I want to store waste.

Rep. Mooney Would TENORM fall under that category of public hearing?

David Glatt It would. If you are a trucker and saying you want a license to move it from Point A to Point B, we have very prescriptive requirements to what it takes to do and you could apply for the license and get that. If you are a recycler and you want to temporarily store waste at a facility, that would be a lot more involved permit that would require more of a public input in the comment process.

Rep. Schneider I appreciate that you increase the fines in this area, and those would be determined by an administrative law judge or by the department?

David Glatt By department initially. It is stated up to \$12,500 per day. We take into consideration severity of the violation. If an accident happens, we would take a look at the ration of the event, responsive in the cleanup, cooperative, those type of things and then we come up with a penalty, and then we negotiate that. We collect the vast majority of the penalty that comes up after our calculation. If the individual does not appreciate that penalty, they can go in front of an administrative law judge and plea their case and the penalty would be established then.

Rep. Schneider I know there have been issues in other areas with the department's willingness to negotiate downward the penalty. Is there anything that prevents that in this case or do you have the same discretion you have in other areas?

David Glatt There is some discretion. We have a form, a process that is consistent in every case.

Rep. Schneider Are their best practices that have been established for TENORM and have we adopted those?

David Glatt There are best practices for handling all types of waste and TENORM.

Rep. Wallman How do we compare as a state in terms of this policy change with other states that use land for the disposal of radioactive material in terms of our threshold and our penalty?

David Glatt When we first started this process of taking a look at not only tracking the waste but also looking at our standard, we started to look nationwide. What we found is that there were numbers up to over 1,000, in some cases, 10,000 picocuries per gram. Some states had none. We had five. Some had 50. We felt we had to go out and get our science and look at it. We developed some science looking at Argonne National Laboratory to do that for us. We felt we needed to get standards specific to North Dakota that relate to our environment, to our infrastructure as it relates to the waste management facilities and do what is appropriate for us.

Rep. Wallman Is this change in regulations likely to encourage other states to bring their waste to North Dakota?

David Glatt We are sending our waste to other states now. Montana as it relates to the TENORM requirement has a level of 30, so our waste is going to them. We want a level playing field. We are not going to tell Montana or Wyoming what to do. We would love it if they were the same number as us so there isn't that desire or that incentive to move it one way or another. You take it to the closest place you can to dispose of it and the standards are consistent.

Rep. Schneider In cases where that title now will not be transferred to the United States, what happens if that owner is bankrupt? Is there some protection that will prevent the state from then having to clean up that waste?

David Glatt After closure they are required to monitor and have bond available for 30 years.

Rep. Mooney Through the public hearing process if TENORM is to be held here in the state, the public at large then would have an opportunity to weigh in. Is that correct?

David Glatt Correct. The way the rules are being proposed is that only special waste landfills that are designed to a higher standard would be allowed to petition to the department to change their permit to accept a certain amount of waste up to a certain level. That would go through a public comment process.

Rep. Mooney You mentioned following the science. Is it possible to get a copy of what that looks like?

David Glatt Yes, you can get that from our web page.

Rep. Seibel The part I am struggling with is the deletion of 23.20.1-04.03 and replacing them with rules developed by the department. Do we know what those rules are?

David Glatt To be consistent with existing state law that basically spells out the public review and public comment process.

Rep. Seibel I would personally like to see that then replaced in this statute rather than striking the entire section and being told it is going to be replaced with _

David Glatt The intent there was by referencing some other chapters in state law that identify the proper process, if we can clarify that and make that better, that might be better than going instead of saying what is already said in state law. We will take a look at that.

Chairman Kasper I have learned over the years, when we are changing statute, it is nice to put what we are changing to in the statute as opposed to giving the power of the entity to make their own rules. Why didn't you give us the proposed rules?

David Glatt I don't have a problem. This wasn't an issue six years ago, but now with the change and the amount of waste being generated in the oil patch it has changed. The amount of people that want to recycle has changed, so we need to take a close look at what is an appropriate process.

Chairman Kasper How long have you been working on and considering the changes that are being proposed by this bill and addressing the radioactive problem out in western North Dakota?

David Glatt A few months, and to come out with something to clarify all that, I think we could do that. I would be afraid we might miss something.

Chairman Kasper I would like to see a proposed amendment whereby you would put back into statute specific items that you think would be appropriate to what you need to do and put some language in there that would allow for a rule making process in addition to what you put back in here if something is missed. On a scale of 1 to 100, how far along are you on the vetting process for your comfort level?

David Glatt About 50. What I am hearing is you want boundaries--establish those boundaries clearly in law, allow some flexibility within those boundaries so that you know that we will stay in the box, but as we get into developing the minutia of everything the department may be able to do that rule, but we need to define the box better.

Chairman Kasper You said it very well. I hate to have the industry subject to hanging out there and not knowing what is going to happen.

David Glatt It is also making sure the public has ample opportunity to provide input and comment.

Rep. Wallman Have you established where the public hearings will be and what parts of the state?

David Glatt We are required to have one hearing. We are having three hearings--Williston, next week on Tuesday; Bismarck, Wednesday; and in Fargo, Thursday.

Opposition

Jack McDonald, ND Newspaper Association and ND Broadcasters Association, appeared in opposition. You have taken what is required in state law and instead changed that standard to as appropriate. I would speak in favor of the provisions that the chairman outlined earlier in that if there is a problem with small permit holders or small proceedings, then maybe you should set out the rules. We are not against the entire bill. We would prefer more public hearings than less public hearings.

Don Morrison, Dakota Resource Council, appeared in opposition. We would like to support what Chairman Kasper said about making sure we have in state law, the guarantees that will make sure our current statues on protection of the public, the health and safety of the public and make sure that the statues that guarantee the open process, open meetings, open records. The chairman said it correctly.

Lynn Helms, Director of Department of Mineral Resources under the ND Industrial Commission, appeared to give some information.

Chairman Kasper The radioactive problem we have been reading about in the oil patch where the socks are left around, is that 60 level harmful?

Lynn Helms I am going to defer some of that to the Argonne Study which you are supposed to receive a copy of. The one I am most familiar with is the Noonan filter sock incident. The radiation level in the gas station, where the large accumulation of abandoned filter socks were located, was approximately 25 picocuries per gram which is the equivalent of coffee grounds or a granite countertop. Just general being near that is not of particular danger. The type of radiation we are dealing with, radium 226 and radium 228, you have to be very careful not to ingest it. If you breathe it in or swallow it, then it actually travels through your system and lodges in your bone marrow and stays there and continues to emit radiation for an extended period of time.

Chairman Kasper Does each one of those wells have some type of radiation that we have to deal with?

Lynn Helms They all generate it. They are at extremely low levels, but when you filter the flow back material or the produced water, then you concentrate it and that is why they are called technically enhanced naturally occurring radioactive materials (TENORM).

Chairman Kasper Are there a lot of landfills out in western North Dakota that are geared or could be geared up to accept this type of deposit?

Lynn Helms At this point, there are 10 landfills in western ND that are classified as special waste landfills. Any one of those 10 could apply for a license under these new rules to store or dispose of TENORM.

Rep. Mooney Would we not all agree that one of our first most major concerns is to insure the safety of our families including our children?

Lynn Helms I have to agree with that statement. One of the things that we did immediately upon the discovery of the Noonan filter socks was to implement an application stipulation put on it requiring a safe container for the TENORM contaminated socks.

Rep. Schneider I profess I need more information and knowledge. Are there other reports besides the Argonne Study? When this bill is viewed as a loosening in some ways of regulations and transparency in the tightening and restricting of the public hearings, are you comfortable with that?

Lynn Helms I haven't familiarized myself enough with this bill to really know what those hearing change requirements are doing in the bill. When the Argonne Study was being done, I was not able to find the sampling and analysis of drill cuttings, which is our second largest waste stream. Number 1 is water. The oil industry generates about 1.4 million barrels of water every single day. I put in a request to the Health Department as to whether sampling of that was done, and it was. I have those results and would be happy to share those with the committee. One other final report was the two studies done by EPA when they looked at RCARA (Resource Conservation and Recovery Act) exemptions for these low toxicity, high volume wastes that the oil and gas industry generates.

Chairman Kasper Will you and your department visit with Mr. Glatt about putting some definition back into this bill?

Lynn Helms Certainly.

Rep. Wallman On Page 3, what are the implications of that?

Lynn Helms I will have to defer that to Mr. Glatt.

David Glatt EPA does not regulate TENORM. The radioactive materials are under the Nuclear Regulatory Commission.

Kathryn Hilton, Dakota Resource Council, appeared. As was mentioned, all oil and gas operations do create TENORM. In this study that was produced by Argonne, some of the test results that were given to them by the Health Department, we can see that there are significantly high levels of radioactivity. Dr. Marvin Resnikoff has recently published some information relating to oil and gas operations and radioactive waste disposal in Ohio which I would be very happy to provide for all of you. (Attachment #3 provided on 1/22/15)

Chairman Kasper Please submit written testimony via email. (Attachment #2 provided on 1/22/15) I am asking Mr. Glatt to quarterback the process, and it is going to be his recommendations that we will consider once they come back. You can have input. You can submit amendments to this committee.

Kari Cutting, Vice President of ND Petroleum Council appeared. (Attachments #4-5 provided 1/22/15).

Rep. Wallman What is the Dakota Resource Council?

Chairman Kasper I would say a consumer advocate agency in the area of conservatism.

Rep. Wallman I meant the ND Petroleum Council. Is that a state agency?

Kari Cutting The North Dakota Petroleum Council is a trade association that represents the oil and gas industry. We have over 550 member companies that the association represents. Our main role is government relations, regulatory activities, and public communication.

Rep. Mooney You are saying the cuttings are not the equivalent of the TENORM, but is that to say that they have no radioactive element to them?

Kari Cutting All soil rocks do have low levels of radioactive material. It is by the process of either filtration or concentration of naturally occurring radioactive material that you have technically enhanced naturally occurring radioactive material. The rules that are being proposed by the Department of Health address TENORM. Cuttings being essentially relocated from under the ground to on top of the ground do not create a technically enhanced situation.

Rep. Mooney Is it actually really fair to compare the levels of the radioactive material in TENORM or others to medical x-ray work that is done when we are told not to do that more than is absolutely necessary?

Kari Cutting It actually is radiation and so comparing radiation to radiation is appropriate. When you look at a mammogram being 10 times higher radiation than the maximum level of TENORM that will be allowed in the state of North Dakota, that is what it makes it appropriate. It puts it into the public mind as to what we are used to dealing with.

Rep. Mooney I would argue that potential daily exposure as opposed to once every year or two might be slightly different.

The hearing was closed.

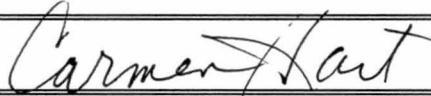
2015 HOUSE STANDING COMMITTEE MINUTES

Government and Veterans Affairs Committee
Fort Union, State Capitol

HB 1113
2/19/2015
24138

- Subcommittee
 Conference Committee

Committee Clerk Signature



Explanation or reason for introduction of bill/resolution:

Relating to custody of land used for disposal of radioactive material

Minutes:

Attachments 1-2

Chairman Kasper opened the meeting on HB 1113. There were no guidelines in the bill of legislative intent, and it was all up to a rules making process. Having learned a whole lot about how the Health Department operates since we had the hearing and visiting with Mr. Glatt and Rep. Porter, I think once we hear Mr. Glatt's testimony, we might be able to take a very easy motion on this.

David Glatt, Section Chief of the Environmental Health Section, ND Department of Health, presented some more testimony Attachments 1-2. (:42-9:00)

Chairman Kasper You are suggesting that the bill we originally received is fine in the manner that it is. We do not need to look at any amendments. Is that correct?

David Glatt Correct. Industry supports the bill as is.

Rep. Steiner This does not mean that if an industry says they have a fly ash pit that is empty, they can go around the county commission and place these materials. The State Health Department has taken them out of that step. That's not what this bill is about?

David Glatt No, that is not what this bill is about. The waste rules would still apply. As the proposed rules relating to TENORM are now, we would only go to existing special waste landfills, and they would have to amend their permit going to the public participation process. Any new landfill would still have to go through the county and those type of things.

Rep. Laning Does this bill deal then with any radiation levels at all?

David Glatt No, it does not. It is a housekeeping bill. The actual levels are being addressed in another process through our public comment process.

Rep. Amerman At the public meeting if one person objects, would it go to the administrative law judge?

David Glatt It is not a new process. We throw out what we think is a good rule or a good permit, and we get public comment. We take all those comments and respond to each one of them and make a final determination. If you provided a comment and we made a final determination which you didn't agree with, then you would have the opportunity to challenge that through the appeals process. Then it would go to the administrative law judge.

Rep. Amerman Would the expense then be on the individual?

David Glatt We have done so few of these. The ones that we did do hired their own attorneys.

Rep. Schneider Under that system of input, what do you do afterwards with the input you have received?

David Glatt We take each one of those and put it through a record of decision. We need to provide a response. Sometimes we look at those and see that they make sense and then modify the rules or permit based on their comments. Sometimes if we don't agree, we have to provide a rationale why we don't think that it was applicable.

Rep. Wallman How is the public notified when a permit is being considered?

David Glatt If it is a rule that is statewide, we have to provide a public notice to every official county newspaper in the state. If it is a permit in a location, you have to provide public notice in that paper that is basically local circulation where that permit is going to be.

Rep. Wallman Is there a requirement that a public hearing for a permit at least one be in the community that may be impacted?

David Glatt If there is a request for a hearing. We try to get as close to the source as possible.

Rep. Wallman How many permits have gone to the adjudicated process?

David Glatt The one that comes to mind is the Devils Lake outlet discharge permit.

Rep. B. Koppelman made a motion for a DO PASS.

Rep. Dockter seconded the motion.

A roll call vote was taken. 11 Yeas, 2 Nays, 1 Absent.

Rep. Laning will carry the bill.

Date: 2-19-15
 Roll Call Vote #: 1

**2015 HOUSE STANDING COMMITTEE
 ROLL CALL VOTES
 BILL/RESOLUTION NO. 1113**

House Government and Veterans Affairs Committee

Subcommittee

Amendment LC# or Description: _____

Recommendation: Adopt Amendment
 Do Pass Do Not Pass Without Committee Recommendation
 As Amended Rerefer to Appropriations
 Place on Consent Calendar
 Other Actions: Reconsider _____

Motion Made By B Koppelman Seconded By Dockter

Representatives	Yes	No	Representatives	Yes	No
Chairman Jim Kasper	X		Rep. Bill Amerman	X	
Vice Chair Karen Rohr	X		Rep. Gail Mooney		
Rep. Jason Dockter	X		Rep. Mary Schneider	X	
Rep. Mary C. Johnson	X		Rep. Kris Wallman		X
Rep. Karen Karls	X				
Rep. Ben Koppelman	X				
Rep. Vernon Laning	X				
Rep. Scott Louser	X				
Rep. Jay Seibel	X				
Rep. Vicky Steiner		X			

Total (Yes) 11 No 2

Absent _____

Floor Assignment Laning

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1113: Government and Veterans Affairs Committee (Rep. Kasper, Chairman)
recommends **DO PASS** (11 YEAS, 2 NAYS, 1 ABSENT AND NOT VOTING).
HB 1113 was placed on the Eleventh order on the calendar.

2015 SENATE ENERGY AND NATURAL RESOURCES

HB 1113

2015 SENATE STANDING COMMITTEE MINUTES

Energy and Natural Resources
Fort Lincoln Room, State Capitol

HB 1113
3/26/2015
25522

- Subcommittee
 Conference Committee

Committee Clerk Signature

Kathie Oliver

Explanation or reason for introduction of bill/resolution:

Relating to the confidentiality of radioactive material records; and to provide a penalty

Minutes:

2 Attachments

Chairman Schaible opened the public hearing on HB 1113.

Dave Glatt: Section Chief of the Environmental Health Division of the North Dakota Department of Health. See attachment #1. (:50-8:59)

Senator Murphy: What is the effect of section 2?

Dave Glatt: Currently what the law would require is that the landfills that accepted radioactive material, once they are closed, would go back to the state or the federal government. That was intended solely for radioactive landfills when we are dealing with TENORM we do not want those landfills required to be given back to the state. In the case of TENORM facilities the owner retains ownership and it doesn't go back to the state.

Senator Armstrong: A very small portion of the landfill would be dedicated so other stuff would be in there.

Dave Glatt: We are under the process now with the comments as it relates to proposed rule and that is how the rules are submitted. How they actually come out once they are finalized I do not know. I would like to add that how it relates to the confidentiality by repealing that section some people interpreted that as meaning that now everything is confidential. It really doesn't do that, what it does is open the records more than they were in the past, basically we have to find the open records law unless we have some HIPPA requirement or something like that. The way the existing law is it would allow a company to petition the department and to keep data confidential we would be required at that point to go through a hearing process, delaying the availability of that information for some period of time. By taking that out of there that opportunity to petition the department makes it more difficult to classify information as confidential what we are trying to do is make the data more open.

Senator Murphy: It seems to me that the difference of opinion and the veracity of the science and the danger of TENORM.

Dave Glatt: As we discuss the standards that is not related to this bill, this bill does nothing to change standards; that is in our waste program. It is being proposed in a different set of regulations. The science of radioactive material emits a response; when we are talking about the levels we are talking about you can get things that are higher and you would think nothing of it. It needs to be handled in a safe way like any other waste does. Look at the reports; we are looking at concentrations at 50 and you look at neighboring states Wyoming is at 50, Montana is at 30 but they are talking about raising it to 50 you have other states that are in the 1,000s.

Senator Triplett: On page 2 of your testimony, you said that in the bill as drafted you deleted some procedural requirements and replace them with rules consistent with other public participation requirements but because the bill has resulted in some confusion you are now proposing to amend it to do less. Help me understand why you are doing what you are doing in the amendment and why that is better than what you proposed in the first place?

Dave Glatt: The initial bill as drafted our primary concern is cross examination; the vast majority of our permits and licenses don't get bare minimum but this would require a cross examination. Deleting the entire section and making it consistent with other programs. Let's keep the public notice in there and our primary issue is to leave the rest. We added and appeals process and we make a determination you can now appeal that decision. It created a lot of confusion for people so we said that we would keep the public notice in there and leave the rest.

OPPOSITION

Jean Wurtz: Farmer from Underwood. It is hard to know what this is, there are so many amendments and I am not a lawyer and I think that this is really confusing. 2 years ago it was proposed a landfill 2 miles from my house which got defeated through the county first on the township level we had a resolution against it. We had our soil conservation district against it and finally we went to the county commissioners were convinced to be against it. Now it looks like this may be a way for that landfill to come back again and I am worried about it because I drink the water that comes from the ground. If I was confident that the water underneath the landfill with this TENORM if it stayed there I would be fine. We have had instances where we are told things are ok and they actually are not; that is my concern. I think that it is very important to have the same amount of public participation in the process of permitting landfills and it sounds like they are putting that back in. I am not a very trusting person any more. There are oilfield radioactive socks where they are not supposed to be, we have kids finding these socks and it is not good; I do not care if a granite countertop gives off radiation any amount of radiation isn't good. The little radiation that you are exposed to at the dentist's office they still put a lead vest on you and step out of the room. If you lived near that it would not be good for you; this is so complicated. How do we have a change to have a lawyer look at this stuff, it is very easy for things to get slipped by that may not even be intentional. In some ways it is better to not do anything than to make them worse.

Chairman Schaible: You heard the testimony about cross examination part, does that worry you?

Jean Wurtz: It does worry me, is it being taken out because citizens want it taken out? I very much doubt it; it is because industry wants it taken out. As a citizen who doesn't have lawyers at my disposal to get advice on everything that is put in and taken out, I would hope that this committee takes that into consideration. They are not coming to the citizens and asking what type of language they want in there. How can any of us be reassured, the state isn't enforcing the laws that are on the books now, will adding these other rules make it worse or better?

Senator Triplett: One of the things that are going on there is an inadvertent error from previous years is being corrected so that is a benefit to the general public or any interested party. I heard you say that leaving it along would make it better than killing the bill but there are things in here that appear to me to be clearly intended to benefit the general public.

Carol Ventsch: See attachment #2. (26:30-28:51)

Chairman Schaible: With the amendments that we heard it seems like the public participation would be better for access to records.

Kristin Devorak: I came today to learn, I live in the western part of the state and I see all of the things that you are taking from us, I like the appeals process but it feels like we are having our rights taken away. We left calving today to come down here, when the elected officials. We have the right to the information and to have access to us. I choose not to have them in my home and that is my choice. Pretty soon radiation levels are piled on top of each other.

Chairman Schaible: We appreciate you coming down and you did a very fine job.

Dale Devorak: I would like to speak from the heart; we have a landfill that was proposed to us that they are going to be approaching on. What we are trying to say is that we do not want to have it be so difficult to get this information. Landfills are going to be a problem for land values so we need to be cautious as to what we allow in the state. We need to find a place in the state where there is not so many people living, in some areas near landfills there is 10 families who live close. We need a little more control, need you to look out for us. We have been dealing with oil for years; it is a lot of headache and need the landfills to find places that accommodating to this type of thing. The health department is permitting them in areas and they are told that the health department is lying to us. Out in the western part of the state there is a lot of push for this stuff we need to watch out for the local communities and to do that we need help from you the elected officials say. It is not as safe as the people from the health department are saying. We are asking for help and for you to reach out to us. There are too many simple excuses for these big problems. There is no fix for them. Water that spills and you get comments that say it is a good thing. Permitting in this area isn't what we trust, it is tough. Why would they allow that around that many houses? Please be cautious.

Linda Weis: Belfield area. The issues of radioactivity can be traumatic and leaves the public at greater risk which leads to cancer and other illnesses. I am opposed to the bill as it is proposed to you; some of the amendments are good. Back in the 1990s there was a federal bill to move radioactive dirt by the federally mandated law; nothing was done with our dirt piles. That radioactive dirt from the uranium mining back in the 1960s sat in our area for 20-30 years then they were going to take it out of there. In that time it was breaking down into radon so that was not a good thing. I am just saying that we need access to these reports; we need to have hearings because we live there.

Larry Heilmann: Retired biochemist and molecular biologist from Fargo. I have 30 years of work experience with radioactive isotopes in a research setting. I do not fear radioactive waste if properly handled which this bill does not do. Section 7 of the bill, it repeals a section of the code but it doesn't say what the section is and it lists 2 items where confidentially can be applied: trade secrets and medical records. This eliminates that completely; this is all in other sections of the law and the constitution. It is very possible that there is boiler plate language in other laws, this section relates to radioactive material. Why delete the only section that deals with that. I respectfully ask for a do not pass.

Senator Laffen: Give me a TENORM 101, primary element? How many landfills?

Dave Glatt: There is naturally occurring radioactive material everywhere. What happens by concentrating it all oil processes have that, the exact amount is a significant amount.

Senator Laffen: You are talking on a daily basis, 10s of tons. Right now the way the statute is set any more than 5 per gram has to be shift out of state.

Dave Glatt: We have 11 or 12 special waste landfills; if the rules get adopted they can petition the department to accept a limited amount of TENORM. Right now there is no facility in the state that can accept over 5.

Senator Laffen: Everything is leaving the state?

Dave Glatt: Everything over 5.

Vice Chair Unruh: If those 11 landfills petition to you to increase up to the standards do they have to make changes to the facility itself?

Dave Glatt: They would not have to. Part of the evaluation is looking at the landfill design. They would not have to upgrade their design. What they would have to do is amend their operating practices. It is only if they want to do it and it would need to go through an amendment process.

Vice Chair Unruh: Can you talk to us about the water quality monitoring around these sites?

Dave Glatt: They are designed to multiple liners, synthetic and natural. Rain, snow events, moisture are collected and there is monitoring wells that are required.

Senator Triplett: There seems to be confusion in terms of what it means by the repealer. More documents, more open to the public, the statute has some nice language, and can you clarify what you are trying to do?

Dave Glatt: Just because it is not in the statute doesn't mean it is not being dealt with. The requirements that relate to open records are not being taken out. It says a company can't block the process. If they want it to remain confidential then they would have to go through the AG's office. It has been granted less than a handful of times that I have seen.

There was no further testimony on HB 1113 and Chairman Schaible closed the public hearing.

2015 SENATE STANDING COMMITTEE MINUTES

Energy and Natural Resources
Fort Lincoln Room, State Capitol

HB 1113
4/9/2015
25959

Subcommittee
Conference Committee

Committee Clerk Signature

Kate Owey

Explanation or reason for introduction of bill/resolution:

Relating to the confidentiality of radioactive material records; and to provide a penalty

Minutes:

Chairman Schaible opened the committee work on HB 1113, roll was taken and all committee members aside from Senator Laffen were present.

Senator Triplett: I think that the amendments proposed by Mr. Glatt took care of not all but a fair number of the concerns of those who opposed the bill.

Senator Armstrong made a motion to adopt the amendments with a second by Vice Chair Unruh

Senator Triplett: On page 2 he has removed the overstrikes on 15-17 and 19-30 but he is continuing to get rid of the opportunity for cross examination so I would like to talk about that.

There was no further discussion, roll was taken and the amendment was adopted on a 6-0-1 count.

Senator Triplett: Because this is kind of a hot topic in the state right now I think that there is value in having full discussions. I do not think that TNORM is a particular issue; there is a lot of passion about it in the state and in watching a landfill siting issue in my home county that was ordinary municipal waste landfill. When it appeared the county commission was on the brink of approving it the township hired attorneys and put ordinance into place and in the end prevented the landfill in that area. Having that process, as tumultuous as it was, in the end it produced a result the community was comfortable with. Letting people, if they have enough energy and money to hire an attorney, I do not think it is a bad thing. I would make a motion to remove the overstrike on line 18 on page 2.

Senator Murphy: Second

Senator Armstrong: There is a structure that needs to be in place to do this effectively, I do not think that you need to have a lawyer so any citizen in the state could cross examine. If it is in Dunn County or Stark County and everyone who is there gets to fully participate. What you do not get into in these situations are 2 non law people going back and forth dealing with that stuff. I do think that the full participation is important, for the vast majority the citizens do not get cut off.

There was no further discussion, roll was taken and the motion failed on a 3-3-1 count.

Vice Chair Unruh motion for a do pass as amended, second by Senator Armstrong.

Senator Murphy: Can I get a thumbnail version of this.

Senator Armstrong: The cross examination is interesting to me, I have never been to a public hearing without the proper structure, I think that the terminology is wrong.

Senator Triplett: I believe that the testifier wanted it to be unified and things have changed and all that.

There was no further discussion, roll was taken and the motion passed on a 6-0-1 count with Senator Triplett carrying the bill to the floor.

Chairman Schaible then closed the committee work on HB 1113.

April 9, 2015

Done
4/9/15
es
1

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1113

Page 1, line 1, remove "a new"

Page 1, line 1, after "subsection" inset "3"

Page 2, line 12, remove the overstrike over "~~and regulation of the processing, generation, or disposal~~"

Page 2, line 14, remove the overstrike over the overstruck colon

Page 2, remove the overstrike over lines 15 through 17

Page 2, line 18, remove the overstrike over "b."

Page 2, line 19, remove the overstrike over "~~A written determination of the action to be taken which is based upon findings~~"

Page 2, remove the overstrike over lines 20 and 21

Page 2, line 22, after "d." insert "c."

Page 2, line 22, remove the overstrike over "~~For each licensed activity which has a significant impact on the human~~"

Page 2, remove the overstrike over lines 23 through 30

Page 3, line 1, after "e." insert "d."

Page 3, line 1, remove the overstrike over "~~A prohibition of any major construction with respect to the activities to be~~"

Page 3, remove the overstrike over line 2

Page 3, line 3, after "f." insert "e."

Page 3, line 3, remove the overstrike over "~~An assurance that management of source material, byproduct material, or other~~"

Page 3, remove the overstrike over lines 4 through 9

Page 3, line 10, remove the overstrike over "b. An opportunity for judicial review"

Page 3, line 10, remove "by rules a procedure for the handling of"

Page 3, remove line 11

Page 3, line 12, remove "opportunity, after public notice, for written comments and a public hearing"

Page 4, line 23, remove "For multiple violations, penalties may"

Page 4, remove lines 24 and 25

Page 4, line 26, replace "knowingly" with "willingly"

Page 4, line 30, replace "knowingly" with "willingly"

Page 5, line 3, remove "For multiple violations, penalties may be assessed up to the maximum"

Page 5, remove line 4

Renumber accordingly

2/2/2

REPORT OF STANDING COMMITTEE

HB 1113: Energy and Natural Resources Committee (Sen. Schaible, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (6 YEAS, 0 NAYS, 1 ABSENT AND NOT VOTING). HB 1113 was placed on the Sixth order on the calendar.

Page 1, line 1, remove "a new"

Page 1, line 1, after "subsection" inset "3"

Page 2, line 12, remove the overstrike over "~~and regulation of the processing, generation, or disposal~~"

Page 2, line 14, remove the overstrike over the overstruck colon

Page 2, remove the overstrike over lines 15 through 17

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Page 5, remove line 4

Renumber accordingly

2015 CONFERENCE COMMITTEE

HB 1113

2015 HOUSE STANDING COMMITTEE MINUTES

Government and Veterans Affairs Committee
Fort Union, State Capitol

HB 1113
4/16/2015
26164

Subcommittee
 Conference Committee

Committee Clerk Signature

Carmen Hart

Explanation or reason for introduction of bill/resolution:

Relating to custody of land used for disposal of radioactive material

Minutes:

Attachment 1

Rep. Laning opened the conference committee meeting on HB 1113. Maybe the Senate would want to explain. They wanted to go back to some older language.

Senator Laffen Explain what you mean by older language.

Rep. Laning I believe the language we had originated on HB 1113 had quite a bit of that language scratched out and the Senate amendment came back deleting the deletion that we had.

Senator Laffen I have the Senate's Christmas tree version.

Rep. Laning The blue portion was language that had been crossed out in the basic bill.

Senator Laffen We brought that language back.

Rep. Laning Okay. I was asking the rationale. You also scratched out some additional language on Page 2, Lines 10-12.

Senator Murphy I have the testimony from Dave Glatt, chief of the health section, who has his reasons for the amendments that we adopted.

Rep. Laning He was the one that initiated the amendments?

Senator Murphy Yes, that is correct. I can highlight his testimony if you would like.

Rep. Laning I am okay with that language. I also talked with Mr. Glatt and asked him about the amendments. He indicated he was okay with those. He said he had worked with the Senate, but I was curious if the Senate had any particular reason. If the only reason was that Mr. Glatt wanted it, I can just accept that.

Senator Murphy That is correct.

Senator Laffen If I remember right, I think that was the reason. He just brought them in with him.

Rep. Laning Rep. Mooney had a suggestion for a couple of words.

Rep. Mooney On Page 4, Lines 22 and 26, we have the use of the word "willingly." On Line 18, the word "willfully" is used. In statute under 12.1-02-02 the word that is recognized under that statute is "willfully." Attachment 1. I would suggest as a recommended amendment would be to change "willingly" to "willfully" on Lines 22 and 26 to reflect the statute.

Senator Laffen Which version are you referring to?

Rep. Mooney Version 2000.

Senator Laffen Could you just repeat your lines that changes again?

Rep. Mooney repeated the word changes.

Senator Murphy We brought the Glatt amendments to legislative council, and I don't know why they would have drafted them like this. I would presume there was a reason.

Austin Lafferty, law intern, stated that legislative council recommended that you match them up.

Rep. Laning I asked Austin if he would contact legislative council regarding confirmation of the language preferred, and as Rep. Mooney mentioned, in code they use "willfully" more so than "willingly."

Senator Murphy I would be happy to make a motion to adopt those amendments.
SENATE RECEDE FROM SENATE AMENDMENTS AND AMEND AS FOLLOWS.

Rep. Dockter seconded the motion.

A roll call vote was taken. 6 Yeas, 0 Nays, 0 Absent. Motion carries.

The meeting was adjourned.

April 16, 2015

SC
4/16/15
15

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1113

That the Senate recede from its amendments as printed on pages 1551 and 1552 of the House Journal and pages 1344 and 1345 of the Senate Journal and that House Bill No. 1113 be amended as follows:

Page 1, line 1, remove "a new"

Page 1, line 1, after "subsection" inset "3"

Page 2, line 12, remove the overstrike over "~~and regulation of the processing, generation, or disposal~~"

Page 2, line 14, remove the overstrike over the overstruck colon

Page 2, remove the overstrike over lines 15 through 17

Page 2, line 18, remove the overstrike over "b."

Page 2, line 19, remove the overstrike over "~~A written determination of the action to be taken which is based upon findings~~"

Page 2, remove the overstrike over lines 20 and 21

Page 2, line 22, after "d." insert "c."

Page 2, line 22, remove the overstrike over "~~For each licensed activity which has a significant impact on the human~~"

Page 2, remove the overstrike over lines 23 through 30

Page 3, line 1, after "e." insert "d."

Page 3, line 1, remove the overstrike over "~~A prohibition of any major construction with respect to the activities to be~~"

Page 3, remove the overstrike over line 2

Page 3, line 3, after "f." insert "e."

Page 3, line 3, remove the overstrike over "~~An assurance that management of source material, byproduct material, or other~~"

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Page 4, remove lines 24 and 25

2/2

Page 4, line 26, replace "knowingly" with "willfully"

Page 4, line 30, replace "knowingly" with "willfully"

Page 5, line 3, remove "For multiple violations, penalties may be assessed up to the maximum"

Page 5, remove line 4

Renumber accordingly

Date: 4-16-15
 Roll Call Vote #: 1

**2015 HOUSE CONFERENCE COMMITTEE
 ROLL CALL VOTES**

BILL/RESOLUTION NO. HB 1113 as (re) engrossed

House GVA Committee

- Action Taken**
- HOUSE accede to Senate Amendments
 - HOUSE accede to Senate Amendments and further amend
 - SENATE recede from Senate amendments
 - SENATE recede from Senate amendments and amend as follows
 - Unable to agree, recommends that the committee be discharged and a new committee be appointed

Motion Made by: Sen. Murphy Seconded by: Rep. Dockter

Representatives	4/16		Yes	No	Senators	4/16		Yes	No
Rep. Laning (Chair)	X		X		Senator Laffen	X		X	
Rep. Dockter	X		X		Senator Hogue	X		X	
Rep. Mooney	X		X		Senator Murphy	X		X	
Total Rep. Vote			3		Total Senate Vote			3	

Vote Count Yes: 6 No: 0 Absent: 0

House Carrier _____ Senate Carrier _____

LC Number 15.8056.01003 . _____ of amendment

LC Number _____ . 03000 of engrossment

Emergency clause added or deleted

Statement of purpose of amendment
Change "willingly" to "willfully" on Lines 22 & 26 on Page 4

REPORT OF CONFERENCE COMMITTEE

HB 1113: Your conference committee (Sens. Laffen, Hogue, Murphy and Reps. Laning, Dockter, Mooney) recommends that the **SENATE RECEDE** from the Senate amendments as printed on HJ pages 1551-1552, adopt amendments as follows, and place HB 1113 on the Seventh order:

That the Senate recede from its amendments as printed on pages 1551 and 1552 of the House Journal and pages 1344 and 1345 of the Senate Journal and that House Bill No. 1113 be amended as follows:

Page 1, line 1, remove "a new"

Page 1, line 1, after "subsection" inset "3"

Page 2, line 12, remove the overstrike over "~~and regulation of the processing, generation, or disposal~~"

Page 2, line 14, remove the overstrike over the overstruck colon

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Page 5, remove line 4

Renumber accordingly

HB 1113 was placed on the Seventh order of business on the calendar.

2015 TESTIMONY

HB 1113

1

Testimony
House Bill 1113
Government and Veterans Affairs Committee
January 16, 2015, 9:00 a.m.
North Dakota Department of Health

Good morning Chairman Kasper and members of the Government and Veterans Affairs Committee. My name is David Glatt, Section Chief of the Environmental Health Section (EHS) for the North Dakota Department of Health (Department). The EHS's Radiation Control Program regulates the many forms of ionizing radiation, monitoring issues ranging from the safety and use of x-ray equipment to the storage and security of radioactive materials. The EHS operates its program through an agreement with the federal Nuclear Regulatory Commission and through the implementation of state laws. The EHS's Radiation Control Program also regulates technologically enhanced naturally occurring radioactive material (TENORM), which is not regulated by the Nuclear Regulatory Commission. I am here today to testify in support of House Bill 1113.

The Department has proposed the following amendments to NDCC 23-20.1:

- > Section 1 clarifies the procedures for appeals of NDCC 23-20.1 permit proceedings. These will be conducted using the same procedures as appeals of the Department's other permit proceedings. The Department believes that NDCC 23-20.1 was inadvertently omitted from the list of chapters referenced in this statute, as it is listed in a related statute (NDCC 23-01-23) that discusses the Department's permit procedures.

- > Section 2, starting on page 2, line 7, refers to the Department's proposal to exempt landfill operations that accept TENORM from the requirement to transfer title of the disposal facility to the United States or the State of North Dakota upon closure. The current law addresses how ownership of radioactive material should be addressed after a facility is closed. Specifically, the title of the facility would be transferred to the U.S. Government or the state, as required by federal law. Because TENORM waste is not regulated at the federal level, the requirement to transfer ownership does not apply. However, it is important to note that the facility ownership will be retained by the current landfill owner pursuant to the solid waste laws and rules. All existing provisions of NDCC 23.20.1 – Ionizing Radiation Development Law and Solid Waste provisions, identified in

NDCC 23-29, will continue to apply to these facilities to ensure the proper handling, storage and disposal of TENORM.

- > Section 3, starting on page 2, line 12, refers to the radiation material licensing process under Section 23-20.1-4.3, subsections 1 and 2. As currently written, all radioactive material license applications must be considered by the Department during a public hearing where a transcript is produced. This process would require the Department to dedicate considerable funding and time to evaluate, approve or reject even the most basic and straightforward permits. In addition, the current statute is not consistent with NDCC 23-01-23, which discusses the procedures for permit hearings conducted under NDCC 23-20.1.

To make the public review and comment process consistent with other environmental protection programs, the Department proposes to delete the procedural requirements found in 23.20.1-04.3 and replace them with rules developed by the Department. The rules would address the review process for radiation license application, preserving a public participation process consistent with existing environmental regulations.

- > Section 4 on page 3 contains general editing, and deletes references to subsection f, which was deleted in the previous amendment.
- > Section 5 replaces references to the State Health Council with the “Department” This deletion will make this section consistent with other statutes under which a hearing may be requested before the Department. Such hearings are generally conducted by an administrative law judge from the Office of Administrative Hearings.
- > Section 6 requests that Section 23-20.1-10 be revised to increase the civil penalty from \$10,000 per day per violation to \$12,500 per day per violation. The increased penalty is consistent with the penalty provisions of other divisions of the Department of Health. In addition, two subsections are added to define criminal violations and potential penalties for violations of the Radioactive Materials License rules. These penalties also are consistent with those imposed on entities that violate the North Dakota Industrial Commission’s oil and gas regulations requiring proper disposal of oilfield waste.
- > Finally, Section 7 requests that Section 23.20.1-09.1 – Confidentiality of Records of the North Dakota Century Code be repealed because other laws



already address confidentiality for these records. Security of information related to radioactive materials is currently maintained in compliance with the requirements of the U.S. Nuclear Regulatory Commission and the U.S. Department of Homeland Security. Personal medical information is protected under the Health Insurance Portability and Accountability Act (HIPAA). All other information is publicly available pursuant to the state's open records laws.

This concludes my testimony. I am happy to answer any questions you may have.

January 16, 2015

HB1113

HB1113 #2

1/16/2015

Chairman and committee members,

I appreciate the opportunity to present information regarding HB1113, the Argonne study, and Technologically Enhanced Naturally Occurring Radioactive Material (TENORM).

Dakota Resource Council is a community-based organization that was founded by North Dakotans 37 years ago. A volunteer board of directors oversees our activities and our campaigns are determined and informed by our membership, meaning North Dakotans. Many of our members live in the most immediately impacted area of oil activities: McKenzie, Williams, Mountrail, Dunn, Billings, Divide and Burke Counties, in addition to having a presence across the state. As a staff person I work with our membership on the issues and do quite a bit of research. Which is how I come to have the following information for your consideration in determining what bills will become part of North Dakota's future.

DRC members would like to encourage committee members to attend the North Dakota Department of Health public hearing in Bismarck on January 21, 2015. An information session begins at 5:30pm with representatives from Argonne available for questions and testimony starting at 7pm. 2639 East Main Ave Bismarck, ND. I'm sure some of the people who present at each of the hearings are your constituents.

1. The Argonne study commissioned by the North Dakota Department of Health (NDDH) has more than a few flaws. I will not address all of the problems with the study but will highlight some of the most egregious. *I am happy to have further conversations with any of you at your convenience regarding any of the information I am providing.*

First, many waste streams were explicitly eliminated from the study, which bears relevance to worker and public exposure to radiation. I will specifically address drill cuttings and brine while there are additional omissions. While some may be confused as to how the definition of TENORM relates to drill cutting under the NDDH definition of TENORM [When materials are removed from the earth and concentrated by human activities, such as mining or oil and gas production, NORM becomes TENORM.] drill cuttings most definitely contain TENORM. Brine is also found to have significant quantities of radiation in other unconventional shale plays. Recent publications out of Ohio, Pennsylvania and West Virginia indicate that brine water is radioactive and that wastewater treatment facilities do not have the technologies to remove the radioactivity before it is released back into waterways. Duke University has done extensive testing in the Marcellus and found elevated levels of radiation downstream of discharge pipes for wastewater treatment

facilities handling oil and gas wastewater.¹ In addition, all radiation is not removed from the solids separated from liquid at the treatment facilities.²

Furthermore, workers were assumed to be wearing proper personal protective equipment (ppe) and for anyone who has been to the oilfield recently can testify, ppe that would limit exposure to radiation is not worn or is used improperly.

The study does not include air emission studies for exposure to radiation when dust, spills, open trucks, improperly managed waste facilities, dry condition and a variety of other factors make air emissions an important consideration in determining what is healthy and safe for residents and workers.

2. "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.

3. Thorium-232 has a half-life of 14 billion years.³ Therefore, a 30-year bond, post closure of a landfill that took radioactive oilfield waste would not be sufficient for ensuring public safety and keeping remediation from being the burden of the taxpayer. "Because radium is highly soluble in water, rain water percolating throughout the landfill will allow the radioactive constituents of the material to leach out into the environment and potentially into aquifers or surface water for drinking water supplies."⁴

4. In response to the Petroleum Council's reasoning of exposure to radiation from medical testing: The **International Agency for Research on Cancer (IARC)** is part of the World Health Organization (WHO). Its major goal is to identify causes of cancer. Based on the data available, IARC classifies x- and gamma radiation as a "known human carcinogen." Regarding exposure of children, the American Cancer Society states, "These factors [children are more susceptible to radiation than adults, children are expected to live longer than adults, so they have a longer time to develop problems from radiation] mean that for a young child, the risk of developing a radiation-related cancer could be several times higher than for an adult exposed to the same imaging test. The risks from these tests are not known for sure, but to be safe, most doctors recommend that

¹ <http://nicholas.duke.edu/news/radioactive-shale-gas-contaminants-found-wastewater-discharge-site>

² Melissa Belcher, M.S. and Marvin Resnikoff, Ph.D. Hydraulic Fracturing Radiological Concerns for Ohio. 06/13/2013

³ <http://www.epa.gov/radiation/radionuclides/thorium.html>

⁴ Melissa Belcher, M.S. and Marvin Resnikoff, Ph.D. Hydraulic Fracturing Radiological Concerns for Ohio. 06/13/2013

January 16, 2015

HB1113

P. 3

children only get these tests when they are absolutely needed. When such tests are done, it is important to use the minimum amount of radiation needed to get the image.”⁵

5. Women’s bodies are also more susceptible to radiation than men, a factor that was not considered in the Argonne analysis for worker or public exposure.

6. Lynn Helms spoke of ingestion as the biggest concern for exposure to radiation; however, Thorium inhaled as dust may stay in the lungs for significant periods, whereas when ingested it passes through the body and is excreted in feces and urine within a few days. Thorium that remains in the body will enter the bloodstream and is absorbed into our bones.⁶

I’ve attached “Hydraulic Fracturing Radiological Concerns for Ohio” prepared by Melissa Belcher, M.S and Marvin Resnikoff, Ph.D. I referenced this material a few times in the previous information.

I am also providing a link to the report produced by Dr. Avner Vengosh of Duke University. <http://nicholas.duke.edu/news/radioactive-shale-gas-contaminants-found-wastewater-discharge-site>

I hope these resources are helpful, I have more available upon request and welcome any conversations and questions.

We have additional comments relating to the content of the HB1113 we will provide at a later time, but felt it was critically important to get this information to you as quickly as possible as we know how busy your schedules are.

Sincerely,

Kathryn Hilton
DRC Field Organizer
C: 803-646-8243
O: 701-224-8587

⁵ <http://www.cancer.org/acs/groups/cid/documents/webcontent/acspc-038756-pdf.pdf>

⁶ <http://www.epa.gov/radiation/radionuclides/thorium.html>

HIS 1113 #3

1/16/2015

**Hydraulic Fracturing
Radiological Concerns for Ohio**

**Fact Sheet Prepared for
FreshWater Accountability Project Ohio
PO Box 473
Grand Rapids, Ohio 43522**

June 13, 2013

**Melissa Belcher, M.S. and Marvin Resnikoff, Ph.D.
Radioactive Waste Management Associates
P.O. Box 105
Bellows Falls, VT 05101
802-732-8008**

Fracking Waste: Production and Disposal

Intro

It is a known fact that the Marcellus and Utica shale formations are radioactive, with concentrations of radium-226 that are up to 30 times background^[1]. In the process of drilling and fracturing wells (fracking) in shale formations, to produce natural gas, this underground radioactivity is brought to the surface, but where does it go? Oil and gas companies, along with the State agencies they've bamboozled, would have you believe any radioactivity present in waste streams is either within regulatory limits, not within the jurisdiction of State governments to regulate, or non-existent. Translation 1: the radium-226 in Marcellus shale inexplicably disappears when it is brought to the surface. Translation 2: the oil and gas industry does not want to pay the true costs of transporting, managing or disposing the radioactive waste they are producing. In this fact sheet, we want to cut through this murky haze that is settling over Ohio. We will explore the situation at the Patriot water treatment plant in Warren, OH, solid waste disposal in landfills, the potential impact of fracking near public drinking water supplies, specifically near the Muskingum River Watershed, the safety of transporting waste liquids and solids from Pennsylvania and other states to Ohio via trucks, rail and barges and the potential costs of proper disposal.

Background

The process of hydro-fracking, used to obtain natural gas and other related products from underground shale formations, requires a large quantity of water to complete the process—over 3 million gallons of water per treatment^[2]. Drillers take water from underground aquifers, or surface water bodies, such as Seneca Lake, which is clearly convenient and also serves to disguise the effects of large water withdrawals (discussed in section: *Are there additional environmental concerns?*). Drilling fluid is used to remove the rock cuttings from horizontal wells in the Marcellus shale formations and to transport the drill cuttings to the well surface^[1]. The list of chemicals added to the water throughout the fracking process is extensive and concerning— including diesel, rust inhibitors, proppants and antibacterial agents. Some of the drilling fluid returns to the surface in the form of flowback water once the well is drilled. When the well is producing natural gas, any contained moisture, known as brine, is removed. Brine contains high concentrations of naturally occurring radioactive materials from the shale formation. To add even more concern to an already highly debated process, fracking operations are currently zeroing in on the stretch of Marcellus shale that lies at depths of 4000 to 8500 feet^[3] below the Earth's surface and ranges from West Virginia through eastern Ohio across Pennsylvania and into southern New York. The concern for the Muskingum Watershed Conservancy District (MWCD) is that hydraulic pressure often forces drilling fluids through weak sections of well casing or into abandoned wells, thereby contaminating aquifers.

Reports have shown that Marcellus shale deposits, compared to other shale formations in other parts of the country, are much more radioactive. New York DEC sampled flowback water from vertical Marcellus shale wells and found that the liquid contained radioactive

concentrations as high as 267 times the limit for discharge into the environment and thousands of times the limit for drinking water^[4]. Brine from horizontal drilling, as being done throughout Pennsylvania, will be much more radioactive, quoted by New York DEC as high as 15,000 pCi/L^[1]. Fracking not only brings this highly radioactive material to the Earth's surface, but exists in the solid and liquid waste that is created as a result of the process. Radioactivity in oil and gas wastewaters has been found to exceed the U.S. Environmental Protection Agency's drinking water limits by up to 3,600 times, exceeding federal industrial discharge limits set by the Nuclear Regulatory Agency by more than 300 times^[5].

We discuss the impact on water treatment facilities, such as the Patriot plant in Warren, Ohio and the proposed GreenHunter facility located on the Ohio River in the section of this report titled: *Treatment Facilities Under Fire*. While Ohio regulations (1509.22) require that releases to surface waters not exceed Safe Drinking Water standards, in our opinion, these waste streams are not being safely managed and regulated in Ohio. Simply allowing waste materials to meet drinking water standards allows mixing at water treatment plants, that is, dilution, without adequate monitoring or measurement for radioactivity before or after discharge.

Ohio law also allows spreading of radioactive brine from wells that are "not horizontal wells" on land and highways – thereby potentially ending up in drinking water sources, or being re-suspended in the air. There is no method to proving or certifying where the brine has actually come from, therefore making it nearly impossible to detect violations from spreading radioactive brine from horizontal wells on roadways.

A management plan to deal with waste material from fracking and natural gas production needs to be put in place immediately and action needs to happen now.

So what does this mean for Ohio?

Even though fracking in Ohio is not yet occurring at intense levels as in other states, the State has been victim to the process especially because the State is making itself available as a dumping ground for the waste from other places, such as Pennsylvania and West Virginia. Both liquid and solid fracking waste, of radioactive nature, is trucked across state lines to Ohio landfills and processed to take to wastewater treatment plants for disposal. There is an estimated 2,000 wells scheduled to be permitted in the near future^[58]. Many wells are already drilled, simply awaiting fracking while the infrastructure is being constructed.

If fracking is encouraged throughout Ohio, the state could see more than 4,000 fracking wells drilled over the next ten years. Consider this: it takes between 2 and up to 8 million gallons of water to fracture a single Marcellus shale well one time, and each well may be fractured multiple times. From 5% to 35%^[54] of the fluids initially stay underground in the well itself, while the remainder returns to the surface and must be either re-used or disposed of. Immediate issues associated with this process are focused on contamination of water resources, where this radioactive waste should be disposed of and how to

properly manage it as well as the irreversible damage it may be contributing to the environment and human health. This will also place an exorbitant demand on the fresh water resource in the State of Ohio. Is it worth it? Below are a few current examples of how waste is currently being treated in the state of Ohio and the issues associated with the process.

What happens to fracking waste?

Solid Waste

How much waste arises from a single hydro-fracked well? To consider the amount of solid waste that a single horizontal drilled well would produce from the drilling/soil removal process, we estimate that the average diameter of the well is one foot and that the horizontal length in which the well is drilled is a mile. This results in approximately 4,147 cubic feet of radioactively contaminated shale rock that needs to be disposed of-somewhere. Now, consider that Pennsylvania has drilled almost 9,000 wells for natural gas to date. This yields over 37 million cubic feet of waste that needs to be relocated to its new home. Ohio takes more than half of Pennsylvania's waste material, indicating that at least 19 million cubic feet of solid material could potentially be sent to Ohio for disposal. Fracking waste is also coming into Ohio from West Virginia.

Where is this solid waste disposed of in Ohio? The gas industry describes water-treatment facilities and injection wells as their methods for disposal for fracking waste. The waste is also being hauled to solid landfills. The solid waste generated throughout the hydro-fracking process is sent to municipal landfills.

Ohio is now experiencing a huge influx of solid waste landfills for disposal and many more are expected. But many of these landfills are not equipped for measuring, managing or storing such contaminated waste. This is evident by the frequent detection of radioactive and hazardous materials from the small amount of landfills that are actually equipped with field sampling equipment at the landfill entrance. In fact, Timothy Puko^[7] with the Tribune-Review (located in western Pennsylvania) reported in May of 2013 that "radiation alarms went off 1,325 times in 2012, with more than 1,000 of those alerts just from oil and gas waste", according to data from the Pennsylvania Department of Environmental Protection. One example - in April 2013, a truck carrying a load of solid fracking waste was sent away from the MAX landfill in South Huntingdon, Pennsylvania after the truckload set off an alarm because its contents were so radioactive. The drill cutting materials in the truck had a radiation dose rate of 96 microrems per hour, caused by the radium-226 contents. The limit for radioactive material at the landfill is 10 microrems per hour. The truck was first quarantined at the landfill, and then turned back to the fracking pad in Greene County to be re-directed to a site that can accept higher levels of radiation^[8]. And in May 2013, two truckloads of Pennsylvania drilling wastes were turned away from the American Landfill in Waynesburg, Ohio after lab tests showed high levels of radium, 36 times the regulatory limit^[9].

Field testing for radioactive materials at landfills is becoming more widespread, but is still not required. It is not known just how many landfills test materials prior to being

accepted, and how many shippers have shipping manifests for the landfill operator to review. A proposed Ohio law would require oil and gas companies to conduct radioactivity tests on the tons of waste rock, dirt and drilling lubricants produced at drilling sites before those wastes are dumped in Ohio landfills. Officials with the Ohio Department of Natural Resources, the Ohio Environmental Protection Agency and the Ohio Department of Health say the new proposed requirement is intended to keep radioactive wastes from leaking from landfills^[9]. The idea is good in theory, but details of the regulation are a current hot debate. Under the ODNR proposal, drilling waste categorized as technologically enhanced naturally occurring radioactive materials (TENORM) could be disposed of in one of Ohio's 39 licensed municipal solid waste landfills as long as it contains 5 picocuries per gram or less of waste material. TENORM is labeled as naturally occurring radioactive material (NORM) that has been manipulated by man such that its radioactive content is concentrated^[10]. If the waste material tests higher than the 5 picocurie per gram threshold, it can be diluted, or essentially "down blended", by mixing it with other materials in an attempt to dilute the radioactive content for disposal^[11]. However, because radium is highly soluble in water, rain water percolating throughout the landfill will allow the radioactive constituents of the material to leach out into the environment and potentially into aquifers or surface water for drinking water supplies.

Sampling and testing of materials to be sent to landfills would yield best results if conducted by a third disinterested party or the officials at the receiving landfill, who would be held liable for any radioactive materials present within the facility. The regulatory agency must be able to review the sampling program. Results from some sampling of materials within landfills show radioactive amounts over the restricting limits of 5-10 pCi per gram are often detected, sometimes significantly^[12]. The process of field testing for radioactive materials can also be questioned, as details related to where the sample is taken, how many samples need to be taken, the testing method (see Appendix C) and how the trucking container relates to the reading all need further specific field research. There are key criteria that must be constantly and consistently maintained, such as the calibration of the gamma readings taken by the portal monitors with actual laboratory measurements of radium-226.

Disposal Costs at Landfills

There are facilities that specifically manage radioactive solids with the goal of storing the materials in a safe and controlled manner over a long-term period. Traditionally, low-level radioactive waste disposal facilities have charged waste generators a fee for each cubic foot of waste accepted for disposal, at costs far higher than municipal solid waste landfills. This volume-related fee is known as the "per cubic foot charge"^[13]. However, facilities may also charge additional fees based on the characteristic of the waste, such as the level of radioactivity and the type of container used for housing.

Regardless of the method of pricing, the cost of low-level waste disposal has increased over the past years. The Barnwell disposal facility in South Carolina, which is no longer operating, had a base disposal price of \$13.20 per cubic foot of waste in 1983. In 1994, when the facility closed, the cost per cubic foot for waste disposal had increased to

\$220.00, with additional surcharges and fees that were also included^[13] such as the type of waste, the weight, dose rate and curies associated with the load of materials to be received. One example of a current low-level waste management facility is the U.S. Ecology waste disposal facility in Richland, Washington. This facility charges \$115.50 per cubic foot of low-level radioactive material to be managed^[14]. Another example is the waste disposal facility in Clive, Utah, which charges \$350.00 per cubic foot of “large component material” and \$145.00 per cubic foot for “debris”^[14]. Waste at the Utah facility is categorized and priced by size classification of received components.

Compare the costs of properly disposing of the material at one of the proper landfills mentioned above versus sending the toxic material to a regular municipal landfill in Ohio that charges at most a fee of \$44.00 per cubic yard of material, or for comparison purposes to the facilities mentioned above, just over \$1.60 per cubic foot of material^[15]. To dispose of the roughly 4150 cubic feet of waste solids generated from drilling one natural gas well, it would cost \$479,000 to send the materials to Washington to be disposed of, \$601,000 to send materials to Utah, and \$6,775 to send it to the local municipal landfill. When considering the 19 million cubic feet of material that needs to be disposed of referenced previously, it is evident that environmental concerns are trumped by the economics beneficial to the unconventional shale drilling industry.

When Ohio accepts fracking waste from other states, it is then responsible for properly disposing of this radioactive material, which currently is turning up in municipal landfills that are not prepared to handle this material. Ideally, this waste should be sent directly from the site of origination to facilities in the states of Washington, Utah and Texas, licensed to manage naturally occurring radioactive material (NORM) and technologically enhanced naturally occurring radioactive material (TENORM)^[16].

Wastewater

The amount of wastewater created throughout the fracking process is astonishing. The problem of what to do with this waste byproduct is growing as the volume of wastewater continues to increase rapidly with the expansion of fracking in the Marcellus shale formation and nationwide^[17]. It is estimated that the amount of waste water produced to just drill the vertical shaft of each well for Marcellus shale in Pennsylvania is 80,000 gallons of wastewater^[18]. The additional amount of water required for a single hydro-fracking event is as much as 3.8 million gallons per well^[18] and others have estimated much more depending on the depth and length of long laterals. It should also be noted that many wells are hydro-fracked more than one time. Ohio also contributes to the amount of wastewater to be disposed of in their own state, as Ohio now has 665 wells permitted for Utica shale, 332 of which are currently drilled^[19].

Flowback water is recovered from each well, which includes drilling fluid with added liquids and chemicals and any produced formation brines from the drilled well. Samples of flowback water from vertical Marcellus shale wells show that the liquid contained radioactive concentrations as high as 267 times the limit for discharge into the environment and thousands of times the limit for drinking water^[4]. Once the well is producing, brine that is separated from natural gas will be much more radioactive, quoted

by New York DEC as high as 15,000 pCi/L^[1]. The flowback water is often sent across state lines to Ohio for injection well disposal or to waste water treatment facilities to be processed for eventual release back into the environment.

Despite the hazardous and radioactive components of this waste fluid, Ohio law allows county commissioners, a board of township trustees, or the legislative authority of a municipal corporation to approve the spraying of brine fluids on public roads to control dust or ice. Some states, such as Texas, even go as far as spreading this radioactive material on farmlands. Also known as “landfarming”, this process is a method of treatment of disposal of low toxicity wastes in which the wastes are spread upon, and mixed within soils^[20]. All of this can be done without first even testing the hazardous or radioactive contents of the material. These materials go on to contaminate drinking water sources and soils in the surrounding areas, resulting in a threat to human health that is very serious and widespread. During the summer months, when the roads and the fields are dry, radium can become airborne and be inhaled. . Ohio has an opt-out provision regarding the spraying of waste water on road ways, where a locale can vote as a policy matter to prohibit brine spraying. However, the spreading of this material on roadways is explicitly legal unless community members and individuals mobilize and convince their elected officials not to do it

Radium concentrations in bones can give rise to leukemia, and the actual symptoms from radiological exposure may not occur for years to come. With these materials persisting in place for decades, due to being spread on roadways, crop fields and surrounding areas, land contaminated by radium in produced water from Marcellus shale drilling can pose a threat to people working or living nearby for thousands of years^[21].



http://truckfax.blogspot.com/2012_01_01_archive.html

Another solution to get rid of the polluted waste-water is to create deep injection wells to essentially use as storage tanks to pump this water right back down underneath the ground. Over the past two decades, Ohio approved an average of four new storage wells a year. In 2011, that number jumped to 29^[22]. As of 2012, Ohio had 178 active injection wells that had accepted almost 14 million barrels of brine and liquid waste^[5]. And if those numbers don't cause concern, then consider that 98% of Pennsylvania's 94.2 million gallons of drilling wastewater in 2011 was sent to, and stored in, Ohio^[22]. And just a year later in 2012, Ohio injection wells handled 588 million gallons of wastewater, the majority of which was received from Pennsylvania^[23].

Currently, Ohio has 179 injection wells used for storage of waste materials from the fracking process. The injection wells are different sizes, with a range of diameters and

depths below the Earth's surface. The Ohio Department of Natural Resources states that the wells "range to be 13,000 feet in depth"^[6], while it is known that the Northstar I Class II injection well in Youngstown, the cause for the seismic activity that occurred in the area late 2011, is approximately 9,000 feet deep^[6]. Estimating an average injection well depth of 10,000 feet and a diameter of one foot, vertical storage of a single injection well can hold just over 59,000 gallons of wastewater material. With the 179 current injection wells, that's a total storage capacity of 10.5 million gallons of wastewater, a concerning value when acknowledging that in 2012 alone, Ohio's injection wells handled 588 million gallons of wastewater. The excess wastewater exits the injection well at the underground base into the substrate below surface. It remains unknown just how much water can be pumped into a single injection well over time.

These wells are also classified as "Class II wells", in which "Class IV" wells are the only wells designated for receiving any kind of radiological material^[6]. It is also interesting to note that while Class I, IV and V wells are regulated by Ohio EPA, Class II and III injection wells are regulated by the ODNR^[24]. It remains to be known just how much waste a single injection well can handle. It is established that injection wells were the contributing cause of a series of earthquakes occurring in the Youngstown area^[25]. Seismic activity linked to injection well sites across the country as well as fears that injection well could leak toxins that would seep into drinking water sources necessitate a more serious investigation of deep well disposal^[26].

A third option for wastewater treatment is to send the liquid and sludge to wastewater facilities to be treated and properly managed. However, sometimes the gas producers dispose of the contaminated water by sending it to wastewater treatment plants that deal with sewage and water from other industrial sources^[27]. Studies^[28] and documents obtained by the Environmental Protection Agency (EPA) reveal that wastewater, which is sometimes hauled to sewage plants not designed to treat it and then discharged into rivers that supply drinking water, contains radioactivity at concentrations far higher than the level that federal regulators say is safe for these treatment plants to handle^[29]. Most of these facilities cannot remove enough of the radioactive material to meet federal drinking-water standards before discharged into rivers, sometimes just miles upstream from drinking-water intake plants. The municipal wastewater facilities often release water directly into public drinking water sources after merely diluting the toxic materials, rather than removing it. Not only are these water treatment facilities producing water that is illegally passed as drinking water for the public, but these same water treatment facilities are also not equipped to properly handle radioactive and otherwise hazardous material. Sometimes, a wastewater treatment plant is bypassed altogether and the radioactive materials are simply just dumped down the sewer^[30]. Unfortunately, "there are business pressures" on companies to "cut corners", said John Hanger, who stepped down as secretary of the Pennsylvania Department of Environmental Protection in January of 2011. "It's cheaper to dump wastewater than to treat it," he added^[29].

A main concern is that radium is in soluble form in landfills and can leach out and into water supplies. This leachate is also sometimes processed at wastewater treatment plants, again, without removing the radioactive or other hazardous components.

It also should be noted that drilling contamination is entering the environment in areas directly connected to the drilling site through spills, too. In the past three years, at least 16 wells whose records showed high levels of radioactivity in their wastewater also reported spills, leaks or failures of pits where hydro-fracking fluid or waste is stored, according to State records^[29].

This toxic wastewater should be processed at a specific facility that can properly treat and manage the wastewater, which can then be released to a municipal wastewater treatment plant for further treatment and release. Even with waste treatment facilities that have been designed to specifically treat the wastewater from the fracking process, radiological components, chemicals and toxins have been released and later detected in freshwater sources^[28]. Proper sampling methodology needs to be put into place and strictly enforced to ensure that water quality is minimally affected by the treatment and release of this wastewater.

As far as pre-treatment, the proper disposal of filter cakes and other by-products that would be involved in such a process to remove radioactive components is of vital importance. There must be a full chain of custody and cradle-to-grave tracking of these radioactive waste materials with proper disposal in a licensed site to handle it.

Disposal Costs of Wastewater

Current estimates say that the cost to dispose of Marcellus shale fracking fluids at a proper wastewater management facility are roughly \$3.00 per barrel to dispose of it, and \$7.00 to \$10.00 for it to be hauled away^[31]. That equals between \$10.00 and \$13.00 for the disposal of a single barrel, which holds 42 gallons of wastewater. Now considering that it requires 4 million gallons of water to hydro-frack a well (and a minimum of 60% of the liquid will return to the surface as flowback/brine), costs to dispose of wastewater from a single well (more than 57,000 barrels) could be as high as \$740,000 apiece. Sending wastewater to an injection well for disposal is less expensive, as Ohio charges an injection well disposal fee of five cents per barrel on Ohio brine, and twenty cents per barrel for waste originating out-of-state^[49]. In 2012, new energy policy proposals were put forth^[49] that would raise brine disposal fees from five to ten cents on in-state waste, and from twenty cents to \$1.00 on out-of-state waste. Under new proposed costs, disposing of liquid waste from a single well in this manner would cost \$5,700 for in-state waste and \$57,000 for out-of-state disposal. When looking at these numbers, it becomes clearer why a natural gas company may try to dispose of water through the local environment and wastewater treatment facility rather than sending it directly to a specialized treatment plant or an injection well.

The Situation in Ohio

Treatment Facilities Under Fire:

Patriot Waste Water Management Facility

The Patriot Waste Management facility in Warren, Ohio has been at the center of controversy since operations were permitted in 2010^[50]. A private facility that processes wastewater from natural gas drilling operations, the management and processing methods associated with handling of the radioactive waste has been questioned. Patriot accepts “low-salinity” brine wastewater from shale gas extraction activities, which the oil and gas industry defines as containing less than 50,000 mg/L of total dissolved solids (TDS)^[32]. The facility treats the wastewater to remove heavy metals and other constituents before the treated, still-salty, wastewater is sent to Warren’s wastewater treatment plant. There, it is handled just like any other sewage and is “treated” and then discharged into the Mahoning River.

The proper treatment of wastewater at the Patriot facility is a question of ongoing debate. In 2011, the Ohio Environmental Protection Agency (OEPA) opted not to renew Patriot’s brine water treatment permit due to suspicions that water was not being properly decontaminated, and it ordered the company to not send its treated water to the City of Warren’s wastewater treatment plant. Opposing the cessation of operations, Patriot appealed the decision and overturned the original decision, following a ruling by the Environmental Review Appeals Commission of Ohio that Patriot be able to continue their operation of water treatment for fracking fluid.

Now operating again, the Patriot waste management facility is required to present samples to the City on a monthly basis to satisfy the industrial user pretreatment permit. The permit regulates the wastewater discharge from the facility to the City’s sanitary sewer system. The City provides Patriot with the sampling equipment to conduct their sampling; Patriot conducts the sampling and then submits the samples to a lab and sends a copy of the lab results to the City^[32]. However, the methodology behind the collection of these samples is unclear. The level of confidence in the sampling process should be high, but having a facility take its own tests, without greater regulatory oversight, greatly reduces the confidence of results in a sampling scenario.

We question several aspects of Patriot’s testing program for radioactivity:

- Patriot has conducted specific background tests for total alpha, total beta, total uranium and total thorium. In February 2010, Patriot did do a gamma spec, which should identify specific radionuclides in the uranium decay chain, such as bismuth-214 and lead-214, and actinium-228 and thallium-208, but surprisingly, these were below the lowest detection limit. Patriot did not specifically test for radium-226, a radionuclide that is expected in flowback water from the Marcellus shale formation.
- Patriot did initial and follow-up tests for total dissolved solids (TDS) and chloride, which are expected to be high.
- On a daily basis, Patriot tested for TDS and chlorides, but, as far as we can tell, not for gamma emitting radionuclides and not for radium-226.
- Random sampling protocol is not outlined so it is difficult to know how samples are chosen.

Aside from the debate about whether or not the wastewater being disposed into the waterways is properly treated and thus decontaminated, another question arises from the treatment of the toxic water filled with drilling fluid chemicals, sediments and radioactive materials. When brine water returns to the Earth's surface after the fracturing process, small pieces of radioactive sedimentation are concentrated throughout the water. These total dissolved solids (TDS) are soaked in the radioactive liquid waste-water. Throughout the treatment process at the wastewater facility, sediment and sludge is accumulated from the water from a separation process, however most separation technologies fail to remove all of the radioactive liquid from the solid contents. This material, along with filters, is removed from the wastewater at the Patriot waste treatment plant, and then needs to be disposed of. The solid waste, still coated with radioactive waste-water, is then sent to the municipal landfill.

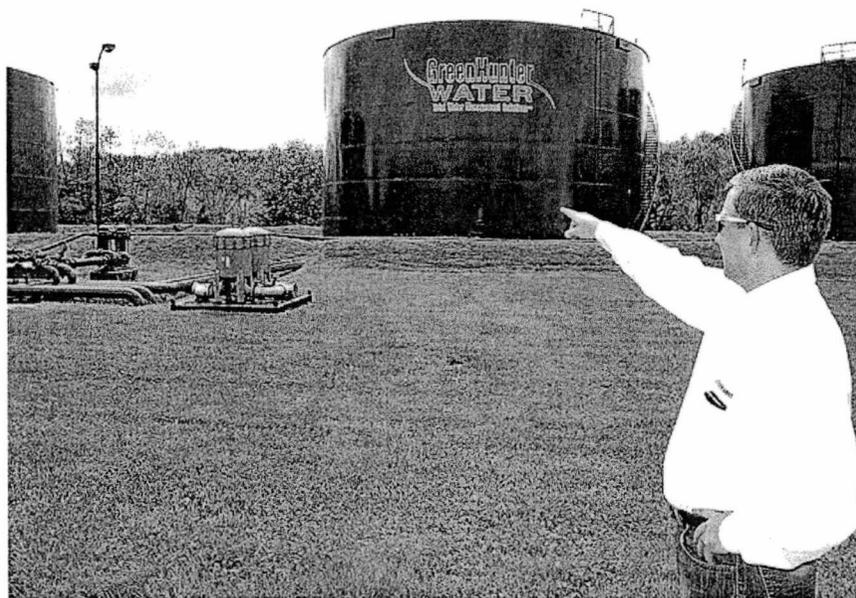
Long after any current landfill is filled and covered at the completion of production, the waste cuttings will emit radiation for thousands of years. "We're removing the metals like strontium, barium, iron, lead and other toxic heavy metals and organics as well as a little bit of oil," said Tom Weber, owner of Wastewater Management in Cleveland, who designed the Patriot plant^[33]. But we question whether Patriot and Warren treatment plants are able to remove radium in solution, and neither facility describes how this is done.

GreenHunter Waste Water Management Facility

GreenHunter waste management facility in Wheeling, West Virginia is not currently operating its full facility, but hopes to do so in the near future. This wastewater processing facility would treat 10,000 barrels of waste fluids a day and has as much as 19,000 barrels of tank storage. Similar to Patriot, the goal is to remove suspended solids from gas-field flowback that returns to the surface during fracking, and produced water that comes up during gas production. This waste would be disposed of in one of three ways. According to Green Hunter, clean brine, estimated to be 80% of the waste volume, would be placed on tanker trucks for re-use in other fracking operations. Dehydrated solid waste, estimated to be 10% of the incoming volume, would be sent to landfills. And concentrated liquid waste, estimated to be 10% of waste volume, would go to permitted injection wells via transportation by barge^[34]. This waste would be transported by barge to different locations along the Ohio River, in which the waste would then be stored on-site at a second facility or further transported via trucks to underground injection wells acquired by Green Hunter Waste Facility in Kentucky, Ohio and West Virginia.

GreenHunter has already obtained supplemental sites, in addition to the waste management facility in Wheeling, two of which are located in New Matamoras and Racine, Ohio. Both sites have been described as storage sites and access points for the barge to unload materials being transported down the Ohio River that are coming from the Wheeling, West Virginia facility. The primary role of the GreenHunter facility in Racine is to store radioactive waste from the barge in injection wells on-site^[55]. The GreenHunter website states^[55] that the riverside saltwater disposal facility in Racine, Ohio has the potential to inject more than 3,000 barrels per day of oil field brine and also allow for a barge receiving terminal to be installed on the river so material can be piped

directly to the disposal well from the barge cells. The facility in New Matamoras, Ohio is capable of holding 75,000 barrels on-site for bulk storage. At both sites, the close proximity of the storage tanks and injection wells to the Ohio River introduces an even greater risk to the Ohio River watershed of seepage and pollution from radioactive brine materials. President of GreenHunter, Jonathan Hoopes, stated that^[56], “One of our primary goals at GreenHunter Water is to never have to turn down a customer’s load of brine water for disposal.” In a current situation where public health and the local environment are at risk, GreenHunter has made it clear that its priorities are focused on its income and business desires.



John Jack, vice president of business development for GreenHunter points out holding tanks on-site that store radioactive water in May 2013^[35].

Community concerns are focused on the potential for spill or seepage at the site during all of the loading/unloading of materials that will be occurring, as well as the potential for the facility to be flooded as it lies on the banks of the Ohio River that frequently experience high water incidents throughout the year. The idea of putting the most radioactive material from the treatment process, the flowback and brine material en route to injection wells, on barges in the river system that is a drinking water source for numerous States is also of serious concern. If an accident were to occur and the material leaked into the Ohio River, the effects on the fresh water system could be extremely serious to both the environment and its role as a main source for drinking water. And accidents do happen. In April 2013, believed to be a result of high water, 100 barges broke free from moorings in the Mississippi River, 11 of which sank to the bottom of the river^[36]. And in June 2012, a barge sank in the Ohio River, again as a result of high water conditions^[37]. There are numerous other examples, many due to floods causing barges to sink. On a waterway such as the Ohio River, which experiences high water events numerous times throughout a given calendar year and random floods, putting such toxic

and dangerous materials on a barge for transport is asking for trouble. Transportation of the toxic materials via barge is currently in limbo; the Green Hunter waste management facility first needs approval from the U.S. Coast Guard, which has not yet occurred.

Transportation Adds to the Risk

GreenHunter waste management facility in Wheeling, West Virginia is of great interest to those living in Ohio, as the treatment plant is located on the banks of the Ohio River with goal of transporting radioactive materials via barge. This waste-water processing facility would treat 10,000 barrels of waste fluids a day and have as much as 19,000 barrels of tank storage. The goal is to remove suspended solids from gas-field flowback that returns to the surface during fracking, and produced water that comes up during gas production. This waste would be disposed of in one of three ways. Clean brine, estimated to be 80% of the waste volume, would be placed on tanker trucks for re-use in other fracking operations. Dehydrated solid waste, estimated to be 10% of the incoming volume, would be sent to landfills. And concentrated liquid waste, estimated to be 10% of waste volume, would go to permitted injection wells via transportation of barge^[34]. This waste would be transported by barge to locations, in which the waste would be further transported via trucks to underground injection wells acquired by Green Hunter Waste Facility in Kentucky, Ohio and West Virginia.

Community concerns are focused on the potential for spill or seepage at the site during all of the loading/unloading of materials that will be occurring, as well as the potential for the facility to be flooded as it lies on the banks of the Ohio River that frequently experience high water incidents throughout the year. The idea of putting the most radioactive material from the treatment process, the flowback material en route to injection wells, on barges in the river system that is a drinking water source for numerous states is also extremely risky. If an accident was to occur and the material was leaked into the Ohio River, the effects on the fresh water system could be devastating to both the environment and its role as a main source for drinking water as outlined previously. Such toxic and dangerous materials on a barge for transport is problematic. Transportation of the toxic materials via barge is currently in limbo, as the Green Hunter waste management facility first needs approval from the U.S. Coast Guard, which has not yet occurred.

Transportation of fracking waste via rail has been proposed, but is currently not occurring in Ohio. There is a 5,000 acre facility next to the CSX railyard in North Baltimore, Maryland that was purchased by a drilling company to provide either injection well storage or horizontal drilling at the location. If it weren't for the citizen's in Mansfield, Ohio passing a charter amendment, there would have been rail transport from Ohio to the planned injection wells there.

Are there additional transportation concerns?

Radioactive waste from hydro-fracking is currently transported by trucks, but the transportation of materials by barge and rail (as mentioned above) has also been proposed

and is being considered. Both of these alternative modes of transport are encouraged by the oil and gas industry, as the options offer transport of more materials at one time for a less expensive shipping price. This increases the risk of public health and environmental exposure to toxic chemicals if an accident was to occur. The total activity in brine truck shipments requires that it be classified as Class 7 waste by the U.S. Department of Transportation (DOT). Class 7 shipments have had accidents. DOT statistics show that vehicles transporting class 7 in the last ten years, have had 78 rail, highway and water incidents^[57]. No matter how this material is moved from one location to another, strict rules and regulations are required.

If material that is transported is hazardous or radioactive, specific Federal rules, that relate to container construction, placarding and insurance, apply. Our investigation of Federal and State regulations show that the State of Ohio regulations are far less protective of public safety. Shipments involved in crossing State boundaries are unequivocally regulated by the Federal Department of Transportation (DOT) under title 49 of the Code of Federal Regulations^[47]; these rules may also apply to intrastate regulations as well.

Under Federal DOT rules, transported material that exceeds a total activity, in terms of total Curies of radioactivity, is classed as a radioactive material. The specific limit for Radium-226 is 2.7×10^{-7} Curies^[47]. Below this total activity, the material is not classed as radioactive by DOT; above this amount, specific Federal regulations apply regarding design, packaging and labeling of transportation vehicles. For placarding, the NRC has even stricter limits 1×10^{-7} Curies (10CFR20, App. C).

To compare the levels of Ra-226 in brine, we assumed radioactivity ranging from 10,000 to 15,000 pico curies per liter, according to NY Department of Environmental Conservation^[38]. Conditions described by Green Hunter waste management facility^[39] state that a truck transporting materials from the facility will transport 100 barrels of waste at a time, with each barrel holding 42 gallons of material. They expect 100 truck loads per day to move the 10,000 barrels per day (420,000 gallons per day) capacity of toxic waste^[39]. Trucks transporting brine on Pennsylvania highways are in the form of a single container, not individual barrels. At 10,000 to 15,000 pico curies per liter of Ra-226 for brine, this results in a total radium-226 activity content of 1.589×10^{-4} to 2.3835×10^{-4} curies per truckload, greatly exceeding the federally defining limit of 2.7×10^{-7} curies. Transportation by barge is estimated to carry 10,000 barrels of brine at a time, resulting in a total radium-226 activity content as high as 2.3835×10^{-2} Curies in a single barge load. Both transportation methods, by truck and by barge, result in a DOT classification as radioactive that requires adherence to regulations and limitations described for transportation of hazardous materials.

These transportation shipping regulations can be found in chapter 49 of the Code of Federal Regulations in sections 173.410 and 173.411 (shown in Appendix A and B). Generally speaking, the regulations in place state that any package used for the transportation of radioactive materials must be easily handled and properly secured with a structurally sound lifting attachment, will have an external surface free from protruding

features that can be easily decontaminated, all valves through which the package contents could escape will be protected against unauthorized operation and the behavior of the packaging and contents under irradiation will be taken into account. Additionally, the materials qualify as a Low Specific Activity II waste, must be properly packaged in Industrial Packaging Type 2 (IP-2) or Industrial Packaging Type 3 (IP-3) enclosures. The descriptions for each of these packages are listed in Appendix B. The State of Ohio does not have comparable regulations for radioactive brine.

Insurance is another requirement under DOT regulations. Under Federal regulations vehicles transporting hazardous substances, such as brine, must hold an insurance policy with a minimum level of financial responsibility of \$5,000,000. The state of Ohio requires each transporter of brine to hold a liability insurance policy that would cover both bodily injury and property damage caused by processing associated with brine for \$600,000. Most insurance policies for private cars have liability coverage greater than \$1 million. State of Ohio regulations are clearly inadequate for a hazardous material, and possibly illegal.

Finally, federal DOT regulations require that hazardous and radioactive shipments be properly placarded. Specifically, federal DOT regulations require this notice: “RADIOACTIVE—LSA” or “RADIOACTIVE—SCO.” Instead, trucks we have seen on Pennsylvania highways are simply labeled “brine.”



A truck marked as “radioactive” traveling on a highway near Golden, Colorado.
(Source: <http://colorspray.blogspot.com> from June 2010)

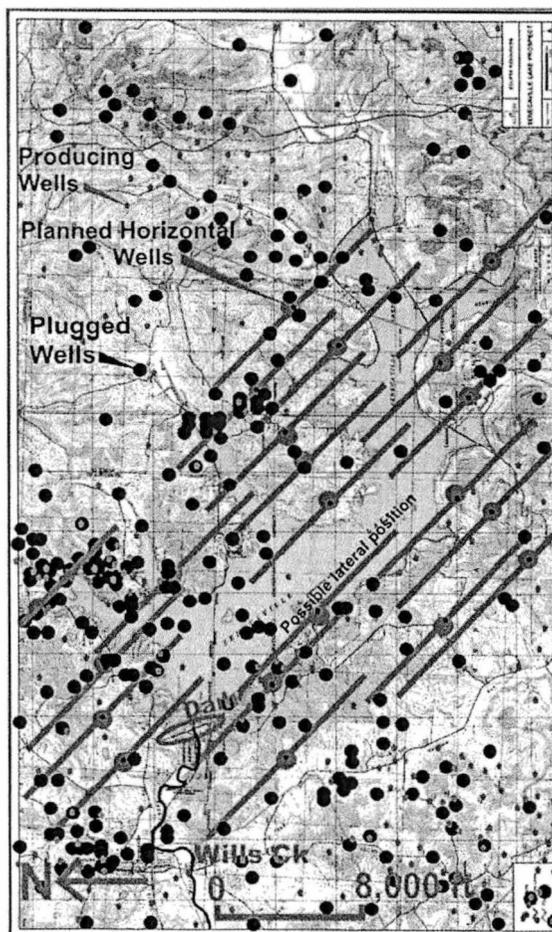
Are there additional environmental concerns?

Muskingum River Watershed

Concerns of the pollution of our environment and drinking water sources are not only related to the management of the waste that is produced and where it is stored and disposed of, but also are focused on the process of fracking as a whole, long before the waste and natural gas is generated at the soil surface. A high density of drilling wells in an area essentially creates numerous holes, fractures and connected land masses throughout the landscape underneath the soil. Although these fractures cannot be seen from aboveground, an area that has been heavily hydro-fracked and drilled may more closely resemble a piece of swiss cheese than that of the assumed solid landscape. The millions of gallons of water used to fracture these wells are also taking away from fresh-water drinking supplies. The Muskingum watershed in eastern Ohio is a prime example of this scenario.

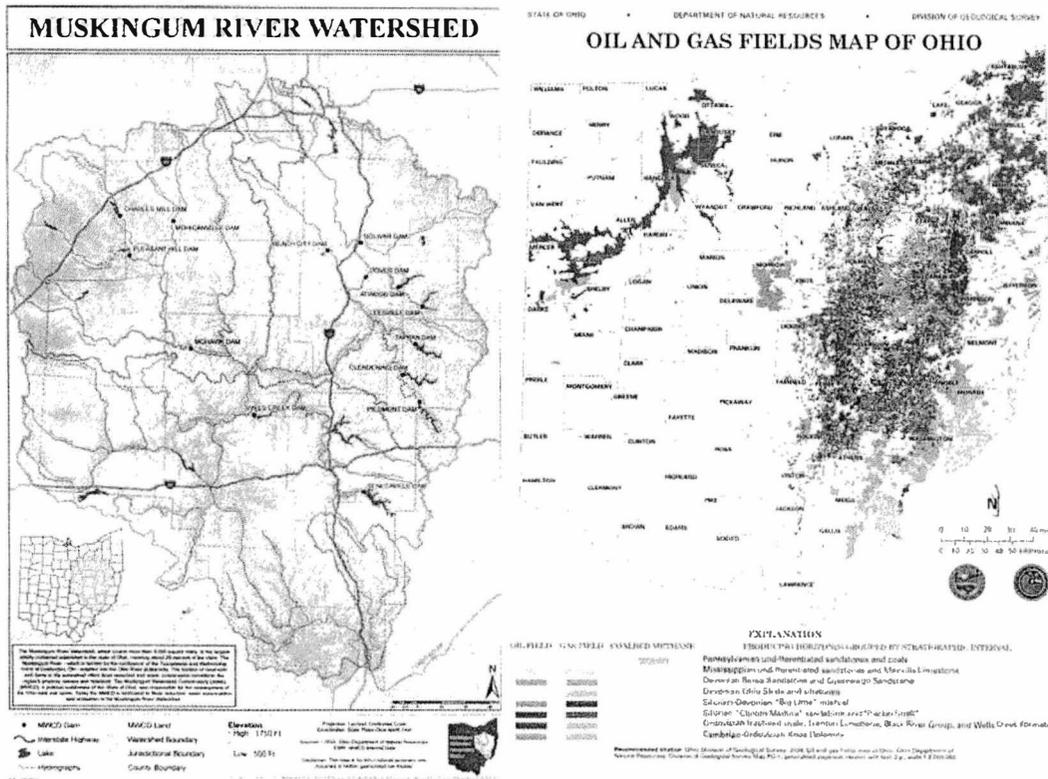
Draining a full fifth of the entire state and providing drinking water for thousands of residents, the Muskingum watershed is comprised of numerous large reservoirs as well as the lengthy Muskingum River. The Muskingum Watershed Conservancy District (MWCD) is responsible for caring for the reservoirs, yet they have approved several controversial water sales to the fracking industry^[51]. In short, this means that the MWCD gave the oil and gas industry permission to buy water from several of the reservoir lakes in the Muskingum Watershed. In June and July of 2013, the maximum daily withdrawal will be 2 million gallons from just the one reservoir, Seneca Lake, alone. Two other reservoirs, Piedmont and Clendening, are also under contract for large water sales. Drilling companies are charged varying rates of \$6.00 to \$8.00 per 1,000 gallons of water from the reservoir^[40].

Not only are residents worried about the reduction of water in the reservoirs due to the sale and permanent removal of mass quantities of water to serve the oil and gas industry, but concerns are also focused on the actual drilling operations themselves. The MWCD website^[41] states that, “The MWCD oil and gas drilling program has been in place for decades, today resulting in hundreds of wells.” However, the MWCD fails to point out that high



volume horizontal hydraulic fracturing is not the same industrial activity as vertical drilling, and the process consumes much greater amounts of water and land mass.

The image on the right depicts the placement of oil and gas wells around Seneca Lake in southeast Ohio, such that aquifer and reservoir water quality will almost certainly be degraded (image source: Rubin 2012). The abandoned wells (black dots) are densely clustered and show the connectivity of the underground landscape (with red lines portraying the horizontal fractures associated with each well). Leasing this land for widespread oil and gas drilling can have many consequences on the surface. Professional hydro-geologist Paul Rubin assessed the Muskingum River watershed in great detail^[48] and warns of toxic contamination to water sources created by fracking near and underneath the lakes. Rubin, as well as numerous environmental support groups in the Ohio, have requested an immediate moratorium imposed upon hydraulic fracturing on MWCD lands and underneath all associated reservoirs. The Southeast Ohio Alliance to Save Our Water was formed to stop the conservancy district from leasing public land for fracking and for selling and potentially polluting millions of gallons of watershed district water. In addition, the FreshWater Accountability Project Ohio was formed to track those who profit from water sales to document liability for future water shortages and toxic pollution.



The image on the left portrays the size of the Muskingum River Watershed and the inset on depicts the location and size of the watershed within the state of Ohio^[48]. The image on the right, comparatively, shows the state of Ohio as well as the locations of the oil and gas fields throughout the state^[48]. The entire Muskingum River Watershed lies almost completely within the heart of the oil and gas drilling operation that is occurring.

As some gas and oil wells were drilled more than 50 to 100 years ago, the structural integrity of these wells is in question. The ability of these wells to age successfully is unknown; the concern is that toxic contaminants will gain access to freshwater aquifers and reservoirs over time. The structural integrity of the wells at locations that cut through aquifers is in question, not only after aging, but from the initial construction. Packed soils around the well support the casing material and help prevent it from rupturing, however areas that pass through marine environments, and thus offer less support to the well casing, may be at risk for weakening and eventual rupture under pressure from hydraulic fracturing. Toxic contaminants will leak into the environment and will move with ground water flow systems, eventually affecting local soils and drinking water sources. Due to underground placement, assessment of these situations are not conducted as routinely as they should be, and therefore leakage of pollution could occur for lengthy durations of time without any indication of the issue from the surface. The high density of wells drilled in the same area only increases chances of contamination to aquifers, as repeated hydraulic fracturing will result in interconnecting old, poorly plugged gas and oil wells, allowing upward contaminant migration into drinking water supplies and reservoirs. Rubin states in his report, “The ultimate result of extensive gas exploitation in the Muskingum River Watershed *will be* that groundwater and surface water contamination will occur. Such pollution is assured because (1) the durability of well sealant materials available today to effect zonal isolation of freshwater aquifers is poor and short-lived, and (2) toxic hydro-fracking fluids injected deeply into the ground will move with groundwater flow systems, eventually moving upward into freshwater aquifers, reservoirs and waterways. Permitting of horizontal gas wells proximal to reservoirs will needlessly jeopardize water quality.”

The Muskingum Watershed Conservancy District receives revenue from the oil gas industry for selling water from the reservoir for fracking operations. For instance, from leasing just one reservoir, Seneca Lake, the MWCD received a signing bonus of \$6,200 per acre of land for 6,500 acres and a share of 20% of the royalties on gross revenues of oil and gas produced from its property^[52]. This serves as an example of the skewed priorities by the MWCD to place economic interests before area property values, public health protections, conservation of important natural resources, and consideration of long-term sustainability to serve other important industries such as agriculture and recreation, as well as the protection of safe drinking water supplies from the impacts of future droughts.

What about public health concerns?

Communities and homeowners are already feeling the effects of hydro-fracking, pipeline construction and well drilling across the reaches of the Marcellus and Utica shale formations. Landowners are presenting symptoms, namely rashes and illnesses, believed to be caused by exposure to drilling fluid chemicals in their drinking water from drilling activities that have taken place on or near their land, as described in these recent articles^[42, 43, 44]. One doctor was quoted as saying, “There is an epidemic of rashes occurring” (J. Skinner, personal communication, February 14, 2013). With the amount of

acute health issues popping up throughout Pennsylvania and now Ohio, believed to be in response to drilling practices, we have concern this is just the tip of the iceberg when radium eventually migrates into source water for public drinking supplies and leaches out of landfills. When ingested, radium concentrates in bone and can increase the probability of leukemia. The serious health effects as a result of radiological exposure are not readily apparent as victims first endure a latency period. This means that although residents could be currently exposed, their symptoms may not appear until years from now.



A hydro-fracking drilling pad and storage pond in Pennsylvania show the proximity to the homeowner's house as well as the large scale of the operation. (Source: Steve White/MarcellusProtest)

What are the current laws and/or regulations in place for managing fracking waste? ...Or lack thereof.

State governments, like Ohio, say their hands are tied in regulating NORM from drilling operations due to the Cheney Amendment. Also known as the Halliburton Amendment, this loophole can be found in the Energy Policy Act of 2005. This amendment exempts the fracking process from federal oversight under the Safe Drinking Water Act of 1974 and exempts companies that are doing Marcellus shale drilling from having to meet the requirements of the Clean Water Act^[45]. "Due to federal exemptions, drilling occurs in close proximity to residential zones, elementary schools, playgrounds, hospitals, and public places; and citizens have no recourse," said Shane Davis, Sierra Club Rocky Mountain Chapter's Oil & Gas Campaign Information & Research Manager^[46]. However, State governments can regulate technically-enhanced NORM, also known as TENORM. Recycling is such a process that enhances NORM. Fracking itself, the process of creating fractures in shale, increases the rock surface area and the solubility of radium, thereby producing TENORM. While this will be a matter for the courts to decide, it is

clear to us that the States can regulate TENORM and therefore this method of gas production.

As of June 2013, verbiage regarding the management of TENORM was reintroduced into Ohio Governor's budget bill, via the Omnibus amendment for consideration by the Ohio Senate. The definition of TENORM states that, "TENORM does not include drill cuttings, background radiation, byproduct material, or source material." This excludes all fracking waste as TENORM and instead incorrectly labels the enhanced material as NORM, relieving the states of responsibility to regulate such materials. Changes also state that any natural gas well owner needs to collect and analyze samples of material, if identified as TENORM, associated with the well to determine the concentration of radium-226 and radium-228, but that the testing of radium levels are not required if material is reused on-site or transferred to another site for fracking operations, if the material is disposed of at an injection well, if the owner uses the material in association with a method of enhanced recovery, or if the material is transported out of state for lawful disposal. The mention of TENORM in proposed amendments is included, however fracking material has yet to be properly defined, and management and handling of such materials must still be further investigated before regulations are set into place.

In May of 2013, Ohio state officials introduced legislation to ban Class II fracking waste injection wells in Ohio. The bill would prevent waste from being discharged into Ohio's waterways after treatment and would make it illegal for municipalities to use the liquid waste from oil and gas operations for dust and ice control on roadways^[5].

Conclusion

The natural gas industry is eager to develop the Marcellus and Utica shales, and has been successfully deploying this relatively new and highly unregulated process by promising jobs to Ohio workers, campaign contributions to legislators, and by providing revenue to regulators and royalty payments to landowners. However, we believe better protections should be in place before the industry ramps up production. Based on the actual environmental impacts in Pennsylvania, the potential impact in Ohio is not promising.

Hydraulic fracturing or fracking of shale rock is conducted by first drilling a vertical bore down to the Marcellus shale horizon, where high radioactivity and total organic content is reached. After lining the vertical hole part way down with cement casing, drillers move horizontally through shale rock, then subject shale to high hydraulic pressure to create additional fractures using hydraulic pressures of approximately 10,000 psi, explosives and millions of gallons of water.

This process in its entirety has been known to contaminate air and drinking water supplies. In numerous instances in Pennsylvania, the drilling fluid has escaped the cement casing, which is weakest at aquifer intersections. Contaminated aquifers and private water wells have caused skin rashes to residents, and infertility and death to livestock.

Following fracking, residual drilling fluid and radium-laced saline water is brought back to the surface as flowback water. During gas production, more radium-contaminated water is separated from natural gas, with even higher saline and radioactive concentrations. Millions of gallons of radium-contaminated flowback water and brine must be disposed. Much of this brackish liquid is transported to Ohio for “treatment” and disposal. The Patriot treatment plant in Warren, OH, the proposed GreenHunter processing plant in Wheeling, WV, on the banks of the Ohio River, would separate the liquids and solids. The proposed GreenHunter storage facility in New Matamoras, Ohio and deep well disposal operations in Racine, Ohio and elsewhere would receive fracking waste via barge from Wheeling, West Virginia. The solids presently go to municipal landfills; the liquids are either disposed in deep Class II non-hazardous injection wells, are directly dumped in surface waters (example D&L in Youngstown, OH), or spread on highways as a de-icer. Spreading brine on roads in Ohio can cause detrimental health impacts to residents, as this radium-contaminated water will be airborne during dry days and be inhaled. Inhaled radium will concentrate in bones and increase the likelihood of leukemia.

We also find that the chemical treatment methods at Patriot and GreenHunter cannot remove radium in solution and the testing methods cannot detect radium. The operators at the Patriot plant claim that the radioactivity present is background, nothing more. The landfill operators, with some exceptions, claim the radioactivity is near background. We are dealing here with magicians. The industry would have us believe that radioactivity below ground in the Marcellus shale disappears when it is brought to the surface.

Testing methods need to be improved; the State of Ohio needs to step up its regulatory program. Solids containing radium should be disposed in a low-level radioactive waste disposal facility and not in a municipal landfill, where the radium can eventually leach out into surface waters or be piped for inadequate processing at municipal water treatment plants^[53]. Drillers have an economic incentive to use municipal landfills. Our research shows that the cost of disposal in a municipal landfill is a fraction of the burial cost in a low-level radioactive landfill, and the transportation distances and costs are also far less. This industry savings, however, could ultimately be at the cost of public health.

Two additional issues need to be carefully examined: the impact of fracking on the Muskingum watershed by the active participation and promotion of industry for profit by the MWCD, and the transportation of liquid and solids to Ohio and to processing and waste disposal facilities. Fracking requires millions of gallons of water for each well. Waters, such as the Seneca Lake, are a convenient resource for drillers. But we fear the matter which is plaguing Pennsylvania will also affect the MWCD, once fracking begins. High hydraulic pressure will force drilling fluids into aquifers through faulty casing and old wells, potentially contaminating reservoirs needed for recreation, agriculture and drinking water supplies. The area around the MWCD is pockmarked with old wells. Like the New York City watershed, this area should be avoided for fracking.

The second issue involves the transportation of flowback water and brine in Ohio, either by rail, truck or even barge, as the GreenHunter plant is proposing. Our research finds

that the State of Ohio is not properly regulating this radioactive material. Under Federal DOT regulations, produced (brine) and flowback water are considered radioactive material; the activity is much higher than the minimum threshold.

Ohio must upgrade its packaging and transportation regulations to meet Federal standards. Ohio's insurance regulations for brine-carrying trucks are less than what most drivers have on personal cars. Federal regulations require \$5 million coverage, while Ohio requires \$600,000. Further, Federal regulations requires placarding, to label trucks as carrying radioactive material, but Ohio has no such requirement. This puts unaware local emergency responders at risk in case of an accident.

All this in combination with the disposal of radioactive waste materials in non-hazardous Class II injection wells that leak and solid waste disposal sites not classified to handle the material will lead to radioactive leachate, as well as the potential contamination of reservoirs and aquifers due to migration of residual frack fluids from deep underground. Further, accidental and deliberate dumping and brine spreading on roads will combine to threaten the health and safety of Ohio residents. If current regulatory, transportation and disposal practices continue, the cost to future Ohioans will be large and remediation may not be possible. Clearly, now is the time to address these important issues. Legislators, regulators and public officials such as the MWCD Board and Conservancy Court are certain to be held accountable in the future for the huge cost of remediation, the loss of valuable freshwater supplies, and the negative impacts to public health that are certain to occur in the future.

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Appendix A.

49 CFR 173.410 - General design requirements.

§ 173.410

General design requirements.

In addition to the requirements of subparts A and B of this part, each package used for the shipment of Class 7 (radioactive) materials must be designed so that—

- (a) The package can be easily handled and properly secured in or on a conveyance during transport.
- (b) Each lifting attachment that is a structural part of the package must be designed with a minimum safety factor of three against yielding when used to lift the package in the intended manner, and it must be designed so that failure of any lifting attachment under excessive load would not impair the ability of the package to meet other requirements of this subpart. Any other structural part of the package which could be used to lift the package must be capable of being rendered inoperable for lifting the package during transport or must be designed with strength equivalent to that required for lifting attachments.
- (c) The external surface, as far as practicable, will be free from protruding features and will be easily decontaminated.
- (d) The outer layer of packaging will avoid, as far as practicable, pockets or crevices where water might collect.
- (e) Each feature that is added to the package will not reduce the safety of the package.
- (f) The package will be capable of withstanding the effects of any acceleration, vibration or vibration resonance that may arise under normal conditions of transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole and without loosening or unintentionally releasing the nuts, bolts, or other securing devices even after repeated use (see §§ 173.24, 173.24a, and 173.24b).
- (g) The materials of construction of the packaging and any components or structure will be physically and chemically compatible with each other and with the package contents. The behavior of the packaging and the package contents under irradiation will be taken into account.
- (h) All valves through which the package contents could escape will be protected against unauthorized operation.

(i) For transport by air—

(1) The temperature of the accessible surfaces of the package will not exceed 50 °C (122 °F) at an ambient temperature of 38 °C (100 °F) with no account taken for insulation;

(2) The integrity of containment will not be impaired if the package is exposed to ambient temperatures ranging from −40 °C (−40 °F) to 55 °C (131 °F); and

(3) Packages containing liquid contents will be capable of withstanding, without leakage, an internal pressure that produces a pressure differential of not less than 95 kPa (13.8 lb/in²).

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended by Amdt. 173-244, 61 FR 20750, May 8, 1996; 64 FR 51919, Sept. 27, 1999]

Appendix B.

49 CFR 173.410 - General design requirements.

§ 173.411

Industrial packagings.

(a) General. Each industrial packaging must comply with the requirements of this section which specifies packaging tests, and record retention applicable to Industrial Packaging Type 1 (IP-1), Industrial Packaging Type 2 (IP-2), and Industrial Packaging Type 3 (IP-3).

(b) Industrial packaging certification and tests. (1) Each IP-1 must meet the general design requirements prescribed in § 173.410.

(2) Each IP-2 must meet the general design requirements prescribed in § 173.410 and when subjected to the tests specified in § 173.465(c) and (d) or evaluated against these tests by any of the methods authorized by § 173.461(a), must prevent:

(i) Loss or dispersal of the radioactive contents; and

(ii) A significant increase in the radiation levels recorded or calculated at the external surfaces for the condition before the test.

(3) Each IP-3 packaging must meet the requirements for an IP-1 and an IP-2, and must meet the requirements specified in § 173.412(a) through (j).

(4) Tank containers may be used as Industrial package Types 2 or 3 (Type IP-2 or Type IP-3) provided that:

(i) They satisfy the requirements for Type IP-1 specified in paragraph (b)(1);

(ii) They are designed to conform to the standards prescribed in Chapter 6.7, of the United Nations Recommendations on the Transport of Dangerous Goods, (IBR, *see* § 171.7 of this subchapter), "Requirements for the Design, Construction, Inspection and Testing of Portable Tanks and Multiple-Element Gas Containers (MEGCs)," or other requirements at least equivalent to those standards;

(iii) They are capable of withstanding a test pressure of 265 kPa (37.1 psig); and

(iv) They are designed so that any additional shielding which is provided shall be capable of withstanding the static and dynamic stresses resulting from handling and routine conditions of transport and of preventing a loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the tank containers.

(5) Tanks, other than tank containers, including DOT Specification IM 101 or IM 102 steel portable tanks, may be used as Industrial package Types 2 or 3 (Type IP-2) or (Type IP-3) for transporting LSA-I and LSA-II liquids and gases as prescribed in Table 6, provided that they conform to standards at least equivalent to those prescribed in paragraph (b)(4) of this section.

(6) Freight containers may be used as Industrial packages Types 2 or 3 (Type IP-2) or (Type IP-3) provided that:

(i) The radioactive contents are restricted to solid materials;

(ii) They satisfy the requirements for Type IP-1 specified in paragraph (b)(1); and

(iii) They are designed to conform to the standards prescribed in the International Organization for Standardization document ISO 1496-1: "Series 1 Freight Containers—Specifications and Testing— Part 1: General Cargo Containers; excluding dimensions and ratings (IBR, *see* § 171.7 of this subchapter). They shall be designed such that if subjected to the tests prescribed in that document and the accelerations occurring during routine conditions of transport they would prevent:

(A) Loss or dispersal of the radioactive contents; and

(B) Loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the freight containers.

(7) Metal intermediate bulk containers may also be used as Industrial package Type 2 or 3 (Type IP-2 or Type IP-3), provided that:

(i) They satisfy the requirements for Type IP-1 specified in paragraph (b)(1); and

(ii) They are designed to conform to the standards prescribed in Chapter 6.5 of the United Nations Recommendations on the Transport of Dangerous Goods, (IBR, *see* § 171.7 of this subchapter), "Requirements for the Construction and Testing of Intermediate Bulk Containers," for Packing Group I or II, and if they were subjected to the tests prescribed in that document, but with the drop test conducted in the most damaging orientation, they would prevent:

(A) Loss or dispersal of the radioactive contents; and

(B) Loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the intermediate bulk containers.

(c) Except for IP-1 packagings, each offeror of an industrial package must maintain on file for at least one year after the latest shipment, and shall provide to the Associate Administrator on request, complete documentation of tests and an engineering evaluation

or comparative data showing that the construction methods, packaging design, and materials of construction comply with that specification.

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended by Amdt. 173-244, 61 FR 20750, May 8, 1996; 66 FR 45379, 45383, Aug. 28, 2001; 68 FR 75747, Dec. 31, 2003; 69 FR 3673, Jan. 26, 2004; 69 FR 55117, Sept. 13, 2004; 69 FR 58843, Oct. 1, 2004; 72 FR 55693, Oct. 1, 2007]

Appendix C

Testing Methods for Radium-226

The measurement of gamma emitting radionuclides at a landfill is customarily done with portal monitors or hand held detectors. Ra-226 decays to radon gas, Rn-222 and subsequently to bismuth-214, whose gamma emission can be detected. Hand held detectors generally measure total gamma, which includes potassium-40 and other radionuclides. But portal monitors can detect different energy gamma emissions and thereby distinguish Bi-214 (a decay product of Ra-226) and therefore Ra-226 from other radionuclides. Because of the larger detector area, portal monitors are more sensitive than hand-held detectors. We used the software Microshield to determine the dose rate 3 inches from the side of a truck carrying soil. To read 5 pCi/g in rock cuttings, assuming truck walls 1/8 inch thick, you would need to read a dose rate of 15 microrems/hr above background (generally 10 microrems/hr), which portal detectors can easily do. However, it is important to calibrate the portal monitor with the truck Ra-226 content. To do this, a representative sample of rock cuttings should be sent to a laboratory for specific analysis of Ra-226, using EPA protocols¹. This EPA protocol requires a detailed chemical separation of Ra-226 from the rock matrix, followed by the standard method for detecting Ra-226 in a liquid, EPA testing protocol 903.1.

EPA protocol 903.1 generally takes about 21 days in a laboratory, from acceptance of a sample to quality assurance and the final report. Without going into great detail, radium is chemically separated from other elements and placed in a closed system. In four days, total alpha emissions build up to 4 times the alpha emissions from radium-226 and can be measured in a photomultiplier tube, where light emissions from alpha production can be measured. Though four days is the minimum, generally the holding period is longer, about 14 days.

For the measurement of Bi-214 in water, assuming that Bi-214 and Radium are in equilibrium: 1 pCi/L of Bi-214 would give rise to a dose rate of 0.0011 microrems/hour. Therefore, considering a load of brine water, with radioactive concentration of 10,000 pCi/L, Microshield estimates a dose rate of 10.91 microrems/hr- which could be detected in the field from a portal monitor. However, Ra-226 concentrations of 1,000 pCi/L yielding a dose rate of 1.1 microrems/hr would not be detected in a background dose rate of 10 microrems/hr.

¹ EPA-600-R-12-635, www.epa.gov/narel, August 2012, Revision 0, "Rapid Method for Radium in Soil Incorporating the Fusion of Soil and Soil-Related Matrices with the Radioanalytical Counting Method for Environmental Remediation Following Radiological Incidents"

HB 1113

1/16/15

#4

NDLA, Intern 06 - Lafferty, Austin

From: Kari Cutting <kcutting@ndoil.org>
Sent: Saturday, January 17, 2015 4:26 PM
To: NDLA, Intern 06 - Lafferty, Austin
Cc: Seibel, Jay
Subject: Testimony HB 1113.docx
Attachments: Testimony HB 1113.docx

Follow Up Flag: Follow up
Flag Status: Completed

Dear Government and Veteran's Affairs Committee members and Chairman Kasper;

Attached is a written version of the testimony that I provided on Friday, January 16, 2015 at the 9:00 a.m. hearing on HB 1113.

At the time of the hearing, the North Dakota Petroleum Council did not provide testimony for or against approval of HB 1113 but rather supplied additional information to add clarification to information that others provided during the hearing.

NDPC believes that amendments to the language as proposed and supported by the committee members will be advantageous towards better clarity for the public.

Please distribute copies to all committee members.

Submitted respectfully,
Kari Cutting

Kari Cutting
Vice President
North Dakota Petroleum Council
701-557-7741 (direct)
701-390-4048 (mobile)

HB 1113

1/16/2015

P. 2

Chairman Kasper, Members of the Government and Veterans Affairs Committee,

My name is Kari Cutting, vice president of the North Dakota Petroleum Council (NDPC). Although I did not prepare testimony for today's hearing on HB 1113, I feel compelled to provide some clarification on items from previous testimony.

Thank you, Mr. Chairman and members of the committee for the opportunity to speak at this time.

My first point of clarification is the definition difference between NORM—naturally occurring radioactive material and TENORM—technically enhanced naturally occurring radioactive material.

What is NORM?

Naturally occurring radioactive materials, or NORM, are radioactive substances that exist in all natural media, including soils, rocks, water, air, and even in many of our foods like bananas, white potatoes, and peanut butter, and as radioactive potassium in our own bodies.

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. Also submitted to the committee at this time is a NORM primer prepared by the Energy and Environmental Research Center at the University of North Dakota and an infographic produced by NDPC to assist in public education efforts.

This is not stated to minimize the importance of handling TENORM correctly, but rather to put it in perspective. The fact that a material is radioactive does not necessarily make it hazardous. In an environment densely populated by radioactive materials, regulators strive for a radiation protection concept called ALARA – As Low As Reasonably Achievable. ALARA acknowledges the presence of radiation everywhere, and guides individuals toward minimizing activities that lead to exposure.

What is TENORM?

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, or when the material is redistributed as a result of human intervention. TENORM is not inherently “bad” or “hazardous.” It is simply material that occurs naturally all around us, and has been relocated due to industrial activity. 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 reactions. 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

the media. It is also important again emphasize that TENORM is not something put into the ground. Rather, it TENORM is a natural material that already existed below ground and was brought to the surface during the oil development process.

Perhaps the example of TENORM we are all most familiar with is the concentration effect created by filtering produced water through a filter sock. During the drilling process, large volumes of water are produced. The water contains a small concentration of bits of soil and rock but when these large volumes are filtered, the bits of soil and rock become concentrated in the filter. The material is now classified as TENORM.

TENORM material is also present in pipe scale and tank sludge. These materials are TENORM because they are deposited slowly over time as pipes come in contact with large volumes of produced water and sediments settle to the bottom of tanks used in oil and gas activities. Currently, because the industry infrastructure is fairly new, the total volume of pipe scale and tank sludge is very small. The majority of TENORM generated in North Dakota is from filter socks.

Drill cuttings were brought up in previous testimony. Drill cuttings are little bits of soil and rock. In some cases, cuttings can contain low levels of NORM but are not concentrated to reach the classification of TENORM.

The proposed Department of Health (DoH) rules addresses the disposal of TENORM within the state of North Dakota. TENORM having a concentration of between 5 picoCuries per gram to 50 picoCuries per gram (pCi/g) will be allowed to be disposed at special waste landfills that meet certain stipulations included in the proposed rules. The type of landfill, how deep and in what type of liner and how much material can be contained in one landfill is all spelled out in the proposed rules. What is safe for workers and citizens of North Dakota was determined by a study on risk assessment commissioned by the Department of Health and conducted by Argonne National Labs (ANL).

Argonne National Lab possesses acknowledged expertise in computer-based 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, (RESRAD®). Their work provides valuable estimates of expected radiation dosages. This science is, unquestionably, a required component in efforts to achieve reasoned, defensible rulemaking.

The second point of clarification is on the concentration of TENORM proposed for disposal in North Dakota. The previous speaker pointed out that some of the data in the ANL study was higher than 50 picoCuries per gram. This is true, some pipe scale and tank sludge samples acquired for the study were analyzed to contain much higher levels of TENORM. These materials would not be eligible for disposal in North Dakota according to the proposed DoH rules and would have to be transported out of state for disposal at special waste landfills that

can accept these higher concentrations. The proposed rules, if passed, will only allow TENORM between 5 pCi/g and 50 pCi/g to be disposed within our state.

Safety is the top priority for the oil and gas industry in North Dakota. The industry is dedicated to proper disposal of TENORM and to protecting the health and safety of its workers as well as the public. Scientific studies have shown that exposure to TENORM pose very little risks to the general public. In fact, a person is exposed to and absorbs more radiation from background resources in one day than they would from standing next to a dumpster full of used filter socks for an entire year. It is important to note that TENORM only poses a hazard to public health if large amounts of it are inhaled or swallowed by an individual. Rules approved for proper handling, licensing for the transportation and disposal of TENORM are all important criteria towards eliminating any potential for public contact.

I would like to offer one final correction to a comment given in testimony and that comment was a reference to TENORM as radioactive waste. TENORM is not radioactive waste. Radioactive waste is regulated by the Nuclear Regulatory Commission (NRC) and TENORM is not. In fact, the NRC AND EPA studied TENORM on more than one occasion and determined that TENORM did not present a sufficient danger to public safety to be regulated at the federal level, leaving regulation to individual states.

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.

It is with the most sincere respect that I offer this testimony for your consideration. And thank you for your valuable time.

Sincerely,
Kari Bjerke Cutting
North Dakota Petroleum Council

#3 #81113 1/16/15

THE FACTS & SCIENCE OF

NORM

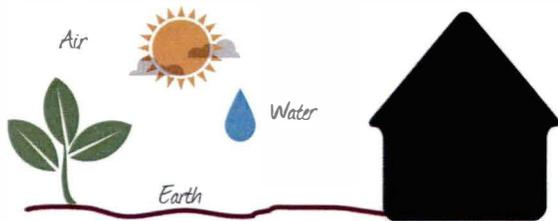
NATURALLY OCCURRING RADIOACTIVE MATERIAL

Naturally occurring radioactive material, or NORM, has been in the news a lot lately. But what is NORM? Is it dangerous? "Radioactivity" sounds scary, but it's also quite misunderstood.

To get better acquainted with NORM and radioactivity, check out this infographic and find more resources at www.northdakotaoilcan.com/NDEnergyFacts/NORM.

NORM: IT'S THE NORM

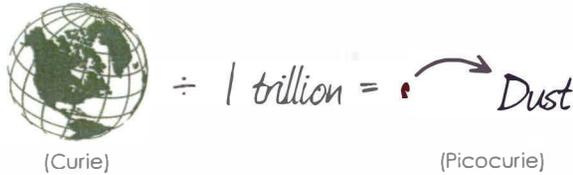
Naturally Occurring Radioactive Materials, or NORM, are radioactive substances that exist in all natural media, including the:



It's also in our homes and buildings, particularly constructed of stone, brick or concrete. Granite, often used for kitchen counter tops is also radioactive, containing 27 picocuries per gram. And, radioactivity is even in us and our food.

WHAT'S A PICO CURIE?

A picocurie is one measurement of radioactivity. A picocurie is one trillionth of a curie, or the radioactivity of one gram of radium. To put that in perspective, if Earth was reduced to one trillionth of its diameter, its diameter would be smaller than a speck of dust.



5 pCi/g

(Picocurie per gram)

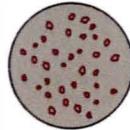
is the number that defines a material as NORM in North Dakota and requires special disposal.

OIL FIELD NORM

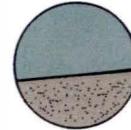
NORM associated with oil and gas development includes silt, sediment, other particulates, and water.



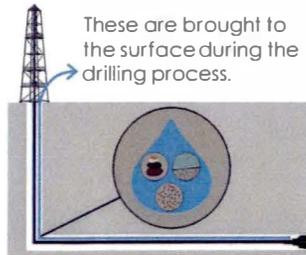
Particulates



Sediment



Silt



These are brought to the surface during the drilling process.



Waste water is filtered using filtration socks to catch sediment, silt, etc. Waste water is injected into a disposal well.

TECHNOLOGICALLY ENHANCED NORM

Oil field NORM can become concentrated in tanks, pipes, and filter socks resulting in:



Tank sludge



Pipe scale



Used filter socks

This concentrated NORM is called *technologically enhanced NORM*, or TENORM, and requires special treatment and disposal.

OIL FIELD TENORM IS NOT



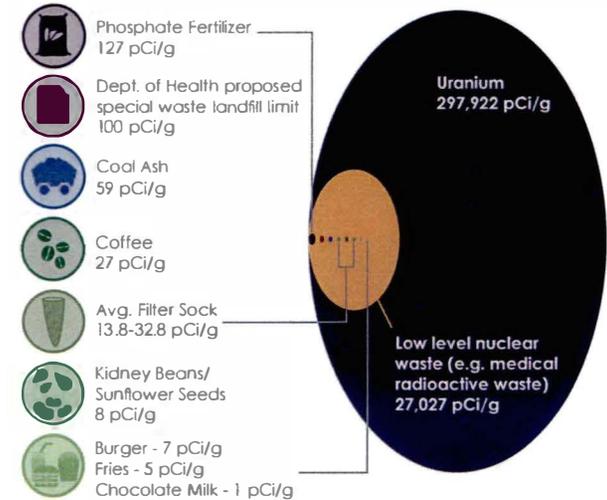
Nuclear waste



Something put into the ground by companies

HOW OIL FIELD TENORM COMPARES

Oilfield TENORM contains radiation similar to other everyday items.



EXPOSURE AND DOSE EQUIVALENT

*Millirem

Radiation is everywhere, but more important than perhaps the level of radiation is your exposure and "dose equivalent," or the amount you absorb. One unit of measurement for this is the millirem. The chart to the left shows how oil field NORM compares to other materials. But to further put it into perspective:



While the level of radioactivity is all around us, we still want to reduce our exposure to it. You can do this using:



Time
spent near the material. The less time spent near radiation, the better.



Distance
or length of time spent near the material. The farther from the source, the better.

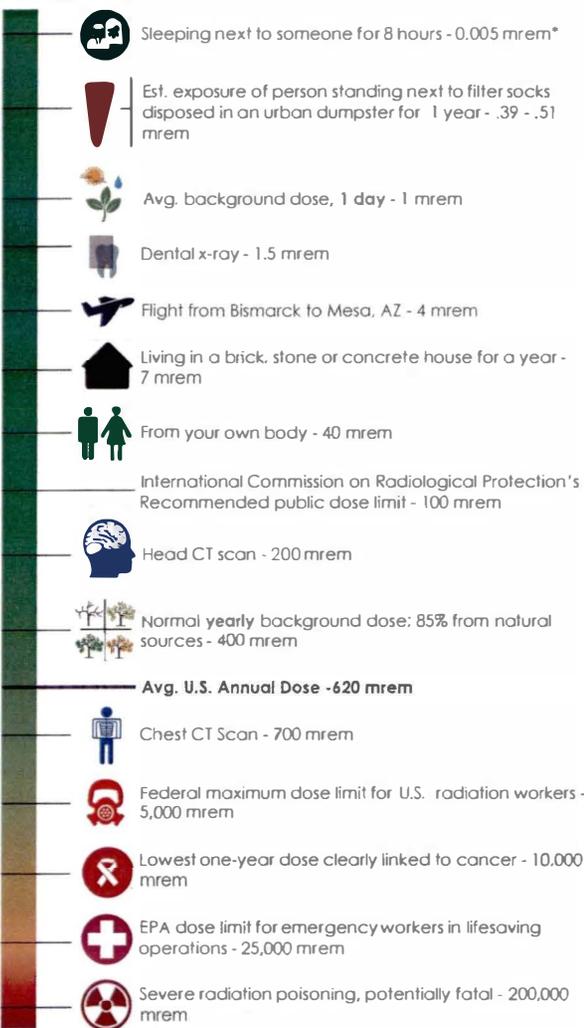


Shielding
or the protective barriers between you and radioactivity. Barriers (like plastic gloves, metal containers - even air) can reduce exposure.

Sources:
US Army Corps of Engineers. "FUSRAP Fact Sheet: How Big Is a Picocurie?" <http://www.tb.usace.army.mil/Portals/451/docs/FUSRAP/FactSheets/furap-fs-picocurie.pdf>
Paleontological Research Institution. "Understanding Naturally Occurring Radioactive Material in the Marcellus Shale." Marcellus Shale, Issue 4: http://www.museumoftheearth.org/files/marcellus/Marcellus_issue4.pdf
Energy and Environmental Research Center. "Bakken Smart: NORM." <http://www.undeerc.org/Bakken/Naturally-Occurring-Radioactive-Material.aspx>
U.S. Nuclear Regulatory Commission. "Radiation Doses and Regulatory Limits (in millirems)." www.nrc.gov/images/about/nrc/radiation/act102102.gif
"Radiation Dose Chart." <http://htcd.com/radiation/>
Argonne National Laboratories. "Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota." [www.nrdhealth.gov/BS/Tenorm/ArgonneStudy/ANL-NDDH%20TENORM%20Landfill%20Study%20\(ANL%20EVS-14_13\)%20Final%20Report.pdf](http://www.nrdhealth.gov/BS/Tenorm/ArgonneStudy/ANL-NDDH%20TENORM%20Landfill%20Study%20(ANL%20EVS-14_13)%20Final%20Report.pdf)

RADIOACTIVITY ON A NORMAL SCALE

So if your breakfast is radioactive, should you be concerned? No. The average person will be exposed to 620 millirems of radioactivity each year. This scale shows the different ways:



HANDLING OF TENORM

As mentioned previously, TENORM must be disposed of in special landfills built to accommodate that specific waste. Because NORM is defined as a material with radioactivity in excess of 5 pCi/g, it cannot be disposed of in a North Dakota landfill.



Solid NORM waste and used filtration socks must be hauled to Montana, Idaho, Colorado or Texas, illustrating the need for licensed disposal sites within our state.

TENORM IN OTHER STATES

Utah	10,000 pCi/g
Washington	10,000 pCi/g
Colorado	2,000 pCi/g
California	1,800 pCi/g
Idaho	1,500 pCi/g
Illinois	200 pCi/g
Michigan	50 pCi/g
Wyoming	
Louisiana	30 pCi/g
Minnesota	
Montana	
New Mexico	
Texas	
North Dakota	5 pCi/g

Several other states have higher limits for the safe disposal of TENORM. North Dakota is moving in that direction, too, using thorough and careful scientific studies to propose new rules. These rules will help ensure that TENORM generated by the state can be safely and properly disposed of in the state.

1113 #1
2-19-15

Testimony
House Bill 1113
Government and Veterans Affairs Committee
February 19, 2015, 9:00 a.m.
North Dakota Department of Health

Good morning Chairman Kasper and members of the Government and Veterans Affairs Committee. My name is David Glatt, Section Chief of the Environmental Health Section (EHS) for the North Dakota Department of Health (Department). The EHS's Radiation Control Program regulates the many forms of ionizing radiation from the safety and use of x-ray equipment to the storage and security of radioactive materials. The EHS operates its program through an agreement with the federal Nuclear Regulatory Commission and through the implementation of state laws. I am here today to testify in support of House Bill 1113.

Ch. 23-20.1 was first adopted in 1965. There has been few changes to this chapter and many of its provisions remain as originally enacted. This bill is intended to make several necessary revisions to outdated provisions. The bill is not intended to change how radioactive materials are regulated in North Dakota or any of the requirements that apply to licensees. It is not geared toward any industry or type of material. It is simply intended to modernize an outdated law.

Explanation of Changes

Sections 1, 3, and 4 address changes to the licensing procedures. The Department wants Section 23-20.1-04.3 to be revised so that it is clear that the Department can use a public participation process when issuing radioactive materials licenses – just as it currently does when issuing licenses and permits in other environmental protection programs.

Under the current law each license or permit addressing the storage, disposal or generation of waste material would need to go through an adjudicative hearing that provides for cross examination of all witnesses before an administrative law judge. Typically these processes can take several days of hearing, are labor intensive, financially taxing on state budgets and result in a protracted approval process even for the most benign and uncontested permits. What the Department has proposed is to amend the public participation process to allow for public notification, review and opportunity to comment on licenses and permits as typically required under the federal Environmental Protection Agency programs and a majority of the state environmental protection programs, without the requirement to go straight to an adjudicative hearing.

As is currently the practice in the other environmental programs, the hearing process will be identified in rules which include a required minimum 30 day public notification of the opportunity to comment in the county or local newspaper, notification on the Department's web page and the opportunity for a public hearing if requested. If a potential permittee or commenter objects to the final department decision they will at that time have the opportunity to have the case heard before an administrative law judge or in district court. This action by the Department continues to involve an active and robust public participation process but would only allow an adjudicative hearing in cases where the permit is contested. Because an overwhelming majority of the Department's permits are typically limited in scope and non-controversial, requiring an adjudicative hearing in these cases delays the approval of much needed permits and adds unneeded cost to the approval or denial process.

Section 2 is the only change that is specifically directed at TENORM. But it doesn't change how TENORM is regulated. Although TENORM currently cannot be disposed of in North Dakota, the Department is considering adopting rules that would allow TENORM with a very low level of radioactivity to be disposed of in specialized landfills. In the event those rules are adopted and a facility is authorized to accept TENORM waste for disposal, this bill clarifies that federal law requirements about custody of radioactive material disposal sites would not apply to TENORM. Specifically, the revision to Section 23-20.1-04.1 specifies that the state would not have to take custody of such sites. If these rules go into effect, existing laws and rules governing landfills will address the site custody issue. Basically, the landfill owner would be required to be responsible for the site, not the state.

Section 5 addresses Section 23-20.1-06, which discusses the administrative hearing procedures for this chapter. The bill removes an outdated reference to the State Health Council and inserts the "Department." This is being requested to be consistent with similar statutes in the Department's other program areas where a hearing may be requested before the "Department." Such hearings are generally conducted by an administrative law judge from the Office of Administrative Hearings.

Section 6 revises Section 23-20.1-10 to increase the penalty for anyone who violates the state's laws governing radioactive materials. The civil penalty is increasing from \$10,000 per day per violation to \$12,500 per day per violation. The criminal penalty would also increase. Currently, violators are subject to a class A misdemeanor charge. This bill increases the penalty to a class C felony. It

also clarifies that false reporting is a criminal violation. These increased penalties are consistent with those imposed on people who violate the North Dakota Industrial Commission's oil and gas regulations requiring proper disposal of oilfield waste. They are also consistent with changes being proposed to the state's solid waste laws.

Finally, Section 7 repeals Section 23.20.1-09.1, which is cumbersome and unnecessary. This outdated law requires certain records to be confidential and allows the person who submitted the record to request a hearing before records are released. This hearing requirement puts an unnecessary burden on members of the public requesting records. This section should simply be repealed as the state's general confidentiality laws already include protections for records containing health information or trade secrets.

This concludes my testimony. I am happy to answer any questions you may have.

NOTICE OF INTENT TO REISSUE AN
AIR POLLUTION CONTROL
TITLE V
PERMIT TO OPERATE

2
1113
2-19-15

Take notice that the North Dakota Department of Health proposes to reissue an Air Pollution Control Permit to Operate to Hess Tioga Gas Plant LLC for operation of a natural gas processing facility in accordance with the North Dakota Air Pollution Control Rules. The Hess Tioga Gas Plant LLC is located near Tioga in Williams County. The facility processes natural gas and consists of sweetening operations, gas separation and dehydration, sulfur recovery and tail gas incineration. The mailing address is 10340 68th Street NW, Tioga, ND 58852. This revision incorporates Permits to Construct (PTCs) 12009 and 12078.

A thirty-day public comment period for the draft permit will begin February 20, 2015 and end on March 22, 2015. Direct comments in writing to the North Dakota Department of Health, Division of Air Quality, 918 E. Divide Avenue, Bismarck, North Dakota 58501-1947. Comments must be received by the end of the public comment period to be considered in the final permit determination. A public hearing regarding issuance of the permit will be held if a significant degree of public interest exists as determined by the Department. Requests for a public hearing must be received in writing by the Department before the end of the public comment period.

The draft permit, statement of basis and application are available for review at the above address and at the Williams County Auditor's office. A copy of these documents may be obtained by writing to the Division of Air Quality or contacting Kyla Schneider at (701)328-5188 or kkschneider@nd.gov.

Dated this _____ day of _____.

Terry L. O'Clair, P.E.
Director
Division of Air Quality

P. 2

NORTH DAKOTA DEPARTMENT OF HEALTH
PUBLIC NOTICE TO MODIFY NDPDES PERMIT
NOTICE OF PUBLIC HEARING ON NDPDES PERMIT MODIFICATION

May 25, 2006

PURPOSE OF PUBLIC NOTICE

THE DEPARTMENT INTENDS TO MODIFY A NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM (NDPDES) DISCHARGE PERMIT UNDER THE AUTHORITY OF SECTION 61-28-04 OF THE NORTH DAKOTA CENTURY CODE. IN ADDITION, THE DEPARTMENT WILL HOLD A PUBLIC HEARING TO SOLICIT COMMENTS PRIOR TO FINALIZING PERMIT CONDITIONS UNDER AUTHORITY OF SECTION 61-28-04 OF THE NORTH DAKOTA CENTURY CODE.

PERMIT INFORMATION

APPLICANT NAME:	North Dakota State Water Commission
MAILING ADDRESS:	900 East Boulevard State Office Building Bismarck, ND 58505-0187
TELEPHONE NUMBER:	701-328-2750
APPLICATION NUMBER:	ND-0026247

The modification as proposed will remove the reference to specific months a discharge can occur, remove the total suspended solids limit and adjust the instream sulfate limit for the intermittent discharge of surface water from West Bay of Devils Lake (Round Lake) to the Sheyenne River. Only the conditions subject to modification are reopened in the permit. The discharge from the diversion system enters the Sheyenne in the SW 1/4 of the SE 1/4, Section 8, Township 151 N, Range 68 W. The expiration date of June 30, 2008, will remain the same.

STATE TENTATIVE DETERMINATIONS

Tentative determinations relative to effluent limitations and other permit conditions have been made by the department. They assure that state water quality standards will be protected and applicable provisions of the Federal Water Pollution Control Act, as amended, will be addressed.

HEARING PURPOSE AND LOCATION

A public hearing will be held to solicit comments on the proposed permit modification and to seek additional input on any concerns prior to finalizing this permit modification. The department has scheduled the public hearing to be held in Devils Lake.

The public hearing will be held on June 27, 2006, at 2:00 p.m. at the following location:

Devils Lake State College / Dining Room
1801 College Drive North, Devils Lake ND 58301-1598

PUBLIC COMMENTS

Written comments should be directed to the North Dakota Department of Health, Division of Water Quality, 918 East Divide Avenue, 4th Floor, Bismarck, ND 58501-1947. All comments received by close of the hearing on June 27, 2006, either written or recorded during the

scheduled public hearing, will be considered prior to finalizing the permit requirements. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6888.

FURTHER INFORMATION

Additional information may be obtained upon request by contacting the North Dakota Department of Health at 701.328.5210 or at the above address. The draft permit and related documents are available for review and reproduction at the department, the department web site: <http://www.health.state.nd.us/rulemaking/>, the Devils Lake Carnegie Public Library (623 4th Avenue), the Valley City Public Library (410 Central Avenue North) and the Fargo Public Library (102 3rd Street North).

PUBLIC NOTICE NUMBER: ND-2006-026



NEWS RELEASE

For Immediate Release:
May 25, 2006

For More Information, Contact:
Dennis Fewless, Director
Division of Water Quality
Phone: 701.328.5210
E-mail: dfewless@nd.gov

State Health Department Schedules Public Hearing on Devils Lake Outlet Permit Modification

BISMARCK, N.D. – The North Dakota Department of Health will hold a public hearing June 27, 2006, in Devils Lake on the North Dakota State Water Commission's request for a modification to the permit to discharge Devils Lake surface water into the Sheyenne River.

The hearing will be held to receive testimony related to the proposed permit modification. Items to be addressed include removal of the reference to specific months a discharge can occur, removal of the total suspended solids limit and adjustment of the in-stream sulfate limit for the intermittent discharge of surface water from West Bay of Devils Lake (Round Lake) to the Sheyenne River. Only the conditions subject to modification are reopened in the permit for comment. All information received during the public hearing will be considered before a final decision is made concerning the permit modification.

The schedule is as follows:

- Public Hearing
June 27, 2006
2 p.m.
Lake Region State College Dining Room
1801 College Drive N.
Devils Lake, N.D.

Department of Health and State Water Commission representatives will be available from 12:30 p.m. to 1:50 p.m. before the hearing to provide information and to answer questions about the proposed permit modification.

For more information, contact Dennis Fewless, North Dakota Department of Health, at 701.328.5210 or visit the Department of Health website at www.health.state.nd.us/rulemaking.

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NOTICE OF INTENT TO
ADOPT AND AMEND ADMINISTRATIVE RULES

TAKE NOTICE that the North Dakota Department of Health will hold a public hearing to address proposed new and amended rules under N.D. Admin. Code Chapter 33-10-23, Regulation And Licensing Of Technologically Enhanced Naturally Occurring Radioactive Material, and N.D. Admin. Code Article 33-20, Solid Waste Management And Land Protection, at the following times and locations:

January 20, 2015
5:30 p.m. – Information Session
7:00 p.m. – Official Comment Hearing
Williston Area Recreation Center
822 18th Street East
Williston, ND 58801

January 21, 2015
5:30 p.m. – Information Session
7:00 p.m. – Official Comment Hearing
Environmental Training Center
2639 East Main Avenue
Bismarck, ND 58501-5044

January 22, 2015
5:30 p.m. – Information Session
7:00 p.m. – Official Comment Hearing
Fargo Public Safety Building
4630 15th Avenue North
Fargo, ND 58102

The purpose of the proposed rules are to implement regulations to properly manage Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM), including registration of generators and transporters, tracking of waste, reporting, and landfill disposal. The proposed rules are not expected to have an impact on the regulated community in excess of \$50,000.

The proposed rules may be reviewed at the office of the North Dakota Department of Health, Environmental Health Section, 918 East Divide Avenue, Bismarck, ND 58501. A copy of the proposed rules and/or a regulatory analysis may be requested by writing the above address, emailing to sradig@nd.gov, or calling 701-328-5150. The proposed rules and additional related information are also available on the Department of Health website at www.ndhealth.gov/EHS/TENORM. Written or oral comments on the proposed rules sent to the above address, email or telephone number and received by February 6, 2015 will be fully considered.

If you plan to attend the public hearing and will need special facilities or assistance relating to a disability, please contact the North Dakota Department of Health at the above telephone number or address at least seven (7) days prior to the public hearing.

Dated this 15th day of December, 2014.

Scott A. Radig, Director
Division of Waste Management
North Dakota Department of Health

ARTICLE 33-16

**CONTROL, PREVENTION, AND ABATEMENT OF
POLLUTION OF SURFACE WATER**

Chapter	
33-16-01	North Dakota Pollutant Discharge Elimination System
33-16-01.1	Pretreatment Regulations
33-16-02	Standards of Water Quality for State of North Dakota [Repealed]
33-16-02.1	Standards of Quality for Waters of the State
33-16-03	Control of Pollution From Certain Livestock Enterprises [Repealed]
33-16-03.1	Control of Pollution From Animal Feeding Operations

CHAPTER 33-16-01

NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

Section	
33-16-01-01	General - Definitions - Permit Effect - Incorporation by Reference
33-16-01-01.1	Additional Point Sources Subject to Regulation
33-16-01-02	Acquisition of Data
33-16-01-02.1	Requests for Variance
33-16-01-03	Receipt and Use of Federal Data
33-16-01-04	Transmission of Data to the Regional Administrator
33-16-01-05	Identity of Signatories to National Pollutant Discharge Elimination System Forms
33-16-01-06	Notice and Public Participation
33-16-01-07	Public Notice
33-16-01-07.1	Response to Comments
33-16-01-08	Fact Sheets
33-16-01-09	Notice to Government Agencies
33-16-01-10	Public Access to Information
33-16-01-11	Hearings and Notice
33-16-01-12	Terms and Conditions of National Pollutant Discharge Elimination System Permits
33-16-01-13	Application of Effluent Standards and Limitations, Water Quality Standards, and Other Requirements
33-16-01-14	Effluent Limitations in Issued National Pollutant Discharge Elimination System Permits
33-16-01-15	Schedules of Compliance in Issued National Pollutant Discharge Elimination System Permits
33-16-01-16	Other Terms and Conditions of Issued National Pollutant Discharge Elimination System Permits
33-16-01-17	Transmission to Regional Administrator of Proposed National Pollutant Discharge Elimination System Permits
33-16-01-18	Transmission to Regional Administrator of Issued National Pollutant Discharge Elimination System Permits
33-16-01-19	Duration and Review of National Pollutant Discharge Elimination System Permits

- (1) Proposed effluent limitations, standards, and prohibitions, identified pursuant to section 33-16-01-13 for those pollutants proposed to be limited.
 - (2) If necessary, a proposed schedule of compliance, including interim dates and requirements, for meeting the proposed effluent limitations.
 - (3) Proposed permit conditions pursuant to sections 33-16-01-12 and 33-16-01-13.
 - (4) Proposed monitoring requirements pursuant to section 33-16-01-12.
 - (5) Proposed variances pursuant to section 33-16-01-02.1.
 - (6) A brief description of any other proposed special condition which will have a significant impact upon the discharge described in the national pollutant discharge elimination system application.
2. The department shall organize the tentative determinations prepared pursuant to subsection 1 into a draft national pollutant discharge elimination system permit for the discharge which is the subject of the application.

History: Amended effective October 1, 2002.

General Authority: NDCC 61-28-04

Law Implemented: NDCC 61-28-04

33-16-01-07. Public notice.

1. Public notice of every national pollutant discharge elimination system draft permit shall be circulated in a manner designed to inform interested and potentially interested persons of the proposed discharge and of the proposed determination to issue or deny a national pollutant discharge elimination system permit for the proposed discharge. Procedures for the circulation of public notice shall include at least the following:
 - a. Notice of a major facility permit or general permit shall be published in a daily or weekly newspaper within the area affected by the facility or activity.
 - b. Notice of all other permits shall be circulated within the geographical areas of the proposed discharge; such circulation may include any or all of the following:

- (1) Posting in the post office and public places of the municipality nearest the premises of the applicant in which the effluent source is located.
- (2) Posting near the entrance to the applicant's premises and in nearby places.
- (3) Publishing in local newspapers and periodicals, or, if appropriate, in a daily newspaper of general circulation.
- (4) Any other method, including press releases, which will reasonably provide actual notice of the proposed action to the persons potentially affected.

c. Notice shall be mailed to the following persons:

- (1) Any user identified in the permit application of a privately owned treatment works.
- (2) Persons who are on the mailing list.
- (3) Local governmental units which have jurisdiction over the area where the facility is proposed to be located and each state agency which has authority with respect to the facility's construction or operation.

d. Notice, a copy of the permit application, the statement of basis or fact sheet if required by section 33-16-01-08, and the draft permit prepared pursuant to section 33-16-01-06 shall be mailed to the following persons:

- (1) The applicant, except for those national pollutant discharge elimination system general permits for which there is no applicant.
- (2) Any other agency which is known to have issued or to be required to issue an environmental control permit for the same facility or activity.
- (3) Federal and state agencies with jurisdiction over fish, shellfish, and wildlife resources, the advisory council on historic preservation, and the state historic preservation officers, including any affected states or Indian tribes.
- (4) Any state agency responsible for plan development under sections 208(b)(2), 208(b)(4), and 303(e) of the Clean Water Act, the United States army corps of engineers, the United States fish and wildlife service, and the national marine fisheries service.

- e. The department shall add the name of any person or group upon request to the mailing list. The department shall also publish annually an invitation to be added to the mailing list.
2. The department shall provide a period of not less than thirty days following the date of the public notice during which time interested persons may submit their written views on the tentative determinations with respect to the national pollutant discharge elimination system application. All written comments submitted during the thirty-day comment period shall be retained by the department and considered in the formulation of its final determinations with respect to the national pollutant discharge elimination system application. The period for comment may be extended at the discretion of the department.
 3. The contents of public notice of applications for a national pollutant discharge elimination system permit shall include at least the following:
 - a. Name, address, and telephone number of the agency issuing the public notice.
 - b. Name and address of each applicant and facility, except for public notices of general permits.
 - c. Brief description of each applicant's activities or operations which result in the discharge described in the national pollutant discharge elimination system application or draft general permit, e.g., municipal waste treatment plant, steel manufacturing, or drainage for mining activities.
 - d. Name of waterway to which each discharge is made and a short description of the location of each discharge on the waterway indicating whether such discharge is a new or an existing discharge. For general permits, the public notice shall include a description of the permit area.
 - e. A statement of the tentative determination to issue or deny a national pollutant discharge elimination system permit for the discharge described in the national pollutant discharge elimination system application.
 - f. A brief description of the procedures for the formulation of final determinations, including the thirty-day comment period required by subsection 2, the right to request a public hearing, and any other means by which interested persons may influence or comment upon those determinations.
 - g. Address and telephone number of the department, where interested persons may obtain further information or request a

copy of the draft permit prepared pursuant to section 33-16-01-06, request a copy of the fact sheet prepared pursuant to section 33-16-01-08, and inspect and copy national pollutant discharge elimination system forms and related documents.

- h. The date, time, and location of any public hearing or meeting which has been scheduled.

History: Amended effective October 1, 2002.

General Authority: NDCC 61-28-04

Law Implemented: NDCC 61-28-04

33-16-01-07.1. Response to comments. Upon issuance of any final permit, the department shall issue a response to comments which briefly describes and responds to all significant comments received during the public comment period, public hearing, or public meeting. The response shall specify each provision of the draft permit which has been changed and the reasons for each change and shall be available to the public.

History: Effective October 1, 2002.

General Authority: NDCC 61-28-04

Law Implemented: NDCC 61-28-04

33-16-01-08. Fact sheets.

- 1. The department shall prepare, and following public notice, shall send, upon request to any person, a fact sheet with respect to the application described in the public notice, when a draft permit is prepared in the following circumstances:
 - a. The draft permit is for a major facility or a general permit;
 - b. The draft permit incorporates a variance or requires an explanation pursuant to paragraph 3 of subdivision c of subsection 2; or
 - c. The draft permit is subject to widespread public interest or raises major issues.
- 2. The contents of such fact sheets shall include at least the following information:
 - a. A brief description of the facility or activity and, when appropriate, a sketch or detailed description of the location of the discharge or regulated activity described in the national pollutant discharge elimination system application.
 - b. The type and quantity of wastes, fluids, or pollutants which are proposed to be or are being discharged.

Article 33-20

Solid Waste Management and Land Protection

Chapter

- 33-20-01 General Provisions [Repealed]
- 33-20-01.1 General Provisions
- 33-20-02 Storage [Repealed]
- 33-20-02.1 Permit Provisions and Procedures
- 33-20-03 Collection and Transportation [Repealed]
- 33-20-03.1 Permit Application Provisions
- 33-20-04 Resource Recovery [Repealed]
- 33-20-04.1 General Performance Standards
- 33-20-05 Standards of Performance for Disposal Operations [Repealed]
- 33-20-05.1 Inert Waste Landfills
- 33-20-06 Permit to Construct [Repealed]
- 33-20-06.1 Municipal Waste Landfills
- 33-20-07 Permit to Operate [Repealed]
- 33-20-07.1 Small Volume Industrial Waste Landfills and Special Waste Landfills
- 33-20-08 Common Provisions Applicable to Both a Permit to Construct and Permit to Operate [Repealed]
- 33-20-08.1 Surface Impoundment Provisions
- 33-20-09 Land Treatment Provisions
- 33-20-10 Large Volume Industrial Waste and MSW Ash Landfills
- 33-20-11 [Reserved]
- 33-20-12 Regulated Infectious Waste
- 33-20-13 Water Protection Provisions
- 33-20-14 Financial Assurance Requirements
- 33-20-15 Solid Waste Management Fees
- 33-20-16 Certification of Operators
- 33-20-17 Solid Waste Management Planning
- 33-20-18 Solid Waste Management Fund
- 33-20-19 Municipal Waste Landfill Release Compensation Fund

**CHAPTER 33-20-03.1
PERMIT APPLICATION PROVISIONS**

Section	
33-20-03.1-01	Preapplication Procedures
33-20-03.1-02	Permit Application Procedures
33-20-03.1-03	Permit Application Review and Action
33-20-03.1-04	Existing Permits
33-20-03.1-05	Existing Nonpermitted Facilities
33-20-03.1-06	Permit Application Review Timeline

33-20-03.1-01. Preapplication procedures.

1. For all new solid waste management facilities subject to the location standards of subsection 2 of section 33-20-04.1-01, a preapplication consisting of a preliminary facility description and a site assessment must be submitted to the department for review prior to submitting a permit application.
 - a. The preliminary facility description must include, at a minimum, the location of the facility; a projection of capacity, size, daily waste receipts, type of waste accepted, years of operation, description of operation, and costs; and a discussion of the proposed facility's compliance with local zoning requirements and the district waste management plan.
 - b. The preliminary site assessment must include available information pertaining to the site's geology, hydrogeology, topography, soils, and hydrology based on existing information.
2. Within sixty days of receipt of a preapplication, the department will provide written notification of approval or disapproval of the preapplication. If, after review of all information received, the department makes the determination to disapprove the preapplication, the department shall inform the applicant in writing of the reasons for the disapproval. If the preapplication is disapproved, the applicant may submit a new preapplication. A disapproval must be without prejudice to the applicant's right to a hearing before the department pursuant to North Dakota Century Code chapter 28-32.
3. An application may be filed only after approval of the preapplication and a finding by the department, after consultation with the state geologist and state engineer, that the site is geologically and hydrogeologically suitable for further evaluation and consideration.

History: Effective December 1, 1992; amended effective October 1, 1994.

General Authority: NDCC 23-29-04

Law Implemented: NDCC 23-29-04, 23-29-07, 23-29-07.6, 23-29-07.11

33-20-03.1-02. Permit application procedures.

1. An application for a permit must be submitted on forms available from the department by any person desiring to transport solid waste or to establish, construct, or operate a solid waste management unit or facility.
2. The application for a permit must be prepared by the applicant or the applicant's authorized agent and signed by the applicant.
3. Four copies of the application and supporting documents are required to be submitted to the department with the fee specified in chapter 33-20-15.
4. Upon the submission of an application for a permit for a new solid waste management unit or facility, the applicant shall publish a public notice indicating that an application has been submitted to the department. The public notice must indicate the type and location of the unit or facility and must be made by two separate publications in the official county newspaper in the county in which the site or operation is located. The applicant shall provide proof of publication by submitting to the department, within sixty days after the second publication of the notice, and affidavit from the publisher accompanied by a copy of the published notice, which shows the date of publication. The department may require public notice for facility changes listed in subsection 4 of section 33-20-02.1-06.
5. Applicants proposing a solid waste management facility in a mining permit area for disposal of coal processing waste must also file a copy of the application with the public service commission in accordance with subdivision a of subsection 1 of section 69-05.2-19-02.
6. Applications for a solid waste management unit or facility permit must include the following information where applicable:
 - a. A completed application form, subsection 1;
 - b. A description of the anticipated physical and chemical characteristics, estimated amounts, and sources of solid waste to be accepted, including the demonstration required by North Dakota Century Code section 23-29-07.8;
 - c. The site characterization of section 33-20-13-01 and a demonstration that the site fulfills the location standards of section 33-20-04.1-01;
 - d. Soil survey and segregation of suitable plant growth material;

- e. Demonstrations of capability to fulfill the general facility standards of section 33-20-04.1-02;
- f. Facility engineering specifications adequate to demonstrate the capability to fulfill performance, design, and construction criteria provided by this article and enumerated in this subdivision;
 - (1) Transfer stations and drop box facilities, section 33-20-04.1-06.
 - (2) Waste piles, section 33-20-04.1-07.
 - (3) Resource recovery, section 33-20-04.1-08.
 - (4) Land treatment, sections 33-20-04.1-09 and chapter 33-20-09.
 - (5) Surface impoundments, sections 33-20-04.1-09 and chapter 33-20-08.1.
 - (6) Any disposal, section 33-20-04.1-09.
 - (7) Inert waste landfill, chapter 33-20-05.1.
 - (8) Municipal waste landfill, chapter 33-20-06.1.
 - (9) Industrial waste landfill, chapters 33-20-07.1 or 33-20-10.
 - (10) Special waste landfill, chapter 33-20-07.1;
- g. The plan of operation of section 33-20-04.1-03;
- h. Demonstration of the treatment technology of section 33-20-01.1-12;
- i. The place where the operating record is or will be kept, section 33-20-04.1-04;
- j. Demonstration of capability to fulfill the ground water monitoring, section 33-20-13-02;
- k. Construction quality assurance and quality control;
- l. Demonstrations of capability to fulfill the closure standards, section 33-20-04.1-05 and otherwise provided by this article;
- m. Demonstrations of capability to fulfill the postclosure standards, section 33-20-04.1-09 and otherwise provided by this article;

- n. Demonstration of conformance with the district solid waste management plan as required by North Dakota Century Code sections 23-29-06 and 23-29-07; and
 - o. A disclosure statement as required by North Dakota Century Code section 23-29-07.11.
7. Applications for a solid waste transporter's permit must include the following information:
- a. A completed application form, subsection 1;
 - b. Description of the types of solid waste to be transported, approximate quantities, and anticipated generator sources;
 - c. A list of the anticipated solid waste management facilities that will store, treat, process, recycle, or dispose the solid waste;
 - d. Description of equipment and transportation spill prevention as required by section 33-20-01.1-05; and
 - e. A disclosure statement as required by North Dakota Century Code section 23-29-07.11.

History: Effective December 1, 1992; amended effective August 1, 1993; October 1, 1994.

General Authority: NDCC 23-29-04

Law Implemented: NDCC 23-29-04, 23-29-07, 23-29-07.8, 23-29-07.11

33-20-03.1-03. Permit application review and action.

- 1. The department will review the applications, plans, and specifications for solid waste transporters and for solid waste management facilities and information submitted as a result of the public notices.
- 2. Upon completion of the department's review, the application for permit will be approved, returned for clarification and additional information, or denied.
 - a. The basis for approval must be an application which demonstrates compliance with this article and the North Dakota Century Code chapter 23-29.
 - b. The basis for return must be an application which is procedurally or technically incomplete, inaccurate, or deficient in detail, or which precludes an orderly review and evaluation. If the application is returned, the applicant may resubmit an application, complete with all necessary information to satisfy deficiencies. If the applicant

does not resubmit an application within six months, the department shall consider the application withdrawn, and any subsequent application must be considered a new application.

- c. The basis for denial must be an application which contains false, misleading, misrepresented, or substantially incorrect or inaccurate information; fails to demonstrate compliance with this article; proposes construction, installation, or operation of a solid waste management unit or facility which will result in a violation of any part of this article; or is made by an applicant for whom an environmental compliance background review reveals any of the circumstances listed in subsection 14 of North Dakota Century Code section 23-29-04.
- 3. If the department makes a preliminary determination to issue a permit for a solid waste management facility, the department shall prepare a draft permit. The draft permit will be available for public review and comment after the department publishes a notice of its intent to issue the permit. The public notice must be published in the official county newspaper in the county in which the solid waste management unit or facility is located and in a daily newspaper of general circulation in the area of the facility.
 - a. Interested persons may submit written comments to the department on the draft permit within thirty days of the final public notice. All written comments will be considered by the department in the formulation of its final determinations.
 - b. The department may hold a hearing if it determines there is significant public interest in holding such a hearing. Public notice for a hearing will be made in the same manner as for a draft permit. The hearing will be before the department and will be held at least fifteen days after the public notice has been published.
 - 4. If, after review of all information received, the department approves the permit application, the department shall issue a permit. The department may impose reasonable conditions upon a permit.
 - 5. If, after review of all information received, the department makes the determination to deny the permit, the applicant will be notified, in writing, of the denial. The department shall set forth in any notice of denial the reasons for denial. If the application is denied, the applicant may submit a new application, which will require a new public notice. A denial

must be without prejudice to the applicant's right to a hearing before the department pursuant to North Dakota Century Code chapter 28-32.

History: Effective December 1, 1992; amended effective October 1, 1994; August 1, 1995.

General Authority: NDCC 23-29-04

Law Implemented: NDCC 23-29-04, 23-29-07

33-20-03.1-04. Existing permits. A permittee of an existing permit on December 1, 1992, that is subject to this article shall notify the department of all requirements, including a proposed schedule, as are necessary to bring the permittee into compliance with this article. The notification must be submitted to the department before October 9, 1993. The department must establish a compliance schedule to achieve compliance with this article.

History: Effective December 1, 1992; amended effective August 1, 1993.

General Authority: NDCC 23-29-04

Law Implemented: NDCC 23-29-04, 23-29-07

33-20-03.1-05. Existing nonpermitted facilities. The owner of an existing facility which does not have a permit on December 1, 1992, and which is required to be permitted by North Dakota Century Code chapter 23-29 and this article shall apply to the department for a permit within twenty-four months of December 1, 1992.

History: Effective December 1, 1992.

General Authority: NDCC 23-29-04

Law Implemented: NDCC 23-29-04, 23-29-07

33-20-03.1-06. Permit application review timeline. Upon receipt of a permit application, the department has one hundred twenty days to review and approve or disapprove the application and notify the applicant of the decision. The department may extend the period an additional one hundred twenty days if the applicant submits a significant change that in the department's judgment requires additional time to review.

History: Effective December 1, 1992.

General Authority: NDCC 23-29-04

Law Implemented: NDCC 23-29-04, 23-29-07

Article 33-15

Air Pollution Control

Chapter

- 33-15-01 General Provisions
- 33-15-02 Ambient Air Quality Standards
- 33-15-03 Restriction of Emission of Visible Air Contaminants
- 33-15-04 Open Burning Restrictions
- 33-15-05 Emissions of Particulate Matter Restricted
- 33-15-06 Emissions of Sulfur Compounds Restricted
- 33-15-07 Control of Organic Compounds Emissions
- 33-15-08 Control of Air Pollution From Vehicles and Other Internal Combustion Engines
- 33-15-09 Emission of Certain Settleable Acids and Alkaline Substances Restricted [Repealed]
- 33-15-10 Control of Pesticides
- 33-15-11 Prevention of Air Pollution Emergency Episodes
- 33-15-12 Standards of Performance for New Stationary Sources
- 33-15-13 Emission Standards for Hazardous Air Pollutants
- 33-15-14 Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Perr Operate
- 33-15-15 Prevention of Significant Deterioration of Air Quality
- 33-15-16 Restriction of Odorous Air Contaminants
- 33-15-17 Restriction of Fugitive Emissions
- 33-15-18 Stack Heights
- 33-15-19 Visibility Protection
- 33-15-20 Control of Emissions From Oil and Gas Well Production Facilities
- 33-15-21 Acid Rain Program
- 33-15-22 Emissions Standards for Hazardous Air Pollutants for Source Categories
- 33-15-23 Fees
- 33-15-24 Standards for Lead-Based Paint Activities
- 33-15-25 Regional Haze Requirements

**CHAPTER 33-15-14
DESIGNATED AIR CONTAMINANT SOURCES, PERMIT TO CONSTRUCT,
MINOR SOURCE PERMIT TO OPERATE, TITLE V PERMIT TO OPERATE**

Section	
33-15-14-01	Designated Air Contaminant Sources
33-15-14-01.1	Definitions
33-15-14-02	Permit to Construct
33-15-14-03	Minor Source Permit to Operate
33-15-14-04	Permit Fees [Repealed]
33-15-14-05	Common Provisions Applicable to Both Permit to Construct and Permit to Operate [Repealed]
33-15-14-06	Title V Permit to Operate
33-15-14-07	Source Exclusions From Title V Permit to Operate Requirements

33-15-14-01. Designated air contaminant sources. Pursuant to subsection 1 of North Dakota Century Code section 23-25-04, stationary sources within the following source categories are designated as air contaminant sources capable of causing or contributing to air pollution, either directly or indirectly.

1. The following chemical process facilities:
 - a. Adipic acid.
 - b. Ammonia.
 - c. Ammonium nitrate.
 - d. Carbon black.
 - e. Charcoal.
 - f. Chlorine.
 - g. Chlor-alkali manufacturing.
 - h. Detergent and soap.
 - i. Explosives (trinitrotoluene and nitrocellulose).
 - j. Hydrochloric acid.
 - k. Hydrofluoric acid.
 - l. Nitric acid.
 - m. Paint and varnish manufacturing.

PM ₁₀		5	
NO ₂	1.0		7.5
CO		500	2000
PM _{2.5}	0.3	1.2	

b. Whether the proposed project will provide all necessary and reasonable methods of emission control. Whenever a standard of performance is applicable to the source, compliance with this criterion will require provision for emission control which will, at least, satisfy such standards.

6. Public participation - Final action on application.

a. The following source categories are subject to the public participation procedures under this subsection:

- (1) Those affected facilities designated under chapter 33-15-13.
- (2) New sources that will be required to obtain a permit to operate under section 33-15-14-06.
- (3) Modifications to an existing facility which will increase the potential to emit from the facility by the following amounts:
 - (a) One hundred tons [90.72 metric tons] per year or more of particulate matter, sulfur dioxide, nitrogen oxides, hydrogen sulfide, carbon monoxide, or volatile organic compounds;
 - (b) Ten tons [9.07 metric tons] per year or more of any contaminant listed under section 112(b) of the Federal Clean Air Act; or
 - (c) Twenty-five tons [22.68 metric tons] per year or more of any combination of contaminants listed under section 112(b) of the Federal Clean Air Act.
- (4) Sources which the department has determined to have a major impact on air quality.
- (5) Those for which a request for a public comment period has been received from the public.
- (6) Sources for which a significant degree of public interest exists regarding air quality issues.

(7) Those sources which request a federally enforceable permit which limits their potential to emit.

b. With respect to the permit to construct application, the department shall:

(1) Within ninety days of receipt of a complete application, make a preliminary determination concerning issuance of a permit to construct.

(2) Within ninety days of the receipt of the complete application, make available in at least one location in the county or counties in which the proposed project is to be located, a copy of its preliminary determinations and copies of or a summary of the information considered in making such preliminary determinations.

(3) Publish notice to the public by prominent advertisement, within ninety days of the receipt of the complete application, in the region affected, of the opportunity for written comment on the preliminary determinations. The public notice must include the proposed location of the source.

(4) Within ninety days of the receipt of the complete application, deliver a copy of the notice to the applicant and to officials and agencies having cognizance over the locations where the source will be situated as follows: the chief executive of the city and county; any comprehensive regional land use planning agency; and any state, federal land manager, or Indian governing body whose lands will be significantly affected by the source's emissions.

(5) Within ninety days of receipt of a complete application, provide a copy of the proposed permit and all information considered in the development of the permit and the public notice to the regional administrator of the United States environmental protection agency.

(6) Allow thirty days for public comment.

(7) Consider all public comments properly received, in making the final decision on the application.

(8) Allow the applicant to submit written responses to public comments received by the department. The applicant's responses must be submitted to the department within twenty days of the close of the public comment period.

- (9) Take final action on the application within thirty days of the applicant's response to the public comments.
 - (10) Provide a copy of the final permit, if issued, to the applicant, the regional administrator of the United States environmental protection agency, and anyone who requests a copy.
- c. For those sources subject to the requirements of chapter 33-15-15, the public participation procedures under section 33-15-15-01.2 shall be followed.

7. **Denial of permit to construct.** If, after review of all information received, including public comment with respect to any proposed project, the department makes the determination of any one of subdivision a or b of subsection 5 in the negative, it shall deny the permit and notify the applicant, in writing, of the denial to issue a permit to construct.

If a permit to construct is denied, the construction, installation, or establishment of the new stationary source shall be unlawful. No permit to construct or modify may be granted if such construction, or modification, or installation, will result in a violation of this article.

8. **Issuance of permit to construct.** If, after review of all information received, including public comment with respect to any proposed project, the department makes the determination of subdivision a or b of subsection 5 in the affirmative, the department shall issue a permit to construct. The permit may provide for conditions of operation as provided in subsection 9.

9. **Permit to construct - Conditions.** The department may impose any reasonable conditions upon a permit to construct, including conditions concerning:

- a. Sampling, testing, and monitoring of the facilities or the ambient air or both.
- b. Trial operation and performance testing.
- c. Prevention and abatement of nuisance conditions caused by operation of the facility.
- d. Recordkeeping and reporting.
- e. Compliance with applicable rules and regulations in accordance with a compliance schedule.

Testimony
House Bill 1113
Senate Energy and Natural Resources Committee
Thursday, March 26, 2015; 4:00 p.m.
North Dakota Department of Health

Attachment 1

Good afternoon Chairman Schaible and members of the Energy and Natural Resources Committee. My name is David Glatt, Section Chief of the Environmental Health Section (EHS) for the North Dakota Department of Health (Department). The EHS's Radiation Control Program regulates the many forms of ionizing radiation, monitoring issues ranging from the safety and use of x-ray equipment to the storage and security of radioactive materials. The EHS operates its program through an agreement with the federal Nuclear Regulatory Commission and through the implementation of state laws. The EHS's Radiation Control Program also regulates technologically enhanced naturally occurring radioactive material (TENORM), which is not regulated by the Nuclear Regulatory Commission. I am here today to testify in support of House Bill 1113.

The Department has proposed the following amendments to NDCC 23-20.1:

- > Section 1 clarifies the procedures for appeals of NDCC 23-20.1 permit proceedings. These will be conducted using the same procedures as appeals of the Department's other permit proceedings. The Department believes that NDCC 23-20.1 was inadvertently omitted from the list of chapters referenced in this statute, as it is listed in a related statute (NDCC 23-01-23) that discusses the Department's permit procedures.
- > Section 2, starting on page 2, line 7, refers to the Department's proposal to exempt landfill operations that accept TENORM from the requirement to transfer title of the disposal facility to the United States or the State of North Dakota upon closure. The current law addresses how ownership of radioactive material should be addressed after a facility is closed. Specifically, the title of the facility would be transferred to the U.S. Government or the state, as required by federal law. Because TENORM waste is not regulated at the federal level, the requirement to transfer ownership does not apply. However, it is important to note that the facility ownership will be retained by the current landfill owner pursuant to the solid waste laws and rules. All existing provisions of NDCC 23.20.1 – Ionizing Radiation Development Law and Solid Waste provisions, identified in

NDCC 23-29, will continue to apply to these facilities to ensure the proper handling, storage and disposal of TENORM.

- > Section 3, starting on page 2, line 12, refers to the radiation material licensing process under Section 23-20.1-04.3, subsections 1 and 2. As currently written, the Department must provide an opportunity for a hearing on radioactive material license applications. Unlike other license hearings, there must be an opportunity for cross-examination. This process would require the Department to dedicate considerable funding and time to evaluate, approve or reject even the most basic and straightforward permits. In addition, the current statute is not consistent with NDCC 23-01-23, which discusses the procedures for permit hearings conducted under NDCC 23-20.1.

In the current bill draft, the Department proposed to delete the procedural requirements found in 23-20.1-04.3 and replace them with rules consistent with other public participation requirements found in the environmental programs in the state. This proposal has resulted in confusion, causing some to believe that the public participation process is being reduced. To address this confusion, the Department proposes to amend HB 1113 by deleting only Section (1)(b), which references cross examination, leaving the remaining portion of 23-20.1-4.3 intact. Because many licenses have little or no comment, this would allow the Department to expedite the licensing process while still providing for public comment. The Department has enhanced the appeal process by addressing this issue in the Section 1 amendment.

- > Section 4 on page 3 contains general editing, and deletes an unnecessary cross-reference.
- > Section 5 replaces references to the State Health Council with the "Department." This deletion will make this section consistent with other statutes under which a hearing may be requested before the Department. Such hearings are generally conducted by an administrative law judge from the Office of Administrative Hearings.
- > Section 6 requests that Section 23-20.1-10 be revised to increase the civil penalty from \$10,000 per day per violation to \$12,500 per day per violation. The increased penalty is consistent with the penalty provisions of other divisions of the Department of Health. In addition, two subsections are added to define criminal violations and potential penalties for violations of the Radioactive Materials License rules. These penalties also are consistent



with those imposed on entities that violate the North Dakota Industrial Commission's oil and gas regulations requiring proper disposal of oilfield waste. The Department is also proposing minor amendments to the criminal penalty provisions, as recommended by the Attorney General's Office.

- > Finally, Section 7 requests that Section 23.20.1-09.1 – Confidentiality of Records of the North Dakota Century Code be repealed because other laws already address confidentiality for these records. Security of information related to radioactive materials is currently maintained in compliance with the requirements of the U.S. Nuclear Regulatory Commission and the U.S. Department of Homeland Security. Personal medical information is protected under the Health Insurance Portability and Accountability Act (HIPAA). All other information is publicly available pursuant to the state's open records laws.

This concludes my testimony. I am happy to answer any questions you may have.

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1113

Page 2, line 12, remove the overstrike over "~~and regulation of the processing, generation, or disposal~~"

Page 2, remove the overstrike over lines 15 through 17

Page 2, remove the overstrike over lines 19 through 30

Page 3, remove the overstrike over lines 1 through 10

Page 3, line 10, remove "by rules a procedure for the handling of"

Page 3, remove lines 11 through 12

Page 4, lines 23 through 25, remove "For multiple violations, penalties may be assessed up to the maximum amount specified in this subsection for each day of each separate violation."

Page 4, line 26, replace "knowingly" with "willfully"

Page 4, line 30, replace "knowingly" with "willfully"

Page 5, lines 3 through 4, remove "For multiple violations, penalties may be assessed up to the maximum amount specified in this subsection for each day of each separate violation."

Renumber accordingly

March 26, 2015

Attachment 2
3/26/15

Mr. Chairman and Members of the Committee:

My name is Carol Ventsch. I am opposed to HB1113. It raises too many questions. 23-20.1-04.3 of the North Dakota Century Code refers to licensing and regulation of source material, byproduct material, or other radioactive material occurring naturally or produced artificially. The bill would eliminate regulation. If the health department will not be regulating this material, who will be? 23-20.1-01 defines byproduct, radioactive material and source material (attached). Procedural requirements under 23-20.1-04.3 are reduced from a comprehensive health department written analysis of impacts to public health and the environment, along with an opportunity for a public hearing, to an undefined procedure for the handling of applications for specific licenses. Rather than mandating a public hearing, the law would allow the department of health to decide if a public hearing is "appropriate". 23-20.1-09.1 states "Any record, report or information obtained under this chapter must be available to the public unless confidentiality is requested in writing to the department...." It specifically states "air emissions data, discharges to the land, discharges to surface and ground waters, and the location and identification of any waste materials may not be construed as confidential information". The bill would repeal this section of the Century Code. HB1113 appears to allow for the disposal of radioactive waste within North Dakota without input from the public, and allows consequences to be hidden. This is very concerning to me. Mr. Chairman and members of the committee, as you consider this bill, please remember the day will come when you are private citizens. Make your decision based on the possibility of radioactive waste being disposed of near your home. It could happen. Thank you.

CHAPTER 23-20.1
IONIZING RADIATION DEVELOPMENT

23-20.1-01. Definitions.

For the purposes of this chapter, the following words and phrases are defined:

1. "Byproduct material" means any radioactive material, except special nuclear material, yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; and the tailings or wastes produced by the extraction, or concentration of uranium or thorium from any ore processed primarily for its source material content.
2. "Commission" means United States nuclear regulatory commission or any successor thereto.
3. "Department" means state department of health.
4. "General license" means a license effective pursuant to regulations promulgated by the department without the filing of an application to transfer, acquire, own, possess, or use quantities of, or devices or equipment utilizing byproduct, source, special nuclear materials, or other radioactive material occurring naturally or produced artificially.
5. "Ionizing radiation" means gamma rays and x-rays, alpha and beta particles, high-speed electrons, protons, neutrons, and other nuclear particles; but not sound or radio waves, or visible, infrared, or ultraviolet light.
6. "Person" means any individual, corporation, limited liability company, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this state, any other state or political subdivision or agency thereof, and any legal successor, representative, agent, or agency of the foregoing, other than the commission, and other than federal government agencies licensed by the commission.
7. "Radioactive material" means any solid, liquid, or gas that emits ionizing radiation spontaneously.
8. "Registration" means the notification of the department of possession of a source of radiation and the furnishing of information with respect thereto, in accordance with sections 23-20-02 through 23-20-06.
9. "Special nuclear material" means:
 - a. Plutonium, uranium-233, uranium enriched in the isotope-233 or in the isotope-235, and any other material which the department declares by rule to be special nuclear material after the commission has determined the material to be such, but does not include source material; or
 - b. Any material artificially enriched by any of the foregoing but does not include source material.
10. "Specific license" means a license issued after application, to process, generate, dispose, use, manufacture, produce, transfer, receive, acquire, own, or possess quantities of, or devices or equipment utilizing byproduct, source, special nuclear materials, or other radioactive material occurring naturally or produced artificially.
11. "Source material" means uranium, thorium, or any other material which the department declares by rule to be source material after the commission has determined the material to be such; or ores containing one or more of the foregoing materials, in such concentration as the department declares by rule to be source material after the commission has determined the material in such concentration to be source material.
12. "Surety" means cash deposits, surety bonds, certificates of deposit, deposits of government securities, letters of credit, and other surety mechanisms deemed acceptable by the department.

23-20.1-02. State radiation control agency.

The state department of health is hereby designated to administer the statewide licensing and regulatory radiation program, consistent with the provisions of this chapter.

March 26, 2015

Mr. Chairman and Members of the Committee:

I am Shelly Ventsch from New Town. I am opposing HB 1113. I believe this bill is not in the best interests of the residents of North Dakota. Why is it needed at this time? The oil industry has been producing radioactive waste from the beginning. Did the Department of Health make the decision to raise the picocurie limit from 5 to 50 before there were any hearings with public comment? This bill was heard in the House on January 16, 2015. The first hearing for raising the picocurie limit was on January 20, 2015 in Williston. When Scott Radig was questioned about this bill in relation to raising picocuries, I believe he deliberately misspoke when he said it had nothing to do with it. Dave Glatt has connected the two more than once. It appears the proposed changes to these sections of the Century Code are taking out important procedural requirements with little to no specifics as to who will regulate TENORM or how it will be tracked, among other issues. In 23-20.1-04.3(2)(b), public comment will be accepted "as appropriate" by the department. What is the criteria for "as appropriate"? What the residents living around the oil fields feel is appropriate may not be what someone in Bismarck in an office feels is appropriate. It is leaving the door open to do anything without public input. Will it go as far as increasing picocuries even higher than 50? How would the public know what is being done to the area they live in? What is the point of repealing a whole section on confidentiality? The way it is written now shouldn't have any negative effects on the department doing its job.

I strongly disagree with this bill and ask for a do not pass recommendation. Thank you.

#1 4-16-15
AB 1113

12.1-02-02. Requirements of culpability.

1. For the purposes of this title, a person engages in conduct:
 - a. **Intentionally** if, when he engages in the conduct, it is his purpose to do so.
 - b. **Knowingly** if, when he engages in the conduct, he knows or has a firm belief, unaccompanied by substantial doubt, that he is doing so, whether or not it is his purpose to do so.
 - c. **Recklessly** if he engages in the conduct in conscious and clearly unjustifiable disregard of a substantial likelihood of the existence of the relevant facts or risks, such disregard involving a gross deviation from acceptable standards of conduct, except that, as provided in section 12.1-04-02, awareness of the risk is not required where its absence is due to self-induced intoxication.
 - d. **Negligently** if he engages in the conduct in unreasonable disregard of a substantial likelihood of the existence of the relevant facts or risks, such disregard involving a gross deviation from acceptable standards of conduct.
 - e. **Willfully** if he engages in the conduct intentionally, knowingly, or recklessly.
2. If a statute or regulation thereunder defining a crime does not specify any culpability and does not provide explicitly that a person may be guilty without culpability, the culpability that is required is willfully.
3.
 - a. Except as otherwise expressly provided, where culpability is required, that kind of culpability is required with respect to every element of the conduct and to those attendant circumstances specified in the definition of the offense, except that where the required culpability is intentionally, the culpability required as to an attendant circumstance is knowingly.
 - b. Except as otherwise expressly provided, if conduct is an offense if it causes a particular result, the required degree of culpability is required with respect to the result.
 - c. Except as otherwise expressly provided, culpability is not required with respect to any fact which is solely a basis for grading.
 - d. Except as otherwise expressly provided, culpability is not required with respect to facts which establish that a defense does not exist, if the defense is defined in chapters 12.1-01 through 12.1-06; otherwise the least kind of culpability required for the offense is required with respect to such facts.
 - e. A factor as to which it is expressly stated that it must in fact exist is a factor for which culpability is not required.
4. Any lesser degree of required culpability is satisfied if the proven degree of culpability is higher.
5. Culpability is not required as to the fact that conduct is an offense, except as otherwise expressly provided in a provision outside this title.