

McCracken, Chuck

From: Michael Snee
Sent: Friday, March 12, 2010 3:07 PM
To: Robert Owen; Stephen Helmer; Chuck McCracken; Kenneth Barnhart; David Lipp; Jim Coitelli
Subject: FW: Inquiry on Radioactive Materials Committee meeting

FYI

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

-----Original Message-----

From: Michael Snee
Sent: Friday, March 12, 2010 3:06 PM
To: 'George Skipper'
Subject: RE: Inquiry on Radioactive Materials Committee meeting

Mr. Skipper,

Any Bureau actions concerning NORM and TENORM will be discussed in Radioactive Materials Committee and Radiation Advisory Council meetings. All meetings held by the two groups are open to the public. At this time I cannot give you a time period when any possible Bureau actions would be completed.

Any Bureau actions taken at a ODNr permitted drilling site will be coordinated with ODNr. This type of inter agency coordination is usually performed through a Memorandum of Understanding between the agencies.

Also, as requested you have been added to the Bureau's e-mail list.

Sincerely,

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

-----Original Message-----

From: George Skipper [mailto:gcskip3@sbcglobal.net]
Sent: Monday, March 08, 2010 11:31 PM
To: Michael Snee
Subject: Re: Inquiry on Radioactive Materials Committee meeting

Michael Snee wrote:

Mr. Snee,

Thank you, yes, please add my name to the Bureau's e-mail list. Also, in your earlier e-mail you stated ODH is currently reviewing existing state regulations and evaluating concerns about NORM and TENORM issues in the gas and oil industry, at the request of both OEPA and ODNr. Will the conclusions of the evaluation be presented in an open committee meeting or, more specifically, what can I do to obtain a copy of any report on the evaluation? And, is there a time period within which you expect the evaluation to be completed?

Would you also please clarify ODH's role with regard to NORM and TENORM issues at drilling sites? My understanding of ORC 1509.02 is that ODNR's DMRM has sole authority over conditions attached to a drilling permit. If that's correct, and ODH decides radiation monitoring should be implemented, then which organization sets up and has responsibility for an on-site program?

I sincerely appreciate any assistance you can provide to help me with an issue in which I am very interested yet, obviously, do not clearly understand. Thank you.

Best regards,
George Skipper
> Mr. Skipper,

>
> If you wish I can have you added to the Bureau's e-mail list. Information on upcoming meetings, draft rules, and other information is sent out to interested parties on a routine basis. Let me know if you are interested in being added to the list.

>
> Sincerely,
>
> Michael Snee
> Ohio Department of Health
> Bureau of Radiation Protection
>

>
> -----Original Message-----
> From: George Skipper [mailto:gcskip3@sbcglobal.net]
> Sent: Monday, March 01, 2010 6:42 PM
> To: Michael Snee
> Subject: Inquiry on Radioactive Materials Committee meeting
>

> Mr. Snee,
> Thank you for your prompt and informative response to my earlier
> inquiry. I'd like to be notified of any committee meetings, if open
> to the public, where the NORM and TENORM issues will be discussed. If
> there are no such committee meetings, I would appreciate being
> informed of the your review process conclusions. Thank you again.

>
> Sincerely,
>
> George Skipper
>
>

Mark Light

From: Jennifer House
Sent: Monday, April 04, 2011 9:19 AM
To: Michael Snee; Stephen Helmer
Subject: FW: Athens Messenger Call

Hi Mike and Steve,

Please see the e-mail below from my counterpart Mike Settles at Ohio EPA. I have a feeling the reporter from the Athens Messenger will be giving me a call sometime this week. He will likely ask what would have to happen for us to decide additional monitoring is warranted? What levels would we have to see in the annual report, that would raise concern?

I will let you know when/if he calls but I wanted to give you the initial heads up and let you know I may be reaching out to you on this topic later today/this week.

Jen House
--
Public Information Officer
Ohio Department of Health
Jennifer.house@odh.ohio.gov
Office: (614) 644-8562
Cell: (614) 359-0400

From: Mike Settles [<mailto:Mike.Settles@epa.state.oh.us>]
Sent: Friday, April 01, 2011 5:21 PM
To: Jennifer House
Cc: Heidi.Evans@dnr.state.oh.us
Subject: Athens Messenger Call

Jen:


I left you a voice message earlier. This is what I told reporter Steve Rob:

Late call regarding radioactive material in Marcellus Shale wastewater and putting it through municipal wastewater treatment plants. We know that very low levels of naturally-occurring radioactive material can come up from the earth in the gas well wastewater. We've been working with our partners (ODNR and ODH) to learn more about this emerging issue. When the city of Warren conducted a pilot project as part of its discharge permit modification application, they monitored for radioactivity and everything came back non-detect. When we later issued Warren's permit, a condition was placed in it requiring an annual report to Ohio EPA and ODH that needs to include information on radioactivity. The condition was written to allow additional monitoring if ODH determines it's warranted. I suggested the reporter call ODH's Jen House if he wants to find out more about handling radioactive substances (I called and left a message with her prior to referring him).

Have a good weekend!

Mike

Mike Settles
Media Relations Coordinator
Ohio EPA's Public Interest Center
(614) 644-2160
mike.settles@epa.state.oh.us

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this communication and any response to it constitutes a public record. 

Mark Light

From: Dan Lincoln [linc20@yahoo.com]
Sent: Friday, March 25, 2011 5:35 PM
To: Michael Snee
Subject: Re: Oilfield Brine Radiation

Mr. Snee,

After having discussions with both ODNR and OEPA, it's understood that ODH is responsible for and has already determined the radioactivity levels and types in oil & gas fluids.

That's why this request for information was sent to ODH regarding the specific methods used in determining radioactivity levels and types in flowback fluid, produced fluid, and drill cuttings, from high volume horizontal fracturing process.

ODNR, OEPA and ODH continue to report radioactive levels of these fluids and materials below safe levels, the Warren permit clearly shows this. This is a request for the specifics of those measurements justifying that claim.

Regards,

Dan Lincoln

"To sin by silence when they should protest makes cowards of men." Abe Lincoln

From: Michael Snee <Michael.Snee@odh.ohio.gov>
To: "linc20@yahoo.com" <linc20@yahoo.com>
Sent: Fri, March 25, 2011 3:43:50 PM
Subject: Re: Oilfield Brine Radiation

Mr. Lincoln,

With the anticipated increase in oil and gas well operations in Ohio, the Ohio Department of Health has been monitoring these operations along with personnel from the Ohio Environmental Protection Agency and the Ohio Department of Natural Resources. To date these measures have been analyzing water from drilling operations that was sent to a waste water treatment plant in Warren, Ohio as part of a pilot project. Along with the water, sludge that is produced at the treatment plant is also being analyzed for radiation. Surveys results have not shown elevated radiation levels from these samples.

A survey of well sites to determine the radiation levels from the naturally occurring radioactive material in the fluids and cuttings is now being planned.

Sincerely,

Michael Snee
Chief, Bureau of Radiation Protection
Ohio Department of Health
614-644-2727

From: Dan Lincoln [linc20@yahoo.com]
Sent: Wednesday, March 16, 2011 8:44 AM

To: BRadiation
Subject: Oilfield Brine Radiation

Hello,

I'm a concerned citizen from Magnolia, Oh (Stark county) and have a few questions regarding the radiation being brought to the surface during the high volume horizontal fracturing process in oil & gas well operations in the Marcellus shale formation in Ohio.

I appreciate ODH is very busy, but have discovered the amount of speculation on the web regarding this issue and feel the ODH may be the best source for this information.

1) What are the types and levels of radiation from: A) The Flowback Fluid, B) The Produced Brine, C) The Drill Cuttings.

2) What techniques & equipment are used to perform each measurement, (i.e. Regulation or Procedure number, also the instrumentation Mfr & model numbers used)? (The more technical the better here).

3) What Ohio and Federal regulations are invoked in dealing with these types and levels of radiation (handling, disposing, licensing, etc...)?

If ODH is in the process of determining this information or creating the necessary regulation, could you please state that and refer to the current standards that are being used?

Thank you very much for your time and assistance,
Dan Lincoln
Magnolia, OH

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McCracken, Chuck

From: Mark Light
Sent: Tuesday, November 01, 2011 2:16 PM
To: Michael Snee
Cc: Chuck McCracken; Jim Colleli
Subject: RE: NORM wastes

Here is the link to OEPA which states the manage solid waste from drilling to landfills. This should be their POC.

<http://www.epa.state.oh.us/shale.aspx>

Specifically, Ohio EPA's Division of Materials and Waste Management (DMWM).

Mark Light

Program Administrator
Nuclear Materials Safety Section
Bureau of Radiation Protection
Ohio Department of Health
Office: 614-752-8828
Fax: 614-466-0381
Email: Mark.Light@odh.ohio.gov

From: Michael Snee
Sent: Tuesday, November 01, 2011 1:28 PM
To: Mark Light
Cc: Chuck McCracken; Jim Colleli
Subject: RE: NORM wastes

We can meet on this issue, but why would this be any different than how we have been handling this now? Do they have drill cutting on site? Do the ODNR rules allow drill cutting to go to landfills?

From: Mark Light
Sent: Tuesday, November 01, 2011 1:08 PM
To: Michael Snee
Cc: Chuck McCracken; Jim Colleli
Subject: FW: NORM wastes

Mike, Can we set up a meeting with Steve and David to discuss this?

Mark Light

Program Administrator
Nuclear Materials Safety Section
Bureau of Radiation Protection
Ohio Department of Health
Office: 614-752-8828
Fax: 614-466-0381
Email: Mark.Light@odh.ohio.gov

From: Chuck McCracken
Sent: Tuesday, November 01, 2011 1:04 PM

To: Mark Light
Subject: RE: NORM wastes

Drill cuttings are solids that cannot go down-hole.

From: Mark Light
Sent: Tuesday, November 01, 2011 12:44 PM
To: Chuck McCracken
Subject: RE: NORM wastes

I thought all waste was going to be deep well injected

Mark Light

Program Administrator
Nuclear Materials Safety Section
Bureau of Radiation Protection
Ohio Department of Health
Office: 614-752-8828
Fax: 614-466-0381
Email: Mark.Light@odh.ohio.gov

From: Chuck McCracken
Sent: Tuesday, November 01, 2011 12:36 PM
To: Mark Light
Subject: FW: NORM wastes

Mark:

We tried to push this guy to contact ODNR with his question, but he came back with a strong argument that we will certainly be faced with as Marcellus Shale operations increase in Ohio.
Maybe we need to reconvene the ODH NORM team and discuss an appropriate response.

Chuck

From: Jim Colleli
Sent: Tuesday, November 01, 2011 12:01 PM
To: Chuck McCracken
Subject: FW: NORM wastes

FYI

From: Ross, Jerry [mailto:JRoss8@wm.com]
Sent: Tuesday, November 01, 2011 11:49 AM
To: Jim Colleli
Subject: Re: NORM wastes

Thanks Jim, for your response. However, since Mahoning County mandates their landfills monitor for radiation, many of the drill cuttings will set off the radiation alarms, then our waste exclusion rules kick the problem back to your office. Even if the material is exempt waste under oil and gas exploration rules, the resultant NORM material creates disposal issues unless an exemption or acceptable safe level is given for the radiation properties of the material.

If someone at ODNR has the authority to issue these levels, would you please give me a contact name.

From: Jim Colleli [mailto:Jim.Colleli@odh.ohio.gov]
Sent: Tuesday, November 01, 2011 09:29 AM
To: Ross, Jerry
Cc: Chuck McCracken <Chuck.McCracken@odh.ohio.gov>
Subject: NORM wastes

Jerry,

Thanks for your inquiry yesterday in regard to NORM wastes from OIL and Gas operations in Ohio.

The Ohio Department of Natural Resources are the prime regulator for wastes resultant from oil and gas drilling in Ohio. I would contact them for what the accepted practices are for these types of wastes going forward.

Jim Colleli
Ohio Department of Health
Bureau of Radiation Protection
614-728-0882 direct
Jim.Colleli@odh.ohio.gov

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Waste Management recycles enough paper every year to save 41 million trees. Please recycle any printed emails.

McCracken, Chuck

From: Michael Snee
Sent: Tuesday, March 09, 2010 8:06 AM
To: Robert Owen
Cc: Stephen Helmer; Chuck McCracken; Kenneth Barnhart
Subject: FW: Inquiry on Radioactive Materials Committee meeting

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

-----Original Message-----

From: George Skipper (mailto:gcskip3@sbcglobal.net)
Sent: Monday, March 08, 2010 11:31 PM
To: Michael Snee
Subject: Re: Inquiry on Radioactive Materials Committee meeting

Michael Snee wrote:

Mr. Snee,

Thank you, yes, please add my name to the Bureau's e-mail list. Also, in your earlier e-mail you stated ODH is currently reviewing existing state regulations and evaluating concerns about NORM and TENORM issues in the gas and oil industry, at the request of both OEPA and ODNR. Will the conclusions of the evaluation be presented in an open committee meeting or, more specifically, what can I do to obtain a copy of any report on the evaluation? And, is there a time period within which you expect the evaluation to be completed?

Would you also please clarify ODH's role with regard to NORM and TENORM issues at drilling sites? My understanding of ORC 1509.02 is that ODNR's DMRM has sole authority over conditions attached to a drilling permit. If that's correct, and ODH decides radiation monitoring should be implemented, then which organization sets up and has responsibility for an on-site program?

I sincerely appreciate any assistance you can provide to help me with an issue in which I am very interested yet, obviously, do not clearly understand. Thank you.

Best regards,
George Skipper

> Mr. Skipper,

>

> If you wish I can have you added to the Bureau's e-mail list. Information on upcoming meetings, draft rules, and other information is sent out to interested parties on a routine basis. Let me know if you are interested in being added to the list.

>

> Sincerely,

>

> Michael Snee

> Ohio Department of Health

> Bureau of Radiation Protection

>

>

> -----Original Message-----

> From: George Skipper [mailto:gcskip3@sbcglobal.net]
> Sent: Monday, March 01, 2010 6:42 PM
> To: Michael Snee
> Subject: Inquiry on Radioactive Materials Committee meeting
>
> Mr. Snee,
> Thank you for your prompt and informative response to my earlier
> inquiry. I'd like to be notified of any committee meetings, if open
> to the public, where the NORM and TENORM issues will be discussed. If
> there are no such committee meetings, I would appreciate being
> informed of the your review process conclusions. Thank you again.
>
> Sincerely,
>
> George Skipper
>
>

McCracken, Chuck

From: Michael Snee
Sent: Tuesday, March 02, 2010 8:15 AM
To: Robert Owen; Stephen Helmer; Chuck McCracken; Kenneth Barnhart; David Lipp; Jim Colleli
Subject: FW: Inquiry on Radioactive Materials Committee meeting

FYI

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

-----Original Message-----

From: Michael Snee
Sent: Tuesday, March 02, 2010 8:14 AM
To: 'George Skipper'
Subject: RE: Inquiry on Radioactive Materials Committee meeting

Mr. Skipper,

If you wish I can have you added to the Bureau's e-mail list. Information on upcoming meetings, draft rules, and other information is sent out to interested parties on a routine basis. Let me know if you are interested in being added to the list.

Sincerely,

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

-----Original Message-----

From: George Skipper [mailto:gcskip3@sbcglobal.net]
Sent: Monday, March 01, 2010 6:42 PM
To: Michael Snee
Subject: Inquiry on Radioactive Materials Committee meeting

Mr. Snee,

Thank you for your prompt and informative response to my earlier inquiry. I'd like to be notified of any committee meetings, if open to the public, where the NORM and TENORM issues will be discussed. If there are no such committee meetings, I would appreciate being informed of the your review process conclusions. Thank you again.

Sincerely,

George Skipper

McCracken, Chuck

From: BRadiation
Sent: Monday, March 01, 2010 8:39 AM
To: Michael Snee
Cc: David Lipp; Jim Colleli; Kenneth Barnhart; Chuck McCracken; Stephen Helmer
Subject: FW: Radioactive Materials Committee meeting on 3/9/10

From: George Skipper [gcskip3@sbcglobal.net]
Sent: Sunday, February 28, 2010 9:56 PM
To: BRadiation
Subject: Radioactive Materials Committee meeting on 3/9/10

Dear Sir or Madam,

I'm writing to inquire about the Radiation Advisory Council agenda for the Radioactive Materials Committee meeting on March 9th. Specifically, will there be any discussion on normally occurring radioactive materials (NORM), especially at gas and oil well drilling sites?

Also, am I correct in stating ODNR's DMRM, not DOH, has the responsibility for addressing this NORM issue and that DMRM currently has authority under ORC 1509 to establish rules in the Administrative Code to implement a monitoring program? Further, does DOH have any responsibility for addressing NORM at drilling sites, beyond the identification of standards and action levels for implementation by DMRM?

Is OAC 3701-39-02.1 the proper code section for evaluating action levels at drilling sites, or is there another code section that's applicable?

If there will be comments/discussion regarding NORM and I attend the meeting, will there be an opportunity for me to ask questions?

Finally, I'm not familiar with the Columbus area. Is East 35 Chestnut St. just north of Spring St. (rt. 33), between Fourth and Third St.? Is parking available on-site, either surface or underground?

I would appreciate any information and answers you can provide. Thank you very much for your assistance.

Sincerely,

George Skipper
35967 Solon Road
Bentleyville, Ohio 44022
440.349.3804

McCracken, Chuck

From: Michael Snee
Sent: Monday, March 01, 2010 1:49 PM
To: Robert Owen; Stephen Helmer; Chuck McCracken; Kenneth Barnhart; David Lipp; Jim Colleli
Subject: FW: Radioactive Materials Committee meeting on 3/9/10

FYI

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

From: Michael Snee
Sent: Monday, March 01, 2010 1:48 PM
To: 'gcskip3@sbcglobal.net'
Subject: re: Radioactive Materials Committee meeting on 3/9/10

Mr. Skipper,

The agenda for the March 9 Radioactive Materials Committee meeting does not include a discussion on NORM issues at gas and oil well drilling sites. The committee will be discussing draft rules on the medical use of radioactive material that were recently posted for public comment. They will also review rules, concerning the licensing of source material, that are due for a required five year rule review. The meeting is open to the public, but the committee will follow the agenda.

ODH has been designated as the Ohio radiation control agency, see ORC 3748.02. As such, ODH is the state agency for all radiation control issues in Ohio. This would include NORM and TENORM issues.

The Ohio Department of Health (ODH) has recently been approached by both the Ohio Department of Natural Resources and the Ohio Environmental Protection Agency concerning potential NORM and TENORM (technologically enhanced NORM) issues in the gas and oil industries. ODH is currently evaluating the concerns and reviewing existing state regulations on the issue.

If you have any questions, I can be reached at 614-644-2727.

Michael Snee
Ohio Department of Health
Bureau of Radiation Protection

From: George Skipper [gcskip3@sbcglobal.net]
Sent: Sunday, February 28, 2010 9:56 PM
To: BRadiation
Subject: Radioactive Materials Committee meeting on 3/9/10

Dear Sir or Madam,
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I would appreciate any information and answers you can provide. Thank you very much for your assistance.

Sincerely,

George Skipper
35967 Solon Road
Bentleyville, Ohio 44022
440.349.3804

Chuck McCracken

From: Donna Kniss [donna.kniss@epa.state.oh.us]
Sent: Wednesday, July 07, 2010 10:25 AM
To: Chuck McCracken
Cc: Virginia Wilson; Kenneth Barnhart; Michael Snee; Stephen Helmer
Subject: Re: ODH Comments on Warren WWTP Brine Study

Chuck:

I just returned from vacation and am working through my e-mail; as an aside, did my auto reply work? It hasn't in the past.

Regarding the Warren report, before I left, the only rad data I had was for the effluent in the first few weeks. I had prepared a summary spreadsheet to plug in the data results as I received them, so I could see what was missing. It appears that more info arrived while I was gone. I was going to send you everything when I had the rest of the data, assuming you wouldn't start a review until more rad info was received. I'm sorry if that wasn't the case.

Please note that Warren is proposing not sampling for radioactivity; the Ohio EPA has not concurred with that, or any of the other recommendations. When I find out the current state of affairs, I will let you and Stephen Helmer know. I will also compile all of the rad data in the spreadsheet, and send it to you and Stephen.

Donna

Donna J. Kniss
Ohio Environmental Protection Agency
Division of Surface Water
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
330-963-1285
fax 330-487-0769

donna.kniss@epa.state.oh.us

>>> Chuck McCracken <Chuck.McCracken@odh.ohio.gov> 7/2/2010 4:49 PM >>>
07.02.2010

Dear Donna:

I have attached a .pdf copy of the ODH Comments on Warren WWTP Brine Study letter that I placed in today's mail to you.

For your reference, I have also attached the documents that we reviewed. For some reason, no one from your office sent them to me. I learned of them and got them in a round-about way from Brian Nichols.

I will be out of the office until July 14, 2010. In my absence, you can contact Stephen Helmer at 614.728.3611 for assistance.

Thanks,

Chuck McCracken

Supervisor, Bureau of Radiation Protection

Ohio Department of Health

Ph: 614.466.5136

Fx: 614.466.0381

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McCracken, Chuck

From: Michael Snee
Sent: Wednesday, November 02, 2011 9:26 AM
To: Mark Light; Chuck McCracken; David Lipp; Stephen Helmer; Jim Coliello
Subject: Patriot Water Treatment, LLC

<http://www.vindy.com/news/2011/nov/02/ohio-attorney-generals-decision-threaten/>

Michael Snee
Chief, Bureau of Radiation Protection
Ohio Department of Health
614-644-2732


McCracken, Chuck

From: Mike Settles <Mike.Settles@epa.state.oh.us>
Sent: Thursday, October 28, 2010 2:08 PM
To: Chris Perry@dnr.state.oh.us; Heidi Hetzel-Evans; john.husted@dnr.state.oh.us; mike.mccormac@dnr.state.oh.us; rick.simmers@dnr.state.oh.us; tom.tomastik@dnr.state.oh.us; tom.tugend@dnr.state.oh.us; Aaron Shear; Bill Skowronski; Brian Hall; Charlotte Hickcox; Chuck Lowe; Craig Butler; Donna Kniss; Eric Nygaard; Erm Gomes; Fred Snell; Joe Goicochea; Keith Riley; Kristopher Weiss; Laurie Stevenson; Lindsay Taliaferro; Michael Eggert; Mike Baker; Nancy Rice; Randy Bournique; Rich Blasick; Steve Saines; Steve Williams; Stivo DiFranco; Tracy Freeman; Virginia Wilson; Chuck McCracken; Michael Snee; Robert Owen; Stephen Helmer
Cc: Carol Hester; Paula Payne
Subject: WEWS-TV Investigation: Chemical waste being hauled to Ohio

FYI.

http://www.newsnet5.com/dpp/news/local_news/investigations/chemical-waste-being-hauled-to-ohio

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McCracken, Chuck

From: Kenneth Barnhart
Sent: Thursday, October 21, 2010 7:24 AM
To: Chuck McCracken
Cc: Stephen Helmer; Michael Snee; Joseph Crombie
Subject: FW: Rads in Drinking water treatment residuals?
Attachments: RCP-26-Deep well injection of public water supply treatment residuals.DOCX

Brian:

We have been working on this issue with ODNr and OEPA since early this year. Chuck McCracken is the lead supervisor on this issue, so I am forwarding this message on to him.

Kenneth Barnhart
Bureau of Radiation Protection
Ohio Department of Health

Phone: 614-466-1276
Fax: 614-466-0381

Email: kenneth.barnhart@odh.ohio.gov

From: Brian Nickel [mailto:Brian.Nickel@epa.state.oh.us]
Sent: Tuesday, October 19, 2010 12:03 PM
To: Joseph Crombie; Kenneth Barnhart
Subject: Rads in Drinking water treatment residuals?

Ken and Joe,
Has ODH run into issues regarding rads associated with drinking water treatment systems? Kansas is working on draft internal guidance (attached) regarding deep well injection of public water supply treatment residuals. I'm also checking with our Drinking Water and Injection Well programs.

Thanks
Brian

Ohio Environmental Protection Agency Unless otherwise provided by law, _____
this communication and any response to it constitutes a public record. _____

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

Bureau of Environmental Health

Radiation Control Program

**Internal guidance when evaluating deep well injection of public water
supply treatment residuals**

Facilities impacted

Kansas Public Water treatment facilities

Purpose

Provides guidance for radiological limits associated with deep well injection of drinking water residuals in order for a Kansas public water treatment facility to conduct operations without possessing a State of Kansas specific radioactive materials license.

Description of Circumstances

Deep well injection of public water supply treatment residuals is not subject to radioactive materials licensure if:

1. The effluent does not exceed the concentrations in Appendix B, Table II, Column 2 of the Appendices to Part 4: Standards for Protection Against Radiation. These limits are 60 pCi/L for radium-226, 60 pCi/L for radium-228, and 300 pCi/L for uranium. The unity rule applies:

$$\frac{pCi / L \text{ Ra-226+Ra-228}}{60} + \frac{pCi / L \text{ Uranium}}{300} \leq 1, \text{ and}$$

2. The effluent is not concentrated upon release such that the uranium or thorium concentration would exceed 0.05% by weight, 15 pounds at any given time, or 150 pounds over the course of a year. Also, the total accumulated radium-226 activity cannot exceed 0.1 µCi (equivalent to 0.1 µg). This requirement is not only for the discharge point, but anywhere in the piping system that may be subject to scale or sludge buildup. Typically this will be in low flow areas such as check valves, elbows, strainers, etc.

Monitoring of the concentrations will be required at some frequency to demonstrate compliance with the criteria above. If either one of the above is not met, the effluent cannot be injected into the well.

The equation in criterion 1 is in its simplest form based on analysis required for public drinking water supplies. All radionuclides detected would have to be accounted for. It is unlikely that all associated with the uranium or thorium decay chains would be in equilibrium, but they would have to be included in the above equation if detected.

Demonstration of criterion 2 may have to be made through an engineering analysis showing that water moves away from the well and does not accumulate or periodic sampling of the deep well formation waters demonstrating that the effluent is not concentrating. Periodic environmental gamma surveys of piping systems may have to be done to ensure that radium buildup is not occurring.

The EPA Uranium in drinking water specific activity is 1.3 pCi/ug (Federal Register: 33050-33127, July 18, 1991).

An example:

Ra-226 concentration = 0.5 pCi/L

Ra-228 concentration = 0.1 pCi/L

Total uranium concentration = 155 µg/L = 202 pCi/L

$$\frac{0.5+0.1}{60} + \frac{202}{300} = 0.7$$

Since the above result is ≤1, criterion 1 is met. Demonstration of criterion 2 will have to be done as discussed above.

Discussion

Note that release to a sludge pond or removal of radium or uranium using select resins will most likely require a radioactive materials license due to concentration over time resulting in criterion 2 being exceeded. When millions of gallons of water are being processed daily or weekly, this can happen very quickly. Processing equipment containing resins could contain milliCurie to Curie quantities of radium and cause radiation or high radiation areas in their immediate vicinity.

Radium-226 concentrated at an activity level > 0.1 µCi is subject to licensure. Financial assurance of at least \$225,000 is required if > 10 µCi is accumulated. Radon emanation can be an issue also. As little as 1 µCi Radium-226 can cause a 20 ft x 20 ft x 10 ft

room to have a radon concentration of 9 pCi/L, which is > 2x the EPA recommended value of 4 pCi/L.

The Environmental Protection Agency has published a "A System's Guide to the Management of Radioactive Residuals from Drinking Water Treatment Technologies" that can be found at

http://www.epa.gov/ogwdw/radionuclides/pdfs/guide_radionuclides_systemsguidetoradioactive.pdf

McCracken, Chuck

From: Hopkins, Mike <Mike.Hopkins@epa.state.oh.us>
Sent: Thursday, October 20, 2011 10:43 AM
To: Hopkins, Mike
Cc: Tom Tomastik (tom.tomastik@dnr.state.oh.us); Stephen Helmer; Blasick, Rich; Settles, Mike; Baker, Mike; Robert Owen (robert.owen@odh.ohio.gov); Angelbeck, Richard (angelbeck@epa.state.oh.us); Stanfield, Matthew (Matthew.Stanfield@toledo.oh.gov); Saines, Steve; Eggert, Michael; Rice, Nancy; Mike McCormac (mike.mccormac@dnr.state.oh.us); Rick Simmers (rick.simmers@dnr.state.oh.us); Rebecca Fugitt; Williams, Steve; Tomas Tugend (tomas.tugend@dnr.state.oh.us); DiFranco, Stivo; Fischer, Tim; Scott Zody (scott.zody@dnr.state.oh.us); Freeman, Tracy; Shear, Aaron; Mike Hallfrisch (mike.hallfrisch@dnr.state.oh.us); Harcarik, Tom; Adams, Eric; Wilson, Virginia; Thorp, Jed; Chris Perry (Chris.Perry@dnr.state.oh.us); Michael Snee; Snell, Fred; Hester, Carol; Nickel, Brian; Husted, John F.; Nygaard, Eric; Weiss, Kristopher; Gomes, Erm; Ted Lozier (ted.lozier@dnr.state.oh.us); Hall, Brian; Hodanbosi, Bob; Abbruzzese, Chris; Parsons, Misty; Hall, Andrew; Suttman, Cheryl; Cirker, Benjamin; Stevenson, Laurie; Nally, Scott; Powell, Laura
Subject: Draft General Permit for the Oil and Gas Well Sites Issued for Comment.
Attachments: Michael E. Hopkins P.E..vcf

Good Morning:

Today the Ohio EPA has issued and posted the draft air pollution oil and gas well site general permit for its official 30-day comment period. This general permit is designed to cover the equipment installed for use during the production phase of a Marcellus or Utica/Point Pleasant shale oil and gas well. It covers the following pieces of equipment/operations at an oil and gas well site:

- Glycol dehydration units with flash separators,
- Natural gas-fired spark ignition internal combustion engines,
- Diesel-fired compression ignition internal combustion engines,
- Natural gas-fired micro turbines,
- Water and/or petroleum liquid storage tanks,
- Combustor/flare,
- Ancillary equipment leaks (designed to control leaks), and
- Unpaved roadways.

Included for review is the qualifying criteria document and the Model General Permit terms. The qualifying criteria document is a document that must be filled out when applying for a oil and gas well-site general permit. All qualifying criteria must be met in order to qualify for the general permit. Ohio EPA is accepting comments on this document in addition to accepting comments on the Model General Permit terms.

Please see the bottom of the web page: <http://www.epa.ohio.gov/dapc/genpermit/genpermits.aspx> for links to the documents.

Questions or comments on this GP must be directed to Cheryl Suttman at (614) 644-3617, cheryl.suttman@epa.state.oh.us or mailed to Cheryl Suttman, Attn: General Permits, Ohio EPA - DAPC, P.O. Box 1049, Columbus, Ohio 43216-1049.

Comments are due by November 28, 2011.

Please let Cheryl or myself know if you have any questions.

Mike

Michael E. Hopkins, P.E.
Assistant Chief, Permitting
Ohio EPA, DAPC
50 W. Town Street, Suite 700
Columbus, Ohio 43215
614-644-3611 (w)
614-644-3681 (Fax)
Mike.hopkins@epa.state.oh.us



**Environmental
Protection Agency**



Michael E. Hopkins, P.E.
Ohio EPA, DAPC
Assistant Chief, Permitting
(614) 644-3611 (work)
Mike.Hopkins@epa.state.oh.us
50 West Town Street, Suite 700
Columbus, Ohio 43215
<http://www.epa.ohio.gov/>

This message was secured by ZixCorp^(R).

McCracken, Chuck

From: Donna Kniss <donna.kniss@epa.state.oh.us>
Sent: Thursday, September 30, 2010 1:00 PM
To: Chuck McCracken
Cc: Brian Hall; Eric Nygaard; Erm Gomes; Laurie Stevenson; Rich Blasick; Virginia Wilson
Subject: Warren

Chuck:

The proposed Warren NPDES permit modification has been public noticed. We added language that requires Warren to submit an Annual Report that includes any additional biosolids information required by the Ohio Department of Health. See page 17, Part 1,C, Schedule of Compliance, Item 3, Supplemental Reporting Requirement: Acceptance of Wastewaters Associated with Oil and Gas Well Operations, at:

http://www.epa.state.oh.us/portals/35/pretreatment/marcellus_shale/3PE00008.pdf

We thought that this would give us the most flexibility in working with ODH to address any NORM issues that may arise. If you have any comments on the permit, including this language, please contact Erm Gomes or Eric Nygaard, who drafted the permit and will respond to comments. Contact info:

Erm Gomes - 330-963-1196 erm.gomes@epa.state.oh.us
Eric Nygaard - 614-644-2024 eric.nygaard@epa.state.oh.us

Thank you for your assistance.

Donna

Donna J. Kniss
Ohio Environmental Protection Agency
Division of Surface Water
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
330-963-1285
fax 330-487-0769

donna.kniss@epa.state.oh.us

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10/1/10

Environmental Protection Agency
10/1/10

McCracken, Chuck

From: Donna Kniss <donna.kniss@epa.state.oh.us>
Sent: Friday, September 03, 2010 1:34 PM
To: Chuck McCracken
Cc: Brian Hall; Erm Gomes; Paul Novak; Rich Blasick; Virginia Wilson; Michael Snee; Robert Leidy; Stephen Helmer
Subject: RE: Warren sludge
Attachments: Warren Rad data.xls

Chuck:

When I received the below message I thought you meant Aug. 30th, but I haven't heard from you. We are finalizing the Warren NPDES permit mod and will be contacting ODH soon.

Rich told me that the ODH rep said in the "stronger" meeting that ODH was waiting for data from Ohio EPA. I thought ODH had everything we had, but to ensure that you do, I've attached my spreadsheet with the data compilation, both from you and Warren. This is all of the rad information Ohio EPA has received. We asked Warren the questions you asked in the July 2 letter, but no answers have been received other than what is mentioned in the Notes.

Donna

Donna J. Kniss
Ohio Environmental Protection Agency
Division of Surface Water
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
330-963-1285
fax 330-487-0769

donna.kniss@epa.state.oh.us

>>> Chuck McCracken <Chuck.McCracken@odh.ohio.gov> 8/20/2010 2:16 PM >>>

Donna:

I just found your email message below - it was somehow filtered out as spam and put in my junk mail box.

I am out all next week, so I'll get in touch with you the week of Sept 30th.

Chuck McCracken

Supervisor, Bureau of Radiation Protection
Ohio Department of Health
Ph: 614.466.5136
Fx: 614.466.0381

From: Donna Kniss [mailto:donna.kniss@epa.state.oh.us]
Sent: Wednesday, August 11, 2010 10:01 AM
To: Chuck McCracken
Subject: Warren sludge

Chuck:

Chris Moody is in all day today; I have a 1:30 meeting. Is there a good time for Chris and I to call you to discuss how Warren manages its sludge?

Donna

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McCracken, Chuck

From: Donna Kniss <donna.kniss@epa.state.oh.us>
Sent: Thursday, August 05, 2010 3:54 PM
To: Tom.Tornastik@dnr.state.oh.us
Cc: Brian Hall; Laurie Stevenson; Linda Oros; Rich Blasick; Ryan Laake; Virginia Wilson; Chuck McCracken
Subject: Fwd: Proper Testing of wastewater from oil and gas facilities
Attachments: Proper Testing of wastewater from oil and gas facilities

Tom:

I was talking to Chuck McCracken in ODH about rad monitoring for Warren, and I mentioned this e-mail. Chuck said that I should send it to ODNR to ensure our coordinated responses, because NEOGAP has already interacted with ODNR, and ODNR may have already provided some information. I don't know who handles public outreach in ODNR, so please forward this to the appropriate people. Ryan and I have not yet responded; we forwarded this e-mail to our Public Interest Center (Linda Oros) and asked for guidance. Mike Settles, who was in the Tuesday meeting, handles media involvement; I'm not sure who in PIC will be dealing with requests from the public. Ryan is the Central Office pretreatment program contact, and is listed on our Marcellus Shale web page as the contact, which is why he received this e-mail.

Please contact me if you have any questions. I'm sure we'll be talking again soon.

Donna

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>>> Ryan Laake 8/4/2010 10:24 AM >>>

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STATE OF OHIO
DEPARTMENT OF NATURE
RESOURCES

McCracken, Chuck

From: Kari Matsko <karimatsko@hotmail.com>
Sent: Monday, August 02, 2010 3:18 PM
To: ryan.laake@epa.state.oh.us
Cc: eyesondrilling@epa.gov
Subject: Proper Testing of wastewater from oil and gas facilities

Hello Ryan

Please advise whether the EPA is addressing all possible known reported contaminants via GC/MS and other testing - including but not limited to radium 226, 228, and those listed below with regard to processing oil and gas wastewater in Ohio from your website:

"Some of the requests have been for the discharge of lower salinity "flow back" water from the hydraulic fracturing of the shale (described by the industry as less than 50,000 mg/l total dissolved solids (TDS)), while other requests have been for the discharge of higher salinity brines and wastewater."

FROM PA DEP 12/08

Frac Water Chemicals Chemical Components (From MSDS)

2,2-Dibromo-3-Nitrilopropionamide	Guar gum	Frac Stage #1
2-butoxyethanol	Hemicellulase Enzyme	Hydrochloric Acid
2-methyl-4-isothiazolin-3-one	Hydrochloric Acid	Propargyl Alcohol
5-chloro-2-methyl-4-isothiazotin-3-one	Hydrotreated light distillate	Methanol
Acetic Acid	Hydrotreated Light Distilled	Acetic Acid
Acetic Anhydride	Isopropanol	Acetic Anhydride
Aliphatic Acid	Isopropyl Alcohol	Frac Stage #2
Aliphatic Alcohol Polyglycol Ether	Magnesium Nitrate	Methanol
Ammonia Persulfate	Mesh Sand (Crystalline Silica)	Boric Oxide
Aromatic Hydrocarbon	Methanol	Petroleum Distillate Blend
Aromatic Ketones	Mineral Spirits	Polysaccharide
Boric Acid	Monoethanolamine	Potassium Carbonate
Boric Oxide	Petroleum Distillate Blend	Sodium Chloride
Butan-1-01	Petroleum Distillates	Potassium Hydroxide
Citric Acid	Polyethoxylated Alkanol (1)	Ethylene Glycol
Crystalline Silica: Cristobalite	Polyethoxylated Alkanol (2)	Boric Acid
Crystalline Silica: Quartz	Polyethylene Glycol Mixture	Sodium Bicarbonate
Dazomet	Polysaccharide	Monoethanolamine
Diatomaceous Earth	Potassium Carbonate	Frac Stage #3
Diesel (use discontinued)	Potassium Hydroxide	Hydrotreated light distillate
Ethane-1,2-diol	Prop-2-yn-1-01	Ethoxylated Alcohol
Ethoxlated Alcohol	Propan-2-01	Glutaraldehyde
Ethoxylated Alcohol	Propargyl Alcohol	Dazomet
Ethoxylated Octylphenol	Propylene	Sodium Hydroxide
Ethylene Glycol	Sodium Bicarbonate	Methanol
Ethylhexanol	Sodium Chloride	Diesel (use discontinued)
Ferrous Sulfate Heptahydrate	Sodium Hydroxide	2,2-Dibromo-3-Nitrilopropionamide
Formaldehyde	Sucrose	Polyethylene Glycol Mixture
Glutaraldehyde	Tetramethylammonium Chloride	Mesh Sand (Crystalline Silica)
Glycol Ethers		

Thanks

Kari Matsko
Director, NEOGAP - Ohio
440-579-5314
www.neogap.org