

Who regulates issues such as truck traffic and road maintenance at a drill site?

There is usually a short-term, but significant level of activity at a drill site. For example, moving drilling equipment on and off site, and hauling production water, brine and drill cuttings from the site can create significant truck traffic. Issues such as truck traffic are not covered under Ohio EPA's or ODNR, DMRM's regulations. Check with your community officials on local regulations.

Will drilling for natural gas contaminate my drinking water well?

The Ohio EPA, ODNR, DMRM and other technical experts familiar with hydraulic fracturing do not have data showing a risk of groundwater contamination from brine migrating thousands of feet from the Marcellus or Utica Shale fractures up into drinking water aquifers much closer (hundreds of feet) to the earth's surface.

There is the potential, although unlikely, for contamination of drinking water wells because of problems occurring closer to the surface. Gas and oil can migrate from a production well into an aquifer if a well casing is damaged, leaking or poorly constructed. Natural gas can also enter aquifers from old, abandoned oil and gas wells that are unplugged or poorly plugged. A new water well that is drilled can penetrate gas-rich organic shales or coal seams at shallow depths, allowing gas to enter the well. Buried organic deposits from old swamps or landfills may also release natural gas into soils overlying aquifers.

It's important to know that there have been thousands of oil and gas production wells drilled throughout Ohio with no significant adverse impacts to local wells or drinking water supplies throughout the state's long history of oil and gas drilling. If you do, however, suspect any problems with your drinking water well during as a result of any oil/gas drilling activities in your area, contact the Ohio Department of Natural Resources, Division of Mineral Resources Management at (614) 265-6633.

What about leasing rights if someone wants to drill on my property?

The process of drilling a well begins with a lease agreement between the producing company and one or more landowners that make up a drilling unit. It is important for a landowner approached for a mineral rights lease to be aware of all the conditions of the lease that allow the producer to drill on their land.

Ohio EPA's and ODNR, DMRM's regulations DO NOT cover private property lease agreements, and we cannot provide homeowners with any specific guidance on this topic. As a starting point for general information on leases, see ODNR's website, "Landowners and Leasing for Oil and Gas in Ohio," at www.ohiodnr.com/oil/oil_landowner/tabid/17732/Default.aspx.

Where can I get more information?

Ohio Department of Natural Resources, Division of Mineral Resources Management, Oil and Gas website: www.ohiodnr.com/mineral/oil/tabid/10371/default.aspx.

Ohio Environmental Protection Agency, Marcellus Shale website:
<http://www.epa.state.oh.us/shale.aspx>.

Lipp, David

From: Chuck McCracken
Sent: Thursday, May 19, 2011 2:39 PM
To: David Lipp
Subject: FW: Radiation in Gas well Flow Back & Protection of Public Health

FYI – You're probably going to be asked to address these.
Chuck

From: Michael Snee
Sent: Wednesday, May 18, 2011 10:43 AM
To: Stephen Helmer; Chuck McCracken; Mark Light
Subject: Fw: Radiation in Gas well Flow Back & Protection of Public Health

FYI

From: crborello@aol.com <crborello@aol.com>
To: Michael Snee
Cc: lougiavasis1@hotmail.com <lougiavasis1@hotmail.com>; marycirelli@neo.rr.com <marycirelli@neo.rr.com>; jsirgo1@neo.rr.com <jsirgo1@neo.rr.com>; fredrossetti@sbcglobal.net <fredrossetti@sbcglobal.net>; djriley5159@gmail.com <djriley5159@gmail.com>; tommysgirl1863@yahoo.com <tommysgirl1863@yahoo.com>; damsel16@aol.com <damsel16@aol.com>; linc20@yahoo.com <linc20@yahoo.com>; vpesec@roadrunner.com <vpesec@roadrunner.com>; millstb@aol.com <millstb@aol.com>; cheryl@buckeyeforestcouncil.org <cheryl@buckeyeforestcouncil.org>; nwoej@yahoo.com <nwoej@yahoo.com>; tjlodge50@yahoo.com <tjlodge50@yahoo.com>; GColeridge@afsc.org <GColeridge@afsc.org>; edjulier@aol.com <edjulier@aol.com>; m.baughman@att.net <m.baughman@att.net>; chuckosborne@neo.rr.com <chuckosborne@neo.rr.com>; fight11@verizon.net <fight11@verizon.net>; glassart@dishmail.net <glassart@dishmail.net>; dusty@ewg.org <dusty@ewg.org>; tramols@att.net <tramols@att.net>; tammyproctor@hotmail.com <tammyproctor@hotmail.com>; scribman33@yahoo.com <scribman33@yahoo.com>
Sent: Wed May 18 10:16:16 2011
Subject: Radiation in Gas well Flow Back & Protection of Public Health

Ohio Dept. of Health
Michael Snee - Chief of Radiological Division

Dear Mr. Snee:

Citizens of Ohio are greatly concerned about the radioactive components of High Volume Slick Water Horizontal Fracking Flow Back Waste Water.

As you know, other states have already documented significant levels of Radium in this waste stream that need to be properly disposed of (see New York State letter from 2009). Because our State of Ohio is being targeted for disposal of the Eastern States flow back waste - potentially billions of gallons of contaminated

waste water from drilling, citizens want to know precisely how the Ohio Dept. of Health plans to properly monitor this for radioactivity from cradle to grave to insure that disposal practices *DO NOT enable this radioactive contamination to at some point in time migrate to our water supplies and air.*

Therefore, our questions and concerns are three- pronged:

1. **The current disposal at the Warren Treatment Plant**

- a). Please provide us with specific peer- re viewable scientific information as to why ODH believes **that water soluble radium will, infact, be removed during pre-treatment filtering. Isn't it true that filtering shouldn't make much difference because of the solubility?**
- b) Please provide what test methods in the field are used to sample the flow back water upon arrival *prior to* any treatment - we have been told Gamma Scans. What is the exact name of this monitoring equipment, and what is the lowest detection limit? Are open containers being sampled? Is it being done randomly? Is it ongoing with each load?
- c) Are any samples being collected and taken offsite for lab analysis? Are samples being "field filtered" first and are they being preserved immediately in the field? What method is being used at the lab to analyze the samples? What are the detection limits being reported?
- d) Are samples being taken down stream? If so, how far away from the plant?
- e) Is it not true that IF "recycling" is being done , as industry is now claiming, of the flow back, that given this water solubility of the radium and radon, and this same water is now being reused from well pad to well pad, that it is ***very likely this water will grow "hotter and hotter" with radioactivity over time, before it is ultimately disposed of in Ohio?***

2. **Landfill disposal of radioactivity of solids**

- a) We understand there are "concentrated" waste streams being generated, either at the WW Treatment Plant, or, at the drill sites themselves, creating solids that need to be disposed of at landfills. Please provide specific protocols and methods being used currently to monitor such materials taken to Ohio landfills for radioactivity and how frequently is this being conducted.

3) **Disposal in Ohio Injection Wells**

- a) **We have heard that ODH and Ohio EPA are both exempt from jurisdictional authority over the radioactivity/chemical waste once it it "down the hole".** Please provide peer-re viewable, scientific documentation that rules out **any possibility** of this toxic radioactive waste material from migrating back up through faults, fractures, abandon gas wells or other potential conduits and reaching Ohio's water supplies.

IF ODH and Ohio EPA CANNOT rule out this possibility from occurring - toxic radioactive fluids reaching water supplies after injected into an injection well - then please justify to citizens why isn't it your agencies responsibility to track that potential threat, in order to be responsive and fulfill your mandate to protect public health and welfare?

We appreciate that this high volume slick water horizontal fracking of shales is new to our State, and there are alot of questions that need answered by many experts. We hope that ODH will be as transparent and responsive as possible regarding the radioactive componenet, so that we can work together to obtain concrete information on this most important matter potentially affecting the health and welfare of countless Ohioans. Please feel free to contact me if you need any clarifications in assisting you in responding in writing to the above. If possible, we would appreciate answers within 10 work days.

Sincerely,

Chris Borello for Stark Concerned Citizens & CCLT

Lipp, David

From: Chuck McCracken
Sent: Thursday, May 19, 2011 1:46 PM
To: David Lipp
Subject: FW: Fwd: Patriot Water

fyi

From: Michael Snee
Sent: Wednesday, May 18, 2011 12:30 PM
To: Stephen Helmer; Chuck McCracken; Mark Light
Subject: Fw: Fwd: Patriot Water

From: crborello@aol.com <crborello@aol.com>
To: Michael Snee
Cc: donna.kniss@epa.state.oh.us <donna.kniss@epa.state.oh.us>; lougiavasis1@hotmail.com <lougiavasis1@hotmail.com>; hkinwoman@aol.com <hkinwoman@aol.com>; millstb@aol.com <millstb@aol.com>; vpesec@roadrunner.com <vpesec@roadrunner.com>; damsel16@aol.com <damsel16@aol.com>; linc20@yahoo.com <linc20@yahoo.com>; jrichards13@neo.rr.com <jrichards13@neo.rr.com>; grapevinerealestate@roadrunner.com <grapevinerealestate@roadrunner.com>; baier13164@aol.com <baier13164@aol.com>; marycirelli@neo.rr.com <marycirelli@neo.rr.com>; ma3572@aol.com <ma3572@aol.com>; edjulier@aol.com <edjulier@aol.com>; GColeridge@afsc.org <GColeridge@afsc.org>; warnermendenhall@hotmail.com <warnermendenhall@hotmail.com>; jsirgo1@neo.rr.com <jsirgo1@neo.rr.com>; djriley5159@gmail.com <djriley5159@gmail.com>; jeannecebullla25@sbcglobal.net <jeannecebullla25@sbcglobal.net>; cheryl@buckeyeforestcouncil.org <cheryl@buckeyeforestcouncil.org>; ellen@theoec.org <ellen@theoec.org>; bdowning@thebeaconjournal.com <bdowning@thebeaconjournal.com>; shunt@dispatch.com <shunt@dispatch.com>; ed.balint@cantonrep.com <ed.balint@cantonrep.com>; don.detore@cantonrep.com <don.detore@cantonrep.com>; fight11@verizon.net <fight11@verizon.net>
Sent: Wed May 18 12:25:16 2011
Subject: Fwd: Patriot Water

TO: Ohio Dept of Health - Radiological Division & Ohio EPA NEDO Twinsburg

Re: Radiation and chemicals in Gas Well Waste Water

Please see below and address the waste stream going into sewers, landfills etc. as per letter sent earlier today to ODH and "cc"d to NEDO, Ohio EPA.

Thank you.

Concerned Citizens

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

From: Jodi Stoyak <hkinwoman@aol.com>

To: crborello@aol.com; Vanessa Pesec <vpesec@roadrunner.com>; Lori Gourley Babbey <lrg904@yahoo.com>
Sent: Wed, May 18, 2011 11:05 am
Subject: Fwd: Patriot Water

See attachment below

Sent from my iPhone

Begin forwarded message:

From: Jim Rodway <jgrohio@yahoo.com>
Date: May 18, 2011 10:24:03 AM EDT
To: hkinwoman@aol.com
Subject: Patriot Water

Jodi this is the company web page. Im suprised that they just settle out solids then dump it into the sanitary sewers. Since it still has chemical etc I would think
<http://www.pwtllc.net/about.html>

Lipp, David

From: Stephen Helmer
Sent: Wednesday, May 18, 2011 10:48 AM
To: David Lipp
Cc: Kenneth Barnhart; Jim Colleli
Subject: FW: Radiation in Gas well Flow Back & Protection of Public Health

fyi

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Sent: Wed May 18 10:16:16 2011
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Sincerely,

Chris Borello for Stark Concerned Citizens & CCLT

Lipp, David

From: Joe Goicochea <joe.goicochea@epa.state.oh.us>
Sent: Wednesday, May 18, 2011 10:08 AM
To: Rick Simmers; David Lipp
Subject: RE: Shale Development Site Visits & Sampling Activities

David/Rick,
Unfortunately, I plan to watch a webinar from Penn State Univ. regarding the impacts of drill cuttings on landfills on Thursday afternoon, in addition to another meeting previously scheduled. I hope your site visit provides some good information, and feel free to share info with Aaron or me later on.
Thanks,
-Joe

>>> "Simmers, Rick" <Rick.Simmers@dnr.state.oh.us> 5/18/2011 7:33 AM >>>

Joe/Aaron, sorry, I thought David had made contact with you. We are going to visit a site on Thursday, May 19th at 2pm.

From: Aaron Shear [mailto:Aaron.Shear@epa.state.oh.us]
Sent: Tuesday, May 17, 2011 4:39 PM
To: Simmers, Rick; david.lipp@odh.ohio.gov
Cc: Joe Goicochea
Subject: RE: Shale Development Site Visits & Sampling Activities

Hello Rick,

Just touching base about the Chesapeake site visits. As previously mentioned, I'll be out of the office from tomorrow (Wed. 5/18) to next Tuesday (5/24). If David and you decide to visit a Chesapeake site later this week, or early next week, can you please follow up with my supervisor Joe Goicochea so that he may see if an Ohio EPA DMWM staff member can also join you.

Thanks!

Aaron

Aaron Shear
Environmental Specialist II

Solid Waste Compliance and Inspection Support
Division of Materials and Waste Management
Ohio Environmental Protection Agency
50 W Town St, Suite 700
PO Box 1049
Columbus, OH 43216
614.728.5350 | 614.728.5315 (fax)

>>> "Simmers, Rick" <Rick.Simmers@dnr.state.oh.us> 5/11/2011 7:48 AM >>>

Iâ€™m still waiting on â€œpermissionâ€œ from Chesapeake. I will push this issue today.

From: Aaron Shear [<mailto:Aaron.Shear@epa.state.oh.us>]
Sent: Tuesday, May 10, 2011 11:50 AM
To: Simmers, Rick; david.lipp@odh.ohio.gov
Subject: Shale Development Site Visits & Sampling Activities

Hello David and Rick,

I wanted to follow up from our discussion at last weeks interagency Shale Meeting pertaining to site visits and possible drill cutting sampling activities. Have any dates been set for site reconnaissance and/or drill cutting sampling? I will be out of the office next Wednesday (May 18th) thorough to the following Monday (May 23rd), but if possible, would like to join both ODH and ODNR in these field activities.

At your convenience, let me know which dates are possibilities for site reconnaissance and what the plan is for going forward with these field activities.

Thanks,
Aaron

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Lipp, David

From: Aaron Shear <Aaron.Shear@epa.state.oh.us>
Sent: Wednesday, May 18, 2011 9:46 AM
To: David Lipp
Subject: Re: Final plans for Gas Well Site Visit (Out of Office)

I will be out of the office until Tuesday, May 24. If you need immediate assistance, please contact the receptionist at 614.644.2621. Thanks!

Lipp, David

From: Simmers, Rick <Rick.Simmers@dnr.state.oh.us>
Sent: Wednesday, May 18, 2011 7:34 AM
To: Aaron Shear; David Lipp
Cc: Joe Goicochea
Subject: RE: Shale Development Site Visits & Sampling Activities

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> >>> "Simmers, Rick" <Rick.Simmers@dnr.state.oh.us> 5/11/2011 7:48 AM >>>

I'm still waiting on "permission" from Chesapeake. I will push this issue today.

From: Aaron Shear [<mailto:Aaron.Shear@epa.state.oh.us>]
Sent: Tuesday, May 10, 2011 11:50 AM
To: Simmers, Rick; david.lipp@odh.ohio.gov
Subject: Shale Development Site Visits & Sampling Activities

Hello David and Rick,

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Lipp, David

From: Simmers, Rick <Rick.Simmers@dnr.state.oh.us>
Sent: Tuesday, May 17, 2011 3:48 PM
To: David Lipp
Subject: RE: ODH Staff Drilling Site Visit Schedule

Lets meet at our New Philadelphia office. It is an ODOT district office. The address is 2207 Reiser Ave. SE New Philadelphia Oh 44663-3333. We have about a half hour drive from that office to the drilling rig.

From: David Lipp [mailto:David.Lipp@odh.ohio.gov]
Sent: Tuesday, May 17, 2011 2:15 PM
To: Simmers, Rick
Subject: RE: ODH Staff Drilling Site Visit Schedule

I've talked to everyone and 2:00 is fine. It now looks like we will probably only have four people. We will be driving out Bureau's truck from Columbus so I'll need a place to meet you.

Thanks,

From: Simmers, Rick [mailto:Rick.Simmers@dnr.state.oh.us]
Sent: Tuesday, May 17, 2011 12:45 PM
To: David Lipp
Subject: RE: ODH Staff Drilling Site Visit Schedule

Will 2:00pm work for the rig/drilling site tour? The location is about 2.75 hrs from Columbus

From: David Lipp [mailto:David.Lipp@odh.ohio.gov]
Sent: Wednesday, May 11, 2011 2:31 PM
To: Simmers, Rick
Subject: RE: ODH Staff Drilling Site Visit Schedule

That sounds good, I'll make sure everyone knows.

Thanks,

From: Simmers, Rick [mailto:Rick.Simmers@dnr.state.oh.us]
Sent: Wednesday, May 11, 2011 2:24 PM
To: David Lipp; Tugend, Thomas; Aaron Shear
Cc: Stephen Helmer; Kenneth Barnhart; Jim Colleli; Robert Leidy; Eric Denison
Subject: RE: ODH Staff Drilling Site Visit Schedule

I have not had a response from Chesapeake, so to be safe, I think we should plan on the 19th

From: David Lipp [mailto:David.Lipp@odh.ohio.gov]
Sent: Friday, April 15, 2011 4:10 PM
To: Tugend, Thomas; Simmers, Rick
Cc: Stephen Helmer; Kenneth Barnhart; Jim Colleli; Robert Leidy; Eric Denison
Subject: ODH Staff Drilling Site Visit Schedule

Thomas and Rick,

We have some days to try and schedule the drilling site visit for ODH staff.

The days are: April 27, April 28, May 5, May 13, and May 19.

The earlier days would of course be the best. Currently, it looks like we will have about six people in probably a truck from Columbus and a car from Akron meeting us at the site.

You also mentioned that wells in Belmont County had finished the horizontal boring and will be fracking in June. I'd be interested in seeing if I could observe that operation and the frack water backwash if possible.

Let me know about the site visit day and if you need any more information or names of the staff for the company..

Thanks,

David R. Lipp
Senior Health Physicist
Bureau of Radiation Protection, Technical Support
Ohio Department of Health
(614) 728-0884
david.lipp@odh.ohio.gov

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Lipp, David

From: Simmers, Rick <Rick.Simmers@dnr.state.oh.us>
Sent: Wednesday, May 11, 2011 7:48 AM
To: Aaron Shear; David Lipp
Subject: RE: Shale Development Site Visits & Sampling Activities

I'm still waiting on "permission" from Chesapeake. I will push this issue today.

From: Aaron Shear [mailto:Aaron.Shear@epa.state.oh.us]
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From: Aaron Shear <Aaron.Shear@epa.state.oh.us>
Sent: Tuesday, May 10, 2011 11:50 AM
To: rick.simmers@dnr.state.oh.us; David Lipp
Subject: Shale Development Site Visits & Sampling Activities

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Columbus, OH 43216
614.728.5350 | 614.728.5315 (fax)

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**Marcellus Shale Meeting
OEPA/ODNR/ODH
Wednesday, May 4
1:30 – 4:00 p.m.
Ohio DNR
AGENDA**

Welcome/Introductions	All
Public Outreach/Education <ul style="list-style-type: none">Media Relations UpdateLegislative outreach/community meetingsAdditional fact sheets, web updates, etc.	ODNR/OEPA ODNR
Drilling Activity/Updates <ul style="list-style-type: none">Ohio Drilling activity in the Marcellus/Utica – Permitting and drilling activity updateDraft factsheet for drillers – OEPA regulations	ODNR L. Stevenson
Permitting Collaboration/Updates <ul style="list-style-type: none">Ohio EPA/ODNR meeting re. permit conditions to protect GW and other sensitive environments	M. Eggert/R. Simmers
401/404 <ul style="list-style-type: none">Development of General Permit/401 authorization	T. Harcarik
Wastewater <ul style="list-style-type: none">Permit/POTW Update Warren, E. Liverpool, SteubenvilleFact sheet for municipal wastewater plants/haulers (final)	B. Hall/P. Novak
Drinking Water <ul style="list-style-type: none">Draft fact sheet/water sampling and analysis	M. Eggert
Air <ul style="list-style-type: none">OEPA evaluation of air sources/permitting options	DAPC
Waste <ul style="list-style-type: none">Soil Remediation, Inc.Determination drill cuttings/OEPA-ODH Coordination	OEPA/NEDO J. Goicochea, A. Shear
Rules Update <ul style="list-style-type: none">SB 165/Rules workgroup activityOther rule activity	ODNR/ODH/OEPA
Next Steps	All

**Marcellus Shale Meeting
OEPA/ODNR/ODH
Wednesday, May 4
1:30 – 4:00 p.m.
Ohio DNR Fountain Square, Building H, 2nd floor conference room**

AGENDA

Welcome/Introductions	All
Drilling Activity/Updates	
<ul style="list-style-type: none">• Activity in the Marcellus/Utica – permitting and drilling activity update• SB 165 rules (update)	ODNR
Wastewater Management	B. Hall, OEPA
<ul style="list-style-type: none">• State (OEPA/ODNR) position on POTW management of flowback water<ul style="list-style-type: none">○ Current statutory provision○ Communication strategy• Permit/POTW updates• Fact sheet for municipal wastewater plants• Coordination with ODH on radiological sampling protocol	
Permitting Collaboration/Updates	M. Eggert, OEPA M. McCormac, ODNR
<ul style="list-style-type: none">• Ohio EPA/ODNR meeting re. permit conditions to protect GW and other sensitive environments	
401/404	
<ul style="list-style-type: none">• Development of General Permit/401 authorization	T. Harcarik
Air	
<ul style="list-style-type: none">• OEPA evaluation of air sources/permitting options	DAPC
Waste	
<ul style="list-style-type: none">• Soil Remediation, Inc.• Determination drill cuttings/OEPA-ODH Coordination	OEPA/NEDO J. Goicochea, A. Shear
Outreach/Education	
<ul style="list-style-type: none">• Media Relations Update• Legislative outreach/community meetings• Fact sheet updates (final/draft)<ul style="list-style-type: none">○ Drillers – OEPA regulations○ Water sampling/analysis fact sheet for citizens	ODNR/ODH/OEPA
Other Items/Next Meeting	All

Lipp, David

From: Chuck McCracken
Sent: Tuesday, May 03, 2011 4:40 PM
To: Jim Colleli; David Lipp
Subject: FW: Final agenda for tomorrow's meeting
Attachments: Marcellus Shale5-4-11FinalAgenda.DOC

From: Laurie Stevenson [mailto:laurie.stevenson@epa.state.oh.us]

Sent: Tuesday, May 03, 2011 1:12 PM

To: Chris.Perry@dnr.state.oh.us; Heidi Hetzel-Evans; john.husted@dnr.state.oh.us; mike.hallfrisch@dnr.state.oh.us; mike.mccormac@dnr.state.oh.us; rick.simmers@dnr.state.oh.us; ted.lozier@dnr.state.oh.us; thomas.tugend@dnr.state.oh.us; tom.tomastik@dnr.state.oh.us; Aaron Shear; Benjamin Cirker; Brian Hall; Brian Nickel; Chuck Lowe; Dan Underwood; Donna Kniss; Eric Adams; Eric Nygaard; Erm Gomes; Fred Snell; Joe Goicochea; Keith Riley; Kristopher Weiss; Lee Burkleca; Lindsay Taliaferro; Michael Eggert; Mike Baker; Mike Hopkins; Mike Settles; Misty Parsons; Nancy Rice; Rich Blasick; Ryan Laake; Steve Saines; Steve Williams; Stivo DiFranco; Tom Harcarik; Tracy Freeman; Virginia Wilson; Chuck McCracken; Michael Snee; Rebecca Fugitt; robert.owen@odh.ohio.gov; Stephen Helmer

Subject: Final agenda for tomorrow's meeting

Hello. I'm attaching the final agenda for tomorrow's meeting...just a few minor adjustments from the draft. We're on for 1:30 at ODNR. We'll be in Building H, 2nd floor conference room.

OEPA districts, the bridge line is 614-644-4725. We will not be trying video conference for tomorrow, just a phone bridge. Also, I have a six-port line, which will hopefully be large enough. If you are aware of callers coming in from more than a single location in NEDO and SEDO, let me know and I'll try and get a larger line.

Thanks.
Laurie

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Lipp, David

From: Chuck McCracken
Sent: Friday, April 29, 2011 10:08 AM
To: Stephen Helmer; David Lipp; Jim Colleli; Kenneth Barnhart
Subject: FW: Agenda for our inter-agency shale team meeting on 5/4
Attachments: Marcellus Shale5-4-11Agenda.DOC

From: Laurie Stevenson [mailto:laurie.stevenson@epa.state.oh.us]

Sent: Friday, April 29, 2011 9:35 AM

To: Chris.Perry@dnr.state.oh.us; Heidi Hetzel-Evans; john.husted@dnr.state.oh.us; mike.hallfrisch@dnr.state.oh.us; mike.mccormac@dnr.state.oh.us; rick.simmers@dnr.state.oh.us; ted.lozier@dnr.state.oh.us; thomas.tugend@dnr.state.oh.us; tom.tomastik@dnr.state.oh.us; Aaron Shear; Benjamin Cirker; Brian Hall; Brian Nickel; Chuck Lowe; Dan Underwood; Donna Kniss; Eric Adams; Eric Nygaard; Erm Gomes; Fred Snell; Joe Goicochea; Keith Riley; Kristopher Weiss; Lee Burkleca; Lindsay Taliaferro; Michael Eggert; Mike Baker; Mike Hopkins; Mike Settles; Misty Parsons; Nancy Rice; Rich Blasick; Ryan Laake; Steve Saines; Steve Williams; Stivo DiFranco; Tom Harcarik; Tracy Freeman; Virginia Wilson; Chuck McCracken; Michael Snee; Rebecca Fugitt; robert.owen@odh.ohio.gov; Stephen Helmer

Subject: Agenda for our inter-agency shale team meeting on 5/4

Hello everyone. I'm late in getting a proposed agenda out for our meeting next week on Weds., May 4th at ODNR (1:30-4:00). Sorry about that! If you have any edits/updates to the agenda, please pass them along and I'll shoot out a final copy on Monday.

Can someone from the ODNR side confirm the room location for us? I believe we're at your offices this time.

Again, apologies for the late notice...hopefully everyone had this date on their calendars from our last meeting. OEPA districts, I do not know that we can successfully organize a video conference option for this meeting. I will check with our ITS on options and will provide more details on Monday. I will get a bridge line and confirm the call-in number.

Thanks,
Laurie

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Lipp, David

From: Rich Blasick <rich.blasick@epa.state.oh.us>
Sent: Thursday, April 28, 2011 8:03 AM
To: David Lipp
Subject: Marcellus Shale

David,

I left you a voicemail this morning as well pursuant to your question on wastewater treatment plants receiving gas well wastewater. We have 3 fact sheets posted on our website that may help you.

http://www.epa.ohio.gov/dsw/pretreatment/marcellus_shale/index.aspx

Also, feel free to contact me regarding any questions you have (330.963.1112)

Richard D. Blasick, P.E.
Environmental Manager
Division of Surface Water
Northeast District Office, Ohio EPA

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Lipp, David

From: Simmers, Rick <Rick.Simmers@dnr.state.oh.us>
Sent: Friday, April 22, 2011 8:56 AM
To: David Lipp; Tugend, Thomas
Subject: RE: Gas Well Site Visit

David, we may be able to arrange a visit on April 28th or May 5th. The company people that we need to contact will not be available until Monday. I will make calls in the morning then contact you again. Rick

From: David Lipp [mailto:David.Lipp@odh.ohio.gov]
Sent: Friday, April 22, 2011 8:41 AM
To: Tugend, Thomas; Simmers, Rick
Subject: Gas Well Site Visit

Thomas and Rick,

I checking in to see if a date for an ODH gas well site visit has been arranged yet. I have three more available days later in May if that is better. - May 23, 24, and 27. Also, one additional person, Chuck McCracken, has expressed an interest in being added to the site visit, bringing the ODH total up to potentially seven people.

Thanks,

David R. Lipp
Senior Health Physicist
Bureau of Radiation Protection, Technical Support
Ohio Department of Health
(614) 728-0884
david.lipp@odh.ohio.gov

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Lipp, David

From: Eric Denison
Sent: Friday, April 15, 2011 1:35 PM
To: David Lipp
Subject: RE: Marcellus Shale Drill Site Visit Schedule

Please change my status on 4/29 to "unavailable."

5/23 - 5/26 = available

5/27 = not available

From: David Lipp
Sent: Friday, April 15, 2011 1:30 PM
To: Stephen Helmer; Kenneth Barnhart; Eric Denison; Jim Colleli; Robert Leidy
Subject: Marcellus Shale Drill Site Visit Schedule

Greetings all,

As part of ODH/ BRP's new Marcellus Shale project, we have asked to accompany ODNR to a gas drilling operations site to get a walk down of the entire gas drilling/pumping work flow process first hand. For those not previously involved, ODH has been asked by ODNR to provide some technical assistance to them in setting up their program to regulate the expected flood of natural gas drilling and hydro-fracing in the Marcellus Shale /large natural gas reserve that is under the eastern half of Ohio, West Virginia, Pennsylvanis, and New York. Particularly, BRP has been asked to help characterize the naturally occurring radioactive material that might be disturbed, collected, consolidated, and become "technilogically enhanced naturally occurring radioactive material" or TENORM, during all phases of the gas drilling, pumping, processing, storage work flow.

ODNR has asked that we submit 3 potential days to get the visit scheduled. The site will probably be over in the Carroll / Belmont Counties area. We wil be taking the truck from Columbus with the potential for Rob to meet us there. The main goal is to go and visually get an idea of what the many technical documents are talking about to help us plan the sampling and analysis phase.

Please look at the attached calendar, mark the days you will be available for the site visit, and return it to me as soon as possible so we can get it to ODNR. If you have more questions or are looking for information on hydro-fracing, let me know.

Thanks,

David



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WATER POLLUTION: Pa. will begin testing for contamination caused by natural gas (Friday, April 8, 2011)

Pennsylvania environmental regulators are looking to see if the natural gas boom in their state is causing radioactive contaminants and other pollutants to end up in rivers.

The investigation was prompted by a March 7 letter from U.S. EPA instructing the state to test for radioactivity within 30 days and review permits for state wastewater treatment plants.

Michael Krancer, acting secretary of the Pennsylvania Department of Environmental Protection, said his office had sent orders to 14 public water authorities and 25 wastewater plants to begin testing.

The instructions follow river contamination reports in *The New York Times* and a recent conference call between EPA officials and state regulators about gas industry wastewater.

Of special concern to EPA officials was the issue of sludge -- heavier contaminants that settle out of wastewater during the treatment process. During the conference call, agency officials said they had heard one Pennsylvania plant was still receiving sludge and spreading it on fields.

Documents obtained by *The Times* indicated the plant has accepted wastewater with alpha radioactivity levels about 2,157 times higher than the drinking water standard.

"I don't know for a fact," said Ron Furlan, a DEP official, "but I'm sure that there are some [publicly owned treatment works] that are accepting brine natural gas wastewater and are still land applying, but we are still trying to stop that basically."

Furlan told EPA the state will address sludge in a new guideline.

This week's letters from Pennsylvania regulators did not mention restrictions on land applications of sludge or plans to test river sediment.

"There is no sediment testing as far as I know," Furlan told EPA. "But if you were really looking for radionuclides, that's the first place I would look" (Ian Urbina, *New York Times*, April 7). -- PK

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Lipp, David

From: Stephen Helmer
Sent: Friday, April 08, 2011 2:58 PM
To: David Lipp
Cc: Kenneth Barnhart
Subject: FW: From Greenwire -- WATER POLLUTION: Pa. will begin testing for contamination caused by natural gas

fyi

From: Brian Nickel [mailto:Brian.Nickel@epa.state.oh.us]
Sent: Friday, April 08, 2011 2:57 PM
To: Charles Reyes; Dale Rector; David Allard; John Mitchell; Laurie Stevenson; Stephen Helmer
Subject: Fwd: From Greenwire -- WATER POLLUTION: Pa. will begin testing for contamination caused by natural gas

FYI,

Pennsylvania environmental regulators are looking to see if the natural gas boom in their state is causing radioactive contaminants and other pollutants to end up in rivers.

The investigation was prompted by a March 7 letter from U.S. EPA instructing the state to test for radioactivity within 30 days and review permits for state wastewater treatment plants.

Complete article is below.

Dave, you are probably well aware of all this but I thought others would like to see it.

Lipp, David

From: Chuck McCracken
Sent: Tuesday, April 05, 2011 10:39 AM
To: Dan Lincoln
Subject: RE: Oilfield Brine Radiation

Dan:

The pilot study that was conducted included the radiological analysis of the brine water being introduced into the Warren WWTP as well as the effluent from the Warren WWTP.

The analytical results of the incoming brine and the WWTP effluent were both well below acceptable limits.

Therefore, based on the results of the pilot study, no additional sampling at Warren is being required at this time.

We have the ability to add radiological testing parameters the Warren WWTP NPDES permit if we determine it is becomes necessary in the future.

We continue to gather information to evaluate the radiological impact horizontal fracturing process in oil & gas well operations in the Marcellus shale formation in Ohio.

As stated previously by Chief Snee, 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.

Thanks,

Chuck McCracken, Supervisor
Bureau of Radiation Protection
Ohio Department of Health
246 N. High Street - 7th Floor 35 Bldg.
Columbus, OH 43215
(ph) 614.466.5136
(fx) 614.466.0381

From: Dan Lincoln [<mailto:linc20@yahoo.com>]
Sent: Tuesday, April 05, 2011 9:16 AM
To: Chuck McCracken
Subject: Re: Oilfield Brine Radiation

Mr. McCracken,

I see these measurements were performed on the WWTP discharges only.

Were there radioactivity measurements of the waste fluid that was delivered into the WWTP?

Are there now and will there ever be radioactivity measurements of the waste fluid as it is delivered to the WWTP?

Dan Lincoln

From: Chuck McCracken <Chuck.McCracken@odh.ohio.gov>

To: "linc20@yahoo.com" <linc20@yahoo.com>

Sent: Mon, April 4, 2011 4:19:01 PM

Subject: Oilfield Brine Radiation

Mr. Lincoln:

I am responding on the behalf of Mr. Snee, Chief – Bureau of Radiation Protection.

The Ohio Dept of Health Laboratory analyzed the samples for the Warren WWTP pilot study.
The ODH Lab is certified for OEPA approved parameters/methods.

The Warren WWTP pilot study liquid discharges were analyzed as follows:

<u>PARAMETER</u>	<u>OEPA METHOD</u>
Gross Alpha	222
Gross Beta	165
Ra-226	169
Ra-228	183
Total U	184

The Warren WWTP pilot study sludge discharge was analyzed as follows:

<u>PARAMETER</u>	<u>OEPA METHOD</u>
Ra-226	169
Ra-228	183

I-131 207
K-40 207

For more specific information relative to the parameters/methods the ODH Laboratory uses, please contact them directly at 614-466-5600.

Thanks,

Chuck McCracken, Supervisor
Bureau of Radiation Protection
Ohio Department of Health
246 N. High Street - 7th Floor 35 Bldg.
Columbus, OH 43215
(ph) 614.466.5136
(fx) 614.466.0381

From: Dan Lincoln [<mailto:linc20@yahoo.com>]
Sent: Sunday, April 03, 2011 12:03 AM
To: Michael Snee
Subject: Re: Oilfield Brine Radiation

Mr. Snee,

In your email below, you mentioned "analyzing water from drilling operations that was sent to a waste water treatment plant in Warren,OH".

Could you please tell me what measurement procedures & equipment were used to test the radioactivity levels and types?

Dan 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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Lipp, David

From: Chuck McCracken
Sent: Monday, April 04, 2011 2:10 PM
To: Stephen Helmer
Cc: Michael Snee; Mark Light; David Lipp; Jim Colleli
Subject: FW: Notes and Contact List from 3/17 team meeting
Attachments: Shale Team 3-17 Meeting Notes.doc; Marcellus Shale Group ListRevised3-22-11.xls

FYI

From: Laurie Stevenson [mailto:laurie.stevenson@epa.state.oh.us]

Sent: Tuesday, March 22, 2011 5:47 PM

To: Chris.Perry@dnr.state.oh.us; Heidi Hetzel-Evans; john.husted@dnr.state.oh.us; mike.hallfrisch@dnr.state.oh.us; mike.mccormac@dnr.state.oh.us; rick.simmers@dnr.state.oh.us; ted.lozier@dnr.state.oh.us; thomas.tugend@dnr.state.oh.us; tom.tomastik@dnr.state.oh.us; Aaron Shear; Benjamin Cirk; Brian Hall; Chuck Lowe; Dan Underwood; Donna Kniss; Eric Adams; Eric Nygaard; Erm Gomes; Fred Snell; Joe Goicochea; Keith Riley; Kristopher Weiss; Lee Burkleca; Lindsay Taliaferro; Michael Eggert; Mike Baker; Mike Hopkins; Mike Settles; Misty Parsons; Nancy Rice; Rich Blasick; Steve Saines; Steve Williams; Stivo DiFranco; Tom Harcarik; Tracy Freeman; Virginia Wilson; Chuck McCracken; Michael Snee; Rebecca Fugitt; robert.owen@odh.ohio.gov; Stephen Helmer

Subject: Notes and Contact List from 3/17 team meeting

Hello everyone. I'm attaching notes from our 3/17 meeting. If there are edits/additions, let me know. I'm also attaching an updated team list, however, I believe I'm missing a couple folks from ODH. If you would please review the list and update me with any changes or additional contacts, it would be appreciated.

Also, I thought it might be helpful to pull out some of our significant action items from the notes and highlight them below. We've got several items that we made short-term commitments on, including arranging for some smaller subgroup meetings as early as this week or next. Key action items include:

- We concurred to make the development of the drinking water fact sheet for homeowners a priority and work toward finalizing this as soon as possible. ODNR/OEPA to organize a small group discussion the week of 3/21 to discuss the parameters list with target of finalizing the fact sheet within a few weeks.
- ODNR will also put a more prominent link on their shale Web site to more easily direct homeowners and other interested parties to the current BMP information on baseline parameters for water sampling.
- OEPA/ODNR (M. Baker/T. Tugend/J. Husted) to set small group meeting to discuss special permit terms/conditions in the next 1-2 weeks.
- OEPA (M. Eggert) will get an OEPA distribution list together for ODNR to receive copies of incoming permit applications.
- OEPA, DSIWM (Joe and Aaron) and ODH (Chuck) to coordinate discussion on TENORM requirements as it relates to OEPA's soil/earthen materials management team activities. OEPA has a soil/earthen materials management team that is determining types and amounts of hazardous materials that can be considered acceptable for landfill disposal. TENORM is not part of their sampling matrix.(CDM)

- NEDO to get ODH comments regarding statutory language in 6111.03(S)(2) regarding OEPA's authority to regulate sewage sludge (Donna to Chuck). I already forwarded their comments in another email.(CDM)

Thanks everyone for another productive meeting and discussion last week. We're scheduled to be at ODNR for our next meeting on May 4th from 1:30-4:00 again.

Laurie

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Lipp, David

From: Stephen Helmer
Sent: Monday, April 04, 2011 1:18 PM
To: David Lipp
Subject: FW: Warren WWTP Annual Report

From: Chuck McCracken
Sent: Monday, April 04, 2011 12:55 PM
To: Stephen Helmer
Cc: Michael Snee; Mark Light
Subject: Warren WWTP Annual Report

Information on Warren's NPDES permit and the Annual Report we were talking about this morning.

From: Donna Kniss [mailto: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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Lipp, David

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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Lipp, David

From: Dan Lincoln <linc20@yahoo.com>
Sent: Sunday, April 03, 2011 12:03 AM
To: Michael Snee
Subject: Re: Oilfield Brine Radiation

Mr. Snee,

In your email below, you mentioned "analyzing water from drilling operations that was sent to a waste water treatment plant in Warren, OH".

Could you please tell me what measurement procedures & equipment were used to test the radioactivity levels and types?

Dan 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

"This e-mail is intended for the sole use of the intended recipient and may contain privileged, sensitive, or protected health information. If you are not the intended recipient, be advised that the unauthorized use, disclosure, copying, distribution, or action taken in reliance on the contents of this communication is prohibited. If you have received this e-mail in error, please notify the sender via telephone or return e-mail and immediately delete this e-mail."

Lipp, David

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

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Marcellus Shale

Ohio EPA/ODNR/ODH Marcellus Shale Workgroup March 22, 2011 (Revised)

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Lindsay Taliaferro	Ohio EPA/DDAGW		614-644-2771	linsday.taliaferro@epa.state.oh.us
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Marcellus Shale

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Brian Hall	Ohio EPA/DSW	Assistant Chief, DSW	614-644-2033	brian.hall@epa.state.oh.us
Eric Nygaard	Ohio EPA/DSW		614-644-2024	eric.nygaard@epa.state.oh.us
Randy Bournique	Ohio EPA/DSW	Manager, 401 Program	614-644-2013	randy.bournique@epa.state.oh.us
Kristopher Weiss	Ohio EPA/PIC		614-644-2160	kristopher.weiss@epa.state.oh.us
Mike Settles	Ohio EPA/PIC		614-644-2160	mike.settles@epa.state.oh.us

Shale Team Meeting Notes

March 17, 2011

Introductions

Public Outreach/Education – Media Interest

ODNR is receiving inquiries about drilling in state park areas. Exploration topics hot right now. Columbus Dispatch interest in wastewater. Seems to be good coordination between agencies on media calls. Callers are trying to get information out about drilling and regulations. Other areas of interest include: review of applications, inspection oversight, etc., what division is responsible for from an ODNR perspective, decisions/rationale to allow for drilling, etc.

Still a lot of local/community meetings with citizens, including Penn State Univ. Lots of people attending these. Parties include local officials, banks, etc. ODNR wants to advance some legislative briefings, including involvement from mineral resources to talk about drilling. Hoping to set up a series of meetings with legislators.

There was a recent Dispatch article focused on pipelines. Interest is high for discharge of wastewater to Steubenville and E. Liverpool.

ODNR getting continuous inquiries from landowners being approached by leasing companies. They want information about the process. The Farm Bureau is sponsoring events which include general discussion on legal requirements related to leasing. Does it make sense to have Ohio EPA personnel in attendance to field questions on OEPA permitting? Rich Blasick, OEPA/NEDO, has been involved in some of these.

Legislative – OEC and Sierra club have approached legislative contacts for consideration of a moratorium. There is also discussion at the local level in some communities about local resolutions.

Fact Sheets/Web Updates

- (1) Fact sheet for well owners (private or public water supplies). Recommendations for sampling/parameters. ODNR has drafted. OEPA has commented. We are working on information regarding parameters, etc. Thinks we might have draft in the next couple weeks. (M. Eggert). Parameter list. OEPA/ODNR/ODH. Local health districts also working on fact sheets and offering sampling packages (R. Fuggit). OEPA is still getting calls from residents asking about sampling. Who should field these calls?

ODNR is getting calls: Refer to ODNR's Web site. BMP guidance. Or, Tom Tomastik is a point of contact.

Action items: We need to make this a priority and work toward a two-week timeframe (J. Husted). Let's fast track this process. Will need to reach consensus on parameters list.

ODNR/OEPA to organize a small group discussion next week on the parameters list soon with target of finalizing this within a few weeks.

Baseline sampling parameters for BMPs. ODNR will put a more prominent link on their shale Web site to more easily direct homeowners and other interested parties to this information.

(2) OEPA fact sheet for disposal at POTWs – ready to go up on Web site soon.

(3) Governor's Office has requested ODNR elevate their public outreach/educational materials. They have met and have a list of fact sheets (one-pagers). Giving higher profile to M. Shale on their Web site. Goal is to educate public. Tone of fact sheets less technical and more general. 8-10 in the works on topics that include well construction, hydraulic fracturing, oil and gas history, how permit is issued by ODNR. Top priority for Heidi.

(4) Drillers – Basic Fact Sheet. Areas they are subject to OEPA's regulations. Will try and get something out to group in a couple weeks (L Stevenson).

Drilling Activity/Updates

Chesapeake sites update: Went to three sites. Update (M. Eggert). Good overall impression based on site visit relative to compliance, environmental controls, etc. Claim to be at a 100% recycle with wastewater.

Permit applications, etc. Since last meeting, there's been only one additional permit application. 10 horizontal permits issued to date (2 drilled). Utica: 5 permits issued (one more than last time). Only one horizontal well drilled. 18-stage frac being done right now. First fractured Utica well will be done fairly soon.

Older Marcellus wells vertical wells (conventional wells). Drilled primarily for stratigraphic testing. Exploratory wells originally drilled in shallow depths but went deeper for assessment.

Belmont/Monroe counties have deepest Marcellus deposit. Utica is 2,000 feet deeper and it sits under most of the state. ODNR has a good Powerpoint presentation on this topic that they can share. Can have a presentation at next meeting? Action item: determine if there's benefit for future presentation.

Chemical composition of frac water between Marcellus versus Utica. Is there a difference? Each company has their own blend and it will differ from well to well. They fine tune the mix to match the properties of the rock. Are chemical mixtures considered proprietary? Yes, some individual chemicals can be listed as proprietary. ODNR has MSD sheets for frac jobs on Web site. Public section.

Permitting Collaboration/Updates

- Ohio EPA/ODNR Meeting to discuss permit conditions to protect groundwater: There are draft conditions submitted by Ohio EPA for consideration, which include recommended permit conditions in specific sensitive settings. We've had one meeting and follow-up conference call on this topic with a smaller subgroup. Working to schedule another meeting to talk about conditions in more detail. Once we come to a common understanding on how we proceed. How do we capture this between agencies? OEPA has a target timeframe of April per our Director.

Action item: Set meeting to discuss conditions. Develop time frame (April target).

- Sharing permit application information for shale drilling: Is there a process we can identify to exchange information or notify Ohio EPA on proposed drilling activity. Options: (1) point of contact (2) 4-5 contacts with notification to each.

When ODNR receives an application, it goes up on the Web site daily. List of notifications by municipalities and townships in the state. Communication in a protection area may be different. Horizontal shale application notification is different. OEPA would want to know for 401, air permits, etc. With the current rate of applications submitted, it is likely possible to scan and get a copy to an OEPA distribution list. However, this will be more of a challenge if there are many applications coming in within a short time period. There are about 650 conventional drill applications per year received now. With 44 companies drilling in PA, they are receiving an estimated 1200-1300 shale gas applications per year.

Action item: We will get a distribution list together from OEPA. (M. Eggert)

401/404 Update

Ohio EPA, DSW is evaluating mechanism for streamlined 401 permitting. We have met with Chesapeake to discuss their operations and have talked with PA, WVA, Huntington District, Buffalo Corps. Chesapeake's general approach is to try and locate a project with either no impact or minimal impact (< .10 acres).

There is currently a 404 nationwide (general) permit. If impacts fall below thresholds, get a quick review. Eligibility for nationwide is based on area of impact.

To date, the WVA and Huntington districts have not been approached at all by companies. They are finding out about things when they've gone bad.

PA – structure and state permit is completely different. State permit (they take over some responsibilities of the Corps). They are overwhelmed by applications. They have separate for pad, separate for access roads, gathering system, water system, etc. Getting overloaded with separate permit applications for a single project.

Nationwide permits are activity related (e.g. bank stabilization). Not a nationwide permit for all activities encompassed in an entire drilling site. Because of this, sites are automatically subject to an individual 404 permit for certain aspects of the operations (if they have impacts). There is a need to have wetland delineation – for streams as well. Need a delineation map.

OEPA is looking at general permit for a pad “site.” Other features could be covered under nationwide permits (potentially).

DSW also has questions about gathering systems, specifically how these are set up and whether we should be taking a more comprehensive approach to permitting these activities. ODNR indicates that terminal agreements can be delayed a considerable amount of time, particularly if they’re drilling multiple well pads. May not know the route or have it finalized. Many wells are drilled early to hold leases, but they may not be in production for several years. OEPA is evaluating what is a single and complete project – how is this defined – to determine impact to streams/wetlands.

OEPA is leaning towards general permit for pad site. Nationwide for pad. Nationwide 12 for road crossings, and Nationwide 4 for utility lines. If we develop general permit, we need to host public hearings in different areas of the state.

Kinder Morgan and El Paso Midstream are the only two line proposals on the table. The third project has dropped off.

Water Updates

Wastewater: Warren is up and running and taking wastewater per their NPDES permit. E. Liverpool – recently submitted NPDES app. NEDO will be sending a letter soon on application deficiencies.

Steubenville – application in for Steubenville to take flowback water. Looking at 200,000 gpd in good flow conditions. 100,000 gpd in low flow conditions. Discharge to Ohio River – different conditions. Steubenville flow is lower. Is there a 500 mg/l standard set for Steubenville? No TDS standard in Ohio River, but we are controlling this through toxicity level criteria. Q: Is this a proposed permit? Yes. There will be opportunity for public hearing.

Rule proposal on PTI exemption for pits/lagoons from DSW, if receiving a permit from ODNR. ODNR looked at applicability of regulatory authority. Exemption in 6111 – flowback water going back into well. Expecting correspondence from ODNR on regulatory authority over wastewater managed in on-site units. We are at interested party (IP) review stage.

Drinking Water: Monthly conference call with local health districts. R Fuggit. It would be helpful to have ODNR and OEPA involved in next monthly call. March 29th from 9-10. This would be helpful to keep local health districts up to speed on issue and how /when/where to refer people.

Air Permitting

We asked for information from the industry on air emission sources/calculations. We received this information last week from Chesapeake. It is their position that drilling operations themselves do not need air permits. They think this is construction activity that's exempt (temporary sources, etc.). We are doing emission calculations to better understand sources and levels. We are also looking at various air rules. Want to get more information on the actual drilling component. There may be a general permit for air sources for drilling. Once drilling is done, emissions are relatively minor. Some equipment sources post-drilling may not be de minimis, however. General permit may be option. Q: What about compressor stations? Normally, large compressor stations get OEPA permits.

OEPA reviewed potential emission sources, including: glycol dehydrators, separators (VOCs, HAPs), storage tanks, fugitives, flares for vapor recovery, generators. These are units that we're looking at. Looking for exemptions. Most units are small. Flexibility to look at streamlined options or exemption options.

OEPA was approached by industry on this subject and is seeking guidance on air permitting requirements because of their experience with other states to date. USEPA is also involved in evaluating these activities and air permit applicability. OEPA needs to ensure we understand USEPA's perspective and need to be engaged in this discussion to help guide decision-making on USEPA's level. One other driver is the significant level of interest publicly as a driver about OEPA regulatory authority.

Waste Update – RCRA Exemption

Subtitle C (RCRA hazardous waste). Questions coming up about materials managed by third party. 1993 clarifying document from USEPA. Off-site transport of the material does not negate the exemption. The exemption follows the material from the subtitle C regulation. Materials derived from the treatment of the wastes still keep the hazardous waste exemption.

One caveat: These materials do remain subject to other applicable regulations, including Subtitle D regulations. We are getting a lot of inquiries from landfills and disposal companies about proper management of drill cutting. Terminology differs – we are looking at these materials to see if they would be subject to regulations. OEPA has two teams (1) earthen materials team looking into a lot of different materials and (2) contaminated soils team – guidance document. Looking at drill cutting management (including cuttings contaminated by synthetic oils, frac fluids, etc.).

All Chesapeake solids are going to solid waste landfills, although they have expressed an interest in exploring other options, including possible management on-site.

How does TENORM play into this situation? Need to coordinate with ODH on this issue. Are there rad waste concerns with disposal on-site?

Action item: DSIWM and ODH to coordinate a discussion on this topic.

Rules Update

TENORM Rules: No comments from agencies on rules. These will move forward through regulatory promulgation process. There will be more public comment opportunity.

NEDO pointed out language in 6111.03(S)(2) – exclusive authority to OEPA for regulation of sewage sludge. ODH will want to review this to ensure their regulations don't conflict with statutory language. Chuck M. recommended NEDO put their comments in writing to ODH.

165 Rules (ODNR): Rule review group is done. They will be moving forward with group of technical experts. Noise will be addressed by BMP attachment. No timeline defined yet for these rules. Unit configuration – looking to go to JCARR in next couple months. Technical group will convene in April – could be 6-9 mos. before rules are final.

Next Meeting

First week of May, Wednesday May 4th at ODNR from 1:30-4:00.

Update contact list and distribute (L. Stevenson).

Subject: FW: Sample Containers for Fracking Study
Importance: High

Hi, Steve-

Talked to some folks from the lab later in the day after I sent the e-mail below. Wanted to be sure I had captured the conversation correctly.

- Po-210 analysis of water will require preservation with HCl to pH of about 2.
- Water for other nuclides needs preservation with Nitric to pH of about 2.
- No real problems with using either glass or plastic containers as long as they're clean.
- You can do gross alpha, gross beta and gamma spec on water.
- You can do gamma spec on solids and semi-solids.

Also need clarification on a couple of points before making a final choice of products.

- How large a water sample do you need for the Po-210 analysis?
- How large a water sample do you need for the other 5 isotopes?
- How long a period can there be between sample collection and addition of preservative? (I'm assuming you have the acids and proper handling equipment there at the lab. Since we have neither the facilities or equipment here, I'd like to minimize the storage, transportation and handling of acids on our end.)
- How much solid material do you need for the gamma spec?
- Is it necessary for the containers to be EPA Certified?
- If certification is not strictly necessary, is it helpful or beneficial?

Sorry to be a pain, but to avoid embarrassment and invalid results, I want to be sure we do this right the first time.

Eric

From: Eric Denison
Sent: Wednesday, October 05, 2011 9:45 AM
To: Steve York
Subject: Sample Containers
Importance: High

Steve-

Don't know if anyone has already talked to you about this, but wanted to double-check before making a purchase.

We will be sampling water (actually more of an aqueous solution/suspension), sludge, and drill cuttings to be analyzed for Pb-210, Po-211 (SHOULD BE Po-210), Ra-224/226/228, Th-232, and U-238.

Do you have suggestions or requirements for sample containers and additives or preservatives? I want to be sure that we don't have issues that will adversely affect the analysis (nuclides plating out on container walls, etc.).

Thanks!

++++
J. Eric Denison
Health Physicist, Technical Support Section
Ohio Department of Health
Bureau of Radiation Protection
246 North High Street

Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Eric Denison
Sent: Wednesday, October 26, 2011 4:33 PM
To: Larry King
Cc: Steve York; Ram Chandrasekar
Subject: RE: Sample Containers for Fracking Study

Larry-

No firm schedule at this point, but I am hoping that the gas company reps get back with us in the next couple of weeks to discuss access to their sites.

My apologies to you for not getting your name in my notes when you and Dr. C. and I talked a few weeks ago.

Eric

From: Larry King
Sent: Wednesday, October 26, 2011 2:43 PM
To: Eric Denison
Cc: Steve York; Ram Chandrasekar; Donald Kenny; Rashmi Gaur; Katherine Grandfield; Jason Bean
Subject: RE: Sample Containers for Fracking Study

Hi Eric, what's your time frame for having the answers to your questions? Ilk

From: Steve York
Sent: Wednesday, October 26, 2011 2:37 PM
To: Larry King; Ram Chandrasekar; Donald Kenny; Rashmi Gaur; Katherine Grandfield; Jason Bean
Cc: Eric Denison
Subject: FW: Sample Containers for Fracking Study
Importance: High

Please respond to Eric concerning his questions below.

You all are the experts.

Thanks.

Steve

Steve York
Supervisor, QA and Compliance/Laboratory Safety
Ohio Department of Health Laboratory
Building 4
8995 East Main Street
Reynoldsburg, Ohio 43068
Telephone: 614-728-0393
Email: steve.york@odh.ohio.gov

From: Eric Denison
Sent: Wednesday, October 26, 2011 1:54 PM
To: Steve York

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J. Eric Denison
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Ohio Department of Health
Bureau of Radiation Protection
246 North High Street

Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Eric Denison
Sent: Wednesday, October 26, 2011 4:33 PM
To: Steve York
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Sorry for bothering you with this again. Thanks for passing it on.

From: Steve York
Sent: Wednesday, October 26, 2011 2:37 PM
To: Larry King; Ram Chandrasekar; Donald Kenny; Rashmi Gaur; Katherine Grandfield; Jason Bean
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Reynoldsburg, Ohio 43068
Telephone: 614-728-0393
Email: steve.york@odh.ohio.gov

From: Eric Denison
Sent: Wednesday, October 26, 2011 1:54 PM
To: Steve York
Subject: FW: Sample Containers for Fracking Study
Importance: High

Hi, Steve-

Talked to some folks from the lab later in the day after I sent the e-mail below. Wanted to be sure I had captured the conversation correctly.

- Po-210 analysis of water will require preservation with HCl to pH of about 2.
- Water for other nuclides needs preservation with Nitric to pH of about 2.
- No real problems with using either glass or plastic containers as long as they're clean.
- You can do gross alpha, gross beta and gamma spec on water.
- You can do gamma spec on solids and semi-solids.

Also need clarification on a couple of points before making a final choice of products.

- How large a water sample do you need for the Po-210 analysis?
- How large a water sample do you need for the other 5 isotopes?
- How long a period can there be between sample collection and addition of preservative? (I'm assuming you have the acids and proper handling equipment there at the lab. Since we have neither the facilities or equipment here, I'd like to minimize the storage, transportation and handling of acids on our end.)
- How much solid material do you need for the gamma spec?
- Is it necessary for the containers to be EPA Certified?
- If certification is not strictly necessary, is it helpful or beneficial?

Sorry to be a pain, but to avoid embarrassment and invalid results, I want to be sure we do this right the first time.

Eric

From: Eric Denison
Sent: Wednesday, October 05, 2011 9:45 AM
To: Steve York
Subject: Sample Containers
Importance: High

Steve-

Don't know if anyone has already talked to you about this, but wanted to double-check before making a purchase.

We will be sampling water (actually more of an aqueous solution/suspension), sludge, and drill cuttings to be analyzed for Pb-210, Po-211 (SHOULD BE Po-210), Ra-224/226/228, Th-232, and U-238.

Do you have suggestions or requirements for sample containers and additives or preservatives? I want to be sure that we don't have issues that will adversely affect the analysis (nuclides plating out on container walls, etc.).

Thanks!

++++
 J. Eric Denison
 Health Physicist, Technical Support Section
 Ohio Department of Health
 Bureau of Radiation Protection
 246 North High Street
 Columbus, OH 43215
 Tel: (614) 644-6362
 Fax: (614) 466-0381

Denison, Eric

From: Steve York
Sent: Wednesday, October 26, 2011 4:48 PM
To: Eric Denison
Subject: RE: Sample Containers for Fracking Study

No problem.

I work with the section as RSO, but they are much more knowledgeable about the testing side.

Glad to be of assistance.

Steve

Steve York
Supervisor, QA and Compliance/Laboratory Safety
Ohio Department of Health Laboratory
Building 4
8995 East Main Street
Reynoldsburg, Ohio 43068
Telephone: 614-728-0393
Email: steve.york@odh.ohio.gov

From: Eric Denison
Sent: Wednesday, October 26, 2011 4:33 PM
To: Steve York
Subject: RE: Sample Containers for Fracking Study

Sorry for bothering you with this again. Thanks for passing it on.

From: Steve York
Sent: Wednesday, October 26, 2011 2:37 PM
To: Larry King; Ram Chandrasekar; Donald Kenny; Rashmi Gaur; Katherine Grandfield; Jason Bean
Cc: Eric Denison
Subject: FW: Sample Containers for Fracking Study
Importance: High

Please respond to Eric concerning his questions below.

You all are the experts.

Thanks.

Steve

Steve York
Supervisor, QA and Compliance/Laboratory Safety
Ohio Department of Health Laboratory
Building 4
8995 East Main Street
Reynoldsburg, Ohio 43068

Telephone: 614-728-0393
Email: steve.york@odh.ohio.gov

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Sent: Wednesday, October 26, 2011 1:54 PM
To: Steve York
Subject: FW: Sample Containers for Fracking Study
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J. Eric Denison
Health Physicist, Technical Support Section
Ohio Department of Health
Bureau of Radiation Protection
246 North High Street
Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Eric Denison
Sent: Tuesday, November 01, 2011 3:16 PM
To: David Lipp; Joseph Crombie; Michael Rubadue; Michael Snee; Pamela Hintz; Robert Leidy; Stephen Helmer; Timothy Walker
Subject: New Dispatch article on fracking

http://www.dispatch.com/content/stories/national_world/2011/11/01/feds-to-set-new-rules-governing-fracking.html

+++++

J. Eric Denison
Health Physicist, Technical Support Section
Ohio Department of Health
Bureau of Radiation Protection
246 North High Street
Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: David Lipp
Sent: Wednesday, November 02, 2011 8:04 AM
To: Eric Denison
Subject: FW: NORM wastes

From: Michael Snee
Sent: Tuesday, November 01, 2011 3:16 PM
To: Stephen Helmer; David Lipp
Subject: FW: NORM wastes

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.

Denison, Eric

From: David Lipp
Sent: Wednesday, November 02, 2011 12:47 PM
To: Eric Denison
Subject: FW: Patriot Water Treatment, LLC

FYI

From: Michael Snee
Sent: Wednesday, November 02, 2011 9:26 AM
To: Mark Light; Chuck McCracken; David Lipp; Stephen Helmer; Jim Colleli
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

Denison, Eric

From: David Lipp
Sent: Thursday, November 03, 2011 1:07 PM
To: Eric Denison
Subject: FW: Marcellus Shale & Radium

FYI

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

From: Chuck McCracken
Sent: Thursday, November 03, 2011 9:46 AM
To: Mark Light; David Lipp; Jim Colleli; Stephen Helmer; Michael Snee
Subject: Marcellus Shale & Radium

Short article from: RadonLeaders.org Email Newsletter for Wednesday, November 2, 2011

Radium Content of Oil- and Gas-Field Produced Waters in the Northern Appalachian Basin (USA): Summary and Discussion of Data

<http://www.radonleaders.org/node/13114>

Denison, Eric

From: David Lipp
Sent: Wednesday, November 16, 2011 10:28 AM
To: Eric Denison
Subject: Shale Well Sampling

Eric,

Have you heard anything from ODNR about the sampling?

David R. Lipp
Health Physicist Supervisor
Bureau of Radiation Protection, Technical Support
Ohio Department of Health
(614) 728-0884
david.lipp@odh.ohio.gov

Denison, Eric

From: Denison, Eric
Sent: Friday, December 02, 2011 3:21 PM
To: Lipp, David
Subject: Shale Sampling

Gene just called from ODNR. He has e-mailed and left voice messages, but has not received a reply from Chesapeake. He will try again Monday morning and will get back to me later in the day.

+++++

J. Eric Denison
Health Physicist, Technical Support Section
Ohio Department of Health
Bureau of Radiation Protection
246 North High Street
Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Denison, Eric
Sent: Thursday, December 08, 2011 12:02 PM
To: Lipp, David
Cc: Helmer, Stephen
Subject: Contact re: Shale Cutting Disposal

David-

As you requested this morning, I called Dr. Julie Weatherington-Rice at her home a little while ago.

Dr. Rice is an adjunct professor at Ohio State in the area of Food, Agricultural and Biological Engineering. She is a geologist and soil scientist, and does consulting work for Bennett & Williams. I knew of Dr. Rice before the call because several years ago, she wrote a consulting report regarding the Uniontown Industrial Excess Landfill.

Dr. Rice is currently working with the Ohio Environmental Council, OSU College of Public Health, and other groups on a sole-source aquifer protection project related to shale gas drilling. She indicated that Chesapeake Energy is shipping well cuttings to Waste Management's American Landfill, which does not have a permit to accept hazardous waste.

She asked if anyone is regulating this disposal, if anyone is checking the RAM concentrations in the disposed materials, and what regulations are in place regarding these materials.

We discussed the fact that ODNR regulates the drillers and the disposal of their wastes, and that OEPA regulates the landfills. We briefly discussed the ODH rules for NORM in 3701-39 and the pending TENORM rules in 3701:1-43. I directed her to the ODH web site and told her where to find both of these rules. She said that she and the groups she is working with will review those rules and may make comments or ask additional questions.

Please let me know if you have any questions or need any additional information about the call.

+++++

J. Eric Denison
Health Physicist, Technical Support Section
Ohio Department of Health
Bureau of Radiation Protection
246 North High Street
Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Lipp, David
Sent: Wednesday, December 14, 2011 11:57 AM
To: Denison, Eric
Subject: FW: Dispatch article

From: Snee, Michael
Sent: Wednesday, December 14, 2011 10:55 AM
To: Helmer, Stephen; Lipp, David; McCracken, Chuck
Subject: Dispatch article

<http://www.dispatch.com/content/stories/local/2011/12/14/activists-want-rules-on-drilling-tightened.html>

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

Denison, Eric

From: Jody Jones (OPER - Regulatory) <jody.c.jones@chk.com>
Sent: Tuesday, December 20, 2011 2:13 PM
To: Lipp, David
Cc: Denison, Eric; Debby McElreath
Subject: Utica Sampling

Mr. Lipp,

Below is my contact information. I have also cc'd Eric Denison, as your original email said he would be heading up the sampling.

Again, I'm attempting to confirm 12/27 as the flowback sample date, but wanted to check ODH's availability.

Jody C. Jones
Manager, Regulatory Affairs
Chesapeake Energy Corporation
Cell: 304-767-4057

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Denison, Eric

From: W.W. GRAINGER INC. <DONOTREPLY@GRAINGER.COM>
Sent: Tuesday, December 20, 2011 2:46 PM
To: Denison, Eric
Subject: Grainger Quote Confirmation 2014937570 12/20/2011
Attachments: Grainger Quote Confirmation 2014937570 12/20/2011.pdf

Denison, Eric

From: Denison, Eric
Sent: Tuesday, December 20, 2011 3:28 PM
To: Delfino, Margaret
Cc: Lipp, David
Subject: Grainger Order - Shale Sampling Supplies
Attachments: SampleBottle20111220Req(Grainger).xls;
SampleBottle20111220Quote(Grainger2014937570).pdf

Importance: High

Maggie-

Attached are a credit card order and quote for sampling supplies for the shale project. Please process as soon as possible.

Thanks!

+++++

J. Eric Denison
Health Physicist, Technical Support Section
Ohio Department of Health
Bureau of Radiation Protection
246 North High Street
Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Delfino, Margaret
Sent: Tuesday, December 20, 2011 3:37 PM
To: Denison, Eric
Subject: RE: Grainger Order - Shale Sampling Supplies

Is Mindy Smith the same person to call to place the order?

From: Denison, Eric
Sent: Tuesday, December 20, 2011 3:27 PM
To: Delfino, Margaret
Cc: Lipp, David
Subject: Grainger Order - Shale Sampling Supplies
Importance: High

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Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Lipp, David
Sent: Tuesday, December 20, 2011 4:00 PM
To: Denison, Eric
Subject: Flow Back Water Trip

Eric,

Give Aaron Shear of Ohio EPA a call about the December 27th site visit. He wants to go along with us on our sampling. His office is here in Columbus down at the Lazarus building so ask if he wants to ride together.

Aaron Shear
(614) 728-5350

Thanks,

David

Denison, Eric

From: Denison, Eric
Sent: Tuesday, December 20, 2011 4:15 PM
To: Delfino, Margaret
Subject: RE: Grainger Order - Shale Sampling Supplies

I believe that she's still the contact.

From: Delfino, Margaret
Sent: Tuesday, December 20, 2011 3:37 PM
To: Denison, Eric
Subject: RE: Grainger Order - Shale Sampling Supplies

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246 North High Street
Columbus, OH 43215
Tel: (614) 644-6362
Fax: (614) 466-0381

Denison, Eric

From: Denison, Eric
Sent: Wednesday, December 21, 2011 3:20 PM
To: Lipp, David
Subject: RE: Flow Back Water Trip

Importance: High

David-

Left a VM for Jody Jones at Chesapeake yesterday afternoon, and he called back this morning. He is working on specifics of the visit. They would like a copy of our sampling plan/procedure to see how it matches up to theirs and whether they can expect the results to be similar. I told him I'd have to talk to you about getting a copy of a finalized procedure. We need to discuss as soon as possible on Thursday.

I also left a message for Aaron Shear yesterday afternoon. He called back this morning and said that he would be unavailable on Tuesday, but would like a copy of any notes or observations we make.

From: Lipp, David
Sent: Tuesday, December 20, 2011 4:00 PM
To: Denison, Eric
Subject: Flow Back Water Trip

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Aaron Shear
(614) 728-5350

Thanks,

David

Denison, Eric

From: Jody Jones (OPER - Regulatory) <jody.c.jones@chk.com>
Sent: Thursday, December 22, 2011 2:31 PM
To: Lipp, David
Cc: Denison, Eric
Subject: Sampling Postponed

Mr. Lipp,

As we discussed on the phone, it will be too difficult to conduct the Utica sampling on 12/27. As I understand right now, our next flowback will be in a few weeks. I'm in the process of finding out more now, and once I get a date, I will let you know immediately.

I would also like to setup a meeting for sometime in early January to discuss sampling protocols, etc., sometime in early January. Could you and Mr. Denison provide me with some tentative dates so I can begin setting that up as well.

Whenever ODH is ready to provide us with the sampling protocol, we look forward to reviewing.

I look forward to working with you.

Jody C. Jones
Manager, Regulatory Affairs
Chesapeake Energy Corporation
Cell: 304-767-4057

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Denison, Eric

From: Denison, Eric
Sent: Thursday, December 22, 2011 3:52 PM
To: King, Larry
Cc: Lipp, David
Subject: Accepted:

Sounds good to me, Larry. I'm copying David Lipp (my supervisor) on this so he knows what we're up to even if he doesn't sit in.

Denison, Eric

From: Denison, Eric
Sent: Thursday, December 22, 2011 3:59 PM
To: Lipp, David
Subject: Re: Sampling Postponed

David – notes from our discussion. Let me know if I have missed anything.

Top priority is getting a sampling plan together

- Talk to the lab
 - Make sure they know exactly what we'll be sending
 - Flowback water
 - Drill cuttings with residual drilling mud
 - Drilling mud with cuttings removed (maybe)
 - Discuss what analysis we want
 - Flowback water – gross alpha, gross beta and gamma spec
 - Cuttings – gross alpha, gross beta and gamma spec
 - Mud (if it's possible to separate from the cuttings) – gross alpha, gross beta and gamma spec
 - Get their requirements for sample collection and submission (container types, quantities, additives, etc.)
- Adapt one of the USEPA plans for our purposes – keep it as simple as possible
- Talk to Jody Jones about:
 - Getting cuttings from multiple points in the vertical and horizontal phases
 - How they recycle drilling mud and whether it's possible to sample mud at various stages of re-use (to check for radium build-up)

Larry King has set up a conference call for me on Tuesday afternoon with folks from the lab. Let me know if you want to sit in.

Eric

From: Jody Jones (OPER - Regulatory) [mailto:jody.c.jones@chk.com]
Sent: Thursday, December 22, 2011 2:31 PM
To: Lipp, David
Cc: Denison, Eric
Subject: Sampling Postponed

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Jody C. Jones

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CITY OF WARREN, OHIO
WATER POLLUTION CONTROL DEPARTMENT

2323 MAIN AVE. S.W. WARREN, OHIO 44481
 PHONE 330-841-2591

CHAIN OF CUSTODY FORM

R 0022-01

Sample # 1004090085 Address: _____
 Source: Final Effluent-WWTP Date Sample Taken: 04-09-10 Time Sample Taken: 0900am CD
 Composite Sample Time Period: _____ Grab: Gr-A, O&G, TOT, or Free CN, Phenolics, PH, Hg
 Date Grab Taken: 0900am CD Investigator/ Sampler: Tonya Ruzma
 Date/ Time: _____
 Relinquished By: Tonya Ruzma 4-9-10 Accepted By: L. Buckley 4/9/10
 Relinquished By: L. Buckley 4-9-10 Accepted By: _____
 Relinquished By: _____ Accepted By: _____
 Received in Laboratory By: Sam Ludwick 4/10/2010 Analyst: _____

PLEASE CHECK PARAMETERS FOR ANALYSIS
 RESULTS IN $\mu\text{g/l}$ UNLESS OTHERWISE SPECIFIED *

PARAMETER	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	PARAMETER	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
1		* NH3-N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7
3		* COG		410.4	1		LEAD		200.7
1		CADMIUM		200.7	1		ZINC		200.7
1		CHROMIUM		200.7	4		* TSS		160.2
1		COPPER		200.7	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4		PH		150.1
2		* FREE CN		4500CNI	4		HEX CHROMIUM		3500CrB
1		MERCURY		163F 245.1	1		MOLYBDENUM		200.7
1		NICKEL		7471A	1		ANTIMONY		200.7
3		* OIL & GREASE		1654	1		SELENIUM		200.7
3		* PHOSPHORUS		5010A	1		ALUMINUM		200.7
4	✓	total alpha radiation in pCi/L			1	✓	2.3 pCi/L 05/03/10 KL		
4	✓	total beta radiation in pCi/L			1	✓	2.0 ± 4.0 pCi/L 05/03/10 KL		

PRESERVATIVES: NITRIC ACID - 1, SODIUM HYDROXIDE - 2, SULFURIC ACID - 3, UNPRESERVED - 4

Number of sample bottles used on this Chain Of Custody 2

COMMENTS:

LABORATORY RESULTS CERTIFIED BY: _____ DATE: _____

DIRECT INQUIRIES AND THIS FORM TO: SAM LUDWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY
 330-841-2591 EXT 112 OR BY E-MAIL: sludwick@warren.org

Ohio Department of Health, Division of Prevention
ODH Laboratory Report

Ohio Department of Health Laboratory
Radiochemistry Section, Building 22
8995 E Main St
Reynoldsburg, OH 43068

Ed Strickland, Governor
Alvin Jackson M.D., Director of Health

Patriot Water Treatment (CustomerID# water & wa)
7716 Depot Road
Lisbon, OH 44432
330-853-9321

Receive Date: 5/13/2010
This Report's Date: 5/11/2010
ODH Lab Order#: R6022

Sample# R6022-01	Collector: Tonya Kuzm	Site: Final	Client # 1004090085	
	Collect Date: 4/9/2010		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analized by
Alpha	<3	pCi/L	5/3/2010	K. Grandfield
Beta	9.0 +/- 4.0	pCi/L	5/3/2010	K. Grandfield

Chemistry Fax: (614) 728-2671 Voice: (614) 366-5660 E-mail: Ram.Chandrasekar@odh.ohio.gov
URL: <http://www.ohio.gov/ohio/>

Attn: Andy Blocksom
Patriot Water Treatment
7716 Depot Road
Lisbon, OH 44432

DEPA Analyst's
Katherine Grandfield, 3548
Lisa Shesky, 1507
Song H Chung, 2034

DEPA Matrix#
Total Alpha, 222
Total Beta, 165
Radon-226, 509
Radon-222, 183
Radon-222, 323
Radium, 108
Thorium, 106
Uranium-238, 184
Gamma, 207



CITY OF WARREN, OHIO
WATER POLLUTION CONTROL DEPARTMENT

2323 MAIN AVE. S.W. WARREN, OHIO 44481
PHONE 330-841-2591

CHAIN OF CUSTODY FORM

R6017-01

Sample # 1004020075 Address: _____
Source: FRAL Date Sample Taken: 4-2-10 Time Sample Taken: 0801
Composite Sample Time Period: _____ Grab: Gr. 3, Q&G, TOT, or Free CN, Phenolics, PH, H₂
Date Grab Taken: 0800 Investigator/ Sampler: Alex B.
Relinquished By: Alex Bladem Date/ Time: _____ Accepted By: Sony Chung 7/4/10
Relinquished By: _____ Accepted By: _____
Relinquished By: _____ Accepted By: _____
Received in Laboratory By: _____ Analyst: _____

PLEASE CHECK PARAMETERS FOR ANALYSIS
RESULTS IN $\mu\text{g/l}$ UNLESS OTHERWISE SPECIFIED *

TEMPERATURE	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	TEMPERATURE	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
3		* NH ₃ -N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7
3		* COD		410.4	1		LEAD		200.7
1		CADMIUM		200.7	1		ZINC		200.7
1		CHROMIUM		200.7	4		* TSS		160.2
1		COPPER		200.7	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4		PH		150.1
2		* FREE CN		4500CN	4		HEX CHROMIUM		3500CB
1		MERCURY		1631-245.1	1		MOLYBDENUM		200.7
1		NICKEL		7471A	1		ANTIMONY		200.7
3		* OIL & GREASE		1694	1		SELENIUM		200.7
3		* PHOSPHORUS		5010A	1		ALUMINUM		200.7
				4500PE					5010B
	V	total lead	430	1631-245.1	V		cadmium		200.7
	V	total lead	430	1631-245.1	V		chromium		200.7
	V	total lead	430	1631-245.1	V		total chromium	40-220	200.7

PRESERVATIVES: NITRIC ACID -1, SODIUM HYDROXIDE -2, SULFURIC ACID -3, UNPRESERVED 4

Number of sample bottles used on this Chain Of Custody 2

COMMENTS: RA-220-41 p/L 4/2/10 RA-220-41 p/L 4/2/10 RA-220-41 p/L 4/2/10

LABORATORY RESULTS CERTIFIED BY: _____ DATE _____

DIRECT INQUIRIES AND THIS FORM TO: SAM LUDWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY
330-841-2591 EXT 112 OR BY E MAIL sludwick@warren.org

**Ohio Department of Health, Division of Prevention
ODH Laboratory Report**

Ohio Department of Health Laboratory
Radiochemistry Section, Building 22
8995 E Main ST
Reynoldsburg, OH 43068

Ted Strickland, Governor
Alvin Jackson M.D., Director of Health

Patriot Water Treatment (CustomerID# water & wa)
7716 Depot Road
Lisbon, OH 44432
330-853-9321

Receive Date: 4/6/2010
This Report's Date: 6/7/2010
ODH-Lab Order#: R6017

Sample# R6017-01	Collector: Andy Blocks	Site:	Client # 1004020075	
	Collect Date: 4/2/2010		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analized by
Alpha	<3	pCi/L	5/3/2010	K_Grandfield
Beta	<4	pCi/L	5/3/2010	K_Grandfield
Ra-226	<1	pCi/L	6/3/2010	K_Grandfield
Ra-228	2.14 +/- 0.79	pCi/L	5/28/2010	K_Grandfield
U-Natural	<1	pCi/L	4/15/2010	SChung

Chemistry Fax: (614) 223-2671 Voice: (614) 466-5640 E-mail: Ram.Chandrasekar@odh.ohio.gov
URL: <http://www.ohio.gov/ohio/>

Attn: Andy Blocksom
Patriot Water Treatment
7716 Depot Road
Lisbon, OH 44432

CEPA Analyst's
Kathrina Grandfield, 1548
Pat Spesky, 1407
Tony H Chung, 2734

CEPA Method#
Total Alpha, 202
Total Beta, 165
Radium-226, 169
Radium-228, 113
Radon-222, 123
Cesium, 198
Strontium, 196
Uranium-Nat, 134
Gamma, 207



CITY OF WARREN, OHIO
WATER POLLUTION CONTROL DEPARTMENT

2323 MAIN AVE. S.W. WARREN, OHIO 44481
PHONE 330-841-2591

CHAIN OF CUSTODY FORM

R6011-02

Sample # 1003260167 Address: _____
Source: WMP - Final Date Sample Taken: 3/30/10 Time Sample Taken: _____
Composite Sample Time Period: 24hr Grab: Cr+6, O3G, TOT, & Free CN, Phenolics, PH, Hg
Date Grab Taken: 3-30-10 Investigator/ Sampler: APY Blackman
Relinquished By: [Signature] Date/Time: _____ Accepted By: S. Chung Date/Time: 3/30/10 16
Relinquished By: _____ Accepted By: _____
Relinquished By: _____ Accepted By: _____
Received in Laboratory By: S. Chung Analyst: _____

PLEASE CHECK PARAMETERS FOR ANALYSIS
RESULTS IN ug/l UNLESS OTHERWISE SPECIFIED *

CONSERVATION	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	CONSERVATION	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
3		* NH3-N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7
3		* COD		410.4	1		LEAD		200.7
1		CADMIUM		200.7	1		ZINC		200.7
1		CHROMIUM		200.7	4		* TSS		180.2
1		COPPER		200.7	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4		PH		150.1
2		* FREE CN		4500CNE	4		HEX CHROMIUM		3500C8
1		MERCURY		1831 245.1	1		MOLYBDENUM		200.7
1		NICKEL		7471A	1		ANTIMONY		200.7
3		* OIL & GREASE		200.7	1		SELENIUM		200.7
3		* PHOSPHORUS		8010A	1		ALUMINUM		200.7
				4500PE					8010B
	V	TOTAL ALUMINUM	2300	05/03/10 KCL	V		TOTAL CADMIUM		05/03/10 KCL
	V	TOTAL CHLORIDE	24.4	2.5pt/10 05/02/10 KCL	V		TOTAL CHROMIUM		05/03/10 KCL
	V	TOTAL C	21pt/10	4/15/10 SC	V		BASELINE		05/03/10 KCL

PRESERVATIVES NITRIC ACID - 1, SODIUM HYDROXIDE - 2, SULFURIC ACID - 3, UNPRESERVED 4

Number of sample bottles used on this Chain Of Custody 4

COMMENTS:

LABORATORY RESULTS CERTIFIED BY: _____

DATE _____

DIRECT INQUIRIES AND THIS FORM TO: SAM LUDWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY
330-841-2591 EXT 112 OR BY E-MAIL sludwick@warren.org



CITY OF WARREN, OHIO WATER POLLUTION CONTROL DEPARTMENT

7023 MINNIEVILLE RD., WARREN, OHIO 44122
PHONE 330-644-4691

CHAIN OF CUSTODY FORM

Bill to Budget
R601101

Sample # 1003190054 Address _____
Source: Final Date Sample Taken: 3-17-10 Time Sample Taken: 12:00
Composite Sample Time Period: _____ Grab: Grav, O&G, TOT, or Free CN, Phenolics, PH, Hg
Date Grab Taken: 3-17-10 Investigator/ Sampler: Amy Blackman
Date/ Time _____ Date/ Time _____
Relinquished By: Amy Blackman Accepted By: S. Chung 3/20/10 160
Relinquished By: _____ Accepted By: _____
Relinquished By: _____ Accepted By: _____
Received in Laboratory By: S. Chung Analyst: _____

PLEASE CHECK PARAMETERS FOR ANALYSIS
RESULTS IN $\mu\text{g/l}$ UNLESS OTHERWISE SPECIFIED *

PARAMETER	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	PARAMETER	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
1		* NH ₃ -N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7 6010B
3		* COD		410.4	1		LEAD		200.7 6010B
1		CADMIUM		200.7 6010B	1		ZINC		200.7 6010B
1		CHROMIUM		200.7 6010B	4		* TSS		160.2
1		COPPER		200.7 6010B	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4	<input checked="" type="checkbox"/>	SCANTION		150.1 PL-514
2		* FREE CN		4500CNH	4		HEX CHROMIUM		3500CB
1		MERCURY		1631 245.1 7471A	1		MOLYBDENUM		200.7 6010B
1		NICKEL		200.7 6010A	1		ANTIMONY		200.7 6010B
1		* OIL & GREASE		1664	1		SELENIUM		200.7 6010B
1		* PHOSPHORUS		3010A 1500PE	1		ALUMINUM		200.7 6010B
	<input checked="" type="checkbox"/>	TOTAL CHLORIDE	2300/L	05/10/10 KL	<input checked="" type="checkbox"/>		TOTAL CHLORIDE		
	<input checked="" type="checkbox"/>	TOTAL CHLORIDE	2600/L	05/10/10 KL	<input checked="" type="checkbox"/>		TOTAL CHLORIDE		
	<input checked="" type="checkbox"/>	TOTAL CHLORIDE	2100/L	05/10/10 KL	<input checked="" type="checkbox"/>		TOTAL CHLORIDE		

PRESERVATIVES: NITRIC ACID -1, SODIUM HYDROXIDE -2, SULFURIC ACID -3, UNPRESERVED 4
Number of sample bottles used on this Chain Of Custody 4
COMMENTS: _____

LABORATORY RESULTS CERTIFIED BY: _____ DATE _____

DIRECT INQUIRIES AND THIS FORM TO: SAM LUCWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY
330-344-2591 EXT 112 OR BY E-MAIL: slucwick@warren.ohio.gov

**Ohio Department of Health, Division of Prevention
ODH Laboratory Report**

Ohio Department of Health Laboratory
Radiochemistry Section, Building 22
8995 E Main St
Reynoldsburg, OH 43068

Ted Strickland, Governor
Alvin Jackson M.D., Director of Health

Patnot Water Treatment (CustomerID# water & wa)
7716 Depot Road
Lisbon OH 44432
330-853-9321

Receive Date: 3/30/2010
This Report's Date: 6/7/2010
ODH-Lab Order#: R6011

Sample# R6011-01	Collector:	Site:	Client # 1003190054	
	Collect Date: 3/19/2010		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	5/3/2010	K_Grandfield
Beta	6.6 +/- 2.9	pCi/L	5/3/2010	K_Grandfield
Ra-226	<1	pCi/L	5/25/2010	K_Grandfield
Ra-228	<1	pCi/L	5/12/2010	K_Grandfield
U-Natural	<1	pCi/L	4/15/2010	SChung

Sample# R6011-02	Collector:	Site:	Client # 1003260064	
	Collect Date: 3/26/2010		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	5/3/2010	K_Grandfield
Beta	4.4 +/- 2.5	pCi/L	5/3/2010	K_Grandfield
Ra-226	<1	pCi/L	5/25/2010	K_Grandfield
Ra-228	1.08 +/- 1.00	pCi/L	5/12/2010	K_Grandfield
U-Natural	<1	pCi/L	4/15/2010	SChung

Chemistry Fax: (614) 728-2671 Voice: (614) 466-5600 E-mail: Ram.Chandrasekar@odh.ohio.gov
URL: <http://www.ohio.gov/ohc/>

Attn: Andy Blocksom
Patnot Water Treatment
7716 Depot Road
Lisbon OH 44432

OEPA Analyst #'s
Katherine Grandfield, 3548
Rita Shesky, 1407
Sang H Chung, 2934

OEPA Matrix #
Total Alpha, 222
Total Beta, 165
Radium-226, 149
Radium-228, 183
Actinon-222, 223
Potium, 198
Strontium, 176
Uranium-Nat, 194
Gamma, 207



CITY OF WARREN, OHIO WATER POLLUTION CONTROL DEPARTMENT

2321 MAIN AVE. S.W. WARREN, OHIO 44481
PHONE 330-341-2591

ALL IN PENCIL

CHAIN OF CUSTODY FORM

R5999-01

Sample # 10-312-0003-2 Address _____
Source Field Date Sample Taken 3-13-10 Time Sample Taken 12:30
Composite Sample Time Period _____ Grab GrB, O&G, TOT, or Free CN, Phenolics, PH, Hg
Date Grab Taken 3-13-10 Investigator/ Sampler RAY B
Date/ Time _____ Date/ Time _____
Relinquished By: X Andrew Blackman Accepted By: X S. Chung 3/15/10 15:30
Relinquished By: X Accepted By: X
Relinquished By: _____ Accepted By: _____
Received in Laboratory By: _____ Analyst: _____

PLEASE CHECK PARAMETERS FOR ANALYSIS
RESULTS IN ug/l UNLESS OTHERWISE SPECIFIED *

PRESERVATIVE	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	PRESERVATIVE	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
3		* NH3-N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7
3		* COD		410.4	1		LEAD		200.7
1		CADMIUM		200.7	1		ZINC		200.7
1		CHROMIUM		200.7	4		* TSS		180.2
1		COPPER		200.7	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4		PH		150.1
2		* FREE CN		4500CN	4		HEX CHROMIUM		3500CrB
1		MERCURY		1631 243.1	1		MOLYBDENUM		200.7
1		NICKEL		7471A	1		ANTIMONY		200.7
3		* OIL & GREASE		200.7	1		SELENIUM		200.7
3		* PHOSPHORUS		5010A	1		ALUMINUM		200.7
				4500PE					5010B
	X	TOTAL MERCURY	23 ug/L	03/27/10	X		TOTAL CHROMIUM	10 ug/L	03/27/10
	X	TOTAL COPPER	2.4 ug/L	04/26/10	X		TOTAL NICKEL	6.4 ug/L	4/30/10
	X	TOTAL U	21 ug/L	4/5/10					

PRESERVATIVES NITRIC ACID - 1, SODIUM HYDROXIDE - 2, SULFURIC ACID - 3, UNPRESERVED - 4

Number of sample bottles used on this Chain Of Custody _____

COMMENTS: _____

LABORATORY RESULTS CERTIFIED BY: _____ DATE _____

DIRECT INQUIRIES AND THIS FORM TO: SAM LUDWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY
330-341-2591 EXT 112 OR BY E MAIL sludwick@warren.org

Ohio Department of Health, Division of Prevention
ODH Laboratory Report

Ohio Department of Health Laboratory
Radiochemistry Section, Building 22
8995 E. Main St
Reynoldsburg, OH 43068

Ted Strickland, Governor
Alvin Jackson M.D., Director of Health

Patriot Water Treatment (CustomerID# water & wa)
7716 Depot Road
Lisbon, OH 44432
330-853-9321

Receive Date: 3/15/2010
This Report's Date: 4/27/2010
ODH-Lab Order#: R5999

Sample# R5999-01	Collector: Andy Blocks	Site: Final	Client # 1003120052	
	Collect Date: 3/12/2010		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	3/29/2010	K_Grandfield
Beta	<4	pCi/L	4/26/2010	K_Grandfield
Ra-226	<1	pCi/L	3/30/2010	SChung
Ra-228	<1	pCi/L	3/24/2010	K_Grandfield
U-Natural	<1	pCi/L	4/5/2010	SChung

Chemistry Fax: (614) 728-2671 Voice: (614) 466-5600 E-mail: Ram.Chandrasekar@odh.ohio.gov
URL: <http://www.ohio.gov/ohio/>

	<u>OEPA Analyst #'s</u>	<u>OEPA Method#</u>
Attn: Andy Blocksom	Katherine Grandfield, 3548	Total Alpha, 222
Patriot Water Treatment	Rita Shesky, 1407	Total Beta, 165
7716 Depot Road	Sang H Chung, 2934	Pladium-226, 169
Lisbon, OH 44432		Radium-228, 183
		Radon-222, 223
		Tritium, 198
		Strontium, 196
		Uranium-Nat, 184
		Gamma, 207



CITY OF WARREN, OHIO
WATER POLLUTION CONTROL DEPARTMENT

2323 MAIN AVE. S.W. WARREN, OHIO 44481
PHONE 330-841-2591

CHAIN OF CUSTODY FORM

R10022-01

Sample #: 1004090085 Address: _____
Source: Final Effluent-WWTR Date Sample Taken: 04-09-10 Time Sample Taken: 0900am CD
Composite Sample Time Period: _____ Grab: Cr+6, O&G, TOT, or Free CN, Phenolics, PH, Hg
Date Grab Taken: 0900am CD Investigator/ Sampler: Tonya Kuzma
Date/ Time: _____ Date/ Time: _____
Relinquished By: Tonya Kuzma 4-9-10 Accepted By: E. Dickey 4/9/10 11:24
Relinquished By: E. Dickey 4-9-10 Accepted By: _____
Relinquished By: _____ Accepted By: _____
Received in Laboratory By: Carla Kuzma 4/9/2010 Analyst: _____

PLEASE CHECK PARAMETERS FOR ANALYSIS
RESULTS IN ug/l UNLESS OTHERWISE SPECIFIED *

PRESERVATIVE	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	PRESERVATIVE	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
3		* NH3-N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7
3		* COD		410.4	1		LEAD		200.7
1		CADIUM		200.7	1		ZINC		200.7
1		CHROMIUM		200.7	4		* TSS		180.2
1		COPPER		200.7	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4		PH		150.1
2		* FREE CN		4500CNI	4		HEX CHROMIUM		3500CrB
1		MERCURY		1631-245.1	1		MOLYBDENUM		200.7
1		NICKEL		7471A	1		ANTIMONY		200.7
3		* OIL & GREASE		1684	1		SELENIUM		200.7
3		* PHOSPHORUS		5010A	1		ALUMINUM		200.7
4	✓	total alpha radiation in pCi/L							
4	✓	total beta radiation in pCi/L							

PRESERVATIVES: NITRIC ACID - 1, SODIUM HYDROXIDE - 2, SULFURIC ACID - 3, UNPRESERVED 4

Number of sample bottles used on this Chain Of Custody 2

COMMENTS:

LABORATORY RESULTS CERTIFIED BY: _____ DATE: _____

DIRECT INQUIRIES AND THIS FORM TO: SAM LUDWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY
330-841-2591 EXT 112 OR BY E-MAIL sludwick@warren.org