Ohio House of Representatives
House Finance Committee
H. B. 64, Main Operating Budget FY2016-FY2017
Interested Party Testimony
March 23, 2015

Dear Chairman Smith and Members of the Committee:

My name is Dr. Julie Weatherington-Rice. I am a geologist and soil scientist. I am the Senior Scientist at the firm of Bennett and Williams Environmental Consultants Inc. in Westerville, Ohio and am an Adjunct Professor in the Department of Food, Agricultural and Biological Engineering, The Ohio State University here in Columbus. I am voicing my concerns about sections of this HB 64 as they affect the protection of the water and soils of Ohio, the protection of drinking water supplies and the adherence to Federal Program requirements that the State of Ohio is bound to honor. I am submitting these comments on behalf of the City of Canton's Water Department and on behalf of all public water supplies in Ohio who count on the availability of sufficient quantities of clean and safe water to provide the needed water supplies to the public that they serve.

Violations of the Federal Emergency Planning Community Right–to-Know Act

This original bill is a budget bill, not an oil and gas bill. All mention of oil and gas issues should be removed and presented in a separate bill where the myriad of problems that exist in Ohio's program can be discussed at length and changed so that control of the industry, once again, returns to the people of the State of Ohio as opposed to the Oil and Gas Industry. There is, however, one section of this bill that if left intact, will violate Federal Law. In fact, it is replacing language that is already in violation of Federal Law.

I specifically wish to bring your attention to Sections 1509.23 lines 13388 to 13407 and the replacement language at Section 1509.231 lines 13408 to 13445. As written, this new section (Section 1509.231) is in conflict with the Federal Emergency Planning Community Right-to-Know Act (EPCRA) of 1986, but so was the previous language that has been struck out (Section 1509.23). That language harkens back to language developed in a 2001 Ohio House Bill which carved out a specific set of conditions for the Oil and Gas Industry that is not followed by any other industry in Ohio. The Federal EPCRA program requires that ALL industries must report toxic and hazardous materials held on site to the State Emergency Response Commission (SERC), the local emergency planning commission (LEPC) and the local fire department. From 2001 until recently, the Oil and Gas Industry in Ohio circumvented Federal law with the full cooperation of the State of Ohio Department of Natural Resources (ODNR). Recently, in response to an Ohio citizen petition, US EPA instructed ODNR that, while they had the right to maintain a separate registry, they could not supersede the Federal requirements of reporting toxic and hazardous substances to SERC, the LEPC and local fire departments. I draw special attention to the April 26, 2013 letter from Richard Karl, Director, Superfund Division, Region V, US EPA where he writes "ORC Chapter 1509 *does not supersede the requirements of EPCRA.* ORC 1509.10 (H) and (I) apply to information submitted under Chapter 1509, *not under*

EPCRA". Director Karl's position is very clear. Ohio can choose to have two programs, one operating under the rules and requirements of EPCRA and a second, special program for the oil and gas industry under ODNR, but Ohio cannot supersede EPCRA and set up its own system. To do so violates a Federal Program. A copy the original petition to US EPA from Teresa Mills and the response letter from US EPA documenting this situation is here attached as part of Appendix A.

The Federal Program is well established here in Ohio. You can even download the filing forms off the web at http://www.epa.state.oh.us/dapc/serc/invforms.aspx . If you take the time to search this web site, you will see that the Oil and Gas Industry is the only industry to have its own set of reporting forms, clearly a designated special interest. This demonstrates how long this industry has demanded and received special treatment in Ohio. If the issue was just special treatment, that would be one consideration, but the real issue is the health and safety of local first responders and communities in Ohio who are being put at risk by this circumvention of the Federal Program. ODNR plans to continue to keep the register on their web site here in Columbus, Ohio where it is supposed to be available to emergency responders as needed and where the Chief will decide what information will be provided to the community at large who wish to inquire as to what toxic and hazardous materials are stored on site in their community. Last I checked, the Federal Act was titled the "Emergency Planning and Community Right-to-Know Act", not the "Chief of ODNR Division Oil and Gas Resources Management will determine what the community can know Act". The Federal Government never envisioned that the public's access to this information would go through the gatekeeper of the Ohio Division of Oil and Gas Regulatory Management or they would have designated state Oil and Gas management programs as the repository of the data and carved out special status for the Oil and Gas Industry. Absent that, they would have assigned the State level gatekeeping to each State Oil and Gas Division for all reporting of all industrial holdings. Neither of those scenarios occurred so this arrangement can only be viewed as an Ohio sweetheart deal with the Oil and Gas Industry.

The 2001 House Bill was followed by a 2004 House Bill removing home rule zoning and permitting from Ohio and Gas permits. The overriding authority was removed from Ohio EPA and the Ohio Dept. of Health for radioactivity and ODNR Div. of Mineral Resources Management was given primacy. In 2010, that was followed by a Senate Bill that created primacy for the ODNR Div. of Oil & Gas Resources Management. For at least the 2004 and 2010 bills, the lead legislator (Ohio Rep./Senator Tom Niehaus) who sponsored the ALEC drafted bills was handsomely rewarded with campaign contributions from the Oil and Gas Industry (http://www.cleveland.com/business/index.ssf/2011/11/common_cause_finds_oil_gas_ind.html; http://www.commoncause.org/states/ohio/reports/deep-drilling-deep-pockets.PDF) . Mr. Niehaus now serves as a registered lobbyist for the Oil and Gas Industry. It is critical to remember that shale gas and oil horizontal drilling and hydraulic fracturing did not actually begin in Ohio until the end of 2010, more than nine years after the Oil and Gas Industry began circumventing Ohio's Home Rule statutes and granted primary oversight to a captive agency who are unable to deny permits without running the risk of being sued for "takings" of the resources in Ohio Courts. I present a public lecture on this topic. The current version is titled "ALEC and the Oil & Gas Industry v. Source Water Protection & Home Rule in Ohio: How we

got to where we are and what we can do about it". This lecture, last presented in January 2015, here in Columbus is available on YouTube and can be viewed at http://www.columbusbillofrights.org/#!video/cyws. It was just updated and will be presented again March 25th at the Youngstown State University Energy and the Environment Lecture Series.

Not only is the ODNR Oil and Gas registry a special carve out for the Industry, it also significantly increases the potential for catastrophic failure of the whole EPCRA system as it relates to Oil and Gas. Most of the drilling sites and mid-line facilities for this recent explosion of drilling efforts are in eastern Ohio. Here topography can limit lines of communication. Emergency responders do not always have access to land lines at emergency sites and cell phones do not always have coverage. In addition, the ODNR web site does not have someone personally available at the site round the clock, year round if there are technological problems at the Columbus end of the support system and the web page goes down. Furthermore, I can find no back-up paper system that anyone can access in Columbus if, for some reason, there are technical difficulties with the on-line systems and/or it has been brought down for maintenance or updating. The ODNR system is not infallible. I have personally encountered periods of time when it has not been in operation. Fortunately, my needs have not been life-threatening and I could check back later. In the instance of an oil and gas explosion or fire, data must be available immediately. There is no time to wait. The data must be available and in the hands of local responders before they head out to an emergency run. They need the information at their facility, not stored on a server in Columbus, Ohio.

So, in this bill alone, we set aside a special carve out for the Oil and Gas Industry to the Ohio EPCRA program, violating Federal Law, we allow the Chief of the Div. of Oil and Gas Regulatory Management to determine exactly who is "community" and who has the right to "know". Furthermore, we take away the very vital information needed by first responders to be prepared for an emergency and we require them to contact ODNR's web site, in Columbus, which has a tendency not to function, possibly through cell phones that may very well not operate in specific areas where drilling is more concentrated if anything goes wrong. We are averaging about one fire per hundred drilling pads as well as other types of explosions, accidental releases and worker injuries and deaths from machinery and/or chemicals on site. How are local first responders supposed to be prepared to respond for any given situation when they don't have the information at their fingertips with which to plan? Who worked out the logic behind this system? Did anyone actually think about the total implications of these sections of this Bill?

If there is any question that this combination of conditions is an invitation for disaster, one only has to review the situations resulting from the Monroe County Statoil Eisenbarth well pad fire and explosions last June. A reading of the US EPA investigators on-site reports demonstrates that ODNR Div. of Oil and Gas Resources Management simply is not staffed with the skill sets needed to address catastrophic failures when they occur. Those investigator reports are here attached in Appendix A, along with a few pictures of the burned well pad including the uncontrolled flowing well on site which flowed for some period of time before it was shut in. Next time it may be people who die not just more than 70,000 fish, unknown numbers of frogs,

toads, crawfish, salamanders and other wildlife who died as the result of the poisoning of five miles of Opossum Creek.

But this was not the only catastrophic emergency involving oil and gas in Ohio in 2014. In fact, there were a number of others from earthquakes, to well pad spills to well blowouts, pipeline explosions and fires and worker injuries and death at a variety of facilities. These events will continue to occur. People have been injured and died at these facilities; large areas around the failing facilities have had to be evacuated. One well blowout in Monroe County required a 1.5 mile radius evacuation around the well and people were forced to stay away from home, in December, for 10 days. This is an agricultural area and livestock were left behind, farmers returning daily, at great personal risk, to tend to the animals. The displaced citizens were finally allowed to return home just before Christmas. I have developed a PowerPoint presentation about the accidents of 2014, first presented February 14, 2015 to the Ohio Ecological Food and Farm Association and presented March 3, 2015 to the Association of Ohio Pedologists. I presented it again on March 18th to the Operator Training Committee of Ohio public water supply class. I have included the presentation here as Appendix B so that anyone interested can see the photos of these catastrophic accidents that we have experienced in Ohio in 2014. Does passage of this bill as written open up the State of Ohio as a responsible party in a wrongful death suit when Ohio loses a first responder or local citizen as the results of one of these Oil and Gas Industry events?

Reporting Emergencies

Section 1509.232, lines 13446 to 13481 set up requirements for reporting emergencies to the Chief of the Division of Oil and Gas. While I have no objection to the reporting of such information to the Division, I think it is critical to note that the information listed must also be reported to the local emergency management coordinators under EPCRA, to the Occupational Safety and Health Administration, to the Ohio Environmental Protection Agency spill line, to the local Health Department and to the local first responders and/or emergency treatment centers. ODNR can only collect this information; they are not in control of how an emergency is managed on site or in the surrounding community. Other agencies on the local, state and federal levels are charged with addressing the emergency under local, state and federal regulations.

Mandatory Pooling and Unitization

Sections 1509.27 lines 13482 to 13561 and Section 1509.29 lines 13562 to 13821 set up requirements to proceed with forced mandatory pooling and unitization. The Source Water Protection Areas of Public Water Supplies, as designated by the Federal Safe Drinking Water Act 1986 and 1996 Amendments should never be included in land that undergoes forced mandatory pooling or unitization. These properties are the recharge areas for public water supplies and as such, must be protected from any and all types and forms of surface or subsurface contamination. Public Water Supplies are required to establish Emergency and Permanent Management Plans for their Source Water Protection Areas. This is a Federal requirement that they must undertake. Communities do this because the cost of cleaning up or replacing a public water sources can cost tens to hundreds of millions of dollars. Oil and Gas operations have had and will continue to have accidental releases in Ohio. These releases

include hydrocarbons, heavy and radioactive metals in solids, slurries, and sludge as well as enough salt in production waters to render drinking water undrinkable and soils sterile for hundreds of years. This is the natural list and does not include all the chemicals that are part of the drilling and hydraulic fracturing operations on the site which are additionally toxic and hazardous. Unlined oil and gas brine drilling pits installed in Morrow County in the 1960s, are still leaching salts into the creeks and rivers in the area and the ground water is still too contaminated to drink.

The question of community safety as a reason for rejecting the inclusion of public lands in a forced mandatory pooling or unitization proceedings has already been tested and found to be justified. North Royalton rejected a leasing arrangement with Cutter Oil Company in early 2013 based, significantly, upon their concern about safety. Cutter already had a track record in North Royalton that included three significant spills and accidents including a well explosion behind Valley Vista Elementary School. As is common in the urbanized parts of Ohio, Cutter Oil was planning to come into a developing subdivision to drill this new well. The State of Ohio only requires a 150-foot setback from a well pad in urban areas. In rural areas, the setback is only 100 feet. To put this setback requirement in perspective, if I wanted to build a small chicken coop in my back yard, here in Worthington, without a rooster, I would have to have a 150-foot setback from my neighbors' homes. The evacuation distances for the 2014 accidents ranged in the one to two mile radius of the well blowouts, explosions and fires. North Royalton was fully within their rights to be concerned about the safety of their residents. ODNR overrode North Royalton's objections, as did the Oil and Gas Technical Committee, including North Royalton's properties in a forced mandatory pooling. The Ohio Oil and Gas Commission, however, overrode the decision, finding that Cutter and everyone else had not addressed North Royalton's safety concern for their community (http://www.cleveland.com/north-royalton/index.ssf/2014/12/ohio_oil_and_gas_commission_re.html) . Safety and the protection of a community's water resource is exactly why Source Water Protection Areas should never be included in forced mandatory pooling or unitization. The small amount of money a community would gain from leasing bonuses and royalties could not begin to pay for the damage or loss of a public water supply.

A public water intake on the West Virginia side of Ohio River was potentially impacted by the Monroe County Statoil Eisenbarth pad well fire. More community water supplies could be at the intersection of another accidental release. The accidents will continue, but we can at least prevent them from happening in public water supply areas by precluding these areas from forced mandatory pooling, unitization and the placement of well pads and ancillary support systems. The money provided by an oil and gas company through their environmental bonds can be pennies on the dollar of the cost of clean-up or replacement. If the permit holders are not forced to pay, is the State saying that Ohio will pick up the tab to make communities whole? If that is not Ohio's intention, then these lands must be determined to be "lands unsuitable for drilling" and be removed, by statute, from oil and gas development unless a community choses to risk their resource themselves. We specifically request that Source Water Protection Areas be exempted from forced mandatory pooling or unitization and/or, at a minimum, well pads and pipelines be prohibited in these areas.

Summary

While it is clear that portions of this bill, as currently written, have merit, clearly other sections are poorly considered. The best choice would be to remove all language relating to Oil and Gas issues. These topics need far greater discussion, and in the case of EPCRA reporting for the Oil and Gas Industry, a complete overhaul to be in compliance with the Federal government. If passed as written, Ohio will find herself on the wrong side of Federal Law. Furthermore, the members of the Ohio House and Senate will have been notified that this is indeed the case if these actions move forward. What that does to State and individual liability when accidents at Oil and Gas Industrial sites occur will need to be determined if this language moves forward. The prudent position would be to remove these sections to be debated and discussed, in light of Federal mandates, at a later point in time. To ignore Federal mandates would be inadvisable.

Perhaps of even greater importance, is the long-term protection of our valuable water supplies that serve millions of citizens of Ohio. The legislature could further protection of water supplies by simply exempting Source Water Protection Areas from forced mandatory pooling and/or unitization. There is already precedence for excluding local public lands on grounds of safety concerns. Communities are concerned for the safety of their water supplies. At a minimum, an absolute restriction on well pads in source water protection areas will minimize more immediate surface and/or ground water issues. We urge the legislature to act responsibly and help protect the resource that makes Ohio an attractive place to do business – water.

This concludes my substantive testimony. I am not planning to provide a shorter testimony in person and as such will not be personally available at the Statehouse for questioning. If the committee needs any further clarification on these issues, I will be pleased to provide them. Please feel free to contact me by email at weatherington-ri.1@osu.edu or by phone at 614-436-5248.

Respectfully submitted,

Julie Weatherington-Rice, PhD, CPG, CPSS
Sr. Scientist,
Bennett & Williams Environmental Consultants Inc.
Westerville, Ohio
and
Adjunct Professor, The Ohio State University
Dept. of Food, Agricultural & Biological Engineering

Attachments:

Appendix A
- Petition to US EP from Teresa Mills
- US EPA response
- US EPA Inspector's report Monroe Co. fire
- US EPA Inspector's 2nd report Monroe Co. fire

Photo of flowing well at Monroe Co. well pad
Photo of burned out equipment at Monroe Co. well pad

Appendix B
March 3, 2015 PowerPoint

Appendix A

Supporting Documentation

BEFORE THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

IN RE:	**EPCRA VIOLATIONS BY STATE OF OHIO. Unconstitutional under Federal Supremacy Clause.**	**PETITION TO U.S EPA**
		Susan Hedman Region V Administrator

I. OVERVIEW

This is a Petition filed by the undersigned, Teresa Mills of Grove City, Ohio, on behalf of herself and all residents across the State of Ohio, to request that the United States Environmental Protection Agency take action to avoid imminent public harm and to protect the public right-to- know arising from actions taken by the State of Ohio that are clearly unconstitutional under the Federal Supremacy Clause for violating the Emergency Planning and Community Right-to-Know Act of 1986 ("EPCRA"), Pub. L. No. 99-499, Title III, 100 Stat. 1728 (1986).

Ohio has been in violation of EPCRA since 2001 without any response to date from the United States. That violation was first created by the passage of House Bill 94, followed by the adoption of Ohio Revised Code ("ORC") Section §3750.081 in September, 2001, that essentially exempts the oil and gas industry operating in this state from requirements under EPCRA requirement that facilities within those industries annually file emergency planning inventory forms with state and local emergency planning authorities. The violation was further compounded by passage of SB 315 in 2012, followed by the adoption of ORC Section §1509.10 (H) and (I), which divert trade secret determination authority from U.S. EPA and unduly restrict citizens' ability to challenge trade secret claims.

Petitioner is requesting that U.S. EPA review this situation on an expedited basis and remedy it through taking the actions: 1) publishing a formal determination that ORC §3750.081 and ORC §1509.10 (H) (I) violate EPCRA; 2) inform relevant state agencies and legislators of aforesaid determination and 3) after a reasonable period of time following such publication, undertake enforcement actions against oil and gas facilities operating in Ohio that remain in non-compliance with EPCRA's requirements.

II. FACTUAL BACKGROUND

The urgency of this situation arises from an incident that occurred on January 16, 2013, near the city of St. Marys in Auglaize County, Ohio, where an oil well facility initiated an emergency response due to concentrated chemical odors. Local emergency responders sought EPCRA inventory information regarding the facility to assist them in responding, but found that no such information was available either with the local emergency planning committee or the local fire department, thus complicating their response and potentially subjecting the responders to unknown risks. As summarized in a local press account of the incident, available at http://www.dailystandard.com/archive/story_single.php?rec_id=20053 , the lack of the local emergency response information required by EPCRA was ultimately attributed to the fact that all oil and gas facility information in Ohio instead being under the control of the Ohio Department of Natural Resources, the state agency that issues permits for oil and gas drilling operations.

Prior to this incident, the undersigned Petitioner had contacted both the Ohio Environmental Protection Agency ("OEPA"), which chairs the State Emergency Response Commission ("SERC"). SERC, established in ORC Chapter 3750 to implement EPCRA in Ohio, and the Ohio Department of Natural Resources ("ODNR"), to request EPCRA inventory data on oil and gas facilities which EPCRA mandates be made available to the public. The response from OEPA was simply that she should contact ODNR for the requested information. She has received no response, other than acknowledgement of receipt of her request, from ODNR; the initial request was made to ODNR on December 26, 2012.

Accordingly, the public's right created by EPCRA for inventory data on oil and gas facilities is being violated in Ohio. Furthermore, Ohio emergency responders and Ohioans in general are being placed at unnecessary risk due to the lack of the emergency response data that EPCRA was specifically designed to provide.

III. ORC §3750.081 CLEARLY IS UNCONSTITUTIONAL UNDER THE FEDERAL SUPREMACY CLAUSE FOR VIOLATING EPCRA

ORC § 3750.081 provides as follows:

§ 3750.081. Compliance with filing requirements; access to database

(A) Notwithstanding any provision in this chapter to the contrary, an owner or operator of a facility that is regulated under Chapter 1509. of the Revised Code who has filed a log in accordance with section 1509.10 of the Revised Code and a production statement in accordance with section 1509.11 of the Revised Code shall be deemed to have satisfied all of the inventory, notification, listing, and other submission and filing requirements established under this chapter, except for the release reporting requirements established under section 3750.06 of the Revised Code.

(B) The emergency response commission and every local emergency planning committee and fire department in this state shall establish a means by which to access, view, and retrieve information, through the use of the internet or a computer disk, from the electronic database maintained by the division of oil and gas resources management in the department of natural resources in accordance with section 1509.23 of the Revised Code. With respect to facilities regulated under Chapter 1509. of the Revised Code, the database shall be the means of providing and receiving the information described in division (A) of this section.

The clear effect of Paragraph A above is that the act of filing a "log" following the drilling of an oil or gas well and the annual filing of a "production report" about the amount of gas or oil produced at that well, both of which are filed solely with ODNR, fully substitutes for the federal and state EPCRA inventory filing requirements with state and local emergency response agencies. Accordingly, this statute exempts oil and gas facilities in Ohio from EPCRA's basic emergency planning requirement in 42 U.S.C. §11022(a) that facility owner/operators are required to annually file an emergency and hazardous chemical inventory form, on a form approved by U.S. EPA, with the state emergency response commission, the local emergency planning committee, and the fire department with jurisdiction over the facility.

Even the briefest review of EPCRA's provisions quickly establishes that Congress did not grant authority to states to alter any EPCRA requirement, including the annual inventory filing requirement in 42 U.S.C. §11022(a). Accordingly, the State of Ohio is in violation of EPCRA through its enactment of, and subsequent compliance with, ORC §3750.081.

This illegal state statute is daily causing the specific risk of harm to Ohioans and Ohio's emergency responders that the Congress designed EPCRA to prevent, as the incident in St. Marys makes manifest. This illegal state statute has also prevented Ohio citizens from obtaining inventory information that EPCRA establishes as their clear right and is preventing the exercise of that right to the present day.

IV. ORC §3750.081 DOES NOT PROVIDE COMPARABLE PROTECTIONS TO EPCRA

While unnecessary to establish the violation of EPCRA described above, Petitioner also submits that the apparent statutory design contained in Paragraph (B) of ORC §3750.081 requiring state and local emergency response authorities to utilize a substitute "database" to be housed at ODNR does not redress the avoidable risk and violation of the public right-to-know described above as a practical matter. The incident at St. Marys where the local responders simply could not access relevant emergency response information in a timely manner supports this conclusion as does a review of the relevant ODNR filings and it's "database" contemplated in ORC §3750.081(B).

The ODNR "log" and "annual production report" forms identified in ORC §3750.081(A) are available at http://oilandgas.ohiodnr.gov/Industry/Electronic-Forms.aspx. It is immediately obvious that these forms are not identical to the Tier I and Tier II inventory forms required by U.S. EPA to implement EPCRA. The two sets of forms are in no way even comparable and, more to the point, the state forms appear to include absolutely no consideration of the needs of emergency responders or the chemical hazard information to which the public is entitled.

The state log form includes substantial geological and engineering data that is totally irrelevant to emergency response while failing to include information on the nature and location of chemical hazards and the identity of an emergency contact person that are the core concerns of the EPCRA forms. The state statutory provision on the well log at ORC §1509.10 contains no requirement that it be consistent with EPCRA. The regulation adopted by ODNR governing the log at Ohio Adm. Code 1501:9-1-08(D) makes no reference to chemical hazard information at all.

Further, the "log" is subject to an extreme trade secrecy provision on the chemicals used in the hydraulic fracturing process at ORC §1509.10(I) that shields chemical hazard information from public disclosure to a radically greater, if not total, extent than that allowed by EPCRA pursuant to 42 U.S.C. §11042, thus denying Ohioans' right to chemical hazard information on these materials in the manner and extent established by the Congress.

The irrelevance of the "annual production report" form to emergency response needs is similar. The form contains no information on chemicals at all, merely the amount of oil, gas, and "brine" produced by a well annually. Although there is a provision in ORC §1509.11 that broadly requires the production report to include information required by EPCRA, the state ODNR has clearly not implemented this requirement in its form, despite the passage of over a decade since the enactment of ORC §3750.081. There is simply no information on the production form of any kind related to emergency response.

The "database" contemplated by ORC §3750.081(B) to substitute for EPCRA inventory form filings is also functionally worthless for emergency response purposes, especially when compared to EPCRA-required Tier I and Tier II data. This database is located at http://oilandgas.ohiodnr.gov/Well-Information/Oil-Gas-Well-Database.aspx. The database contains no chemical hazard information at all, including nothing regarding the location of chemical storage or of an emergency contact. Although there is a separate statutory requirement in ORC §1509.23(B) that this database include information required under EPCRA, ODNR has clearly ignored this requirement as well in designing its database.

ODNR's web-site has a specific link entitled "Emergency Response" at http://oilandgas.ohiodnr.gov/Well-Information/Emergency-Response.aspx that at least by subject appears related to the substitute EPCRA responsibilities that the Department has been given under the statute. However, this link is also functionally worthless in comparison to EPCRA-required Tier I and Tier II data. It contains only a listing of MSDS sheets filed by oil and gas companies without any reference to the specific sites where these chemicals may be encountered by emergency responders, an option for reporting spills at oil and gas sites to ODNR (but not to emergency responders), and a search program for locating oil and gas well sites.

Although the purported authority in ORC §3750.081 to file with ODNR on ODNR forms rather than with the emergency response agencies designated by EPCRA on U.S. EPA forms violates EPCRA without any need to consider the quality of ODNR's substitute system, it is nevertheless clear that the data maintained at ODNR utterly fails to serve as a practical substitute for the quality and accessibility of chemical hazard information required by the EPCRA program.

V. ORC §1509.10(H)(I) IS UNCONSTITUTIONAL UNDER THE FEDERAL SUPREMACY CLAUSE FOR VIOLATING EPCRA

While ORC §3750.09 provides comparable requirement to EPCRA, Ohio is not in compliance these requirements.

42 USC §11043(b) provides clear provision for the release of information to health professionals, doctors, and nurses. As a result of the passage of SB 315 passed in 2012 and the adoption of ORC §1509.10(H) places an undue burden on health professionals in obtaining information.

42 USC §11042 provides that the US EPA administrator determines chemical trade secret while 1509.10(D(1),(2) appears to allow the industry to determine trade secret and requires that a civil action be filed to challenge a trade secret claim. 42 USC §11042(d) provides clear provisions for "petition for review" of trade secret to the US EPA administrator.

VI. REQUEST FOR U.S. EPA TO REQUIRE EPCRA COMPLIANCE AT OIL AND GAS FACILITIES IN OHIO

As the proceeding information establishes, Ohioans, and Ohio's emergency responders are being placed at an imminent risk of harm during chemical emergencies at oil and gas facilities in Ohio due to the illegal program established in ORC §3750.081. This situation has existed for over a decade and, with the radical expansion in the number of these facilities in Ohio due to the technologies of hydraulic fracturing, and horizontal drilling, and the greatly increased number, quantity and complexity of the chemicals used in the hydraulic fracturing process, that risk of harm is increasingly dramatically in this state. Furthermore, ORC §1509.10 (H) & (I) unduly strip the U.S. EPA Administrator of trade secret determination authority, prevent doctors and nurses from reliably and quickly accessing chemical information and deny citizens the right to challenge the trade secret claims of the oil and gas industry. The Petitioner urges the U.S. EPA to recognize that this situation is unacceptable and that appropriate action is necessary.

The action that this Petition requests to remedy this situation is:

1) That the U.S. EPA make and publish widely throughout Ohio a formal determination that ORC §3750.081 and ORC §1509.10 (H) & (I) violate EPCRA and do not excuse non-compliance by covered oil and gas facilities operating in Ohio;

and

2) That the U.S. EPA make a formal statement of the aforementioned determination to Ohio Governor John Kasich, Ohio Senate President, Keith Faber, Speaker of the House, William Batchelder, the Ohio Department of Natural Resources, the State Emergency Response Commission, the Ohio EPA that chairs the SERC, the Ohio Attorney General, and the state associations representing the oil and gas industry in Ohio:

And

3) after a reasonable period of time following such publication, which it is submitted given the seriousness and escalating nature of the risk involved should not exceed thirty (30) days, that on a priority basis, U.S. EPA undertake enforcement actions under EPCRA's enforcement provisions against oil and gas facilities operating in Ohio that remain in non-compliance with EPCRA's inventory filing requirements after the time period has expired.

Please advise me (the Petitioner) of the steps that U.S. EPA will be taking in response to the information contained in this Petition and the requests for a remedy made herein. I am willing to assist you in addressing this situation by phone at 614-539-1471 or by electronic mail directed to tmills@chej.org.

Respectfully Submitted,

_____

Teresa Mills
[redacted]

CC: SERC
Senator Sherrod Brown

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 2 6 2013

REPLY TO THE ATTENTION OF:

Teresa B. Mills
2319 Parkridge Court
Grove City, OH 43123

Dear Ms. Mills:

We received your petition dated March 4, 2013 highlighting your concerns related to the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), 42 U.S.C. §§ 11001-11050 and the facility incident in St. Marys, Ohio. Susan Hedman, EPA Region 5 Administrator, asked me to respond on her behalf. We greatly appreciate it when citizens step up to identify issues and raise questions. The time and effort you spent putting together the petition is obvious. We have researched the constitutional issues you raised, and as you know from speaking to Mick Hans, of my staff, we have proceeded with an investigation of the facility.

Constitutional Issue

Your petition sets forth an argument that Ohio Revised Code (ORC) Section 3750.081 is unconstitutional and violates EPCRA by allowing alternate compliance options for chemical inventory reporting requirements at oil and gas facilities in Ohio. ORC Chapter 3750 sets forth Ohio law that is *similar* to the federal EPCRA statute, *but does not replace* the federal EPCRA requirements. ORC Section 3750.081 allows oil and gas facilities to comply with the chemical inventory reporting requirements of ORC Chapter 3750 through filing of the log and production statement required by ORC Sections 1509.10 and 1509.11, rather than a chemical inventory form. While this alternate compliance method appears to be considered compliance with ORC Chapter 3750, the Ohio law does not designate (or attempt to designate) alternate compliance methods for the federal EPCRA law. *Simply stated, the ORC Chapter 3750 does not supersede EPCRA.*

The chemical inventory requirements of EPCRA Section 312 apply to any facility that (1) is required to prepare or have available a material safety data sheet for a hazardous chemical under the Occupational Safety and Health Act of 1970; and (2) has a hazardous chemical present at the facility in an amount equal to or greater than the minimum threshold level. Any such facility is required to submit a chemical inventory form annually to the State Emergency Response Commission (SERC), the Local Emergency Planning Committee (LEPC), and the local fire department. This requirement is not affected by the language of ORC Section 3750.081.

Your petition also asserts that the provisions of ORC Sections 1509.10(H) and (I) are unconstitutional in that they place an undue burden on health professionals in obtaining

information and changes the approach of determining whether chemical information should be considered trade secret under EPCRA. ORC Chapter 1509 *does not supersede the requirements of EPCRA.* ORC Sections 1509.10(H) and (I) apply to information submitted under Chapter 1509, *not under EPCRA.*

St. Marys Incident

My staff has initiated an investigation. During an enforcement investigation, we are unable to share information collected. But, please know and understand that this type of work requires time: to collect information from the parties involved, evaluate information, and follow up, if necessary. The investigation could also involve inspection work. If an enforcement action is taken related to this matter, certain information will become publically available.

EPA recognizes the importance of the EPCRA reporting requirements both for the safety of emergency responders and the public, as well as in assuring that relevant hazardous chemical information is available to the public.

If you have additional questions about this matter, please contact Mick Hans at (312) 353-5050 or hans.mick@epa.gov or James Entzminger at (312) 886-4062 or entzminger.james@epa.gov. They will be able to share with you the status of the work.

Sincerely,

for Richard C. Karl, Director
Superfund Division

cc: Ms. Cindy Dewulf, Ohio SERC Co-Chairperson
Ms. Nancy Dragani, Ohio SERC Co-Chairperson

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Statoil Eisenbarth Well Response - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: **POLREP #1**
Initial POLREP
Statoil Eisenbarth Well Response
TBD
Clarington, OH
Latitude: 39.6974000 Longitude: -80.8980000

To: Mark Johnson, ATSDR
Mark Durno, U.S. EPA
Jason El-Zein, U.S. EPA
HQ EOC, U.S. EPA
Matt Mankowski, U.S. EPA
Matt Marcinko, OSHA
Jo Ann Banda, U.S. FWS
Wesley Feldner, ODNR Division of Wildlife
Kirk Kiefer, ODNR Division of Wildlife
Sheila McAnaney, USEPA
Mike Sherron, OEPA

From: JJ Justice, On-Scene Coordinator
Date: 6/29/2014
Reporting Period: June 28, 2014 - June 29, 2014

1. Introduction

1.1 Background

Site Number:	TBD	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Emergency
Response Lead:	PRP	**Incident Category:**	Removal Assessment
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	6/28/2014	**Start Date:**	6/28/2014
Demob Date:		**Completion Date:**	
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

Emergency Response - Oil/Gas Well Pad Fire

1.1.2 Site Description

1.1.2.1 Location

The STATOIL Eisenbarth Pad is located at 42240 Long Ridge Road, Clarington, Ohio. The Pad is located in a rural area with approximately 25 residential homes located within 1 mile.

1.1.2.2 Description of Threat

Over 16 different chemicals products were staged on the Pad at the time of the explosion and subsequent fire. Materials present on the Pad included but was not limited to: diesel fuel, hydraulic oil, motor oil, hydrochloric acid, cesium-137 sources, hydrotreated light petroleum distillates, terpenes, terpenoids, isoproponal, ethylene glycol, paraffinic solvents, sodium persulfate, tributyl tetradecyl phosphonium chloride and proprietary components. As a result of fire-fighting efforts and flow back from the well head, significant quantities of water and unknown quantities of products on the well pad left the Site and entered an unnamed tributary of Opossum Creek that ultimately discharges to the Ohio River. Runoff left the pad at various locations via sheet flow as well as by two catch basins located at the northwest and southeast corners of the well pad.

Opossum Creek discharges to the Ohio River 1.7 miles upstream of a public water intake on the West Virginia side of the river. There are also protected species located down steam of the

Opossum Creek confluence with the Ohio River.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The fire and explosion that occurred on the Eisenbarth Well Pad involved more than 25,000 gallons of various products that were staged and/or in use on the site. Upon USEPA arrival at approximately 2000 hours on June 28, 2104, numerous fires continued to burn on the well pad, uncontained run-off was exiting the site and entering an unnamed tributary of Opossum Creek to the south and west and flowback water from the Eisenbarth Well #7 was spilling onto the well pad. Initial air monitoring did not detect any concentrations of volatile organic compounds (VOCs) in the community downwind of the site. Initial inspections in the early hours of June 29, 2014 of Opossum Creek approximately 3.5 miles downstream of the site identified dead fish in the creek.

Initial reports identified the following products were involved and lost in the fire: ~250 gallons of hydrochloric acid (28%), ~7,040 gallons of GasPerm 1000 (terpenes, terpenoids, isopropanol, citrus extract, proprietary components), ~330 gallons of LCA-1 (paraffinic solvents), ~ 1900 gallons of LGC-36 UC (hydrotreated light petroleum distillate, guar gum), ~1000 gallons of BC-140 (monoethanolamine borate, ethylene glycol), ~3300 gallons of BE-9 (tributyl tetradecyl phosphonium chloride), ~30,000 gallons of WG-36 (polysaccharide gel), ~1,000 gallons of FR-66 (hydrotreated light petroleum distillate), ~9000 gallons of diesel fuel, ~300 gallons of motor and hydraulic oil.

Additionally, there was an inventory of shaped charges, primer cord and detonators on the site as well as three Cesium-137 radiological sources (2-100 millicurie and 1-55 millicurie) with unknown disposition as a result of the fire.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On June 28, 2014 at approximately 0900, a fire and a subsequent explosion occurred at the Statoil Eisenbarth Well Pad located at 42240 Long Ridge Road in Clarington, Ohio. Preliminary reports suggests the fire to be the result of a broken hydraulic line that sprayed fluid onto hot equipment igniting it and spreading rapidly resulting in the loss of most of the equipment and chemicals on the pad. Several fire departments responded to the scene. Multiple explosions (estimated to be more than 30) generating shrapnel slowed fire suppression efforts. A 1-mile evacuation notice was issued for the area surrounding the Site affecting 25 residences. At approximately 1900, fire departments ceased fire-fighting efforts and left the scene. A water curtain was maintained, using pump lines on site, to prevent the fire from spreading to a trailer containing 1100 pounds of SP Breaker (an oxidizer), 200 pounds of soda ash and compressed gas cylinders of oxygen (3-2000 lb.), acetylene (2-2000 lb.), propane (6-20 lb.), among miscellaneous aerosol cans. Chemicals not consumed in the fire, water from firefighting efforts and flowback from the well head migrated into rock/soils on the pad and flowed off-site via sheet flow and catch basins located in the northwest and southeast corners of the pad. A minimum of 300,000 gallons of water was sprayed onto the fire as measured from free board

drop in the well pads water impoundment.

Responding agencies included but is not limited to: numerous local fire departments, Monroe County Emergency Management Agency (EMA), Ohio Department of Natural Resources Division of Oil and Gas (ODNR), Ohio Environmental Protection Agency (OEPA).

The Eisenbarth Pad is owned by Statoil and Statoil and Halliburton were both on the pad at the time of the incident.

2.1.2 Response Actions to Date

June 28, 2014

Upon arrival, USEPA observed uncontrolled runoff of liquids from the Eisenbarth Well Pad from the south and west sides of the site. Numerous fires were observed across the well pad and a well head was observed releasing flowback water. All runoff from the Site flowed downhill to the south and west and entered an unnamed tributary to Opossum Creek which discharges to the Ohio River. At least 16 different products were present on the well pad and most were lost in the fire. The chemicals present in the aforementioned products included but is not limited to the following: hydrotreated light petroleum distillates, terpenes, terpenoids, isoproponal, ethylene glycol, paraffinic solvents, sodium persulfate, tributyl tetradecyl phosphonium chloride and proprietary components among others. In addition, three Cesium-137 radiological sources were present on the pad as part of densometers and shaped charges, primer cord and detonators were present for use in the perforating guns.

USEPA received a request via the National Response Center at 1500 on June 28 to provide air monitoring and sampling support to the USEPA. Upon arrival USEPA, entered into Unified Command with Ohio EPA and Statoil and observed uncontrolled discharge from the Site from the water curtain and the wellhead and small areas of fire. The fire had largely burned itself out except for the composite/plastic work pads on the Site. Air monitoring was initiated around the well pad and in residential areas. No readings above background was detected in the residential areas. Immediately downwind of the well pad a reading of 1.2 ppm was obtained for VOCs using a MultRAE Pro, a 0.05 ppm using an UltraRAE with benzene tube, background readings using a Ludlum 192 and pH of 5-6 using pH paper. Based on air monitoring results, the initial evacuation was lifted with the exception of two residents located within 200 yards of the well pad. Two samples of runoff from the well pad were collected and subsequent analysis revealed the presence of VOCs.

The Statoil mobilized resources for air and water sampling, containment and recovery of spilled materials. Air and water sampling was initiated and an interceptor trench was begun on the south side of the well pad in an attempt to contain runoff from the site. Equipment was mobilized to begin constructing an earthen berm to contain runoff and to flood the pad to extinguish remaining fires. One individual was transported to a local hospital for treatment for heat exhaustion.

Priorities actions were set as: extinguish fires, contain runoff from the site and gain control/secure the release of flowback water from the well head.

June 29, 2014

Unified Command was established and comprised of on-site representatives from USEPA, OEPA and Statoil.

At approximately, 0030 the well head was "shut-in" ceasing the release of flowback water onto the well pad. An air sample was collected immediately downwind of the well pad fires and subsequent analysis revealed detections of several volatile organic compounds but at low concentrations. Fires near the trailer containing the gas cylinders and the water curtain were extinguished. Due to the cessation of runoff from the Site and safety issues with the construction of the trench activities, the trench construction was halted until daylight. The western and southern slopes of the well pad have previously failed and consultation with a civil engineer was warranted before additional working of the slopes continued.

Inspection of the creek downstream of the incident identified evidence of a fish kill. OEPA notified ODNR Division of Wildlife and they responded and began an investigation of the fish kill by identifying and walking the length of the impacted surface waters.

USEPA collected two water samples from Opossum Creek approximately 3.5 miles downstream of the well pad.

Statoil worked to extinguish remaining fires with assistance from Clarington Volunteer Fire Department. Once fires were extinguished, construction of a berm near the pad was begun to contain spilled liquids and future runoff from the well pad. Construction of a siphon dam near a ditch line leading to the southeast catch basin to contain spilled fluids and prevent off-site migration. Wild Well Control assessed the well head for leaks and determined that is was "shut-in" and no leaks were apparent.

Routine air monitoring and sampling was initiated by the RP in work areas and in residential areas. Air is being monitored for volatile organic compounds (VOCs), hydrogen sulfide (H_2S), sulfur dioxide (SO_2), benzene, Lower Explosive Limit (LEL), acid gases and dust (total, respirable, PM_{10} and $PM_{2.5}$). Background readings resulted in the lifting of the evacuation of the two remaining homes. Water sampling and monitoring was initiated by the RP of areas downstream of the well pad. Field measurements for pH, dissolved oxygen, specific conductance were all normal.

Radiological surveys were conducted on and around the pad to ascertain the status of the three Cesium-137 sources on Site using a Ludlum 192. All readings were background from 6-11 microrem/hr.

Worked as halted due to concerns on the status of the densometers. Notice was given to the Ohio Department of Health Bureau of Radiation Protection on the status of the densometers. Additional surveys of the area around the pad were conducted using a Ludlum 192 and surveys were conducted of the boots of people exiting the exclusion zone using a 2241-2 with a 44-9 probe. All readings on the 192 continued to be background as well as the 2241-2 readings staying with background ranges from 29-51 counts per minute. Surveys will continue until the integrity of the Cesium sources can be verified by Halliburton. Plans evaluate the sources for integrity were suspended due to lightning.

There was concern over the ability to analyze for and detect the primary component of BE-9 [tributyl tetradecyl phosphonium chloride (TTPC)] for which there is no approved standard

method to detect. In consultation with ATSDR, an industry method was obtained and shared with CTEH (Statoil's environmental consultant) to work with a laboratory to develop a method to analyze for TTPC in environmental media.

Air and Environmental Monitoring and Sampling Plans were developed. Sample parameters are as follows:

> Air Samples: VOCs, polyaromatic hydrocarbons (PAHs) and, as needed, silica dust
>
> Water, Sediment and Soil Samples: VOCs, SVOCs, chlorides, cations/anions and total petroleum hydrocarbons (TPH) and ethylene glycol

If a method is developed to analyze for TTPC this will be added to the list, as well as any methods necessary to detect any of the constituents that make up the proprietary component of GasPerm 1000.

Air samples in the community were all non-detect for VOCs.

Water samples of runoff indicated the presence of TPH, 2-butanone, acetone, benzene, ethylbenzene, xylenes, toluene, bis(2-ethylhexyl)phthalate, phenanthrene, pyrene, phenol, and chlorides. Surface water sampling results indicated the presence of TPH, acetone, o-Cresol, bis(2-ethylhexyl)phthalate and chlorides downstream of the well pad.

June 30, 2014

Unified Command Meeting: USEPA, OEPA, Statoil

The densometers where evaluated by Halliburton for integrity and leaks. The sources were found to be intact and shielding still in place. Readings taken at the surface of the densometers were found to be within appropriate ranges of 0.3-0.5 millirem/hr and background at one meter distance. Wipe tests from surfaces of each densometer also came back at background concentrations. ODH's Bureau of Radiation Protection requested notification prior to recovery and shipment of the densometers.

Statoil continued construction of the containment berm currently 80% complete. Work was halted for an inspection and to address concerns expressed by ODNR Oil & Gas in regards to potential explosives, cylinders and remaining chemicals on the well pad. ODNR Division of Oil & Gas was incorporated into Unified Command.

An assessment was conducted of the well pad for explosive shape charges, detonators and primer cord in order to prepare a work plan to recover them prior beginning any other recovery operations on the well pad. Several areas on the pad rekindled and operations were halted until the fires could be extinguished.

ODNR Division of Wildlife completed their in stream assessment of the fish kill and reported an estimated 70,000 dead fish from an approximately 5 mile stretch extending from the unnamed tributary just west of the Eisenbarth Well Pad to Opossum Creek just before its confluence with the Ohio River. No fish kills were reported on the Ohio River.

Water samples of runoff indicated the presence of TPH, 2-butanone, acetone, benzene, xylenes, toluene, bis(2-ethylhexyl)phthalate, 1-methylnapthalene, 2-methylnapthalene, o-Cresol, m&p

Cresol, naphthalene, phenol, and chlorides. Surface water sampling results indicated the presence of TPH, acetone, bis(2-ethylhexyl)phthalate, phenol and chlorides downstream of the well pad.

July 1, 2014

Unified Command Meeting: USEPA, OEPA, ODNR Oil & Gas, Statoil

Explosives on the well pad were evaluated and recovered for transportation off-site by Horizontal. Halliburton assessed the pad to ascertain the condition and quantities of remaining chemicals present. Fires continued to rekindle and Clarington Volunteer Fire Department was mobilized to assist in extinguishing them.

Due to the unknown cause of the fish kill, the potential for them to be scavenged and the large volume of decaying biomass having a continued negative impact on the creek, it was determined that recovery of the dead fish would be needed. US Fish and Wildlife Service (USFWS) arrived to evaluate the creek and concurred with the plan to recover dead fish and advised that there were no endangered or threatened species in the creek but the stream was a high quality habitat.

Air and water sampling continued. Water quality measurements were normal.

Air samples in the community were all non-detect for VOCs. Surface water sampling results indicated the presence of TPH, acetone, bromodichloromethane, chloroform, bis(2-ethylhexyl)phthalate and chlorides downstream of the well pad.

July 2, 2014

Unified Command Meeting: USEPA, OEPA, Statoil

Assessment of chemicals remaining on the well pad was completed. The earthen berm around the pad was completed, however the eastern side of the berm could not be keyed into native soils and could allow migration beneath. As a result, the southeast and northwest catch basins were plugged and converted to recovery sumps. The removal and transportation off-site of the densometers was completed.

Fires continued to rekindle on the pad and spread. Several options were evaluated and Statoil worked with Monroe County EMA to smother the fire with earthen material.

Recovery of dead fish from the creek began. The impacted area was divided into 4 divisions and would be walked and all dead aquatic life would be collected, counted and speciated and retained on-site. Access points would be identified and documented for rehabilitation if necessary. USFWS advised to minimize removal of any vegetation along the riparian zone and not to remove trees with bore sizes greater than 3 inches.

Air, water and sediment sampling continued. Water quality measurements indicated a lowering in the dissolved oxygen likely due to the decaying dead fish. Air results remain non-detect in the community.

Water and sediment sample results pending.

July 3, 2014

Unified Command Meeting: USEPA, OEPA, ODNR Oil & Gas, Statoil

Halliburton removed some chemicals from the pad today including the SP Breaker (oxidizer) and soda ash.

Hot spots on the well pad continue to smolder and are addressed as needed if open flames are observed. The tank full of WG-36 also continues to burn. Plans to extinguish it are being developed.

Work was again halted on the pad after an inventory reconciliation determined that additional explosives remained somewhere on the pad. All 5 missing "barrels" were located and removed by Horizontal.

Plans to assess surround drinking water wells are being developed. Statoil has previously sampled all wells within 5,000 feet of well head prior to commencing operations.

OEPA and USEPA were provided, by Halliburton, the constituents of the proprietary component of GasPerm 1000. Evaluation of these constituents indicates that current analytical techniques being used with the addition of reporting tentatively identified compounds (TICs) will be sufficient for assessing off-site impacts.

Fish recovery efforts continued on the unnamed tributary to Opossum Creek and Opossum Creek. Fish, crayfish and salamanders are being recovered.

Air, water and sediment sampling continued. Water quality measurements indicated a lowering in the dissolved oxygen likely due to the decaying dead fish.

Air, water and sediment sample results pending.

July 4, 2014

Unified Command Meeting: USEPA, OEPA, Statoil

Halliburton began unloading the remaining quantity of FR-66 from the tanker truck. A leak was detected in the bottom valve on the tank. Halliburton also removed remaining totes of BC-140 and remaining chemicals on the pad with the exception of compressed gas cylinders. Migration pathways off the well pad are being evaluated and a plan to assess them developed.

Four areas of smoldering material were observed on the well pad. Three areas were inaccessible and will be monitored. One area was smothered with sand.

The well heads underwent metallurgical testing to evaluate their integrity. Field testing and inspection indicated that the well heads were intact and uncompromised. The release from Well #7 was the results of a failure of the lubricator head and not a deficiency of the well head itself.

Fish collection continued.

Air and water sampling continued. Water quality measurements indicated a return to normal ranges of dissolved oxygen. Air monitoring within the community is all non-detect.

Air and water sample results pending.

July 5, 2014

Unified Command Meeting: USEPA, OEPA, Statoil

Due to space constraints on the well pad, arrangements were made to remove three large trailers, not involved in the fire, from the well pad. These trailers require permits for over road travel and OEPA coordinated escorts by Ohio State Troopers.

Other non-essential vehicles were removed from the well pad including a fuel truck containing 1,100 gallons of diesel fuel. Monroe County EMA was on site with a thermal camera to identify hot spots. No additional areas of significant concern were noted. Only 4 areas where only tires remained were noted. These areas will be monitored and addressed as needed. The burning tank containing WG-36 was smothered by pumping Barite (barium sulfate) into the top of the tank. External temperatures dropped throughout the day. Halliburton continued to recover FR-66 from the tanker truck and from pooled areas against the southeast corner of the earthen berm. Additionally, due to significant amounts of water being collected in the northwest catch basin, 24 hour vac truck operations have been on going.

Plans to begin assessing subsurface migration pathways to the south and west of the well pad were delayed due to underground utility marking issues. Soil sampling and geoprobing will begin tomorrow.

Fish collection was completed. In total, 11,116 dead fish were collected (20 different species), 3,519 crustaceans, 7 frogs and 20 salamanders. Due to the warm weather, number of days the fish were in the creek, scavenging, etc., the fish recovered were in advanced states of decomposition. Following the removal of this biomass, in stream dissolved oxygen readings began to return to normal after several days of low readings.

A visual inspection of the creek by USEPA and OEPA noted continued presence of some dead fish. Also noted was the presence of minnows and small mouth bass in portions of the creek. Caddisflies, mayflies and a dobsonfly larvae (of significant size) was noted in the lower reaches of Opossum Creek. Also, algae and snails were also noted returning to the creek.

Air and water sampling continued. Water quality measurements returning to normal ranges for dissolved oxygen. Air monitoring within the community was discontinued.

Air and water sample results pending.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Pending

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

Develop plan to isolate the well bore.

Develop assessment plan to evaluate migration pathways off-site from the pad into surface waters and surface and subsurface soils and delineate impacted media on and off the well pad.

Ecological assessment of impact of runoff onto the unnamed tributary of Opossum Creek and Opossum Creek.

Remediation plan on-site and off-site impacts soils, groundwater and surface waters.

2.2.1.2 Next Steps

Pending

2.2.2 Issues

None at this time

2.3 Logistics Section

N/A

2.4 Finance Section

N/A

2.5 Other Command Staff

N/A

3. Participating Entities

3.1 Unified Command

U.S. Environmental Protection Agency

Ohio Environmental Protection Agency

Statoil

Ohio Department of Natural Resources Division of Oil and Gas

3.2 Cooperating Agencies

Monroe County Emergency Management Agency

Clarington Volunteer Fire Department

ODNR Division of Wildlife

U.S. Fish and Wildlife Service

ATSDR

Ohio State Troopers

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

6.1 Internet location of additional information/report

Pending

6.2 Reporting Schedule

Pending

7. Situational Reference Materials

No information available at this time.

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Statoil Eisenbarth Well Response - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: **POLREP #2**
Progress
Statoil Eisenbarth Well Response
TBD
Clarington, OH
Latitude: 39.6974000 Longitude: -80.8980000

To: Mark Johnson, ATSDR
Mark Durno, U.S. EPA
Jason El-Zein, U.S. EPA
HQ EOC, U.S. EPA
Matt Mankowski, U.S. EPA
Matt Marcinko, OSHA
Phillip Keevert, Monroe County EMA
Jo Ann Banda, U.S. FWS
Wesley Feldner, ODNR Division of Wildlife
Kirk Kiefer, ODNR Division of Wildlife
Sheila McAnaney, USEPA
Mike Sherron, OEPA

From: JJ Justice, Andrew Maguire, Jim Augustyn, On-Scene Coordinators
Date: 7/15/2014
Reporting Period: 7/6/14 - 7/17/14

1. Introduction

1.1 Background

Site Number:	C53G	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Emergency
Response Lead:	PRP	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	6/28/2014	**Start Date:**	6/28/2014
Demob Date:		**Completion Date:**	
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

Emergency Response - Oil/Gas Well Pad Fire

1.1.2 Site Description

1.1.2.1 Location

The STATOIL Eisenbarth Pad is located at 42240 Long Ridge Road, Clarington, Ohio. The pad is located in a rural area with approximately 25 residential homes located within 1 mile.

1.1.2.2 Description of Threat

On June 28, 2014, the Eisenbarth Pad was consumed by fire. Over 16 different chemical products were staged on the Pad at the time of the fire. Materials present on the pad included but not limited to: diesel fuel, hydraulic oil, motor oil, hydrochloric acid, cesium-137 sources, hydrotreated light petroleum distillates, terpenes, terpenoids, isoproponal, ethylene glycol, paraffinic solvents, sodium persulfate, tributyl tetradecyl phosphonium chloride and proprietary components.

As a result of fire-fighting efforts and flow back from the well head, significant quantities of water and unknown quantities of product left the Site and entered an unnamed tributary of Opossum Creek. Runoff left the pad at various locations via sheet flow as well as by two catch basins located at the northwest and southeast corners of the pad.

Opossum Creek discharges to the Ohio River 1.7 miles upstream of a public water intake on the

West Virginia side of the river. There are also protected species located down steam of the Opossum Creek confluence with the Ohio River.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The fire and explosion that occurred on the Eisenbarth Well Pad involved more than 25,000 gallons of various products that were staged and/or in use on the site. Upon USEPA's arrival at approximately 2000 hours on June 28, 2104, numerous fires continued to burn on the pad, uncontained run-off water was exiting the site and entering an unnamed tributary of Opossum Creek and flowback water from the Eisenbarth Well #7 was spilling onto the well pad.

Initial air monitoring did not detect any concentrations of volatile organic compounds (VOCs) in the community downwind of the site. On June 29th a fish kill was dectected on Opossum Creek approximately 3.5 miles downstream of the site.

See POLREP #1 for list of chemicals on site and other hazards present on the pad.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On June 28, 2014, at approximately 0900, a fire occurred at the Statoil Eisenbarth Well Pad. Preliminary reports suggest the fire to be the result of a broken hydraulic line that sprayed fluid onto hot equipment igniting it and spreading rapidly resulting in the loss of most of the equipment and chemicals on the pad. Several volunteer fire departments responded to the scene. A one mile evacuation notice was issued for the area surrounding the Site affecting 25 residences.

At approximately 1900, fire departments ceased fire-fighting efforts and left the scene. A water curtain was maintained, using pump lines on site, to prevent the fire from spreading. Chemicals not consumed in the fire, water from firefighting efforts, and flowback from the well head migrated into rock/soils on the pad and flowed off-site via sheet flow and catch basins located in the northwest and southeast corners of the pad.

Responding agencies included but is not limited to: numerous local fire departments, Monroe County Emergency Management Agency (EMA), Ohio Department of Natural Resources Division of Oil and Gas (ODNR), Ohio Environmental Protection Agency (OEPA).

See POLREP #1 for additional details.

2.1.2 Response Actions to Date

June 28 through July 5, 2014 - See POLREP #1 for details

July 6, 2014

Unified Command: USEPA, OEPA, Statoil

Statoil removed oversized load trailers from the well pad and staged them in the Hannibal Industrial Park. USEPA and OEPA toured areas used to access Opossum Creek and it's tributaries as part of the fish collection effort. Minimal cutting was needed to provide access to workers. Information was forwarded to USFWS for review and comment on any restoration that may be needed.

All fires have been extinguished on the well pad however a few hot spots will be monitored as access to some areas on the well pad is limited. Improvements were made to the berm around the well pad in an effort to manage heavy rains and a sump was added to the southeast corner to facilitate the collection of any accumulated liquids. The accumulator bottles were examined and found to not be under pressure from residual nitrogen gas.

Statoil began preparing plans to isolate the subsurface boreholes to allow the "frack stacks" to be removed and the well capped. This will allow for a safer work environment once cleanup activities commence on the well pad. Geoprobing of soils on the south and west slopes of the well pad began.

July 7, 2014

Unified Command: USEPA, OEPA, Statoil

Insurance adjusters and attorneys for Statoil and Halliburton were on scene to conduct an inspection of the site. During this time there were no non-inspection activities on the pad. After the inspection an additional sump was dug at the southeast corner of the pad to contain and collect product and contaminated storm water before migration off the pad. Sumps and test pits were dug off of the southeast corner of the pad across the storm water pathway. These will be used for storm water and product containment and collection on the southern slope off the pad. Sump monitoring and fluid collection continued on the pad.

Air and water sampling continued. Data from the prior week showed numbers returning to normal with the exception of acetone in water and TPH-DRO in sediments. Statoil and CTEH requested to stop sampling the Ohio River given the normal data ranges.

Statoil contractor CTEH sampled four geoprobe locations on the southern slope just down from the pad to determine extent of contamination.

July 8, 2014

Unified Command: USEPA, OEPA, Statoil

State Fire Marshall officials were on scene to conduct an investigation.

Statoil continues to work on a well isolation plan for the pad to be completed before any equipment can be removed from the pad. During thunderstorms today work was paused, however after the storms, water was recovered from the sumps on and off the pad and

transferred to a frac tank.

Air and water sampling continued. There was no new data to report. CTEH is working on a long term remediation plan for the site. CTEH has a sub-contact lab working on a method for the TTPC biocide that was on the pad before the fire. Sample aliquot are in holding at the lab to be analyzed once a method is developed.

CTEH continued geoprobe sampling on the southern and western slopes just down from the pad.

July 9, 2014

Unified Command: USEPA, OEPA, Statoil

Statoil continues to work on a well isolation plan for the pad to be completed before any equipment can be removed from the pad.

During the morning water sampling, a french drain outfall at the western edge of the slope off the pad was sampled and was observed to have a distinct sweet, acetone like smell and had readings of 40-50 ppm VOC with a Multi-RAE. The water was sampled and Unified Command was notified. OSC Maguire went to the scene and identified another outfall at the northwest corner of the slope off the pad had water with a similar smell. USEPA directed Statoil to immediately contain the outfalls to stop further release into the creek. Over the course of the day, Statoil and their contractors installed a dam below the french drain outfall, and plugged the northwest outfall at the nearest upstream sump. This water was sampled at both locations.

Air and water sampling continued at normal locations, and sampling in the Ohio River was re-started given the new release noted above. There was no new data to report.

CTEH continued geoprobe sampling on the western slopes just down from the pad.

July 10, 2014

Unified Command: USEPA, OEPA, Statoil

Statoil finalized the well isolation plan and is waiting for supplies to commence activities. Meanwhile the pressures in the wells are being checked to allow for isolation.

Containment and recovery operations continue 24 hours/day. 193 barrels of fluids have been collected to date.

Air and water sampling continued at normal locations. There was no new data to report.

Two additional Geoprobe units were mobilized to expand and expedite slope characterization. Boreholes will be monitored and will be sampled when any visual evidence of contamination or readings from the PID exist.

Statoil hosted a public meeting that USEPA did not attend. Statoil reported that 75-100 were in attendance. The only significant issue that was reported was regarding how the evacuations took place during the fire. The Monroe County EMA will host a lessons learned from the incident on July 23.

July 11, 2014

Unified Command: USEPA, OEPA, Statoil

Statoil reports that all wells are under the appropriate pressures to facilitate isolation. One well is "bridged", meaning that there is gas instead of water at the surface. The gas will be pumped out of the well and flared until it can be safely isolated. The flaring activities will only happen during daylight hours.

Containment and recovery operations continue 24 hours/day. Statoil had two new contractors on site to shore up the containment and recovery operations. The dam below the french drain outfall on the western edge of the slope was reinforced and additional equipment was staged at southern slope outfalls as a contingency. Additional storage capacity was also staged at a central location to facilitate movement of fluids. The access road down the slopes was reinforced with rock as during rain events the road was impassable.

Air and water sampling continued at normal locations. Data continued to show a decline in concentrations in the creek, however only data through 7/6/2014 is currently available.

Geoprobe soil borings continue on the slopes of the well pad. Field screening using a PID and odors from the samples suggest that chemical contamination is present in these borings as deep as 24 feet below the ground surface. Samples were collected at various intervals. Results are pending.

Unified Command will enlist a less formal incident command structure. Meetings will continue as scheduled however an Incident Action Plan will be replaced with a daily work order.

July 12, 2014

Unified Command: USEPA, OEPA, Statoil

Statoil mobilized additional contractors to support runoff containment operations. On site roads are being reinforced with rock and crushed stone to support heavy traffic. Containment at collection point #2 has been improved with greater capacity. A frac tank has been mobilized and secondary containment has been established. Fluids collected at containment points 1, 2, and 5 will be pumped to the frac tank. Fluids from #2 hole is being collected with a super sucker.

Geoprobe soil borings continue on the slopes of the well pad. Air and water sampling continued at normal locations. Data continues to show a decline in concentrations in the creek. A data logging rain gauge was setup in anticipation for future rain events.

July 13, 2014

Unified Command: USEPA, OEPA, Statoil

Heavy liquids are being pumped into the 3 wells to control pressure. The heavy liquids are an interim step for the installation of downhole wireline plugs. An ODNR inspector is on-site observing the operation.

Wells are being prepared to receive new tooling that will enable the replacement of permanent tubing heads. Once the plug is set, the existing tubing heads will be replaced with a new tubing heads.

On site road reinforcement is complete. Daily air and water sampling continues. Containment and recovery operations continue 24 hours/day. Installation of a 2 inch poly hose was completed to pump liquids from the collection points to the frac tank. A 1,000 gallon tailer mounted vacuum truck was mobilized to the site for collection point #1.

Geoprobe soil borings on the slopes of the well pad is complete. Air and water sampling continued at normal locations.

July 14, 2014

Unified Command: USEPA, OEPA, Statoil

The safety officer reported that a near miss incident had been reported where an employee slipped but was not injured attempting to access containment point #2 at the base of the western slope. This is a particularly treacherous area to access due to large boulders. The company is working to locate some type of pre-fabricated stair system that can be deployed to this location. No other injuries or incidents of concern.

Statoil began breaking Frac Stacks on 3 wellheads in preparation to set wireline plugs. Operations section reported that the plugging of the wells was delayed because needed tools were not on Site. Tools were delivered late in the day and a plug in well 5H was set around 18:00.

Soil sampling was conducted on the north edge of the well pad and additional sampling will continue on Tuesday.

OEPA and USEPA commented on a draft copy of Halliburton's salvage operation plan for removal of the damaged equipment from the pad. The plan was also provided to ODNR for review and approval. The removal of damaged equipment is anticipated to take approximately 14-21 days to complete.

Daily air and water sampling continue to show favorable results.

July 15, 2014

Unified Command: USEPA, OEPA, Statoil

Well 5H and 6H had wireline plugs set at 5,000 ft bgs. Top of fish in 7H was discovered at 750 feet bgs, a decision was made not to install wireline plug at this depth. Decision was made to install a back pressure valve on 7H instead. New tubing heads will be installed on all 3 wells on Wednesday 16th.

Initial set of fabricated stairs arrived on site for collection point 2. The steep incline posed a safety risk for slip, trips and falls. Additional stair sections will be mobilized to the site to reach as close to the bottom of the incline as possible.

Off-site residential well sampling began and results should be available next week. Future soil sampling locations were identified on the pad. Sampling will take place in the next day or two.

Water collection continues at containment points 1, 2, and 5. Acetone levels in the tributary, Ohio River, and Opossum Creek are well below EPA Region 5 RSLs. There is still some acetone at the source location but all the water coming from the pad is being contained. Chloride levels have returned to background levels in the tributary, Ohio River, and Opossum Creek.

CTEH has requested USEPA and OEPA consider permitting reduced sampling efforts due to the consistent drop in contaminate levels below surface water discharge standards. Daily sampling show analytical results below these standards starting on July 6th through July 12th . Continued decreasing levels in the tributary and Opossum Creek are indications that on-site containment is effective.

July 16, 2014

Unified Command: USEPA, OEPA, Statoil

New tubing heads were installed on all 3 wells. Concrete barriers will be placed around the cellar to protect the heads during salvage operations.

Evaluated the feasibility of using the fabricated stairs for collection point 2. Decision was made to not install additional stairs. Installation was very difficult and could not sufficiently cover the most difficult areas located in steep wooded areas. Alternate work practices will be evaluated to reduce slips, trips and falls.

Off-site residential well sampling continues and is scheduled to be finished by Friday July 18th
Water collection continues at containment points 1, 2, and 5. As of 07:00 hours July 16th
21,360 gallons have been contained in frac tank on site.

CTEH will develop a written proposal for future water, soil, and air sampling moving forward and present it to USEPA and OEPA for comment and approval. Daily sampling shows analytical results well below all USEPA and OEPA standards starting on July 6th through July

12th. Analytical results for the tributary and Opossum Creek are currently at or below the lowest detection point for the laboratory.

Dye testing took place on the mystery drain on the western edge of the pad. Fire runoff water was observed entering this drain during the ER. It was unknown where the drain was connected and where the runoff water was going. The mystery drain was confirmed to be connected to the sump in the NW corner of the pad. The sump is currently plugged and pad drainage is being pumped to a frac tank on the pad.

July 17, 2014

Unified Command: USEPA, OEPA, Statoil

Statoil installed cement jersey barriers around the wellhead cellar for protection and prevention of accidental collisions when pad salvage and recovery operations begin. Several pieces of equipment owned by FMC was removed from the pad. A salvage operation plan is being coordinated with ODNR. Runoff containment continues with plans to automate recovery and collection at containment locations 2 and 5.

Air sampling and surface water sampling continued. Previous sampling events show water quality in the tributary and Opossum Creek are below state and USEPA screening criteria. Data indicates site collection points are effective in preventing further discharges to the tributary.

USEPA and OEPA have approved a revised site sampling plan to reduce the number and locations of required samples.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

USEPA is in negotaitions with Statoil on an Administrative Order on Consent.

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

Continue 24 hour/day containment and recovery operations

Ecological assessment of impact of runoff onto the unnamed tributary of Opossum Creek and Opossum Creek.

2.2.1.2 Next Steps

Finalize Well Pad Salvage Plan. Salvage operations will be overseen by ODNR. Characterize and delineate on- and off-site contamination and remediate as necessary.

2.2.2 Issues

None at this time

2.3 Logistics Section

N/A

2.4 Finance Section

N/A

2.5 Other Command Staff

N/A

3. Participating Entities

3.1 Unified Command

U.S. Environmental Protection Agency

Ohio Environmental Protection Agency

Statoil

Ohio Department of Natural Resources Division of Oil and Gas

3.2 Cooperating Agencies

Monroe County Emergency Management Agency

Clarington Volunteer Fire Department

ODNR Division of Wildlife

U.S. Fish and Wildlife Service

ATSDR

Ohio State Troopers

4. Personnel On Site

1 - EPA OSC
1 - START (Tetra Tech)

5. Definition of Terms

No information available at this time.

6. Additional sources of information

6.1 Internet location of additional information/report

Pending

6.2 Reporting Schedule

Pending

7. Situational Reference Materials

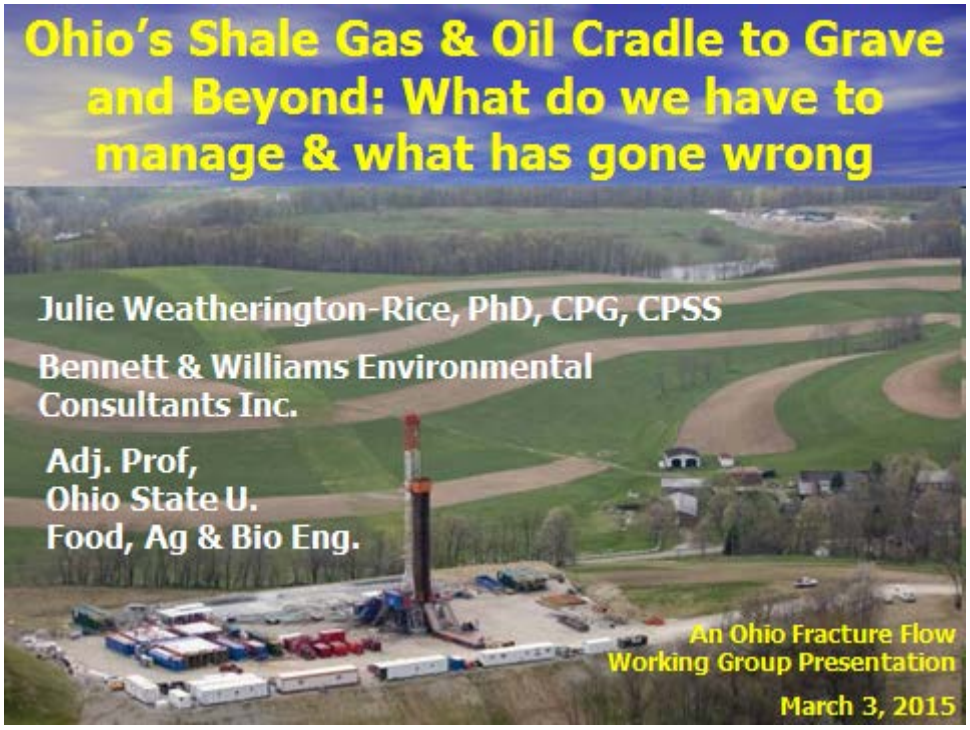
No information available at this time.

Monroe County well pad chemical fire. Note the flowback fluid coming back out the top of the frack stack.

Burned well pad several days after the fire. More photos of the site can be seen in my PowerPoint presentation.

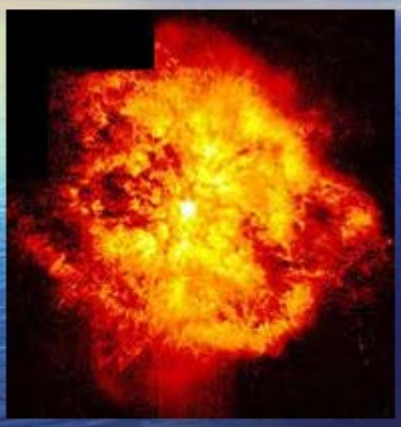
Appendix B

Ohio's Shale Gas & Oil Cradle to Grave and Beyond:
What do we have to manage & what can go wrong


Ohio's Shale Gas & Oil Cradle to Grave and Beyond: What do we have to manage & what has gone wrong
Julie Weatherington-Rice, PhD, CPG, CPSS
Bennett & Williams Environmental Consultants Inc.
Adj. Prof,
Ohio State U.
Food, Ag & Bio Eng.
An Ohio Fracture Flow Working Group Presentation
March 3, 2015


Where are you getting your information?
• Cert Prof Soil Scientist, Ethics training requirements that certifies our information
• Most Cert & Reg Geologists, Sanitarians & Professional Engineers also have ethics standards that they have to meet
• Public Relations, Politicians and Political Appointments have no such bounds on their statements
• Political Spin is their bread and butter

Radioactivity in Black Shales – where does it come from?



- We are Stardust
- So is everything around us, including black shales
- Hydrogen to Boron formed in the Big Bang
- Carbon and all the rest form during the life of a star & are released at it's death – a Supernova

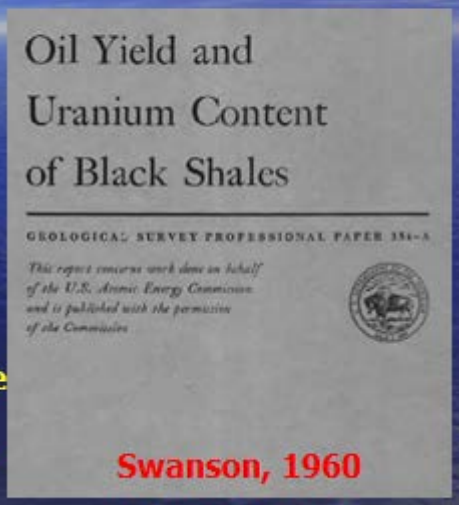
Black Shales are Radioactive two ways

- From their parent source rocks
- Devonian Marcellus – Appalachian uplifts
- Silurian Utica – earlier mountain building & Canadian Shield

- From Bioaccumulation
- Black shales and coals are big, dirty, old activated carbon filters
- As surface & ground water carrying soluble heavy & radioactive metal cations move through the shales, the organic carbon, a very strong negative magnet, releases small & light cations and binds bigger & heavier cations
- The older the rock & higher the carbon content, the more the radiation, sources being equal
- The higher the sources, the more the radiation

Not New Information for Those Paying Attention

- Black Shales long known to be a source of both uranium and oil
- Geologists, hydrogeologists, and soil scientists have long understood that black shales are radioactive
- Some are more radioactive than others, usually the deeper they are, the more radioactive they are


Oil Yield and Uranium Content of Black Shales

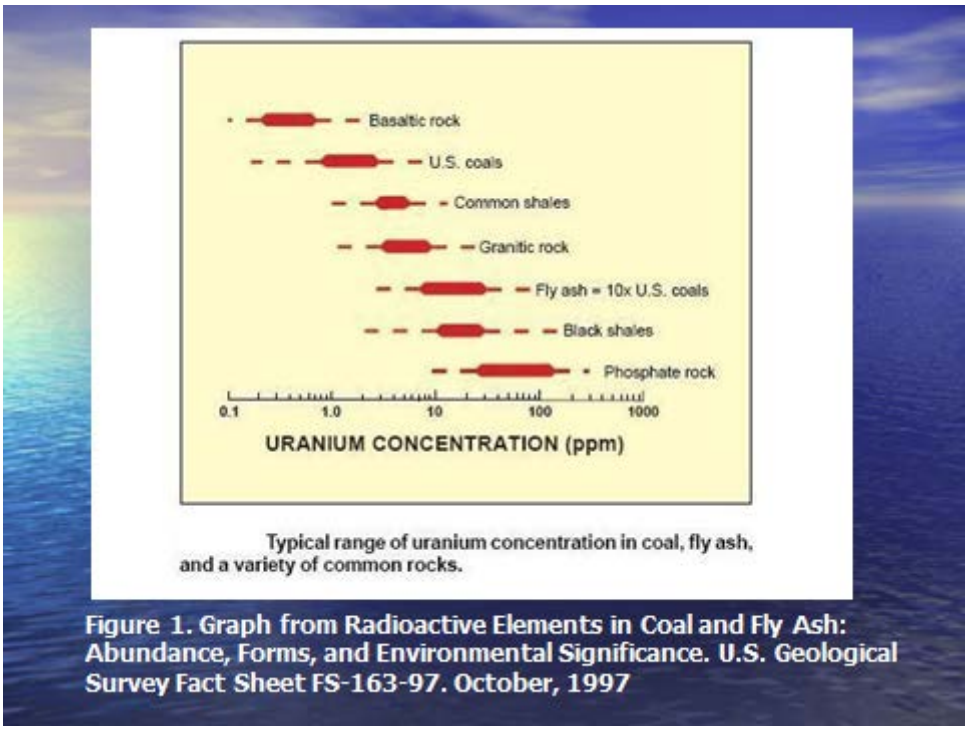
GEOLOGICAL SURVEY PROFESSIONAL PAPER 356-A

This report concerns work done on behalf of the U.S. Atomic Energy Commission and is published with the permission of the Commission

Swanson, 1960

Why the Current Concern Cont?

- Blacks shales are early sources of Uranium ore for the "Atomic Age" (Chattanooga Shale, TN; USGS, 1961)
- Black shales like coal are full of heavy and radioactive metals: ^{232}Th to ^{228}Ra & ^{238}U to ^{226}Ra are most common series
- ^{228}Ra, ^{238}U & ^{226}Ra water soluble, also in brines
- US EPA limit on Uranium mill tailings, 5 pCi/g because of the Radium: > LLRW Landfill, Utah or Washington State accept NORM
- US EPA Drinking Water MCL 5 pCi/L for Radium

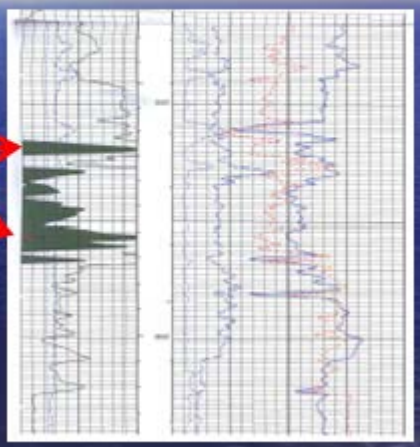


Typical range of uranium concentration in coal, fly ash, and a variety of common rocks.

Figure 1. Graph from Radioactive Elements in Coal and Fly Ash: Abundance, Forms, and Environmental Significance. U.S. Geological Survey Fact Sheet FS-163-97. October, 1997

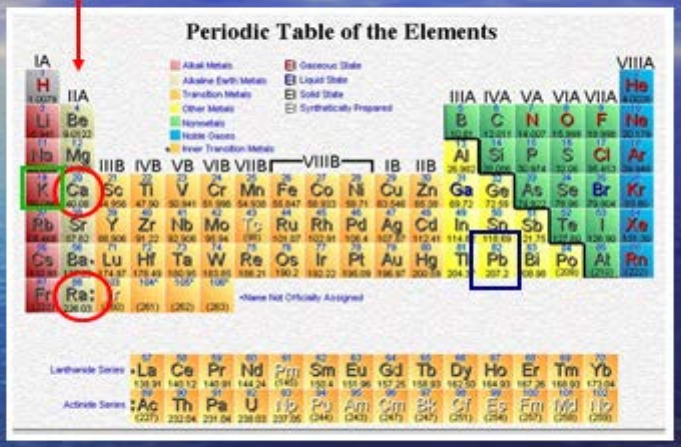
Radioactivity = TOC = Gas

- Gamma Ray signature shows highest levels of radioactivity in the shale
- Horizontal laterals installed in hottest zones
- Shale cuttings are from hottest areas



5 pCi/L MCL: Why the Health Risk?

What about K-40?



Because water-soluble Radium replaces Calcium in your bones if you drink it, Pb-210 also a bone seeker

O&G Shale Drilling in Ohio catching up to other fields

- Now have enough wells, activity and infrastructure to have destructive & catastrophic accidents, the 2014 story
- These events include earthquakes, evacuations, explosions, fires, blowouts, etc. at well pads, pipelines and compressor stations; not just the typical tanker truck accidents, leaks, landslides, and deliberate dumps

O&G Shale Drilling in Ohio catching up to other fields

- We need to plan for these events
- Federal Emergency Planning Community Right-to-Know Act, 1986, requires we do
- First Responders, County Emergency Planning Organizations
- Neighbors, farmers, the local citizenry
- Public Water Suppliers (SDWA 1996 Amend. Source Water Protection Management Plan)

What do we have to manage? (the drill site)

- All events at the drill site – currently no requirements for berms or secondary containment and liners under the whole drilling pad
- All chemicals associated with the drilling and fracking process including transportation to and from the site
- Unexpected releases of hydrocarbons, flowback and production fluids

Rock Cuttings come up the hole covered in Drilling Muds mixed with Brine formation water

- http://www.youtube.com/watch?feature=player_embedded&v=yvlp30FnWSU
- http://www.bing.com/videos/search?q=drill+cuttings&FORM=HDRSC3#view=detail&mid=5BCBCD5F2DE036A639585BCBCD5F2DE036A63958

What do we have to manage?

- Management of rock cuttings and drilling mud mixtures & transport off site, usually by truck
- Transporting flowback & production liquids off site by truck or pipeline
- Transporting hydrocarbons off site by truck or gathering lines which are either at surface or buried, typically NOT reported to OUPS

Horizontal Well Gathering lines may have more PSI than Vertical Transmission lines – Wayne Nat. Forest – No PUCO Oversight

What do we have to manage?

- Limited setbacks from surrounding properties
- 50 feet from bodies of water (by law)
- 300 feet from public water supply wells (by law)
- Limited requirements for sediment, erosion & stormwater management (this may change, new draft rules)

What do we have to manage?

- Local site stability issues; erosion, slope stability, cut & fill for pad sites, landslides, etc.
- Separation of drilling fluids from surrounding surface & ground water and soils
- Local building & zoning requirements do not apply

What do we have to manage? (Major Transport Pipelines)

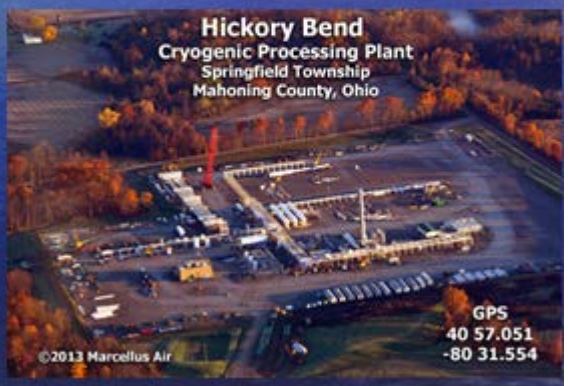
- Tying into existing systems or new systems?
- Existing: capacity, age, condition of line
- New: right of way, quality of specified materials, construction quality, management of trenches, inspection during and after construction, topography, shallow rock and type, blasting, etc.

What do we have to manage? (Major Transport Pipelines)

- Pipeline failures: leaks, explosions, fires
- Locations of shut-off valves, emergency communication numbers
- New pipelines are also failing
- Natural Gas pipeline Sissonville, WV (12-11-2012)

What do we have to manage? (Mid-stream Compressor Stations & Processing Plants)

- All site construction issues
- Operating issues: air emissions, noise, accidental releases, explosions, fire, etc.



What do we have to manage? (Roadway transport)

- Identification of preferred routes
- Routing past schools, hospitals, public water sources, residential areas, etc.
- Roadbed and bridge maintenance – township agreements
- Interaction with farm machinery, school busses, Amish buggy traffic

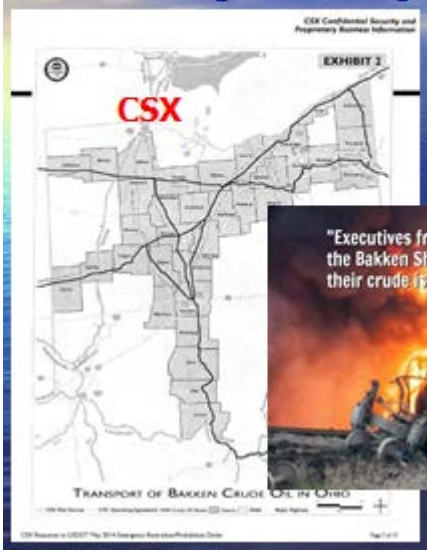
What do we have to manage? (Barges on the Ohio?)

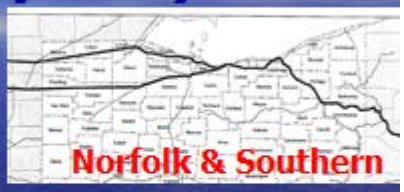
- GreenHunter claims approved by USCG / US ACE? (1987 permit definition of oil field wastes) to barge drilling fluids down the Ohio River from Wheeling WV to New Matamoras (Washington Co.) & Portland (Meigs Co.)

What do we have to manage? (Barges on the Ohio?)

- Expect to handle half the liquids injected into Ohio Class II wells
- USCG & USACE claim have not issued permits yet
- Nothing to prevent barging up the Mississippi and lower Ohio rivers from other fields if finally approved

What do we have to manage? (Transport by Rail)






What do we have to manage?
(Transport by Rail)
Lac-Megantic, Canada 47 killed
Alabama
Lynchburg, VA: James River


CSX Oil Train Ran Through OSU's West Campus on it's way to WV
Feb 16, 2015
Fayette Co WV
Upstream from Montgomery
New tank cars
Speed 33 mph when derailed
Kanawha River
Two public water supply intakes shut down

Landfilling the Wastes

Legal disposal for shale rock cuttings, drilling muds and associated wastes

Am. HB 59 requires downblending if Ra levels above MCLs for TENORM only, NO TESTING for NORM

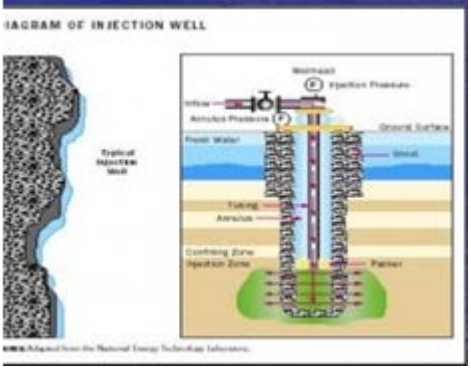
No requirement that chemical binding of radioactive materials to dilution materials must occur

Ramifications of Am HB 59 - 2013

- Most solids and semi-solids considered NORM, no testing or threshold of radioactivity limits before landfilling
- No requirements to track where these wastes are going or report them as drill cuttings, etc.
- Ohio EPA assigning "beneficial use", can be used for landfill caps and surface repairs even above the final cap, no containment

Class II Injection Wells for the Liquids

Multiple ways to spill, leak, return up old wells & quake



Ohio Joins the Big Leagues

Major O&G Events, Ohio 2014

- March 2014 - Earthquakes in Poland, Ohio connected to shale gas extraction wells
- August 31, 2014 – Warren, Injection wells, Earthquakes; "Ohio halts injections at two wells for fracking wastewater after quake", *Columbus Dispatch*, September 6, 2014

Locality	County	Year	Induced Cause	Recorded Quakes	Reported on ODNR Website	Reference
Youngstown	Mah	2011-14	Injection	566	12	A B
Uhrichsville	Har	2013	Fracking	400	0	C
Poland	Mah	2014	Fracking	77	5	D
Niles	Tru	2014	Injection	2	1	E F
TOTALS				1045	18	

Dr. Ray Beiersdorfer, Youngstown State U collecting data, research & reports

Major O&G Events, Ohio 2014

- May 4, 2014 – Morgan County, Well leak, Seven evacuated; "Shale well leaks during drilling process, forcing evacuations in Morgan County", *Columbus Dispatch*, May 8, 2014

75-100 people involved in cleanup
~100 barrels drilling mud, ?
Wet raw gas & oil flooded pad & into creek

Major O&G Events, Ohio 2014

- June 25, 2014- Gas well blow out, Hall Drilling, Monroe County.
- December 13, 2014 – Monroe County, Large leak, several families evacuated; "Evacuated families in Monroe County await answers on fracking-well gas leak", *Columbus Dispatch*, December 22, 2014

December blowout evacuated a 1.5 mi radius for 10 days

Major O&G Events, Ohio 2014

- October 28, 2014 – Jefferson County, Well blowout, 400 families evacuated; "Most allowed back home after fracking-well blowout in eastern Ohio", *Columbus Dispatch*, October 30, 2014
- Evacuation 2-mile radius near Mingo Junction Sportsmen Club, Bloomingdale, Ohio, *Martins Ferry Times Leader*, October 29, 2014

2014 Oil & Gas Events in Ohio

- US EPA orders ODNR to instruct Oil & Gas Industry to also report to SERC, LEPA and First Responders
- June 28th, StatOil Monroe County well pad explodes and burns for five days having previously only reported "production water and condensate"

14 volunteer fire depts.
3 Co. & WV
2 Co. EM depts.

The StatOil Eisenbarth Monroe Co. Explosion & Fire

- Two 30,000 gal Propane tanks – not reported anywhere
- ~50,000 gal chemicals for fracking, MSDS's in trailer on fire, no verification of what burning for five hours
- Unsecured explosives that kept detonating
- Three cesium gamma loggers loose on site
- Flowing fracked well
- Burned for five days


The Fire
View from the South East, as the Fire spread Sat. June 28
Portable Crane Holding Perforation Gun
Well Pad Entrance
Flowing well


Eight well heads totals
4 Sand Castles
3 Sand Kings
16 Fracturing Pumps
Command Center
View from the East, as the Fire spread Sat. June 28
Aluminum tanker
Hydrochloric Acid tanker
2 Red tractor trucks
Note: Chemical totes not visible here
The Aftermath
Statoil Eisenbarth Well Pad
South
Holding Pond
North
West
UTM 508685.00 m E and 4394206.00 m N OR Lat 39.697660°--- Lon -80.898690°
2 Red tractor trucks
Hydrochloric Acid tanker
Aluminum tanker
Fracking Chemical Totes

Major O&G Events, Ohio 2014

- All life in Opossum Creek down to Ohio River killed

ODNR ~ 70,000 fish & everything else living in creek

2014 Oil & Gas Events in Ohio

- US & Ohio EPAs finally get list of Trade Secret chemicals five days after fire starts
- ODNR had them two days after but did not share
- Public Water intake on Ohio River, West Virginia side, 1.7 miles down from mouth of Opossum Creek
- Plume days past when full list of chemicals finally released – no water tests for some of the chemicals if they had known to test

Major O&G Events, Ohio 2014

- June 28, 2014 - Monroe County, fire, one injured; "Fracking fire points out failings", *Columbus Dispatch*, August 31, 2014

Major O&G Events, Ohio 2014

- September 24, 2014 – Emissions violations at Carroll County Compressor Station
- Air Permit violations
- October 2014 - Pipeline fire in Monroe County
- 8" Blue Racer Midstream natural gas condensate pipeline – *Monroe Co. Beacon*, Oct. 29, 2014

Major O&G Events, Ohio 2014

- October 19, 2014 – Guernsey County, well pad explosion, one injured; "Drilling worker injured in Guernsey County explosion", A*kron Beacon Journal*, October 27, 2014
- November 12, 2014 – Noble County, Blue Racer Midstream Condensate Pumping Skid Explosion, one dead; "Worker killed in explosion at Noble County oil and gas facility", *Columbus Dispatch*, November 14, 2014

Educate Yourselves & Be Prepared

- We don't know when or where the next accident will happen
- We don't know what kind of accident it will be
- We do know the types of accidents that happened in 2014
- Statistically, we know they will happen again – maybe next time in your neighborhood – have a plan & be prepared

New Paper Ohio Journal of Science – this spring

- Drilling the Utica & Marcellus Shales in Ohio
- What we know, what we don't know
- Environmental & legal issues/controls
- Public health considerations
- Socio-economic considerations
- 11 authors, multiple backgrounds
- Ohio Journal of Science Web Link at OSU, https://kb.osu.edu/dspace/handle/1811/686

Contacts for this presentation & Ohio Journal of Science Papers

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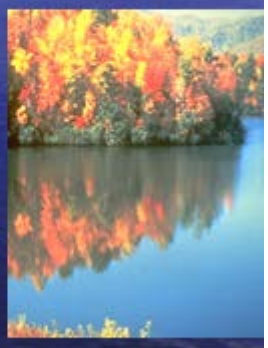
OFFWG, Dr. Ann Christy, OSU FABE, christy.14@osu.edu

Bennett & Williams, Linda Aller RS, Laller@bennettandwilliams.com

Ohio Journal of Science Web Link at OSU, https://kb.osu.edu/dspace/handle/1811/686

Ohio EPA Division of Drinking and Ground Waters Source Water Assessment and Protection Program, www.epa.ohio.gov/ddagw/swap_ssa.aspx



Keeping Ohio's Water Clean
Ohio Fracture Flow Working Group