

Minutes from the Mahomet Aquifer Task Force Meeting

June 18, 2018

Place: Mahomet-Seymour High School (Auditorium) 302 W State Street Mahomet, Illinois.

Time Started: 10:00 AM

Time Adjourned: 12:35 PM

Members Present:

Teresa Barnett, DeWitt County Emergency Management Agency

Charles Hostetler, PDC Technical Services

Alec Davis, Illinois Environmental Regulatory Group

Donovan Griffith, Illinois Manufactures Association

Jim Risley, Mahomet-Seymour School District

Mayor Charles Smith, Village of Rantoul

Senator Chapin Rose, 51st District

Director Alec Messina, Illinois EPA

George Roadcap, Illinois State Water Survey/Prairie Research Institute

Andrew Rehn, Prairie Rivers Network

Mayor Julie Moore-Wolfe, City of Decatur

Steve Turner, Illinois Farm Bureau

Mayor Larry Stoner, City of Monticello

Mayor Deb Feinen, City of Champaign

Mayor Diane Marlin, City of Urbana

Barb Lieberoff, Illinois EPA

Rick Cobb, Illinois EPA

TOPICS DISCUSSED:

Approval of the Minutes from April 30, 2018

Chairwomen Mayor Deb Feinen calls the meeting to order and has Task Force members introduce go around and introduce themselves and their affiliation for the public. Chairwomen Deb Feinen states that first item on the Agenda is approval of minutes from April 30, 2018 and asks if there any discussion or comments. Motion from Donovan Griffith to approve. David Zimmerman has

a comment that he was actually at the last meeting but was not listed as in attendance. Chairwomen Deb Feinen asks for any other corrections or comments? All those in favor signify by saying "I" those not in favor. The motion to approve the minutes passes with the one correction.

Sub-Committee A Update "Identifying potential and current contamination threat to the water quality of the Mahomet Aquifer"-Charles Hostetler

Charles Hostetler comments that Sub-Committee A has met twice. The first was an organizational meeting and the second was a working meeting. We will be meeting at 1:30 at this same location after this meeting. I have 3 things to report to the task force as a whole; We are working at understanding what a Threat is so Subcommittee B knows how the lists were compiled and what they consist of. There is some statutory language we received from Rick Cobb that we have gone over. We had a real short discussion of the language of material threat in the context of due diligence and the appropriate inquiry and I think it's the since of the committee that we are looking to identify facilities that over the Mahomet Aquifer with emphasis on recharge areas that lack engineering controls, inventory controls, and groundwater monitoring. Charles asks the task force if anyone has any questions about the first items. The second items is understanding what our work product is and what it looks like, so we can have a draft by September. We think this needs to be in two pieces. The first is a narrative which describes how we worked and what it consists of and collective views on the completeness and accuracy on what we have. We think Subcommittee B needs that in order to put their work into progress. The second part of the work product will be a list or group of lists that contain the items that we have identified. The third piece we are looking at is the list themselves. We have really started looking at two potential areas. There is a list of landfills over the Mahomet Aquifer that IEPA is working on from their Field Offices and I think we will get an update on that a little later this afternoon. There is also a list pre RCCRA landfills that we are analyzing and then I've been through the source water program community water profiles as was suggested by Rick as a starting point. I did a pilot project on Logan Co. and I'm going to report on that progress this afternoon the results to our subcommittee. I think we are moving and a I think we have a goal and I think we will have something substantive to give to Sub-Committee B. Charles Hostetler asks if there are any questions and there were none.

Sub-Committee B Update "Identifying B Update "Identifying actions that might be taken to ensure the long-term protection of the Mahomet Aquifer"-Larry Stoner

Chairwomen Deb Feinen comments that next on the Agenda is Mayor Larry Stoner with a report from Sub-Committee B. Mayor Larry Stoner comments that the last meeting was held in Monticello 3 or 4 weeks ago Bill Compton gave a report on groundwater protection in the Peoria area and some of us didn't know what those were and I think the presentation was very educational I think it opened some eyes and what can be done if you are cooperative. Sen Chapin Rose gave us an update on the legislation that had passed the previous day. We are kind of

waiting on a few things as far as protections. We do not want to reinvent the wheel so to speak. We want to see what is in place. We want to see what Sub-Committee A is developing b/c we want to tie everything in with what they are doing as well. I think my favorite quote from the day in one of the papers and it was Jim Risley saying I'd rather go a little slow now than so when the time comes we can sprint with quality ideas. Mayor Larry Stoner asks the task force if they have any questions. There were none.

Presentations:

Chairwomen thanks both Sub-committee chairmen for their reports and their hard work. She then notes that we will move on to the Presentation portion of the Agenda and first is Mike Mankowski

Senator Rose comments and explains for the public that we have a Task Force here meeting and we also have a Peoples Gas situation. We asked that we have a meeting here that will have a lot to do with Peoples Gas and then this afternoon's meeting will be more general. It's important for people to understand that the Task Force is entirely to the Aquifer in the state of Illinois. It was important to have that meeting here so we could have some follow up on some things and I would to have some understanding on what is happening up here. Its important to me that when Peoples Gas happened and when people found out about it months later there should be done some 3D modeling done by the company and that was not done. The state of IL EPA has stepped up and done that. That doesn't come easily or quickly. They have been working with Prairie Research Institute so we need to give them some credit as well, so these next couple presentations are going to be part of our Task Force but its also aimed at Peoples Gas. So hopefully that makes some sense. Then for the afternoon you are more than welcome to stick around but it will much more of an open meeting. Sen Rose asks if Jim Risley would like to add anything. Jim Risley comments that we are not a governing agency and we do not have authority. What I will do is present educate and that is what's been going on. I've learned a lot here. We are going to take these recommendations and give them to our legislators our Governor b/c they are the decision makers. So, based on those recommendations they can proceed. This is just one of those meetings that we have to get to that goal. Your fears your anxieties they mean a lot to these people. There are places above the aquifer that have those also. We are trying to get there to do what is right for you. So, hang with us be patient and we try to get something done right. Sen. Rose comments that there is a public comment session at the end of this and Dillon Watts is here from the Attorney General's Office and they are handling the litigation against Peoples Gas. He is not one of the attorneys but he is here to take notes. So when it gets to the public comment session I would encourage you to get up and have a word.

Mike Mankowski: Department of Natural Resources; Underground Gas Storage Regulation in Illinois

Oil and Gas Resource Management

- *State of IL regulating since 1939
- *Since 1853 approx. 155,000 oil, gas and injection wells drilled in IL.
- *Approx. 23,000 active oil and gas production wells, 6,500 class II injection wells and 1,186 gas storage wells in operation
- *Approx. 1,500 operators
- *Production in 40 of 102 counties
- *Underground Natural Gas Storage in 24 counties
- * Authority from two statutes: Illinois Oil and Gas Act & Hydraulic Fracturing Regulatory Act
- *3 Districts/Field Manager/2 Districts/12 Inspectors
- *Conducted 30,000 inspections in 2017
- * Ensure that operators comply with oil and gas act and regulation
- * Issue violations for noncompliance

Gas Storage

Types in the US

- *Depleted Fields (oil/gas reservoirs or mature reservoirs)
- * Salt Formations (not in IL)
- * Depleted Aquifers (saline aquifers preferred term saline reservoirs)

Underground Storage by the numbers in the US

*128 operators/415 storage fields/4,800 BCF work capacity/17,000 wells in IL

Natural Gas Quick Facts: IL

- *No significant natural gas resource in the state
- *80% of homes use natural gas as primary heating fuel and demand varies through time
- *Key transportation hub for natural gas
- *24 active underground gas storage sites (1 active site within the Mahomet Sole Source Aquifer boundary-Manlove Gas Storage Field)
- *IL has the greatest amount of natural gas storage capacity in saline aquifer formation in the nation

PHMSA-Pipeline Hazardous Materials Safety Administration

- *Responsible for carrying out a nation program to ensure the safe, reliable, and environmental sound operation of the nation's natural gas and hazardous liquid pipeline transportation system
- *IL located in the central region
- *central regional office is based in KC

*Numerous incidents leading up to increased Federal Regulations of underground natural gas storage facilities: December 2016 PHMSA Interim Final Rule

American Petroleum Institute (API)

- *Federal regulatory authority
- *API maintains nearly 700 standards and recommended practices Many have been incorporated into state and federal regulations and they are also the most widely cited standards by the international regulatory community.

API RP (recommended practice) 1170 and 1171

*In 2015 published 1170 Design and Operation of Solution mined Salt Caverns Used for Natural Gas Storage and 1171 Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs.

Pipes Act of 2016

Pipes Act required PHMSA to set federal minimum safety standard for underground natural gas storage facilities, and allows states to go above those standards for intrastate facilities

PHMSA Interim Final Rule

*Incorporation of API RP 1171

-Section 1-7 apply to new or rebuilt facilities

-Section 8-11 apply to existing facilities

*124 mandatory “shall” requirements and 258 discretionary “should” requirements

*the IFR required underground natural gas storage facility operators to treat all “should” statements as mandatory.

IDNR Partnership with PHMSA

*October 12, 2017 IDNR and ICC entered into Interagency agreement granting IDNR ICC’s authority over gas storage facilities under the IL Gas Pipeline Safety Act.

*IDNR submitted application for PHMSA 2018 underground natural gas storage grant

*IDNR received certification effective Jan 1 2018

*IDNR has safety inspection authority from the wellhead down

*all enforcement is referred to PHMSA

*safety inspections according to PHMSA

*Risk Management for Gas Storage Operations

*Risk management program

*data collection and integration

*threat and hazard identification and analysis

*Risk assessment

*preventative and mitigative measures

*Periodic review and reassessment

*recordkeeping

Beyond PHMSA

*More stringent state rules

*SB2706 Underground Natural Gas Storage Safety Act

*HB4746 Incident Reporting and Annual Inspections.

Mike Mankowski asks if there are any questions from the Task Force. Sen Rose comments thanks Mike for his presentation. Wants to clarify when you say aquifer you aren’t talking about the drinking portion you mean the saline salt portion correct? Mike comments yes that is correct. That is the distinction between the saline reservoir and that is our job and PHMSA job to make sure it the gas stays there and does not get to the water portion. Sen Rose comments and my next question is I know that API and best practices is to help industry but and I think this would

be good for the Task Force to realize I don't think there is any standard for sole source aquifer just sort of generically and that's why we introduce HB4746 and while it's great that the federal government is moving PHMSA to a greater state of awareness for regulations it doesn't sort of categorize the sole source aquifer, which is the Mahomet at this time. I guess for the Task Force members and Mike you can tell me otherwise, I think one of our final recommendations should be a distinction that there is something different that a natural gas field being on a sole source aquifer that require a heightened regulation above this new PHMSA standard or beyond this new PHMSA standard. Mike Mankowski comments that he would also agree with that comment. Everyone's drinking water is important across the whole state. We would welcome any recommendations we would get from the Task Force that allows for further legislation. There are groundwater experts here and so there other areas where gas could be trapped if there are leaks so that's where the rules would help so we could monitor so that we could make sure that gas is not escaping into water sources within IL. This is a great first step to try and get stricter regulations in the state as well. There are a thousand other well besides Manlove. We look forward to working with all the stakeholders as we move ahead in the JCAR process. Charles Hostetler comments following up with Sen Roses question, you rely a lot on surface section of the well head. Is there additional things that can be done to understand what is going on below the surface to head off problems before actual releases? Mike comments that's what we need to work on with a little more stringent standards. There are log in techniques you can do to the wells. Do they have corrosion issues, do they have hole etc. I mean most of the well that we have in IL it's not one length of tubing it's not just one thing they have multiple layers and that entails a little more detail on that. You have your surface casing that generally goes and under our current standards is 50 to 100ft below fresh water so lets say if something does happen with the pipe you still have the layer of cement that protects that layer and whatever fluids or gases that are inside the well then the surface casing....then they have production stream that goes from the wellhead all the way down and that's where the gas or oil is being produced from. Some of the manufactures or moving toward tubing and packing which is run down the same way. California is now pushing to have them all using the tubing and packing. You can monitor that aerial space between on the production screen and if the pressure there that's how we treat as a violation. Those are the kind of things we need to work through on a rulemaking. So, if the tubing fails we can get out there sooner etc. Jim Risley comments on the Peoples Gas facility and pressure tests. They test the pipes and if they prove to not be working order they take them out and if they are working they put them back in. Due to the lack of trust that has been developed between the facility and the community, do you have representatives now watching them doing this? Mike comments that is part of the litigation we are involved in we have had them logging in and we have had inspectors out there. The problem is we have 12 inspectors and 30,000 wells to look at. I wish I could hire 15 more. I'm not going to sit here and talk about lack of staff etc b/c nobody wants to hear that. Jim Risley comments are those 30,000 wells in regards to the facility in questions? Mike comments no that is all over the state of IL. Gas store is only 186 wells. We

have the oil side as well. We are hoping to get another inspector that is basically going to live in the Manlove field. Chairwomen Deb Feinen introduces Rick Cobb up.

Rick Cobb: Illinois EPA 3D Model on the Thermogenic Gas Leak and the Groundwater Contamination

*Background McCord #2 was injecting natural gas into the Manlove Natural Gas Storage Field at a depth of 4,000 feet below land surface into the Mt. Simon Aquifer into the Mahomet Dome structure

* a release was reported to have occurred Dec. 19, 2016

*Bubbling was observed at the land surface near MC2

*Illinois EPA uses a map that shows and delineates the location of the Manlove storage field in the subsurface, the MC#2 well, the area where we conducted our investigation of private water supply wells, and PRI's Special Report 6 that shows the location of the Manlove field relative to the Mahomet Bedrock Valley. This is a bedrock valley created by an ancient river system that is buried by glacial sediments as illustrated in PRI's Special Report 6.

*Biogenic= Methanogenesis is the formation of methane by microbes known as methanogens.

* Thermogenic= Methane CH₄ (also referred to as C1), thermogenic gas can also contain heavier chain hydrocarbons such as: ethane ("C₂H₆"); propane ("C₃H₈"); iso-butane ("C₄H₁₀"); n-butane ("C₄H₁₀"); and iso-pentane ("C₅H₁₂").

*Fingerprinting of Gases- Analyzing the stable isotopes of carbon and hydrogen in CH₄ ("δ¹³C and δD") provides information on the mechanism of formation, i.e. biogenic vs. thermogenic.

Average δ¹³C-CH₄ values of dissolved methane in shallow groundwater are significantly less negative for thermogenic vs, biogenic methane

* The thermogenic natural gas leak moved in two phases. I have included a diagram (1973 ISGS, Publication Underground Storage of Natural Storage in Illinois) that conceptually shows how the gas will move and displace water uniformly in all directions and form a bubble with a circular interface between gas and water.

* The second phase of gas movement is that the free phase movement will stabilize and then the dissolved phased movement will start occurring.

*Removing the thermogenic natural gas from the aquifer—

Delineate where the remaining gas bubble(s) are trapped

Install relief wells and flare off the gas

Thus, we need a conceptual geologic model to start the process of finding where the thermogenic gas bubble may be trapped

* developed some general geologic cross sections of the area using available geologic well logs. This clearly shows the interfingering sand (yellow), sand and gravel, (yellow) and fine grained clay rich geologic materials (dark brown). The wells impacted by thermogenic gas were at all depths.

* PRI provided a sophisticated geologic cross section through the area of concern.

utilized the additional data obtained from PRI to develop a 3-D model of the geology. Why? In order to start that dialog with the responsible party and the AGO about aquifer remediation.

The base map used first is the bedrock geology at the top of the Mahomet Dome. This is a limestone and is important because it is where the leak occurred below the aquifers in the Mahomet BRV. The map shows the wells that were used to develop the geologic model and the lines of geologic cross sections.

The next map Rick shows is the land surface, the well sample results, and the wells with geologic logs. The geology is shown in a column associated with the well. The elevation of the limestone surface below those wells is also illustrated along with the MC2 well. Rick also shows the sampling results. Unfortunately, not all the wells impacted have a geologic log or well depth information. They created two new geologic cross sections using the additional data obtained from PRI. The light and medium yellows show the sands and the sand and gravel are medium yellow.

The last figure is a 3-D model of the geology with a cut out showing the complex interfingering of the glacial deposits in the MBV.

*Next Steps—Don't have all the answers/More detailed hydrogeologic characterization may be required/negotiation with the RP and AGO.

Rick Cobb asks if there are any questions from the Task Force? Steve Turner asks when you are explaining the two gases natural vs thermogenic there is no concern for what is naturally occurring down there? Rick comments possibly, I think a lot of people have these separators b/c it becomes a problem when it is in their home in an enclosed area and the key thing is we did the sampling we use the four gas meters to determine the ambient conditions in the home and when its about a certain level in the home then that can represent an explosive or it can remove the oxygen out of the air and cause asphyxiation. Now all the wells we sampled and using the four gas meters didn't show any high levels of ambient concerns in the homes. Definitely talk to your Dept. of Public Health if you have natural occurring biogenic gas in your well. Steve Turner asks did you tests the well to determine which type of gas it was? Rick Cobb comments yes we did. The way to distinguish is you have the heavier hydrocarbons and the isotopes. So, you can determine what has been baked over geologic time vs. the naturally occurring. Jim Risley comments that you checked the wells after Peoples Gas checked it and gave some validation so those that have thermogenic gas in their wells can we assume that will go down over time then? Rick Cobb comments that I don't want to make any assumptions at this point. We need more study. Jim Risley comments if these homeowners or anyone would allow you to put in a relief well and if that well was found to be no longer useful could that be removed and their property be restored? Rick Cobb comments absolutely. Any relief well or monitoring well that was used during that time would be required to be removed and property restored. Alec Davis comments and thanks Rick for his presentation and find it tremendously informative. Is the 3D model itself available to look at. Rick comments that it is public information and I did bring a poster to look at as well.

Chairwomen Deb Feinen introduces Rick Winkel with PRI.

Rick Winkel: Prairie Research Institute; Management and Protection of the Mahomet Aquifer

Rick begins by thanking the Task Force for the opportunity to speak and to Sen Rose for helping to create legislation that created the Task Force that will help protect the Mahomet Aquifer. He's here to discuss his report "Management and Protection of the Mahomet Aquifer." This report was done when a response team was formed to study the Mahomet Aquifer. Multiple agencies coordinated as well. Founded a natural gas working group. George Roadcap is one of the author's and is also a member of the Task Force. Mahomet Aquifer response team prepared this report and its intended to be a working document for consideration by the Task Force and by the various stakeholders for their input. The process we used to put this report together, PRI used various resources and recommendations out there. This report will be on the Mahomet Aquifer webpage and you can access it there. It's brief but useful. You will see on page 4 of the report a list of references. We based this report on other existing information out there. We attached an appendix and if you look at that is list of compiled recommendations. It's a very comprehensive list. Pages 1-3 is a digest for the Appendix A of the report. This is hopefully considerations for the Task Force and stakeholders and we urge you to do so. PRI is happy to continue to work with the Task Force and provide input as needed. If there is something you need us to work on please let us know and if there is something you need us to expand on we will. We continue to want feedback from IEPA as well and look forward to that as well. I just wanted to make you aware of the report and in particular Sub-Committee B if you have any questions I'd be happy to answer. There were no questions.

Public Comments

Chairwomen Deb Feinen addresses the Task Force and the public and notes that we are at the point of the agenda where the public can comment on the aquifer related issues. We will allow a lot of question and answer here with our experts even though that isn't typically how we do our meetings so if someone has a question please raise your hand and we will have runners bring you a mic.

George Stanhope comments that one of the things that hasn't been really asked is the saline solution. There has been a lot of focus on the methane but very little on the saline solution. I'd like to see a focus on that also. The other thing is very few data prompts. It would be helpful if homeowners had their wells tested for something else other than nitrates and E.coli. b/c then when our well is affected when would have had an initial data prompt. Still there has been very little ongoing testing on whether the wells are changing.

Joe Hooker comments that he'd like to bring to the attention of the Task Force on what Dayton Ohio does on protection their sole source aquifer. We need a more robust prevention regime. Funding is an issue. Dayton has a fund in place to protect their sole source aquifer. I'd like to see the Task Force look into not just only laws but perhaps fees for water use so that there is funding in place.

Jim Spiros, attorney representing the homeowners against Peoples Gas, comments with a question for Mike Mankowski, could you tell the folks and members of the Task Force what did

Peoples Gas do in relation to the venting, what authority did they do it and for how long did they do it and were they violating the law when they did it? Mike Mankowski comments unfortunately I do not know if I can answer that question due to the ongoing litigation, I know Sen Rose said there was a representative from the attorney general's office are they still here? Okay yeah so on the advice of council I cannot answer that question and I apologize for that. Mr. Spiros comments that he would add that the Task Force question every bit of information they get and the source it comes from. We've talked about a lot today but we haven't talked about homeowners who are affected every single day try to use a bottle of water for everything you do around the house. Thank goodness, we have Chapin's ear. He's been a real resource to these homeowners. Chapin thank you very much. You need to really walk in the shoes of these folks to really understand what it's like. Generally, for the IEPA they talked about the day that it was reported my question is simply when did they discover the leak? Was it that day? The answer is no. The answer is continued in our complaint. You haven't heard from a single homeowner today so I'm going to ask Jodi to come up. I'd like her to give a few comments.

Jodi Eisenmann, homeowner Mahomet, comments and thanks the Task Force for all they have done. My husband and I are a dot on your map so here's our face and we have 3 children. I want to plead and beg that someone would do something. We get water delivered every Tuesday. We have a water cooler. We have had that for over a year now. My child is growing up thinking you can't drink water and that we live in a third world country. She packed two bottles of water to take to her aunts for a sleepover b/c that is her every day life. It's such an injustice. If I would release anything into one of your private wells I would be paying the consequences right now and I feel like Peoples Gas is continuing to operate and make money and do everything they do like normal. If any of us in this room did this we would be punished. Mike you did a great job with your presentation and I hope the Attorney General will give you a bigger hammer to come down b/c I just don't understand why they can continue to operate, I just don't get it. Thankfully my husband has access to storage tank to fill it up to feed our cattle b/c they will not touch the water b/c when you fill the trouft up it looks like sprite it just bubbles up. We just beg and plead that Peoples Gas get their consequence and keep us safe and thank you for everything that you are doing. Jodi's husband comments and supports his wife's comments and commends the Task Force efforts to get things done.

Committee Comments

Chairwomen Deb Feinen comments that we are at the point of committee comments. Before we get to the point of general comments I would to address meetings. Is everyone okay with meeting on the 3rd Monday of the month? Continuing to meeting do we have consensus. We will be in touch with where our next meeting to be. Does anybody wish to speak? Jim Risley comments I appreciate you humoring me. I appreciate the publics comments very much. Behind that sheet up there is the Task Force objectives. We are body to make recommendations. It is up to the legislator and Governor to decide what is appropriate. Whether or not we have to raise taxes to do this, or through state funding, federal funding/grants or the HTEM is an incredible idea we

should have an idea how to monitor things. We just have to recommend what is best how to take care of this problem. We must see how to preserve for 50 years and longer. Things like education etc. This is a Task Force that's going to listen to you and give it to our legislators and hopefully they will help us out. We feel for you and we will keep working.

Sen Rose comments on why Jim Risley was appointed to the Task Force and that's b/c he cares and b/c of the statement he just made. Sen Rose explains how his two bills were finally passed and will hopefully help to strengthen and help state's regulations and authority for emergency notice and incident reporting and underground safety. Chairwomen Deb Feinen comments if there were any other Task Force comments. There were none.

Adjourn

Motion to adjourn Mayor Diane Marlin Seconded by Steve Turner. Meeting Adjourned.

DRAFT