



MINUTES –

**Hull WATER STUDY Task Force**  
**Thursday, November 10, 2011 at 6:30 p.m.**

TOWN OF HULL MUNICIPAL BUILDING  
4550 WOJCIK MEMORIAL DRIVE, STEVENS POINT, WI 54482



- 1) **Call to order:** The meeting of the **Hull Water Study Task Force** was called to order on Thursday, November 10, 2011 at 6:30 p.m. by Water Study Task Force Co-Chair John Holdridge at Hull Municipal Building, 4550 Wojcik Memorial Drive, Stevens Point, WI 54482.

Present: Co-Chair: John Holdridge, Co-Chair: Mel Bembenek.  
Committee Members: Tim Zimmerman, Bill DeVita, David Schmidt, Russ Prusak, Robert Perkins, Gwynne Bablitch, Phil Gjevre  
Advisor- Paul McGinley of UWSP College of Natural Resources,  
Advisor- Ray Schmidt Water Quality Specialist for Portage County,  
Water Study Secretary: Patty Amman.

Others Present: Dave Wilz

Excused: Gladys Laug

Absent: Mike Olson, Terry Smith, Harry Obremski

- 2) **Approval of minutes from October 13, 2011 Water Study Task Force meeting.**  
*Motion made by Zimmerman to approve the minutes of the October 13, 2011 Water Study Task Force meeting. Seconded by Dave Schmidt. Motion passed (one opposed-R. Perkins)*

- 3) **Citizens wishing to address the Water Study Task Force on non-agenda items.**  
**Agenda items are for discussion and possible action:** *NONE.*

- 4) **Announcements/Comments Task Force members.**

Holdridge We have 2 meetings left and I'm not interested in going beyond 6 meetings and I don't think you folks are either. So we need to start the analysis by districts. Then we can talk about other things we'd like the Board to get involved in. In your packet is a letter we sent to the City. In that letter we talked about community of interest which it definitely is. Our intent would be to spread the word to Kim Halvorson then sit down with her and see what we can get. As I read it, in the past, it hasn't been easy to get stuff from the City which I find a little bit strange but maybe after that vote the other night on that annexation, maybe they will be a little more cooperative. I expect a little more cooperation on this stuff because the City can't exist in a vacuum.

Bembenek Has Kim gotten a copy of that?

Holdridge Oh yes, we sent it.

Prusak Did she respond?

Holdridge No. We'll just call her. Let me go through a couple of things. One is the annexation issue. There was a good crowd there. Six out of the seven (Hull) Plan Commission members were there, four out of the five (Hull) Board members and a good contingency from the I-39 west area. These citizens in Hull are energized. The key to getting them energized is to get them involved in the process from day one. We've spent 3 years planning the area from the interstate over to the Wisconsin River up to the Dewey line. There was a solid group there. We thought they were going to table it. There were 3 petitions. Two petitions were illegal; they weren't conformed to the law. The third one was the one that conformed with the law and instead of tabling it, they denied it with a unanimous vote.

You have an article there from the Green Bay paper. I was in Green Bay at a convention and the Green Bay Press Gazette ran this article. It seems whenever I go, they're talking about water. When I read this, there's great diversity in the quality and quantity of water. Down at the bottom they talk about what you are drinking. They talk about lead, copper, arsenic, mercury and radium. Lake Michigan water as opposed to public wells. One lady didn't like fluoride in the water so she was filling up 5 gallon plastic jugs and taking it to her daughter so her daughter didn't have to drink the water with fluoride. Is that still a big issue?

McGinley There are still people concerned about fluoride. If you search the internet, you'll find all kinds of comments on that.

Zimmerman Naturally occurring? Or the combination of chlorine?

McGinley You have people questioning the addition of it.

Holdridge I was in Chicago and got this little brochure that says, "What meters save. Save water, save money." It appears that there are flats in Chicago that don't have any meters. They make judgments on the size of the building and the number of toilets. So they're encouraging people to get meters. Here's an interesting one: "AMR technology allows reading to be transmitted via wireless radio technology to water management vehicles that drive by, eliminating the need to take readings inside the home." I think that's here too.

Bembenek Stevens Point has that kind of reading.

Holdridge This is put out by the Chicago water management dept., encouraging people to get meters. On the back it says, "Our most precious resource. Lake Michigan has lost almost 32 trillion gallons of water. The equivalent of over 45 million Olympic size swimming pools of water over the past decade. Our region could face water shortages by 2050 if we fail to take decisive action." I picked this up in the Olgevy Center.

Perkins           What does that mean when they say they lost that much water?

Holdridge        I don't know, they don't go into it. They have some suggestions here. "Use rain barrels to capture rain water. If you own a dishwasher, wait until you have a full load to run it." That makes sense. "Fill the sink with dishwater instead of washing dishes with an open tap."

Perkins           It sounds like they're talking about people using that much water.

Holdridge        Trying to conserve it. So that's in Chicago. You have a copy of the letter to Kim Halvorson. Then Patty gave me this one. This is called, "Tests for Drinking Water from Private Wells". Where did you get this? Off the internet? We'll get that out to you. I think you ought to get them and put them out there (*in our Town literature stand*).

*(Patty e-mailed a copy of this DNR publication to all the Task Force members the next day – Nov. 11<sup>th</sup>. The DNR publication is also on the internet. DNR publication #DG-023 2011.)*

##### **5) Grant for analyzing potential damaging elements of Hull water.**

Holdridge        I'm going to turn this over to Paul McGinley.

McGinley        Thank you John. I wanted to make a proposal. There is an opportunity to get some research funding to examine groundwater issues in Wisconsin. Every year there is the University of Wisconsin system and the Wisconsin Dept. of Natural Resources pool some money together and they open this up for researchers to request research...to put together research proposal requests to study some aspect of water. I was talking about this to John Holdridge and others and I thought it might be something that would be of interest to this group because there is nitrate in (parts of) the Town in the water. We have potential agricultural contamination and potential septic system contamination. This money is not available for just routine testing, it's for research projects. I thought an interesting research project and something that would be of value to the township might be combining some nitrate testing of wells with an examination of what else is in that water. Are there fragments of pesticides? Or is there residue of things we would find from a septic system? Like boron from the additives to detergents. It's not something considered particularly dangerous but it could be found in the water if the septic system was a source of contamination. I thought that might be an interesting research project. I started drafting up a proposal along those lines and I would be willing to pursue that. I thought I would present that as something maybe this group would encourage us to do. I could use that language in the proposal and say the Township Water Study committee thought this was a good idea. Depending upon how they evaluate this. This is not guaranteed that it would be funded. It's a competitive process.

Bembenek        Well we're trying.

Prusak           With the increase of nitrates we have in the Town of Hull, obviously we have a problem there.

McGinley        Right and I think a question is the source.

Prusak           Where is it coming from? That's what you're trying to identify. What is the source of the nitrates.

McGinley       Bill (DeVita) and his lab have equipment now that can look at a lot of these trace compounds of things that are linked to maybe a septic system or pesticide use. By looking at those 2 groups of contaminants....a lot of those are not really health issues, but they would help pinpoint the likely source of the nitrate. I thought it would be an attractive research idea. They take it, send it out, people review it, they critique it. They don't fund everything but it seemed like it might be something that would be useful from a research perspective but it would also be useful to the Township.

Holdridge      I would think we would be right out in front on this water issue as a town. I don't know anywhere else where there are towns with private wells that are doing anything. I would be surprised if there was much going on in Wisconsin.

McGinley       Right, I think even that type of a story in there is compelling to viewers in that it would sound to them like this is a kind of group.....

Holdridge      ....you've got your oar in the water and that might be a help.

DeVita          Do you want a motion to support this proposal?

Holdridge      We should do that but there's one other thing. The Board meets Monday night and we could get support here and then go to the Town Board and get support.

McGinley       That would be very helpful.

Holdridge      Are there some matching funds?

McGinley       They would provide all the money. The State of Wisconsin. I think they get the money from a variety of sources but they've been doing this for 20 years.

Zimmerman    What are the typical backgrounds of cities that have done it? If you do the study and find out what you find out, what then? Is it just background information?

McGinley       Most of the studies they've funded in the past are just research studies. The university researcher that wants to look at a particular problem that they think might be of interest. I think this would be more powerful because there is actually a direct use in citizens that are interested in an outcome. In fact, a lot of the proposals aren't that way. They are more university researchers that do the science and might write that up for some kind of scientific journal but it isn't necessarily.....

Holdridge      This would be much more practical, useful, out in the hinterlands.

DeVita          More public consumption as opposed to a journal.

McGinley Right. The reports from all the previous projects are available on-line.

Holdridge Whatever this group comes out with, it's not going to be just academic. The Town Board will take this very seriously and do what makes real sense in terms of analyzing water for quality and quantity. We're not going to just put this on the shelf.

Zimmerman What I was getting at was what practical use it would be. You might find high nitrates, which you probably will because it's documented on that (*maps*). You can deal with high nitrates fairly reasonably. But if you have pesticides or have some other kind of contaminate .... About the only 2 I know that you can deal reasonably with are nitrates and bugs in your system.

McGinley I would approach it from the standpoint that if you knew where the nitrate was probably coming from then you would be able to figure out what other contaminants you should be looking for. When you are thinking about creating a treatment, you think about designing that treatment system to address that type of contaminant. If it's an agricultural type contaminant, you might treat it differently than if it's a septic tank contaminant.

Zimmerman Can you tell one from the other?

McGinley As you're looking at these other compounds, detergent products or pesticides or sweeteners, some of the food additives, some of those are actually not broken down much in the ground so that you could pick up traces of these in water and that would be an indication of it coming from the septic system or substances from a farm field. That might help direct you to what else you should do.

Holdridge The law of unintended consequences, you might be surprised at what you find. You might find what you didn't expect to find. Somewhere in the minutes we had talked about pharmaceuticals. We don't know much about that apparently. Where those go to? Is there a motion to approve Paul to write the grant and move this process along?

Prusak I'll make a motion to approve Paul McGinley to write the grant proposal (*mentioned above*).

*Motion seconded by Phil Gjevre. Motion passed.*

McGinley Thank you.

Holdridge We'll put it on the agenda for Monday night. If you can't make it, Mel and I can tell everybody about it.

McGinley I could maybe give you a paragraph or something.

Zimmerman What is the size of this thing that we're looking for?

McGinley The size of the grant?

Zimmerman Yes.

McGinley Running the nitrate tests are cheap but running all this other stuff is very expensive so we wouldn't ask for anything less than \$30,000 a year for a couple of years.

Zimmerman So \$30,000 a year?

McGinley Yes. So possibly \$60,000 (*total*) or a little less. That would also provide this group of wells that we look at with some free testing. If they were funded, the next step would be finding people that are willing to participate. Ideally we would be looking at wells that are already contaminated.

Holdridge We're always looking for money. Everybody is.

**6) Information on septic systems – care and maintenance.**

Holdridge Let's go to information on septic systems. Raymond?

Ray Schmidt I did some stats for the Town of Hull septic systems. Out of the 2,020 households, I was able to find between 30 and 40 septic systems that I'm pretty sure are failing systems because of the soil that they are operating in. They are older systems and the systems around them have been replaced with mound systems. So those in-ground systems, they're just not in suitable soil to do the treatment.

Bembenek They're in our Township?

Schmidt Yes, 30 or 40.

Prusak Are they concentrated or are they spread out all over?

Schmidt They're spread in different places, not all concentrated in one spot. They're in the poorer soils, high groundwater and shallow bedrock soils.

Holdridge Is age a big factor?

Schmidt No. They were put in under previous codes before we understood the relationship between treatment and .....back in the days when it was a sewage disposal system instead of a sewage treatment system. We slowly get those taken care of through property transfers or if somebody calls us and says, "Hey, I'm interested in this Wisconsin Fund Grant Program, can you come and condemn my system?" "Oh sure, we'd be happy to." But if the Town wanted to be proactive and request that the County do a survey of those systems to show and document that they are indeed failing, we'd be able to get them taken care of in a lot less time. That would be one very solid thing you could do to clean up the groundwater.

Holdridge Do people know their systems are failing?

Schmidt No, I'm sure they don't.

Bablitch How do you know? Just by driving by? I'm curious.

Schmidt From the GIS we have, we know where the lot is and we overlay that with the soil types. We then find that this soil has a maximum of 3 feet of soil and when you have an in-ground system....there's not enough soil there below the bottom of the system for treatment. So that's where we use the GIS to do that and that's why I estimate 30 to 40 based on those soils. There are other spots that could also have failing systems. Just because they're put in deeper in soils that might be okay for a conventional system but if that system is down deeper, they put drywells in as deep as they could.....

Bembenek Would some of these be converted to mound systems then?

Schmidt Probably.

Perkins But if they're failing, aren't they required to replace them?

Schmidt Yes. But if there's no mechanism to have that done, to document it and require that they do it and the people don't know....as long as the toilet keeps flushing and the drains work, people assume they are okay.

Bembenek The only other way is if the homeowner decides to sell their home, then it would be inspected.

Schmidt Most of them are inspected at the time of sale, that's required for certain types of loans. I don't know what the average turnover rate is but some folks are still living in the same places they moved into in the 1970's.

Bembenek Right, you're looking at one.

Schmidt So that's one item you could consider.

Holdridge When the house is for sale, changes ownership, do they normally have to get a water test and a septic test?

Schmidt That's normally what the lenders require for financing.

Holdridge There isn't anything that says they have to do that.

Schmidt No. No requirement.

Bablitch If it's a cash sale, who's going to push the issue?

Schmidt If it's a knowledgeable buyer, they will.

Bembenek If I was buying it, I'd want it to be checked out, because if you go down the road, then I'd have to change it if I have a problem. So actually the person that's buying it should have enough sense to write it in the offer.

Schmidt There should be a lot of things buyers need to know but unfortunately they don't.

Bembenek The realtor isn't going to tell you anymore than they have to.

Schmidt The law with realtors is that they have to disclose any known defects. So if they don't ask and they don't know and the seller doesn't tell them, the sale goes through faster. If the Town was interested in doing that, the course of action we would likely take as the County would be to send these folks a letter explaining to them how we arrived at the fact that their existing septic system, even though it's still accepting sewage, is not treating the sewage and is contaminating the groundwater. Then we'd let them know what they should do as far as having their system evaluated by a certified soil tester to determine what type of system they need to replace it with. That kind of informative, non-threatening approach.

Holdridge If you do that, does that trigger or turn into a mandate on the people who get the letter?

Schmidt It could. But not automatically. We'd also offer them the Wisconsin Fund Grant Program that can pay for 60% of the cost. That's another way people would.....

Bembenek Plus you're protecting the groundwater for the future right?

Schmidt Right.

Bembenek Having those replaced. We're talking about trying to keep good water.

Schmidt Back in 1993 when we had a few systems out in the northern part of the Town here we went out and inspected them when the water was so high that it was in their basements. Well if it's in the basement, chances are pretty good that the drain field is going to be too close to ground water too. We got some people to replace their systems voluntarily and other people told us to get off their property. So then based on the documentation that we had of modeling and high ground water, we went to the court and asked for special inspection warrants and went back with those and said, "Okay, here's the warrant from the judge who says that we can measure your existing system and we can do a soil boring." We did that and we had about 4 or 5 in Hull and some down in Grant that we had to use that approach. We do what we need to do to follow through with it.

Zimmerman You said the ones in Hull didn't have anything to do with the age of the system?

Schmidt Other than that the older systems which were put in before the modern codes. As far as a properly installed system, properly situated in the right type of soil, the age of that system, whether it's 50 years or 10 years old from a treatment standpoint, it's not going to be



failing. It may not be accepting the sewage as much anymore. They do all form a clogging mat over time from the bacterial bodies breaking down.

Zimmerman Our County water committee, I thought I saw like 32,000 aging septic systems. Is there a percentage of those that you would say aren't going to make it?

Schmidt I don't understand the question Tim.

Zimmerman When the septic system is more than 30 years old, are they considered to be in danger of failure at a certain rate? Say 1%, 2%, 3%, like that?

Schmidt No. Not at all. Not anymore than a car that's 10 years old is in danger of failing at a certain rate. It depends on the use and it depends on the maintenance. If the water in the home is minimized, if you're using a 3 bedroom home and have 6 people there, that's what the design capacity of that system is. If you only have 2 people there, you're only using it at a third of its design capacity. If you pump your septic tank so it can have the room in the septic tank to retain the sewage and digest it before it moves it out into the drain field, all of those factors are taken into account. If you overuse the system, it's going to fail a lot sooner than 30 years, so there's no magic about any certain number of years, none whatsoever.

Zimmerman I was thinking more like about construction and design. A lot of them, 30 years ago, they only had a single drain system whereas now you are required to have 2 or 3, I'm not sure which.

Schmidt No. They can still get by with a single one. We do recommend that they put in more than one so they can switch between the two.

Zimmerman I've seen the neighbors with metal tanks, the fields they put in were definitely two, sometime three trenches.

Bembenek If you have one that's a single and you replace it with a 2 or 3, do you have to tear out the old single one or can you leave it in and put a valve in the center and let it dry out for so many years and turn that value and use the other one?

Schmidt Yes. In fact we recommend they do that if that system isn't too deep in the ground.

Bembenek I'm just saying, years back you couldn't, right?

Schmidt Right.

Bembenek That's what I thought.

Holdridge Could that lead to not having to replace the whole septic system?

Schmidt Right.

Holdridge That's a big deal.

Bembenek You use it for so many years and then let it dry out with the perforated pipe... then turn the valve. So that's legal?

Schmidt Yes. The soil bacteria will digest the clog mat. In fact, we've been recommending that for 20 years. Most people don't want to do that.

Bembenek I have that. I think it's a good idea

Holdridge I do too. Any other questions?

Schmidt One of the other points we've been talking about nitrate and some of the other contaminants, we haven't addressed the biological contaminants, viruses, bacteria, those 2 primarily. Septic systems do a pretty good job of attenuating the bacteria. What we really don't know is what kind of job they do on viruses. We know that bacteria can travel maybe 50 to 100 feet from a septic system. There are all different sizes of bacteria and die-off rates but viruses, we know we've found viruses 300'-500' from a septic system drain field. The state septic system code and the well code both specify a 50' separation between a drain field and a well. I think, as we get down the road a little further, we'll start finding that technology for viruses is something we want to look into too because as we're developing the superbugs just by not having antibiotics that can deal with them, I think we're going to see higher survivability of some pretty nasty pathogens in the groundwater. Especially in areas where you've got a high density of septic systems and wells close to each other.

Bembenek Is that state law, the 50 feet?

Schmidt 50' is the minimum.

Holdridge 50' from septic to septic?

Bembenek 50' from the drain field to a well.

Prusak At that site but to the lot next to you also?

Schmidt Yes. From any well to any septic system drain field.

Holdridge There was reference in the minutes about 2 acre lots. I would say we should revisit this thing in terms of recommendations in subdivisions. It looks like it might make sense to recommend 2 acre lots.

Schmidt The County already requires that but you're right, with subdivisions there are some options where you can get them smaller and get the wells closer to the septic systems. I think what we should, as a County and as a Town also be looking at and taking into account the direction of groundwater flow when looking at where the wells are sited versus where the septic

systems are sited so you can offset them sideways, perpendicular to the direction of flow because right now there's no attempt to do that.

Holdridge That's not a factor.

Schmidt It's not considered right now. We not able to take that into account when we approve a system.

Prusak Can you make recommendations if you know that's a problem or not?

Schmidt Yes, if we know it. For instance, take probably half the Town of Hull is very porous sand and some of those soils have been used for septic systems for decades now and driven point wells have been put in too. There's an installed base of infrastructure, let's call it, so to try to have folks...we can't get them to test their wells voluntarily much less, for instance, move a well if it's found to have nitrate that might lead us to think it's being contaminated by a septic system. What's the likelihood of that?

DeVita Are you saying that the groundwater flow maps you've showed us over the past few months are not all that well defined? We need more detail within our subdivisions, local detail in groundwater flow?

Schmidt Local detail would be preferable to the general maps that we have. We've got a pretty good general idea of what direction the groundwater is flowing. And we'd want to see that taken into account in sighting wells and septic systems so that you don't get a well 50' down gradient from a septic system, which is all the code would require now. Maybe you put that well 50' to the side gradient of the septic system giving you a better.....

DeVita So maybe in terms of new developments, maybe we should be requiring the developer to install some monitoring wells to survey groundwater elevations to determine that flow in that local area.

Schmidt That might be a good idea Bill.

DeVita That's what you're saying, right?

Schmidt That would be ideal. Whether we could get that kind of a requirement in our current age of anti-regulation, I don't know.

Holdridge That's not in the County subdivision ordinance is it?

Schmidt No, it never has been. I don't know that it has been proposed anywhere.

McGinley Now if we got that City monitoring well results, would that help you refine the groundwater flow or would you still need more detail?

Schmidt I think it would.

Prusak            If you would know where they are at.

McGinley        I'm assuming they would know.

Schmidt         I think it would, Paul, although in the sands, the groundwater fluctuates 2-3' a year and on a multi-year basis it fluctuates more than that so depending upon where you measure that...

McGinley        It would be like a snapshot if all taken on the same day.

Schmidt         Right.

McGinley        A useful piece of information.

Schmidt         It would be, a very useful piece of information. If the grant proposal shows that you are getting some contamination of a shallow driven point, for instance, from a septic system through sweeteners or boron or whatever, I think the logical next step is to find a way to test those for viruses.

McGinley        I agree.

Schmidt         These inorganic chemicals that we're dealing with, like nitrate or those kinds of things are nowhere near as serious an issue as viruses.

Prusak           If in that study, you found a well that was contaminated with something like that, would you...testing like...groundwater flow to identify if this one tests at 5 parts per million here and then let's say went down here and it's at 1, then this one is at 4, 5 over here, this one was 1 over here, you might have some idea of where the groundwater is coming from. That's a secondary step to what you might find in it?

McGinley        That's a good question. I wonder if we can do that already with the information Ray has. If he shows on his maps where you see a cluster of wells and one of them has high nitrate but none of the other ones will, or are you talking about....

Prusak           It could be nitrates or something that came in like pesticides and you found it in this one, logically, let's go and look in this direction and find which way that's flowing so you could now know that this goes up this way, 2 years later, we know the water is going that direction....

McGinley        That's a good question.

DeVita           Looking at contaminant concentrations and how they dilute out from a different point. The dispersion that occurs, ...

Schmidt         It's a 3 dimensional system, that's what is hard about it.

Prusak       Based on flow, if its 5 here and there's nothing down here but 2 years later it's now 1, 5 years later it's 3, maybe later it's 5, you know how fast that groundwater is moving through there. If you found something more severe than nitrate, you'd know that hey, it's moving in this direction.

McGinley     I could see where there would be multiple follow-on studies. We don't even know if we're going to find anything, for one thing. The other is just how variable it is. Looking at the data from the mobile home park, the nitrate level goes up and down depending upon when you sample it and how you hit it, I could see time variations on these also. But yes, I think this opens up those kinds of possibilities.

Schmidt      As we look at it more closely, we're going to find things.

Holdridge    The discussion has come up about all these city wells. Melvin said there could be 50 or so, there's lots of them and they don't ask us, they just put them in. I called the Town's attorney of the Wisconsin Town's Association and by law, the town controls the right of way. We control our roads just like the city controls their roads and the county... the Town of Hull controls its roads and the right of way so if they're putting those in the right of way, that's a no-no. They've got to advise us and we have to approve it.

Schmidt      I doubt that they're putting any more in. I think they probably have got their installed base since the late 1980's, early 1990's.

Gjevre       How does the comparison of an individual town well's taking an average of 200 or 2,200, whatever they happen to be, how does the quality of that water currently measure against the water that Stevens Point is pumping out through a municipal system?

Holdridge    That's a great question. We know that the municipal wells, they have to test this stuff and add...you know the private wells, your well, you live over in Kirshling and I live by the well fields, we don't have to test it. We can just go on and on and on. There's no mandate so that would be an important question. When we go through this and look at the data and see what it is that....

McGinley     It wouldn't be hard to compare, the information is all available. I don't know off hand what the nitrate concentration is in the different wells. We could certainly get that information.

Holdridge    I think your question is one of the things we want to discover. What's the status of our wells in Hull in terms of quality and quantity?

Gjevre       We're drinking better water than Stevens Point. If on the average, it's substandard because we have too many septic systems, this, that and everything else.

Schmidt      I think looking at it saying what's the average water quality, that's not helpful. Because some areas of the Town have excellent quality water and some areas have fairly

deteriorated water that nobody should be drinking. On the maps, we have those areas shown by using the nitrates as an indicator of the deterioration and contamination. I would look at the range of what the quality is and maybe the stats on how much of the water is deteriorated, for instance, over 10 ppm nitrate, you might have that in 15% of the wells. That might be a useful comparison. Just an average wouldn't give me much.

McGinley In that handout we had last time, it showed the 5 different regions and the nitrate concentration distribution in each one....a percentage of the wells in the region, at least tested, what the percentage of those are that exceed the 10 ppm nitrate levels. Certainly we know none of the municipal wells would have that because they would be in violation.

Bembenek The 2 original wells that are left by Iverson, the original 2, one behind Hilltop Bar close to the golf course, that one is high in nitrates, and across from Iverson is another well, I think well #4 and that is also..... put a new treatment plant there.....but those 2 are pretty high.

Holdridge I lived in Plover and right after we moved...there were people in Plover who didn't want it because their water in the private wells, they thought, was better than the water in the municipal wells. But they mandated that.

Amman What we're handing out now (maps), there's one basic map that shows all the different sections that we're talking about. Then those sections are split out into separate maps and we have street names on these now so it's a little bit easier to see.

Prusak Ray, from a planning standpoint....subdivision areas, can the Town Board require bigger lots or some additional testing or something to use for future planning?

Schmidt I would think so.

Prusak That would be a basis to ask them to do something maybe more than what they were intending to do in the first place.

Schmidt Yes. Other than just the minimum. If you have a reason to make the lots larger or additional testing.

Prusak Putting the houses this way instead of that way.

Schmidt Right Russ, that would be a good idea.

Holdridge Ray, I think that's a good printout of the septic. You have anything else you want to add on that? It's pretty well written.

Schmidt This one on Care and Maintenance of Septic Systems, there's a lot of good information there, but I think the most important paragraph in the whole thing is on the second page. It says, "Bacterial action needs time to break down sewage. As the sludge and scum builds up..." Not only that, every septic tank has a resident population of bacteria, just like

every human does. Those friendly bacteria, just like we have in our digestive track, are antagonistic to pathogens, to the infective bacteria and viruses. The longer we can keep those in the septic tank to be digested by the friendly bacteria that are in there, the better off we'll be because they won't be entering out into the drain field and potentially into the groundwater. That's the primary reason for pumping a septic tank, to keep that sludge layer from building up on the bottom and keeping the scum layer on the top from building up so that you have all of that waste water in there that's inoculated with friendly bacteria to break down the pathogens. That's the number one reason for pumping a septic tank.

Holdridge Any questions for Ray on that? This is a good handout.

## 7) Discussion of natural substances in the water and its sustainability.

Holdridge Gwynne, didn't we talk about that in terms of uranium or whatever naturally occurs? In bedrock?

Bablitch Yes.

Holdridge That some of this is just going to be there because of the nature of the soil. You folks have any comments on that?

McGinley There are a lot of geologic contaminants: arsenic, uranium, yes, these occur because of the type of rock that the water is moving through.

Holdridge Those would be much more resistant to trying to get out of there. If it is just going to be there and they keep coming into the system....

McGinley Right. The strategy would be either moving the well someway, or some kind of treatment system.

Schmidt One of the other things, as long as you are talking about that, if you know that the bedrock is contaminated with uranium, if we have documented that, like the Town of Hull (building) here, if you know that is the case, if you have water above the bedrock that obviously wouldn't have the uranium, maybe you prohibit wells from being installed in the bedrock. You might have high nitrate up above the bedrock, but you might be able to treat that a lot easier than trying to deal with uranium.

Zimmerman What about existing wells and what about the precedent for places like the northwest where it's solid bedrock below the surface where you can't drill a well without getting into bedrock? You can't say you can't do it here if you can't do it up there.

Schmidt There are places where people run water mains, private water mains quite a distance because they don't have access to water on their properties. That used to be the case back in the early 1900's or mid-1900's when the drilling technology wasn't as good as it is now and they couldn't drill into the hard bedrock. So sometimes they'd try to find a spot where they could drill into the glacial material. There's one place out on Oak Creek Drive along the

Wisconsin River west of town where they had 4 different houses onto one well. That was back in the 1940's they did that.

Prusak            There's some existing now, out by County Road P right at the subdivision there, I think there are 3 or 4 hooked onto there. Does the Town of Hull have any shared wells that you are aware of?

Wilz              On Old Wausau Road there's one because I saw the house is up for sale and it said it was sharing the well with the other property.

Schmidt         There's nothing to prohibit that.

Holdridge       It probably would make sense.

Schmidt         There's one out in your neighborhood, Scott Rifleman and the neighbor, John Zinda.

Holdridge       The septic is separate?

Schmidt         Yes.

Bembenek       I think it's 4 fireman that bought that parcel in the late '70's.

Schmidt         There are things you can do. You don't have to say, well, we have bedrock and there's nothing we can do.

Bembenek       Sometime you have to get into bedrock to get your gpm's, gallons per minute.

Schmidt         For the storage, maybe you do.

Prusak           Paul, did you get a chance to test the Town of Hull (building) here?

Holdridge       He tested it.

McGinley       We tested it and the good news is we found very little barium, chromium, nickel or arsenic, but we did find uranium in the well. I want to caution, but it was about double the standard, but I would view this very much as a screening test. This is a new piece of equipment (being used to do the test) and the Town split another sample with us and we sent it down to the State Labs, apparently it takes much longer because we don't have the results back yet. We had ours done 3 days after our meeting, so then we split a sample and sent it down there. We got very similar results on the second one. In a way, that's not surprising. It's higher than the other values for uranium we show in the area but this is a fairly deep well too, it's more than 300 feet deep in the granite and you really don't have much space above it, only about 20 feet and then it's 300 feet down. So it does suggest.....of course we kind of knew that going in that some of the deep wells that go into bedrock are possibly susceptible to uranium. But we need to get this confirmed, obviously, it's very preliminary.



Bembenek It's got to be a good flow out of this one with a lot of water out of it.

McGinley That's true.

Bembenek I'm on the west side, 300 feet down and get 3 gpm, very bad. This is good for the depth.

Holdridge What would be the gallons per minute that you ought to have?

Bembenek About 10 gpm.

Prusak Six gpm is required, isn't it Ray?

Schmidt There's no requirement.

Prusak I think there is for residential lending, I think it's 6 gallons per minute.

Schmidt They might have some standards.

Prusak If not, then you put disclaimers after it, for FHA lending.

Bembenek We have a well in our cabin up north I put in a couple of years ago, 100' down, 6" casing, 10 gallons per minute for sure and it's just tastes fantastic and it's ice cold in July when it's 100 degrees (outside) and ice cold in the winter.

Schmidt Sounds like a bottling plant advertisement.

Bembenek It's fantastic. In that area there's 3 or 4 other ones that, it's out of ---- on the end. I can't believe it, it's just fantastic water.

Holdridge How deep did you go?

Bembenek 100 feet, there's woods around it.

Zimmerman To get back to your testing, what happens if you are above the standard? What goes.....let's say they confirm your original test and it's double the standard, what do you look at? Moving the well?

Prusak Mining from it.

Zimmerman Or do you put a horizontal well 20 feet down?

DeVita Hook up to the city.

McGinley Normally, something like uranium is only something tested for in a public water system and a community system. It's only a health risk based on daily consumption over a long period of time, that's what the standard is based on. So it's not like drinking bacterial contaminated water. If it was an individual, they might look at treatment if it's higher than the recommended level. It not quite as easily solved as softening the water.

DeVita Has the Town ever posted a notice on its door that the Town water is 10 mils over?

Holdridge We have one for conceal and carry.

Zimmerman Can we use that for other purposes other than drinking.

McGinley Certainly. There's a drinking water standard for uranium and it was based on long-term consumption of water.

Amman The people that come in here would only be using it briefly. It's the people that work here...now I get my drinking water from out there (at the bottled water cooler). I don't drink it from this water fountain.

Bembenek We ship our (Town Hall drinking) water in, it's in a container.

Holdridge If this is bad stuff, what would we do? Hardly anybody drinks out of that (water fountain) there. Seems like you would have to drink this relatively consistently.

McGinley True, I think you could just have bottled water to use.

Holdridge I don't think we'd dig another well.

*Multiple talking.*

Prusak How high was the iron content?

McGinley We didn't do iron. But I could guess based on what you see outside (the orange sidewalk and front of building).

Prusak You can cut it off in chunks!

Holdridge Any other comments about #7? What would be other..... uranium, arsenic?

McGinley We tested and we didn't find much arsenic in there, we didn't find much chromium or barium.

Holdridge Those would be all natural?

McGinley Those would be all naturally occurring.

Zimmerman Did you find any sulfur?

McGinley We didn't run sulfur. There's probably some in there.

Zimmerman I was thinking of a grant where they have so much sulfur in one of Rapids.....

McGinley There's probably going to be some sulfate in there because you have iron in there...the type of smell that smells like a rotten egg, probably a little bit in there.

**8) Continuing discussion of analysis by Hull regions/districts of water quantity and quality.**

Holdridge Paul you want to do this one?

McGinley I think Ray was going to do this.

Schmidt Since our last meeting, Paul and I have been talking with a graduate student at the University and she's been looking at some of the wells in the different districts. I think preliminary to trying to figure out what we should be recommending for testing within these areas, because each of the areas are different, there are areas with high concentrations of septic systems and nitrates. Obviously in those areas, we're going to want to have the folks test for contaminants from septic systems. Over in the Eastwood subdivision and the area where Tim is, what's the name of that subdivision? Jurgella subdivision, that area and also down in Conifer Acres, that area, we've got the combination of septic system contaminants and also contaminants from farm fields east of there. So far we haven't....we're proposing the grant to differentiate that so we can advise people what kinds of health based contaminants we should test for. Over in the northwest district over by St. Casimir, that area....

Holdridge I-39 west.

Schmidt I-39 west, Gwynne's neighborhood, most of the wells over there are bedrock wells and you want folks to know if they're drinking radioactive water. Chances are good that there are some other contaminants up there that are travelling in the fractured bedrock. Whereas you get a fairly uniform rate of flow in the sands, those fractures in the bedrock, you can have contaminants travel half a mile in a day, or more. Especially when there is some reason why those fractures are disturbed. Like when someone is hydro fracturing a well to open the fractures, that's what hydro fracturing does, it opens the minute fracture in the bedrock and injects sand into those so that they stay open. So now, yes you're providing more flow into the well, but you're also providing the pathways for contaminants to move to the individual wells.

Bembenek That hydro fracturing kind of took the place in years back of a stick of dynamite right?

Schmidt Yes. It sure did.

Bembenek There weren't any screens on them down below so they'd stick, drop that...they did that for replacing my well.

Schmidt Because you dynamited it?

Bembenek Yes. We didn't have any more water, it was down 80 feet. So we stuck some dynamite down there and we did loosen it up. We got more gallons per minute. It does work.

Prusak It works sometimes.

Bembenek We had a guy that knew what he was doing. He was an older gentleman that had done that from years back.

Schmidt Someone mentioned earlier unintended consequences; if you do open up those fractures, sometimes you get things you don't want.

Bembenek Oh, okay. I suppose. But years back, that was the only way.

Schmidt If you needed water for your cattle or whatever, you need the water.

Holdridge I like the way you've got this with the big map (overview) and the smaller ones (by district). Now if you were going to take just the northwest Hull, I-39 area. Say you were going to analyze this area, what would be the sort of questions you would ask? What data would you need? I'm talking about what we have now.

Schmidt Okay, based on the existing data? I don't think you have enough data, currently. We know where the wells are but we don't have recent testing on most of them.

Holdridge To me, that's a future question. When we started this, we said we are going to take the existing data and try to come up with some summaries by district and hopefully, maybe the background view of the Town of Hull. The tests that have been given in this area and the soils and bedrock, what could you say? This is kind of rhetorical.

Schmidt That's fine.

Holdridge What would you say about this area? Maybe...I'm thinking on the final report on this. Take these by districts and look at the data and make some judgments and you're probably going to look at nitrate, bacteria, some of the things that Bill's got in his home package and maybe then you also discover, if you've tested for it, maybe there's some metals in it. I'm just trying to get to the point where we start thinking about these districts and start pulling this stuff together. We've got 2 more meetings and I'd like to be able to say by the last meeting, here's the report and have this group look through and say, yes, this is a good preliminary report and it's based on what we know, not what we think, at this point. You know what I'm saying?

McGinley Let me sneak a comment in if I could. I think this is an interesting question on this district because when I look at the historical nitrate data, 75% of the samples had less than 4 milligrams per liter so generally we don't have a nitrate issue there, but as soon as you dig into the details a little, there is a little pocket of high nitrate in the corner of that district.

Bembenek Over where it says Weatherfield?

McGinley Right. So in general, we don't have much of a nitrate problem but if you're in an area that looks a little bit like septic, I don't know what's there....

Holdridge Then you might be able to say about this area, unlike the other 3 areas, this has low nitrate except for selected areas. But the other areas, maybe would have more nitrate.

Schmidt Yes.

McGinley I would agree. Also, the historical data suggests this area has a lower pH, going back to your point that this water might be a little more corrosive. Not extraordinarily corrosive.

Schmidt I remember back in the early 80's when we found one of the highest lead levels in the County in groundwater was out along Casimir Road.

Holdridge If you take another district, the central district, how would you characterize that in terms of nitrates, bacteria, etc. the sort of categories you want to look at?

Schmidt The central district is more of a transition district. The density is a little higher than the northwest district. You have smaller lots.

Holdridge More subdivisions.

Schmidt More subdivisions. You're starting to get wells closer together in those subdivisions and I'm thinking in the Frosty Pine area you have a lot of bedrock wells there.

Holdridge You have North Reserve?

Schmidt Yes. It's not as density populated as the subdivisions in the northeast or southeast districts but you're starting to see more people in that area. That's probably the second best area of the districts that we've identified because if they're pretty well spread out, I don't think there's contamination of neighboring wells from neighbor's septic systems but depending upon the flow direction it could be. But there are spots in that area where I think you do have septic system and maybe lawn fertilizer contamination because there are some subdivisions there that their lawns are pretty darn green.

Bembenek The yellow and blue dots, those are considered drilled wells?

Schmidt The yellow are wells where we don't know the depth on them. The yellow (crosses), those are the bedrock wells. Those little yellow crosses.

Bembenek You have some blue dots and some yellow ones.

Schmidt The blue dots and the yellow dots, those are both wells, but the blue ones we know the depth of the well and the depth of the water.

Bembenek You know if these are drilled wells?

Schmidt Most of them are.

Bembenek So with the blue ones, you have more information on them.

Schmidt Right.

Bembenek With the yellow, you really don't have anything on them.

Holdridge In the northeast, we have a lot of development there. We would expect that area to have some real nitrates.

Schmidt And that's what we see in those subdivisions. The thing that we don't know about is these maps aren't showing what kind of testing was done except for the nitrate. The high nitrate indicates there was at least one test on that well and it was high nitrate. But it's not showing you where the wells might be at 9 ppm or may have come up at 8 ppm when they per tested a few years ago. They might be over 10 ppm now if the people aren't testing. There's kind of a cumulative impact, additive impact of a septic system.

Bembenek These are 10 or more right?

Schmidt The red dots, yes. But what I'm saying is that there might be neighboring wells that may have been tested around the same time that were around 8 or 9 ppm and those aren't reflected.

Holdridge Where would be the water flow on the northeast section?

Schmidt It's primarily from the northwest to the southeast towards the Plover River. The groundwater contour in on there (the map).

Bembenek In Emerald Forest you have quite a few blue ones on there because that's a fairly new subdivision.

Schmidt We don't have an awful lot of sampling done in that subdivision even though it was put in the early 90's. That was an area where we probably had bacteria and virus contamination back in 1993 when we had all the water, the flood.

Prusak There's been a lot of transactions up there too and nobody has done testing subsequent to all that going on up there.

Schmidt        The banks only care about minimal testing. In fact, just bacteria and sometimes nitrate.

Prusak         A lot of people in there don't even remember back in the 70's when we had the problem in there that.... Remember ages ago....

Bembenek      Every basement in there had water with the flooding in 1993.

Schmidt        A lot of them did.

DeVita         This area, Emerald Forest, if you go northwest from there, that's all woodlots up in there. There's a couple of farm fields north off Willow Springs, north maybe a mile up. There's was probably pretty decent water quality ..... unless septic systems are starting to contaminate each others' wells like they have there to the east of the Emerald Forest subdivision. That's probably all septic in there.

Ray Schmidt   I think it is.

David Schmidt    Those are smaller lots there though aren't they?

Ray Schmidt    Yes, those are probably half acre to an acre. The Stroik subdivision. That's full.

Bembenek      That's an old subdivision and the one just up, that's Stroik too with Henry Court.

Prusak         Kitty corner from that.

Bembenek      Yes.

DeVita         I think it's a good illustration, these folks here east of the Stroik subdivision. I think it demonstrates pretty well the recharge area for an individual type of well like that is only maybe 30 to 40 feet deep is not that far out. It doesn't extend maybe a quarter of a mile out into the sands.

R. Schmidt     I think you are probably right.

DeVita         It's very local, the recharge area is very local there.

Bembenek      You go north of that and you get into homes from that subdivision and houses along there on the west side.

Schmidt        There's a few up there.

Prusak         You have to jump across Pioneer first through. There aren't very many north of Stroik's along Torun. There's one farm until you get to Pioneer then there's that clump north of Pioneer.

Schmidt If you look on the big map, you can see where those are up there up to the north end of the Town. Then you jump into Dewey up there.

Holdridge Then you've got the southeast district.

Schmidt That has a combination of problems. The farm contamination from Stockton and the septic contamination in Hull in those subdivisions and also the sandy soils over the bedrock because you're limiting the amount of groundwater available for dilution I think is something that's happening. I was talking to a guy today who is right next to Brilowski in the southwest corner of Eastwood on Regent and Brilowski in that area. He has a bedrock well but he's got high nitrates in his well. A lot of the bedrock wells don't have high nitrates but his does.

Bembenek You've got a few red (dots) in your area, nitrates.

Zimmerman Oh, yes. When they put the highway in, they took out all those potato fields there from Trader's farm.

Prusak When they did the 100 acres of wetland mitigation/preservation and took 100 acres of farmland out of production....

Holdridge What's that road that goes north towards Stockton, as you make that bend on Brilowski Road? Rainbow?

Prusak Rainbow and I.

Bembenek In the 1980's, Easter Sunday in your subdivision, it was all flooded, basements were flooded.

Zimmerman You pumped it on one side and it would go in a circle and come back.

Bembenek It didn't have any nitrates until after that weekend because stuff from Brilowski farms and all that was floating around in your subdivision for about a week.

Prusak You still have that dry ditch down there on the east end. Isn't that still there?

Bembenek Yes, that's still there.

Prusak That ties into the lateral that goes out to the Plover River. That was a solution at that time.

Bembenek That was in at that time. The ditch was there but it wasn't opened into the other ditch going to the Plover, we had Stuczynski's there on a Sunday afternoon with his backhoe digging to open it up to go into the main ditch.



Holdridge How would you characterize this Hofmeister where I live? It's isolated, you have to go across the interstate, there's only one way in. Then the Plover River goes by.

Schmidt I think that area is probably pretty good as far as water quality goes. As the area to the northwest of there was annexed to the City and sewerred, I think you have a lot less contamination going into the groundwater. Eventually, you're subdivision will feel that because the flow is from the area over by Scaffidi's over towards your subdivision but it takes a number of years before you see that impact.

Holdridge The white area here (by Hofmeister) is actually in the City. Hofmeister Drive is in the City, below it. Right across the street are 3 houses all in the City. They pay City taxes but don't have any services except garbage pickup.

Prusak It's just like Somerset over here.

Schmidt Yes, it turns off of Janick. There are a number of areas in the City where they have wells and septic systems and a couple with City wells and septic systems.

Holdridge That's like Park Ridge too isn't it? They have City water...no, that has City septic.

Bembenek They have their own wells.

Holdridge It's really a hybrid.

Schmidt That's probably the ideal system. That's what the Village of Plover had for 15 years before they put their municipal water supply in. But they had very good water quality.

Holdridge That's why people resisted the municipal water, plus the cost. Anything else you want to add about this? In these 4 areas?

Gjevre Is there a point where the density of the septic systems is so great that it actually becomes a health risk? I think you mentioned it takes... was it an acre of ground basically to take care of the reclamation for 2 people?

Schmidt Yes. The average nitrogen put out by 2 people eating a normal amount of protein into their septic tank and ultimately into the groundwater would be just about at the nitrate standard of 10 ppm. If you have 4 people in that same house, you'd need 2 acres. Two acre lots are pretty much standard now. But if you have 6 people, you're overwhelming the dilution ability of the groundwater below that. That assumes that you are having uniform dilution and we know that that doesn't happen. The contaminates tend to travel in plumes down gradient.

Gjevre So is it a safe statement to make that the population already in existence and with the density, it already exceeds or nearly exceeds the nitrate standard?

Schmidt        It think we are seeing that in a lot of these subdivisions. Conifer Acres, for instance. Over on the west side of I-39 in Kirschling there's quite a few wells with high nitrates. We don't know which wells were sampled and which ones weren't based on this. We know which ones were sampled and above the 10 ppm. Those are documented but we have to look at the stats and see, for instance, how many are above 5 ppm, or how many are above 2 ppm.

Gjevre         My lot is just under an acre. My neighbor is over 10 ppm and when I had mine tested at the same time, it was 4 ppm.

Schmidt        A lot of that is dependent upon well depth. It depends which strata you're sampling from. If his well was shallower and he's susceptible to lawn fertilizers or garden fertilizers, that might be an issue. If yours is shallower and you don't have a high fertilizer content feeding your well and he might because he's getting his from the ag fields east of I-39, it might be. It's very complex.

Prusak         I think it's interesting along Maple Bluff there, see where you see the depth of well there you would think where they're drawing the water from, whether it's a shallow well on top of the scarp there or pulling water deep from the Plover River bottoms there on it, you notice there are quite a few high nitrates along there. Most of those are bigger houses but they probably have deeper wells, that the water would be pulling it out of water in the deeper basin there and yet it looks like it has as much nitrate as shallow wells to the east of there.

Schmidt        If you look at some of those lots there, you might find 2 or 3 wells and chances are good that the one with the high nitrate is a shallow well and then they replaced that with a deeper well that's more isolated vertically from that very contaminated surface flow. Most of the contaminates will stay in the top 10 feet or so of the water table as they move laterally. That's the primary reason why the well code requires that a well be at least 25' deep plus the screen. Or, at least 10 feet below the static water level whichever is deeper because we don't want people sucking that water right off the top of the water table. It's very highly contaminated no matter where you are, that's where it accumulates.

Prusak         Especially like sitting on the bluff there over the Plover River with a 100' well, you would think some of the nitrates would not be a problem and you would be pulling good water out of that sand at the bottom of the Plover.

Schmidt        You know Russ, I wish I could generalize like you do, but I can't. Every well is different and every situation is different. You might be getting some of the water from way over east in the Eastwood and Jurgella subdivision coming all the way over there and by the time it gets that far, it might be pushed way down by all the precip falling on top of it in those areas that are relatively natural.

Holdridge      Just take Maple Bluff there, you've got a lot of red dots, that means those properties had tests and that's the test data that the University has got?

Schmidt        The University does or the County lab. That's in the County GIS.

Holdridge Probably in your records you have the date of testing?

Schmidt Sure we do. We have all of that. The stuff on these maps is from the University lab, from the Gilfrey Health Dept. lab that was open for almost 20 years, State lab of hygiene. Some of the tests on here are from DNR or from DatCap so we've got a wide variety of tests of different parameters.

Holdridge What's the maximum time they go back to? Any idea?

Schmidt I think the oldest sample in here is from 1974.

Holdridge I'm a little surprised at the number of people who got their well tested.

Schmidt Back in the mid-1980's the County had a sampling program where they were actively promoting sampling. When Jo Seizer first started as Water Quality Specialist the County was putting some funding into having people's wells tested. We had just fabulous sampling participation.

Bembenek That's when I took those around here in the 1980's. I remember Jo Seizer.

Schmidt In subsequent years, in the mid-80's to the mid-90's we had an awful lot of sampling done by the County and also by the DNR. The DNR were very active in sampling any wells that were above a certain nitrate level. They would come in and test for a couple of other things like atrazine in the early 90's because we know there is a connection between atrazine and nitrate back in those days. So yes, there have been a lot of sampling but not a lot of recent sampling. So does this reflect the state of the groundwater in Hull right now? Possibly. I think that is a challenge for your groundwater Task Force to find out. As you take slices off, you slice off the old data, you also get fewer samples of which to base your analysis on. Pretty soon you're making decisions base on almost no real data and I don't think you want to do that either.

Perkins How much of that data includes more than just the University's homeowner's package? Where you got more information than that?

Schmidt Very little. In fact that homeowner's package was so successfully marketed that it is kind of a defacto standard. Much of the data is only a nitrate or only a bacteria and nitrate. That would, I would say at least have the data ..... just nitrate (testing) or bacteria and nitrate (testing). On some of them we do have the University homeowner package plus maybe a triazine or atrazine but that's just a fraction of the samples.

DeVita A lot of the samples on here were performed because of real estate transactions, I would guess, for many of them?

Schmidt Possibly.

DeVita Checking for bacteria is kind of the standard.

Holdridge Those 2 characteristics were measured across all these districts.

Schmidt I can't generalize like that John. It's all different.

Holdridge I'm saying one district would have a certain characteristic. If you just took those 2, nitrates and bacteria. In the northwest section, you could say in the data that we have now, here's how we would generalize it about that and then go to another district and take those 2 characteristics....

Schmidt You could. I don't like to hang my hat on bacteria at all because of the number of false positives where people accidentally put their thumb in the sample bottle or however they contaminate it, it's contaminated.

Bembenek That happens a lot.

Holdridge You mean the bottle you actually test with?

Schmidt Yes. Then the second sample they do a good job with cleaning the tap and collecting it and it comes back safe. So right there you have one unsafe and one safe, you have a 50% which is pretty bad.

Holdridge In the model, how would you handle generalizing those 4 districts and then make some general statements about the quality and quantity of water in the Town of Hull?

Schmidt We could do that for you.

Holdridge What would you use for the method of comparison?

Schmidt Quantity, what I would want to do is go back to the actual well construction reports where the drillers did pump tests so they know the gallons per minute and actually map that and see what they are showing for numbers. We could do that for all of them.

Holdridge The City might have some good data on that, right?

Schmidt They would have some general numbers, yes. But if you want to know some detail, you want to know well-specific numbers. Every one of those wells in Town is different. A lot of them are similar, especially in the subdivisions up off Hwy. 66 and Torun because the same builders were slapping those homes in and putting their own wells in. They were going with the absolute minimums to make money.

Holdridge Paul, did you say you had some graduate student.... *(end of tape)*

McGinley We could approach it that way. How long or how big of a report, I'm just thinking of making it....a lot of what we've got is a pretty good report right from this with this information.

Holdridge If we're going to try to sit down with somebody and try to talk with them about what is the quality and quantity of the water in Hull, we've got to have something to distribute that makes sense on the data. Maybe everything gets kind of qualified. Ray said every well is different. It seems that you need to have some kind of analysis here.

McGinley What I was getting at was just an easy way to transferring all this information we've been collecting into a report. If there's an easy way to do that, try to bring a student in and expect her to assemble that. I guess that's the question.

Holdridge You'd probably have to read the minutes. That's worth some money just to sit down and read the minutes and then take the data here, what you've got and make some judgments with it. I don't want to get to the 6<sup>th</sup> meeting and we go to the Town Board and we say, "Well, here's what we've got", and somebody looks at it and says, "What do we have?"

Perkins What we have here is not the real data. What we've got is maps showing the different locations.

Holdridge Somebody's got to take that and massage it and ...

Schmidt The maps are a subset of the data you've got.

Holdridge But again, we don't have anything now. I couldn't tell anybody who would ask me, "What is the water quality and quantity in the Town of Hull." I couldn't and Melvin probably couldn't either, none of us could. We're striving after going through this is to come up with some analysis and hedge here and hedge there and some is inadequate data but it's what we've got.

Perkins If the information is already in the County database, perhaps what we need is someone from the statistical department to go through it and come up with the results you are asking for.

Holdridge I would leave it up to the experts to figure that out.

Schmidt That would be another way to look at it.

Bembenek Hiring that student, would that come out of the Town of Hull grant funds?

McGinley That's kind of down the road. By the time that would get started it wouldn't be until next summer. My point John was sort of a narrative talking about these maps, the districts, the information we've summarized so far. That's what we're looking for, a compilation.

Holdridge If somebody looks at this, we're going to have all kinds of holes in it.

McGinley But it's what we've got and maybe it does send you in the direction of additional statistical analysis. I'm just wrestling in my own mind if it would be easy enough to bring a

student in at this point in the process and have her do all that or if we can't just get Ray to write the report for us.

Schmidt I remember you saying that a couple of months ago already.

Holdridge Divide it up, each one of us write a chapter or something. That doesn't work real well.

Schmidt I think the report you are talking about and this way of looking at things, will be a template for other towns. I like the approach and I think other towns are going to emulate this. So whatever kind of report you come out with, they're going to want to do it too. So we can't just look at a grad student spending a few weeks and writing this.

Bembenek So you're talking about the report you're going to do.

Holdridge I'm all for hiring a student and give her whatever to do it and see that it's done and let somebody get into this.

Schmidt There are some folks out there working part-time or are AmeriCorp type people who are well educated and haven't found their career niche yet.

Holdridge Can write well and analyze.

Bembenek Would you or Paul be the overseer?

Schmidt I would prefer that role.

Holdridge You can't take this up and start writing, you've got a full load right now.

McGinley I'd be happy to help with it too. I think we're looking at something to be ready by the next meeting?

Holdridge I think by the 6<sup>th</sup> meeting, but we should be on the road by the 5<sup>th</sup> meeting.

McGinley That's when we'd start reacting to it, start reacting early enough. That is a bit of a challenge at this time in the semester.

Schmidt It is for a student, absolutely.

McGinley But you're right. If there are other resource people out there with some background skills....

Holdridge You need to sit down and look through all the data. You have to think about and have some analytical outlining and start some narrative plugging in statistics or whatever. Maybe you're looking at a 10 page report, maybe you're looking at 2 pages per section.

Schmidt Robert, do you have contacts in the statistics department that you mentioned?

Perkins Not currently. My contacts were ....

Schmidt I just wondered if you could point us in a certain direction.

Perkins No, unfortunately my contacts were in -----(unclear) statistical department. I would think the University would have....

Holdridge Maybe there's somebody out there who has been trained in the science of it and doesn't work full time and would like something like this.

Schmidt There are people like that.

Holdridge With all the things going on economically....

Perkins Do you know any people in the statistics department Paul?

McGinley I know some people there. Those that teach it.

DeVita Someone in the natural resources data who....it used to be Bob Rogers who was our CNR stats guy, I don't know who replaced him.

McGinley He is coming back to teach a class next semester in statistics.

Schmidt Really?

McGinley The grad student that's expressed interest in doing some of the testing will actually be taking that class so there might be an interesting project.

Prusak You need someone who has more knowledge than just in math, you also need statistical....

Holdridge I think we need to write this for the public. We don't need to write it for a professor at the university. We're talking about disseminating to the public.

Schmidt Yes, don't write it at Paul's level, write it at my level!

Bembenek You could work together.

Perkins I was thinking there should also be people that work as statisticians. Someone who it's their full-time job running statistical analysis.

Schmidt They could crunch the numbers.

Perkins Yes. Guide them in the direction that you want.

Schmidt I'm wondering if the GIS department that has this mapping software, they use a lot of stats. They teach those guys how to do that. Everything I learned, I learned the hard way and I don't know how to use the stats packages but they are there and I'm wondering if that might not be a student direction to go.

DeVita Robert, what kind of statistical questions do you want to ask with this data? What kind of statistics do you want to apply here to evaluate the data we have? I guess I'm not real clear on that.

Perkins Basically, I think we've got to take the data and we kind of did a little bit of that with the stuff from the public wells in that you've got this bunch of data for each individual chemical you want to look at. The first thing you should (some noise right by the recorder drowned out part of the sentence)...either there is or isn't a difference between the groups. Now I don't know, I guess we've decided we don't want to get into why there are differences between the groups at this point but just that there is. Include that for each individual chemical and then you try to summarize the results of what you found for each of the 4 areas we have.

Holdridge It's sort of the narrative but then you've got....it seems you could take these and speculate on why you have high nitrates in one area like that. We could certainly do that.

Schmidt That would lead towards the grant-funded project that we think we need because we have more questions than answers. We've got some data but...

Gjevre As a committee I think that summarizes it. We've got more questions than answers. I think you mentioned that the data you have accumulated was done over 30-40 years?

Schmidt Put it at 30.

Gjevre So if you're going to do a statistical data, you'd almost have to do it on a basis on what information you've accumulated in 5 year increments or whatever you decide on and it probably isn't enough information to make a general statement in the 5 year period other than probably noticing whether or not things have increased from the earliest to the most recent or stayed the same or whatever.

Holdridge Historic trend or something.

Gjevre It would be nice to know what the data is. Do we have a preponderance of the...if most of Hull of the 2,000 wells if they were all constructed between 1970 and 1980 or is a majority of our data from 1980 through present or what? At least we could start developing a trend line and I think really what you're going to be looking for is a trend line rather than an accumulation of a bunch of numbers.

Perkins What we're saying is that we really can't get away from looking at the different factors that go into why the data varies. That's why I talked before about doing a multi-factor analysis of variance on the data. Basically that's where you separate out the time-line, the affect



of time, the type or depth of the well, separate that out. There's one from the direction of flow of the water, separate that out. Then one for location, the factors that we know about. They do that in one calculation. If you only want to look at one of them, fine. But separate out the factors...

Holdridge We want to get to some tentative conclusion here.

Perkins But we keep asking, what's the condition of the water here and it varies over time so you're looking at 2 different factors already. If it's affected by the level of the sample or the level of the groundwater or the flow of the groundwater, you're actually....those factors are going to come into play.

Holdridge How do you manage all that within the context of 4 districts?

Perkins You've got all the information in the GIS already, right?

Schmidt It's there.

Perkins So like I said, there's statistical programs that are already written that a statistician could run them through and it spits out the numbers.

Schmidt Then you have to evaluate the numbers and see if they are reasonable. Phil, you mentioned trends. Looking at trends over time; that's something we did with the data in a continuous assessment subcommittee on the groundwater committee the County has. We looked at wells that had multiple samples over time. In fact we looked at some of the public wells for taverns and restaurants, mobile home parks, that we could actually see these trends in. Paul showed the trend lines either going up or going down and we've got some private wells in the Town that have pretty consistent sampling over time. I think if we looked at those individual wells and located where those are, even though it's an individual well and at an individual depth, we might be able to say in a reasonable radius around that well what the water quality would be like over time because we had that test that it's either going up or going down.

McGinley If you know the specific location of that well, you could figure out what is up and where the groundwater is coming from.

Schmidt Yes. For instance, if we know the depth of some of the wells, we've got 2 or 3 more wells that are at the same depth into the aquifer relatively close by, we can also assume that if they were tested on a similar date as one on that trend line that we have the sample documented, we can assume they have a similar trend line if the levels are pretty close to the same.

Holdridge So you could take one of those wells you have a lot of data on and incorporate some of the suggestions that Robert is making.

Schmidt I think so. Not just very statistically valid, that's a concern of mine because I don't know that we could do that, that we have enough good data to do that, but I think we could come close to that, get something reasonable out of those samples and the ones nearby.

Obviously if a well is at a much different depth than the one that's been sampled multiple times over the years, it's anybody's guess what that one is going to be like. It doesn't make sense to try to tie them together. If we can get a certain number of wells of approximately the same depth and within a foot or two, it would certainly be good enough, maybe within 5 feet, we could look at that.

Holdridge      You could pull out certain aspects and highlight those.

Prusak          Would it be valid to use some of the Town's, if we have money for this, if we have a gap in the data like that, to offer to pay for the test to supply data that you don't have right now? If the property owner would be cooperative in doing so?

Schmidt        That would be going forward.

Prusak          You have a baseline now, if you could compare with what is next door to them, if you are anticipating something there but you don't know for sure, would it be okay to approach that property owner and say, "We'll pay for the test if you let us do the testing because we have a gap (in the data) in what we think is happening but we don't know for sure. Let's see where you are compared to your neighbor." Is that something that would be valid use of some taxpayer money?

DeVita         A recommendation we could make to the Town, eventually?

Holdridge      I still go back to what we said in the beginning which is that we're going to look at the data that's currently there and then we were going to make some judgments about that and look at 4 areas and compare and contrast them. Now if you want to run...pick out certain wells that you've got a lot of data on and want to do some individual stuff. Beyond that, that's where I think another approach...in my judgment...we don't want this thing to continue as it is, if we get through this and say, "Here's some things the Town Board may still look at." I suspect one thing is that we've got to have some kind of active testing program. We want to look at metals and there were a couple of things mentioned tonight. I would like to start to wind this down, complete the mission as we've defined it and it'll be imperfect but we knew that as we were going into this. Again, we've got to go back to the baseline, we don't know anything now. Public officials cannot tell you the quantity and quality of water in the Town of Hull. Now Ray and Paul maybe can and Bill, people in that area. But I've got to tell you, John Q. Public doesn't know. Every time we get a drought, somebody comes in and says their water is drying up. This is just peaks and valley stuff. We could use that to say, "Now wait a second, we've had that same experience and here's what happens". I think we've got to start pulling this stuff together and come out with some sort of report for the Town Board and look at what we want to go forward with.

Perkins        The primary benefit of the multi-factor analysis variances is you don't have to have all this extensive data on one set or several sets of numbers. You can have it more spotty and that is what that allows you to do. To take spotty data of different factors and be able to analyze it and still get valid results as to what is or is not there. It allows you to fill in the gaps, basically.

McGinley I do think, should the City come through with this information, that will be a pretty nice set of data because then you'll get your trends over time.....that would be nitrate sampling, regular minerals over 15-20 years and then would have your water level information for the Town. But together something that captures some of those elements, points in a direction and maybe a good set too for statistical analysis.

Bembenek You can get your information from when it started years ago until this last summer.

Holdridge An every year trend line.

Schmidt That would be a great set of data to have.

Bembenek You can go 20 year back on it where they checked a sample every July or August.

Holdridge Why don't we think about this. What we want to look at. How we want to structure any kind of report . Understand we have all kinds of limitations. Then next time maybe we can come up with some kind of outline of what we want to do and get after it.

Prusak You're going to try to contact Kim between now and the next meeting?

Holdridge Yes. I thought I'd let that Monday night thing rest for awhile. So we can kick this back and forth, right? Particularly the 4 of us. If any member has a suggestion, get back to us, give us a call and give us your thoughts on this.

**9) Set next meeting date.** *The next meeting will be December 8, 2011 at 6:30 p.m.*

Holdridge That is the second Thursday in December. So we'll try to start thinking about how we're going to analyze this. Get something on paper.

Schmidt I'm wondering John if you want to limit interaction on this stuff to the actual meetings where we have the whole group together. I was thinking if I could put together the septic system information on where those failing systems are and put it on a map and mail it out to the group to look at in the next couple of weeks. I'm energized about your project because I think it will go County wide. I think it will go from town to town to town. Whatever I do here, that will be a template for what I do in any other town.

Holdridge That's going to scare the heck out of the Town Board. You know that right?

Schmidt Well, information can be scary stuff.

Holdridge The work and the effort....when we developed our weight limit ordinance, the other towns were really concerned and truckers were really concerned because they thought it would go from Hull to Dewey to Stockton and that's what's happened, except those other towns pulled bits and pieces out of it which had all kinds of gaps in it, in terms of controlling trucks on

roads. But that's fine. These people ought to be doing this stuff. These towns ought to be looking at their water. It's in the news every day.

Schmidt That's up to them. But I think it's going to move.

Holdridge But it will motivate them and citizens.

DeVita Would it be of value, to have the old town dumps put on a map?

Schmidt Sure.

DeVita We had talked about that I think with Pat (Planton).

Bembenek Oh yes, that would be good.

Schmidt It's on GIS right now.

Holdridge That would be good for the Town Board to have.

Bembenek If there's a dump, that might have nitrates.

Holdridge Right on the corner there isn't it.

Bembenek That house doesn't have a basement.

Zimmerman No, it doesn't.

Holdridge So Ray you are saying that....repeat what you said.

Schmidt I'm just wondering if you think that information should only be shared at these meetings or is it okay if I send Patty 16 maps with where I think the failing septic system are and have her send them out?

Holdridge I think we should have open communication because my experience is that if you don't, if you try to hold it in, it gets out anyway. This is a public body, a public meeting.

Bembenek You're saying, to get them out to all of us prior to the next meeting so that we can look at it. Yes, that's a good idea. It's better that way because you know what you're doing as soon as you sit down at a meeting.

Schmidt Don't expect anything though because I tend to think I can do more than I can.

Holdridge That's the problem of us writing this thing. We'll get it in 6 months.

Zimmerman Just one other question I have, basically statistical, we've divided the area up into 4 parts, do you know how many households are in each part and how many wells are in each

part? Then you have the tested wells in each part and then you're basically looking at quality and quantity of water, probably nitrates and chloroform. If anything stands out, with your dragnet approach to going in there, statistically speaking, that's going to ..... say the northeast, you have 100 wells that are tested up in the further northwest section I should say and down in mine in the southeast, you've got much heavier subdivision so maybe 1,000 wells down there and the same number of wells you .... The statistical evidence is going to skew quite a bit just because of the number of wells and the number of houses that you've tested.

DeVita           The population density and water quality.

Zimmerman    Yes. If you take it a step further and did the last 5 years, that's going to really skew it by date and number of wells tested. I'm no statistician, I can hardly say the word but....

McGinley       I think those are good questions. If I could just speak to those with the preliminary statistical analysis I handed out last time, you're right, in the northwest the nitrate analysis, we had 67 results, in the east we had 661 so 10 times more test results for nitrates in the eastern portion than in the northwest.

Prusak           But out of the samples, you almost....you'd have one that almost detected nitrates barely....

McGinley       I guess 67 is still quite a few. We're trying to get a median.

Zimmerman    That was the number of wells and how you statistically account for differences.

McGinley       I don't know how that compares with the number of wells in those areas. There probably are more wells in the east than the northwest.

Holdridge       There certainly are a lot of gaps. Anything else?

**10) Adjournment.** *Meeting adjourned at 8:40 p.m. with a motion made by Phil Gjevre and seconded by Robert Perkins. Motion passed.*

Respectfully submitted,

Patty Amman  
Task Force Secretary  
Town of Hull, Portage County