MINUTES –

Hull WATER STUDY Task Force

Thursday, August 11, 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, August 11, 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, David Schmidt, Russ Prusak, Robert Perkins, Mike Olson, 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

Absent/Excused: Bill DeVita, Terry Smith, Harry Obremski, Gladys Laug

2) Approval of minutes from July 14, 2011 Water Study Task Force meeting. *Motion made by Russ Prusak to approve the minutes of the July 14, 2011 meeting. Seconded by Phil Gjevre. Motion passed.*

Holdridge In reading through these, I wonder that Hull and the City water sources are tied together in a way. I was wondering, what is a reverse flow?

Ray Schmidt We were talking about when they start pumping the municipal Well #11 and send the water down towards the City, it will actual reverse the flow in that water main.

Bembenek The main from #11 is bigger than what we've got here on Hwy. 66 so that could change it.

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 from Task Force members.

Holdridge I missed the last meeting and I am happy to be at this one. *(John shared some updates on his personal health information.)*

The next meeting date is September 8th and I've been told that's the night the Packers play. So I was thinking about moving the meeting to start earlier at 6:00 p.m. (instead of 6:30). Would that create any problems? Then we'll get through the material we want.

As I read the minutes, coming out of this group there ought to be some plan to monitor the water over time. Melvin will talk about what he discovered. We really haven't looked at this system where it covers all the Town of Hull. Having something in place where we can scrutinize it over time. I noticed Pat Planton said something about using City wells as they have all kinds of monitoring of those. Hopefully we can get the data from that.

Perkins Along that same line, one of the questions I had was about the ultimate objective of our Task Force. We read the objectives, but are we looking at being an advisory to the citizens of Hull or are we looking at possibly becoming a quality monitoring group?

Holdridge I think that's an open question. The the goal is to come up with a plan and that might include a recommendation for continuing the monitoring. We're letting the data take us wherever. We're not looking at data we don't have, we're looking at data we have. So one of the aspects might be to collect more data. But that recommendation would be sent to the Town Board. The Task Force expires in 6 months, or, if we can do 5 meetings to get where we want to be, that's fine. Then it's up to the Town Board. But I think there's an enormous amount of interest in water. You have a handout copy of an article I pulled out of the Journal/Sentinel about the situation in Waukesha. They have radium in their water. They're looking to buy water from Lake Michigan. That gets pretty complicated with the 7-state compact on using Lake Michigan water. It expanded beyond the initial users, for Milwaukee and Sheboygan, they're all in it, but if you want to add another municipality, then the 7 states have to agree and the DNR has to agree. It's costly, about 1 ½ million just to get involved. That's on-going now. The second article is where Waukesha came up with projections and those all need to be checked by the DNR. What they discovered was that they weren't using as much water as they thought they were. The DNR are the ones who will call the shots on this and they are the ones who will recommend to the other 7 Great Lake states whether or not to let that water go to Waukesha which is west of Milwaukee. This is just one of the issues. The other night on PBS there was a 1 ½ hour program on the water crisis around the country. A lot has to do with infrastructures in cities which are just crumbling and very expensive to fix. So what this group comes up with and recommends to the Town Board will have some standing. I'm look at what you folks think and your experiences. We have 2 outstanding advisors on this Task Force: Ray Schmidt from Portage County and Paul McGinley from the University. Paul was just names the Outstanding Teacher of the College of Natural Resources. (Applause) So this is a serious undertaking and not something we're going to file away somewhere.

When you think of it, the discussion about water is often about streams and lakes. Those are all important and relate to it. But nobody is talking about these private wells and we have 2,020 households in Hull and all kinds of them in Portage County. We need to understand what has happened historically and what our water situation is. Air and water are the life blood. I

can't think of a worse tragedy than to have half the Town of Hull have drinking water they can't drink or where they can't reach the water. Other questions? Melvin, why don't you go through what you discovered.

Bembenek Does everyone have a copy of the report/summary from Thomas Osborne? This is from January 1988. This stuff in front of me I just found in my basement and we won't go into that. I asked Paul McGinley if he remembered Tom but he said Tom had already moved on to another job when Paul came.

I'll read this first paragraph, "The Town of Hull undertook a program of sampling a series of private wells in order to document existing ground water quality and identify trends. Wells were selected by Town officials with suggestions from UWSP faculty. A total of 32 wells were sampled between July – Sept. 1986 and a total of 39 wells sampled between April – Sept. 1987. Sampling was conducted by Town supervisors and employees from existing household taps. Water samples were analyzed by UWSP Environmental Task Force Lab. which was certified by the State of Wis. for the tests conducted."

When you look through everything, on the next page is the well information on all the tests. There were 7 tests taken. On this separate sheet by Mr. Byron Shaw of 1985, it shows information on 6 out of the 7 items tested. He doesn't list the nitrate information on that sheet. But nitrates were tested also. On page 3 you get to the surveys. "The ground water sampling program by the Town of Hull is a commendable effort to track potential contamination in a sensitive area where residents depend upon shallow private wells. It is recommended that the program continue. Suggestions for improvement of the program include: a) collect monthly samples from at least 2 or 3 of the wells in order to determine the annual variation of nitrate and chloride. This will allow the multi-year variations to be better assessed; b) keep the month of collection of a certain sample the same from year to year; c) target monitoring efforts in the vicinity of the new well field property; and d) meet with staff of the Groundwater Center to review each year's results and discuss ground water issues." We did it for 2 years and I really can't say why it wasn't pushed forward after that. It may have been there were other things going on and it may have been put on hold like many other things. I think it would be a good idea if we get going on it again.

If you look at the other pages; you have the Town of Hull groundwater survey, Range 8 and 24; variability in the Town of Hull; then the number of samples, depth to ground water, depth of well casing, pH, distribution, coli form bacteria. Paul M. said it's similar to what he followed. Conductivity, total hardness. So read through this for yourself. I have one question. I have results of all the nitrates from 1986 and 1987. Am I allowed to share this? How does that work? It has the name of those I did in 1986. Maybe you want to look at what you have.

McGinley I believe that data is already in the information I downloaded for our database but going back to the first question about how to associate names with values; we try to be sensitive to that when we do analysis of data. Nothing that I have shows names of individuals. It's more aggregated in a given area with a certain number of samples and the general results. In this case, if the Town of Hull paid for those samples, I suppose they could do whatever they want with that data.

Bembenek We did pay for them.

Holdridge I was going to have Patty check our past minutes to see what the record was. Whether or not we accepted this report. This was before my time. If the Board accepted that report and if it's part of the public record…. I think it's a remarkable discovery.

Bembenek I don't know if you'd have the nitrates. You have the names.

McGinley Right. I'll be able to check based on date and location.

Bembenek The bottom part here is somebody at your lab so you'd have the names. If you want me to give this to you and leave it at that and see what the minutes say in 1986 and 1987 as far as anybody else looking at them.

McGinley That way I can verify if the information is actually in our database. I'd be very surprised if it wasn't, but I think we should verify that.

Holdridge Ray, did you know about this? This was maybe before your time?

Schmidt That was when Jo Seiser was the Water Quality Specialist.

Bembenek That's right, I remember her. I'll give you this and the samples and you can take it from there.

Holdridge People can read this before the next meeting.

McGinley I think that you'll find the information I summarized, which is all the Town of Hull data I've collected since the lab started, this would be a good reference document. A lot of this is the same. His observations on nitrates and chlorides would be the same.

Bembenek What year did you get to the University?

McGinley 2001.

R.Schmidt He's only been there 10 years.

Prusak Do you have all the data the City has collected from the test wells around the Town of Hull? There's one here on the corner of Torun and Wojcik Drive.

McGinley I do not. It's possible we have the results but I didn't investigate that.

Prusak Kim tells me she has data for 20 some years out of those test wells.

McGinley That would be a great resource.

Prusak I don't know where they all are. I know there's one by us at the corner of Somerset and Skyline, there's one right here in the corner of the parking lot and one down by the airport but beyond that I don't know.

Bembenek The Water Dept. has all that information.

Holdridge Some of the ones Pat (Planton) mentioned too.

Bembenek That's for the new (municipal) well. What the water quality is and also the depth.

Prusak I know they test for depth but I don't know if they do water testing.

McGinley It's my understanding they do testing but I don't know where they all are. You could request that. There might be more strength in the Township requesting that data.

R.Schmidt We requested it a few years ago and the Water Dept. declined to provide it.

Holdridge I don't know why you wouldn't want to share that. Especially if it's in our Town.

McGinley I'd be willing, if you'd like, we could work together on this.

Bembenek Then we'd have that for the future too. Once we'd get it.

R.Schmidt I know one of the issues of them not releasing that data was not divulging the location of those monitoring wells. They were concerned with possible vandalism.

Prusak Yes, but they went and put (locked) caps on them after that.

R.Schmidt I know.

Perkins Do you have the capability of running a multi-factor analysis?

McGinley We could do some kind of statistical analysis.

Perkins That would be one way of separating out things like the location, type of well, depth of well, groundwater level.

McGinley I'm going to show something similar to that. I took all the data in our database and broke it up in those regions we talked about at the last meeting and did a little bit of analysis on a couple of the water quality issues by location. We'll see how it goes with looking at it with the location for starters. I'm certainly willing to try that.

5) Quality of Drinking Water – what is the chemical makeup of clean drinking water – Federal and State standards, etc.

Holdridge I'll turn that over to Ray Schmidt.

Schmidt I'll pass these maps around that I put together today so we have something to look at as far as where the different water quality areas are. You'll be able to see different things that

will jump out at you. I didn't include the whole Township with these maps. I left off the lower west along the Wisconsin River. I'd like to first of all look at the Hull Northwest map that you're just getting now. There's a total of 3 maps. Over in the lower left hand corner it says Hull Northwest. Over on the right side of the page you can recognize the new Hwy. 10 interchange on top in the area west of I-39. The yellow lines are the groundwater flow lines, groundwater contour lines. Those are based on the depth to water reported by the well driller in each of those areas where they put a well in. They're very accurate. They show that groundwater flows downhill. All the little crosses are bedrock wells. Many of the wells in certain areas of the Town are in bedrock. They drill down into the rock and many of these wells are 200'-300' deep. The reason for that is that if the water isn't coming in fast enough, they'll drill down to provide storage. When the groundwater is leaking into the well very slowly, it'll recharge the well overnight while you're not using water and it'll be there during the day. It can be anywhere from ½ gallon per minute to 2-3 gallons per minute.

Holdridge You have a lot of crosses on there.

Schmidt Yes, there are a lot of crosses and if you look at the other map called Hull Northeast, the maps overlap at the Frosty Pines subdivision.

Bembenek With the crosses, you've got a green one with a dot and an orange one.

Schmidt I knew someone would ask that. The ones that have a blue center on the cross or just a blue dot, those are wells we have good construction information on. The driller reported the depth to groundwater, we have good information. All of the yellow or orange dots, those are ones where we didn't have complete information. We might know we have a bedrock well there, we have sample information for it but not good construction information. I like to differentiate them because I like to know where I have good data and where I don't. If you look at the Hull Northeast map, you'll see there aren't as many wells with the bedrock crosses on them. I think that area is where the bedrock dips off towards the Plover River. Pat Planton talked last time about the buried valley formation out there where it filled in with sand and gravel. That's where all that sand and gravel is up along Hwy. 66, those subdivisions up there. They have their own sets of different problems. Nobody asked me what those little red circles are on these maps. Patty was thinking about it, I can tell. Those are areas where we've had nitrate problems above the 10 ppm. If you look at Hull Northwest, you can see the Meadow Manor subdivision there for those of you familiar with the Town. It's up along Second Street just east of I-39. There's quite a few in there. You get into the Hull Northeast map, where there are a lot of subdivisions with sandy soil up along Hwy. 66 and you'll see quite a few more wells with high nitrates. Every septic system puts nitrates into the groundwater. If you have a garden on sandy soil and you are fertilizing it, chances are good that you'll flush some of that nitrate out into the groundwater. All the red circle ones are high nitrates.

Amman When you say high, what do you mean by high? Over 10 ppm?

Schmidt Yes, over 10 ppm.

Bembenek What are the small yellow or orange ones?

Schmidt Those are wells. We know there is a well there, we may have sample data on it but we don't know for sure if it was ever sampled or not. If they weren't sampled, they might be above 10 ppm too. We just don't know. Then there's this map called Hull Southeast. It's about half white space. It shows the evolution of the Town. Because all of those wells out there on the white space are areas that were originally in the Town but got annexed to the City. So we have quite a bit of water quality data. Some of those wells are still there, some have been abandoned under the City ordinance. The areas with the air photo underlay, those are still in the Town and along I-39 you can see Kirschling East subdivision and how many of those wells that have high nitrates. I would say about 75% of them or more. If you look at the subdivisions further north up along the Plover River, you can see quite a few with high nitrate. I think one of the factors involved in that is, over on the right side of that map, there are contour lines showing the groundwater is flowing from east to west. It's flowing from the Town of Stockton over to the Plover River. In those subdivisions over there, you're not only picking up what the septic systems are putting into the groundwater, but you're picking up a lot of the nitrates that are flowing out of that irrigated agriculture land to the east. I think that area kind of sets itself apart because of the groundwater recharge. You've got a double whammy there.

Holdridge What sort of dates do you have on these wells?

Schmidt This is the entire County data base so it could back as far as 1970's. Some could be fairly recent. We've noted a trend, at least since 2000; the number of people testing their wells, the number of people submitting samples to either the University lab, the number testing their wells has been going down, unless they're submitting them to a lab we don't have access to. There are several private/commercial labs around that we don't have access to the data.

Holdridge Is there a condition or requirement when somebody buys a house that they have to check the septic system, if there's going to be a mortgage with a bank?

Schmidt Many of the banks do require that there be a water test. There is no law to that effect. The only law is the full-disclosure law. If you know there is something wrong, you have to disclose it. That might lead some people to think that they shouldn't test because they don't want to find out if their water is bad, then they'd have to report it. Personally, I'd rather know what I'm drinking.

Bembenek Exactly.

Holdridge What's the reason for this decrease in testing?

Schmidt I don't know John. Maybe people are just complacent. Maybe the County hasn't been active or proactive enough in getting the word out there that people should be testing. It might just be that it's another generation that doesn't care as much. I've heard and read that people are so busy with so many different things that they're just overwhelmed with everything. So maybe they're not taking the time to test their water.

McGinley On that Hull Southeast, right in the middle where there's the pocket of bedrock wells with crosses, north of the white space…..

Schmidt That's the Eastwood Subdivision just east of Brilowski Road and there are a lot of bedrock wells in there.

McGinley In that case, not a lot of them would have high nitrates.

Schmidt I can't say because I don't know if those were tested or not. I'm guessing they would have been tested at about the same rate as the other wells.

McGinley I shouldn't say that. If you go a little bit further west, there's a group of bedrock wells and there's nitrates.

Bembenek Those would be drilled wells with 4-6" casing?

Schmidt Usually 6", or 4". If they go into bedrock, it's a drilled well.

Prusak On the Hull Northeast map, you've got orange dots, blue dots is a drilled well and the other is a point?

Schmidt No. The blue dot is one where we have good construction information on it whether it's a driven point or a drilled well. An awful lot of the drilled points we don't have good construction information because the people putting in the well couldn't care less about reporting it. They just want to know that they're getting water out of it. That includes a lot of the points put in by builders. A lot were put in by neighbors. People put their own in. They either weren't knowledgeable about the well construction report being required or they just didn't bother doing it and the DNR didn't have the staff to follow up on that.

Prusak So the blue dot in the circle is the equivalent of the green center in the cross?

Schmidt They're both the same color. It's just an optical illusion. We've only got 2 color dots on there, one is orange, the other one is blue/green.

Gjevre The orange dot has no information on it?

Schmidt Correct.

Gjevre The blue dot has information.

Schmidt Full information on the construction.

Gjevre So obviously the orange dot, some of them could be abandoned wells too.

Schmidt They could be at this point. If we haven't gotten a well abandonment report on it. I'd like to draw your attention to the Hull Southeast one where there are a whole bunch of wells

off in the corner near the title. That's Park Ridge. That's where Paul lives. They have private wells but public sewer. They're hooked up to the municipal sewer. They have very few high nitrates in that area although high density.

Bembenek What's the color combination on the smaller ones?

Schmidt It's the same as the other ones.

Bembenek The blue/green dots you have more information on it and the other ones you don't.

Schmidt Right. In fact the blue/green in the Village of Park Ridge, those are primarily replacement wells within the last 15 years. They've replaced them with deeper wells. Putting in a lot of 6" wells. People originally went with driven points to keep the cost down, it only cost a few hundred dollars.

Bembenek Why they are changing, to put a point in, for some reason, it doesn't last as long. It gets full of sand and it plugs the meter and you're changing them, sometimes putting in 3 water meters in less than a 2 year period in certain places. It doesn't matter if you put a rock point or a sand point. That's why they're really going to casing.

Schmidt Okay, I didn't realize that.

Bembenek The pump is in the casing, which you know. That's the story behind that.

Schmidt That's good to know Mel, thank you.

Prusak Aren't all those crosses we're talking about in the white space area, aren't those the old Treder Farms? Around Brilowski and Hwy. 10?

Schmidt We do have some pretty good data on those. A couple of them were Treder's.

Prusak That whole corner should be pretty well documented.

Schmidt Yes. What Russ is referring to is the crosses in the white space between, along Hwy. 10 on the Hull Southeast map over to the right hand side of that map. In the 1980's and 1990's there were a lot of wells up there that were found to be high in radioactivity. In fact, the Stevens Point Fleet Farm, new one there now, had a well that was over 600' deep. It was really hot. They had to bring in drinking water for the employees and customers until they could hook up to municipal water. That was the reason that municipal services crossed the I-39, at that time it was Hwy. 51, was in order to provide safe drinking water for Fleet Farm. There were a bunch of other folks out there that wanted to hook up too but that's what really pushed it over the edge. Saying that, any of those wells with the crosses, those bedrock wells have the potential to have radioactive water. The deeper it goes into the bedrock, the more potential there is. That's one thing we haven't been actively studying. Back in the 1980's the DNR did a study on radioactivity and they did find these few wells out here in Hull but that was about it for Portage

County. There were quite a few up in Marathon County and north from there up to Rhinelander. We were fortunate that there were only a few in Portage County and most of them are in the eastern part of Hull, southeastern part and out into Stockton.

Bembenek The ones with the crosses, I noticed that you said the red is nitrates, right?

Schmidt Red is nitrate above 10 ppm.

Bembenek I don't really see any with the crosses. Is that because they're a deeper well?

Schmidt I think so Mel. You seal off the well into the bedrock. I think the nitrate is probably sitting above the bedrock and traveling laterally.

Holdridge Park Ridge doesn't have a nitrate problem because they're on a (municipal) septic system?

Schmidt That's part of it, but also because for the last 20 years or so, they've been actively working to not have people put fertilizer and pesticides on their lawns and gardens. Park Ridge has promoted that. I don't think it's an ordinance but just an educational effort.

Holdridge In that Waukesha article, they have an ordinance where you can only water twice a day, early in the morning or after night. That's because of the cost of their water. If you looked at I-39, Ray, what would you see in that west area?

Schmidt Over where Gwynne lives?

Holdridge Yes. West of the Interstate near the Wisconsin River.

Schmidt Hull Northwest but west of I-39. That area is interesting because that area has all of its groundwater coming from within that area. None of it flows in from the outside. It hits the higher parts of the inner circle there by the Interchange then it flows down into all directions. It doesn't have any influence from the outside like the Hull Southeast does. It's almost ideal. It's mostly wooded so there really aren't a lot of contaminate possibilities out there, currently. It used to be an area of small subsistence farms and if they used pesticides or nitrogen fertilizer, they probably only used manure. So that's a real good area from a groundwater standpoint with the exception of the radioactivity. And there may be some corrosive water out there. I'd like to go on to this chart I passed out. John had asked me about having a definition of clean water, what we expect from our drinking water and I thought that was reasonable. So I found this chart. This chart is the safe drinking water act, federal regulations and this is the kind of thing villages, cities and municipalities have to test for in order to say they have clean drinking water. That's a pretty short way of saying, you're testing for all of these things in order to say your water is clean. We don't do that for private wells. We use something different. I recommended what they call the homeowner package from the University. There are 6 different tests and Paul will talk about interpreting your drinking water later but those are the tests we're talking about: bacteria, nitrates, corrosively, conductivity, hardness, and chloride. This big chart breaks it out. It's interesting to read and I'm not going to go into it here at the meeting because it gets too

involved. These are national contaminates including the drinking water sources from surface water. Some of these contaminates you're not even going to find in groundwater like some of the microbiological contaminates, cryptosporidium. We really can't very easily get cryptosporidium into the groundwater because it's fairly large on the microbiological scale. You can read all this stuff and it's good to know what the health effects of these contaminates are and what the health standards are for them and how they treat for them. That's all I'm going to say about that one.

Holdridge There sure is a ton of them.

Schmidt There's a lot of them John that's why when we talk about the City versus the Town, clean water in the Town means a whole different thing than for the City well when you start testing for many of these contaminates. I think that using the City wells data since they are kind of at the end of the flow path that goes through the Town, we can get an idea. There really may not be much of this other stuff in the Town wells because the aggregate at each municipal well is tested for a lot of different things and they're not finding it. That is an assurance that the water flowing to that municipal well through the Town is not contaminated either. It's an inference I think we can draw. I wouldn't swear to it but feel pretty comfortable in inferring that.

Holdridge So I'm assuming that if we want to identify safe drinking water, we'd go to something like what is called the homeowners package and whatever that tests for. If we test for that, we know that at that level then we at least have safe drinking water.

Schmidt Right.

Bembenek The testing that we did John, that was the house package. It's probably the same now?

Schmidt I think it's still the same.

McGinley I think that certainly get's you started. I'll keep going on Ray's comment. I think you're whole Northwest Hull paper is a good one with the yellow contour lines. There's a circle in the middle of that one and that's really where the groundwater is the highest in that area so if you're in the middle of that circle, your water is basically the groundwater that's coming in as rain that's falling to the ground. It's not traveling from anywhere else except the rainwater. The wells that are further radiated out from that center, we can really get a pretty good idea of what can possibly be in that water by knowing what's in that path from the center of that circle to that well. In a way, in some of these areas, it isn't that complicated in that we know where the water is coming from and unless you think there's something on that sheet with the radioactivity that Ray is talking about, you're not going to find real exotic compounds unless they are actually used along that path (flow).

Bembenek Ray, on this one we got from Mr. Planton, where Well #11 is, there's a pile of wells there with the yellow and the blue, a lot of yellow.

Schmidt Yes, we don't have a lot of information on that area. That was in the mid 1970's when building was going so fast and they're were slapping in driven point wells like nobody's business and selling the houses.

Bembenek Subdivisions were going up over night.

Schmidt Yes. Hull accounted for about half of the construction in those years for Portage County.

McGinley Ray, is St. Casimir in this Northwest section?

Schmidt Yes. St. Casimir is just west of the Casimir Road intersection.

Holdridge That I-39 is interesting because when we did our comprehensive plan, it was determined that is a unique area and we needed to do something to protect the uniqueness of that area. So we had a planning process, took surveys and got a lot of feedback from citizens. Our outcome was to really restrict growth out there. For example one of the things we really hung in on was no commercial development in that area near the Casimir Interchange. When that went in, I was getting calls of people wanting to put in a truck stop and other things but as that planning evolved, that became very important to protect. For anyone who lives in the I-39 west area, they know what we're talking about. Your analysis of the water, it is unique over there from a water standpoint.

McGinley When I started to look at it, Ray had mentioned all the bedrock wells in there so I would have hypothesized that. There isn't a lot of agricultural activity in there and the septic systems are pretty much spaced apart, that you wouldn't find very high nitrates and the water would probably be a little more acidic than the rest of the Town. That would be a reasonable hypothesis because a lot of those wells are in granite like bedrock as opposed to the shallower wells that are more glacier deposit materials in other parts of the County.

6) Status of Drinking Water in district of Hull from previous test of household water quality.

McGinley So I can transition into our information on what we found when we looked at the historical data. What I distributed was this yellow brochure which interprets drinking water quality results which turns out to be an awful lot like the 1986 document that you gave us from Byron Shaw and the 1985 document. There's no surprise there. Some of those paragraphs that he had in that typed page are ones that eventually showed up in this document so these are kind of the same.

Schmidt We're all standing on Byron's shoulders.

McGinley Not much has changed. This other part is this memo I put together which is as the air photo, quite small, on the cover, then the different colored markers that correspond to how I did a very quick breakdown of the data that's currently in our database for the Town of Hull. I

tried to package it in similar areas to what we're talking about at the last meeting and similar to the areas Ray was just talking about. You can see that Hull Northwest, that would be the green triangle, the northwest area dot. So those are all the water quality samples we have in our database from that area. I didn't include the small yellow dots on there that show up in Park Ridge and other places because our database is pretty old, some of those places maybe used to be in Hull. I went through and if you go to the next page there are a lot of numbers and figures in there. I only included graphical summaries for pH, chloride and nitrate. We've talked a little about nitrates already and chloride. I want to make a quick comment about pH, going back to this idea that the Northwest area might have more acidic water because of the granite type bedrock wells, that's kind of what we found. If you look at that table #1 with the pH summary, that's a measure of how acid or alkaline something is. A pH of 5 is more acidic than a pH of 6 which is more acidic than a pH of 7, 8 is a basic pH.

Schmidt A pH of 5 would actually be 10 times as acidic as a pH of 6.

McGinley Yes. If you like to drink Coca Cola, that a pH of 3. Lemon juice is very acidic. A pH of 5 might sound acidic but drinking the water isn't going to hurt you. Where the issue comes in is when the water is more corrosive when it's acidic. If you have pH of 5 or 6 or 6.5 in your water, you're far more likely to see blue staining on you fixtures from leeching of copper in the plumbing. Where you might really see this is if you have condensation on the outside of copper piping and you've noticed there were drops on the floor and you see a blue stain on that pattern. Condensation is really acidic as that is just basically distilled water, water that comes out of the atmosphere, the outside of the pipes. We don't recommend anyone put distilled water in plumbing because it is so corrosive. Overall in the Town of Hull you have very good water. Even pH wise but I thought it was interesting that the median pH in the northwest and north areas are about a pH unit less or lower than the average in the east and northeast. Even in your Township you see going from northwest to east more acidic water to less acidic water. The bar graph below it with the chloride and nitrates, the red bar and green bar are northeast and east, those have a higher fraction of the samples in the higher pH in the 7-9 range. The purple for the north and the orange for the northwest they tend to shift to a lower pH. It shows the same thing that was in that statement.

Remember this is all the data from our database. I also took the chloride data and the end number is the number of samples. Chloride, a lot of potential sources of that, from road salt, or next to a salt storage facility, if you are next to a well salted highway and drinking the groundwater from that, it wouldn't be unusual to be at 100 milligrams per liter. Septic systems, particularly if you are softening water and putting those bags of salt in there, that goes into the drain field, that would show up in the groundwater and that's another source of chloride. Fertilizer is a final source of chloride. Potassium chloride and the way people apply potassium that could get into the 20-40 milligram per liter. So chloride is really an indicator that tells us that something is happening on the land that is influencing our groundwater. Typically it's not a health issue. We talked about that last time. The drinking water standard is 250 milligrams per liter. On Ray's chart it shows up as a secondary standard. It's not even a health based standard. It's based on the fact that the water starts to taste salty. We look at it as an indicator and that's what you're going to find in the sheet here, the yellow sheet and Byron's sheet as well. The place where we find the lowest chloride is in Northwest Hull. If you look at the Northwest, the average there is 3 mpl - 10, the lowest of all the regions. Not surprising with the wells pretty far

apart, little ag. activity, no salted highways up there. That makes sense. In other regions there's higher chloride but with quite a range. Of the 200 samples, it reflects the wide variety of sources. If someone lives next to a highway, that's going to be higher than someone further away.

Schmidt Where in the Town would the highest iron be for drinking water?

Amman I would say, right here.

Holdridge Look at the outside of this building.

Schmidt I was looking at that.

Holdridge We have orange rocks all over.

Schmidt The area north of Kwik Trip used to have pretty high iron, but that's now in the City.

Holdridge That may be one of the reasons they annexed.

Schmidt I think it probably was. The reason I asked is because if the iron is high in some areas, people use softeners to reduce or remove iron and then you get the chloride discharged into the environment. That might be part of what is going on here.

Prusak There was a lot of iron Sentry had in that deep well they had for their greenhouse up on Evergreen. That was 100' and that was solid iron. North of Town, there was a well where you couldn't wash clothes because the white shirts would turn pink. I think they finally treated that water somehow.

McGinley What would be the likely percentage of people that use water softeners in the Town of Hull?

Bembenek I'd say it's pretty good. It's up there. I have one, on Brilowski Road.

McGinley One of the complicating issues in all of this, each of these wells has water coming from a different area. There are general similarities but if you pick a well and follow it back uphill on those contours, everyone will have a different story. Typically private wells don't pump enough that they're drawing water from a really large area. They're pulling water out of that path where the groundwater is flowing along.

Schmidt They're just intercepting it as it goes by.

McGinley We say they're passively intercepting the water. Not really collecting water like a larger municipal well. The next page is nitrates and it's kind of opposite of what we saw with the pH. Looking at the northwest wells, the average and medium between 1 and 3 and looking at the east and northeast wells, the average was 6 – 7 mpl out of 661 samples that were in the data

base. Northeast out of 500 samples it was between 4 – 5. Consistent with what Ray was talking about. That would be reasonable considering the water flowing from ag areas into residential areas. Strong nitrates from the ag areas as well as local septic systems. Septic systems also discharge high nitrate water. Looking at some time trends, we don't have a lot of data on taking multiple samples from individual wells. We could go back and make comparisons with those wells sampled in the 1980's and compare data with then and now. One place I could get some data is the public water data base. You don't have a lot of public water systems in the Town of Hull but Jordan Park is a public water system, the mobile home parks, Recre Acres, Evergreen Villa, Rustic Pines on North Second.

Holdridge You're calling public water systems where a number of residents participate in the same system?

McGinley Well, maybe. From the DNR's perspective, a public water system is anywhere the public can go and drink the water. St. Casimir would be a public water system. They have a well where enough people would be drinking the water. It's not the same people so it's not considered a community water system like Evergreen Villa. Even taverns. You (the Hull building) didn't show up on the list so I'm wondering if you're not considered a public water system because you don't have enough employees and not enough people regularly drinking the water. You would need 25 for a community. Like a hotel with a lot of employees could be a public water system. Nitrates again: Jordan Park has multiple wells, I pulled out 3 of them and the nitrate history from 1990 to the present. All pretty low. That didn't look like much of an issue there. The 2 mobile home parks: I did have a call in to the DNR, I was kind of curious, I don't know these systems. Looking at Evergreen Villa, the data there would almost suggest that it was getting close to the level of 10 ppm and maybe they changed wells or put some treatment in because now's it's less than 2 ppm.

Bembenek What's the difference between the blue (dots) and red (dots) on these?

McGinley I'm not entirely sure. They do list 2 well numbers in the DNR data base so I think they may have 2 wells. Evergreen Villa is across from Meadow Manor up off of North Second. Then St. Casimir, pretty low in the early 1990's then it was high, then low. I don't know the history there but if that was the same well, it also shows you some of the complexities of this. Concentrations go up and down. That's in the northwest part of Hull. So the water from there is coming through a developed field perhaps?

Schmidt There's a little pond field right across there and that's up gradient.

McGinley So if I'm thinking of where that water is coming from, it's coming through that field and they are showing nitrates that range from 4 to 10 mpl.

Schmidt Those St. Casimir wells are driven points, shallow wells. They have multiple wells there.

McGinley That could be reflecting the variations.

Schmidt They have one well for the church, one for the rectory and I think one for the school.

Bablitch One for the school, I think you are right, there are 3 wells. You'd be amazed at how many people go to church there. They come over from the west side of Point down past Rusty's even.

Bembenek That map was from you too.

Schmidt It was?

Bembenek It says map by Ray Schmidt, January 28, 2010.

Schmidt I stopped putting my name on them.

Bembenek This is the one from Pat Planton.

Amman That was from last year actually. If we have a map, it's probably from Ray.

McGinley I pulled those 3 types of analysis out of here because I thought the pH is a good indicator of certain geologic sources of water. We could have used hardness or alkalinity and reach some similar trends. The chloride is an indicator of general land use. Impact to groundwaters, nitrates is a health standard. We do have this other information so if you are reading this brochure wondering about the hardness, alkalinity or conductivity, we basically have the same number of analysis for those also. Those are part of the homeowner's package.

Amman Paul, I had a question about the very first page where you have the groups of wells shown in different colors, the green, blue, yellow and red and you have the little indicators down here what area each color stands for. But then those colors do not match up with these colors (on subsequent pages) on the graphs. Just so people understand that because I was looking at that and that was confusing me.

McGinley That never occurred to me. That would have been easy to do and I didn't do that.

Amman Just so people understand that.

Bembenek I was wondering about that myself.

McGinley So maybe I should redo that if we do it again.

Amman Well, for future reference, if it matches, it helps.

McGinley I should adopt a color scheme.

Perkins Paul, how familiar are you with the rational for this homeowners package?

McGinley A little bit. This came out of the fact that when people came to us to have their water tested, they asked what elements should they be getting it tested for. So we came up with a simple set of tests that we thought would give them something practical. We gave them hardness because when they're dealing with a treatment vendor, it's nice to know what the hardness is. Nitrates are a standard health base standard.

Perkins I asked about what should be tested and the cost.

McGinley Even in the safe drinking water act, that was a compromise of what elements to test for out of 50,000 different contaminants.

Perkins I've been looking at that act somewhat and it indicates that if it's detected, even if it's below the maximum concentration level, then we should be testing for it. That's for community water systems. Along the same lines, I'm thinking private well owners should be tested but we don't because of the cost involved. In that same vein, we might end up with a situation where there are more things we should test for that becomes very expensive. There were a couple of questions I wanted to ask Pat Planton but he's not here. How much it costs to test for the entire 100 contaminants, primary and secondary list.

McGinley It's pretty expensive.

Schmidt It would be several thousand dollars.

Perkins There could be things on that list that are detected but may be below the maximum concentration levels.

McGinley If you wanted to look at a particular public water system, that information is available on the DNR website so I can go on there and pull up the Stevens Point or Plover testing and find out what they found.

Perkins I went on that site yesterday looking to see if they've put any information on Well #11 but they haven't yet. I will look at one of the other wells.

McGinley Let me give you an example: I think one of the most commonly detected organic contaminants on there would be benzene. It's in gasoline so if I felt like there was some potential underground storage tank leakage issue that's upstream of my well, that might be something I would consider looking for. I might not look for trichloroethylene that is a degreasing solvent that is used in manufacturing. I think we could refine our best guess of what we have to look for based on where our water is traveling from.

Schmidt In the homeowner drinking water package, it's designed to be a first cut. It's not designed to tell you everything. So if you get a high conductivity, you know that there are a lot of ions in the water. Then we want to start thinking about where those ions are coming from. Does the tests for nitrate and chloride explain the high conductivity or are there some pesticides out there that we should be looking for? I routinely counsel people to follow up with either a metals package or a pesticide scan if they come in with a high conductivity.

Bembenek That makes sense.

Schmidt But it doesn't make sense to run those more expensive tests on all the wells.

Perkins But if we find that we can break up the water into districts that's fairly homogeneous, there might be more practical and cheaper ways to have the Town do the testing in those areas than doing more tests of everything found.

Schmidt A representative well versus everyone doing their own, yes.

Perkins Increase their property taxes $10 instead of going out and having to pay for the testing.

McGinley It is a little tricky. Looking at that Northwest area again, we know this well down here has nitrate but all the other ones are pretty low in nitrate. It's a reflection of that short travel, where that water came from for that particular well so I think we can make some generalizations and those are useful. It is hard to pick a couple of typical wells in each area.

Holdridge When I think of public systems, I think of municipal systems and I know they are under much more restrictions and requirements than each of us. We don't really have any restrictions except the good sense of the people.

Bembenek Paul, on this summary I passed out, from 1988 with the 7 quality traits. What's the difference between nitrates and nitrites?

McGinley Nitrate and nitrite have 2 very similar molecules. Nitrate is NO3 and Nitrite is NO2 and it is possible you could find the NO2 the nitrite but just because of the chemistry of all of this, it's either going to form nitrate or go the other way.

Bembenek We do have a nitrate test that both of these are in on this test?

McGinley Yes. It's a nitrate plus nitrite. It's probably a minor detail. When we go back historically and look at some of the data, not all of it was the case, but for the purposes of this, I just always assumed it was both. I wouldn't worry about it.

Schmidt In the presence of oxygen, the nitrite will go to nitrate. It's like carbon monoxide, it will go to carbon dioxide. That's why you find very little carbon monoxide or very little nitrite.

McGinley There's always an exception to the rule, but those are very rare.

Perkins But you also have a different limit for the nitrite which is 1 ppm versus nitrate which is 10 ppm.

Prusak Are there different stratas of groundwater, different quality of layers so to speak?

McGinley These are moving with a lot of mixing down there. If you think of a side view of your groundwater aquifer, the rain is coming in all the way along and let's say the groundwater is flowing this way. The rain that enters up here is going to have a tendency to be lower in the aquifer the entire way than the rain that enters here that will be riding above that. So there's always strata in there and if I stick my well really deep, I'm probably going to be getting that groundwater that's entering further away than if I stick a sandpoint right on the top of the aquifer right on top of the water table where I'd be getting water that enters really very close.

Prusak Do you know if the depth of the water where the sample is taken is critical of anything else that's on here?

McGinley It depends upon the size of the screen, the size of the opening. If the point has a very short screen, then that would be taking it from a very small area. A lot of our wells yield so well they probably don't have very big screens.

Schmidt Right. Three feet is normal for a screen. We call that laminar flow *(occurs when a fluid flows in parallel layers, with no disruption between the layers.)* We think all groundwater tends to behave that way because there's no natural mechanism that causes it to mix. In the area where high capacity irrigation wells are, you'll get vertical mixing because they put their screens down from just above bedrock up 40' usually and those wells will induce flow to come down from up above as they compress the water table, that cone of depression, and there you will get that water that pumps up from the bottom and puts it on the top and a little bit of it will re-enter the groundwater.

McGinley Like the collector well Pat Planton was talking about.

Prusak If you had a 50' casing, you're pump is set at 25', with layers in there, could you get a different test at 25' than at the bottom of the well if you are drawing it at 50' in a cased well?

Schmidt You shouldn't. What is determining that is you're screen. That's where the water is entering. It doesn't matter where the pump is.

McGinley It might be different if you have a deep bedrock well or there was storage in a bunch of cracks.

Schmidt That might be a little different.

McGinley I would agree, that depth is critical if you're looking at a well and trying to back out and determine where something is coming from.

Prusak So if you have a point that is 25' and you're neighbor has one at 50', you could get entirely different readings even though you are right next door to each other.

Schmidt You will get entirely different readings. I found that from atrazine tests.

Holdridge This gets to be a complicated process.

Schmidt It depends. It depends upon what is showing up. If you have good drinking water showing up in a deep well and a neighboring shallow well right next door, there's nothing complicated about that. It means the whole water column is acceptable. But if you only have a test from the deep well, you don't know what the shallow water quality is.

Bembenek It's usually 22', after that or 25' it's a deep well?

Schmidt 25' is the minimum depth for a well plus the screen. That's state code.

Prusak There are some in the Town of Hull only 12' deep.

Schmidt That's because they were put in by people not knowing the code.

Prusak There's more than 1, there are a couple.

Holdridge In terms of the safe drinking water, that's a federal statute, then the state adds to that?

Schmidt There are state drinking and groundwater standards that are in addition to these, yes. I didn't bring those. Those are mostly for pesticides.

McGinley That web link I had on the slide last time, did I leave that information?

Amman The DNR website?

McGinley Yes.

Amman I believe I put it in the minutes from last time.

McGinley It has a link to a file that actually does have all of the Wisconsin drinking water standards as well as some that are not necessarily drinking water standards. They also have advisories out.

Holdridge What's the difference between the primary and the secondary drinking water standards?

Perkins Primary is for health issues, secondary is more aesthetic, taste.

Holdridge So primary are really the ones you pay attention to.

McGinley Right. Once again, that represents a compromised list. If there was something else you thought we should check, we would have to know it's something being used and recognize it as a potential threat.

Holdridge I'm happy you have a package. Can you imagine if you didn't have that and people were trying to sort all this out? You've obviously thought through the package.

Perkins If you look at the Wisconsin administrative code, their resources for the drinking water, they've got a second list of non-regulated things that is probably another 30 or 40 chemicals.

McGinley They continue to always be evaluating new contaminants.

Schmidt Somebody before asked about the cost for the drinking water test done for municipalities. I believe Stevens Point has to test annually. But a place like the Village of Amherst only has to test once every 5 years. So they budget every year for water quality testing so that they have the money there for the 5th year but they don't have to test as often because they don't serve as many people.

Perkins It also varies with the particular test. Some have an annual cycle with 3 years staggered. Each year starting a different cycle. Some they only have to test for once in each 3 year period. Some they have to test for every year. It depends upon what it is.

McGinley These public systems we have in the Township here, they only look at nitrate and bacteria.

Schmidt And they test annually.

Holdridge Ray do you have anything to add before we go to our last item?

Schmidt Just that we're talking primarily about private water systems in the Town and we recommend that private wells be tested every 15 months. The reason we picked 15 months is that there are seasonal variations in water quality as well as ones over time so if you test every 15 months, if you get 4 samples in a 5 year period, you include all those different seasonal variations to some extent as well.

Prusak Ray, when a plumber opens your well, he takes a water sample and sends it back. They only test for coli form and ?

Schmidt Just bacteria.

Prusak Nothing else.

Schmidt That's it, that's the requirement. As well as when they install a well, they're required to test for bacteria.

7) Future Direction – Task Force discussion.

Holdridge I think when we initially put together this mission statement, we were talking about going from the macro to the micro. Looking at various sections or districts. Is that appropriate to follow that process?

Schmidt As far as I'm concerned it is.
McGinley It seems like a rational way to go forward. Every well is different but the data suggests you can generalize sometimes.

Holdridge That's really a way to handle a bigger issue. To break it down and try to articulate by section. Anybody have any other thoughts on that? When we put together this mission statement, that was what we were thinking about. Ultimately to make judgments about those sections and then go back to the macro.

Schmidt One of the things I find interesting and is pretty informative as well is sampling the same well over time to see what kind of trends there are there. Jeff Hartman, our GIS guy is in the process of developing a way to sort out the wells that have been tested multiple times versus tested only once. What you're seeing on these flat maps are an aggregate of many wells that were tested several times and many that were only tested once. That one sample might have been 30 years ago. So we don't know what the water quality is like now in that well. If we'd look at which of these wells we have records on that were sampled multiple times, we'd be able to figure out what the trends would be like in a given area. I think that would be helpful for the group to know that.

Holdridge Do you have that sort of data?

Schmidt We do have some of that. There weren't many wells that were tested more than once or twice. Maybe 90% of them were tested once or twice. I think that would be something good to look at rather than just the aggregate data we have.

Prusak In talking with someone over south of Old Hwy. 18, their nitrates have gone up for over 25 years. Up from less than 3 ppm to over 10 ppm.

Schmidt I wouldn't be a bit surprised.

Bembenek It's more agricultural.

Holdridge That's getting more towards Stockton?

Prusak No, that's just south of Fleet Farm. He was expecting something different once the cattle had gone away from down there. He expected to see some drop and some consistency. It consistently keeps going up.

Bembenek It still keeps coming from the east, from the Polonia area and all those hills and the flow comes from that direction.

Prusak It's interesting if you ever test the water coming out of the main outlet for that drainage system out there on the east side of Hull, the one that goes through Brilowski and heads towards the river. It would be interesting to have a test one in there and see how much nitrate is coming out of that system in there. That pulls all the way from Custer hills and all the way towards Ellis.

Bembenek That's why everybody is worried about McDill by the dam. They should worry about what is going in there. Hwy. 10 east has water and sewer, storm sewer running from the Custer area…..goes right past the old Fleet Farm, there's that big cement ditch.

Prusak That is a storm sewer collector along Hwy. 10 that picks up over by Treder farm.

Bembenek It goes through then ends up in Jordan and makes a left and goes by Iverson and goes into McDill. Then they wonder what's over there. I wouldn't eat a fish or bluegill out of McDill for nothing. You can look what's going in there. And they didn't want any storm sewer there because they were in a hurry to annex it.

Holdridge The next time we meet, which is on September 8th at 6:00 p.m. (starting earlier because of the Packer game), then we'll start focusing on the districts.

McGinley I put my e-mail and phone # on that memo so if someone has questions on that, they can contact me. If there's something you want to see mapped or graphed, let me know.

Some general discussion about the higher nitrates in an area where the septic systems are closer together on smaller lots.

Dave S. Looking at that graph at the Casimir wells with the nitrates going up and down over the years, I wondered if that might indicate some crop rotation that was going on over the years. Maybe corn for 2-3 years and then they let it sit or put hay on for 3-4 years.

McGinley It's certainly possible. Another possibility is just how fast the groundwater is moving relative to how frequently that annual pulse, plus we don't always get an annual pulse every year. It depends upon how much of that fertilizer goes down through the ground.

Prusak It could be the amount of rainfall too, the rock strata up there, I've seen things come out 300' from where the septic is if it hits a rock layer.

McGinley Maybe I'll put something together about septics for the next time we get together.

Holdridge That might be an argument for larger lots.

Schmidt That's part of the rationale for the 2 acre minimum lot size for the County; that an average family of 4 will pollute the groundwater up to the health standard of 10 ppm with their septic system alone.

8) Adjournment. *Meeting adjourned at 8:15 p.m.*

Respectfully submitted,

Patty Amman, Task Force Secretary
Town of Hull, Portage County