State of Wisconsin

CORRESPONDENCE/MEMORANDUM

DATE: April 21, 2021

TO: Advisory Council on Well Drilling, Heat Exchange Drilling & Pump Installing

FROM: Marty Nessman, Private Water Supply Section Chief
DNR Bureau of Drinking Water and Groundwater

SUBJECT: **Advisory Council Meeting Agenda**

Date/Time: **Wednesday, April 21, 2021** – 8:30-10:00 am and 10:30 am-12:00 noon

Location: Zoom Meeting

Meeting Notes

1. **Welcome and Introductions Attending:**
    a. Nessman, Kasdorf, Gundrum, Fetter, Niffinegger, Walker, Lang, Butterfield, Chase, Tesmer, Butterfield, Hanten, O'Brien

2. **2021 Advisory Council Membership** – confirm updated list

    a. Tim Butterfield: Well driller in Sommerset, WI. Originally from Hayward. Does a wide variety of drilling. He is also licensed in Minnesota. Minnesota has requirements similar to Wisconsin and some that are very different from Wisconsin. Tim would like to bring value to the advisory group by sharing his knowledge of Minnesota requirements and what might be worth consideration here in Wisconsin. Tim drills with dual rotary and will bring knowledge of that method to the table.

    b. Matt Niffenegger: Licensed driller and pump installer from Monroe, Wisconsin. A family business since 1931. Mostly residential drilling using air rotary and mud circulation. Uncle served on the advisory council for quite a few years. Interested in drilling approaches used around the state and would like to bring his knowledge and experience to the table to assist whenever opportunities may be present.

    c. Thank you to Al Hoyer and Bill Hanser for previous service to the council.

    d. Review of Advisory Council members not present.

    e. All council positions are now filled.

3. **COVID-19 Pandemic – Impacts to Businesses and Industry**
    a. Updates – Hanten requests review of staff, department office visits, field inspections and current approach taken for department staff.

        i. Except for the supervisory position, field specialist staff is fully staffed and working from home and also doing field work. Some are not in the field as much as they were before the pandemic, but that is expected to change soon. With vaccine availability, it is expected that eventually staff will be transitioning from working at home to getting back to the office.

ii. Madison office staff update will be given later in the meeting.

b. Impacts to Business and Industry – impact to drilling activity has been minimal.

c. Question asked regarding status on review of high capacity water wells.

i. Some high cap approvals may have been delayed due to Central Sands study

ii. Currently 75 high capacity applications pending.

iii. 3 were received more than 65 days ago

iv. 149 approved over the last year.

d. If more than 2 months since submittal, call Water-use with questions and they will provide status.

4. **January 2021 Meeting Notes –** No comments or questions.

5. **WGNHS Updates** Chase – projects for Lafayette, Grant and Iowa counties. Hydrosporatic maps being produced (Fed funded), DNR-funded study of NR 150 efficacy (Brown, Calumet counties), sampling wells installed on farms to check to see if new regs are having any impact. Nicolet NF studies esp. Bend ore deposit in central Taylor County (most likely to be developed –Sulfide deposit; Copper, Gold & Nickel) water qual. Assessment. Broad snapshot of water quality from national forest campgrounds around the state. Central Bayfield County deep unconsiolidated and deep static water level, CAFO plans looking at groundwater recharge info. Looking at great lakes shoreline erosion (esp. L. Michigan). Central Sands Lake Study conclusions and recommendations presented earlier this month. WGNHS installed ~60 monitoring wells; they now need to be filled and sealed.

6. **DNR Updates**

a) Staffing Updates (Nessman)

- Approval to fill Sandy Hershberger's position. Should be posted in 2-3 weeks. Currently have an LTE (Scroggins) working on some of this.
- Field Supervisor Vacancy - Approval to fill this position has not yet been provided. Movement expected in the next couple of weeks. We have acting Field Supervisors in the meantime.
    i. Jim Kasdorf 4/12-5/14
    ii. Jared Niewoehner 5/17-6/18
- Butterfield – are Hi-cap well approvals caught up? Marty is checking on that. 75 applications 3 over 65 days old. 149 approved over the last year.

b) PFAS investigations (Kasdorf) see slides

- French Island –
    i. 2019, City of La Crosse found PFAS in their water system; RP is City of La Crosse
    ii. PFAS source traced to one or more French Island municipal wells, and back to
    iii. Airport, historical fire-fighting foam use (decades-old plane crashes)
    iv. To date, every private well tested shows PFAS detections; some above standards, some below
    v. Residents began paying for their own PFAS well water tests

vi. Typical private well construction; 4-inch dia. casing, 60–75 feet with a screen
vii. Typical drilling method; cable tool
viii. R&R to sort out whether all PFAS trace back to airport, or whether sources exist
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xvii. March 25, 2021, DHS issued drinking water health advisory (TCE)
xviii. DNR sampling private wells all over the island.
xix. Representative sampling; limited number of wells
xx. Some residents receiving alternate water from City of La Crosse
xxi. DNR providing emergency water to remaining residents
xxii. Other short term and long-term water sources will be evaluated
xxiii. DG evaluating potential special well casing depth area; decisions pending
xxiv. Assessing situation; new information needed/still coming in
xxv. Prevailing questions need answers
    1. How widespread?
    2. Can drilling deeper wells help solve the problems?
    3. If so, drill how deep?
    4. If no, then what?
    5. Will there be arsenic in the sandstone?
    6. Which is worse? High As or PFAS?
xxvi. Short term water supply considerations; Replacement wells? Deeper wells? Shared wells, connect to a neighbor's well? Treatment/O&M? Likely requires permanent alternative consumable water, Wells will likely remain contaminated?
xxvii. Known deep(er) well information
xxviii. USGS fish hatchery well (no PFAS), 171 feet grouted casing, 16 feet into sandstone
    1. This is the only known well in sandstone
    2. Elementary school well (low PFAS positive, below std.), 110 feet of casing.
    3. 3 other deeper wells known; deeper than typical but not in sandstone.
    4. Two other wells with 100+ feet of casing passed along to Kyle Burton.
xxix. Will DNR continue to sample these or any other deep wells (Question for Kyle B.)

Hanten asked if La Crosse is the responsible party because they own the airport. Kasdorf responded that he believes that is the case.

Chase asked how many homes are there on French Island and are they all on private water supplies?

Nessman thought in the area of 600 homes and the majority of those are on private water supplies.

To the West and East of the airport, there are no municipal wells.

Hanten asked what standard is being used here?

Nessman stated that it is the NR 140 proposed standard.

It is also the DHS advisory level.

Question asked as to level of metals showing up in the deeper wells. Not known.

Niffenegger asked whether PFAS exists in rock samples or if levels drop when rock dries.

One of the concerns with drilling deeper is whether drilling deeper will pull contaminant down.

Walker asked if PFAS exists in Mississippi upstream of La Crosse? Not known if samples have been taken upstream.

Hanten mention that they are seeing samples from the island with detects, but not above the standard. He asked what homeowners should do when sample analysis shows PFAS detected in their water? Should they notify the DNR, so they are included in future sampling?

Nessman- yes, we would like to hear from them and would include them in sampling going forward.

The city has number set up for sampling. The DNR can not sample every well. Those with detects should request sampling from the DNR and they may or may not be included.

They may qualify for water supplied.

- Marinette –
    i. DNR extending deadline for residents to enter 'DNR-sponsored' sampling program
    ii. More time was needed for outreach
    iii. New deadline: May 7, 2021
    iv. Trying to get more private well owners/residents into the sampling program
    v. COVID challenges, residents hesitant to let outsiders into home(s)
    vi. DNR R&R eventually seek cost recovery from JCI
    vii.

c) Norlake/Junker SWCDA issue - TCE (Kasdorf)
    - Historical TCE contaminated GW, co-mingled plumes
        i. contamination is 6 miles E-W by 1 mile N-S
        ii. 1996 consent decrees established funding for POET systems (install, O&M)
            1. Point of Entry Treatment (POET); activated carbon
    - What Changed?
        i. RP funding will cease by the end of 2022
        ii. DG to follow standard statewide procedure for evaluating/granting variances
            1. Case-by-case basis

2. Previous variances allowed because POET systems were funded
3. Evaluate Norlake/Junker LFs water quality data to determine if the proposed well(s) can likely provide contamination-free water
4. Use best available information for variance considerations
5. Protect future well owners within the SWCA.

- What Changed? (Continued)
- Going forward, variances allowing treatment installations granted only if water sample results show likely unsafe water, even if deep well(s) meeting the SWCA requirements is/are constructed.
- Well construction costs expected to rise significantly.
- What is being done and why?
    i. DNR evaluating available WQ data (from investigations and private wells)
    ii. Determine SWCAs/boundaries are still appropriate for the known GW impacts
    iii. DNR evaluating possible SWCA changes (requirements/boundaries), requirements for variances, water sampling, and well construction
    iv. Any requirements/changes will be communicated as soon as possible.
    v. DNR reviewing legal requirements of existing variances; determine who is responsible for future water sampling/treatment system maintenance if/when RP funding no longer available.
- What is being done and why? (Continued)
    i. DNR evaluating extent and magnitude of the groundwater plume
        1. Installing new monitoring wells
        2. review existing monitoring well data/compare to new proposed standards and to effectiveness of treatment systems
    ii. In-depth study of alternative water supplies is underway
    iii. GIS web-viewer map shows historical and current data for local homes
        1. Public-accessible website
- Upgrade landfill equipment to allow smoother and more efficient O&M

d) Licensing (Gundrum) –

- Current License Exam Administration:

    i. Quarterly in-person exams have not been offered since Feb/2020

    ii. Urgent Exam Request Form accessed and completed online

    iii. Operator Certification Program processes requests weekly and provides exam applications upon request.

    iv. Exams offered twice monthly in Plover

        1. AM/PM sessions held

        2. 23 people per session

- Average number of exams annually:

    i. Pump Installer – 120

    ii. Water Well Driller - 22

- Exams are currently being booked into June with intent to schedule into August at which time the rule change is expected to be in place.

e) Emergency Rule Revision – NR 146: Exam Administration (Gundrum/Nessman)

- Revision required to allow 3rd party administration of license exams
- Section NR 146.045 to be added:
    i. The department may contract with an outside organization to provide department examinations under this chapter. An outside organization may charge fees to cover the cost of providing any exam under this section as allowed under their contract with the department. Examination results will be sent to the applicant within 30 days of the examination date.
        1. Hanten asked if this was the only part of the rule that will be changed in this revision or are there other things that need to be reviewed and discussed as well?
        2. Nessman – this is the main change, there are some language changes wherever examinations are mentioned that will refer back to this section. It's a short revision that also includes exam results to be provided within 30 days, and exception for license fee for veterans for the first time being licensed, and there is another small change regarding how long the applicant has to pass the exam after they applying.
        3. The revision also includes NR 114 changes
- 3rd party exam fees to be assessed in addition to the current licensing fees
- Exam fees to be based on length of license exam
- Revision required to allow 3rd party administration of license exams
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- 3rd party exam fees to be assessed in addition to the current licensing fees
- Exam fees to be based on length of license exam
- Exams will remain "Open Code" with digital (PDF) access to administrative code
- No hardcopy references will be allowed

i. Hanten asked what the reasoning was for not allowing hard copy references for online exams:

1. It will be difficult for the 3rd party administrator to ensure that only code related references are included in the hard copy.

2. Fetter commented that the new approach to exams was to limit the dependence on open book references. People thought that because it was open book, that it would be easy. The study guide focuses exam preparation to one source when used with administrative code. If the study guide was used to diligently prepare for the exam, then they should pass. So far, the success rate has gone up.

3. Nessman also added that the hard copy can be used to write down questions during which might be provided to future applicants.

4. Hanten commented that many use the code book in preparation and highlight certain areas. A lot of people relied on a hard copy of code when taking the exam. The hardcopy is a working document. It may be more difficult to find things in a digital version vs a hardcopy that has been highlighted with notes. The digital version may be a disadvantage to those who have been trained to be hands-on. The fact that we have taken measures to make multiple versions of the exam available will make already make cheating a lot more difficult.

5. Fetter – While developing the exams and study guides, we looked at it as a process that would be reviewed and revised or "tweaked" as needed along the way.

ii. Nessman – there will be an environmental impact analysis for the rule changes for chapter NR 146 and other chapters being revised. Public comment period will be held probably next month. At that time there will be opportunity to comment on the rule changes themselves shortly after. The department will keep all apprised through gov-delivery messages.

- Exams to be available at computer lab locations around the state
- With webcam capability from a home computer
- In-person exams to continue only under special circumstances

f) Continuing Education Update - Online access to continuing education attendance history now available

g) Rig Operator Training Update –

h) Requirements of NR 146.04(2)(h)

- Requires 33 hours of online, classroom or hands-on training

i. Cement and Bentonite Grouting of Wells – 6 hours

ii. Drilling Fluids – 6 hours

iii. Geology of Wisconsin – 3 hours

iv. The Well Codes – 6 hours

v. Well Filling & Sealing – 3 hours

vi. Safety & First Aid – 3 hours

vii. Welding – 6 hours

i) 7 Rig Operators recently completed 6 hours of "The Well Codes"

j) Session were recorded and will be available for online attendance

- Hanten asked if this training will be available to anyone other than rig operators. Will it be available to the industry? How will you manage the content that you put together? Will it be available to pump installers and others who may view it as a refresher?

- Gundrum – the link for this training will be posted at the department website under the section for rig operator training. The process for registering and for attendance verification will need to be developed before posting to the website. The quiz may be administered using SurveyMonkey or similar application. The Well Codes portion was developed and tailored for rig operators. There may be value added content for seasoned drillers, but the target audience here is rig operators who are seeking to become license well drillers.

k) Compliance and Enforcement activities (Nessman/Fetter)

- Compliance Monitoring

  i. Compliance monitoring is down. We are down slightly relative to our goals for this year. Requirements for field staff were loosened fairly early in the year.

  ii. At this time, field staff is again providing compliance monitoring at normal levels of field work being completed.

    1. Kasdorf (acting field staff supervisor) – we are back to normal levels although it was difficult to get caught up given the number of backlogged well notifications. This and COVID consideration made it difficult to find active work.

    2. Recently, high percentage of inspections have been for new home construction. Since January, 70% of new homes are sitting vacant which was not the case for 2020. This may be due to an increase in materials cost. It has been more difficult finding anyone doing active work.

- Annual Reports – 2019 & 2020 Send out right away, or wait a month?

i. We missed sending out 2019 with Sandy's retirement. The plan is to send out the annual reports for both 2019 and 2020. We have two options:

1. Issue the reports in the usual fashion (manually) and they would then go out before the end of April.
2. Wait for DOA to complete preparation of the automated approach.

ii. Well construction reports for 2020 are still not completely entered, so the 2020 report would cover up to October of November. Should we send out reports now knowing that they will not include all of 2020 data.

1. Nessman: All 2020 WCRs have been received but they have not all been checked for compliance. Once they are checked for compliance, they are approved and added to the database.
2. Hanten: Because of the inconsistency of people receiving the report, there is confusion and if you submit a partial report it will generate more phone calls from people asking why data is missing. Timing is not an issue as people are already busy. The busy season is already upon us.
3. Butterfield: Better to wait for all the data so a complete report is provided. The report has been missed the past couple of years. They are nice to have see how performance is reflected in the state's records.

iii. Fetter stated the we are still having issues with sampling data related to relationships in the department's data base. If the disconnect is apparent in the report, the regulated community is asked to contact the department with the disconnects that they see. Field staff will hold on enforcement until any of these issues have been cleared up.

- NONs since January 28, 2021: 7
    i. The reason only 7 NONs is because we do not have Sandy Hershberger providing reporting compliance numbers. Once Sandy's position is filled, that is expected to change. Before Sandy's retirement, the department exceeded 300 annual NONs. Following Sandy's retirement, that number dropped to somewhere around 50. Most of our NONs are reporting related.
- Secondary enforcement:
    i. Active: 4 (all pump install violations)
        1. 1 from 2019
        2. 3 from 2020
        3. No new cases in 2021

ii. Hanten suggests that the department find other ways to initiate enforcement on samples with pump installing. It seems that all the tools the department has are aimed at well drillers ensuring that they get their sample submitted. The history has been that driller compliance is the department focus and that may be because of the tools that the department has at its disposal. Something has to be done to improve enforcement on the pump installation side. It seems that there is a disproportionate amount of enforcement activity aimed at well drillers and not enough for pump installers.

iii. Fetter: Some of that may be due to internal issues at the department with processing of water sample data. This is now being addressed with upgrades to WATR and GRN. Once GRN 2.0 comes out, the water sample data will be much better. Other issues exist including those who send samples to separate labs.

iv. Kasdorf: Most of what is found in the field is related to when inspections are done:

    1. During and after a well drilling
    2. During a pump installation and after a pump installation
    3. A majority of violations are found after pump work has already been completed. With pump installs, field inspectors don't know where they are going to be and when. Pump installers seem to make the most mistakes like the use of not approved electrical conduit. Finding a pump installer during an installation is a rare thing. We could more easily resolve pump installer related compliance issues if we were better able to monitor where and when pump installation activity is underway.

v. Hanten: Is there a way the department could monitor the number of pumps purchased vs the number of samples taken? Maybe have pump installers report on the number of pumps purchased.

vi. Fetter: At one time, a survey was once taken at continuing education on the number of wells drilled or number of pumps installed. A decision has not been made as to whether we would do that again. If a notification process could be established for pump installers, that might help but would likely be resisted by the pump installers. Regarding sampling data, steps are in progress at the department that will greatly improve processing of sampling data.

vii. Tesmer: Customers are surprised to see pump installer come back for sample after the installation had been complete. For a property transfer well inspection, if a sample shows high arsenic and we go back and sample at the kitchen sink after it goes through the softener and comes in under 10 (the MCL), is that OK or are there other requirements.

viii. Fetter: The department will not get involved in property transfer well inspection issues. The homeowner and prospective buyer would need to resolve this between themselves.

ix. Hanten: The pump installer is required to sample upstream of the treatment equipment so once you fulfill that requirement, you're fine. If they want a sample in another location, that is fine too, as long as the pump installer has met the requirement to sample upstream of the treatment system. They should be made aware that the softener is not a state approved treatment system for arsenic reduction or removal and the reason why it is not is that it can be inconsistent in its removal of arsenic.

x. Butterfield: The annual report does cause drillers to grab water samples even if the quality of the sample may be suspect. If the sampling process is rushed, you can get a sample that doesn't have any value to it. It is suggested that the well construction report or some other documents be used to identify who the pump installer for the well. We are getting more advanced in identifying how a sample is collected.

xi. Fetter: When in doubt, document. There is a place on the WCR that can be used to log this type of information. This "anecdotal" information can be of value in the future when issues arise in identifying who the department needs to talk to. Drillers should identify unusual situations and document them for future reference.

xii. Fetter: So ….the consensus on the annual report is to wait until all data for 2020 is available rather than getting the reports out as soon as possible.

- 1 case closed since 1/28/21
    i. Pump Installer license violation (using deceased lic #)
        1. closed 3/2/21 – 1 citation issued
- 1 current DOJ referral (2017) nearing closure
    i. Hanten emphasizes the need to publicize enforcement activities to let the industry know what enforcement actions are going on.

    ii. Fetter: Law enforcement public information office wants to have the lead in publicizing enforcement related activity. Private Water is limited in what they can do in the way of making this available to the public.

    iii. Nessman: Yes, there is a process in place that goes through law enforcement and when this case reaches closure, we will make sure that it is publicized through the law enforcement section.

    iv. Hanten requested that the department also provide this case information to the WWWA so they can include it in their newsletter.

l) NR 812 Revisions (Fetter)

- Future Revisions – Scope Statement DG-25-19 update
- PVC Casing Rule Revision – Scope Statement DG-25-19
    i. For possible expansion of PVC casing.
- EIA and Board Order under review
    i. Environmental Impact Analysis draft and board orders have been completed and are under review.
- EIA findings:
    i. Initial cost to drillers = $62,500 (one time)
    ii. Cost savings to new well owners = $893,500/year
- Public comment period on EIA late April/early May
    i. Targeted email to go out to all parties
    ii. To be posted at rule revision website
    iii. Will also be released via GovDelivery
- Niffenegger: Will PVC casing be used in all areas driftless or otherwise?
- Fetter: This is fairly short code revision. Summary of the revision is given.
- Walker: Everyone worked together well on the workgroup. Research by the department was very thorough.
- Butterfield: Has there been any consideration given to the size of hole and casing going into bedrock? Minnesota will use 8” hole with 4” casing which allows for better grouting techniques and cost savings.
- Fetter: Recommendation is provided for maximum annular space of 4”. Consideration was given to heat of hydration. Have not expanded the minimum annular space requirement. That was not discussed by the group.
- Walker: We did discuss the size of the casing with concern that 4” was too small when using steel casing and in a situation where you had to line the well. There were also concerns with the pump getting stuck in the well.
- Fetter: We did not adjust the minimum size for casing. In a bedrock well, 6” casing is required whether it is steel or PVC. The minimum for unconsolidated has not changed. The current minimum space is 2, 3, or 4” depending on how casing is joined.
- Nessman: We were limited in changing the minimum size due to other material considerations.
- Fetter: Legal services was consulted to determine if this could be expanded to other areas and the answer was no. We were limited to PVC considerations. Had to be PVC specific.

- Walker: Considerations were given for 2” casing used by Plain Folk was also discussed for unconsolidated wells.
- Fetter: 2” casing (PVC included) can be used for unconsolidated formation wells. Minimum for bedrock is 6”.
- Walker: Are there any situations where drilling through the casing would be allowed? There are situations where this would work well.
- Fetter: In terms of this rule revision this is a dead issue. There was a lot of feed back from the well drilling community against allowing drill through in PVC casing.
- O’Brien: If drilling through casing after it is set and grouted in, is that typically going to be a tri-cone bit or downhole hammer with air?
- Fetter: We would not be comfortable with downhole hammer with air.
- Walker: Will use a PVC bit more than anything else. Works in temporary wells with thermoplastic casing as well.
- Butterfield: In my opinion, the hammer bit would be the best solution in a properly drilled hole.
- O’Brien: Most drilling in the south (Missouri) is half PVC and half steel. All are drilled through the casing. Most use thick 6” pipe on wells typically with 200 ft of casing on 1200 ft well drilled through the pipe and they have no issues. Contact info for contractors and Missouri DNR can be provided for more information on drilling technique used there. Doesn’t believe that there would be issues drilling through the PVC casing.
- Fetter requested more information from O’Brien regarding drill through practices employed in Missouri. Surrounding states were contacted for information on PVC well casing, but Missouri was not one of them. Information provided by Ohio indicated that with drill through there may be scoring of the inside wall, but nothing that would cause a problem with the well.
- O’Brien: Missouri has a lot of caves and unconsolidated, where PVC has advantages over steel even though there are also limitations.
- Butterfield: Can NR 812 be changed to have rules specific to special well casing depth areas?
    i. Nessman: Typically, what we have done is require 10” upper with 6” casing. We probably would not want to go from 6” to 4” in bedrock of these special well casing depth areas.

7. Old Business

a. Bulk entry of Lab data into LDES – We’re working on it, and we hope to have it done by June if all goes well.

8. New Business

a. Future Meeting Dates

- October 2021 – Location? Marty thinks we should plan for an in-person meeting for October. Schmeekle reserve in Stevens Point? Marty will look into it; but a backup in Madison Area (probably the SCR-HQ office).
- January 2022 – WWWA Convention, Wisconsin Dells? The goal is to have an in-person meeting as per usual.