



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
John Gozdziwski, Regional Director

Ashland Service Center
2501 Golf Course Road
Ashland, Wisconsin 54806
Telephone 715-685-2900
FAX 715-685-2909

September 9, 2009

MR ERIC R CHRISTIANSEN
5501 N SANTA MONICA BLVD
MILWAUKEE WI 53217

FILE COPY

Subject: Environmental Contamination at the C.M. Christiansen Company Pole Yard Site,
Phelps, Wisconsin (WDNR BRRTS Activity #02-64-000068)

Dear Mr. Christiansen:

I am writing as a follow-up to our meeting on June 6, 2009 concerning the status of sediment issues associated with the former C.M. Christiansen Company site. As you will recall, the meeting participants included yourself, Laurie Parsons and Rick Fox of Natural Resource Technology, John Robinson, Tom Aartila, Bill Fitzpatrick, Jim Killian and me representing DNR, and Henry Nehls-Lowe of the Department of Health Services.

We agreed at that meeting that the contaminants that would drive any remedial decision making at the site would be polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF). Since the meeting, the DNR has provided you and NRT with feedback on some of the other issues that were raised, including whether or not dredged sediments would be considered a listed hazardous waste, and possible sediment disposal options. However, we understand that there was some confusion following that meeting amongst the meeting participants regarding the next steps in the process. Some, including you and your consultant, thought that DNR would be letting you know if additional delineation sampling would be needed in Military Creek before a remedial action could be planned. Others in our group thought that you and NRT would first be providing DNR with a conceptual plan for a remedy.

To try to resolve this difference of opinion regarding the next steps, DNR staff discussed this case again on August 13. Among the items that we discussed were statements that you made on June 6 about having limited funds available to address the contaminated sediments, and your desire for as high a degree of cost certainty as possible in order for you to feel comfortable moving forward. After this internal discussion, DNR came up with the following options for you to consider as a way of advancing this project.

1. You could proceed with planning and designing a sediment removal project along the lines of the attached conceptual plan. This would necessitate that you collect some additional samples (sediment and stream bank soil) to determine the upstream and downstream limits of the project, and to better define the horizontal and vertical extent of PCDD/PCDF contamination. The additional samples would be used in conjunction with available sediment and soil data to develop an estimated volume of sediment that would need to be removed. The conceptual plan is based on a target site sediment concentration of 15 nanograms per kilogram ($\eta\text{g/Kg}$) of the 2,3,7,8-substituted congeners of PCDD/PCDF expressed as a toxicity equivalent concentration (TEQ) of tetrachlorodibenzo-p-dioxin (TCDD). The 15 $\eta\text{g/Kg}$ TEQ TCDD target site concentration referenced in the conceptual plan is based on protection of aquatic resources, namely trout fry. We can provide you with references to support this target concentration upon request.

2. You could begin the planning and design process to implement a remedy that involves permanently re-routing that stretch of Military Creek that is contaminated above the 15 $\eta\text{g/Kg}$ TEQ target concentration, and then encapsulating the contaminated sediment in order to eliminate the threats posed to the different pathways by this contamination. So that we are clear on this option, re-routing the stream would require creation of at least an equal amount of stream footage as would be lost from the original stream channel. In other words, if you propose to re-route 1,000 feet of stream, you would have to construct a new channel that is at least 1,000 feet in length. This would also necessitate some of the same delineation sampling as described in the first option.
3. You could offer, for the Department's consideration, an alternative remedy that meets the same standards of protectiveness as provided by the above options.

In order to maintain the momentum generated from our June 6 meeting, we request that you get back to us within 45 days of the date of this letter, by **October 24, 2009**, to let us know how you intend to proceed. As we expressed to you at the June 6 meeting, we are at a point now where we expect to see some form of measurable progress on this phase of the project. If you have any questions concerning this letter or the project in general, please do not hesitate to write or call me at 715-685-2920. I can also be reached by e-mail at Christopher.Saari@Wisconsin.gov.

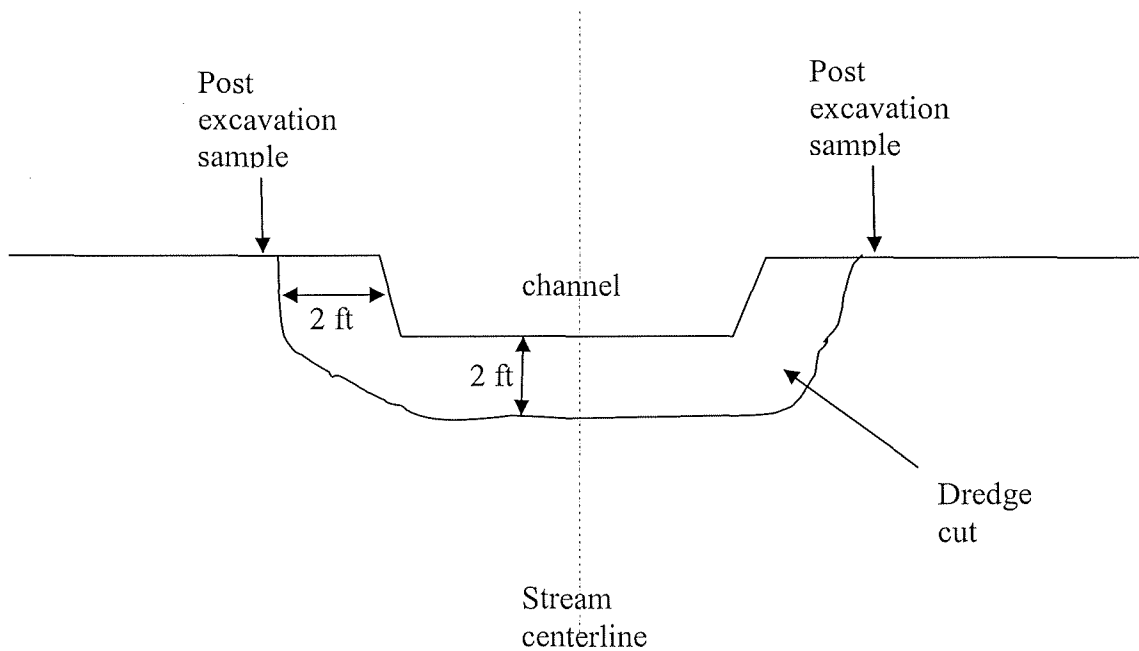
Sincerely,



Christopher A. Saari
Hydrogeologist

attach. Military Cr. Restoration Idea Sketch

cc: Laurie Parsons – NRT
John Robinson – DNR Rhinelander
Tom Aartila – DNR Park Falls
Bill Fitzpatrick – WT/3
Jim Killian – WT/3
Michelle Debrock-Owens – DNR Rhinelander
Henry Nehls-Lowe – DHS



Military Cr. Restoration Idea Sketch

- 1) Target site concentration 15 ng/kg TEQ.
- 2) Excavate sediment and bank material containing probable contamination
Remove 2 ft of the streambed and 2 feet of the existing bank.
- 3) Post excavation verification
 - a) Establish cross sections every 50 ft
 - b) Test excavated bed material with a 2 sample composite (0-6 inches) taken from the midpoint of the channel 20 above and below the cross-section.
 - c) Test the excavated top of bank, native material immediately behind the cut with a 2 sample composite (0-6 inches) taken from bank 20 above and below the cross-section.
- 4) Final action steps
 - a) No post excavation sample to exceed 2 times the target site concentration
 - b) If $> 2x$ target concentration, excavate 2 ft back and 2 ft down into the bed or bank to a distance 1/2 way to the next cross section
 - c) Retest all locations excavated under 4b, if the location exceeds 4a, repeat 4b.
 - d) If $< 2x$ target concentration backfill to approximate original contours with fill approved by regional RR and Fish Programs.

9/2/09 CMC

- Send them B.F. proposal / concept plan, onus is on them to define lateral & vertical extent downstream
- They'd need to determine start & end points through sampling
- 45 days w/ possibility of extension, for them to get back to us.

Ideally do single pass, give them cost certainty

Maybe give them

based on resource
(protect of trout)

Pfd samples, we need more to define depth/volume

2 options { sample more, Cleanup # ~ 8-12,
they determine depth/volume for dredge
Research re-rout/dag stream

Come

WDNR BRRTS CASE # 03 - 03 - 000917 WDNR SITE NAME : Reeve 76

FOR DEPARTMENT USE ONLY

PROJECT MANAGER: _____ Date Reviewed: _____

() Approved () Denied () Sent to Committee (Date: _____)

CLOSURE COMMITTEE DECISION ON CLOSURE:

FIRST COMMITTEE REVIEW DATE: _____ () Approved () Denied

(Signature) (Signature) (Signature) (Signature)

COMMITTEE RECOMMENDATION:

_____ **Closure Approved With:**

- _____ No Restrictions
- _____ Listing on GIS Registry due to Groundwater impacts
- _____ Listing on GIS Registry due to Soil impacts
- _____ Zoning Verification
- _____ Well Abandonment Documentation
- _____ Soil Disposal Documentation
- _____ NR 140 Exemption For: _____
- _____ VPLE Insurance needed
- _____ ROW notification needed
- _____ Cap required, maintenance plan needed for cap
- _____ Structural Impediment – notification and investigation needed if change in land use
- _____ Maintain Zoning - Industrial Land Use soil standards applied
- notification needed if change in land use
- _____ Site Specific Closure Letter
- _____ Deed Restriction
- _____ Deed Notice
- _____ Other

Conditions/Comments: _____

_____ **Closure Denied, Needs More:**

- _____ Investigation
- _____ Groundwater Monitoring
- _____ Soil Remediation
- _____ Groundwater Remediation
- _____ Documentation of Soil Landspreading or Biopile Destiny

Specific Comments:

Saari, Christopher A - DNR

From: Fitzpatrick, William - DNR
Sent: Tuesday, September 01, 2009 4:20 PM
To: Saari, Christopher A - DNR; Robinson, John H - DNR; Aartila, Tom P - DNR; Killian, James - DNR
Subject: RE: CM Christiansen call-in number
Attachments: Military Cr sketch.doc

Hi all

Idea for discussion tomorrow

I took a stab at crafting a conceptual cleanup plan for Military Cr. The central idea is to reduce the risk to sensitive fish species by removal of contaminated sediment and isolation of residual contaminants by backfilling the site and restoration of the stream contours. I thought it might be time to start thinking of the steps we might want to see to meet our goals for the site. I'm open to discussion on any of the steps. Attached word file has a sketch of a cross section showing the dredge cut.

Conceptual cleanup plan

- 1) Target site concentration 15 ng/kg TEQ
- 2) Excavate sediment and bank material containing probable contamination
remove 2 ft of the streambed and 2 feet of the existing bank
- 3) Post excavation verification
 - a) Establish cross sections every 50 ft
 - b) Test excavated bed material with a 2 sample composite (0-6 inches) taken from the midpoint of the channel 20 above and below the cross-section.
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 - a) no post excavation sample to exceed 2 times the target site concentration
 - b) if > 2x target concentration, excavate 2 ft back and 2 ft down into the bed or bank to a distance 1/2 way to the next cross section
 - c) retest all locations excavated under 4b, if the location exceeds 4a, repeat 4b.
 - d) if < 2x target concentration, backfill to approximate original contours with fill approved by regional RR and Fish Programs.



Military Cr
sketch.doc (37 KB)..

From: Saari, Christopher A - DNR
Sent: Tuesday, September 01, 2009 9:52 AM
To: Saari, Christopher A - DNR; Robinson, John H - DNR; Aartila, Tom P - DNR; Killian, James - DNR; Fitzpatrick, William - DNR
Subject: CM Christiansen call-in number

The call-in number is 608-265-1000, and the pass code is 4581#. Talk to you all tomorrow at 11:00.

From: Saari, Christopher A - DNR
Sent: Monday, August 31, 2009 3:19 PM
To: Robinson, John H - DNR; Aartila, Tom P - DNR; Killian, James - DNR; Fitzpatrick, William - DNR

Subject: FW: CM Christiansen, etc.

I was able to look at everyone's schedules, but I haven't quite figured out how to actually send an "official" meeting invitation. It looks like we all might have some time for a call on either Wednesday or Friday. Please let me know your preference ASAP and I will get a call-in number for us. Thanks.

From: Killian, James - DNR
Sent: Monday, August 17, 2009 4:38 PM
To: Saari, Christopher A - DNR
Subject: CM Christiansen, etc.

Chris;

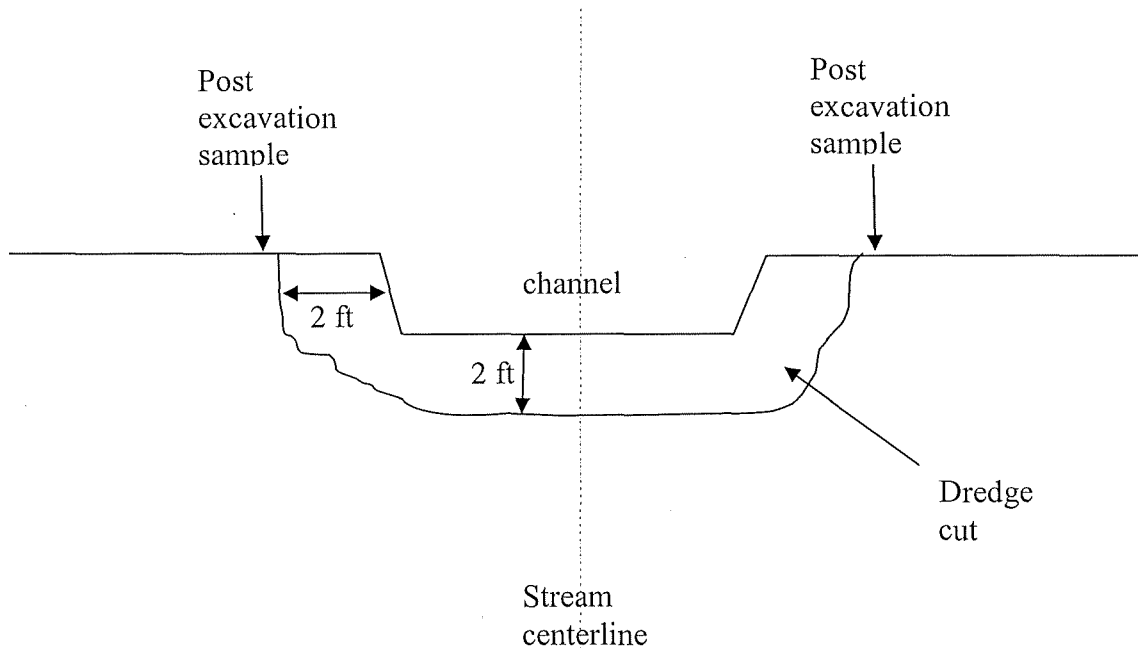
I will be out of the office until next Thursday.

Could you set up a conference call with the DNR gang (Robinson, Aartilla, myself, Fitzpatrick, you) regarding Christiansen site sometime that 1st week of september?

These are the topics we need to hammer out: (feel free to add more):

- Target concentration to be based on toxicity to trout. What does that number translate to for sediments? (I think Janisch already worked up a number in the eis document).
- What should we require for stream bank & floodplain sampling, and at what point do the Soil #'s (NR700) override the sediment #'s?
- need to define post-sampling requirements. How many, what max. concentration allowed, etc.
- What is our allowance for post-remediation cover (sand)?

I think that, once we get these nailed down, NRT will have a much clearer direction on how to proceed.



Military Cr. restoration idea sketch

- 1) Target site concentration 15 ng/kg TEQ.
- 2) Excavate sediment and bank material containing probable contamination
Remove 2 ft of the streambed and 2 feet of the existing bank.
- 3) Post excavation verification
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 - d) If $< 2x$ target concentration backfill to approximate original contours with fill approved by regional RR and Fish Programs.

8/13/09 1100 hrs

L. Parsons told Jo Robinson @ NR 700 TAC on
8/11 that they're waiting for us to tell them
what other sampling might be needed.

JR talked to B. Fitzpatrick about this, BF
asked if we'd require post-dredge samples - Yes.
Then what happens if samples are above what
we want to leave behind

Saari, Christopher A - DNR

From: Saari, Christopher A - DNR
Sent: Monday, June 22, 2009 10:29 AM
To: 'Laurie L. Parsons'
Cc: Boardman, Daniel C - DNR
Subject: CM Christiansen Hazardous Waste Question

Attachments: 9-16-99 Waste Determination.pdf

Hi Laurie:

I just wanted to send you a brief follow-up from our June 9th meeting regarding the potential for managed (dredged) sediments to be considered a hazardous waste. I reviewed the revised hazardous waste codes, specifically s. NR 661.31(1), Wis. Adm. Code, which contains a listing for the hazardous waste number F027:

"Discarded unused formulations containing tri-, tetra- or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols..."

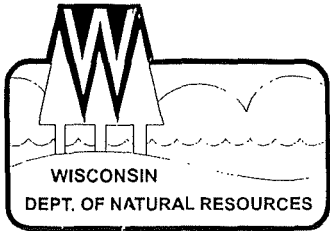
Because the revised definition of F027 now describes only "unused formulations", and per the attached letter both DNR and EPA agreed in 1999 that the waste did not contain unused formulations, it would appear that the revised F027 listing would not apply to newly generated or managed waste at this site. I also checked with our Waste and Materials Management program regarding this interpretation and they concurred that dredged sediments would not be considered a listed waste. And because site soil with much higher contaminant concentrations did not fail TCLP, we would not expect sediments to be a characteristic hazardous waste, either. Of course, TCLP analyses would still be needed to comply with characterization requirements.



9-16-99 Waste
Determination.pd...

I'm still waiting to hear back from the Technical Services Representative at Waste Management, Inc. regarding the landfill disposal issue. Hopefully I'll be able to get back to you on that issue very soon. In the meantime, let me know if you have any questions.

Chris Saari
Hydrogeologist, Remediation & Redevelopment Program
Wisconsin Department of Natural Resources
Telephone: 715-685-2920
E-mail: Christopher.Saari@Wisconsin.gov



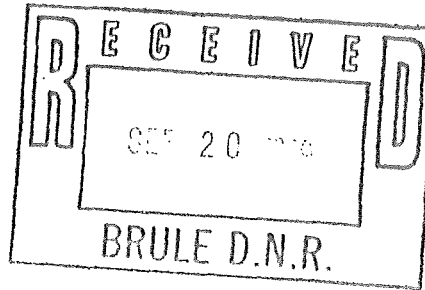
State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
William H. Smith, Regional Director

Northern Region Headquarters
107 Sutliff Ave.
Rhinelander, Wisconsin 54501-0818
Telephone 715-365-8900
FAX 715-365-8932
TDD 715-365-8957

September 16, 1999

Ms. Margie Ring
Michigan Department of Environmental Quality
1990 US Highway 41 South
Marquette, MI 49855



Subject: Waste Determination, Pentachlorophenol Contaminated Soil at CM Christiansen Co. Inc, Phelps, Wis.

Dear Ms. Ring:

The Wisconsin Department of Natural Resources (WDNR) has received requests from the Michigan DEQ as well as from Natural Resources Technologies on behalf of CM Christiansen Co. Inc (CMC) in Phelps Wisconsin, to issue an opinion on the waste determination for the soon to be excavated pentachlorophenol contaminated soil at CMC. CMC as the generator of the waste soil, has determined that the contaminated soil meets the criteria for a Wisconsin only F027 hazardous waste listing, the soil was contaminated from disposal of used formulations of pentachlorophenol. CMC has further determined that the Federal F027 listing does not apply as the waste was not from disposal of unused formulations. Natural Resources Technology, Inc. (NRT) also submitted TCLP data to the WDNR on September 2, 1999, which indicate that the site does not contain any soil which would fail TCLP at any point.

The WDNR concurs with CMC that the pentachlorophenol-contaminated soil at CMC is a Wisconsin only listed hazardous waste, and does not fail TCLP for pentachlorophenol or any other TCLP compound. The F027 waste listing opinion is also based on discussion with EPA region 5 staff during a variance from licensing request submittal for storage and treatment of contaminated soil at this site. Previously, Wisconsin only F027 contaminated soil from another site in western Wisconsin was shipped to a solid waste landfill in Minnesota.

If you have any questions regarding this letter, please call me at 715/365-8980.

Sincerely,

Don Miller
Waste Management Specialist

- c. Dave Kafura, DNR Spooner
Chris Saari, DNR Brule
Mr. Eric Christiansen, CM Christiansen Co. Inc., PO Box 100, Phelps, WI
Mr. Spiro Fafalios, Natural Resources Technology, 23713 W. Paul Rd., Pewaukee, WI 53072
Mr. Rick Pager, Waste Management, N96W13475 County Line Rd., Menomonee Falls, WI 53051

6/9/09 CMC Meeting, Pewaukee
Laurie Parsons, Rick Fox-NRT; Eric Christensen;
John Robinson, Jim Kellian, Tom Aertla, Bill Pote, Patrick-DNR
Henry Nehls, Coe, DHS
~ 8K yd³/400 yd³ (back of the envelope calculation)
400 ft x 20 ft x 10 ft

- What would be the risk drivers - PCDD/PCDF
- What would the cleanup number be, in order to limit volumes?

* - Check w/ McGordon re handling sediments as hazardous waste for transport due to listing

CMC/NRT will work on conceptual plan to address sediments through removal

Saari, Christopher A - DNR

From: Laurie L. Parsons [lparsons@naturalrt.com]
Sent: Monday, June 08, 2009 1:56 PM
To: Saari, Christopher A - DNR
Cc: eric christiansen
Subject: RE: Meeting at NRT

Chris, Thank you for the response. We will see you tomorrow. If there is a need to add anything to the agenda we can address it at the meeting.

Laurie Parsons

Natural Resource Technology, Inc.
 262.522.1193 direct | 262.719.4502 cell

From: Saari, Christopher A - DNR [mailto:Christopher.Saari@Wisconsin.gov]
Sent: Monday, June 08, 2009 9:48 AM
To: Laurie L. Parsons
Cc: Eric Christiansen
Subject: RE: Meeting at NRT

Sorry, I was also going to let you know who will be attending. From DNR will be John Robinson, Tom Aartila, Jim Killian, Bill Fitzpatrick and myself, and from DHS will be Henry Nehls-Lowe.

From: Saari, Christopher A - DNR
Sent: Monday, June 08, 2009 9:46 AM
To: 'Laurie L. Parsons'
Cc: Eric Christiansen
Subject: RE: Meeting at NRT

Based on Eric's schedule, we agreed to meet at NRT at 2:00.

Here is a draft agenda I put together for the meeting.

- Introductions
 - Brief site history
 - Investigations
 - Cleanup actions
 - Enforcement
 - Current status, why we are meeting today
 - Pros and cons of proceeding with a sediment removal vs. additional sampling and risk assessment
 - Possible funding sources?
 - Next steps
- See you tomorrow.

From: Laurie L. Parsons [mailto:lparsons@naturalrt.com]

Sent: Monday, June 08, 2009 9:34 AM
To: Saari, Christopher A - DNR
Cc: Eric Christiansen
Subject: Meeting at NRT

Chris, Just a quick note to confirm we are on for the CMC meeting tomorrow at NRT. Did we agree 1:30 or 2:00?

Laurie Parsons
Natural Resource Technology, Inc.
262.522.1193 direct | 262.719.4502 cell

Saari, Christopher A - DNR

From: Laurie L. Parsons [lparsons@naturalrt.com]
Sent: Tuesday, May 12, 2009 5:37 PM
To: Saari, Christopher A - DNR
Cc: Eric Christiansen; Eric P. Kovatch
Subject: CMC Co. 2008 Groundwater Data
Attachments: 1226_Oct 08 results_090107.pdf

Forwarding updated information to you at CMC Co.'s request. Let me know if you require a hard copy by mail.

Thanks,

Laurie Parsons
Natural Resource Technology, Inc.
262.522.1193 direct | 262.719.4502 cell

Saari, Christopher A - DNR

From: Saari, Christopher A - DNR
Sent: Monday, May 11, 2009 12:59 PM
To: Killian, James - DNR
Subject: RE: C.M. Christiansen Meeting Time & Location Confirmation

Absolutely. I didn't think to copy him on the initial e-mail, but please let him know and hopefully this fits with his schedule. If he can attend, let me know so that I can let Laurie Parsons know (she wanted an attendee list). Thanks.

From: Killian, James - DNR
Sent: Monday, May 11, 2009 12:40 PM
To: Saari, Christopher A - DNR
Subject: RE: C.M. Christiansen Meeting Time & Location Confirmation

Chris;

As you may recall, Bill Fitzpatrick was involved (internally) with our last review of this project. Would it be OK if he were to attend this meeting as well?

From: Saari, Christopher A - DNR
Sent: Monday, May 11, 2009 11:46 AM
To: Robinson, John H - DNR; Aartila, Tom P - DNR; Killian, James - DNR; Nehls-Lowe, Henry L - DHS
Cc: Laurie L. Parsons; eric christiansen; Debrock Owens, Michelle - DNR
Subject: FW: C.M. Christiansen Meeting Time & Location Confirmation

Good Morning All:

Based on feedback that I received from DNR and DHS staff, it looks like a meeting on June 9th will work for everyone. The meeting will be at 2:00 PM at the offices of Natural Resource Technology in Pewaukee. If circumstances change and you will not be able to make the meeting, please let me know as soon as you can. Thanks.

From: Laurie L. Parsons [mailto:lparsons@naturalrt.com]
Sent: Monday, May 11, 2009 11:38 AM
To: Saari, Christopher A - DNR
Cc: eric christiansen
Subject: Meeting Time & Location Confirmation

Chris,

Eric Christiansen can be here for a meeting start of 2:00 pm, NRT's office in Pewaukee on June 9. Map to our office is attached.
Please confirm this works and who will attend from DNR. Thanks!

Laurie Parsons
Natural Resource Technology, Inc.
262.522.1193 direct | 262.719.4502 cell

From: Saari, Christopher A - DNR [mailto:Christopher.Saari@Wisconsin.gov]
Sent: Thursday, May 07, 2009 11:08 AM
To: Laurie L. Parsons
Subject: Project Meeting Location

Hi Laurie:

I left you a voice message earlier, but it sounds like you might also be checking e-mails. I've received responses for the folks on the regulatory side regarding a meeting date (1:30 on June 9 looks like it will work for us), but I wanted to make sure we could meet at your office. Please let me know so that I can send an acknowledgement out to the meeting participants. Thanks.

Chris Saari
Hydrogeologist, Remediation & Redevelopment Program
Wisconsin Department of Natural Resources
Telephone: 715-685-2920
E-mail: Christopher.Saari@Wisconsin.gov



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
John Gozdziwski, Regional Director

Ashland Service Center
2501 Golf Course Road
Ashland, Wisconsin 54806
Telephone 715-685-2900
FAX 715-685-2909

March 3, 2009

FILE COPY

ERIC R CHRISTIANSEN
5501 N SANTA MONICA BLVD
MLWAUKEE WI 53217

Subject: Environmental Contamination at the C.M. Christiansen Company Pole Yard Site,
Phelps, Wisconsin (BRRTS Activity #02-64-000068)

Dear Mr. Christiansen:

I am writing today to touch base with you on the status of the above case, and more specifically the sediment contamination in Military Creek. As you might recall, we last talked about this case during a conference call on February 9, 2007, the purpose of which was to begin discussing options to address the sediment contamination issue. You made it clear on the call that your financial resources to address the case were limited, and that you believed sediment removal (dredging) was neither necessary nor advisable. Among the other discussion points was a draft preliminary conceptual site model (CSM) prepared by Natural Resource Technology (NRT). The CSM represented sediment and surface water contamination in Military Creek, potential contamination in the adjacent floodplain, exposure pathways, and potential contaminant receptors. It was agreed during the conference call that staff from the Departments of Natural Resources and Health Services would further discuss and provide comments on the CSM, with the intent that NRT would use these comments to finalize a work plan for additional sediment investigation and evaluation.

As you are likely aware, we have not yet finalized our comments on the CSM and provided them to NRT. Instead, since the February 2007 call, Department staff from the Remediation and Redevelopment and Watershed Management Programs have evaluated a few different approaches to address the sediment contamination in Military Creek. It has become clearer from these internal discussions that the most timely and cost-efficient method to address the sediment issue might be to eliminate the multiple sampling and evaluation steps involved with further assessing risk in the creek, and simply proceed with a sediment removal action. Our thinking is as follows:

- The stretch of Military Creek proposed for sediment removal would represent a relatively limited volume of sediments.
- The removal technologies and logistics that would be involved in this case are technically feasible and not overly complicated.
- Treatment and disposal options exist for the removed sediments.
- Perhaps most importantly, the contaminants are present in an environmentally sensitive creek that flows into an even more environmentally sensitive lake. As such, Department staff would be hard pressed to envision a scenario in which the sediments would be considered "safe" to leave in place under the existing conditions.

Mr. Eric R. Christiansen – March 3, 2009
Page 2

Obviously, this process would not be as simple as showing up with dredging equipment and starting to dredge. That is why we would like to resume discussions with you regarding the case status and what might be the most practical and efficient way to move this project to completion, and ultimately for you to receive closure of the case overall. Please let me know of some possible dates that you would be available to participate in a telephone conference call with Department staff. We would like to resume these discussions in March if possible.

If you have any questions concerning this letter or the project in general, please do not hesitate to write or call me at 715-685-2920. I can also be reached by e-mail at Christopher.Saari@Wisconsin.gov. I look forward to hearing from you.

Sincerely,



Christopher A. Saari
Hydrogeologist

cc: John Robinson – DNR Rhinelander
Tom Aartila – DNR Park Falls
Jim Killian – WT/3
Henry Nehls-Lowe – Department of Health Services
Michelle Debrock-Owens – DNR Rhinelander
Eric Kovatch – Natural Resource Technology

2/2/09 CMC conf. call

Jim Killian, Bill Fitzpatrick, Tom Aartola, John R.

\$30-35/yd³ LF tipping fee

300 yd³ ~~sed~~ removal

\$500/yd³ dredge costs

JK - would like to see lateral sampling,
maybe 3 transects across Military Ck.

TA & JK will work on Waters Special Project
to do survey work

Try to ~~meet~~ conf. call w/CMC, explain we're
going to proceed w/ remedy option



Mr. Eric Christiansen
C.M. Christiansen Co., Inc.
5501 N. Santa Monica
Milwaukee, Wisconsin 53217

January 7, 2009
(1226/7.1)

RE: Groundwater Sampling Results-October 2008
Former Poleyard Property, Phelps, Wisconsin
BRRTS#02-64-000068

Dear Mr. Christiansen:

Enclosed are results from the most recent round of groundwater sampling for the Phelps property, which was completed on October 23, 2008 by Northern Lake Services (NLS) of Crandon, Wisconsin. Activities completed at the site included sampling of four groundwater monitoring wells for pentachlorophenol (PCP) and water level measurement at 14 wells. The groundwater analytical results and water elevation are discussed below, and presented on the attached figure and tables. The laboratory report is appended as well.

RESULTS

Groundwater elevations observed in site wells are within the range of previous water level measurements (Table 1). Similar to historic results, a definitive groundwater contour/flow direction map can not be assembled from the elevation measurements due to the varying elevations observed across the site.

Originally, NRT had proposed groundwater samples be collected from five monitoring wells in October 2008. However, NLS personnel could not remove or break the lock on well MW-10, so it was not sampled. Instead, NLS collected groundwater samples for laboratory analysis of pentachlorophenol (PCP) from monitoring wells MW-4, MW-6, PMW-11, and PMW-11B. The PCP results for these wells are listed below. Historic PCP results indicate concentrations are decreasing in all wells, especially compared with the elevated concentrations observed years ago (Table 2). The October 2008 PCP results are tabulated below and listed, along with the historic results, on Figure 2.

Monitoring Well	PCP Concentration ($\mu\text{g/L}$)
MW-4	< 0.085
MW-6	9.0
MW-10	Not Sampled
PMW-11	110
PMW-11B	1.9

The October 2008 PCP concentrations were generally similar to or lower than the September 2003 or May 2006 results (Table 2). Concentrations in wells MW-6, PMW-11, and PMW-11B exceed the NR 140 Enforcement Standard (ES); however, the PCP concentration at well PMW-11 is the only location where it is significantly above the NR 140 ES. PCP concentrations in wells MW-6 and PMW-11B are much lower than the highest concentrations previously observed at these locations and within the same order of magnitude as the NR 140 ES (Table 2). It is difficult to assess concentrations at well MW-10 due to the inability of the sample crew to collect a sample. However, there is no reason to anticipate that concentrations at MW-10

C.M. Christiansen, Co.
January 7, 2009
Page 2

have significantly increased based on the historic results. Of note, the PCP concentration at PMW-11B is significantly lower than the value reported by WDNR for September 20, 2003 (the well was installed September 8, 2003).

Continued groundwater sampling in the vicinity of monitoring well PMW-11 is recommended to ensure concentrations in the surrounding wells remain stable or decrease. Further, NRT recommends annual groundwater sampling be conducted based on the historic groundwater data, as PCP concentrations appear to be generally stable in the site wells downgradient of well PMW-11. Thus, NRT recommends that the next round of groundwater sampling be scheduled for October 2009, pending CMC approval.

We appreciate the opportunity to provide continued services to C.M. Christiansen Co., Inc. Please contact either of us at 262.523.9000 if any questions arise during your review of the enclosed materials.

Sincerely,

NATURAL RESOURCE TECHNOLOGY, INC.



Eric P. Kovatch, PG
Senior Hydrogeologist

Enc: Table 1. Groundwater Elevation Summary
Table 2. Groundwater Analytical Summary - Pentachlorophenol ($\mu\text{g/L}$)
Figure 2. PCP Concentration in Groundwater – October 23, 2008
Laboratory Report with field notes

PA1226\CMC groundwater results 090106

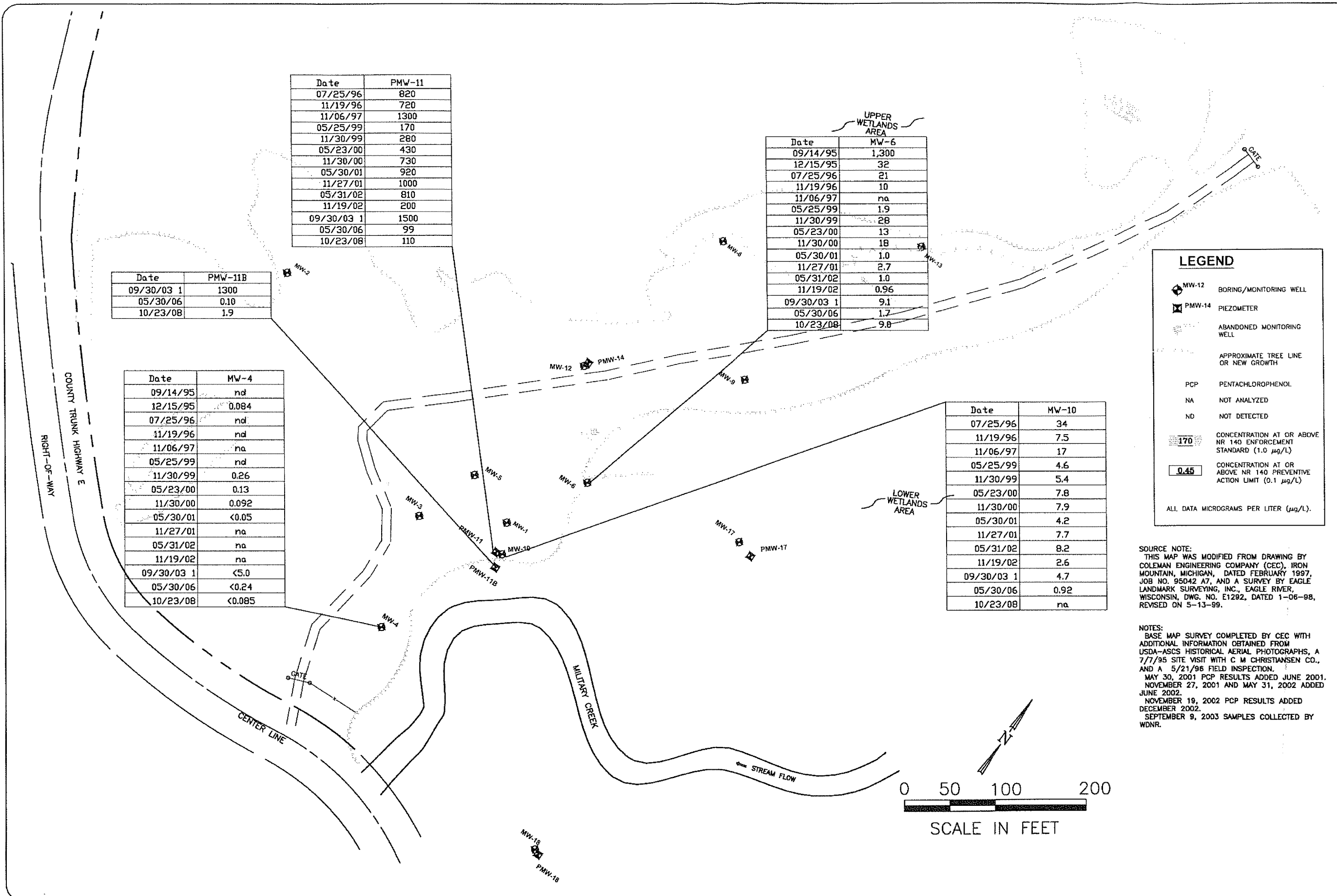


**Table 1 - Groundwater Elevation Summary
CM Christiansen - Phelps, WI**

Monitoring Point	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	PMW-11	PMW-11B	MW-12	PMW-14	MW-13	MW-17	PMW-17	MW-18	PMW-18	PMW-4A	PMW-4B	Military Crk
Top of Casing Elevation	1690.29	1714.54	1692.87	1689.63	1696.03	1691.52	1700.80	1703.50	1706.63	1689.13	1689.25	TOC 46 ft (See Note 1)	1711.09	1712.40	1703.06	1686.98	1686.68	1690.74	1690.68	TOC 29.80 ft (See Note 1)	TOC 44.00 ft (See Note 1)	1685.92
Ground Surface Elevation	1688.1	1712.7	1690.8	1687.8	1693.5	1689.2	1698.5	1700.5	1704.2	1686.4	1686.5		1709.0	1709.5	1700.1	1684.8	1684.5	1688.3	1688.1			--
Top of Screen Elev.	1680.1	1687.1	1682.8	1682.8	1689.5	1686.7	1688.5	1690.0	1689.1	1683.9	1664.0		1689.0	1670.0	1690.1	1681.1	1654.2	1684.8	1658.1			--
Bottom of Screen Elev.	1675.1	1677.4	1672.8	1672.8	1679.5	1676.7	1678.5	1680.0	1679.1	1673.9	1659.0		1679.0	1665.0	1680.1	1671.1	1649.2	1674.8	1653.1			--
Groundwater Elevation (ft NGVD)																						
09/14/95	1683.79	1685.27	1685.04	1683.42	1685.15	1685.23	1685.25	1685.94	nm	nm	nm	nm	nm	nm	nm							
12/15/95	1684.28	1685.20	1686.23	1684.09	1685.48	1685.12	1685.17	1687.01	nm	nm	nm	nm	nm	nm	nm							
07/03/96	1684.58	1685.83	1686.38	1684.00	1686.13	1685.70	1685.56*	1688.00	1685.70	1683.89	1685.09	1685.71	1685.73	1695.50								
07/11/96	1684.29	1685.74	1686.39	1684.05	1685.96	1685.56	1685.57*	1687.90	1685.60	1683.68	1684.89	1685.61	1685.62	1695.60								
7/24-25/96	1684.52	1685.78	1686.68	1683.77	1686.23	1685.55	1685.48*	1686.93	1685.65	1683.75	1685.00	1685.64	1685.59	1695.42								
08/06/96	1684.61	1685.75	1686.40	1684.29	1686.48	1685.62	1685.59*	1687.51	1685.09	1684.21	1685.04	1685.67	1685.68	1694.84	nm	nm	nm	nm				1684.00
08/07/96	1684.76	1685.78	1686.52	1684.66	1686.17	1685.73	nm	1687.74	1685.12	1684.30	1685.12	1685.69	1685.70	1697.31	nm	nm	nm	nm				1684.06
08/27/96	1684.25	1685.68	1685.17	1683.68	1685.95	1685.50	1685.57*	1686.84	1685.59	1683.79	1684.87	1685.59	1685.61	1696.71	nm	nm	nm	nm				nm
09/04/96	1684.33	1685.70	1685.99	1683.78	1685.84	1685.54	1685.65*	1686.51	1685.65	1684.18	1684.90	1685.62	1685.64	1696.57	nm	nm	nm	nm				1684.27
11/18/96	1685.20	1685.62	1686.28	1684.56	1686.18	1685.74	1685.62	1686.43	1685.67	1684.45	1685.28	1685.61	1685.65	1697.19	nm	nm	nm	nm				1684.14
05/24/99	1685.12	1685.28	1686.53	1684.56	1686.27	1685.50	1685.43	1686.66	1685.42	1684.31	1685.18	1685.37	1685.38	1698.18	1684.01	1685.26	1684.38	1684.55				nm
11/29-30/99	1683.93	1684.90	nm	1684.24	nm	1684.90	nm	1684.85	nm	1683.59	1684.24	nm	nm	1697.13	1683.55	1684.79	1683.69	1683.83				nm
05/23/00	1683.86	1684.83	1685.25	1684.63	1685.14	1684.78	nm	1685.52	1684.90	1683.41	1684.22	1684.87	1684.87	1696.73	1683.43	1684.69	1683.54	1683.67				nm
11/30/00	1683.82	1684.65	1684.56	1684.06	1684.68	1684.67	nm	1685.79	1684.73	1683.45	1684.06	1684.69	1684.72	1694.62	1683.39	nm**	1683.48	1683.59				nm
05/30/01	nm	1685.11	1686.02	1684.39	nm	1685.09	nm	1686.37	nm	1683.52	1684.60	1685.12	1685.14	1695.12	1683.52	1685.82	1683.76	1683.60				nm
11/27/01	nm	1685.01	1685.17	1684.63	nm	1685.05	nm	1686.24	nm	1683.91	1684.27	1685.03	1685.05	1694.68	1683.66	1684.24	1683.89	1684.01				nm
05/31/02	nm	1685.93	1686.84	1684.44	nm	1685.68	nm	1687.47	nm	1683.54	1684.63	1685.78	1685.79	1693.81	1683.53	1685.54	1683.84	1684.02				nm
11/19/02	nm	1685.31	1685.64	1684.28	nm	1685.19	nm	1686.77	nm	1683.58	1684.55	1685.26	1685.28	1694.87	1683.42	nm**	1683.69	1683.86				nm
09/09/03 ^A	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	2.00	nm	nm	nm	nm	nm	nm	nm	6.5	7.1	nm
09/30/03	1683.75	nm ^B	1684.55	nm ^B	1684.74	1684.85	Well	nm ^C	1685.01	nm ^B	nm ^B	nm ^B	1685.00	1685.04	1693.87	1683.2	1684.7	nm	nm	nm ^B	nm ^B	nm
05/30/06	nm	1684.86	1685.49	1683.82	nm	1685.01	Abandoned	1687.16	nm	1683.71	1683.71	nm	1684.93	1684.93	1695.85	1683.44	1684.60	1684.01	nm	nm	nm	nm
10/23/08	nm	1684.45	1684.20	1682.82	nm	1683.96		1686.26	nm	nm	1683.82	4.89	1684.51	1684.51	1692.47	1682.15	1683.97	1683.41	1683.5	nm	nm	nm

Notes:

- 1) Well Installed by Boart Longyear for WDNR on 9/8/03.
- NGVD = elevation with respect to National Vertical Geodetic Datum.
- Military Crk = creek elevation measured at stream gauge.
- nm = elevation not measured.
- * Elevation of free product.
- ** well frozen
- A: Wells Installed by Boart Longyear on August 8 & 9, 2003 for WDNR, currently no survey information available, water elevation is groundwater depth from top of casing (TOC.)
- B: Wisconsin Department of Natural Resources (WDNR) took groundwater levels for these specific wells, no information provided.
- C: Depth to groundwater not measured in monitoring well MW-8 on 9/30/2003 because well could not be opened due to rusted lock.



Date	PMW-11
07/25/96	820
11/19/96	720
11/06/97	1300
05/25/99	170
11/30/99	280
05/23/00	430
11/30/00	730
05/30/01	920
11/27/01	1000
05/31/02	810
11/19/02	200
09/30/03 1	1500
05/30/06	99
10/23/08	110

Date	MW-6
09/14/95	1,300
12/15/95	32
07/25/96	21
11/19/96	10
11/06/97	na
05/25/99	1.9
11/30/99	28
05/23/00	13
11/30/00	18
05/30/01	1.0
11/27/01	2.7
05/31/02	1.0
11/19/02	0.96
09/30/03 1	9.1
05/30/06	1.7
10/23/08	9.8

Date	PMW-11B
09/30/03 1	1300
05/30/06	0.10
10/23/08	1.9

Date	MW-4
09/14/95	nd
12/15/95	0.084
07/25/96	nd
11/19/96	nd
11/06/97	na
05/25/99	nd
11/30/99	0.26
05/23/00	0.13
11/30/00	0.092
05/30/01	<0.05
11/27/01	na
05/31/02	na
11/19/02	na
09/30/03 1	<5.0
05/30/06	<0.24
10/23/08	<0.085

Date	MW-10
07/25/96	34
11/19/96	7.5
11/06/97	17
05/25/99	4.6
11/30/99	5.4
05/23/00	7.8
11/30/00	7.9
05/30/01	4.2
11/27/01	7.7
05/31/02	8.2
11/19/02	2.6
09/30/03 1	4.7
05/30/06	0.92
10/23/08	na

LEGEND

- MW-12 BORING/MONITORING WELL
- PMW-14 PIEZOMETER
- ABANDONED MONITORING WELL
- APPROXIMATE TREE LINE OR NEW GROWTH
- PCP PENTACHLOROPHENOL
- NA NOT ANALYZED
- ND NOT DETECTED
- 170 CONCENTRATION AT OR ABOVE NR 140 ENFORCEMENT STANDARD (1.0 µg/L)
- 0.45 CONCENTRATION AT OR ABOVE NR 140 PREVENTIVE ACTION LIMIT (0.1 µg/L)

ALL DATA MICROGRAMS PER LITER (µg/L).

SOURCE NOTE:
 THIS MAP WAS MODIFIED FROM DRAWING BY COLEMAN ENGINEERING COMPANY (CEC), IRON MOUNTAIN, MICHIGAN, DATED FEBRUARY 1997, JOB NO. 95042 A7, AND A SURVEY BY EAGLE LANDMARK SURVEYING, INC., EAGLE RIVER, WISCONSIN, DWG. NO. E1292, DATED 1-06-98, REVISED ON 5-13-99.

NOTES:
 BASE MAP SURVEY COMPLETED BY CEC WITH ADDITIONAL INFORMATION OBTAINED FROM USDA-ASCS HISTORICAL AERIAL PHOTOGRAPHS, A 7/7/95 SITE VISIT WITH C. M. CHRISTIANSEN CO., AND A 5/21/96 FIELD INSPECTION.
 MAY 30, 2001 PCP RESULTS ADDED JUNE 2001.
 NOVEMBER 27, 2001 AND MAY 31, 2002 ADDED JUNE 2002.
 NOVEMBER 19, 2002 PCP RESULTS ADDED DECEMBER 2002.
 SEPTEMBER 9, 2003 SAMPLES COLLECTED BY WDNR.

PCP CONCENTRATIONS IN GROUNDWATER AT SELECT WELLS - OCT. 23, 2008
 C.M. CHRISTIANSEN COMPANY, INC.
 FORMER POLE TREATMENT FACILITY
 PHELPS, WISCONSIN

DATE: 12/27/02
DRAWN BY: TAS
CHECKED BY: SLF
APPROVED BY:
AUTOCAD FILE: 1226-54-B02.DWG

PROJECT NO. 1226/5.4
DRAWING NO. 1226-54-B02
FIGURE NO. 2

ANALYTICAL RESULTS: Chlorinated Herbicides by EPA 8151

Page 1 of 1

Customer: Natural Resource Technology Inc NLS Project: 124739

Project Description: C.M. Christiansen Company

Project Title: October 2008

Template: DAV8151W Printed: 12/02/2008 08:35

Sample: 500298 MW-4 Collected: 10/23/08 Analyzed: 11/06/08

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Pentachlorophenol	[0.085]	ug/L	1	0.050	0.17	
DCAA (SURR)	110%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 500306 MW-6 Collected: 10/23/08 Analyzed: 11/06/08

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Pentachlorophenol	9.0	ug/L	1	0.050	0.17	
DCAA (SURR)	104%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 500308 PMW-11 Collected: 10/23/08 Analyzed: 11/06/08

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Pentachlorophenol	110	ug/L	1	0.050	0.17	
DCAA (SURR)	107%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 500309 PMW-11B Collected: 10/23/08 Analyzed: 11/06/08

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Pentachlorophenol	1.9	ug/L	1	0.050	0.17	
DCAA (SURR)	104%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Crandon, WI 54520
 Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
 WDATCP Laboratory Certification No. 105-330
 EPA Laboratory ID No. WI00034

Printed: 12/02/08 Code: S Page 1 of 3

Client: Natural Resource Technology Inc
 Attn: Eric Kovatch
 23713 West Paul Road (Suite D)
 Pewaukee, WI 53072

NLS Project: 124739

NLS Customer: 84233

Fax: 262 523 9001 Phone: 262 523 9000

Project: C.M. Christiansen Company October 2008

PMW-18 NLS ID: 500295

Matrix: GW

Collected: 10/23/08 14:01 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1683.50	ft, NGVD	1			10/23/08	NA	721026460

MW-18 NLS ID: 500296

Matrix: GW

Collected: 10/23/08 14:02 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1683.41	ft, NGVD	1			10/23/08	NA	721026460

MW-2 NLS ID: 500297

Matrix: GW

Collected: 10/23/08 15:25 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1684.45	ft, NGVD	1			10/23/08	NA	721026460

MW-4 NLS ID: 500298

Matrix: GW

Collected: 10/23/08 18:22 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1682.82	ft, NGVD	1			10/23/08	NA	721026460
Chlorinated Herbicides (water) by EPA 8151	see attached					11/06/08	SW846 8151	632021390
Organics Extraction (Herbicides)	yes					10/30/08	SW846 8151	632021390

PMW-17 NLS ID: 500299

Matrix: GW

Collected: 10/23/08 15:59 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1683.98	ft, NGVD	1			10/23/08	NA	721026460

MW-17 NLS ID: 500300

Matrix: GW

Collected: 10/23/08 16:00 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1682.15	ft, NGVD	1			10/23/08	NA	721026460

PMW-14 NLS ID: 500301

Matrix: GW

Collected: 10/23/08 15:37 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1684.51	ft, NGVD	1			10/23/08	NA	721026460

MW-12 NLS ID: 500302

Matrix: GW

Collected: 10/23/08 15:36 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1684.51	ft, NGVD	1			10/23/08	NA	721026460

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Crandon, WI 54520
 Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
 WDATCP Laboratory Certification No. 105-330
 EPA Laboratory ID No. WI00034

Printed: 12/02/08 Code: S Page 2 of 3

Client: Natural Resource Technology Inc
 Attn: Eric Kovatch
 23713 West Paul Road (Suite D)
 Pewaukee, WI 53072

NLS Project: 124739

NLS Customer: 84233

Fax: 262 523 9001 Phone: 262 523 9000

Project: C.M. Christiansen Company October 2008

MW-13 NLS ID: 500303

Matrix: GW

Collected: 10/23/08 15:42 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1692.47	ft, NGVD	1			10/23/08	NA	721026460

MW-8 NLS ID: 500304

Matrix: GW

Collected: 10/23/08 15:50 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1686.26	ft, NGVD	1			10/23/08	NA	721026460

MW-3 NLS ID: 500305

Matrix: GW

Collected: 10/23/08 16:13 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1684.20	ft, NGVD	1			10/23/08	NA	721026460

MW-6 NLS ID: 500306

Matrix: GW

Collected: 10/23/08 17:56 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1683.96	ft, NGVD	1			10/23/08	NA	721026460
Chlorinated Herbicides (water) by EPA 8151	see attached					11/06/08	SW846 8151	632021390
Organics Extraction (Herbicides)	yes					10/30/08	SW846 8151	632021390

MW-10 NLS ID: 500307

Matrix: GW

Collected: 10/23/08 18:34 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Could not sample	could not open, break or cut lock off					10/23/08	NA	721026460

PMW-11 NLS ID: 500308

Matrix: GW

Collected: 10/23/08 17:02 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field static water level	1683.82	ft, NGVD	1			10/23/08	NA	721026460
Chlorinated Herbicides (water) by EPA 8151	see attached					11/06/08	SW846 8151	632021390
Organics Extraction (Herbicides)	yes					10/30/08	SW846 8151	632021390

PMW-11B NLS ID: 500309

Matrix: GW

Collected: 10/23/08 17:25 Received: 10/23/08

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Field depth to water	4.89	ft.	1			10/23/08	C-017-1	721026460
Chlorinated Herbicides (water) by EPA 8151	see attached					11/06/08	SW846 8151	632021390
Organics Extraction (Herbicides)	yes					10/30/08	SW846 8151	632021390

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
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Printed: 12/02/08 Code: S Page 3 of 3

Client: Natural Resource Technology Inc
Attn: Eric Kovatch
23713 West Paul Road (Suite D)
Pewaukee, WI 53072

NLS Project: 124739

NLS Customer: 84233

Fax: 262 523 9001 Phone: 262 523 9000

Project: C.M. Christiansen Company October 2008

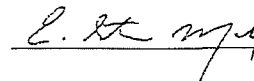
Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution.

LOD = Limit of Detection LOQ = Limit of Quantitation ND = Not Detected (< LOD) 1000 ug/L = 1 mg/L

DWB = Dry Weight Basis NA = Not Applicable %DWB = (mg/kg DWB) / 10000

MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:



Authorized by:
R. T. Krueger
President

NORTHERN LAKE SERVICE, INC. FIELD GROUNDWATER MONITORING RECORD

NLS Laboratory Number	S00295	S00296	S00297	S00297	S00299	S00300	S00301	S00302	S00303	S00304	S00305	S00306
Facility: Natural Resource Technology C M Christensen Co. pg 1 of 2	PMW-18	MW-18	MW-2	MW-4	PMW-17	MW-17	PMW-14	MW-12	MW-13	MW-8	MW-3	MW-6
DNR ID#												
Well Condition (see key)	SEE BACK OK	OK	OK	OK	OK	OK	OK	OK	NL SEE BACK	NL SEE BACK	NO LOCK SEE BACK	OK
Pipetop Elevation (ft. NGVD)	1690.68	1690.74	1714.54	1689.63	1686.68	1686.98	1712.40	1711.09	1703.06	1703.50	1692.87	1691.52
Depth to Water (ft.)	7.18	7.33	30.09	4.81	2.70	4.83	27.89	26.58	10.59	17.24	8.47	7.54
STATIC WATER ELEVATION	1683.50	1683.41	1684.45	1682.82	1683.98	1682.15	1684.51	1684.51	1692.47	1684.26	1684.20	1683.96
Depth to Well Bottom (ft.)	37.7	15.9	37.3	27.2 16.9	36.7	16.1	47.1	31.7	21.2	23.3	20.1	15.1
Standing Water Column (ft.)	---	---	---	15.39	---	---	---	---	---	---	---	7.54
Standing Water Volume (gal.)	---	---	---	2.43	---	---	---	---	---	---	---	1.29
Purging Methods (see key)	---	---	---	HB 10.5	---	---	---	---	---	---	---	HB 5.2
Purge Info. (see key) (4 vol.)	---	---	---	P-4K	---	---	---	---	---	---	---	P-PD4
Volume Purged (gal.)	---	---	---	10.5	---	---	---	---	---	---	---	3.1
Appearance During Purging	---	---	---	CLOUDY	---	---	---	---	---	---	---	CLOUDY
FIELD COLOR (describe)	---	---	---	ND	---	---	---	---	---	---	---	ND
FIELD CONDUCTIVITY (umho @ 25C)	---	---	---	---	---	---	---	---	---	---	---	---
Field Filtered (Y/N describe)	---	---	---	NO	---	---	---	---	---	---	---	NO
FIELD ODOR (describe)	---	---	---	ND	---	---	---	---	---	---	---	ND
FIELD pH (standard units)	---	---	---	---	---	---	---	---	---	---	---	---
FIELD TEMPERATURE (degree C)	---	---	---	---	---	---	---	---	---	---	---	---
FIELD TURBIDITY	Quantity	---	---	MDD	---	---	---	---	---	---	---	MDD
	Texture	---	---	FINE	---	---	---	---	---	---	---	FINE
	Color	---	---	BROWN	---	---	---	---	---	---	---	BROWN
Purge Time-if not immed.												
TIME SAMPLED	1401	1402	1525	1822	1559	1400	1537	1536	1542	1550	1613	1756
DATE SAMPLED	10/23/08											

See reverse for analytical abbreviation key and other pertinent information

NORTHERN LAKE SERVICE, INC. FIELD GROUNDWATER MONITORING RECORD

NLS Laboratory Number	500307	500308	500309																
Facility: Natural Resource Technology	MW-10	PMW-11	PMW-11B		Effluent														
C M Christensen Co. pg 2 of 2																			
DNR ID#																			
Well Condition (see key)		OK	OK																
Pipetop Elevation (ft. NGVD)	1689.13	1689.25																	
Depth to Water (ft.)		5.43	4.89																
STATIC WATER ELEVATION		1683.82																	
Depth to Well Bottom (ft.)	15.2	30.0	48.5																
Standing Water Column (ft.)		24.57	43.61																
Standing Water Volume (gal.)		4.20	7.44																
Purging Methods (see key)		HB 14.8	HB 29.8																
Purge Info. (see key) (4 vol.)		P-ADA	P-AX																
Volume Purged (gal.)		7.5	29.8																
Appearance During Purging		CLOUDY GRAY BROWN	SLT CLOUDY																
FIELD COLOR (describe)		ND	ND																
FIELD CONDUCTIVITY (umho @ 25C)		---	---																
Field Filtered (Y/N describe)	NO	NO	NO		NO														
FIELD ODOR (describe)		SLT PRODUCT	ND																
FIELD pH (standard units)	---	---	---																
FIELD TEMPERATURE (degree C)	---	---	---																
FIELD TURBIDITY	Quantity		MOD		SLT														
	Texture		FINE		FINE														
	Color		GRAY BROWN		BROWN														
Purge Time-if not immed.																			
TIME SAMPLED	1834	1702	1725																
DATE SAMPLED	10/23/08	→																	

The following information applies to samples on the reverse side of this sheet.

Date 10/23/08 Date _____

Crew Chief STEVE MACAULEY Crew Chief _____

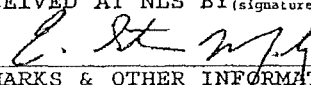
Crew _____ Crew _____

Weather/Comments: _____

SAMPLE COLLECTION COMMENTS

PMW-18: CUT LOCK OFF (KEY WAS BROKEN OFF IN LOCK)
 MW-13: CANNOT LOCK. INNER PVC WELL PIPE HEAVED APPROX. 8 INCHES ABOVE OUTER CASING
 MW-8: CAN NOT LOCK. OUTER WELL CAP BROKEN.
 MW-3: WELL BENT OVER DUE TO COLLISION. COULD NOT SAMPLE IF NEEDED.

SAMPLE CUSTODY

RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
RECEIVED AT NLS BY (signature) 	DATE/TIME 10-23-08 / 2030	CONDITION GOOD
TEMP. ON ICE		
REMARKS & OTHER INFORMATION		

KEY OF ABBREVIATIONS

- | | |
|---|---|
| Purging Method: <ul style="list-style-type: none"> HB hand bailed PB power bailer DP deep well pump PP peristaltic pump | Purging Info: <ul style="list-style-type: none"> P-X purged (X) volumes Dry purged dry DD(x) level drew down; purged (x) volume of remaining column O other (explain) |
| Well Condition: <ul style="list-style-type: none"> WD well damaged (explain) NL well not locked NC no cap on inner casing SD seal damaged (explain) O other problems (i.e. bent casing, ants in well) OK well in good condition | |

Purging Appearances: description (i.e. sandy, cloudy, clear, dark, red, etc)

Filtered: Y or N

Filterability: G=good, M=moderately good, P=poor, D=difficult, special procedures (explain)

The following information applies to samples on the reverse side of this sheet.

Date 10/23/08 Date _____

Crew Chief STEVE MACAULEY Crew Chief _____

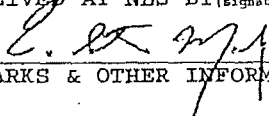
Crew _____ Crew _____

Weather/Comments: _____

SAMPLE COLLECTION COMMENTS

MWID: STILL HAS OLD LOCK ATTACHED

SAMPLE CUSTODY

RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
		
		10-23-08 / 2030
REMARKS & OTHER INFORMATION		

KEY OF ABBREVIATIONS

- | | |
|---|--|
| <p>Purging Method:</p> <ul style="list-style-type: none"> HB hand bailed PB power bailer DP deep well pump PP peristaltic pump <p>Well Condition:</p> <ul style="list-style-type: none"> WD well damaged (explain) NL well not locked NC no cap on inner casing SD seal damaged (explain) O other problems (i.e. bent casing, ants in well) OK well in good condition | <p>Purging Info:</p> <ul style="list-style-type: none"> P-X purged (X) volumes Dry purged dry DD(x) level drew down; purged (x) volume of remaining column O other (explain) |
|---|--|

Purging Appearances: description (i.e. sandy, cloudy, clear, dark, red, etc)

Filtered: Y or N

Filterability: G=good, M=moderately good, P=poor, D=difficult, special procedures (explain)

10/29/09 0930hrs.

Eric Christensen

Rock Fox

Tom Artala

Jim Kellan

John R.

1) Town Board meeting update

2) Remed. Drivers

- NRT does not believe there is a risk, so why go to remedy?
- Human health risk is minimal, but eco risk is there
- No recent fish data from creek, but still concern about eco-tox to fry
- 15 ppt TOC is proposed goal (TOC corrected)
- They feel there's mega TOC/black carbon in sys. due to old charcoal briquet plant
- If they have to dredge to 15 ppt they won't get very far w/ their avail. \$
- They also have problems w/ pathway modeling, how much time do trout fry really spend in contour area?
- Their bottom line is to try to do "hot spot" removal, get good chunk of mass out, sequester the rest (engineered cap/cap(sand) w/ admixture of carbon, or just mix w/ black carbon)

- K. Sloan mentioned that they'd have to demonstrate down the road that "natural processes" are actually occurring (post-rem. monitoring)
- R.F. feels they have enough info now to do conceptual plan (limited delineation, back of the envelope mass calculation)
- They've been looking conceptually @ limited removal & monitored natural attenuation/recovery
- ~~R.F.~~ R.F. would like to be able to discuss questions he might have on conceptual model w/ J.K. & B.F. directly - OK w/ us
- E.C. said Vilas City Extension did flow monitoring 10-15 yrs. ago, data should still be available
- R.F. - What if we test native fish & no dioxins, then set caged fish on hot spots and get same results. - Is this still a site?
- They will give us multi-options that would include combo of removal & isolation. E.C. says Town has to have certainty, too, to make that deal proceed.
- Proposed date will be provided by Monday, 1/1/2

Saari, Christopher A - DNR

From: eric christiansen [eric.r.christiansen@gmail.com]
Sent: Wednesday, October 28, 2009 7:41 AM
To: Robinson, John H - DNR
Cc: Laurie L. Parsons; Saari, Christopher A - DNR; Aartila, Tom P - DNR; Killian, James - DNR; Richard G. Fox
Subject: Re: Meeting on October 29th
Attachments: CMC MTG Agenda Client Oct09-2.pdf

Agenda attached -- see you there at 9:30am.

eric

On Mon, Oct 26, 2009 at 3:45 PM, Robinson, John H - DNR <John.Robinson@wisconsin.gov> wrote:
I have reserved the meeting room at the Schmeeckle Reserve at UW Stevens Point for our meeting to discuss sediment issues at the C.M. Christiansen site. The meeting is scheduled to begin at 9:30. Please see the following link for directions to the facility.
<http://www.uwsp.edu/cnr/Schmeeckle/Directions/>

Laurie will be sending out an agenda shortly. Please let me know if have any questions.

John Robinson

Northern Region Team Supervisor
Bureau of Remediation & Redevelopment
Wisconsin Department of Natural Resources
(715) 365-8976

--
Eric Christiansen, Director
Greendale High School Theatre
6801 Southway
Greendale, WI 53129
eric.christiansen@greendale.k12.wi.us
<http://www.greendale.k12.wi.us/GHS/schools/ghs/ghs/academics/drama.html>



AGENDA

www.naturalrt.com

Date: October 28, 2009

Subject: CMC Christiansen Company, October 29, 2009 Meeting

-
1. Town Meeting: Implications for Schedule & Other Factors Affecting Remediation
 2. Discussion/Understanding of Remedial Drivers
 3. Need for Remedial Certainty
 4. Next Steps

Books.

CME Concept Plan

Robinson

Aartola

Killian

Fitzpatrick

- Prior sign-off and lack of post-remedial monitoring are non-starters for B.F.
- J.K. has hung-up w/ only removing 1' of sedcs when samples @ 2' are blasted.
- Containing financial liability resulting from long-term care
- "We're concerned w/ channel evolution(?) & overbank deposition" J.K.
- Further characterization downstream of bridge is definitely needed.

- limited because want

- ~~not~~ sat/prescribed dredge depth too shallow

o bank investigation

- future channel

- post-confirmation sampling

- lower segment downstream of E by unknown, how do you tell where sand ends?

What happens when you raise grade?

- Deadline to respond by 6/1

John will talk to K. Clayton re: removals, and Mark Co. re: RCRA

10/19/09

Phelps Town Board meeting re: CMC

- Town is looking for industrial park area, CMC has 16-17 acres available
- Town has talked to EC, he's looking for Town to search for grant ~~to~~ complete cleanup, they'd consider land donation.
- Town would also like to eliminate S-curve on CTH E & K, would use part of land to do so.
- I gave them 10¢ site history
- A. Rabin, COMM - Cost to clean up beyond indust. standards/donation value of land would have to exceed. (e.g. land value = \$1M, cleanup costs = \$500K, donation ~~to~~ \$500K)
- BEBR grants usually not applied to sed cleanup, generally geared towards remediation (soil); can also fund demo, asbestos abatement, utility hookups
- A.R. would look very favorably on indust. park
- Avg. award is \$300K, can go over \$1M but rare
- Turnaround for reimbursement ~10 days from receipt of documentation & request
- COMM ~~can~~ ^{can} fund no more than 1/3 project costs

- COMML scoring criteria

50% econ devel. ~~base criteria~~

25% enviro. factors

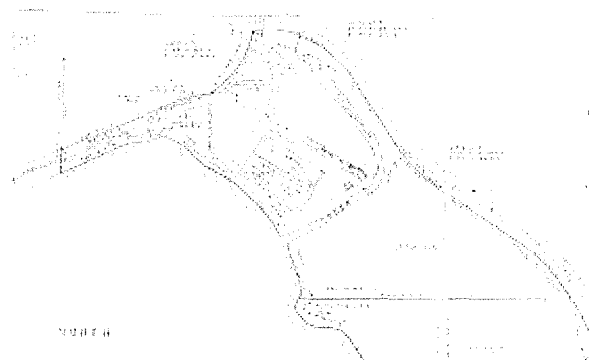
25% viability of project

COLDWELL BANKER® Mulleady, Inc., REALTORS®

[Printer-Friendly Page](#)

lot Hwy E, Phelps

Commercial Land - NORTH TWIN MILL PROPERTY /107410/GP - Unusual large waterfront property on east end of fabulous North Twin Lake, with Approximately 10 acres and 985 ft of sand frontage. Facing west, the property looks down the length and breadth of this well known premier fishing lake. Home of the old saw mill site, this land is level and provides a multitude of options for commercial/recreational development. City water/sewer/natural gas and electric power are available at the Cty Hwy E roadside.



MLS #: 107410

\$1,200,000.00

Contact Agent
CLICK HERE

Map this location with:

MAPQUEST

General Information

Address: lot Hwy E
 City: Phelps
 County: Vilas
 State: WI
 Zip Code: 54554
 Subdivision:
 Unit/Apt./Suite:
 Legal Description: GOVT LOT 3-4 S-35, T-42. R-11

Water Body Information

Body of Water: NORTHTWIN (Vilas)
 Body Type: Lake
 Lake Acres: 2788
 Lake Depth: 60
 Est. Frontage: 985 ft
 Lake Chain:
 Other Features:

Property Information

Business Type:

Lot Information

Est. Lot Size: ft
 Estimated Acreage: 10
 Lot Width: ft
 Lot Length: ft
 Zoning: All Purpose
 Flood Plain:
 Taxes: 3479
 Lot Info: Irregular

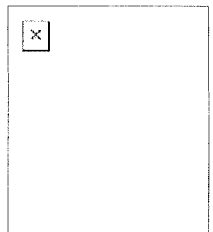
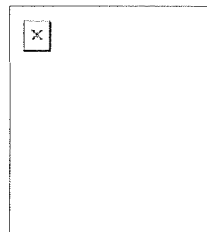
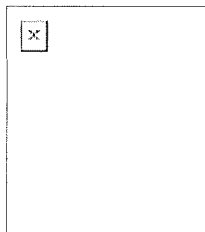
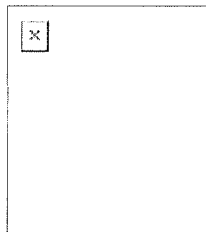
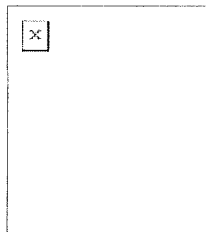
Building Information

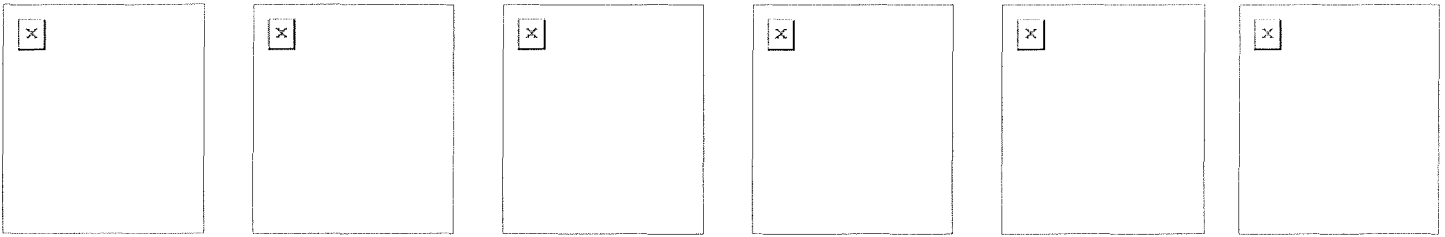
Business Name:
 Building Length: ft
 Building Width: ft
 Features: None
 Restrooms:
 Heating Fuel Type:
 Water Heater:
 Flooring:
 Ceiling

Commercial Type: Other-See Remarks
Access Road: County Hwy
Street Frontage: 1228 ft
Est. Warehouse Sqft:
Parking Spaces:
Industrial Park:
Site Description: Faces West, Other-See Remarks
Items Included: None
Utilities/Services: Electric, Gas at Lot, Telephone
Water: City/Municipal
Water Main Size:
Sewer: City Sewer
Sanitary Sewer Size:
Storm Sewer Size:
Municipality: VI Phelps
School - Elementary: VI Phelps
School - Middle:
School - High: VI Phelps
Restrictive Covenants: No
Docs on File: Disclosures, RE Condition Report, Site Plan

Height: ft
Year Established:
Construction: Other
Age: 50+ Years
Exterior Finish: None
Roofing:
Foundation: Poured Concrete
Est. Finished Above Grade: 0 Sqft
Est. Total Above Grade: 0 Sqft
Est. Finished Below Grade: 0 Sqft
Est. Total Below Grade: 0 Sqft
Est. Manufact. Sqft:
Est. Office Space: Sqft
Est. Retail Sqft:
Est. Sqft Building:
Loading Dock 1:
Loading Dock 2:
Loading Dock 3:
Loading Dock 4:
Door 1 Dim.: x
Door 2 Dim.: x
Door 3 Dim.: x
Door 4 Dim.: x
Business Docs: None

Photo Gallery





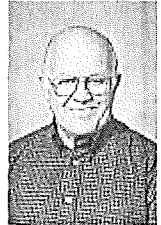
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Eagle River, WI 54521
(715) 617-7444
jerpar@newnorth.net
<http://www.jerrynorthwoodsproperties.com>

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Great Lakes Article:

Dioxins drove Great Lakes trout levels down

From Our Stolen Future.org

08/25/03

Cook, P, JA Robbins, DD Endicott, KB Lodge, PD Guiney, MK Walker, EW Zabelo and RE Peterson. 2003. Effects of Aryl Hydrocarbon Receptor-Mediated Early Life Stage Toxicity on Lake Trout Populations in Lake Ontario during the 20th Century. Environmental Science and Technology. DOI: 10.1021/es034045m

Lake trout became extinct in Lake Ontario by the 1960s. Their decline has been attributed largely to excessive commercial fishing and predation by the sea lamprey. But there were hints that these might not be the real explanation. For example, other fish declined, including some species not subjected to fishing pressure. Then determined efforts to decrease lamprey numbers had little impact on lake trout numbers. And re-stocking efforts using year-old fish that started in 1971 succeeded in creating a small population of adults, but no successful breeding until 1986.

With this paper, Cook et al. make a persuasive case that lake trout were eliminated not by the factors that received so much attention over these past several decades, but instead because of dioxin and dioxin-like pollution in Lake Ontario and its high toxicity to embryos and very young trout just after hatching. The breeding recovery that has been occurring since 1985 has taken place as dioxin levels gradually decreased to beneath the concentrations that caused complete mortality in young fish.

The key toxicological findings that pointed to dioxin's impact (and other dioxin-like contaminants) were a series of studies demonstrating that lake trout sac fry are extremely sensitive to dioxin's most powerful form, TCDD.

Transfer of TCDD from the mother trout to her eggs kill the fry at dioxin levels above 30 picograms/gram (parts per trillion). By 100 ppt, all fry die. Other contaminants that act via the same molecular mechanisms as TCDD, the aryl hydrocarbon receptor, interact additively with TCDD. Hence the impact has not been due to just one chemical, but to a mixture all of which together affect survival of young fish. To date, lake trout are the most sensitive fish species to TCDD impacts during the early life of fry that has

been found.

Their analysis rests on three different sets of data:

population trends in adult lake trout in Lake Ontario, based on fish capture records;

toxicological impacts of dioxin and dioxin-like contaminants on young trout mortality;

a reconstruction of dioxin levels in Lake Ontario from sediment cores and from fish samples.

Their findings are important because they reveal the powerful population-level impact that low-level but highly toxic contaminants can have on commercially important fish.

What did they do? Cooke et al. compiled data on fish contamination and sediment from samples that had been taken since the 1970s. The fish samples allowed direct measurement of contamination levels. For the years before 1971, when no tissue or eggs were available either from lake trout or similar species, the scientists estimated contamination levels by measurements of contamination in sediments, combined with information about how those levels relate to what is found in fish.

The sediment studies allowed them to reconstruct the build-up of contaminants in Lake Ontario during the 20th century. Sediment gradually accumulates on the lake bottom, so in places where it has not been disturbed, deeper parts of the cores are from older time periods. They used trace patterns of radioactivity to help determine at what year a given layer of sediment was deposited.

They then determined when dioxin contamination would have reached levels that would harm larval fish, the most delicate part of the life cycle of lake trout, and they looked at the relationship between those data and when lake trout went extinct.

What did they find? Cook et al.'s indicate that all lake trout sac fry in Lake Ontario would have been killed by dioxin for several decades during the middle of the 20th century.

Based on their calculations of exposure to dioxin/dioxin-like contaminants, virtually all lake trout fry would have been killed by 1950, when the minimum predicted level, in blue, reaches 100%.

Observed mortality (available for several years since 1978) tracks between predicted minimum and maximum mortalities.

What does it mean? This compelling documentation of the extirpation of a commercially- and recreationally-exploited fish population caused by dioxin-related contamination took an extraordinary scientific effort, spanning years of work and a sophisticated combination of laboratory and field studies. The findings contradict long-held assumptions about what had driven lake trout in Lake Ontario to extinction, assumptions that were used to justify a series of

costly and ultimately ineffective interventions.

One of the central messages of this work is that different parts of the life cycle of an organism are not equally vulnerable to contamination, but that the bottleneck created by a single life-cycle stage's vulnerability can affect population size profoundly. Annual stocking of yearling trout, beginning in 1973, was successful in establishing a population of adults, with no outward sign of dioxin-related adult toxicity, but a population incapable of breeding because of effects on reproduction and larval survival. Cook et al. cite research showing that adult female lake trout showed no overt signs of toxicity to TCDD levels 3x that sufficient to cause 100% mortality in their offspring. These females also failed to ovulate. Then as Lake Ontario dioxin levels fell in the 80s through to 1994, fecundity of lake trout rose 8-fold.

Few commercial fish species have been studied as thoroughly, from a toxicological perspective, as Lake Ontario lake trout. Indeed most fish species have received very little attention. This study raises unanswered questions about the contribution of contamination to declines in other fishing stocks, particularly those whose larval nurseries are in contaminated estuaries, or anadromous fish whose migrations may take them into contaminated watersheds.

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