CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: November 6, 1995

TO: Scott Watson - NCD/Rhinelander

FROM: Tom Janisch - WR/2
Jim Amrhein - WR/2

SUBJECT: October 9 - 11, 1995 Sampling of the C.M. Christiansen Wood Treatment Facility at Phillips, Wisconsin by Janisch, Amrhein, Kreitlow, and Boheim.

A summary of the sampling locations and sampling types for the C.M. Christiansen facility follows. The sampling design was modified from the original Bureau of Water Resources Management (BWRM) Sampling Plan for the site based on available Department funding to do the chemical and other analysis of collected sediments and soils.

In total, including sampling personnel salaries, lodging, and costs associated with chemical analysis, toxicity testing, and macroinvertebrate sorting and identifications, the in-kind service costs the BWRM is providing for this assessment could potentially reach $25,000. A source for funding for the macroinvertebrate analysis is still being sought. The results of the modified sampling plan that was implemented will determine whether further chemical and biological evaluations work is needed for the flood plain, Military Creek, and North Twin Lake.

The sampling sites and sampling types for the modified sampling plans are shown in Table 1. The sampling locations are shown in Figure 1.

Floodplain Assessment

Most of the money available for chemical analysis was allocated to do a full chemical analysis of floodplain soils on the site, adjacent to the creek. Some initial probing was done by shovel on the site floodplain soils looking for visual or odor characteristics associated with the wood treatment compounds used i.e., creosote, diesel oils, or PCP. The probing of the floodplain was not systematic or thorough given the time constraints. The probing was mostly concentrated in areas where because of the creek physical characteristics and energy dynamics would potentially result in erosion of floodplain soils. Generally, visual gross floodplain contamination was not found. The exceptions were some sites that appeared to have a faint diesel-like odor and one localized site that had gross contamination. This heavily contaminated site is located and described in Figure 2.

The floodplain sampling sites shown in Figure 1 have the following characteristics:

FP-1A - Reference floodplain sample site. 0-6 inches from 2 shovel cores composited. Samples taken 25 feet from the creek channel and under a tag alder overstory. The floodplain site is near the creek channel reference site previously used by Kreitlow for caged fish

and sediment sampling. Soils of the reference floodplain site will only be analyzed for DRO and particle size analysis.

FP-2A/B- One of the two study site floodplain soil sites. Two segments sampled - 0-3 inches and 3-8 inches. Each segment was a composite of soil material obtained in three shovel cores taken 10-15 feet from the creek channel bank. The site is in a tag alder shrub area in wetland. This site was selected for sampling because of log remnants and treated log sawed ends that are strewn about the area. Based on an old aerial photograph, the location may have been a drying and drip area for treated logs. Also there are some rusted 5 gallon containers around a junk pile near the creek bank in this area. Analysis of FP-2 segments will include the full suite of compounds (i.e., DRO, pesticides, and priority pollutants which includes chlorinated pesticides, PAHs and cholorophenolics, TOC, and particle size). The potential interferences from PCDPEs with chlorinated pesticide analysis as referenced in the October 30, 1995, letter from White Water Assoc. is being discussed with the SLOH.

FP-3A/B- Study site floodplain soil. Two segments sampled, again 0-3 inches and 3-8 inches. Both segments will be analyzed for the full suite of chemicals. The sample site was chosen based on an old aerial photo that showed log piles in the vicinity although it is unknown of the logs were treated or untreated log storage piles. It is also an area adjacent to Military Creek where stream velocity is increased near the bank resulting in a higher potential of erosion during periods of high flow. Shovel probing of soils in the vicinity of the site on a June 22, 1995 site visit had a faint fuel oil-like odor and a grayish substrata. The sample site is within eight feet of the creek channel and is in grass-sedge-forb wetland vegetation.

Military Creek Sediments

The Military Creek sediment sample sites are shown on Figure 1. The assessment of sediments will focus on assessing the biological component, namely the in-field macroinvertebrate community and laboratory toxicity testing. No chemical analysis will be performed on creek sediments.

Sediment samples were taken in depositional areas of the channel, generally near the channel banks. While only the 0-6 inch layer of sediments was needed for macroinvertebrate analysis, full length cores that generally range from 16-20 inches were taken. Longer cores insured a "plug" to prevent high water content surface materials from running out of the core when retrieved and also provide an opportunity to look for the presence of subsurface strata characteristics that may be related to contamination. Generally no visible contaminated strata were observed in any of the creek cores. Some type of faint petroleum odors were noted in deeper strata from some cores. A small amount of dull sheening appeared on the water surface after the bottom sediments were disturbed at some sites. Whether this sheening was natural or related to contamination is unknown. A distinct bluish sheen along with a distinct fuel oil odor appeared in an off-channel depression at the base of a tag alder clumps near creek site MC-4. The depression was stepped in while accessing site MC-4 in the channel. The depression was probed but no visible

contamination was found. The sheening seemed to be originating from water flowing under upstream debris and entering the depression.

Samples for laboratory bioassays were obtained using a petite Ponar dredge. The dredge was lowered into the sediment by hand in order to retrieve approximately the top six inches of sediment. A 5 gallon bucket was filled approximately three-quarters full of sediment from each of the same sites used for the macroinvertebrate analysis. Sampling of MC-2 using the Ponar dredge was very difficult due to the high amount of wood chips and wood debris in the sediments at this site.

Water levels in the creek were high based on precipitation during the week previous to the sampling. High water levels and flows may have made the surface of soft sediment deposits in the creek more flocculent as evidenced by the appearance of the sediments in some of the retrieved cores. At some locations along the creek channel, soft sediment depths are 3 feet or more in thickness. Site MC-5, along the left downstream back at the last corner of the creek before the lake represents the most downstream depositional area in the creek. Downstream of this point, the creek bottom is made up of largely rubble and consolidated material with no depositional areas anywhere in the stream cross-section.

Sediment Trap Placement in Military Creek

Table 1 shows where five sediment traps were placed in the creek. The traps will be retrieved before freeze up. The design of the sediment trap consists of two quart Mason jars fastened to an upright threaded rod which in turn is screwed into an 8 inch x 8 inch steel plate. The steel plate is placed on the creek bottom and a wooden dowel is pushed through a drilled hole in the plate to secure the plate to the creek bottom. The traps will be used to collect sediment particles that are being transported and settled out from the water column. At the time of trap retrieval, decisions will be made as to chemical analysis of the collected sediments depending on the volume of material collected.

North Twin Lake

The lake bottom was probed in a southwesterly direction directly out from the mouth of Military Creek. At all points, small wood particles, wood chips, and woody material predominated in the ponar dredge and core samples. Silty material was mixed in with the woody materials. The core collected for chemical analysis was taken in the lake approximately 200 feet from the mouth of the creek in 31.6 feet of water. The retrieved core length was 28 inches long. The material in the core was generally homogenous with wood chips and particles predominating with some silty material mixed in. There was some slight differences in core appearance along its length with the top 7 inches a darker brown with less wood chips compared to a medium brown color and wood particles dominating in the lower portion of the core. No unusual odors were associated with the sampled material other than natural odors.

The 200 foot distance out from the mouth is the farthest point probed. It appears the woody material dominating the substrate extends out further in the lake from this point. The sounding pole generally shows soft sediment depths to be 3.5-4.0 feet in thickness. A reference site in the lake, out of the influence of the test site, was also sampled. The reference site was several hundred yards southwest of the creek mouth along the northwest shore in 27

feet of water. Silty material predominated in the reference site sediment samples with no woody material being present. It is suspected that given the nature of the woody material in the samples taken off the creek mouth, that the material may have originated from a wood related industry that existed on-shore in the past.

The shore line of the lake northwest and southeast of the creek mouth was walked to look for any visible signs of contamination. None was found. No deep probing was done in the substrate. The shore line to the northwest is dominated by sandy substrates. The shore line to the southeast is dominated by bricks placed along shore and off-shore.

A number of iron pipes were noted along the creek and lake shore. What appears to be a three inch discharge pipe comes from the left downstream bank of the creek approximately 100 feet above the mouth. Right at the mouth of the creek there is an 8 inch pipe that runs from bank to bank on top of the creek bottom. The pipe has a separation between pipe joints. Along the southeast shore there is a pipe that comes out of the bank, runs off shore for approximately 30 feet under water, and then an elbow directs the pipe vertically into the substrate. The propose of these pipes is unknown at this time.

While the number of samples was reduced, all sample collection and analytical procedures followed the established procedures in the Quality Assurance Project Plan of our original Sampling Plan. One modification is that PAHs will be analyzed by SLOH method 1570 rather than method 1580.1. The method yields a higher method detection limit but was necessary based on funding constraints for performing the analysis. All samples collected (chemistry, toxicity, and macroinvertebrates) were handled under chain-of custody procedures outlined in the QAPP.

We will keep you updated on the status of the results from the various sampling activities as they become available. If you have any questions or comments on the sampling, contact Jim Kreitlow or us (Janisch at (608) 266-9268 or Amrhein at (608) 266-5325).

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Table 1. Sampling Locations and Sampling Types Associated with the October 9-11, 1995 Site Investigation at the C.M. Christiansen Wood Treatment Facility, Phelps, WI.

Sample Site	Soil/Sediment Chemistry (Corer)	Sediment Toxicity (Petite Ponar)	Macroinvertebrates (Corer) 0-15 cm	Sediment Traps (Quart Jars) Placed, Retrieval Later
Floodplain[1.]				
FP-1A(Ref)	+[2.]			
FP-2A	+			
FP-2B	+			
FP-3A	+			
FP-3B	+			
Military Creek				
MC-1A(Ref)		+	+	+
MC-2A		+	+	
MC-3A		+	+	+
MC-4A		+	+	
MC-5A		+	+	+
MC-6				+
North Twin Lake				
NT-1A(Ref)			+(Ponar)	
NT-2A	+	+	+(Ponar)	

1. Floodplain soil samples taken with a sharpshooter spade. Core cut with spade and extracted. FP-1A made up of 0-15 cm. Other floodplain samples made up of two strata -A is 0-7.6 cm and B is 7.6-20.3 cm.

2. The reference floodplain site FP-1A will be analyzed for particle size and DRO only. All other smaples will be also analyzed for pesticides and priority pollutants (PAHs and chlorophenolics).

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FIGURE 1. General Location of Floodplain Soil, MILITARY CREEK and NORTH TWIN LAKE SEDIMENT SAMPLING SITES FOR THE OCT. 9-11, 1995 WDNR SITE INVESTIGATION

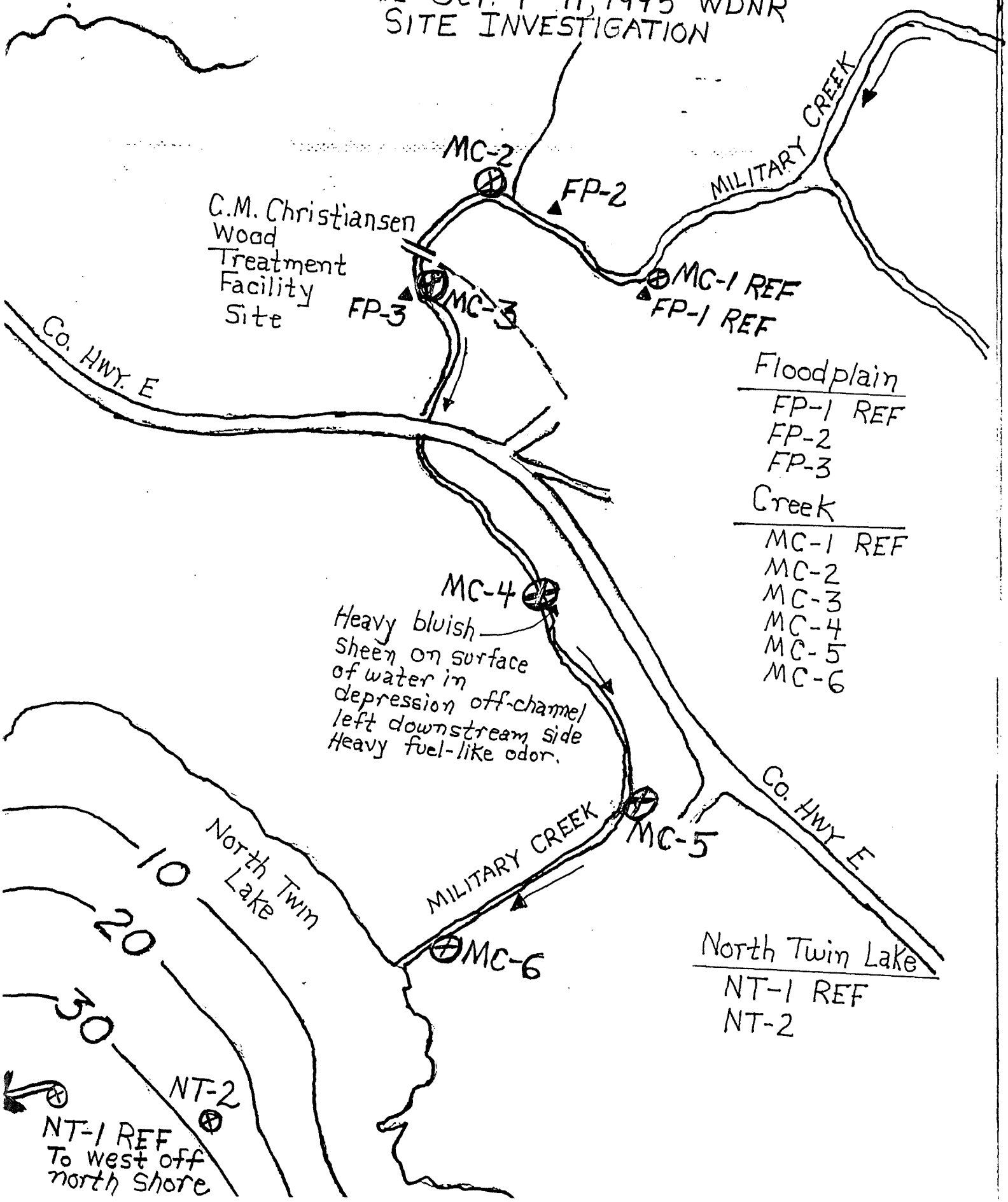

FIGURE 2. General Location of a Visibly Contaminated Wetland Site Associated With The C.M. Christiansen Wood Treatment Facility