

IN REPLY REFER TO:

## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Bishop Henry Whipple Federal Building  
1 Federal Drive  
Fort Snelling, MN 55111-4056

FWS/AES-EC-NRDA

MAR 28 2000

Frank Lyons  
Regional Administrator  
U.S. Environmental Protection Agency  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

Dear Mr. Lyons:

As the Authorized Official for the U.S. Department of the Interior (Department) for the Green Bay Natural Resource Damage Assessment, I am writing to urge immediate action to address an environmental emergency that has occurred at sediment management unit 56/57 (SMU 56/57) on the Lower Fox River. Specifically, I am writing in support of a unilateral administrative order, pursuant to Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), to address the greatly elevated concentrations of polychlorinated biphenyls (PCBs) that have been exposed as a result of the dredging project conducted at the site under the auspices of the January 31, 1997, agreement between the State of Wisconsin and certain paper companies on the Lower Fox River (Agreement). As you know, the surface layer of sediments now contain very high concentrations of PCBs in areas where dredging was begun but not completed.

The natural resource trustees are greatly concerned that this situation presents an imminent and substantial endangerment to public health, the environment, and associated natural resources. The newly exposed PCB-contaminated sediments can be reasonably expected to migrate both downstream (during high flow events) and upstream (due to Green Bay seiches) of SMU 56/57 and cause further injuries to natural resources. In light of these concerns, we are prepared to provide any technical assistance that could help the U.S. Environmental Protection Agency (Agency) in issuing an order to address the elevated PCB concentrations at SMU 56/57, as well as to ensure that any order is as effective as possible in protecting natural resources throughout the Green Bay Environment. In addition, consistent with the partnership approach we have taken at this site, the Department would be willing to sign the order jointly with you, and we are working to explore the opportunities for taking such an action jointly.

There are several critical issues which must be addressed by any order if it is to maximize our opportunities to eliminate the imminent and substantial harm to natural resources at or near the SMU 56/57 project. First, we must act very quickly. We cannot afford to waste most of the field season preparing the order or mobilizing equipment. The river most assuredly will freeze again next winter, and it is important that any emergency response action or interim emergency response action be completed before then. Further, even though Northeast Wisconsin has just experienced the sixth driest winter on record, the Fox River is already above its average flow because of seasonal high flows. A substantial rain event or above average rainfall could cause catastrophic resuspension of PCBs into the Green Bay Environment if we fail to respond in time. Therefore, it is critically important that actual work begin no later than May 1, and even earlier if it would be possible to expedite the process by concurrently drafting the order, assigning an on-scene coordinator, accessing the Superfund, and mobilizing contractors.

A second critical issue which must be addressed by any order is the need to design a discrete project that can be completed during a single field season. As we have seen at SMU 56/57, an inability to completely remove highly contaminated sub-surface layers during a single field season is likely to result in elevated PCB concentrations. Therefore, no new surface area should be dredged at all unless that area can be dredged completely to remove the more highly contaminated sub-surface layers during a single field season. Further, except in the context of a complete OU4 remedy, no new surface area should be dredged unless that new dredging would reduce PCB concentrations at the edge of the expanded project area. Finally, no new surface area should be dredged unless sufficient funding, equipment, and personnel are in place to complete the entire project this field season. Obviously, this must include realistic contingencies for both cost and time overruns.

A third critical issue which must be addressed is day-to-day control of the project. It is my strong opinion that day-to-day control of the project should rest exclusively with an Agency on-scene coordinator. This will ensure that the project is conducted in accordance with the requirements of CERCLA, its implementing regulations, and Agency policy. Moreover, an Agency on-scene coordinator will ensure that the sole focus of the project is to achieve the intergovernmental partners' objective of responding to this emergency quickly and effectively, without the potential diversion of incorporating any of the various modeling, demonstration, or mass removal goals associated with the original project.

Finally, we remain skeptical regarding the efficacy and cost-effectiveness of large-scale capping in OU4, given the river bed elevation data in "Technical Memorandum 2G" prepared by the Wisconsin Department of Natural Resources and the lack of data during very large flows caused by floods and seiche events. Nevertheless, we believe that temporary capping may be necessary at SMU 56/57 in two instances: (1) as a temporary measure to prevent sloughing and erosion at the edge of the project where it intersects with (previously) sub-surface layers of highly contaminated sediment, and (2) at the end of field seasons, as a temporary measure to minimize

risks associated with exposing sub-surface layers with elevated concentrations, if dredging of OU4 is undertaken but cannot be completed within a single field season. Therefore, responding to SMU 56/57 may provide the ancillary benefit of testing the effectiveness of temporary caps for reducing winter risks in a multi-year dredging project for OU4.

I believe that the four critical issues I have identified will determine whether the intergovernmental partners are successful at addressing the emergency situation at SMU 56/57. At a minimum, therefore, I recommend the following course of action:

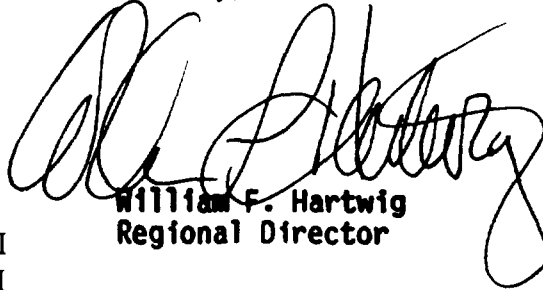
1. Immediately post signs in the River near the SMU 56/57 project and at boat ramps in Ashwaubenon, De Pere, and Green Bay warning fishermen to avoid the area because of newly exposed PCBs.
2. Immediately designate an Agency on-scene coordinator and re-mobilize dredging equipment at SMU 56/57 no later than the May 1, 2000 to ensure completion of dredging of all subunits where dredging was begun.
3. Design a discrete dredging project at SMU 56/57 that does not include dredging of any new surface area unless the new dredging would reduce PCB concentrations at the edge of the expanded project area. Using realistic estimates, ensure that sufficient funding, equipment, and personnel are in place to complete the entire project in time to re-sample the sediment and take additional action this field season should further action be required before winter.
4. Plan for the possibility this field season of additional cleanup dredging, temporary stabilization of project edges, and temporary capping of edges or the entire SMU 56/57 project area, in the event that follow-up sampling indicates the need for these measures.
5. Prioritize Operable Unit Four (OU4) in the remedial process. The uncovering of surface sediments in one part of the mostly continuous 7-mile deposit of OU4 may necessitate very quick completion of full remediation there, particularly if the more limited emergency response action fails to eliminate the imminent and substantial endangerment of natural resources.
6. Ensure the availability of the Superfund should the potentially responsible parties fail to comply with the order immediately. Since a limited emergency response may fail to eliminate the imminent and substantial endangerment, the Agency should also secure sufficient funds to complete a remedy for OU4 next field season.

Mr. Frank Lyons

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Please call me at 612-713-5301 if you would like to discuss any of this further, including the opportunity to issue a joint order.

Sincerely,

A handwritten signature in black ink, appearing to read 'William F. Hartwig', written over a printed name and title.

**William F. Hartwig**  
**Regional Director**

cc: Apesahnekwa, MITW, Keshena, WI  
Gerald Danforth, OTIW, Oneida, WI  
John Lindsay, NOAA, Seattle, WA  
George Meyer, WDNR, Madison, WI





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## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Bishop Henry Whipple Federal Building  
1 Federal Drive  
Fort Snelling, MN 55111-4056

APR 13 2000

Mr. David Mandelbaum  
Ballard Spahr Andrews & Ingersoll, LLP  
1735 Market Street, 51<sup>st</sup> Floor  
Philadelphia, Pennsylvania 19103-7599

Dear Mr. Mandelbaum:

I am writing in my capacity as the Authorized Official for the U.S. Department of the Interior (Department) at the Fox River and Green Bay Natural Resource Damage Assessment site, and on behalf of the federal and tribal natural resource trustees (co-trustees) who are seeking to restore the Fox River and Green Bay environment. I am writing to you in your capacity as liaison for the Fox River Group (FRG). This letter clarifies the position of the federal and tribal trustees with respect to the dredging project that the FRG conducted in 1999 at sediment management unit (SMU) 56 and 57, as well as the current conditions there.

First, as you know, the 1999 dredging project was conducted pursuant to the State/Company Agreement of January 31, 1997 and was never endorsed by any of the co-trustees. The co-trustees were not aware of, and did not participate in, the negotiations between the State of Wisconsin and the FRG that led to the SMU 56/57 project, nor did the co-trustees sign or endorse the agreements reached in those negotiations. Accordingly, any suggestion that the co-trustees have participated, or are participating, in the SMU 56/57 project is clearly inaccurate.

Second, the co-trustees are concerned about the elevated PCB concentrations that have resulted from dredging which occurred in 1999. The current PCB concentrations in surface sediments at SMU 56/57 are as high as 300 parts per million. We believe that these concentrations pose unacceptable environmental risks and are likely to cause additional injuries to the natural resources in the Fox River and Green Bay environment. Therefore, we would strongly endorse quick, effective, performance-based action by the FRG to address this problem in a manner that satisfies the requirements of the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601 et seq., as well as any applicable State law. Since the FRG has already mobilized resources at SMU 56/57, a willingness on the part of the FRG to address the elevated concentrations immediately would minimize the response costs that the FRG would have to bear while also minimizing any additional natural resource damages.

Mr. David Mandelbaum

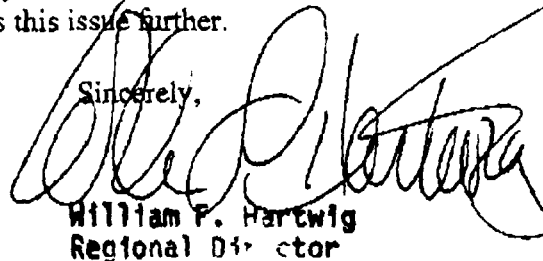
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Third, the Department and the co-trustees feel strongly that any resolution of the problem presented by the increased PCB concentration levels at SMU 56/57 must be resolved independently of any other claims for response or restoration that parties to the Intergovernmental Partnership, established pursuant to the July 11, 1997, Memorandum of Agreement, may have. We feel particularly strongly that claims for natural resource damages at this site should not be resolved in connection with what the co-trustees understand to be the need for a time-critical response.

The co-trustees remain willing to participate in negotiations on the natural resource damage claims at any time that the FRG indicates an interest in initiating discussions regarding a global settlement of response costs and natural resource damage claims. Moreover, although neither the remedial investigation/feasibility study nor the report of assessment have been completed, we remain willing at any time to meet with the FRG to discuss the general framework for NRD settlement and/or to explore the potential for fruitful settlement discussions.

I look forward to working with you further on this matter. Please call Maureen Katz at (202) 514-2468 if you wish to discuss this issue further.

Sincerely,



William F. Hartwig  
Regional Director

cc: Apesanahkwat, Menominee Indian Tribe of Wisconsin, Keshena, Wisconsin  
Gerald Danforth, Oneida Tribe of Indians of Wisconsin, Oneida, Wisconsin  
Tony Giedt, National Oceanic and Atmospheric Administration, Boston, Massachusetts  
Maureen Katz, U.S. Department of Justice, Washington, D.C.  
Frank Lyons, U.S. Environmental Protection Agency, Chicago, Illinois  
Matt Richmond, Assistant U.S. Attorney, Milwaukee, Wisconsin  
Kathleen Bennett, Fort James Corporation, Deerfield, Illinois  
Harold Bergman, Riverside Paper Corporation, Appleton, Wisconsin  
J.P. Causey Jr., Wisconsin Tissue Mills, Inc., Richmond, Virginia  
Paul Karch, Appleton Papers, Inc., Appleton, Wisconsin  
Tom Olson, U.S. Paper Mills Corporation, De Pere, Wisconsin  
Paul Samson, NCR, Dayton, Ohio  
Richard Wand, P.H. Glatfelter Company, Spring Grove, Pennsylvania  
Charles Kemps, for Wisconsin Tissue, Quarles & Brady, Milwaukee, WI  
John Hanson, for Fort James, Beveridge & Diamond, Washington, DC  
Mark A. Thimke, for Riverside, Foley & Lardner, Milwaukee, WI  
John Van Lieshout, for U.S. Paper, Milwaukee, WI  
David G. Mandelbaum, for Glatfelter, Philadelphia, PA  
J. Andrew Schlickman, for NCR, Chicago, IL  
Robert A. Bourque, for Appleton, New York, NY

# 150444



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Fort Snelling, MN 55111-4056

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FWS/AES/EC-NRDA

APR 13 2000

Mr. George Meyer  
Secretary  
Wisconsin Department of Natural Resources  
P.O. Box 7921  
Madison, Wisconsin 53707-7921

Dear Mr. Meyer *George*

I am writing in my capacity as the Authorized Official for the U.S. Department of the Interior (Department) at the Fox River and Green Bay Natural Resource Damage Assessment site and on behalf of the federal and tribal natural resource trustees (co-trustees) who are seeking to restore the Fox River and Green Bay environment, and are signatories to the July 11, 1997, Intergovernmental Memorandum of Agreement.

In recent weeks, potentially responsible parties within the Fox River Group (FRG) have indicated a willingness to initiate negotiations regarding settlement of the natural resource damage claims for the Fox River and Green Bay environment. We welcome such discussions, and I have attached a letter that I have sent to the FRG on behalf of the federal and tribal trustees reiterating our continued willingness to explore opportunities to negotiate a settlement of natural resource damage claims.

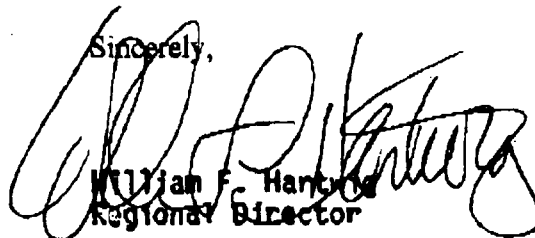
This letter is to propose that the state, federal, and tribal natural resource trustees meet internally to discuss the natural resource damage claims at the site prior to initiating settlement discussions with the FRG. It is our expectation that such a meeting, or series of meetings, would enable the trustees to develop a unified approach to natural resource damages for the Fox River and Green Bay environment and, thereby, greatly enhance the potential for resolving the natural resource damage claims during settlement negotiations with the potentially responsible parties. Indeed, this type of coordination is consistent with the recent discussions among our respective staffs to establish a process for developing a unified natural resource damage assessment and restoration plan. Moreover, as we have recently discussed, given the significance of the natural resource damages at this site, it is our view that resolution of natural resource damage claims must be conducted within a time frame and process that allows for the trustees to base the resolution on a defensible consideration of all relevant factors.

Mr. George Meyer

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We look forward to working with you further on this matter, and proceeding together towards a cooperative resolution of the natural resource damage claims at this site. Please call me at (612) 713-5301 if you wish to schedule an initial meeting for the state, federal, and tribal natural resource trustees to discuss.

Sincerely,



William F. Hartman  
Regional Director

cc: Apesanahkwat, Menominee Indian Tribe of Wisconsin, Keshena, Wisconsin  
Gerald Danforth, Oneida Tribe of Indians of Wisconsin, Oneida, Wisconsin  
Tony Giedt, National Oceanic and Atmospheric Administration, Boston, Massachusetts  
Maureen Katz, U.S. Department of Justice, Washington, D.C.  
Frank Lyons, U.S. Environmental Protection Agency, Chicago, Illinois  
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David G. Mandelbaum, for Glatfelter, Philadelphia, PA  
J. Andrew Schlickman, for NCR, Chicago, IL  
Robert A. Bourque, for Appleton, New York, NY



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

**MEMORANDUM**

**DATE:** April 25, 2000

**SUBJECT:** Evaluation of Capping and dredging to address exposed contaminated sediments at Sediment Management Unit 56/57

**FROM:** *James J. Hahnenberg*  
James Hahnenberg

**TO:** File

Capping and dredging are the leading potential remedies which may be available to address increased risk to human health and the environment brought about by exposure of contaminated sediments in the Sediment Management Unit 56/57 (SMU 56/57). Both of these potential remedies are evaluated herein. In addition, natural recovery is considered below.

**Natural Recovery**

At the conclusion of the 1999 dredging project at SMU 56/57, high levels of PCBs were left exposed at the surface of the sediment. The highest concentrations of PCBs anywhere in the Lower Fox River are currently exposed, and have a high degree of potential risk for release and migration at SMU 56/57. These PCBs add to already high risks to human health and the environment posed by PCBs in the Lower Fox River and Green Bay.

Potential migration of contaminated sediments currently exposed at SMU 56/57 was documented in a report by the Fox River Group (FRG) entitled "Effectiveness of Proposed Options for Additional Work at SMU 56/57," dated March 2000 ("FRG Report"). On page 3-3, the FRG Report states:

...February results for the four additional pass subunits 25, 26, 27, and 28 – show much higher PCB concentrations at the center sample location than the December results (Figure 3-7, Table 3-4). The February average is 26 ppm (subunit range = 15 to 34 ppm) compared to 3.2 ppm (subunit range = 0.03 to 10.8 ppm) for December samples. These differences were statistically significant ( $p < 0.05$ ). The lowest concentration from any one of the five February samples collected within each subunit was 6.2 ppm in subunit 28; the highest concentration was 79 ppm in subunit 26.

In other words, this data suggests that contaminated materials may have migrated into areas previously which had been dredged. The FRG Report did not consider possible migration to other parts of the river or Green Bay. However, lower sediment solids content and sediment densities (described in the FRG Report), indicate exposed sediments have a greater likelihood to migrate than prior to sediment disturbance and exposure due to incomplete dredging at SMU 56/57.

Review of river survey data by the Wisconsin Department of Natural Resources also documents movement of water bottom sediments, and suggests a probability of migration of PCB contaminated sediments. This is discussed in the evaluation of capping effectiveness below.

Additionally, reliance of natural recovery is dependant upon modeling predictions. A recent report entitled, "Peer Review of Models Predicting the Fate and Transport of PCBs in the Lower Fox River Below DePere Dam, A Report of the Lower Fox River Fate and Transport of PCBs Peer Review Panel," Administered by the American Geological Institute, Edited by John C. Tracy, Desert Research Institute and Christopher M. Keane, American Geological Institute, dated April 14, 2000, suggests that additional data collection, refinement and sensitivity analyses are necessary before existing models can be relied upon for decision making.

In the FRG Report, it is stated that dredging has, "the potential to set back natural recovery in the Lower Fox River." It is true that the current site status is worse now than its pre-dredging condition. This greater risk status will continue if the dredging is left in its current, uncompleted status. This argues for further actions to address site risks. Reliance on "natural recovery" is tenuous and uncertain at best. Leaving PCB contaminated sediments unattended in their present exposed condition would present an imminent and substantial endangerment to human health and the environment. Consequently, natural recovery is not an acceptable alternative.

### Capping

Generally, capping would consist of placement of geotextile, sand, gravel or larger stones (or some combination thereof) over the sediments at SMU 56/57 where exposed

concentrations of PCBs are high. Capping would attempt to cover and isolate contaminated areas to reduce or eliminate PCB exposures to biota in the Lower Fox River. Capping would also be designed to minimize further migration or release of PCBs. Capping is given further consideration below.

### Dredging

Dredging consists of removal of sediments by either hydraulic or mechanical means. Dredging can be "wet dredging" (i.e., underwater removal) or "dry dredging" (i.e., excavation of sediments after hydraulic isolation and pumping out water from the dredge area). After removal by dredging, sediments are dewatered (if needed), and disposed off-site at a licensed/approved facility. Any water removed with the sediments would be treated to State surface water discharge standards prior to its discharge back into the river. Dredging is given further consideration below.

## **EFFECTIVENESS**

### Capping

Issues relating to effectiveness necessary to resolve for capping:

1. Cap permanence. Would the cap be resistant to high flow events? Would the cap be able to withstand other actions or forces that could impact its long-term performance? This would include such processes as bioturbation, ice scour, propwash, and contaminant migration relating to gas generation. A report by Wisconsin Department of Natural Resources (Model Evaluation Workgroup, Technical Memorandum 2g. Quantification of Lower Fox River Sediment Bed Elevation Dynamics through Direct Observations, July 23, 1999) demonstrates potential for water bottom losses in the area near SMU 56/57. This report summarizes survey data for transects (or "profiles") between DePere Dam and Green Bay. A transect immediately upstream of SMU 56/57 shows an average elevation change of 45 centimeters during the period from 1977 to 1982, and a maximum elevation change of 55 centimeters. This shows that there are significant movements of river sediments in this portion of the river. These survey techniques by the U.S. Army Corps of Engineers are consistent with surveys discussed in the FRG Report on SMU 56/57, with the FRG implicitly endorsing the reliability of these survey techniques. Finally, it should be noted that there were no large storm or flooding events during this period – if these events occurred, potential for movement could be greater than documented.
2. Containment effectiveness. The effectiveness of whether a cap would be effective in containing PCBs is mostly unknown and untested in this environment (a river with high flow events). If a cap remains in place, it is likely to be effective at particulates containing PCBs. However, PCBs dissolved in water would not

be contained by a conventional (sand) cap. Thus, migration of PCBs from advection of groundwater through a cap is unknown. To evaluate this, the quantity of ground water that would be likely to flow through a cap and pore water PCB concentrations would need to be determined. Monitoring data discussed in the FRG Report shows that pore water from sediments contains quantities of PCBs. While this quantity is small relative to a limited duration dredging project, a cap would allow these contaminants to continue to migrate over long periods and could be a significant cumulative release.

3. Monitoring. Evaluation of a caps environmental effectiveness is difficult, if not impossible. To evaluate leaks or releases, it is not known how – or if – a cap would be monitored, particularly for PCBs dissolved in water.

Capping design has been proposed by the FRG to address current exposures at SMU 56/57. However, this proposal does not address the issues outlined above, but rather states, "that the cap design would be completed in cooperation with EPA capping experts." No site specific cap evaluation or design has been completed that substantively addresses administrative or implementability concerns, discussed above.

In conclusion, capping has not been demonstrated to be effective at SMU 56/57.

### Dredging

Based upon results on the 1999 dredging by Wisconsin Department of Natural Resources and the Fox River Group at SMU 56/57 (FRG Report, and in a Memorandum by Bob Paulson, Wisconsin Department of Natural Resources, February 21, 2000), and Deposit N (Wisconsin Department of Natural Resources, Summary Report, Fox River Deposit N, April 2000 [WDNR Deposit N Report], and the FRG Report), dredging has demonstrated effectiveness at the SMU 56/57 project. In three of the four 100x100-foot subunits at SMU 56/57 where a second dredging pass or a "cleanup pass" was conducted, decreases in surficial residual concentrations were reduced an average 5-fold when compared to pre-dredging concentrations. Concentration reductions were 2 to 310 times less than maximum pre-dredging concentrations in that subunit.

These concentration reductions are similar to similar dredging projects in the Great Lakes and internationally (Hahnenberg, James J., "Environmental Results on Dredging Projects," March 7, 2000 ["Hahnenberg, 2000"]). Post-dredging surface sediment concentrations have been reduced by an average of 72 times and 2000 times (for wet and dry dredging projects, respectively) in other similar projects (Hahnenberg, 2000). These projects have also shown post-dredging concentration reductions in surface waters and biota.

In the fourth 100x100-foot subunit where a cleanup pass was conducted at SMU 56/57,



surficial concentrations were not reduced, but **average** concentrations for the sediment column were reduced from 220 ppm to 11 ppm (a greater than 20-fold reduction). Surficial pre-dredge concentrations were 2.7 ppm, and post-dredge concentrations were 11 ppm, a 4-fold increase. However, based on results for other areas where a second pass was completed, as well as the overall concentration reduction in average PCB concentrations for this subunit, it is anticipated that another cleanup pass would reduce surficial concentrations further -- probably producing results similar to other areas where a cleanup pass was conducted at SMU 56/57.

In areas where only a single dredging pass was completed at SMU 56/57, surficial PCB concentrations increased. This is not surprising, because a single dredging had the effect of digging into higher surface PCB concentrations without returning to "finish the job" in that area. However, as discussed above, where an additional dredging pass was completed, reductions in PCB concentrations can be reasonably anticipated.

The FRG Report examines results on dredging projects at Manistique, Deposit N, and SMU 56/57. The FRG Report asserts that concentration reductions have not been achieved at those sites and implies concentration reductions are not likely at SMU 56/57. This evaluation neglects successful results on those projects, and fails to consider each sites unique characteristics.

First: the Manistique project is not yet completed. Comparisons to-date are against an uncompleted project, and therefore must recognize that these interim results distinguish it from SMU 56/57. reducing further the validity of any Manistique -- SMU 56/57 comparison.

Second: the Manistique project has unique site characteristics that make dredging more difficult. Fundamental differences to SMU 56/57 (and unique to Manistique) are:

- 1) bedrock immediately underlays contaminated sediments;
- 2) extensive rock debris remains from the bedrock blasting operations that took place during the excavation of the navigation channel;
- 3) slabwood debris -- residual log debris remaining from the lumbering era. Island docking facilities were constructed of logs -- much of this debris now underlies the river and harbor.

Debris and underlying bedrock have created site conditions that make dredging significantly more difficult when compared to SMU 56/57. SMU 56/57 has less debris, and soft "clean" sediments underlying contaminated materials. This allows "overdredging" into uncontaminated sediments.

Third: despite these limitations, the post-dredge average surficial concentrations have nevertheless been reduced to 17.9 ppm from pre-dredging surficial concentrations of 30.2 ppm. This is despite only partial project completion. Residual concentrations are likely to be reduced further upon project completion.

Project objectives at Deposit N did not focus on sediment concentrations. The project met the primary objective (among others) to remove 7,200 cubic yards of PCB contaminated sediment, including 112 pounds of PCBs (WDNR Deposit N Report). Concentrations were reduced, but (as expected) not eliminated. The average PCB concentrations in the remaining sediment was reduced to 13 ppm from an average of 25 ppm of pre-project concentrations (ranging from 20 to 130 ppm).

Furthermore, Deposit N has a fundamental physical difference to SMU 56/57. At Deposit N, bedrock underlies contaminated sediment (similar to Manistique). The FRG Report states on page 3-1, Section 3.1:

***The Deposit N and SMU 56/57 demonstration projects provide two different dredging environments. At Deposit N, sediments were no more than 3 feet thick, settled on a layer of bedrock. At SMU 56/57, the soft sediment layer was more than 15 feet thick, with PCB concentrations of greater than 1 ppm found as deep in the sediment bed as 11 feet. No bedrock was present to limit the dredging depth, and therefore the dredge head could potentially remove 'clean' sediments beneath the layer containing PCBs. [emphasis added]***

This makes abundantly clear the fundamentally different physical conditions at Deposit N (and Manistique) compared to SMU 56/57 (illustrated in Figure 7 in the WDNR Deposit N Report). These different physical conditions have important implications in the evaluation of ability to achieve concentration reductions at SMU 56/57. SMU 56/57 conditions allow "overdredging," and the ability to achieve concentration reductions in residual sediments. Results to-date at SMU 56/57 support this expectation of greater concentrations reductions at SMU 56/57, particularly if a second dredging pass is completed.

In the FRG Report, it is also stated that the areas that had a second pass did not achieve the 0.25 "target concentration" (the preliminary cleanup goal in the draft Remedial Investigation/Feasibility Study, dated February 1999). While this is true, it is also irrelevant. Achieving a final **total river** cleanup goal (whether it is 0.25 ppm or some other level) would anticipate some areas would be higher than the final goal (particularly in areas that currently have the highest concentrations in the river, such as SMU 56/57). Other areas that would probably achieve lower concentrations. Finally, regardless of final cleanup goals, if risk reduction can be achieved (as demonstrated in completed dredging areas at Deposit N and SMU 56/57), then it is clearly a prudent and necessary action. This is especially true for SMU 56/57 where greatly increased PCB exposures present significant increased risks, and interim goals are acceptable. This is not necessarily a final river cleanup action for this area -- that will be determined upon

completion of the Remedial Investigation and Feasibility Study for the Lower Fox River and Green Bay.

The FRG Report also references irregular topography left after dredging at the SMU 56/57 project and Manistique. First, while this true, it is primarily because of uncompleted dredging. Secondly, for areas where a second pass is conducted and remaining sediments are "clean," bottom irregularities are irrelevant to site risk.

Thus, based on results on dredging conducted to date on SMU 56/57, we can reasonably anticipate that dredging would achieve significant concentration (and risk) reductions relative to currently exposed high concentrations of PCBs. Thus dredging has been demonstrated to be effective for remediation of sediments currently exposed at SMU 56/57.

## **IMPLEMENTABILITY**

### **Capping - Administrative Issues**

Capping would require resolution of the following administrative issues:

- Approval by the Wisconsin State legislature would be required by State law, as the river bottom is considered a State resource.
- A permit would be needed from the U.S. Army Corps of Engineers.

### **Capping - Feasibility Issues**

One concern is addressing capping feasibility relating to water bottom conditions in areas left disturbed from last years uncompleted dredging at SMU 56/57. These activities have left areas in the dredging area with higher water saturations, as described in the Table 3-2 in the FRG Report entitled "Effectiveness of Proposed Options for Additional Work at SMU 56/57," dated March 2000. Table 3-2 indicates areas where there was a single dredging pass that the pre-dredging percent solids was an average of 29% (ranging from 28.5 to 30.2%), whereas post-dredging percent solids had an average of 22% (ranging from 19.7% to 26.3%). In the areas where a second dredging pass was conducted pre-dredging solids were an average of 62% (ranging from 57.7% to 70.0%), and post-dredging solids were 38% (ranging from 37.4% to 38.6%). This would likely result in lower load bearing capacity for these sediments – the effects from the weight of a cap is unknown. Thus, it is uncertain whether load bearing capacity of the sediments would be sufficient for a cap (of presently unknown design). The higher water content and lower densities also indicate a greater likelihood for migration of contaminated sediments from the dredge area. This reinforces EPA's concern regarding possible migration of PCBs from this area.

A second feasibility concern relating to the areas disturbed by dredging last season is the uneven surface that remains. Bathymetric profiles show the water bottom to be extremely irregular with elevation differences as great as 6 to 8-feet. Thus any capping project would be over very rough terrain. This could cause differential loading and would cause some areas to have a thick cap, and other areas would have a thin cap. It is unknown how this would impact the implementability for a capping project. It is unknown if capping would be practicable. Thus capping has not been shown to be implementable.

#### Dredging Administrative issues

Dredging has been demonstrated to be implementable for SMU 56/57, particularly if the FRG were to continue the project. Dredging was actually conducted at Deposit N and SMU 56/57 over the last two construction seasons. Most permits required for SMU 56/57 would be in place or only need a slight update. The physical infrastructure is prepared and dredging equipment could be readily mobilized. Disposal facilities have been identified and permitted, and sufficient landfill space is available.

#### Dredging Feasibility Issues

Dredging was shown to be feasible during the 1999 construction season at this site. Dredging was conducted, although not completed.

### **SUMMARY AND CONCLUSIONS**

Based on the evaluation of dredging and capping effectiveness and implementability, it is determined that dredging is the preferred cleanup alternative to address PCB contaminant exposures at SMU 56/57. Dredging has been proven effective and implementable, specifically by operations to-date at SMU 56/57. Capping could mitigate short-term exposures, but has many uncertainties and unknowns regarding its installation and effectiveness, for both the short- and long-term.

## **REFERENCES**

Blasland, Bouck & Lee (for the Fox River Group), "Effectiveness of Proposed Options for Additional Work at SMU 56/57," March 2000.

de maximus, inc., "Fox River, SMU 56/57 Engineered Cap Memorandum," April 10, 2000.

Hahnenberg, James J., "Environmental Results on Dredging Projects," March 7, 2000.

Paulson, Bob, Correspondence Memorandum, State of Wisconsin, "Post Dredging Results for SMU 56/57," February 21, 2000.

Tracy, John C., and Keane, Christopher M., "Peer Review of Models Predicting the Fate and Transport of PCBs in the Lower Fox River Below DePere Dam, A Report of the Lower Fox River Fate and Transport of PCBs Peer Review Panel," Administered by the American Geological Institute, April 14, 2000.

Wisconsin Department of Natural Resources, Summary Report, Fox River Deposit N, April 2000.

Wisconsin Department of Natural Resources, Model Evaluation Workgroup, Technical Memorandum 2g, Quantification of Lower Fox River Sediment Bed Elevation Dynamics through Direct Observations, July 23, 1999



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

APR 26 2000

R-19J

George Meyer, Secretary  
Wisconsin Department of Natural Resources  
P.O. Box 7921  
Madison, Wisconsin 53707-7921

Dear George,

As you know, we are working collaboratively with Wisconsin Department of Natural Resources (WDNR) staff in trying to reach an agreement with Ft. James Corporation (FJC) which would provide for Ft. James to voluntarily complete the dredging begun last year at Sediment Management Unit 56/57 (SMU 56/57). Like you, we strongly prefer to resolve the question of further action at 56/57 on a voluntary basis. We are committed to this approach and applaud WDNR for its commitment and efforts to date in successfully "moving mud" in the river on projects at Deposit N, Deposit O and SMU 56/57 last year. As the discussions with FJC continue, we want to clarify the EPA position on several key issues relating to any voluntary agreement with FJC that may come about. We understand from recent conversations with Bruce Baker that WDNR shares many of these concerns.

From the federal perspective, our concerns regarding completion of the dredging at 56/57 are as follows.

Scope of the project

FJC has proposed to remove 49,000 cubic yards of sediment this construction season from SMU 56/57. We believe a wiser approach would be to reduce the scope of the project in order to enhance the likelihood of its success. It is our view that the focus of the project should be to complete the dredging only in the areas where incomplete

dredging last year has disturbed the sediments and left high levels of PCBs exposed. If the project is expanded at all, it should only be after the governments are certain that the areas disturbed last year are acceptably clean.

#### No risk-based cleanup level

Our understanding is that FJC's proposed approach commits FJC only to the removal of 49,000 cubic yards of sediment. While we agree that there are benefits to removing contaminated sediments from the River, we believe it essential that this project be governed by an environmental or risk based goal, not simply a "yardage removed" goal. A cleanup number for this purpose would probably be higher than a "final" cleanup number, and would only be an "interim" goal to address short term risks, pending the final remedy to be defined in the ROD. We are very concerned that FJC's commitment to remove 49,000 yards, if reached, allows FJC to discontinue the work irrespective of the levels of contaminants left behind. This could lead to a situation not unlike what we are presently facing at 56/57.

#### No environmental monitoring

In discussions to date with Ft. James, there has not been a commitment to any environmental monitoring of their proposed project. This approach suggests a lack of commitment by Ft. James to achieving of a sound environmental result and when coupled with the 49,000 cubic yard removal commitment above, almost insures that we will not even know the environmental results of this project. Our preferred approach would be to insist on sufficient monitoring to allow the governments to understand the environmental results of the project.

#### Natural Resource Damages claim

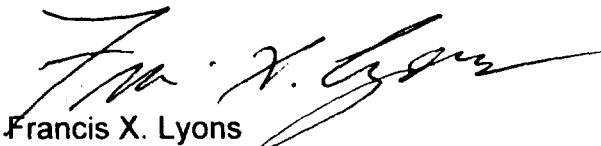
Although U.S. EPA is not a trustee, we would be very concerned if the State were to give a broad NRD release as a part of a voluntary agreement with FJC. To do so would bring into sharp focus differences that may exist among the several trustees and would be likely to undermine the trustees' cooperative working relationship. An NRD release would certainly make future NRD claims much more difficult for all trustees. For this reason, we endorse the position of the U.S. Fish and Wildlife Service and other Trustees that an NRD release, as sought by FJC, should not be part of an agreement for continued work at 56/57.

As you know, U.S. EPA is actively considering taking action to ensure that necessary work is done at 56/57 to protect human health and the environment. While we greatly

prefer to have Ft. James (or others) address the SMU 56/57 cleanup on a voluntary basis, we are prepared to issue a Unilateral Administrative Order should that be necessary.

Please call me if you wish to discuss this further.

Sincerely,



Francis X. Lyons  
Regional Administrator

cc: Apesanakwat, Menominee Indian Tribe of Wisconsin  
Gerald Danforth, Oneida Tribe of Indians of Wisconsin  
Tony Giedt, National Oceanic and Atmospheric Administration  
Maureen Katz, U.S. Department of Justice  
William Hartwig, U.S. Fish and Wildlife Service  
Matt Richmond, Assistant U.S. Attorney



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5

IN THE MATTER OF: ) Docket No. V-W-00-C-596  
)  
Lower Fox River Sediment ) ADMINISTRATIVE ORDER BY  
Management Unit 56/57 ) CONSENT PURSUANT TO  
Removal Action ) SECTION 106 OF THE  
) COMPREHENSIVE  
) ENVIRONMENTAL RESPONSE,  
Respondents: ) COMPENSATION, AND  
) LIABILITY ACT OF 1980,  
Fort James Corporation, and ) as amended, 42 U.S.C.  
Fort James Operating Company ) §9606(a)  
\_\_\_\_\_ )

**I. JURISDICTION AND GENERAL PROVISIONS**

- A. This Order is entered voluntarily by the United States Environmental Protection Agency ("U.S. EPA"), the State of Wisconsin ("State") through the Wisconsin Department of Natural Resources ("WDNR"), the Wisconsin Department of Justice ("WDOJ"), Fort James Corporation, and the Fort James Operating Company (collectively "Fort James" or "Respondent"). The Order is issued pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§9606(a). This authority has been delegated to the Administrator of the U.S. EPA by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A and 14-14-C, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A and 14-14-C. This Agreement is also entered into pursuant to the authority of the Attorney General of the United States to compromise and settle claims of the United States, which authority, in the circumstances of this settlement, has been delegated to the Assistant Attorney General, Environmental and Natural Resources Division, U.S. Department of Justice ("DOJ").
- B. This Order provides for performance of removal actions in connection with a portion of the Lower Fox River, Wisconsin, known as Sediment Management Unit 56/57 (the "SMU 56/57

WDNR139000505

EPAAR279206

Site" or the "Site"). This Order requires Respondent to conduct removal actions as described herein to abate an actual or threatened release of hazardous substances at or from the Site that U.S. EPA and the State believe may present an imminent and substantial endangerment to the public health, welfare or the environment.

- C. Nothing in this Order, including the Statement of Work attached hereto, is intended by the parties to be, nor shall it be construed as, an admission of facts or law, an estoppel, or a waiver of defenses by Respondent for any purpose. Participation in this Order by Respondent is not intended by the parties to be, and shall not be, an admission of any fact or opinion developed by U.S. EPA, the State, or any other person or entity in the course of the work.

## II. PARTIES BOUND

This Order is binding upon and inures to the benefit of U.S. EPA, the WDNR and WDOJ, Respondent, and Respondent's successors and assigns. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter Respondent's responsibilities under this Order. Respondent shall ensure that its contractors, subcontractors, and representatives comply with this Order. Respondent shall be responsible for any noncompliance with this Order.

## III. DEFINITIONS

- A. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in the statute or its implementing regulations.
- B. Whenever terms listed below are used in this Order or in the documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:
1. "Agencies" shall mean the United States Environmental Protection Agency (U.S. EPA) and the Wisconsin Department of Natural Resources (WDNR).
  2. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601 et seq.

3. "Day" shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the end of the next business day.
4. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan, promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 CFR Part 300, and any amendments thereto.
5. "Paragraph" shall mean a portion of this Order identified by a capital letter and may include one or more subparagraphs.
6. "Parties" shall mean all signatories to this Order.
7. "Section" shall mean a portion of this Order identified by a Roman numeral.
8. "Site" shall mean the portion of Sediment Management Unit 56/57 ("SMU 56/57") delineated in Figure 1 of Attachment A to the Order, and all suitable areas in close proximity to the contamination necessary for implementation of the removal action, including but not limited to the portion of the Fort James property known as the former Shell property, as described in Figure 2 of Attachment A to this Order.
9. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the removal action, as set forth in Attachment A to this Order. The Statement of Work is incorporated into this Order and is an enforceable part of this Order.
10. "WDOJ" shall mean the Wisconsin Department of Justice.
11. "WDNR" shall mean the Wisconsin Department of Natural Resources.
12. "Work" shall mean all activities Respondent is required to perform under this Order and all attachments hereto, and includes any Work required pursuant to modifications to this Order under Section XXVI.

#### IV. STATEMENT OF PURPOSE

The mutual objectives of the U.S. EPA, WDNR, WDOJ, and Respondent in entering into this Order are to implement a removal action in accordance with the Statement of Work. The activities conducted pursuant to this Order are subject to approval by U.S. EPA and the State as provided herein, and shall be consistent with CERCLA, the NCP, and all other applicable laws.

#### **V. FINDINGS OF FACT**

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

1. At certain times in the past, primarily in the 1950's and 1960's, certain paper companies located along the Fox River engaged in the manufacture or recycling of carbonless copy paper. Polychlorinated biphenyls (PCBs), which are hazardous substances, were used in the production of carbonless copy paper and in wastepaper that entered the paper recycling operations.
2. As a result of the paper mills' production or recycling of carbonless copy paper an estimated 700,000 pounds of PCBs were likely released to the Fox River. An estimated 60,000 pounds of these PCBs remain in the lower 39 miles of the Fox River, distributed within approximately 10,400,000 cubic yards of sediment. The balance of PCBs likely released to the Fox River are located in the sediments of Green Bay and/or Lake Michigan or were volatilized into the atmosphere. Based upon the extreme longevity and durability of PCBs, degradation of PCBs in the environment is not considered likely. An estimated 400 to 600 pounds of PCBs have been released annually into Green Bay from the lower Fox River.
3. As a result of this contamination, fish consumption advisories have been in effect on the Fox River since 1976.
4. On July 3, 1997, the United States Environmental Protection Agency sent a notice letter under Section 122(e) of CERCLA to, among others, Respondent, identifying it as a potentially responsible party (PRP) with respect to the Fox River.
5. A Remedial Investigation and Feasibility Study (RI/FS) under the technical lead of WDNR is currently underway.

6. Sediment Management Unit (SMU) 56/57 is located within the Lower Fox River, approximately 3 miles southwest (upstream) from that point where the Lower Fox River discharges into Green Bay. This area is adjacent to the southern edge of the City of Green Bay.
7. Respondent is the owner of property located within the City of Green Bay, Brown County, Wisconsin. The Respondent's property is located north of, and immediately adjacent to SMU 56/57.
8. A dredging project at SMU 56/57 was undertaken in 1999 pursuant to an agreement between WDNR and certain companies, including Respondent. Certain areas within SMU 56/57 were partially dredged (i.e., only a single dredging "pass" was conducted). These partially dredged areas are defined as subunits 12, 13, 14, 15, 16, 17, 23, 24, 25, 26, 27, 28, and 38. Portions of subunits 25, 26, 27, and 28 were dredged with a second dredging "pass".
9. The 1999 dredging project at SMU 56/57 has resulted in the exposure of unacceptably high concentrations of polychlorinated biphenyls ("PCBs") in certain portions of SMU 56/57. The currently exposed PCB concentrations in the areas where partial dredging occurred (i.e., where one dredging "pass" was conducted) are as high as 310 ppm. An estimated 21,500 cubic yards of contaminated sediments and 1600 pounds of PCBs remain in that portion of SMU 56/57 where dredging was left uncompleted in 1999.
10. The increased exposures of PCBs in portions of SMU 56/57 now may present an imminent and substantial endangerment to human health and the environment due to:
  - increased uptake by biota exposed to PCBs; this likely increased uptake adds to the already elevated risk presented by the overall site contamination.
  - potential for further release and migration of PCBs, and more widespread distribution of high concentrations in the downstream river areas and Green Bay. This, in turn, could result in additional PCB uptake and exposures to PCBs, and further

releases into Green Bay, and potentially Lake Michigan.

#### VI. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, U.S. EPA has determined that:

1. The Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. §9601(9).
2. Polychlorinated Biphenyls ("PCBs") are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. §9601(14).
3. Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. §9601(21).
4. Respondent Fort James Corporation is either the present "owner" and "operator" of a facility from which there was a release of a hazardous substance to the Lower Fox River that came to be located at the Site, or a person who arranged for disposal or transport for disposal of hazardous substances at the Site. Respondent therefore may be liable under Section 107(a) of CERCLA, 42 U.S.C. §9607(a).
5. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility into the "environment" as defined by Sections 101(8) and (22) of CERCLA, 42 U.S.C. §§9601(8) and (22).
6. The conditions present at the Site may present a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 CFR §300.415(b)(2).
7. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. §9606(a).
8. The removal actions and costs required by this Order, if performed or incurred in accordance with this Order, shall be deemed consistent with the NCP. The removal actions required by

this Order are necessary to protect the public health, welfare, or the environment.

## **VII. WORK TO BE PERFORMED**

### **A. Statement of Work**

Attachment A to this Order provides a Statement of Work ("SOW") for the removal action at the Site. Respondent shall perform the activities described in the SOW in accordance with the specifications and schedules contained in the SOW.

### **B. Designation of Project Coordinator, On-Scene Coordinator, and On-Scene Representative**

1. Within 10 business days after the effective date of this Order, Respondent shall designate a Project Coordinator who shall be responsible for administration of all Respondent's actions required by the Order. Respondent shall submit the designated coordinator's name, address, telephone number, and qualifications to U.S. EPA. To the greatest extent possible, the Project Coordinator shall be present on-site or readily available during site work. U.S. EPA retains the right to disapprove of any Project Coordinator named by Respondent. If U.S. EPA disapproves a selected Project Coordinator, Respondent shall retain a different Project Coordinator within 5 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that person's name and qualifications within 7 business days of U.S. EPA's disapproval.
2. The U.S. EPA has designated Sam Borries as its On-Scene Coordinator ("OSC"). Respondent shall direct all submissions required by this Order to the OSC at Sam Borries (SE-5J), Emergency Response Branch, U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, IL 60604-3590, by certified mail or overnight delivery. Respondent shall also send a copy of all submissions to Roger Grimes, Assistant Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60604-3590. Respondent is encouraged to make its submissions to U.S. EPA on recycled paper (which includes significant postconsumer waste paper content where possible) and using two-sided copies.
3. The State designates Gary Kincaid as its On-Scene Representative ("OSR"). Respondent shall direct all

submissions required by this Order to the OSR at Wisconsin Department of Natural Resources, 1125 North Military Avenue, P.O. Box 10448, Green Bay, WI 54304 , by certified mail or overnight delivery.

4. The Agencies and Respondent shall have the right to change their designated OSC, OSR, or Project Coordinator. The Agencies shall notify Respondent, and Respondent shall notify the Agencies, as early as possible before such a change is made, but in no case less than 24 hours before such a change. The initial notification may be made orally but it shall be promptly followed by a written notice.

C. Health and Safety Plan

Not later than 30 days after Respondent receives this AOC executed by the EPA and WDNR, Respondent shall submit for U.S. EPA and WDNR review and comment a plan that ensures the protection of the public health and safety during performance of on-site work under this Order. This plan shall comply with applicable Occupational Safety and Health Administration ("OSHA") regulations found at 29 CFR Part 1910. Respondent shall consider all changes to the plan recommended by U.S. EPA and WDNR, and shall implement the plan during the pendency of the removal action.

VIII. REVIEW OF SUBMISSIONS

- A. The Agencies shall review all documents required to be submitted for review and approval pursuant to this Order. The Agencies shall respond to each submission in writing with a single integrated response. As a result of their review of a submission, the Agencies may: (a) approve the submission; (b) approve the submission with minor modifications; (c) disapprove the submission and direct Respondent to re-submit the document after incorporating the Agencies' comments; or (d) if a re-submission, disapprove the re-submission and the Agencies may assume responsibility for performing all or any part of the response action.
- B. In the event of approval or approval with minor modifications by the Agencies, Respondent shall proceed to take any action required by the submittal, as approved or modified by the Agencies.



- C. Upon receipt of a notice of disapproval, Respondent shall, within thirty (30) days or such longer time as specified by the Agencies in their notice of disapproval, correct the deficiencies and resubmit the submittal for approval. Notwithstanding the notice of disapproval, Respondent shall proceed, at the direction of the Agencies, to take any action required by any non-deficient portion of the submission.
- D. If any re-submission is not approved by the Agencies, they may determine that Respondent is in violation of this Order, unless Respondent invokes the procedures set forth in Section XVIII (Dispute Resolution) and the Agencies' determination is revised pursuant to that Section. Issues previously resolved pursuant to the procedures set forth in Section XVIII may not be re-disputed.

#### **IX. QUALITY ASSURANCE AND SAMPLING**

- A. All sampling and analyses performed pursuant to this Order shall conform to U.S. EPA (and if an in State laboratory is used, WDNR) direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA (and if an in State laboratory is used, WDNR) guidance.
- B. Upon request by the Agencies, Respondent shall have such a laboratory analyze samples submitted by the Agencies for quality assurance monitoring. Respondent shall provide to the Agencies the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Respondent shall also ensure provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites."
- C. Upon request by the Agencies, Respondent shall allow the Agencies or their authorized representatives to take split and/or duplicate samples of any samples collected by Respondent or its contractors or agents while performing work under this Order. Respondent shall notify the Agencies not less than 3 business days in advance of any sample collection activity. The Agencies shall have the right to take any additional samples that they deem necessary.

- D. At the request of Respondent, the Agencies shall provide split or duplicate samples of any samples collected by the Agencies or their contractors pursuant to this Order, except sample results generated pursuant to a criminal investigation. The Agencies shall notify Respondent not less than 3 business days in advance of any sample collection activity.
- E. Pursuant to applicable Federal laws and regulations, (Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), and 40 CFR Part 2), Respondent may assert a confidentiality claim with respect to any or all of the information requested or submitted pursuant to the terms of this Order. Such an assertion must be adequately substantiated when the assertion is made. Analytical data and other information described in Section 104(e)(7)(F) of CERCLA shall not be claimed as confidential by Respondent. Information determined to be confidential by the U.S. EPA in accordance with applicable federal laws and regulations or information determined to be confidential by the State pursuant to applicable Wisconsin laws and regulations will be afforded the full protection provided by such laws and regulations. If no confidentiality claim accompanies information when it is submitted to the U.S. EPA, or if information claimed as confidential is determined by the State not to be confidential, and an appeal of such determination is not made or is unsuccessful, the information may be made available to the public.

#### **X. REPORTING**

Respondent shall submit a monthly written progress report to the Agencies concerning actions undertaken pursuant to this Order, beginning 30 calendar days after the effective date of the Order and continuing until termination of the Order, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reported period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolution of past or anticipated problems.

#### **XI. FINAL REPORT**

- A. Within 60 calendar days after completion of all removal actions required under this Order, Respondent shall submit for review by the Agencies a final report summarizing the

actions taken to comply with this Order. The final report shall conform to the requirements set forth in Section 300.165 of the NCP, 40 CFR §300.165. The final report shall also include a good faith estimate of total costs incurred in complying with the Order, a listing of quantities and types of materials removed off-site or handled on-site, a summary of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action.

- B. The final report shall include the following certification signed by a person who supervised or directed the preparation of that report: "Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete."

### **XII. ACCESS TO PROPERTY AND INFORMATION**

- A. Respondent shall provide or obtain access to the Site and off-site areas to which access is necessary to implement this Order, and shall provide access to all records and documentation related to the actions conducted pursuant to this Order. Such access shall be provided to the Agencies and their authorized representatives at all reasonable times. These individuals shall be permitted to move freely at the Site and appropriate off-site areas for the purpose of conducting actions which the Agencies reasonably determine are necessary for oversight of this Order. Respondent shall submit to the Agencies, upon request, the results of all sampling or tests and all other data generated by Respondent or its contractor(s) under this Order.
- B. Where work under this Order is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall use its best efforts to obtain all necessary access agreements within 30 calendar days after the effective date of this Order, or as otherwise specified in writing by the OSC. Respondent shall immediately notify the Agencies if, after using its best efforts, it is unable to obtain such agreements. Respondent shall describe in writing its efforts to obtain access. The Agencies may then assist Respondent in gaining access, to the extent necessary to effectuate the removal actions described herein, using such means as the Agencies deem appropriate.

**XIII. RECORD RETENTION**

Respondent shall preserve all documents and information in its possession or the possession of its contractors, subcontractors or representatives relating to work performed under this Order for six years following completion of the removal action required by this Order. At the end of this six year period and at least 60 days before any document or information is destroyed, Respondent shall notify the Agencies that such documents and information are available to the Agencies for inspection, and upon request, shall provide the originals or copies of such documents and information to whichever one of the Agencies they select. In addition, Respondent shall provide documents and information retained under this Section at any time before expiration of the six year period at the written request of the Agencies, subject to Section XII (Access to Property and Information). Any information that Respondent is required to provide or maintain pursuant to this Order is not subject to the Paperwork Reduction Act of 1995, 44 U.S.C. §3501 et seq.

**XIV. OFF-SITE SHIPMENTS**

All hazardous substances, pollutants or contaminants removed off-site pursuant to this Order for treatment, storage or disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 CFR §300.440, 58 Fed. Reg. 49215 (Sept. 22, 1993).

**XV. COMPLIANCE WITH OTHER LAWS**

- A. Respondent shall perform all actions required pursuant to this Order in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. §9621(e), and 40 CFR §300.415(j). In accordance with 40 CFR §300.415(j), all on-Site actions required pursuant to this Order shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws.
- B. As provided in Section 121(e) of CERCLA and Section 300.400(e) of the NCP, no federal, state or local permits shall be required for any portion of the Work conducted entirely on Site. Where any portion of the Work that is not on Site requires a federal or state permit or approval,

Respondent shall submit timely applications and take all other actions necessary to obtain all such permits or approvals.

- C. Respondent may seek relief under the provisions of Section XIX (Force Majeure) of this Order for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit required for the Work, provided Respondent has made proper, timely and complete permit application(s) and submitted all required information in a timely manner.

**XVI. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES**

- A. If any incident, or change in Site conditions, during the activities conducted pursuant to this Order causes or threatens to cause an unanticipated additional release of hazardous substances from the Site or an endangerment to the public health, welfare, or the environment, Respondent shall immediately take all appropriate action to prevent, abate or minimize such unanticipated release or the endangerment caused or threatened by the release. Respondent shall also immediately notify the OSC and OSR or, in the event of their unavailability, shall notify the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, and the appropriate WDNR representative at 1-800-943-0003, of the incident or Site conditions. If Respondent fails to respond, the Agencies may respond to the release or endangerment and reserve the right to recover costs associated with that response.
- B. Respondent shall submit a written report to the Agencies within 7 business days after each such release, setting forth the events that occurred and the measures taken or to be taken to mitigate the release or the endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. Respondent shall also comply with any other notification requirements, including those in Section 103 of CERCLA, 42 U.S.C. §9603, Section 304 of the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. §11004, and Wis. Stats. Sec. 292.11.

**XVII. AUTHORITY OF THE U.S. EPA ON-SCENE COORDINATOR**

The OSC shall be responsible for overseeing the implementation of this Order, in consultation with the OSR. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any work required by this Order, or to

direct any other response action undertaken by U.S. EPA or Respondent at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC in consultation with the OSR.

#### **XVIII. DISPUTE RESOLUTION**

- A. The parties to this Order shall attempt to resolve, expeditiously, informally, and in good faith, any disagreements concerning this Order.
- B. If Respondent objects to any U.S. EPA or State action taken pursuant to this Order, Respondent shall notify the Agencies in writing of its objection(s) within 14 calendar days of such action, unless the objection(s) has (have) been informally resolved. This written notice shall include a statement of the issues in dispute, the relevant facts upon which the dispute is based, all factual data, analysis or opinion supporting Respondent's position, and all supporting documentation on which Respondent relies. The Agencies shall submit their Statement of Position, including supporting documentation, no later than 14 calendar days after receipt of Respondent's written notice of dispute. Respondent may submit a response to the Agencies' Statement of Position within 5 business days after receipt of the Statement. During the 5 business days following receipt of the Agencies' Statement of Position, the parties shall attempt to negotiate, in good faith, a resolution of their differences. The time periods for exchange of written documents may be extended by agreement of all parties.
- C. An administrative record of any dispute under this Section shall be maintained by U.S. EPA and shall contain the notice of objections and accompanying materials, the Statement of Position, any other correspondence between the Agencies and Respondent regarding the dispute, and all supporting documentation. The administrative record shall be available for inspection by all parties. If the Agencies do not concur with the position of Respondent, the Division Director for the Office of Superfund, U.S. EPA Region V, in consultation with the Secretary of the WDNR, shall resolve the dispute based upon the administrative record and consistent with the terms and objectives of this Order, and shall provide written notification of such resolution to Respondent.
- D. Respondent's obligations under this Order, other than the obligations affected by the dispute, shall not be tolled by

submission of any objection for dispute resolution under this Section. Elements of Work and/or obligations not affected by the dispute shall be completed in accordance with the schedule contained in the Statement of Work. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with U.S. EPA's decision, whichever occurs.

#### **XIX. FORCE MAJEURE**

- A. Respondent agrees to perform all requirements under this Order within the time limits established under this Order, unless the performance is delayed by a force majeure. For purposes of this Order, a force majeure is defined as any event arising from causes beyond the control of Respondent or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, that delays or prevents performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation. Force majeure does not include financial inability to complete the work or increased cost of performance.
- B. Respondent shall notify the Agencies orally within 2 business days after Respondent becomes aware of any event that Respondent contends constitutes a force majeure, and in writing within 7 calendar days after the event. Such notice shall: identify the event causing the delay or anticipated delay; estimate the anticipated length of delay, including any necessary demobilization and re-mobilization; state the measures taken or to be taken to minimize the delay; and estimate the timetable for implementation of the measures. Respondent shall take all reasonable measures to avoid and minimize the delay. Failure to comply with the notice provision of this Section shall be grounds for the Agencies to deny Respondent an extension of time for performance. Respondent shall have the burden of demonstrating by a preponderance of the evidence that the event is a force majeure, that the delay is warranted under the circumstances, and that best efforts were exercised to avoid and mitigate the effects of the delay.
- C. If the Agencies determine a delay in performance of a requirement under this Order is or was attributable to a force majeure, the time period for performance of that requirement shall be extended for such time as is necessary to complete such requirement. Such an extension shall not

alter Respondent's obligation to perform or complete other tasks required by the Order which are not directly affected by the force majeure.

- D. If either the U.S. EPA or the State, but not the other, concludes that a delay or anticipated delay has not been or will not be caused by a force majeure event, the U.S. EPA and the State will notify Respondent in writing of such disagreement, the provisions of Section XVIII (Dispute Resolution) shall be deemed to be invoked, and Respondent's time for invoking the provisions of Section XVIII will be stayed until the U.S. EPA and the State have completed the process specified in Section XVIII.

#### **XX. STIPULATED AND STATUTORY PENALTIES**

- A. Respondent shall be liable for payment into the Hazardous Substances Superfund administered by the U.S. EPA of the sums set forth below as stipulated penalties for each week or part thereof that Respondent fails to comply with a schedule in accordance with the requirements contained in this Order, including its Attachments or modifications, unless the Agencies determine that such a failure or delay is attributable to force majeure as defined in Section XIX or is otherwise approved by U.S. EPA. Such sums shall be due and payable within thirty (30) days of receipt of written notification from U.S. EPA specifically identifying the noncompliance and assessing penalties, unless Respondent invokes the procedures of Section XVIII (Dispute Resolution). These stipulated penalties shall accrue in the amount of \$1500.00 for the first week or part thereof, and \$2000.00 for each week or part thereof thereafter. Stipulated penalties shall begin to accrue on the day that performance is due or a violation occurs and extends through the period of correction.
- B. The stipulated penalties set forth herein shall not preclude the Agencies from electing to pursue any other remedy or sanction because of Respondent's failure to comply with any of the terms of this Order, including a suit to enforce the terms of this Order. Said stipulated penalties shall not preclude the U.S. EPA from seeking statutory penalties up to the amount authorized by law if Respondent fails to comply with any requirements of this Order. Provided, however, that the United States shall not seek civil penalties pursuant to Section 122(1) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Order.



- C. Upon receipt of written demand from U.S. EPA, Respondent shall make payment to U.S. EPA within 30 days and interest shall accrue on late payments. If Respondent fails to pay stipulated penalties when due, U.S. EPA may institute proceedings to collect the penalties, as well as interest.
- D. Even if violations are simultaneous, separate penalties shall accrue for separate violations of this Order. Penalties shall accrue regardless of whether U.S. EPA has notified Respondent of a violation or act of noncompliance. The payment of penalties shall not alter in any way Respondent's obligation to complete the performance of the work required under this Order. Stipulated penalties shall accrue, but need not be paid, during any dispute resolution period concerning the particular penalties at issue. If Respondent prevails upon resolution, Respondent shall pay only such penalties as the resolution requires. In its unreviewable discretion, U.S. EPA may waive its rights to demand all or a portion of the stipulated penalties due under this Section.

#### **XXI. RESERVATION OF RIGHTS**

- A. Except as specifically provided in this Order, nothing herein shall limit the power and authority of the Agencies to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent the Agencies from seeking legal or equitable relief to enforce the terms of this Order. Except as specifically provided in this Order, U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law. The United States reserves, and this Order is without prejudice to, all rights against Respondent with respect to all other matters including, but not limited to:

1. Liability for failure to meet a requirement of this Consent Order;
2. Criminal liability;
3. Liability arising from any future releases of hazardous substances or oil from a facility owned

and/or operated by Respondent to the Site, and any future arrangement for disposal or treatment of a hazardous substance, pollutant or contaminant at the Site after the effective date of this Order;

4. Liability for federal government response costs including the cost of overseeing performance of the work covered under this agreement.
  5. Claims for damages to natural resources, as defined in Section 101(6) of CERCLA, 42 U.S.C. § 9601(6);
- B. Respondent specifically reserves all rights and defenses that it may have, including but not limited to the right to contest any determinations, findings of fact, or conclusions of law set forth in the Order in any proceeding other than an action brought by U.S. EPA or the State to enforce this Order.

#### **XXII. OTHER CLAIMS**

- A. By issuance of this Order, the United States, the State of Wisconsin, and the Agencies assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States, the State of Wisconsin, and the Agencies shall not be a party or be held out as a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out activities pursuant to this Order.
- B. Except as expressly provided in Section XXIII (Covenant Not To Sue), nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or the common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106(a) or 107(a) of CERCLA, 42 U.S.C. §§9606(a), 9607(a).
- C. This Order does not constitute a preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. §9611(a)(2). The Respondent waives any claim to payment under Sections 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§9606(b), 9611, and 9612, against the United States or the Hazardous Substance Superfund arising out of any action performed

under this Order. No action or decision by U.S. EPA pursuant to this Order shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. §9613(h).

#### XXIII. COVENANT NOT TO SUE

- A. 1. In consideration of the actions that will be performed by Respondent under the terms of this Order and except as specifically provided in Section XXI, the United States covenants not to sue or to take administrative action against Respondent pursuant to Section 106 of CERCLA, Section 311 of the Federal Water Pollution Control Act, and Section 10 of the Rivers and Harbors Act with respect to the Site.
2. In consideration of the actions that will be performed by Respondent under the terms of this Order, and except as specifically provided in Section XXI, the State covenants not to sue or take administrative action against Respondent pursuant to Sections 107(a) and 310 of CERCLA, Section 505 of the Federal Water Pollution Control Act, and state statutory and common law with respect to the Site.
3. Except with respect to future liability, the covenants not to sue or take administrative action shall take effect upon issuance of this Order. With respect to future liability, these covenants not to sue or take administrative action shall take effect upon the issuance of the Notice of Completion. These covenants not to sue or take administrative action are conditioned upon the satisfactory performance by Respondent of its obligations under this Order. These covenants not to sue or take administrative action extend only to Respondent and do not extend to any other person.
- B. These covenants not to sue or take administrative action shall not apply to a U.S. EPA claim for response action after issuance of the Notice of Completion with respect to any subunit of the Site, as delineated in the SOW, that did not achieve the Cleanup Objectives as defined in the SOW.
- C. Nothing in this Order shall affect any covenant not to sue provided to Respondent in any other agreement.

#### XXIV. CONTRIBUTION PROTECTION

With regard to claims for contribution against Respondent for matters addressed in this Order, the Parties hereto agree that Respondent is entitled to protection from contribution actions or claims to the extent provided by Section 113(f)(2) of CERCLA, 42 U.S.C. §§9613(f)(2), and applicable state law. The "matters addressed" in this Order are all response actions to be taken by any person other than the United States with respect to the Site. Nothing in this Order precludes Parties from asserting any claims, causes of action or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

#### **XXV. INDEMNIFICATION**

Respondent agrees to indemnify, save and hold harmless the United States, the State, and their officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action: (A) arising from, or on account of, acts or omissions of Respondent and Respondent's officers, directors, employees, agents, contractors, subcontractors, receivers, trustees, successors or assigns, in carrying out actions pursuant to this Order; and (B) for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between (any one or more of) Respondent, and any persons for performance of work on or relating to the Site, including claims on account of construction delays. Nothing in this Order, however, requires indemnification by Respondent for any claim or cause of action against the United States or the State based on acts or omissions that occur at the direction of the United States or the State (not including oversight or approval of plans or activities of Respondent).

#### **XXVI. MODIFICATIONS**

Any requirements of this Order may be modified in writing by mutual agreement of the parties. If Respondent seeks permission to deviate from any approved plan or schedule, Respondent's Project Coordinator shall submit a written request to the Agencies for approval outlining the proposed modification and its basis.

No informal advice, guidance, suggestion, or comment by the Agencies regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligations to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

**XXVII. NOTICE OF COMPLETION**

The Agencies shall promptly review the Final Report submitted by Respondent and determine whether all work has been performed in accordance with this Order, except for certain continuing obligations required by this Order (e.g., record retention). Upon such determination, the Agencies will promptly provide written notice to Respondent. Such notice will not be unreasonably withheld. If the Agencies determine that any removal activities have not been completed in accordance with this Order, they will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the Work Plan if appropriate to correct such deficiencies. Respondent shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the Agencies' notice. Failure to implement the approved modified Work Plan shall be a violation of this Order.

**XXIII. SEVERABILITY**

If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

**XXIX. EFFECTIVE DATE**

This Order shall become effective five (5) days following facsimile transmission to Respondent's representative, as designated in Section VII, of the signature pages herein for the Director for the Office of Superfund, U.S. EPA, Region V, and the Secretary of the WDNR.

IN THE MATTER OF:  
Administrative Order by Consent  
SMU 56/57 Site  
Fox River, Wisconsin

SIGNATORIES

Each undersigned representative of a signatory to this Administrative Order on Consent certifies that he or she is fully authorized to enter into the terms and conditions of this Order and to bind such signatory to this document.

AGREED AS STATED ABOVE:

FORT JAMES CORPORATION and  
FORT JAMES OPERATING COMPANY

BY: Kathleen M. Bennett  
Name:  
Title:

DATE: May 25, 2000

IT IS SO ORDERED AND AGREED:

BY: William E. Muno  
for William E. Muno, Director  
Superfund Division  
U.S. Environmental Protection Agency, Region 5

DATE: 5/26/00

BY: George Meyer  
George Meyer, Secretary  
Wisconsin Department of Natural Resources

DATE: 5/25/2000

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IN THE MATTER OF:  
Administrative Order by Consent  
SMU 56/57 Site  
Fox River, Wisconsin

BY: \_\_\_\_\_

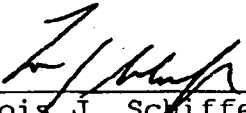
DATE: \_\_\_\_\_

Name:

Title:

Wisconsin Department of Justice

BY: \_\_\_\_\_

  
Lois J. Schiffer

Assistant Attorney General

Environment &amp; Natural Resources Division

U.S. Department of Justice

DATE: \_\_\_\_\_

5/25/00

WDNR139000527

EPAAR279228

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IN THE MATTER OF:  
Administrative Order by Consent  
SMU 56/57 Site  
Fox River, Wisconsin

BY: 

Name: Jerry L. Hancock  
Title: Assistant Attorney General  
Wisconsin Department of Justice

DATE: 5/22/00

BY: \_\_\_\_\_

Lois J. Schiffer  
Assistant Attorney General  
Environment & Natural Resources Division  
U.S. Department of Justice

DATE: \_\_\_\_\_

WDNR139000528

EPAAR279229



**STATEMENT OF WORK**  
**Lower Fox River**  
**Sediment Management Unit 56/57 Removal Action**

**I. INTRODUCTION**

**A. Purpose**

The purpose of this Statement of Work ("SOW") is to set forth the requirements for performance of a removal action involving dredging of contaminated sediment from a portion of the area known as Sediment Management Unit ("SMU") 56/57, located in the vicinity of the Fort James Corporation facility located on the west bank of the Lower Fox River, Wisconsin. The work is being conducted under Administrative Order by Consent No. \_\_\_\_\_ ("AOC"), to which this SOW is attached.

**B. Description of Removal Action**

1. Respondent will use hydraulic dredging to remove contaminated sediment from certain subunits of SMU 56/57, as numbered on Figure 1 attached to this SOW, in two phases. Phase I will remove sediment from all areas in subunits 12, 13, 14, 15, 16, 17, 23, 24, 25, 26, 27, 28, and portions of subunits 18, and 29. In order to obtain stable side slopes, sediments from portions of subunits 34, 35, 36, 37, 38, 39, and 40 ("Phase I Subunits") will be removed. If the project does not enter Phase II, then sediments from portions of 18 and 29 will be removed for side slope stabilization. The foregoing will be collectively referred to as "Phase I Subunits." The approximate horizontal extent of Phase I dredging is shown on Figure 1. The vertical extent of dredging will be determined by the Cleanup Objectives, as defined below, subject to the limitations contained in this Paragraph I.B.1. Phase II will remove sediment from the remaining portions of subunits 18, 36, 37, 38, and 39, and from all or part of subunits 19, 29, 30, 40, 41, 46, 47, 48, 49, 50, and 51 ("Phase II Subunits"). Respondent shall not be required to remove more than a total of 50,000 cubic yards ("CY") of in-place sediment from the Phase I and II Subunits, given the need to preserve stable side slopes, avoid leaving residual elevated PCB concentrations, and remain within the remaining capacity of the Fort James Green Bay Landfill Cell 12A ("Cell 12A") located at Respondent's Green Bay Landfill (WDNR Lic. #2332), which has been approved to receive dewatered sediments containing over 50 parts per million ("ppm") PCBs ("TSCA-level Sediments"). The Phase II Subunits will be dredged only to the extent that Respondent can meet the Cleanup Objectives, establish stable side slopes, and remain within the 50,000 CY volume limit. All dredged sediment will be dewatered and made suitable for placement in Cell 12A. Respondent will properly dispose of all TSCA-level Sediments in Cell 12A and the balance of the PCB-contaminated sediments, if any, as provided in Section II.E of this SOW.

2. Respondent will construct access roads, staging areas, work pads, and other infrastructure as necessary to accomplish the required sediment dredging, dewatering, stabilization, truck loading, truck washing, parking, and associated activities.

3. Respondent will provide or obtain the necessary utilities, site security, and support services to complete the project.

4. At the completion of the response activities, Respondent will restore the onshore area used for the response action to a stable and secure status as determined by Respondent, the owner of the onshore area.

### **C. Cleanup Objectives**

As part of the Removal Design, discussed in Section II.A.2 of this SOW, target dredging elevations will be established for the Phase I and Phase II Subunits based on the goal of attaining a residual surficial PCB concentration (defined for purposes of this SOW as the upper four inches of sediment after dredging) of approximately 1 ppm, establishing stable side slopes at the conclusion of the dredging, and remaining within the 50,000 CY volume limitation, using existing data and estimated cross-sections of SMU 56/57. Dredging of each subunit will proceed until any of the following Cleanup Objectives is met:

Post-dredging sampling of the subunit pursuant to Section II.F of this SOW indicates that a surficial sediment concentration of 1 ppm PCBs or less has been attained; or

Post-dredging sampling of the subunit pursuant to Section II.F of this SOW indicates that a surficial sediment concentration of 10 ppm PCBs or less has been attained and Respondent will place six inches of clean sand over the entire subunit; or

Post-dredging sampling of all subunits in each Phase pursuant to Section II.F of this SOW indicates that a surficial sediment concentration of 10 ppm PCBs or less has been attained in 90% of the subunits in that Phase, the surficial sediment concentration does not exceed 25 ppm in any subunit in that Phase, the average surficial sediment concentration of all subunits in that Phase is less than or equal to 10 ppm, and Respondent will place six inches of clean sand over all subunits that have not attained a surficial sediment concentration of 1 ppm PCBs or less.

If the U.S. EPA On-Scene Coordinator ("OSC") makes a determination, in consultation with the WDNR On-Scene Representative ("OSR"), that achieving a surficial sediment

concentration of 10 ppm PCBs or less in a given subunit is impracticable or undesirable (e.g., due to the need to maintain appropriate side slopes), the Cleanup Objectives will be deemed to have been met in that subunit, as long as Respondent will place six inches of clean sand over the entire subunit. The foregoing Cleanup Objectives do not apply to the side slopes of the subunits at the perimeter of the dredged area, which shall be designed to minimize sloughing or slumping into the dredged area. All dredged side slopes will be covered with six inches of clean sand.

**D. Applicable or Relevant and Appropriate Requirements to be Considered**

Permits are not required for this project pursuant to CERCLA Section 121(e)(1). The following substantive requirements will be met to the extent that they are applicable, or to the extent that they are relevant and appropriate and do not interfere with expeditious completion of the project:

The substantive requirements of the letter dated 11-03-98 from the US Army Corps of Engineers, except that Respondent may seek to modify such requirements based on the results of the Demonstration Project.<sup>1</sup>

The substantive requirements of WDNR dredging permit No. 3-NE-99-0341LF, except that Respondent may seek to modify such requirements based on the results of the Demonstration Project.

The water discharge limitations set forth in WPDES Permit No. WI-0049735, except that Respondent may seek to modify such requirements based on the results of the Demonstration Project.

Substantive State solid waste disposal requirements, including requirements contained in WDNR's existing approval of Cell 12A.

**E. Removal Implementation**

The removal action to be implemented will consist of the following elements:

Design Activities;  
Contractor Selection;  
Construction Oversight;

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<sup>1</sup> SMU 56/57 was the location of a demonstration dredging project in 1999 that will be referred to as the "Demonstration Project" throughout this Statement of Work. The detailed design for the Demonstration Project is a document entitled "Basis of Design Report" (Montgomery Watson 1998).

Dredging and Processing;  
TSCA and Non-TSCA Disposal; and  
Confirmatory Sampling

These steps are described below and shall be completed in accordance with the schedule provided below.

## **II. WORK TO BE PERFORMED**

### **A. Design Activities**

#### **1. Planning Phase**

Respondent will complete the planning phase following the execution of the AOC. The planning phase will consist of the pre-design activities described below. The results of these activities will serve to supplement the Basis of Design Report for the previously conducted Demonstration Project.

##### **a. Compilation and Assessment of Existing Sediment Contamination Data**

Relevant data developed before and after the Demonstration Project will be evaluated and summarized to identify data gaps and support the proposed methods for completing the remediation of the disturbed area and selected adjacent cells.

##### **b. Evaluation of Dredging, Processing, and Disposal Options**

Based on the data assessment and an evaluation of the results of the Demonstration Project, Respondent will recommend modifications to the Basis of Design Report and relevant associated documents that will allow for the efficient completion of this removal action.

##### **c. Supplemental Sampling**

Based on an initial evaluation of available relevant data, the following supplemental sampling activities may be necessary:

Supplementary Geo-technical Borings -- Additional geotechnical borings may be taken to further define the grain size, degree of consolidation and possibly other geotechnical characteristics of the sediments in the disturbed area and selected adjacent cells.

Pre-dredging Bathymetry -- Sloughing and siltation in the disturbed area may have occurred over the last 6 months since Demonstration Project dredging was completed. In order to project depth and quantities accurately a new pre-dredging survey will be conducted.

## 2. Removal Design

Based on the evaluation of the Demonstration Project and the available results of the pre-design activities, certain modifications to the plan described in the Basis of Design Report may enhance the efficiency of the dredging, sediment treatment, and water treatment operations. Respondent will refine these modifications and describe them in a technical memorandum entitled "Work Plan/Design Memorandum," which will be submitted to the USEPA and WDNR for review and approval. Respondent anticipates the Work Plan/Design Memorandum will generally refer to the Basis of Design Report and will be limited to describing the modifications to that report. Target dredging elevations will be established for the Phase I and Phase II Subunits based on the goal of attaining a residual surficial PCB concentration (defined for purposes of this SOW as the upper four inches after dredging) of approximately 1 ppm, establishing stable side slopes at the conclusion of the dredging, and remaining within the 50,000 CY volume limitation, using existing data and estimated cross-sections of SMU 56/57.

### **B. Contractor Selection**

Respondent will conduct a two-step contractor selection process. The first step will be pre-qualification, including; checking references, visiting similar dredging project sites and visiting the offices of potential contractors. The second step will be solicitation of bids from qualified contractors.

### **C. Construction Oversight**

Respondent will identify an employee or third party to provide full time oversight of the dredging, dewatering, and disposal operation.

### **D. Dredging and Processing**

Respondent will excavate contaminated sediments from the subunits listed in Section I.B. of this SOW pursuant to the approved Work Plan/Design Memorandum until the Cleanup Objectives and appropriate side slopes are achieved. Dredging will first occur in the Phase I Subunits. To avoid any unnecessary interruption in the progress of the work, the OSC, OSR, and Respondent will consult after Confirmatory Sampling of 75% or more of the Phase I Subunits have been dredged. The OSC shall determine in consultation with the WDNR OSR, based on the available data, whether objectives are consistently being met in the areas dredged to-date, and whether dredging may proceed in the Phase II Subunits upon completion of Phase I. The dredging will be implemented in a manner to ensure that the volume of the dredged sediments does not exceed 50,000 CY, the volume of the dredged, dewatered and treated sediments does not exceed the remaining capacity of Cell 12A, and the side slopes on the outer perimeter of the dredged area are stable. Respondent will place six inches of clean sand

on all side slopes after the dredging has concluded, and will place six inches of clean sand on any subunits as needed to attain the Cleanup Objectives.

Dredged material will be dewatered using mechanical means. A combination of passive dewatering in lagoons and batch processing through agitated tanks may be employed to maximize the volume removed in the shortest time. Prior to transportation, dewatered sediment will be stabilized, if necessary, in order to pass the RCRA "paint filter test."

#### **E. TSCA and Non-TSCA Disposal**

Dewatered and stabilized sediments will be separated in batches of 2,000 CY or less, sampled for PCBs, and tested for free liquids (RCRA paint filter test) and other relevant geotechnical characteristics as needed. Batches or piles having a PCB concentration greater than or equal to 50 ppm will be transported to and disposed of in Cell 12A of the Fort James Green Bay Landfill. Batches or piles having a PCB concentration less than 50 ppm will be transported to and disposed of in: (i) Cell 12A; (ii) a cell other than Cell 12A at Fort James Green Bay Landfill as may be agreed to by WDNR and Respondent; or (iii) some other disposal facility as may be agreed to by WDNR and Respondent.

#### **F. Confirmatory Sampling**

Respondent shall conduct Confirmatory Sampling under this section to determine whether the Cleanup Objectives have been met. The Confirmatory Sampling shall be conducted consistent with the Sampling and Analysis Plan ("SAP") discussed in Section III.A. of this SOW. After the approximate target elevation of each subunit has been reached, Respondent will collect and analyze one sample of the surficial sediment (the top four inches) in that subunit for PCBs. If the sample result is greater than 10 ppm PCBs, Respondent either may collect and composite four or more additional samples of surficial sediment from the subunit and analyze the composited sample for PCBs to determine whether the Cleanup Objectives have been met, or may conduct additional dredging of the subunit before conducting further Confirmatory Sampling. Respondent also will conduct a post dredging bathymetric survey of the dredged area after each phase of dredging has been completed.

### **III. ADDITIONAL ACTIVITIES**

The following additional activities will also be conducted as part of the removal action.

#### **A. Sampling and Analysis Plan**

Respondent will prepare and submit a Sampling and Analysis Plan that will describe the procedures and analytical techniques to be used for the following required sampling and

monitoring:

Turbidity and Water Column PCB Monitoring--During dredging operations, turbidity measurements will be taken at one station upstream and one station downstream of the work. The existing upstream station at the Fort James intake will be used for the upstream measurements. Upstream turbidity measurements will be compared to downstream turbidity measurements. An in-stream water column sample will be collected and analyzed for PCBs when turbidity measured by the downstream station is significantly higher than the turbidity measured by the upstream station ("Trigger Level") and the source of the increased turbidity is demonstrated to be the dredging. The Trigger Level will be specified in the final approved Work Plan/Design Memorandum.

Dewatered Sediment Sampling--Dewatered and stabilized sediments will be separated in batches of 2,000 CY or less. Each batch will be sampled for PCBs and tested for free liquids (RCRA paint filter test) and other relevant geotechnical characteristics as needed.

Post-Dredging Confirmatory Sampling--Surficial sediments will be analyzed for PCBs as provided in Section II.F of this SOW.

Effluent Sampling--Samples of treated effluent from the project will be obtained and analyzed as directed by the OSC and OSR; provided however that, any such sampling and analysis will not be more frequent nor involve more constituents than required by the WPDES permit issued in connection with the Demonstration Project.

Post-Dredging Bathymetric Survey--A post dredging bathymetric survey will be conducted.

## **B. Health and Safety Plan**

Respondent will review the Health and Safety Plan prepared for the Demonstration Project and the onsite safety history during that project. Based on that evaluation and considering proposed modifications to the dredging program, a modified plan will be developed, if necessary.

## **C. Quality Assurance Project Plan**

Sampling and analyses will be conducted in accordance with an approved Quality Assurance Project Plan.



#### **IV. PROJECT SCHEDULE**

The following milestones are established for the project:

Work Plan/Design Memorandum - 30 days after Respondent receives AOC executed by EPA and WDNR

Sampling and Analysis Plan - 30 days after Respondent receives AOC executed by EPA and WDNR

Health and Safety Plan - 30 days after Respondent receives AOC executed by EPA and WDNR

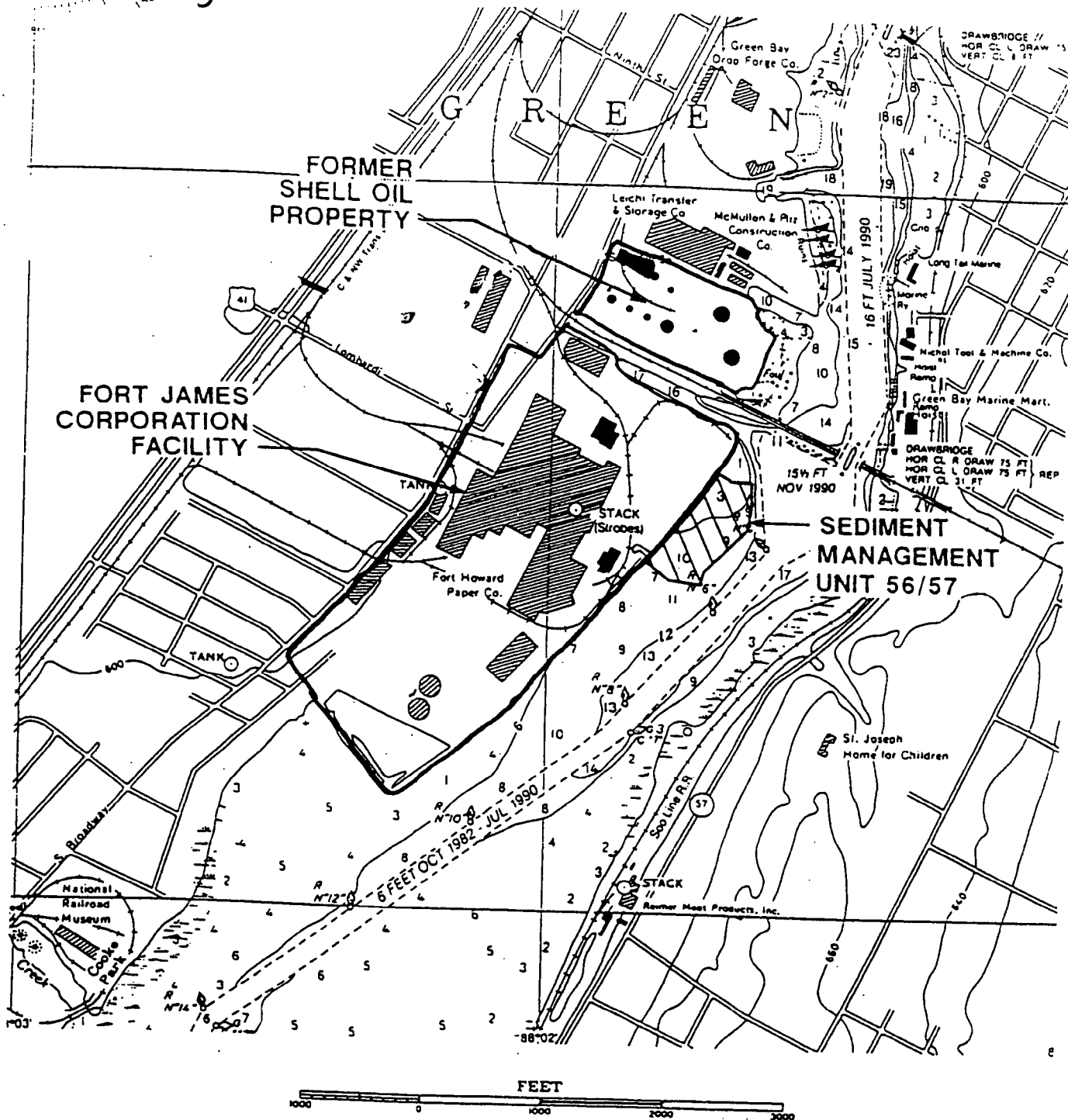
Quality Assurance Project Plan - 30 days after Respondent receives AOC executed by EPA and WDNR

Selection of Contractor - 45 days after Respondent receives AOC executed by EPA and WDNR

Begin Contractor Mobilization to Site - 30 days after receipt of EPA/WDNR written approval of Work Plan/Design Memorandum

Start of Dredging - 60 days after receipt of EPA/WDNR written approval of Work Plan/Design Memorandum

Figure 2



# NOTES

1. REFERENCE: RECREATIONAL CHART 14916, LAKE WINNEBAGO AND LOWER FOX RIVER, NOAA, 8th EDITION, OCTOBER 17, 1992.

Developed By: JHW  
 Drawn By: CCM  
 Approved By: [Signature]  
 Date: 5-15-98  
 Reference:  
 Revisions:

## LOCATION MAP

BASIS OF DESIGN REPORT  
 SEDIMENT REMOVAL  
 DEMONSTRATION PROJECT  
 SEDIMENT MANAGEMENT UNIT 56/57  
 FOX RIVER, GREEN BAY, WISCONSIN

Drawing Number  
 1272167  
 01250101 A2

**MONTGOMERY  
 WATSON**



WDNR139000538

EPAAR279239

56/57 AOC Administrative Order by Consent in the matter  
of "Lower Fox River Sediment Management Unit 56/57"  
Removal Action; Respondents: Fort James Corporation,

WDNR139000539

EPAAR279240



100423  
0000037

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

**MEMORANDUM**

**DATE:** JUN 20 2000

**SUBJECT:** ENFORCEMENT ACTION MEMORANDUM: Determination of Need to Conduct a Time-Critical Removal Action at Sediment Management Units 56 and 57, part of the Lower Fox River NRDA/PCB Releases Site, Winnebago, Outagamie, Brown, Oconto, Marinette, Kewaunee, and Door Counties, Wisconsin and Menominee and Delta Counties, Michigan (Site ID# A565)

*Samuel L. Borries*  
**FROM:** Samuel Borries, On-Scene Coordinator  
Emergency Response Branch - Section 2

**THRU:** William E. Muno, Director  
Superfund Division

*W. E. Muno*

**TO:** Francis X. Lyons  
Regional Administrator

**I. PURPOSE**

The purpose of this Memorandum is to document the determination of the need to conduct a time-critical removal action for a portion of Sediment Management Units 56/57 (SMU 56/57) which are themselves part of the Lower Fox River NRDA/PCB Releases Superfund Site (Site). The Site touches on Winnebago, Outagamie, Brown, Oconto, Marinette, Kewaunee, and Door Counties, Wisconsin and Menominee and Delta Counties, Michigan. The portion of SMU 56/57 for which this time critical removal action is proposed consists of the "footprint" of an uncompleted dredging project previously undertaken by Potentially Responsible Parties (PRPs) under an agreement with the State of Wisconsin Department of Natural Resources (WDNR). This consists of subunits 12, 13, 14, 15, 16, 17, 23, 24, 25, 26, 27, 28 and portions of 18 and 29. In order to obtain stable side slopes, sediments from portions of subunits 34, 35, 36, 37, 38, 39 and 40 will be removed. This area will be identified herein as Sediment Management

Unit 56/57, Subunit A (SMU 56/57-A). The response actions proposed herein will mitigate threats to public health, welfare, and the environment posed by the presence of an uncontrolled hazardous substance located at SMU 56/57-A. Contamination of the SMU 56/57-A sediments, surface waters and impacted wildlife are a result of the discharge of PCBs to the river from facilities owned and operated by certain (PRPs). These PRPs have been identified as: Appleton Papers Inc., Fort James Corporation, P.H. Glatfelter Company, NCR Corporation, Riverside Paper Company, U.S. Paper Mills Corporation, and Wisconsin Tissue Mills Inc.

The response action proposed herein will mitigate threats to public health, welfare, and the environment posed by the presence of a continuing, uncontrolled release of a hazardous substance into the food chain of the Lower Fox River and Green Bay system from exposed undredged sediments. The proposed response actions include sediment dredging, containment, monitoring, water treatment, and disposal of contaminated sediments.

Due to the contaminated nature of the sediment, the continuing release of contamination into the food chain and potential exposure to the public, this removal action will be classified as time-critical. The project will require approximately 145 on-site working days to complete. It is currently anticipated that this response will be completed by a responsible party pursuant to an Administrative Order on Consent (AOC) or a Unilateral Administrative Order (UAO).

Among the several PRPs, Fort James Corporation (FJC) is uniquely situated to undertake the response actions called for in this Action Memorandum. FJC owns and operates substantial onshore facilities immediately adjacent to SMU 56/57. Included in those facilities are a dewatering lagoon and a nearby landfill with unused capacity that is already permitted to accept PCB sediments. Moreover, while the PCBs located in SMU 56/57 cannot be wholly attributed to FJC, certainly a significant portion of them were released from the FJC facilities.

This site is proposed to be on the National Priorities List.

## **II. SITE CHARACTERISTICS**

### **A. SITE DESCRIPTION**

#### **CERCLIS ID # WI0001954841**

The northwest corner of SMU 56/57-A Site is located at latitude 44°29'37.26" and longitude 88°01'39.40". This Site is within the Lower Fox River NRDA/PCB Releases Site, located in or touching on Winnebago, Outagamie, Brown, Oconto, Marinette, Kewaunee, and Door Counties, Wisconsin, and Menominee and Delta Counties, Michigan (Figure 1). The Site has been proposed for inclusion on the Superfund National Priorities List. A portion of Green Bay is also part of the Site, and is downstream of SMU 56/57-A Site. Green Bay includes approximately 2700 square miles though not all of Green Bay is included in the Site. The population of the Lower Fox River Valley is approximately 375,000 people, approximately 7% to 8% of the state's population.

Among Wisconsin residents, the low-income percentage is 28% and the minority percentage is 9%. To meet the Environmental Justice (EJ) concern criteria, the area within 1 mile of the Site must have a population that is twice the state low-income percentage and/or twice the state minority percentage. That is, the area must be at least 56% low-income and /or 18% minority. At this Site, the low-income percentage is 59.3% and the minority is 21.65% as determined by the Landview III EJ analysis. Therefore, this Site does meet the region's EJ criteria based on demographics as identified in "Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case, June 1998".

The Lower Fox River flows approximately 39 miles from Lake Winnebago in a northeasterly direction, discharging into Green Bay in northeast Wisconsin. The bay of Green Bay, is 119 miles long and averages 23 miles in width.

The Fox River has a series of dams between Lake Winnebago and Green Bay, with the last downstream dam located at DePere, about 8 miles southwest of Green Bay. The SMU 56/57-A area is approximately 3.75 acres, and is located within a 10 acre area comprising the SMU 56/57 Site. The site is immediately adjacent to an industrial area on the northwest side of the river -- the Fort James Corporation facility. Southeast of the site and across the river, are commercial and residential properties. The SMU 56/57-A Site is within the Fox River drainage basin which contains a total drainage area of 6,330 square miles.

The river portion of the Lower Fox River subject to consideration in this response action (SMU 56/57-A site) is an area located along the northwestern bank of the Fox River approximately 4 miles southwest (upstream) from where the Lower Fox River discharges into Green Bay, just offshore from the Ft. James facility. Water depths in this area are approximately 6 to 12-feet. This removal action will address the highest PCB (360 ppm) concentrations and most highly exposed PCB (310 ppm) contaminated sediments in the Lower Fox River. Sampling has shown that the SMU 56/57-A area contains some of the highest concentrations of PCBs detected anywhere in the Lower Fox River. In addition, SMU 56/57-A is within that portion of the River designated as Operable Unit 4, which stretches from DePere Dam to the mouth of the River where it enters Green Bay. The River sediments in OU4 are almost continuously contaminated for the entire length of OU 4 (Figure 2). Without having access to the exact bathymetry data U.S. EPA has estimated the volume of PCB contaminated sediments in SMU 56/57-A to be approximately 21,500 cubic yards, and estimated to contain approximately 1,600 pounds of PCBs. This is currently known to be the most highly contaminated spot in the Lower Fox River.

Current uses of the Fox River are impaired due to the PCB sediment contamination. Sportfishing is heavily restricted by fish consumption advisories, though the advisories are only partially effective, particularly for women, children, and minorities, as shown by site specific surveys and those conducted in the Great Lakes region. This action will not cause the advisories to be removed, but will mitigate increased releases and increased risks to human health and the environment.

## **B. SITE HISTORY**

### Lower Fox River

The 39 mile stretch of the Lower Fox River from Lake Winnebago to Green Bay may contain the highest concentration of paper mills in the world. Twenty-two mills are located along this portion of the river. Among that group of mills, six engaged in the production and de-inking of carbonless copy paper containing PCBs, and as a result of those de-inking processes, these mills discharged PCBs to the Lower Fox River. The Mills that have been identified as PRPs are: Appleton Papers Inc., Fort James Corporation, P.H. Glatfelter Company, Riverside Paper Company, U.S. Paper Mills Corporation, and Wisconsin Tissue Mills Inc. Also a former mill owner, NCR Corporation, has been identified as a PRP. Between 1954 and the early 1970's, the six mills produced and recycled carbonless copy paper containing PCBs. These mills discharged PCB-contaminated wastewater into the Lower Fox River either directly or

indirectly (through publicly owned treatment works). There are currently estimated to be approximately 60,000 pounds of PCBs residing within 10.4 million cubic yards of Lower Fox River sediments and 19,000 pounds of PCBs in at least 220 million cubic yards of Green Bay sediments. Table 1 provides the length, mass of PCBs and average hotspot concentrations for each Operable Unit (or "river reach").

**Table 1. Summary of Operable Units ("river reach") characteristics**

Operable Unit/Area	River or Bay reach Length (miles)	PCB Mass (pounds)	Average hotspot concentration (ppm)
1 - Little Lake Butte des Morts to Appleton	7	4,100	13
2 - Appleton to Little Rapids	18	700	14
3 - Little Rapids to DePere Dam	6	3,200	6
4 - DePere to Green Bay	8	52,000	8
Sub-total for Fox River	39	60,000	9
5 - Green Bay	119	19,000	not determined
TOTAL FOR GREEN BAY AND LOWER FOX RIVER	158	79,000	----- ----

Table Note: Shaded Row represents the reach in which SMU 56/57-A is located.

Although the total PCB mass released into the Lower Fox River cannot be presently accounted for in river sediments, it is believed the remaining mass of PCBs could be accounted for as follows:

- 1) PCBs are present, but not yet identified in sediments in Green Bay or the Lower Fox River. In particular Green Bay is not as well characterized, due to its large extent (2700 square miles).
- 2) PCBs have volatilized into the atmosphere, and
- 3) PCBs have been released into Lake Michigan from PCB-contaminated sediments and



surface water discharging from the Lower Fox River. PCB congener patterns in Lake Michigan sediments, as well as mass balance modeling calculations suggest this has occurred and may still be occurring.

It should be noted that quantifying these releases may be difficult or impossible.

Green Bay Mass Modeling Evaluations conducted by U.S. EPA and WDNR have determined that PCBs residing in Green Bay have been and are continuing to be discharged from the Lower Fox River. Modeling has quantified PCB mass releases into Green Bay, the atmosphere, and Lake Michigan. Other possible sources (e.g., the atmosphere, non-point sources, and other tributaries) contribute little to the PCB loading of Green Bay.

#### Sediment Management Unit 56-57-A

Fort James' facility is immediately adjacent to the SMU 56/57 and generally considered to be one of the major contributors of PCB contamination to the river. Particularly this area which has the highest known PCB concentrations of any location on the Lower Fox River or Green Bay.

The reason SMU 56/57-A is now a significantly greater environmental risk is because a dredging project undertaken by the PRPs, under an agreement with the Wisconsin DNR resulted in exposing higher concentrations of PCBs in areas where PCBs had been buried more deeply in the sediment. For example, the average concentration of PCBs in the surficial layer (0-11 centimeters) for SMU 56-57-A prior to dredging was 3.8 ppm. Average PCB surface concentrations measured within SMU 56-57-A after last year's dredging project was discontinued were 68.7 ppm (Figure 3), or a 15 fold increase. Areas having only a single dredging pass had surface PCB concentrations averaging 116 ppm or an increase of 30 times over pre-existing PCB concentrations.

### **C. SITE ASSESSMENT**

The majority of sediment and surface water data collected from the Lower Fox River was collected in 1989, 1990, 1992, 1993 - 1998. This included sediments and waters in the general vicinity of SMU 56/57. This data is currently being evaluated as part of a Remedial Investigation/Feasibility Study (RI/FS). Additionally, data was collected within SMU 56/57 during 1999, just before and just after dredging. Only 1999 sediment data collected specifically for the SMU 56/57 dredging project is discussed below. The contamination levels in fish in the Lower Fox River and Green Bay have been monitored

by the WDNR, the U.S. Fish and Wildlife Service and others since 1983. Fish collection and analysis were completed in 1983, 1985, 1989, 1994, 1995 and 1997. This data is also being evaluated as part of a RI/FS for the Lower Fox River and Green Bay.

SMU 56/57-A, is within Operable Unit 4, the DePere to Green Bay reach. SMU 56/57-A currently has a remaining contaminated sediment volume of approximately 21,500 cubic yards, containing an estimated 1,600 pounds of PCBs.

### **Wildlife Data**

The Lower Fox River/Green Bay Natural Resource Trustees have conducted an assessment of injuries to fishery resources of the Lower Fox River/Green Bay environment that result from releases of PCBs from Fox River paper company facilities. The injury assessment included determination of PCB transport pathways from paper company facilities to fishery resources of the river and bay, injury determination, and injury quantification. The injury assessment was conducted consistent with the Department's NRDA regulations at 43 CFR Part 11, and included assessment of injuries associated with state fish consumption advisories because of PCBs, exceedences of the Food and Drug Administration's PCB tolerance level, and adverse effects on fish viability.

The most significant injury to fishery resources of the Lower Fox River and Green Bay that results from paper company PCB releases is the presence of extensive fish consumption advisories. The advisories, ranging from limited to no fish consumption, are in place for dozens of fish species throughout the Lower Fox River, Green Bay, and northern Lake Michigan. The advisories have been in place since the 1970s and continue to the present (1999). The quantification of the losses to the public as a result of the PCB fish consumption advisories is presented in the Trustees' report on recreational fishing damages.

Consistent with the fish consumption advisories are injuries resulting from exceedences of the Food and Drug Administration's tolerance level for PCBs in fish tissue. The tolerance level is exceeded in many fish species throughout the assessment area. This injury is indicative of the extensive PCB contamination of Lower Fox River and Green Bay fish.

Walleye in the Lower Fox River and Green Bay suffer from the injury of increased liver tumors. The injury is most pronounced in female walleye, in which 34% of fish from the river and bay had liver tumors or pre-tumors compared with 7% of fish from reference

areas. The Trustees assessed other adverse viability injuries, including brown trout and lake trout health and lake trout reproduction, and concluded that available information does not support a conclusion that these fish currently are suffering from PCB-caused injuries, although they may have in the past.

Adult walleye were collected from several locations in the Lower Fox River and Green Bay, Wisconsin (the assessment area) and two relatively uncontaminated reference locations (Lake Winnebago and Patten Lake, Wisconsin) between July and October in 1996 and 1997. Mean PCB concentrations in whole body and liver samples were elevated in assessment area walleye (4.6-8.6 and 4.1-7.9 mg/kg wet weight, respectively) compared to PCB concentrations in reference areas (e.g., 0.04 mg/kg in walleye fillets from Lake Winnebago). Mean total PCB concentrations were 87% higher in walleye collected from eastern Green Bay than in western Green Bay, a finding consistent with spatial patterns of PCB contamination in bay sediments.

PCB levels in fish are summarized in the draft Baseline Human Health and Ecological Risk Assessment, dated February 24, 1999. Since 1976, the Wisconsin Department of Health and Family Services and Natural Resources has issued fish consumption advisories for the entire Fox River. In the DePere to Green Bay stretch, current advisories state that no one is to consume white bass, carp, and catfish of any size and no walleye greater than 22". Smallmouth bass, walleye of 16-22" and northern pike larger than 25" may only be consumed once per month. There are no fish, regardless of size or species, which may be consumed without restrictions.

Numerous species of birds throughout the assessment area are exposed to PCBs and documented in the final report titled Injuries To Avian Resources, Lower Fox River/Green Bay Natural Resource Damage Assessment. The primary route of exposure for most assessment area bird species is dietary. PCB concentrations measured in the tissues of assessment area bird species are statistically significantly greater than concentrations measured in reference areas. Every species tested has been found to have greater concentrations in the assessment area, including double-crested cormorant, black-crowned night heron, herring gull, Forster's tern, common tern, Caspian tern, mallard, bald eagle, tree swallow, and red-winged blackbird.

PCB exposure of assessment area birds, as measured by PCB accumulation in bird tissue, was greatest in the early 1970s (the first dates for which data are available), declined through the 1970s and through the early 1980s, and has remained relatively stable since then. Total PCB concentrations measured in eggs of assessment area red-breasted mergansers, double-crested cormorants, common terns, Forster's terns, Caspian terns,

and bald eagles from 1983 to 1996 are within or, in many cases, exceed the range where adverse reproductive effects have been reported in sensitive species.

The conclusions derived from the evaluation of the testing and sampling data indicate that avian resources of the Lower Fox River/Green Bay assessment area have been injured. Specifically, various fish-eating birds in the assessment area, including Forster's terns, common terns, double-crested cormorants, and bald eagles have been injured as a result of exposure to PCBs. The injuries report documents death and reduced reproduction, as well as physical deformations. Waterfowl are also injured by exposure to PCBs in the assessment area (i.e. Lower Fox River and Green Bay). This injury comprises exceedences of tissue action or tolerance levels (Section 402 of the Food, Drug and Cosmetic Act [43 CFR § 11.62(f)(1)(ii)]) and Wisconsin State waterfowl consumption advisories.

Experimental studies show that exposure to PCBs can cause death in avian embryos and juvenile and adult birds, cause morphological changes in immune tissues in birds, and induce behavioral effects including decreased parental incubation attentiveness, impaired courtship behavior and abnormal nest building behavior. Neurological effects such as impaired avoidance behavior and depletion of brain neurotransmitter levels can also occur.

The risk to ecological receptors is currently being evaluated by the WDNR and USEPA. Hazard quotients (HQ) are calculated to determine risk by calculating the ratio of exposure to PCBs to toxic effects of PCBs ( $HQ = \text{exposure}/\text{effects}$ ). Ratios that exceed 1.0 indicate risk, while HQs less than 1.0 do not. HQ values calculated for the DePere to Green Bay Reach of the Lower Fox River are shown in Table 2:

Table 2, Hazard Quotients

receptor	HQ based on NOAEL	HQ based on LOAEL
birds	<1 - 5.6	<1
mammals	476 - 616	15 - 154

NOAEL = no observed adverse effect level

LOAEL = lowest observed adverse effect level

These hazard quotient for mammals is based on ingestion of contaminated food (i.e. primarily fish). The hazard quotient for birds is based on either measured adult tissue or

egg concentrations.

### **Human Health Risk Assessment**

The exposed population is very large with approximately 50,000 anglers residing in counties immediately adjacent to the Lower Fox River and Green Bay. Green Bay has similar elevated risks to those observed in the DePere to Green Bay operable unit (OU4). Approximately 2000 Hmong residents are active anglers of the River and Bay. They are part of an estimated 5,000 total subsistence fishers in this area. There are direct risks to human health and wildlife and the likelihood for additional releases of PCBs by (a) partitioning into the water column, (b) disturbance from prop wash from boat traffic, and (c) higher flows caused by storm events or other events (e.g., ice scour). Any and all of these processes would cause an actual increase in PCBs for fish and wildlife in the immediate area and potentially increase PCBs levels in fish and wildlife in downstream areas if exposed sediments migrate.

Releases and exposures from the area to be addressed will add to already unacceptably high human health risks for the DePere to Green Bay operable unit (OU4). Current risks, taken from the draft Baseline Risk Assessment are as follows: 1) for subsistence fishers, a lifetime reasonable maximum exposure (RME) cancer risk of 1.3 in 1000 ( $1.3E-3$ ), and non-cancer hazard index (e.g., neurological impacts to infants and children) of 50, and 2) for recreational fishers, a lifetime RME cancer risk of 9.5 in 10,000 ( $9.3E-3$ ), and a non-cancer hazard index of 35.

### **Cleanup Goal**

An "interim cleanup level" for the uncompleted dredging area will be an average of 10 ppm for PCB concentrations. This represents an approximate 10-fold decrease relative to PCB contaminant concentrations (116 ppm) remaining that were left in areas receiving a single dredging pass last year. The 10 fold decrease in PCB sediment concentrations would proportionally decrease risks to public health and the environment by the similar amounts for the immediate or surrounding area.

Achieving the 10 ppm level would provide a minimally acceptable interim cleanup level, and could be used in an administrative order to define the "endpoint" for the removal action. A "final cleanup level" would be 1 ppm for PCB concentrations for the SMU 56/57-A time critical response. The 1 ppm PCB level is four fold higher than the proposed risk based goal of 0.25 ppm PCB as proposed in the draft Fox River RI/FS, which achieves a lifetime RME cancer risk of 4 in a 100,000 ( $4E-5$ ) and a non-cancer

hazard index (HI) of one. The 1 ppm PCB level is in the range of protectiveness for ecological receptors, if it were considered in an overall average of the final cleanup.

If the average concentrations were less than 10 ppm, but greater than 1 ppm with six inches of sand cover placed over the sediments, the Respondent would not be given a release for that area, but would have achieved minimal compliance with an Agreement (or Order). Achieving the 1 ppm level would give the Respondent a complete release for all 100x100-foot subunit grids where an average of 1 ppm was attained (for each subunit).

Additionally, if 90% of the subunits have a sediment concentration of 10 ppm PCBs or less with no single subunit exceeding 25 ppm, and an average surficial sediment concentration of all subunits is less than or equal to 10 ppm, the Respondent will place six inches of clean sand over all subunits that have not attained a surficial sediment concentration of 1 ppm PCBs or less.

These concentration-based cleanup goals discussed above, do not apply to the "sidewall" areas - that is the edge of the dredging excavation where sediments with higher concentrations of PCBs may be exposed. However, the sidewall areas will be excavated to minimize "sloughing" into adjacent dredged areas that could cause re-contamination of previously dredged areas. These sidewall areas will be limited in area and, as required, will be covered with a layer of clean sand.

The rationale for the cleanup goals are as follows.

- 1) 10 ppm is an interim cleanup level to address immediate short term risks. This would achieve a greater than 10-fold decrease relative to current exposed contaminated sediments in areas having had only a single dredging pass, and would be close to the average surficial concentrations in this SMU that existed prior to dredging. If needed, additional work could still be required under the RI/FS-ROD process, because a complete release would not be given to the Respondent.

- 2) 1 ppm as a final goal considers that the final average concentration for the river reach would be lower in some areas and higher in other areas. Although a final cleanup for the Fox River has not yet been determined, a preliminary determination indicates an overall river cleanup number may be less than 1 ppm. The final cleanup number would be a goal that would be an average applied to a particular operable unit of the river. Thus as long as the average concentrations for that river reach/operable unit was achieved, then the required risk reduction would be achieved. Presumably areas with higher

concentrations such as SMU 56/57 might have post-remediation average concentrations somewhat higher than other reaches of the river. Other parts of the river, with pre-remediation concentrations much lower than SMU 56/57 would achieve lower final cleanup concentrations, with the overall average PCB concentrations for the river reaching the final cleanup goals.

### **Monitoring/Sampling**

A monitoring/sampling program will be developed to ensure that there are minimal releases during dredging, and no significantly elevated short-term risks occur because of dredging or related activities. Additionally, monitoring would determine if risk-based interim or other cleanup standards are met. Construction monitoring will consist of turbidity measurements upstream, downstream and in and around the dredge area/containment area. The measurements will be compared to upstream measurements to determine if corrective actions are necessary. Although previous dredging projects indicate that impacts during dredging are minimal, this is nevertheless needed to ensure that no/minimal releases occur. Water samples will periodically be collected to assess PCB contamination within the water column.

Sediments will be collected and analyzed to determine if concentration goals in the dredging area were achieved. Samples will consist of a minimum of 1 sample per subunit grid, and composite samples could be collected and analyzed. This data will be assessed to assist in determining if project objectives have been achieved.

### **III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

Conditions present at SMU 56/57-A of the Lower Fox River constitute a threat to public health, welfare or the environment based upon the factors set forth in 40 CFR Section 300.415 (b) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). These include, but are not limited to, the following:

- **Actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances or pollutants or contaminants.**

PCBs are listed as hazardous substances under Section 311(b)(2) of the Clean Water Act

as set forth in 40 CFR Section 116.4 Table A. The Toxic Substances Control Act (TSCA) states that: "exposure of human beings or the environment to PCBs... may be significant, depending upon the quantity of PCBs,...the likelihood of exposure to humans and the environment...".

The SMU 56/57-A Site is located adjacent to an industrial/residential area and is utilized recreationally for boating and fishing. Unrestricted access to the river, direct contact of the Fox River waters with the contaminated sediments, and the high probability for continued releases of PCBs, creates a direct threat to human health and the environment, especially downstream of SMU 56/57-A. SMU 56/57-A has maximum PCB levels of 310 ppm in surface sediments with an average concentration of 68.7 ppm in all surface sediments, 116 ppm in areas receiving only one dredging pass. Sediments are a source of an ongoing release of PCBs into the waters of the Fox River and Green Bay. The continued release of PCBs into the river could have a detrimental effect on the freshwater organisms living near or downstream of the site.

Adult walleye were collected from several locations in the Lower Fox River and Green Bay, Wisconsin (the assessment area) and two relatively uncontaminated reference locations (Lake Winnebago and Patten Lake, Wisconsin) between July and October in 1996 and 1997. Mean PCB concentrations in whole body and liver samples were elevated in assessment area walleye (4.6-8.6 and 4.1-7.9 mg/kg wet weight, respectively) compared to PCB concentrations in reference areas (e.g., 0.04 mg/kg in walleye fillets from Lake Winnebago). Mean total PCB concentrations were 87% higher in walleye collected from eastern Green Bay than in western Green Bay, a finding consistent with spatial patterns of PCB contamination in bay sediments.

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PCB concentrations measured in the tissues of assessment area bird species are statistically significantly greater than concentrations measured in reference areas. Every species tested has been found to have greater concentrations in the assessment area, including double-crested cormorant, black-crowned night heron, herring gull, Forster's



tern, common tern, Caspian tern, mallard, bald eagle, tree swallow, and red-winged blackbird.

The conclusions derived from the evaluation of the testing and sampling data indicate that avian resources of the Lower Fox River/Green Bay assessment area have been injured. Specifically, various fish-eating birds in the assessment area, including Forster's terns, common terns, double-crested cormorants, and bald eagles have been injured as a result of exposure to PCBs. The injuries report documents death and reduced reproduction, as well as physical deformations. Waterfowl are also injured by exposure to PCBs in the assessment area (i.e. Lower Fox River and Green Bay). This injury comprises exceedences of tissue action or tolerance levels (Section 402 of the Food, Drug and Cosmetic Act [43 CFR § 11.62(f)(1)(ii)]) and Wisconsin State waterfowl consumption advisories.

- **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;**

The estimated 1,600 pounds of PCBs in contaminated sediments at the Site are in contact with the waters of the Fox River. These sediments are also susceptible to erosion and scouring or other disturbances and increases in water currents and velocities, thereby increasing the threat of further release to the Lower Fox River between the DePere Dam and Green Bay, as well as Green Bay and Lake Michigan.

- **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;**

The Fox River would likely be subjected to extreme weather conditions in the winter and spring that would enhance the threat of a potential release. The breakup of ice in the late winter and the movement of those floes downstream could increase the scouring of the banks or river bottom. Heavy spring rains will increase the current velocity and the volume discharge of the river, thereby increasing load potential. This increase in scouring, stream volume, velocity, and load could cause an increase in the downstream transportation of the contaminated sediments, and constitute a release into Green Bay and Lake Michigan.

- **The availability of other appropriate federal or state response mechanisms to respond to the release;**

State and local response mechanisms are not available to respond to this release. Therefore, the removal program will implement response actions to address the estimated 21,500 cubic yard hot spot containing approximately 1,600 pounds of PCBs. Responding to this material prior to the next high flow period will provide added protection to the Fox River and downstream ecosystem.

#### **IV. ENDANGERMENT DETERMINATION**

These PCB-contaminated sediments pose an imminent and substantial endangerment to the citizens in the community due to the biomagnification impacts to aquatic life, fish eating birds, and humans. Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in the Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

#### **V. PROPOSED ACTIONS**

##### **A. Description of the Proposed Action**

The preferred response action to mitigate threats associated with PCB-contaminated sediments in SMU 56/57-A consists of removing contaminated sediments. This response action includes but is not limited to the following tasks:

- Construct necessary access roads and other necessary infrastructure to work/staging areas.
- Design/construction/preparation of staging and work pad areas to support storage, sediment drying, stabilization, truck loading, truck washing, parking, and general site activity support and service needs.
- Obtain necessary support services/utilities, lighting requirements, site security, etc.
- Design/construction of water treatment and sediment removal/stabilization system.
- Develop and implement an appropriate plan to dewater sediment and treat PCB-contaminated water from dredging and sediment processing prior to return of water to the Fox River and meet all discharge requirements.

- Remove contaminated sediment at SMU 56/57-A (Figure 3) to meet clean-up goal objectives.
- Properly dispose of all PCB-contaminated sediment off-site.
- As appropriate maintain existing silt curtain.
- Prevent further migration of contaminated sediments along sediment removal boundaries or river bank. For example, backfill/stabilize the shoreline and edges of sediment removal boundaries as necessary to prevent erosion and sloughing of river bank or remaining contaminated sediments (i.e. sidewalls). This would minimize or eliminate exposure of contaminants of sidewalls at the edges of sediment removal areas.
- Sample all dredged/excavated areas to determine preliminary cleanup goal requirements in each subunit grid. Confirmatory samples shall be collected prior to any backfilling or slope stabilization.
- At the end of the response activities and as necessary, restore the areas used for the response action to a secure and confined facility (i.e. replace/reconstruct fencing, install erosion controls as necessary, remove temporary roads as necessary, etc.)
- Develop and implement a Health and Safety Plan in accordance with all appropriate regulations.
- Develop and implement a Quality Assurance Project Plan for sampling and analytical requirements.
- Develop and implement a turbidity and surface water monitoring/sampling program. This includes work to be conducted in and around the SMU 56/57-A as well as upstream and downstream of SMU 56/57-A.
- Develop and implement, as appropriate, an air monitoring/sampling program. This includes work to be conducted in and around the SMU 56/57-A, work/staging, and off-site residential areas.
- Sample and characterize existing work and staging areas to be utilized during the sediment response actions and determine pre- and post-existing contamination and

condition of site facilities.

- As appropriate, develop and implement a Demobilization/Decontamination Plan.

The response action will result in removal of the PCB contaminated sediments from SMU 56/57-A (Figure 3). This action will prevent further downstream movement and/or uptake of PCB contaminated sediment.

The response action will be conducted in a manner not inconsistent with the NCP. The OSC has initiated planning for provision of post-removal site control consistent with the provisions of Section 300.415(l) of the NCP. Elimination of all threats is, however, expected to minimize the need for post-removal Site control.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the Site which may pose an imminent and substantial endangerment to public health, welfare and the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

These activities will require an estimated 145 on-site working days to complete.

#### **Contribution to Remedial Performance**

As stated earlier, the Site has been proposed for the NPL. The WDNR is currently proceeding with the RI/FS process under CERCLA. The long term remedy has not yet been determined for this Site. The RI/FS identifies various alternatives for remedial selection, including but not limited to three primary alternatives of, natural recovery, capping and dredging. The reason SMU 56/57-A is now a significantly greater environmental risk is because a dredging project undertaken by the PRPs, under an agreement with the Wisconsin DNR, resulted in exposing higher concentrations of PCBs in areas where PCBs had been buried more deeply in the sediment. The proposed response action will abate an imminent and substantial threat to public health and the environment at SMU 56/57-A. This action will be consistent with what EPA currently anticipates will be the final remedial action for all of SMU 56/57. The action in response to SMU 56/57-A will only address the area (approximately 3.75 acres) disturbed by the previous dredging attempt initiated by the PRPs under agreement with WDNR.

### **Applicable or Relevant And Appropriate Requirements**

All applicable or relevant and appropriate requirements (ARARs) of Federal and State law will be complied with to the extent practicable. This response action will address PCB contaminated sediment, containing known concentrations up to 310 ppm or more, from SMU 56/57-A. A letter will be sent to the Wisconsin Department of Natural Resources requesting they identify State ARARs. Any State ARARs identified in a timely manner for this removal action will be complied with to the extent practicable.

### **VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Delayed action will increase the potential of the PCB contaminated sediments to migrate downstream and also remain in contact with the waters of the Fox River, threatening public health and the environment.

### **VII. OUTSTANDING POLICY ISSUES**

none

### **VIII. ENFORCEMENT**

For administrative purposes, information concerning the enforcement strategy for this site is contained in an Enforcement Confidential Addendum Attachment.

### **IX. RECOMMENDATION**

This decision document represents the selected response action for SMU 56/57-A, part of the Lower Fox River NRDA/PCB Releases Site. It was developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal and I

recommend your approval of the proposed removal action. It is expected that a potentially responsible party will perform all removal actions under the oversight of the OSC. You may indicate your decision by signing below.

APPROVE: David A. Allard DATE: 6/20/00  
Francis X Lyons, Regional Administrator

DISAPPROVE: \_\_\_\_\_ DATE: \_\_\_\_\_  
Francis X Lyons, Regional Administrator

Figures 1-3  
Enforcement Addendum  
Attachment 1 Administrative Record Index

cc: K. Mould, 5202-G  
M. Chezik, Dept. of Interior, w/o Enf. Addendum  
G. Meyer, Wisconsin DNR, w/o Enf. Addendum

**LOWER FOX RIVER NRDA/PCB RELEASES SITE  
GREEN BAY, WISCONSIN**

**DOCUMENT #36**

**"Enforcement Action Memorandum: Determination of Need to Conduct a Time-Critical  
Removal Action at Sediment Management Units 56 and 57"**

**ENFORCEMENT CONFIDENTIAL ADDENDUM  
1 - Page**

**REDACTED**

**NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION**

Figure 1

# Fox River, North of De Pere Dam

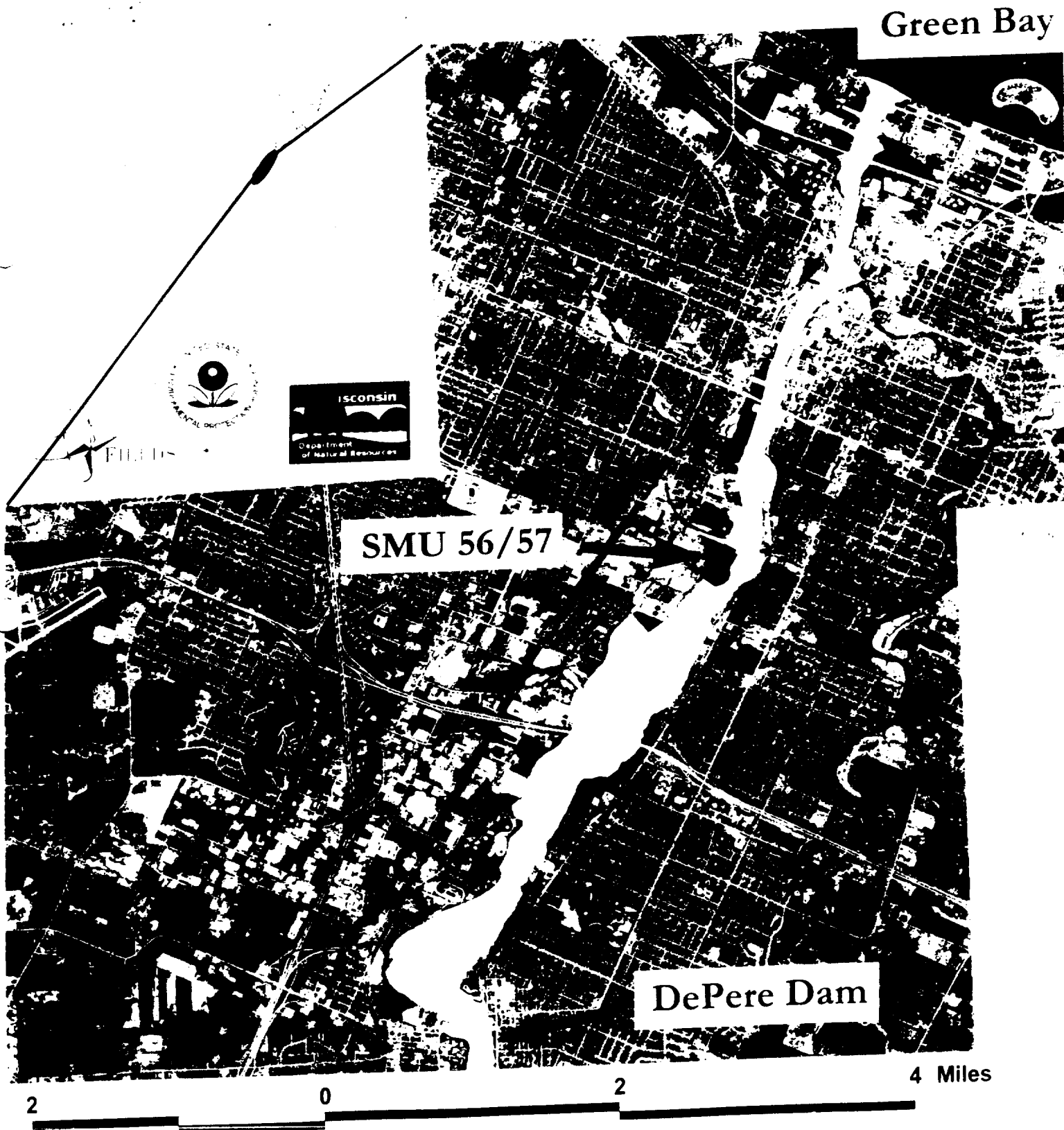




Figure 2

# Fox River, North of De Pere Dam

## Maximum value per location



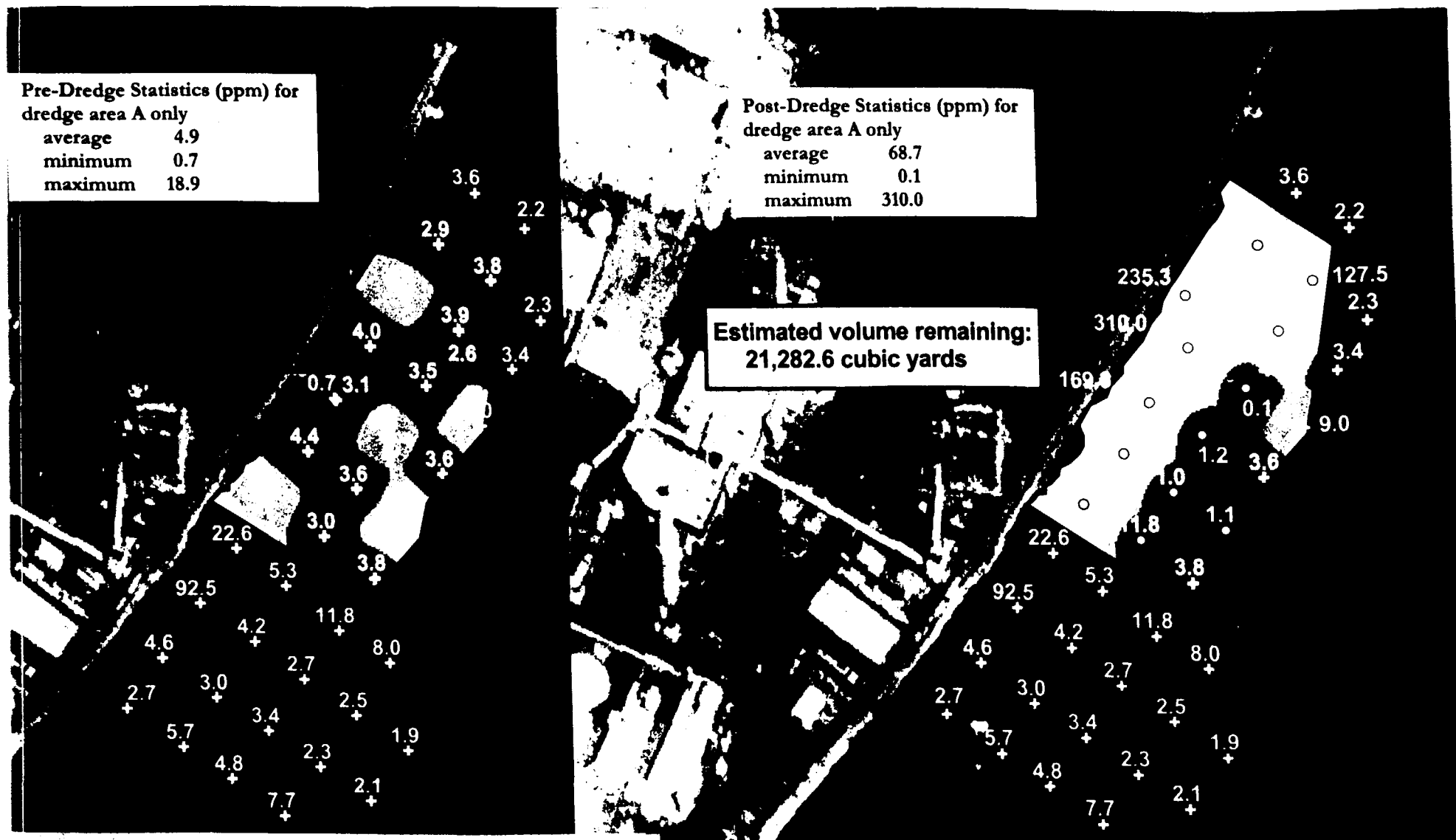
# Fox River, Wisconsin SMU 56-57

**Figure 3**  
**Surface sediment (0 - 4 inches)**



Pre-Dredge

Post-Dredge



U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL ACTION

ADMINISTRATIVE RECORD  
FOR  
LOWER FOX RIVER NRDA/PCB RELEASES SITE  
SEDIMENT MANAGEMENT UNITS 56 AND 57  
GREEN BAY, BROWN COUNTY, WISCONSIN

ORIGINAL  
JUNE 9, 2000

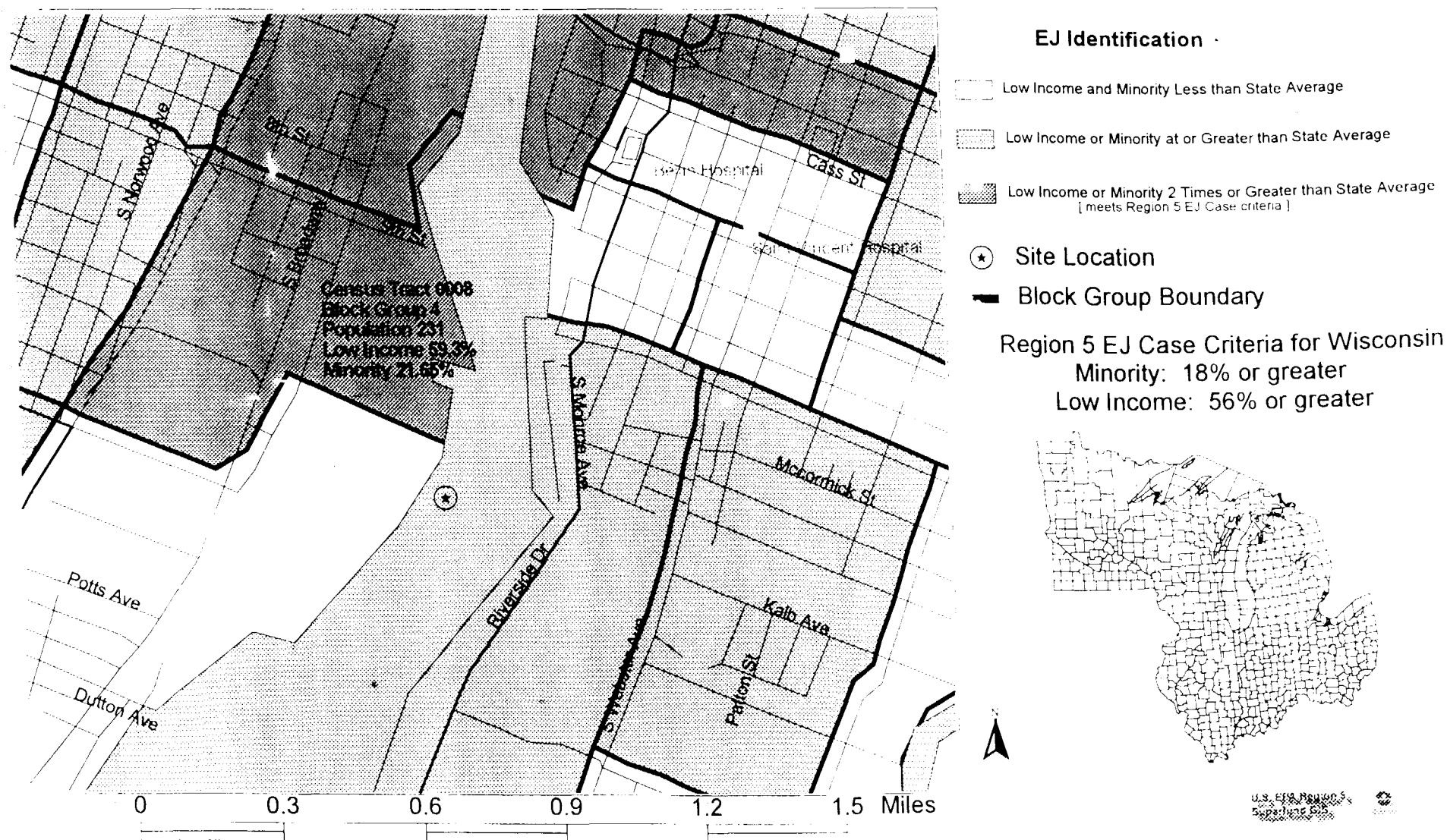
<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	00/00/00	U.S. EPA	Public	Environmental Fact Sheet re: Contaminated Sediments	4
2	04/13/99	Fox River Inter- Governmental Partnership	Public	Media Notice re: the Lower Fox River Site w Attachments	11
3	04/15/99	Ulrich, D., U.S. EPA	File	EPA Editorial Statement re: NPL Listing for the Lower Fox River Site	1
4	07/00/99	U.S. EPA	Public	Fact Sheet re: PCBs: Lower Fox River Impacts	1
5	09/00/98	U.S. EPA	Public	Fact Sheet re: U.S. EPA's Superfund Role in Lower Fox River Cleanup	4
6	00/00/99	Barron, et al.		Abstract: Association Between PCBs, Liver Lesions, and Biomarker Responses in Adult Wall- eye ( <i>Stizostedion vitreum</i> <i>vitreum</i> ) Collected from Green Bay, Wisconsin	1
7	02/00/99	ThermoRetec Consulting Corporation	WDNR	Draft Feasibility Study for the Lower Fox River Site	495
8	02/00/99	ThermoRetec Consulting Corporation & Natural Resource Technology, Inc.	WDNR	Remedial Investigation Report (DRAFT) for the Lower Fox River	289
9	02/24/99	ThermoRetec Consulting Corporation	WDNR	Baseline Human Health and Ecological Risk Assessment Report for the Lower Fox River	1007

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
19	03/07/00	Hahnenberg, J., U.S. EPA		Journal Article: "Long-Term Benefits of Environmental Dredging Outweigh Short Term Impacts" (Engineering News-Record: March 22-29, 1999) [Revised and Updated]	8
20	03/17/00	MIT Marine Center	Internet	Article: Metal Flux in Near Shore Capping Sites Under Conditions of Submarine Groundwater Discharge	2
21	03/26/00	Hartwig, W., U.S. DOI Fish and Wildlife Service	Lyons, F., U.S. EPA	Letter re: Environmental Emergency at Sediment Management Unit 56/57 on the Lower Fox River	8
22	03/31/00	Mandelbaum, D., Ballard, Spahr, Andrews & Ingersoll (Fox River Group)	Grimes, R., U.S. EPA	Letter re: Current Condition of the Dredged Portion of SMU 56/57 of the Fox River w/ Exhibits A-F (Volume 1 of 5)	181
23	03/31/00	Mandelbaum, D., Ballard, Spahr, Andrews & Ingersoll (Fox River Group)	Grimes, R., U.S. EPA	Letter re: Current Condition of the Dredged Portion of SMU 56/57 of the Fox River (Volume 3 of 5)	277
24	03/31/00	Mandelbaum, D., Ballard, Spahr, Andrews & Ingersoll (Fox River Group)	Grimes, R., U.S. EPA	Letter re: Current Condition of the Dredged Portion of SMU 56/57 of the Fox River (Volume 4 of 5)	170
25	03/31/00	Mandelbaum, D., Ballard, Spahr, Andrews & Ingersoll (Fox River Group)	Grimes, R., U.S. EPA	Letter re: Current Condition of the Dredged Portion of SMU 56/57 of the Fox River (Volume 5 of 5)	269
26	04/00/00	Foth & Van Dyke	U.S. EPA WONF	Summary Report for Fox River Deposit "N"	11

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
35	06/07/00	Fox River Inter- Governmental Partnership	Public	Fox River Current: Updates From the Lower Fox River Intergovernmental Partner- ship for the Period August 1998 - June 2000	85
36	00/00/00	Borries, S., U.S. EPA	Lyons, F., U.S. EPA	Enforcement Action Memo- randum: Determination of Need to Conduct a Time- Critical Removal Action at Sediment Management Units 56 and 57, Part of the Lower Fox River NRDA/ PCB Releases Site (PENDING)	

# Region 5 Superfund EJ Analysis

## Lower Fox River SMU 56/57 Green Bay, WI





United States  
Environmental Protection  
Agency  
Office of Public Affairs  
Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

Illinois, Indiana  
Michigan, Minnesota  
Ohio, Wisconsin

## Public Meeting

EPA and DNR will explain the cleanup action for the 56/57 site to area residents at a public meeting.



**Date:** August 3, 2000  
**Time:** 7 p.m.  
**Place:** Brown County Library  
Lower Level  
515 Pine St.  
Green Bay, WI

## Availability Sessions

EPA and DNR will be holding a series of availability sessions to explain the progress of the cleanup of SMU 56/57. Availability sessions are informal, open-house style meetings during which members of the community can meet one-on-one with EPA and DNR representatives.

**Dates:** September 13, October 12,  
November 7, and  
December 5, 2000

**Time:** 5 - 8 p.m.

**Place:** Brown County Library  
Lower Level  
515 Pine St.  
Green Bay, WI

This fact sheet has been prepared in cooperation with the Wisconsin Department of Natural Resources.

# Cleanup Planned for SMU 56/57 Lower Fox River Site

July 2000



*Crews remove contaminated sediment in 1999 from dewatering lagoon at SMU 56/57 near Green Bay. Sediment removal will resume this summer under a Federal agreement.*

## Introduction

The United States Environmental Protection Agency (EPA), the Wisconsin Department of Natural Resources (DNR), and Fort James Corporation finalized a Federal agreement on May 26, 2000, to clean up a section of Sediment Management Unit (SMU) 56/57. SMU 56/57 is part of the Lower Fox River project. The current action is a continuation of a dredging project started in 1999. The dredging exposed sediment with high concentrations of polychlorinated biphenyls (PCBs). This cleanup is necessary because of the risks from continued release of contamination into the food chain and potential exposure to the public. The project will require approximately 145 on-site working days and is scheduled to be completed this year.

## Location

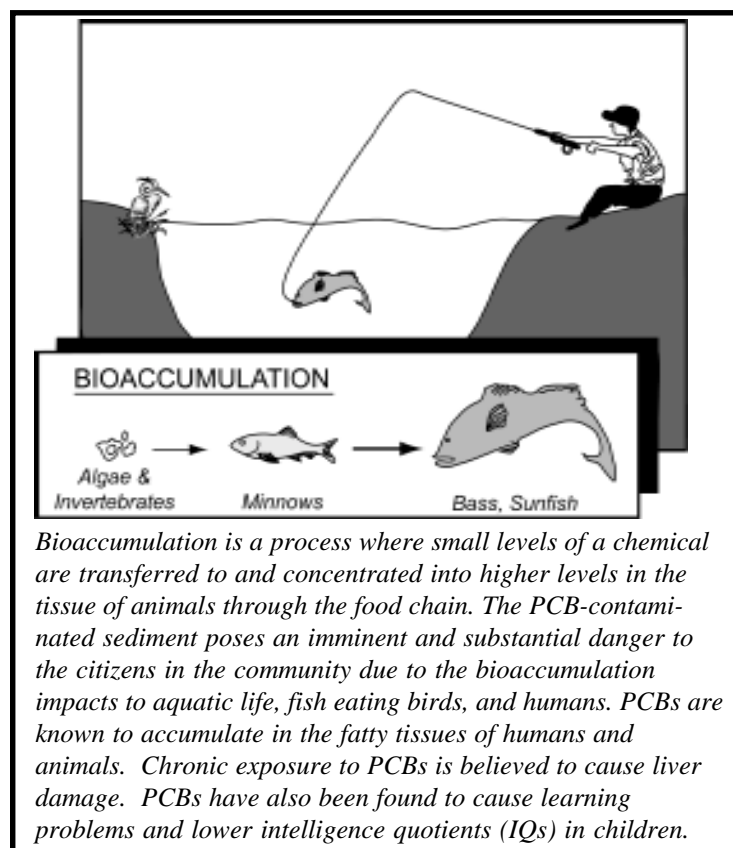
The cleanup is needed at a part of the site referred to as SMU 56/57-A. SMU 56/57-A is approximately 3.75 acres and is contained within the 10-acre SMU 56/57 site. The site is immediately adjacent to an industrial area on the north-west side of the river. The Fort James Corporation facility is located within this industrial area. Southwest of the site and across the river are commercial and residential properties. SMU 56/57-A is located approximately 4 miles southwest (upstream) from where the Lower Fox River discharges into Green Bay.

## PCB Contamination Levels

The average concentration of PCBs in the surface layer of sediment prior to dredging was approximately 4 parts per million (ppm). After the 1999 dredging, the incomplete dredging area had surface concentrations averaging 116 ppm, and some areas were as high as 310 ppm. EPA estimates the volume of PCB-contaminated sediment in SMU 56/57-A to be approximately 21,500 cubic yards, and that sediment contains approximately 1,600 pounds of PCBs. Sampling results indicate that the SMU 56/57-A area contains the highest PCB concentrations detected anywhere in the Lower Fox River.

## Dangers of Current PCB Concentrations

Sediment is a source of the ongoing release of PCBs into the waters of the Fox River and Green Bay. The continued release of PCBs into the river could have a detrimental effect on the freshwater organisms living near or downstream of the site. In addition, the SMU 56/57-A site is adjacent to an industrial/residential area and is used for boating and fishing. Unrestricted access to the Fox River, direct contact with the river waters containing contaminated sediment, and the high probability for continued releases of PCBs, create a direct threat to human health and the environment, especially downstream of SMU 56/57-A.



PCB releases into the Lower Fox River and Green Bay have resulted in extensive fish consumption advisories. The population exposed to PCB contamination through fish consumption is very large with approximately 50,000 anglers residing in counties immediately adjacent to the Lower Fox River and Green Bay. Approximately 2,000 Hmong residents are active anglers of the river and bay. They are part of an estimated 5,000 total subsistence fishers in this area.

The cleanup will not cause fish advisories to be removed, but it will reduce releases and risks to human health, welfare and the environment posed by the presence of high PCB concentrations.

## Cleanup Action

The agreement among EPA, DNR and Fort James Corporation states that Fort James Corporation will clean up to 50,000 cubic yards of PCB-contaminated sediment to a goal of 1 ppm or an average level of at least 10 ppm with a 6-inch sand cover. Of the 50,000, approximately 21,500 cubic yards will come from SMU 56/57-A. The remaining sediment will come from other areas within SMU 56/57 that may be addressed in a later phase of this cleanup.

Achieving the 10 ppm level would provide a minimally acceptable interim cleanup level. If average concentrations after cleanup are less than 10 ppm, but greater than 1 ppm, Fort James Corporation can achieve compliance by covering the sediment with 6 inches of clean sand. A final level would be 1 ppm for this cleanup and would give Fort James Corporation a complete release from further responsibility for all areas where an average of 1 ppm was attained.

In addition, the edges of the excavated area will be sloped to prevent the contaminated sediment wall from falling into the cleaned area and causing recontamination. These sidewalls will be limited in area and, as required, will be covered with a layer of clean sand.

Fort James Corporation plans to use hydraulic dredges to remove sediment and water from the river. The sediment will be separated from the water and sent by truck to a nearby landfill owned by the company. There, sediment will be permanently buried. The separated water will be treated to remove any remaining contaminants and returned to the river. The dredging work is scheduled to be completed by November. The sand cover placement is expected to be completed by November 15.





*A silt curtain prevents sediment from moving downstream during the dredging operation at SMU 56/57.*

## Monitoring/Sampling

A monitoring/sampling program will be developed by Fort James Corporation to ensure that releases during dredging are minimal, and that significant elevated short-term risks do not occur because of dredging or related activities. Additionally, monitoring will be used to determine if cleanup standards are being met. Construction monitoring will consist of turbidity measurements upstream, downstream, and in and around the dredge/containment areas. Turbidity measurements evaluate the amount of disturbance (stirring up) of the sediment created by the dredging. The measurements will be compared to those upstream to determine if corrective actions are necessary. Previous dredging projects indicate that dredging stirs up sediment, however, PCB losses during dredging are minimal. Water samples will periodically be collected by Fort James Corporation and EPA to assess PCB contamination within the water column. Sediment will be collected and analyzed to determine if concentration goals in the dredging area are achieved.

The project will be monitored by EPA and DNR representatives. EPA representatives will be on site daily overseeing the ongoing work. DNR representatives will also be on site. In addition, EPA will be taking samples to ensure that cleanup and monitoring objectives are met. All technical documents including the sampling and monitoring plan, health and safety plan, and any summaries of the sampling and cleanup activities will also be reviewed and approved by EPA in consultation with DNR.

## Profile On . . . Samuel Borries

Samuel ASam@Borries is serving as EPA's on-scene coordinator for the SMU 56/57 cleanup project. He has been with EPA since 1990. In his 10 years at EPA, he has worked on numerous emergency cleanups including Michigan's Manistique and Pine Rivers, southern Illinois-Sauget PCB site, and several tire fires, oil spills, drum removals and pipeline breaks. His prior work experience includes doing site assessment and National Priorities List scoring for a Chicago environmental firm. The Illinois native holds a bachelor's degree in geology from Eastern Illinois University and a master's degree in business administration from Keller Graduate School of Management.

## Profile On . . . Gary Kincaid

Gary is serving as the DNR's on-scene representative for the SMU 56/57 cleanup. He has spent 20 years as a wastewater engineer at the DNR's northeast regional office in Green Bay. During his tenure, he helped improve and maintain waterways in Brown, Door, and Kewaunee Counties. He has also administered wastewater permits for municipalities and companies throughout northeastern Wisconsin. Born in Port Edwards, WI, Gary holds a bachelor's degree in limnology from the University of Wisconsin and a master's degree in civil engineering with an environmental option from Marquette University.

## Information Repositories

Copies of technical reports, fact sheets, and other documents related to the SMU 56/57 cleanup are available at information repositories set up in the reference sections of the following local libraries:

- **Appleton Public Library**, 225 N. Oneida St., Appleton, WI; 920-832-6170
- **Brown County Library**, 515 Pine St., Green Bay, WI; 920-448-4381, ext. 394
- **Door County Library**, 104 S. Fourth Ave., Sturgeon Bay, WI; 920-743-6578
- **Oneida Community Library**, 201 Elm St., Oneida, WI; 920-869-2210
- **Oshkosh Public Library**, 106 Washington Ave., Oshkosh, WI; 920-236-5200

An Administrative Record, which contains detailed information upon which the selection of the SMU 56/57 cleanup and final site cleanup plan will be based, is also available for review at the Appleton and Brown County Libraries.

## For More Information

For more information about the cleanup, or any other aspects of the SMU 56/57 project, please contact:

Bri Bill  
Community Involvement Coordinator  
Office of Public Affairs (P-19J)  
U.S. EPA Region 5  
77 W. Jackson Blvd.  
Chicago, IL 60604-3590  
Phone: (312) 353-6646 or  
(800) 621-8431 ext. 36646  
Fax: (312) 353-1155  
Email: bill.briana@epa.gov

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Remedial Project Manager  
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U.S. EPA Region 5  
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Northeast Regional Office  
Wisconsin Department of Natural Resources  
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(800) 621-8431 ext. 32886  
Fax: (312) 353-9176  
Email: borries.samuel@epa.gov



### *Check out these web sites:*

<http://www.dnr.state.wi.us/org/water/wm/lowerfox>

<http://www.epa.gov/region5/foxriver/>

[http://www.epa.gov/region5/foxriver/SMU\\_5657.htm](http://www.epa.gov/region5/foxriver/SMU_5657.htm)

<http://www.fws.gov/r9dec/nrdar/nrdamain.html>

<http://www.fws.gov/r3pao/nrda/>



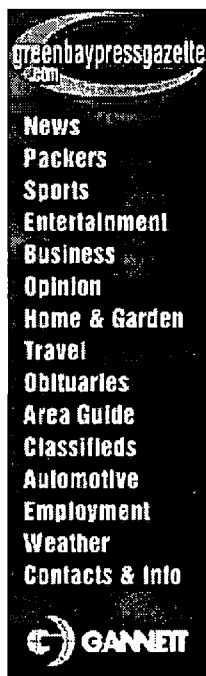
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7/10/00  
26



Friday, July 07, 2000

## Fox River dredging company attacks aborted project's leaders

By Susan Campbell  
Press-Gazette

EPA Region 5 Records Ctr.



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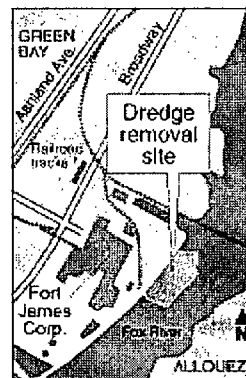
The pilot dredging project outside Fort James Corp.'s West Mill was "designed to fail from its inception," the company that did the work says.

Four Seasons Environmental Inc. also says it has been paid only \$950,000 of the nearly \$4.8 million it is owed for the unfinished project, which exposed high concentrations of chemical PCBs in the riverbed.

It has filed for nonbinding arbitration against the project's lead contractor in an effort to get the money.

The company states that the lead contractor on the job, Montgomery Watson Constructors Inc., misrepresented site conditions before work began, leading Four Seasons to underestimate equipment and labor costs for dredging, dewatering and water treatment.

"It's no surprise then that the costs and time needed to complete the project are greater than anticipated," said Phil Martin, vice chairman of the Four Seasons board. "After working in good faith to clean this river and meeting roadblocks at every turn, we can come to no other conclusion than that this project was set up to fail right from the start."



Source: Wisconsin Department of Natural Resources  
Press-Gazette

A representative of Montgomery Watson could not be reached for comment Thursday.

By taking its complaints to an arbitrator, a quasi-judge will make a decision that Four Seasons can accept or reject. If both sides do not resolve their dispute in the process that could take up to five months, they could enter into litigation.

The subcontractors had removed less than 30,000 cubic yards of a targeted 80,000 cubic yards of PCB-contaminated sediment by the time the project was forced to close down because of cold weather in December.

Left behind were PCB levels on the riverbed surface measuring up to 310 parts per million, a level far exceeding standards considered safe for human health and wildlife.

Polychlorinated biphenyls may cause cancer in humans and are linked with slow development and low IQs in children exposed to higher levels in the

womb by mothers who eat contaminated Great Lakes fish.

Federal and state regulators are pushing seven area paper mills -- which discharged PCBs into the river from the 1950s to 1970s -- to clean up the contaminated sediment.

Dredging is a key point of contention between regulators who say it is a safe and effective cleanup method, and the mills who say it stirs up long-buried contaminants.

To test that theory, the mills financed the \$9 million demonstration project outside Fort James to study the effectiveness of large-scale dredging in the river's northernmost reach.

In the aftermath of the botched project the Fox River Group and the state Department of Natural Resources -- the project's co-managers -- have both said Four Seasons failed to meet its obligation for sediment removal.

But Four Seasons contends its estimates were off because of site information provided by Montgomery Watson.

That information characterized the riverbed as less solid than it ultimately proved to be and as having less debris.

The company said the mischaracterization meant it used more water than expected to flush out the sediment, which resulted in more time spent on the work and higher water-treatment and labor costs.

Four Seasons said it notified Montgomery Watson of the different site conditions, which under its contract would have allowed for an increase in the contract price.

But the company says Montgomery Watson hasn't acknowledged the different conditions and refuses to pay Four Seasons more than \$3.5 million in out-of-pocket expenses.

"When you put those pieces together, you have to wonder whether they, or their client, really wanted this project to succeed," Martin said. "Just as we question Montgomery Watson's desire to complete this project successfully, we also question the Fox River Group's (paper mills) intentions."

The mills say they have spent most of the \$9 million allocated for the project, although the DNR says it has yet to see receipts to that effect.

Fort James spokesman Mark Lindley said neither Fort James nor the Fox River Group will enter into a dispute between the contractor and subcontractor.

"It is wholly inappropriate to drag the FRG into this because it has nothing to do with us," he said. "This project was designed to provide information on the effectiveness, challenges and risks associated with dredging ... we did not, as they might have suggested, set this up to fail."

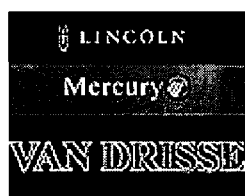
Rebecca Katers, executive director of the Green Bay-based Clean Water Action Council, said that based on Four Seasons' claims, paper mill complaints about the high cost of dredging have no merit until the real cost of the project has been verified.

"This raises questions about how much this actually cost and whether they really spent as much as they claim," she said.

Meanwhile, Fort James has agreed to complete dredging at the site.

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7/10/00  
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# The Green Bay News-Chronicle

Friday, July 7, 2000

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## Dredgers: We were set up to fail

PCB contamination levels remain very high near the Fort James Corp. west mill

**By Jeff Decker**  
**News-Chronicle**

The firm that dredged a highly contaminated area of the Fox River last year claims that the project was designed to fail.

Four Seasons Technologies of Ooltewah, Tenn., announced Thursday it has filed a demand for non-binding arbitration with the lead contractor, Montgomery Watson Constructors Inc., on grounds it has not been paid in full for dredging and other services.

"We are extremely upset over being the brunt of a project that was determined to fail because of people with no real desire to clean up the Fox River," Phil Martin, vice chairman of Four Seasons, said Thursday.

Four Seasons spent \$3.5 million to dredge the river but has only received \$950,000, he said.

Montgomery Watson workers, who were also on site, "delayed us from the start of it" and had done "a poor job characterizing actual conditions at the site, which led to them providing us incomplete and inaccurate information as to site conditions, (and) they were unresponsive when we notified them to changes in those site conditions," Martin said.

"When you put those pieces together, you have to wonder whether they, or their client, really wanted this project to succeed."

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Montgomery Watson was hired by the Fox River Group, the coalition of seven paper mills held responsible for the PCB contamination.

Delays and winter brought a premature end to the dredging project in the river near the Fort James Corp. west mill, 1919 S. Broadway. The river froze, leaving three acres of toxic PCBs exposed and resulting in hundreds of pounds of contaminated sediment floating down the river.

Representatives of Montgomery Watson could not be reached for comment Thursday. Mark Lindley, director of communications for Fort James Corp., said that \$9 million was paid by the Fox River Group for the dredging project.

"From our point of view, this is a dispute between Montgomery Watson and Four Seasons," he said.

Lindley said that people need to remember the dredging project was a demonstration, to analyze conditions for future projects.

"We learned that dredging the river is not easy, that even dredging a small area has challenges that no one anticipated," he said.

PCB levels in the river are still unusually high as a result of the dredging. Rebecca Katers, executive director of the Clean Water Action Council, said her organization has suspected for two years that any dredging attempts would be flawed.

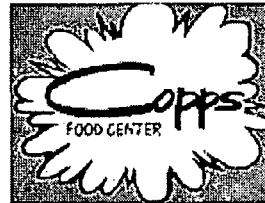
"We believe it was a deliberate effort to make dredging look bad," she said. "(The paper mills') point will have been made that it's extremely expensive, full of problems, dangerous, and maybe it's best to just leave the PCBs alone."

Dredging is still the best route and it was the late start that doomed the project, Katers said.

"The DNR should never have granted those permits," she said. Lindley said that the Fox River Group is, and always has been, committed to purifying the river.

"Any claims that the FRG somehow lacks the commitment in supporting this project are not true," he said.

The dredging, drying and storing of the contaminated silt is still a priority, Lindley said, and Fort James plans to finish the job at this



particular site alone.

"We haven't chosen a contractor yet," he said, "but we're going to move ahead. We hope to be in the water around Labor Day and finish up around November. We hope to be out before the water freezes. We have to finish it this year."

Katers said the botched dredging project left an ecological disaster that is vastly underappreciated.

"When we have toxic spills, it shouldn't take 10 months for them to clean it up," she said. "They should have moved much more swiftly this spring to start in the summer."

Four Seasons said Montgomery Watson estimated that PCB-contaminated sediments would contain 34 percent dry waste solids, but the concentration was nearly 50 percent.

Martin said that difference in working conditions should raise Four Seasons' fee under the contract. He said that Montgomery Watson has yetto acknowledge that differing site conditions exist.

"We were threatened to not go to the press," he said. "They said we'd never get paid if we did."



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**THE POST-CRESCENT****LOCAL NEWS**

Sat 8-Jul-2000

**Fox Dredging at center of lawsuit**By Ed Culhane  
Post-Crescent staff writer

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The company hired for the Fox River Group of paper companies in 1999 to dredge PCB-laced river sediments from a demonstration site in Green Bay charged Thursday that the \$9 million project was designed from the start to fail.

Officials representing the paper companies and their chief contractor said the charges were baseless and misguided.

The accusation came at the same time the company filed a demand for non-binding arbitration against the chief contractor saying it was owed money.

Phil Martin, vice-chairman of the board for Four Seasons Technologies, said the general contractor hired by the paper companies, Montgomery Watson, provided his engineers with a sample of the sediment that bore no resemblance to actual conditions in the river at the area known as site 56-57.

"We took that sample material and ran tests on it and brought our equipment in based on what we were told we would be handling," Martin said. "But the material we were getting out of the river was nothing like the sample we had been provided with."

Instead, Martin said, his crews found themselves cutting into a thicker, heavier bed of sediment, with a 50 percent concentration of solids instead of the 34 percent they were expecting. Company officials said they weren't able to diagnose the problem until the first sediment pulled from the river was tested and the results sent back.

That meant significant delays while equipment was replaced and it meant a slower rate of sediment removal, a rate that guaranteed that dredging on the worst PCB hot spot in the river could not have been completed before the onset of winter, Martin said.

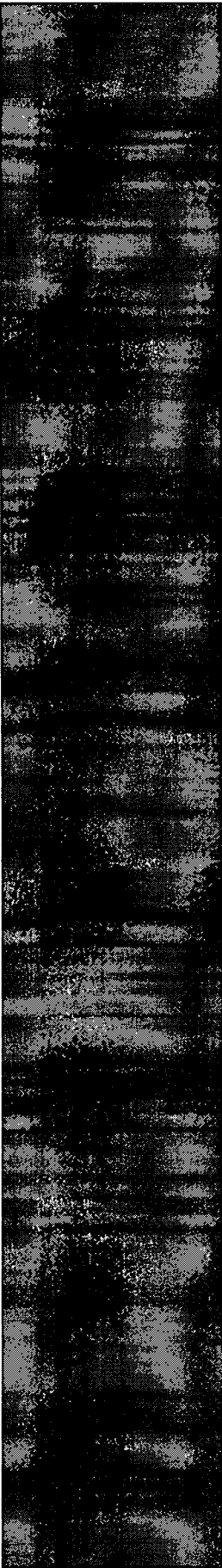
He said officials with Montgomery Watson were unresponsive when notified about the actual conditions at the site.

"After working in good faith to clean this river and meeting roadblocks at every turn, we can come to no other conclusion than that this project was set up right from the start to fail," Martin said. "A lot of times these PRPs (companies considered liable for the pollution) and their engineers don't want these things to succeed. That way they save money."

Mark Swatek, president of Montgomery Watson Constructors, a subsidiary of the larger firm, said these public statements by a Four Seasons executive arise from a contract dispute.

"Montgomery Watson does not design projects for failure," said Swatek. "Four





Seasons was under a sub contract to perform work in the river. They had trouble achieving the work they were under contract to achieve. The dispute we currently have is a direct result of those problems they have."

Martin went public Thursday as his company filed a demand for non-binding arbitration with Montgomery Watson, charging that Four Seasons has received just \$950,000 of the nearly \$4.8 million it is owed. Martin said Montgomery Watson has been paid in full for its services. If arbitration fails, a lawsuit is likely.

Swatek said Montgomery Watson officials are anxious to proceed to arbitration and to see the proof of the claims being made.

Martin's statements Thursday echoed predictions by environmental activist Rebecca Katers of the Clean Water Action Council who criticized the 56-57 project from the start, saying the paper companies had an incentive to display dredging as too risky, too difficult and too costly.

"We said all along that we suspected this project was designed to fail, and this just adds more ammunition," Katers said Thursday. "They have managed to convince a large part of the population that dredging is too dangerous now, and we think that was their intent all along."

Nevertheless, Katers found it difficult to believe that a company with as much experience as Montgomery Watson could make crucial errors in sediment sampling.

State Department of Natural Resources officials said they could not comment on the contractual dispute, but said the project was well designed.

"It wasn't designed to fail," said Greg Hill of the DNR, "because in those areas where the project was implemented according to design, they achieved very low (PCB concentration) cleanup levels."

Tim Dantoin, an FRG spokesman, said the charges by officials at Four Seasons are unjustified. He said the contractors were chosen through a competitive bidding process.

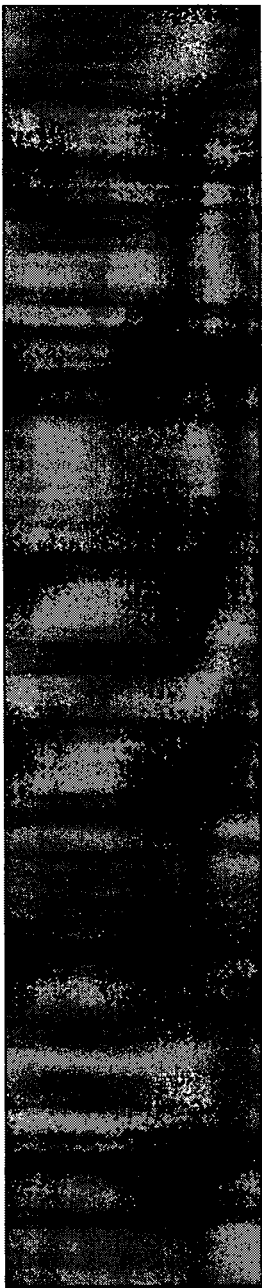
"We set up the process to ensure a successful project," Dantoin said. "The 56-57 demonstration project was designed to determine if dredging could reduce the risks in the river and assess the costs of large-scale dredging. In that sense, it was a success."

When icy conditions ended the dredging in late December, about 30,000 cubic yards of sediment had been removed. Dredgers had sliced through cleaner layers of sediment, exposing high concentrations of PCBs to the river current, leaving 50,000 cubic yards of contaminated sediment at site 56-57 behind.

Environmentalists called it a disaster. The FRG paper companies issued reports saying the project, which was overseen by the DNR, proved that dredging was too dangerous and costly to be used as the principal technology in cleaning up PCBs that contaminate the entire 39-mile stretch of the lower Fox River.

Scientists with the DNR and with the U.S. Environmental Protection Agency said the results actually showed that dredging did work, in areas where the dredge went deep enough, and pressed the companies to complete the project this year.

FRG officials opted against that approach and offered instead to cap the exposed



sediments with sand and gravel, a method they said would be more effective and less expensive.

The dispute was laid aside when the Fort James Corp. signed an agreement with the DNR to complete the dredging at 56-57 in return for a waiver of liability for that site.

James Lindley, director of corporate communications for Fort James, said the company decided to finish the work at 56-57 in part because the hot spot is located near the company's paper mill on the Fox River.

"We realize there is public concern about PCB exposure," Lindley said. "We think it is prudent to go in and finish what was done."

But that is not an endorsement of dredging for all areas of contamination, Lindley said.

Lindley also rejected the idea that the original project was designed to fail.

"We see this as a dispute between the contractor and the subcontractor," he said. "Claims that we are not committed to supporting this project are wrong and we should not be dragged into this dispute."

Martin said Fort James will now be using technologies and approaches that his engineers believe in. He said that without this dispute, his company would probably be doing the dredging set to begin again later this summer.

"I think Fort James is right on target with what they are doing," Martin said. "This is not a project that should be hard. It is not that difficult."

"We've demonstrated that dredging and de-watering (sediments) is an effective method of addressing sediment contamination. This river can be cleaned up."

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