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**Name of Organization:** Michigan State Univ., Dept. of Civil & Environ. Engineering

**Type of Organization:** College or University

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**Project Title:** Chequamegon Bay Contaminated Sediment Outreach Project

**Project Category:** Contaminated Sediments

**Rank by Organization (if applicable):** 0

**Total Funding Requested (\$):** 63,945 **Project Duration:** 1 Years

**Abstract:**

The Department of Civil and Environmental Engineering at Michigan State University proposes to provide technical assistance to the general public, local government and other stakeholders on the remediation of contaminated sediments at the Ashland/Northern States Power Site, in Ashland, Wisconsin. Sediment contamination is of concern because of the site's location on Lake Superior adjacent to a marina and a public park with a swimming beach, the site's potential for economic development, and the possibility of release of contaminants beyond Chequamegon Bay. The sediments contain high levels of bioaccumulative contaminants (viz., polynuclear aromatic hydrocarbons as free product and in solution), and volatile organic compounds. The site also has significant onshore contamination of groundwater and soils, and has been investigated under the Wisconsin Department of Natural Resources (WI-DNR) cleanup program. Human health and ecological risk assessments have been conducted, and WI-DNR has proposed to dredge approximately 10 acres of sediments. The Department proposes to develop educational materials (fact sheets, technical summary reports, etc.), review technical documents, and conduct workshops to promote citizen involvement in the site cleanup effort, including the sediment remediation. The goals are (1) to build knowledge and understanding among stakeholder groups as to the extent of contamination and remediation options, (2) to effectively involve stakeholder groups in the decision making process, and (3) to advance agency and practitioner understanding of methods for citizen involvement in environmental decision making, especially on contentious sediment remediation projects.

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**Geographic Areas Affected by the Project**

**States:**

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|------------------------------------|-------------------------------------|--------------|
| <input type="checkbox"/> Illinois  | <input type="checkbox"/>            | New York     |
| <input type="checkbox"/> Indiana   | <input type="checkbox"/>            | Pennsylvania |
| <input type="checkbox"/> Michigan  | <input checked="" type="checkbox"/> | Wisconsin    |
| <input type="checkbox"/> Minnesota | <input type="checkbox"/>            | Ohio         |

**Lakes:**

- |  |                          |           |
|--|--------------------------|-----------|
| <input checked="" type="checkbox"/> Superior | <input type="checkbox"/> | Erie      |
| <input type="checkbox"/> Huron               | <input type="checkbox"/> | Ontario   |
| <input type="checkbox"/> Michigan            | <input type="checkbox"/> | All Lakes |

**Geographic Initiatives:**

- |  |                                  |                                     |                                      |   |
|--|----------------------------------|-------------------------------------|--------------------------------------|---|
| <input type="checkbox"/> Greater Chicago | <input type="checkbox"/> NE Ohio | <input type="checkbox"/> NW Indiana | <input type="checkbox"/> SE Michigan | <input type="checkbox"/> Lake St. Clair |
|--|----------------------------------|-------------------------------------|--------------------------------------|---|

**Primary Affected Area of Concern:** Not Applicable

**Other Affected Areas of Concern:**

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***For Habitat Projects Only:***

**Primary Affected Biodiversity Investment Area:** Bad River Watershed/Bayfield Peninsula

**Other Affected Biodiversity Investment Areas:**

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**Problem Statement:**

The goal of this project is to develop a mechanism for effectively involving stakeholders in the decision-making process during assessment and remediation of contaminated sediment sites. Our efforts will be focused on the Ashland/Northern States Power site, Ashland, WI. During our ongoing effort to assist that community (which is explained further under "Proposed Work"), we have seen a strong demand for information and education beyond that provided by government agencies. That demand arises from the site's decades-long history of contamination in a highly visible downtown location and the broad array of groups seeking to participate the decision-making process. We believe that, at the Ashland site and other sediment cleanup sites, an independent provider of technical assistance can provide critical understanding and education, thereby catalyzing constructive citizen participation and support.

Contamination at the Ashland site resulted from the operation of a manufactured gas plant from the late 1800s until the 1940s, part of the long history of industries on Lake Superior tied to natural resource extraction. Largely from the plant's operation, ten acres of sediments are contaminated with VOCs (benzene at 2,400 ppb; xylene at 16,500 ppb) and PAHs (naphthalene at 170,000 ppb; benzo(a)pyrene at 13,000 ppb). No samples have been analyzed for such anthropogenic chemicals as dioxins, furans, PCBs or pesticides. The contamination has degraded the benthic community and likely the fish community (Ecological Risk Assessment, August 1997, prepared by SEH, Inc., for the Wisconsin Department of Natural Resources). The Great Lakes Water Quality Agreement lists other beneficial uses that are impaired at the Ashland site, including restrictions on fish and wildlife consumption, restrictions on recreational uses and beach closings, and degradation of aesthetics.

WI-DNR has primary oversight responsibility. Although the site has been nominated for the federal National Priorities List, and the Hazard Ranking Pre-Score indicates that the site will be listed on the NPL (pre-score ranking is not published), the state is expected to continue its lead role. WI-DNR has listed the site as among the agency's highest priorities because of its uncontrolled state. Highly persistent contaminants continue to be actively transported from the shoreline soil and groundwater into the sediments of Chequamegon Bay and to the open waters of Lake Superior. Site managers have also stated their desire to restore sites along the state's Lake Superior shoreline as a means of both promoting economic redevelopment and protecting natural resources.

The contamination has provoked intense, sustained stakeholder interest and concern among a variety of environmental and civic groups, local government, educational institutions, and Native American tribal groups, along with many individuals not allied with any group but who live in close proximity to the site. Stakeholder concerns include: ecological impacts to the bay and on-shore areas; the adequacy of the site characterization; current and historic health impacts; disruption of a highly visible area of Ashland during a lengthy remedial project, including from noise, truck traffic and dust; and economic concerns. Community concern has increased because of differences between WI-DNR and the primary PRP, Northern

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States Power, over the extent of dredging that may be needed in Chequamegon Bay and conflicting ecological risk assessments. The area's unique natural resources, including Lake Superior itself and the adjacent Apostle Islands National Lakeshore, have heightened public interest in the cleanup of the site. Tribal interest has mainly centered on potential impacts to wild rice beds located in sloughs along the southern Lake Superior shore ("downcurrent" from the Ashland site).

### **Proposed Work Outcome:**

#### **BACKGROUND**

This project will build upon Michigan State University's current Ashland, Wisconsin, outreach effort. We have provided assistance to that community since July 1999 under the U.S. EPA grant-funded Technical Outreach Services for Communities (TOSC) program. TOSC is a national effort to provide independent technical assistance to communities with sites of environmental contamination (see [www.toscprogram.org](http://www.toscprogram.org)). Working with Northland College and the League of Women Voters, we have held a series of technical workshops. Those workshops have covered (or will cover) the extent of contamination and site characterization, human health risk assessment, ecological risk assessment, and options for site remediation.

The TOSC grant will expire on September 30, 2000. The need for assistance will remain, however, particularly in the community's desire to participate in decision making over the sediment remediation, and therefore we are seeking additional funding to provide that assistance. The level of controversy over the site--greater than at any site TOSC has worked in six years of the program--and strong citizen interest, increase the need for continued assistance. Without continued assistance, the Ashland site has the potential (as do many sites) for greater divisions and controversy, which can greatly impede decision making. The importance of Ashland, of course, is that a delayed decision (and implementation of that decision) can directly affect the water quality of a Great Lake, namely Lake Superior, through transport of contaminants.

We believe several aspects of our Preproposal distinguish it from other activities that GLNPO may have funded. They are (1) our expertise in assessing community needs and strengths related to contentious environmental problems, (2) our experience in translating complex technical documents and concepts for citizen audiences, and in providing effective written and oral presentations of those concepts, and (3) our ability to provide sustained, intensive technical assistance and outreach to "high needs" communities, such as Ashland.

#### **PROPOSED WORK**

1. Needs assessment and cooperative agreement. The Department will work with Ashland stakeholders to further assess needs and concerns related to the sediment characterization and remediation. The needs assessment will follow the community involvement model developed by the TOSC program, which involves identifying stakeholders and community leaders, phone and mail surveys, a "strengths" assessment, and development of a cooperative agreement and proposal for services. The TOSC program, as feasible, will utilize the needs assessment carried out for the program's current activities.
2. The Department will provide educational services to stakeholders on key issues related to sediments. These will include site-specific workshops on issues relevant to citizens, including the characterization of the sediments, the ecological risk assessment, and the formulation of sediment remediation options. The workshops will range, depending on interest, from 2-hour evening sessions to full-day seminars. Instructors' areas of expertise may include environmental chemistry, environmental engineering, microbiology, risk assessment and risk communication. The educational programs will relate directly to the Ashland site and seek to inform and educate stakeholders on key issues and findings.
3. The Department will provide expert guidance and recommendations to stakeholders on the characterization of the sediments, the ecological risk assessment, and the formulation of sediment remediation options. Through our TOSC program work, our faculty have gained valuable experience in interpreting complex technical documents for citizen audiences. We have found that communities attach value to expertise, but often question the motives and independence of other assistance providers, particularly agency or PRP representatives. We believe that independence is essential to promoting trust and credibility. Item 3 differs from Item 2 above in that we will carry out thorough reviews of selected technical documents, particularly any documents released during an official comment period, when external comments might bear on an agency or PRP decision.
4. The Department will provide GLNPO with a report of findings from the Ashland project, which will include a mechanism

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for effectively involving stakeholders in the sediment site decision-making process. At GLNPO's request, we will also hold training workshops (for U.S. EPA or other agencies) on promoting effective community involvement. We will draw on our other technical assistance and outreach experiences in formulating the model, and will conduct a review of relevant literature on community involvement, as that literature pertains to decision making on contentious environmental issues. We will also draw on our experience, from 1997, as an assistance provider to the White Lake Public Advisory Council, concerning the Tannery Bay contamination, in Whitehall, Michigan, another Great Lakes-related site.

5. The Department believes that the proposed Ashland project would be readily transferable to other sediment contamination sites. In January 2000, we began to provide assistance to the Alpena County (Michigan) Air and Water Quality Committee, concerning the Cement Kiln Dust Pile, on the shores of Lake Huron. The pile has gradually subsided into the lake for more than 50 years, causing significant heavy metal contamination and damage to the lake benthos. More than 60 acres of lake bottom is affected by the cement. The Alpena case also presents significant community interest and concern. At GLNPO's discretion, the Department is prepared to provide an alternative proposal for similar, targeted services to Alpena stakeholders.

#### PARTICIPANT INFORMATION

Dr. Thomas C. Voice, Professor of Environmental Engineering and Associate Director, Great Lakes & Mid-Atlantic Center for Hazardous Substance Research, Michigan State University.

Dr. Susan Masten, Associate Professor of Environmental Engineering, Michigan State University

Dr. Karen Chou, Associate Professor of Toxicology, Michigan State University.

(Drs. Voice, Masten and Chou have extensive experience as providers of outreach services to communities).

Dr. R. Jan Stevenson, Professor of Zoology (Aquatic Ecology), Michigan State University

Dr. Kenneth Bro, Director, Sigurd Olson Environmental Institute, Northland College, Ashland, WI

Kirk S. Riley, Technical Outreach Specialist, Department of Civil and Environmental Engineering, Michigan State University

#### AGENCY CONTACT

Jamie Dunn is Ashland Project Manager for the Wisconsin Department of Natural Resources Project. Mr. Dunn may be contacted at (715) 635-4049 or by e-mail at [DunnJ@mail01.dnr.state.wi.us](mailto:DunnJ@mail01.dnr.state.wi.us).

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<b>Project Milestones:</b>	<b>Dates:</b>
Project Start	10/2000
Needs Assessment	10/2000
Educational Workshops	12/2000
Document Review, Technical Assistance	12/2000
Report of Findings and Draft Framework	08/2001
Final Report	10/2001
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Project End	10/2001

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Project Addresses Environmental Justice

**If So, Description of How:**

The Red Cliff Band and Bad River Band of Chippewa Indians have a stake in the Ashland sediment characterization and remediation. If the site is listed on the National Priorities List, that stake will be equal, according to the Treaty of 1844, to the State of Wisconsin's. Both Bands have participated in meetings concerning the site and stated their interest in protecting Lake Superior water quality and their usufructuary rights to the Lake. The Department has provided technical assistance to the Chippewa Bands previously, under the TOSC grant.

Project Addresses Education/Outreach

**If So, Description of How:**

The results of this project will be used to educate stakeholders on the sediment remediation in Chequamegon Bay. The technical assistance and educational nature of the project are described in the broader Preproposal.

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**Project Budget:**

	<b>Federal Share Requested (\$)</b>	<b>Applicant's Share (\$)</b>
<b>Personnel:</b>	25,000	6,058
<b>Fringe:</b>	8,000	1,939
<b>Travel:</b>	10,000	0
<b>Equipment:</b>	0	0
<b>Supplies:</b>	500	0
<b>Contracts:</b>	0	0
<b>Construction:</b>	0	0
<b>Other:</b>	0	0
<b>Total Direct Costs:</b>	43,500	7,997
<b>Indirect Costs:</b>	20,445	3,758
<b>Total:</b>	63,945	11,755
<b>Projected Income:</b>	0	0

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**Funding by Other Organizations (Names, Amounts, Description of Commitments):**

The Department of Civil and Environmental Engineering will provide 5% of Dr. Thomas C. Voice's time for this project. This will amount to \$6,058 in personnel cost and \$1,939 in fringe cost. Dr. Voice will act as Co-Principal Investigator on the project (with Dr. Susan Masten and Kirk Riley) but will not charge salary expenses against the GLNPO award.

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**Description of Collaboration/Community Based Support:**

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Project support will be provided by the consortium of community groups, Native American tribes, and peer-level assistance providers that the Department has worked with to date. The community groups are the Ashland/Bayfield County League of Women Voters, the Lake Superior Alliance, the Inland Sea Society, and the Alliance for Sustainability. The Native American tribes are the Red Cliff Band and the Bad River Band of Chippewa Indians. Peer-level assistance providers (i.e., organizations with expertise relevant to the project) will include: the Sigurd Olson Environmental Institute at Northland College, and the Great Lakes Indian Fish and Wildlife Commission (GLIFWC).