

Project Title: Grand Calumet Area of Concern

Applicant (Organization): Dept. of Civil and Environmental Engineering, Mich. State U

Type of Organization: College or University

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Project Title: Grand Calumet Area of Concern

Project Category: Contaminated Sediments

Rank by Organization (if applicable): 0

Project Duration: 2 years

Abstract:

The Dept. of Civil and Environmental Engineering at Michigan State Univ. (MSU), the Indiana Univ. Bloomington School of Public and Environmental Affairs (IU) and the Grand Calumet Task Force (GCTF) propose to provide technical assistance to the general public, local government and other stakeholders on the remediation of contaminated sediments in the Indiana Harbor and Ship Canal (IHC), and in the Grand Calumet River (GCR), in and near the cities of Hammond, East Chicago and Gary, IN. The technical assistance will focus on promoting community participation in decisions concerning 3 major proposed dredging operations. In the first, U.S. Steel (USS) will dredge 5 miles of the east branch of the GCR. The approx. 700,000 cu. yds. of dredged material will be disposed of on USS property in a RCRA Corrective Action Management Unit (CAMU). In the second, the US Army Corps of Engineers plans to dredge the harbor and the upper end of the canal. The dredging, scheduled to begin in 2005, would remove 4.67 million cu. yds. of sediments to be housed in a 131-acre confined disposal facility. The CDF would be located a half mile from 2 schools and a residential area. Many residents oppose the location of the CDF, despite assurances from the Corps and the U.S. EPA that it would cause minimal health effects. The third proposed dredge is still being negotiated, but would cover the west branch of the IHC/GCR system.

The applicants propose to develop educational materials (fact sheets & technical summary reports, review technical documents, participate in discussions about monitoring related to the Corps project, provide feedback on the next steps in the EPA risk assessment, and conduct workshops to promote citizen involvement in the decision making, including the siting of the CAMU and the CDF. The goals are to build knowledge and understanding among stakeholder groups on sediment remediation and storage, and to effectively involve stakeholder groups in the siting process.

Project Title: Grand Calumet Area of Concern

Geographic Areas Affected by the Project

States: Indiana

Lakes: Michigan

Geographic Initiatives:

NW Indiana

Primary Affected Area of Concern: Grand Calumet River/IHC, IN

Problem Statement:

The Grand Calumet River, the Indiana Harbor Ship Canal and the Indiana Harbor are located in one of the world's largest concentrations of industry. Ninety percent of the river flow consists of industrial and municipal effluent, storm water and combined sewer overflows, which has led to severe water and sediment contamination in all three waterways. According to the Environmental Impact Statement for the Corps project, about 150,000 cu. yds. of polluted sediments enter Lake Michigan each year from these waterways. These sediments contain 77,000 pounds of chromium, 100,000 pounds of lead, and 420 pounds of polychlorinated biphenyls (PCBs). Additional contaminants include high fecal coliform bacteria levels, biochemical oxygen demand, suspended solids, and heavy metals like mercury, cadmium and lead. The contamination has degraded the benthic community, fish community and wildlife. Other beneficial-use impairments, as defined under the river's designation as an Area of Concern (AOC), include restrictions on fish and wildlife consumption, on recreational uses, beach closings and degradation of aesthetics. The Grand Calumet AOC is the only one of the 43 AOCs on the Great Lakes to have all 14 beneficial uses listed as impaired.

The AOC also includes 52 sites listed under CERCLA, five of which are Superfund sites on EPA's National Priorities List (NPL); and 423 hazardous waste sites regulated under RCRA such as landfills or surface impoundments. There are 22 treatment, storage and disposal facilities and more than 460 underground storage tanks in the AOC. Three steel manufacturers contribute 90% of industrial point source discharges to the AOC. Fifteen CSOs contribute untreated municipal waste, and CSO outfalls annually discharge an estimated 11 billion gallons of raw wastewater into the harbor and river.

Three separate dredging projects have been or are being negotiated within the IHC/GCR system: 1) the Indiana Harbor and much of the Canal; 2) the east five miles of the East Branch of the GCR; and 3) the West Branch of the GCR. The Corps has proposed to build a 131-acre confined disposal facility (CDF) to hold the 4.67 million cu. yds of toxic sediments that may be dredged from the upper canal and the harbor. The CDF, regulated under RCRA, would be located a half mile from a high school, middle school and residential area. The dredging of the harbor and the canal is expected to begin in 2005 and both the dredging and the CDF have provoked strong public health concern.

U.S. Steel Gary Works (USS), one of the largest integrated steel manufacturing plants in the world, has proposed to dredge about 700,000 cubic yards of sediments from five miles of the

eastern branch of the river, an operation expected to be completed by next year. USS has proposed to build a landfill called a Corrective Action Management Unit (CAMU) for the storage of the dredged materials on company property. This unit is another primary issue concerning the community.

The third dredging project along the west branch of the GCR is still in negotiation. Once negotiated, however, the parties will again have to decide how to store the sediments, which may elicit many of the same public concerns as the other projects.

The sediment dredging and storage issues have provoked intense, sustained interest and concern among a variety of environmental and civic groups, local government, and educational institutions, along with many individuals not allied with any group but who live in proximity to the site. Their concerns include:

Concerns about human health:

- What are the comparative human health risks of the proposed sediment storage projects versus not dredging the sediments from the harbor and canal-i.e., leaving them in place?
- What are the human health risks of the proposed CDF?
- Are sediments currently contaminating the harbor and canal and, if so, what are the human health risks?
- Do the sediments threaten the public drinking water supply?
- What are the human health risks of removing only part of the IH and Canal sediments (i.e., to a navigable depth), leaving behind highly contaminated sediments that may be disturbed by boat traffic?

Concerns about the environment:

- What are the comparative environmental risks of the proposed CDF versus not dredging the sediments-i.e., leaving them in place?
- What risks to the aquatic ecosystem in the lake and the river are posed by leaving all or part of the canal and harbor sediments in place?

Proposed Work/Outcome:

BACKGROUND

This project will build upon Michigan State University's Technical Outreach Services for Communities (TOSC) outreach effort as well as ongoing work within the Northwest Indiana community by both the Grand Calumet Task Force and the team of people at Indiana University, both in Bloomington and at IU-Northwest. The MSU team has provided TOSC assistance to more than 30 communities since 1994 under a U.S. EPA Superfund grant. (We have also had a separate grant from GLNPO to provide assistance in Ashland, WI, related to the Excel Energy Ashland Lakefront Site, which includes an area of PAH-contaminated sediments in Lake Superior). TOSC is a national effort to provide independent technical assistance to communities with sites of environmental contamination (see www.toscprogram.org), under EPA's Hazardous Substance Research Centers Program. TOSC works with university faculty experts to review technical documents, hold educational workshops and provide an independent, third-party analysis of key technical issues.

The Grand Calumet Task Force is a community environmental advocacy organization founded by local residents and steelworkers in 1980 to work for the rehabilitation of the river and canal. With more than 200 members, it has consistently worked with stakeholders to attain the best possible cleanup, one which restores the river as a healthy aquatic ecosystem, eliminates the threat to Lake Michigan, and protects the health of the local community. It has worked actively with the Corps, U.S. EPA, U.S. Steel and local groups and individuals to address legitimate concerns about the proposed dredging projects and to find solutions.

Prof. Diane Henshel, at Indiana University in Bloomington, has been involved with the IHC/GCR community for a number of years since participating in an overview of progress of the Remedial Action Plan as a member of the IJC Science Advisory Board. Since that time she and her students have provided technical feedback to the community related to environmental contamination, toxicology and risk assessment. She was, for example, an invited speaker at an NGO-sponsored workshop on air toxics in NW Indiana. Last year, her students completed and presented a preliminary risk assessment of the proposed Corps dredging project and CDF, which was well received by the community, the Corps, and local regulatory officials. She is also participating in a Corps committee to help with planning and oversight of air monitoring related to the Corps project. She has built a relationship of mutual respect with many of the community members, as well as academic and regulatory agency representatives.

Successful outreach partnerships hinge on building relationships with (and among) community and governmental stakeholders. To that end, MSU has begun discussions with various parties to determine their interest in working with us to assist citizens and the feasibility of our serving as a technical assistance provider to interested citizens. Those parties include: Bowden Quinn, Executive Director, GCTF; Scott Cieniawski, Program Officer, U.S. EPA Great Lakes National Program Office; Alex da Silva, RAP Coordinator, Indiana Department of Environmental Management; Monica Krepfl Ott, U.S. Army Corps of Engineers; Tim Sutherland, Director, IUN Environmental Justice Resource Center; Dorreen Carey, Environmental Affairs Coordinator, City of Gary; Milan Kruszynski, Environmental

Project Title: Grand Calumet Area of Concern

Affairs Coordinator, City of Hammond; and Christine Brooks, Director, East Chicago Waterway Management District.

MSU has been awarded a new TOSC grant for FY2002-2003 and is a member of the new Midwest Hazardous Substance Research Center, headquartered at Purdue University. Due to funding cutbacks from EPA, however, the TOSC grant to MSU will be reduced by more than 80%. The need for assistance will remain, however, particularly in the Grand Calumet community's desire to participate in decision-making and resolve critical questions over the safety of the CDF, and therefore we are seeking additional funding to provide that assistance. The level of controversy over the dredging and CDF issues intensify the need for assistance. Without outside assistance, the issue has the potential (as do many environmental problems) for greater divisions and controversy, which can greatly impede decision-making. A crucial distinction of the GC sediments problem is that a delayed decision can directly affect the water quality of one of the Great Lakes, namely Lake Michigan, through transport of contaminants.

We believe several aspects of our Proposal 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 the East Chicago, Hammond and Gary, IN communities.

PROPOSED WORK

1. Needs assessment and cooperative agreement. MSU and the GCTF will work with Northwest Indiana stakeholders to further assess needs and concerns related to the sediment dredging and construction of the CDF and CAMU. 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 (i.e., examining the capabilities that local groups and citizens may provide), and development of a cooperative agreement and proposal for services. (We have carried out, in fact, initial stages of the Needs Assessment during the writing of this proposal.)

2. MSU, IU and the GCTF, working in partnership with other community representatives, will provide educational services to stakeholders on key issues related to sediment assessment, remediation and storage. These will include workshops on issues relevant to citizens, including the characterization of the sediments, human health risk assessment, 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 U.S. Steel and Corps dredging operations and seek to educate stakeholders on key issues and findings.

3. MSU and IU will provide expert guidance and recommendations to stakeholders on the characterization of the sediments, the ecological and human health risk assessments, the ongoing and future monitoring work associated with these dredging projects, 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 value expertise, but often question the motives and independence of other assistance providers, particularly agency or PRP representatives. Our independence can build the trust and credibility needed in such a situation. 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 or where there is clear agreement among stakeholders that an outside evaluation would help address community concerns.

4. GCTF will serve as an intermediary between concerned members of the public in Northwest Indiana and the technical consultants provided by MSU and IU. GCTF has found that many people who do not feel directly affected by the proposed dredging projects still have many questions about the projects, particularly their impact on human health and on Lake Michigan. GCTF will actively solicit questions from these groups and individuals, forward them to MSU and IU, and convey the responses back to the questioners. Groups that have shown a particular interest and who have sought information from GCTF include the local Sierra Club Dunelands Group and Pulaski Park Neighborhood Association of Hammond. GCTF staff will periodically attend the monthly meetings of such groups to maintain communication with them. In addition, students at the high school and college levels have contacted GCTF for information about the projects for class reports. GCTF will inform local teachers of the opportunity to increase the sophistication of their students' work through access to the technical expertise provided by MSU. Finally, GCTF will inform a larger public through written articles in its own bimonthly newsletter and with special articles written for area newspapers.

5. MSU, IU and the GCTF will provide GLNPO with a report of findings from the Grand Calumet project, which will include a mechanism 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 at other sediment sites on or near the Great Lakes: the Ashland (WI) Lakefront Site; Alpena (MI) Cement Kiln Dust Site; and Occidental Chemical Corporation Facility (a RCRA Corrective Action project), in Montague, MI.

PARTICIPANT INFORMATION

Dr. Thomas C. Voice, Professor of Environmental Engineering and Associate Director, Midwest Center for Hazardous Substance Research, Michigan State University.

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

Project Title: Grand Calumet Area of Concern

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. Diane Henshel, Associate Professor, Indiana University School of Public and Environmental Affairs (focus in health effects of environmental pollutants and developmental toxicology)

Dr. Christopher Marwood, Post-doctoral Researcher, Department of Zoology, Miami University (expertise in ecological risk assessment)

Dr. R. Jan Stevenson, Professor of Zoology (Aquatic Ecology), Michigan State University
Kirk S. Riley, Technical Outreach Specialist, Department of Civil and Environmental Engineering, Michigan State University

Bowden Quinn, Executive Director, Grand Calumet Task Force

[Of the total amount budgeted, Michigan State University proposes to provide about 28% to Indiana University School of Public and Environmental Affairs and about 14% to the Grand Calumet Task Force]

Project Milestones:	Dates:
Project Start	10/2002
Needs Assessment	01/2003
Educational Workshops	02/2003
Document Review, Technical Assistance	04/2003
Report of Findings	08/2003
Final Report	09/2003
Project End	10/2003

Project Addresses Environmental Justice

If So, Description of How:

The Grand Calumet AOC has large minority populations and a high percentage of households living below the federal poverty level. According to 1996 estimates, the City of Gary is 80 percent African-American. Almost 30 percent of the population lives in poverty, as do more than 40 percent of the children. East Chicago is 33 percent African-American and more than 40 percent Hispanic, with about 25 percent of the households below the poverty line. There are no significant Asian or Native American populations.

The environmental justice implications of the proposed CDF have been an issue of concern for local residents. The area already has a large number of facilities with large air and water emissions of toxic chemicals. The BP Whiting refinery, the nation's third largest, is adjacent

Project Title: Grand Calumet Area of Concern

to the proposed CDF site. Two of the largest integrated steel manufacturing plants in the world are in the AOC (Ispat Inland and USS). In addition, Rhodia, Inc., has a sulfuric acid regeneration plant that burns hazardous waste less than three miles due south of the proposed CDF site. With this concentration of heavy industry and hazardous wastes in an area with high percentages of minority and low-income residents, people wonder why the U.S. government would propose siting a large sediment disposal facility in the same community. To them, that violates the principle of environmental justice.

Project Addresses Education/Outreach

If So, Description of How:

The project's principal objective is to educate stakeholders on the sediment remediation in the Grand Calumet River and the Indiana Harbor and Ship Canal. The technical assistance and educational activities that we will carry out are described under Problem Statement and Proposed Work Outcome (see above).

Description of Collaboration/Community Based Support:

Project support will be provided by a range of stakeholder groups, educational institutions and local government that MSU has contacted pursuant to this Proposal. They include the Indiana University-Northwest Environmental Justice Resource Center (Tim Sutherland, Director), the Cities of Hammond, East Chicago and Gary, Indiana and the East Chicago Waterway Management District. We expect that we will work closely with Federal, State and Local government agencies in assisting area communities.