Waterways

A publication of the Upper Mississippi Waterway Association
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Because of stimulus…

Corps will finish L&D 3 work

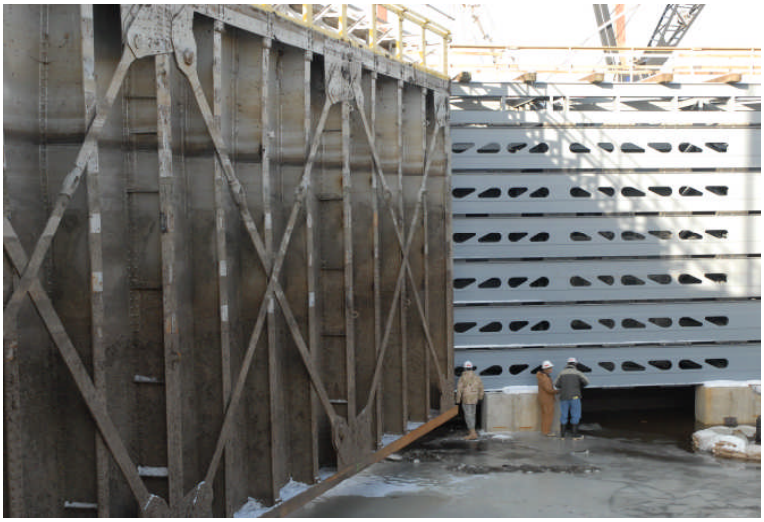
UMWA members are pleased to see major rehabilitation dollars for Lock and Dam 3 among the projects made possible by The American Recovery and Reinvestment Act (ARRA) of 2009 that was signed by President Barak Obama in Feb.

The lock chamber was dewatered and refurbished in Jan. 2008, but those who know the location and its problems have been concerned about things on the left bank descending, on the Wisconsin side, where there has been a growing threat that deteriorated embankments could give way and result in loss of pool.

In an assessment, the Corps of Engineers says, "Lock and Dam 3 is connected to high ground on the Wisconsin side primarily by low-lying ground and consisting of natural river levee banks, a series of sheet pile and rock overflow weirs called spot dikes and *sections of constructed embankments that overtop during higher levels of discharge*."

Not up to modern standards

These constructed parts are not up to modern standards of engineering design, the Corps says, and have been deteriorating since the project was completed in the 1930s. Estimated costs for a 35-day unscheduled loss of pool would be more than $34 million in tow delays and $36 million for shutdown of the Prairie Island nuclear power plant and the Alan S. King Power Plant in Bayport, Minn. And says the corps, these costs don't include the adverse impacts on recreational boating.



Above: Lock and Dam 3 was dewatered and the walls and gates were refurbished in early 2008.

Because the need is obvious and urgent, work to finish the rehabilitation of Lock and Dam 3 met the five criteria set out by Congress in the ARRA. They include projects that can be obligated quickly; result in high, immediate employment; have little schedule risk; can be executed by contract or direct hire of temporary labor and complete a project phase…or will provide a useful service that does not require additional funding.

Four components

Corps planners have broken the project into four major components including, "Award design/build contract for remainder of project

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From the Executive Director.

Pond Scum to Diesel

Last July in this column, we stated that prior to the ethanol craze, grain elevators on the Upper Mississippi River would routinely load two dozen corn barges per day for the export market. In these post-ethanol times, however, they must contend with loading only about ten percent of that volume. We then stated that ethanol notwithstanding, corn-to-fuel does not portend a permanent decrease in the movement of corn on the waterway since, if not for contrived subsides and tariffs on imports, foreign ethanol would displace much of our local production, thereby making corn attractive once again to the export market.

As this Association is first and foremost about transportation of bulk items including corn and other oil seeds, our reference to the temporarily distorted corn market is offered as an example of how commodity use, globalization and government policy can connect to upend markets while leaving, unscathed, the basic premise that waterways are the most efficient mode of bulk transport.

With that mini-commercial out of the way, an April article in the *Star Tribune* (Minneapolis) appears to give weight to our argument. Explaining that an ever-increasing variety of material can be processed into diesel fuel, the article went on to state that biodiesel can be made using waste-oil from restaurants and ethanol-plants, non-edible crops and plain old pond scum.

A fast, no-waste process

According to the article, Minnesota's SarTec Corp. has perfected a three-year old process that produces about 1,000 gallons of diesel fuel weekly for $1.25 to $1.75 per gallon. Amazingly, it does so using a low-energy, no-waste process that converts a variety of feedstocks to fuel in a matter of seconds without consuming large amounts of water, by simply using algae harvested from a pond next to its plant in Anoka County. Sounds too good to be true, doesn't it.

Clayton McNeff, a chemist and industrialist said his family-owned company plans to open in June, a pilot plant in Minnesota that is expected to produce 4 million gallons of clean diesel fuel annually from a variety of feedstocks, using the "Mcgyan Process".

The Mcgyan Process, as explained in a posting on the *StarTribune* website last year, uses a friendly catalyst that converts a mixture of alcohol and feedstock oil to biodiesel, in a tube-like reactor. This continuous process is especially efficient in that it takes seconds (not hours) to complete while producing little waste.

This is in contrast to the normally-used process that mixes soybean oil with a catalyst in a tank that is heated to a high temperature, a batch process that takes hours and produces waste. To reuse, the catalyst must be neutralized with a toxic chemical; the Mcgyan catalyst does not.

Lowly algae consumes carbon dioxide

A report in *Alternative Energy News* states that algae biodiesel has gained attention over the last two years because it produces 10 to 30 times what the best oil producing crops in America will produce. Other factors in algae's favor:

*algae consume carbon dioxide

*therefore algae farms are being built adjacent to coal fired electricity plants so algae have a steady supply of food: CO2

*byproducts can be used in cattle feed, vitamins, pigments, etc

*algae farms may also include a developing process to produce hydrogen on an economic scale.

Met Council, U of Minnesota and Xcel Energy

To add credence to this venture, the Metropolitan Council and the University of Minnesota have teamed up to investigate the potential of algae-to-fuel technology. Their initial discussions and research on cultivating algae as a fuel source proved promising enough to proceed with laboratory-scale studies.

The basic concept of growing algae in treated wastewater and producing fuel from algae is fairly simple, said a manager of the Council's Environmental Services, but it will require significant effort to determine if the concept is technically and economically feasible.

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including extension of guidewall for navigation safety concerns." Other parts of the work will involve acquiring real estate needed for construction of lower embankments, awarding construction contracts for upper embankment work, and awarding a design/build contract for lower embankments and fish passage at the site.

If you want a detailed look at where the Corps has targeted the $4.6 billion it received in the ARRA, visit www.usace.army.mil/recovery.

MNDOT releases EIS

Just upriver from Number 3 and downriver from Number 2, work will begin at an unnamed date to replace the aging Hasting bridge, but Minnesota DOT has taken an important step with the release of the Environmental Impact Statement on the bridge. The document is 143 pages long and available online at www.dot.state.mn.us/metro/projects/hastingsbridge/ea.html. There will be a public hearing on the assessment 7:30 p.m. May 20, at Hasting City Hall. (you can also file comments online by clicking on the, "To officially comment on this document, click here" link.

Navigation mentioned

There are seven paragraphs in the document which talk about "River Navigational Needs." As UMWA members have pointed out, pier placement is critical to safe navigation through the area and the EIS says, "The Coast Guard has identified the location of the first pier immediately to the north of the navigable channel as being critical to maintaining navigation. The existing pier location, coupled with the bend in the river discussed above, provide challenges to barge traffic. It is anticipated that the new pier for each alternative under investigation will need to be placed no more than 130 feet upstream (west) of the existing pier location. Any new pier at this location will have to be set further north from the existing pier location due to the bend in the river and channel navigation requirements."

The navigation paragraphs are on pages 13 and 14 of the document.

There is also an interesting history section and some great pictures of the old spiral bridge and current Hastings bridge under construction.

Rec chamber opens

One other Upper Mississippi note: the Corps has announced that it is getting the auxiliary chamber and Lock and Dam 15 ready for use by pleasure boaters this summer. The chamber has been closed for 6 years, but the Corps has been able to fabricate replacement gates in-house and they are being installed. Plans are to open by Memorial Day.

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Xcel Energy, too, has added their support to renewable energy with a $150,000 gift to the University to help finance alternative energy projects, including the groundbreaking algae-to-biofuels venture.

Finally, a May 5 article in the *Wall Street Journal* stated a trade group petitioned the EPA to increase the ethanol blend in gasoline to 15 percent, from the current 10 percent. Without the increase, the group said, the U.S. won't be able to meet a congressional mandate to blend 36 billion gallons of renewable fuel into the domestic fuel supply by 2022.

With continuing research on pond scum and other alternatives, perhaps this mandate *can* be met without further harmful distortions to commodity or transportation markets.

Missouri pulse possible

The Army Corps of Engineers may go ahead with a spring pulse on the Missouri River because, it says, there's enough water in storage. However, other factors will determine whether it actually happens.

The corps said downstream river levels, precipitation forecasts, water temperature and nesting activity of least terns and piping plovers on river sandbars will factored in.

The pulse must be started by May 19.

An earlier pulse in March was cancelled because river levels were already high downstream.