

WATERWAYS COUNCIL, INC.

FINAL REPORT

STUDY OF THE EFFECTS ON THE ECONOMY OF THE EMERGENCY CLOSURE OF THE MCALPINE LOCK

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Introduction

The Waterways Council is the nationwide public policy organization advocating a modern and well-maintained national system of ports and inland waterways. The Council is made up of companies and public bodies with a stake in efficient inland waterways, and it advocates in Washington and in the states and communities for needed maintenance and capital improvements to the system.

During May, 2004, the Corps of Engineers discovered advanced deterioration in the lock gates at the McAlpine Lock on the Ohio River, near Louisville, KY. The Corps scheduled emergency repairs, which would necessitate closure of the lock for a two week period during August, 2004. This closure was of concern to many users of the waterways system because, unlike most navigation locks on the system, there is presently no second lock at McAlpine, and the river would be closed to all navigation at this location for the duration of the repairs.

This situation resulted from a drawn-out period for construction of a new main lock at McAlpine, because federal funding has been less than is needed for completion of the new lock as scheduled. The new lock was authorized in the early 1990s and is now under construction, but is not expected to be completed until 2008. If its schedule had been maintained it would have been opened before 2004, and closure of the auxiliary McAlpine Lock for repairs would have had little effect on river traffic.

The Corps has recognized for some time that the lock gates on the are in an advanced state of deterioration and, in fact, has acquired replacement gates which are on-site, awaiting a time when the lock can be closed for installation. Since installation of new gates would take about four weeks during which the entire river would be closed, this cannot be done until the new main lock is

completed in 2008. Thus, the emergency repairs during August, 2004 represent *patchwork* to deal with a critical situation rather than the needed rehabilitation, because of the delayed completion of the new main lock.

Upon scheduling the closure for repairs to the auxiliary lock, the Corps of Engineers issued notices to users and widely publicized the upcoming closure. This gave users (shippers, receivers and carriers) ten weeks of advance notice of the lock closure and allowed users to reschedule shipments and make other provisions to adapt to the disruption of water transportation during the repair period.

Closure of the McAlpine Lock affected traffic over a wide area -- from the Gulf Coast and the Lower Mississippi Region to the headwaters of the Ohio River and its many tributaries. On an annual basis there are over 5,000 tows passing through this lock, carrying about 50 million tons of commodities.

The leading commodity (over 32 percent) is coal being moved to electric power generating plants. This is followed by crude materials (nearly 26 percent) which includes alumina ore and iron ore moving to metals manufacturing plants in the mid and upper Ohio Valleys, and construction aggregates. Petroleum and chemicals account for nearly 25 percent of the traffic; manufactured goods amount to nearly 13 percent; and farm products are more than 5 percent of McAlpine's traffic.

The commercial value of commodities moved through the McAlpine Lock annually total more than 12 billion dollars.

Economic Impact Study – Interim Report

Because of the importance of the McAlpine Lock in the nation's inland waterways system, and concern over disruption to the economy caused by its closure, the Waterways Council, Inc. (WCI) has commissioned a series of studies of the economic effects of the closure of the McAlpine Lock.

The original WCI study involved interviews with producing and consuming companies which are users of the Lock for transportation, and a survey of commercial water carriers which provide transportation service through the Lock. The findings were published in an Interim Report dated July 21, 2004.

The following are highlights of the findings in the Interim Report:

- Information was obtained from 76 companies which transport a range of commodities, including coal, petrochemicals, aggregates, metallic ores, scrap metal, iron & steel products, ferro-alloys, minerals, grain and fertilizer.

- Of the 76 companies interviewed, 54 reported that they would be negatively affected by the lock closure.
- Virtually all of the companies were appreciative of the ten week advanced notice of the lock closure provided by the Corps of Engineers. This allowed them to plan for the closure by advancing shipping schedules or arranging transport by other modes during the lock closure.
- Many of the companies were concerned that the closure might extend beyond the two week period. If that were to happen, the effects would be greatly increased.
- The companies were asked whether they would be affected by the lock closure; how they would be affected; provisions underway to minimize effects; and estimates of added costs due to the closure.
- Based upon the responses, the affected companies were given a rating ranging from *No Effect* to *Severe Effect*.
 - Seven of the 74 companies were projected to have a *Severe Effect*, meaning that there would likely be cut-backs in production and employment or very high costs for alternate transportation to avoid production losses. These seven companies would normally move about 165,000 tons of commodities through the lock during the two week period.
 - The closure was projected to have a *Heavy Effect* on another seventeen companies, with 800,000 tons of traffic affected during the two week period.
 - Twenty-four different companies were expected to have a *Moderate Effect*. Their traffic for the two week closure period would be more than 900,000 tons.
 - There were five other companies, with more than 70,000 tons of affected traffic over the two week period, for which the effects were uncertain. These had been rated as *Possible Effects*.
 - Finally, for a variety of reasons, including the fact that they have no or very little traffic using the lock, or they can easily adjust to the closure, 23 companies anticipated *No Effect* of the lock closure.
- Taken together, the flow of over two million tons of commodities would be disrupted by the two week closure. This represents more than 1,250 loaded barges, over 550 empty barges, and 190 towboat passages, to be delayed by the lock closure. If the

affected traffic were converted to truck, it would amount to 80,000 truckloads and a similar number of empty truck return trips, traveling the streets and highways of the affected communities.

- Two of the companies projected as having a *Severe Effect* are involved with the same traffic, which is the steady flow of chlorine from a major petrochemical producer located in the Upper Ohio Valley to its customer, another major petrochemical company, located on the Tennessee River.

Chlorine is a hazardous material and *product of national significance* which is used as feedstock in several manufacturing processes. It goes directly from producer to consumer and, because of environmental regulations, may not be stored at either the producer or consumer end of the move. Chlorine moves in specialized barges which are in short supply.

Provision was made to partially substitute chlorine from the Ohio Valley producer with chlorine produced down-river of the McAlpine Lock, which will largely satisfy the customer's needs. However, there would be reduced production of chlorine by the Ohio Valley producer, and attendant loss of revenue and a temporary threat to employment at this plant.

- Two of the companies facing *Heavy Effects* are aluminum producers located in the Upper Ohio Valley. These companies depend on aluminum ore which is imported in shiploads through the Gulf Coast, and transported upriver by barge. They also receive some fuel and ship some products downriver by barge. All of this traffic transits the McAlpine Lock.

These aluminum companies depend on the efficiencies of Just-In-Time delivery. They do not use on-site storage, but move the aluminum ore directly into their production processes. The importance of this steady stream of ore was made clear by the fact that one of the companies investigated the feasibility of unloading ore downriver of the McAlpine Lock, transporting it by truck through the Louisville area, and reloading it into barges upriver of the lock, to assure a continuous flow of ore to its plant. That would double the transportation cost of the ore. The added cost would come out of profits since the price of aluminum is set by the market and is beyond the control of one producer.

One aluminum company planned to advance delivery schedules to build up stockpiles of ore prior to the closure. It had space for stockpiling ore because it had already reduced production and idled workers in anticipation of material shortages due to the lock closure. This company would be further impacted by the cost of transferring the

ore to stockpiles, holding excess inventory, and reclaiming the ore to maintain its reduced production levels.

- Another company projected to have a *Severe Effect* is an integrated steel manufacturer, located in the Upper Ohio Valley. This company transports more than two million tons per year of raw materials and products by water. This company receives a steady flow of iron ore, scrap steel and lime upriver, and ships steel downriver. So as not to curtail steel production, this company stated that it would shift to other transport modes at a cost increase of up to \$2 million. The company stated that the two week lock closure will cause a 4 to 6 week disruption in its steel production process.
- Several petrochemical manufacturers were judged to be facing *Severe Effects*, due to the lack of storage capacity on-site and shortage of specialized barges for the hazardous materials transported. These companies were working hard to position materials in advance of the lock closure and were hoping that the closure would not last longer than the scheduled two weeks. If that were to happen, production would have to be curtailed.
- The leading commodity moving through the McAlpine Lock is coal, which amounts to more than 500,000 tons of traffic over a typical two-week period.

Generally speaking, coal producers and power companies transporting coal through the lock would be able to accommodate the closure by stockpiling coal in advance. Nonetheless, they anticipated higher costs for advancing shipments, and stockpiling and reclaiming coal, which would have to be borne by these companies, with some of the added cost passed on to consumers of electricity.

If the closure were to last longer than the scheduled two weeks, there could be cut-backs in power production at power plants at a time of peak demand. Transporting coal by railroad is not possible since the power plants are configured to receive coal by water and adequate railroad facilities are not in place.

All of the companies were thankful to the Corps of Engineers for the early notice (ten weeks) of the emergency closure and for the Corps' cooperation in adjusting this and other lock closures to accommodate user needs.

At the time of this initial study, many of the companies interviewed indicated uncertainty of the effects since they did not know whether they would be able to get their shipments through the lock ahead of the closure; exactly how long the closure would last; and how long it would take for traffic flow to return to normal.

Lock Closure and Follow-Up

The lock closure began as planned by the Corps of Engineers on August 9, 2004. Because of the Corps' careful planning, the repairs proceed smoothly and were completed at about 4 PM on August 19, 3-1/2 days ahead of schedule. At the time of reopening, there were nine upbound and seven downbound tows in the queue. These tows were able to pass through the lock within less than one day after the reopening.

The Waterways Council set up a process to re-contact the affected companies after the lock repairs were completed and traffic was again moving on the river.

Follow-up inquiries were made with companies expected to be affected by the closure. They were asked to describe measures taken to adapt to the closure in three categories: adjusting shipping schedules; shifts to other modes; and curtailment of production. They were also asked to provide estimates of added costs, lost sales and other measures of economic impacts.

Once the emergency was over, the companies were less willing to respond to the survey, and follow-up responses were obtained from only 27 of the affected companies.

The follow-up survey found the following:

- As expected, several of the largest shippers, those moving coal, were able to adapt to the closure and stockpile coal in advance, with little effect . This is not to say that there was no cost impact. One coal company which moves 1.5 million tons of coal annually through the McAlpine Lock, reported added costs of \$50,000 during the period of the lock closure, about 90 cents per ton. The minimal effects to coal shippers were possible because of the advance notice and relatively short duration of the closure.
- Similarly, several large shippers which move motor fuels and refinery feedstocks were able to position materials in advance on the proper side of the lock, and switch some of their movements to pipeline, and thus experience little or no effect. This was also made possible by the ten week notice.
- Chemical companies, which had been classified as facing Severe Impacts in the initial survey, proved to be especially hard hit by the closure. One company reported added cost of \$150,000 due to adjusting schedules and \$135,000 in higher cost for alternate transport modes. It noted the limited available capacity for railroad shipping at its plant.

A second chemical company reported relatively minor costs of adjusting shipping schedules (\$10,000, principally for demurrage on specialized barges), but \$500,000 in lost sales, which cannot be made up at that location.

A third chemical company reported that it successfully adjusted schedules, but with between \$350,000 and \$400,000 in added costs.

A fourth chemical company confirmed higher costs, specifically stating the need to move a bargeload of its commodities in four railroad cars, at higher transportation costs.

Two of the impacted chemical companies noted that the McAlpine closure was complicated by the closure of the Chickamauga Lock on the Tennessee River, for emergency repairs.

- One company shipping scrap steel cited a shortage of barges as limiting its ability to adapt to the closure, and estimated its added costs at \$100,000.
- Another company shipping structural steel indicated that it adapted by holding its products on-site and had little impact because of the short closure period. However it did confirm that there were some added costs to the company.
- River terminals were especially heavily impacted, having both higher operating costs and lost business. Eight of the 27 companies reporting were river terminal operators.
- One company which operates six river terminals in Kentucky, Ohio and Pennsylvania, had added costs of \$30,000 and \$115,000 in lost business.

A second terminal in the Upper Ohio Valley indicated that it had higher operating costs of \$25,000 and \$50,000 in lost business. Its customers also experienced higher costs in the range of \$35,000 to \$40,000.

Another terminal quoted \$30,000 in added stockpiling costs and actually ran out of material, which resulted in \$41,000 in lost sales. Another bulk terminal indicated that it was dormant for a 5 to 6 week period, some of its employees resigned and it had to rehire after resuming operations.

Many of the companies interviewed were troubled by the need for the emergency closure and the fact that the river was completely closed to navigation. Some are aware that there are funds, amounting to nearly \$400 million, which have been collected by the Federal government from the user tax on navigation fuel, sitting unused in the Inland Waterway Trust Fund. They stated

resentment at *having to pay twice* for the needed repairs.

Conclusion

The closure of the McAlpine Lock for emergency repairs does have negative economic impacts. They are a direct result of several decades of inadequate funding of maintenance and modernization of the vital national resource – the inland waterways system. This is only one incident of many in which inadequate funding has resulted in breakdown in efficiency and reliability of the system.

The Waterways Council commends the Corps of Engineers on early notification to users of the emergency closure of the McAlpine Lock and its expedience in getting the repairs done ahead of schedule. Furthermore, the Corps is to be commended for a high level of communications with users of the Lock and accommodating their needs to the extent possible.

The Waterways Council is committed to working with the Corps of Engineers and other Federal officials, and state and local governments, to encourage adequate funding and completion of improvements on an appropriate schedule, before these facilities get to an advanced state of deterioration and emergency repairs are needed.

Increased funds are needed for programmed maintenance, rehabilitation and replacement of these vital components to the Nation's transportation system to assure that disruptions, such as the emergency closure of the McAlpine Lock, do not happen again.

If you have questions or comments on this study, or on the needs to maintain and modernize the inland waterways system, they may be directed to:

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