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GCMA REPORT #R-400, Revision 8
DATE: August 12, 2004

OVERSIZE AND OVERLOADED TOWS: TOWING VESSEL HORSEPOWER

GCMA TOWING HORSEPOWER COMMITTEE
[With years of service in the Maritime Industry]
Captain William Beacom, 50 years, Member
Captain Richard A. Block, 47 years, Editor.
Captain Larry P. Gwin, 35 years, Member
Captain Fred Hunter, 33 years, Member
Chief Eng. Glenn L. Pigott, 48 years, Member
Captain John R. Sutton, 27 years. Member
Captain David C. Whitehurst, 38 years, Member.

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PURPOSE

We prepared this report for members of the Towing Safety Advisory Committee, a Federal Advisory committee, in advance of their scheduled meeting at Coast Guard Headquarters on September 28th and 29th in Washington, DC.

This report will…

- Update TSAC members on a multi-million dollar bridge allision accident involving an oversized and overloaded tow on the Lower Mississippi River that occurred less than a month after the last TSAC meeting and the Eighth District's response to notification of that accident.
- Update TSAC members on the fact that a number of heavy tow pilots petitioned the Commandant to declare an oversized tow consisting of more than 40 barges southbound on the Lower Mississippi River to be an "Unsafe Industry Practice" and urge TSAC to consider endorsing their petition.
- Supplement the oral and written report (i.e., GCMA Report #R-391) on this subject presented at the March 17, 2004 TSAC meeting as it relates to the accurate reporting of towing vessel horsepower.
- Respectfully ask the Towing Safety Advisory Committee to consider the comments submitted by our Association in reference to a towing vessel horsepower report delivered by TSAC in 1995 on towing vessel horsepower. That report is reproduced herein.

BACKGROUND

Towing vessel horsepower has become a major safety issue for our mariners as Captain Larry P. Gwin pointed out to the Coast Guard's Towing Safety Advisory Committee (TSAC) at its March 17, 2004 meeting in Washington, D.C.

"…I have watched one industry publication "increase" the paper horsepower on some 8,400 horsepower boats to 9,000 horsepower without a commensurate mechanical upgrade of any sort. I have seen similar increases in "paper-" or "sales-horsepower" in smaller boats from 5,600 to 6,000. This kind of horsepower is of absolutely no value to a pilot whatsoever and simply attracts larger and deeper loading. It is a deceptive practice that can defeat "voluntary" measures taken by joint Coast Guard and river industry committees under high-water emergency conditions. I believe that whatever horsepower this industry uses must be "honest" horsepower based on some measurable standard. Without this, we compare apples to oranges leaving the industry and the Coast Guard as a regulatory agency with neither reliable nor meaningful standard horsepower figures to base tow handling and maneuverability on….".[1] *[[1]Captain Gwin's complete remarks appear in GCMA Reports #R-391 and R-340.]*

Captain "Bill" Beacom points out that the majority of the line haul towboats on the Lower Mississippi River were designed and built during the 1970s. The 9-foot project depth of the channel made it necessary for these boats to be able to operate with a draft of less than 9 feet if necessary.

Naval architects know that a towing vessel must have some parts of its propellers deeper in the water than the barges it is towing to efficiently stop and maneuver its tow. Logic would therefore dictate that, when towing barges whose draft exceeds that of the towing vessel, this fact must

be recognized when determining tow size and appropriate reductions made.

The other problem heavy draft barges present is that unless they are placed in the center of the tow, they cause maneuvering problems. However, it is accepted industry practice to place barges in tow to minimize labor when picking up and dropping off barges so that placing deep-draft barges in the center of the tow usually is not possible.

This practice also dictates a need to consider appropriate reductions in tow size if the ability to maneuver the tow is restricted.

Since only an experienced posted Master on a familiar vessel has the knowledge to determine the parameters of a safe "voyage plan," he alone after a conference with his pilot can determine if they can safely move the tow. This decision-making authority can accept advise from management, but the authority itself must be absolute.

Unfortunately, this industry has now accepted the practice of office personnel making the decisions outlined above. The result is a back-seat driver without a driver's license and not even aboard the vessel deciding the vessel's "tow size." This is a major reason for allisions and other accidents, NOT "Pilot Error."

Until the Coast Guard, the existing regulatory authority, recognizes that a problem exists, little will improve.

A Pilot once said it's a poor bridge pier that won't sink a barge. Recently, we have found that this is not the case on The Arkansas River at Webbers Falls and at Port Isabel, Texas. Do we ignore the problem on the Lower Mississippi River until a 100,000-ton tow allides with a bridge in high water and the bridge fails? Does anyone really believe Congress will be satisfied with the current response from the Eighth Coast Guard District that "It Was Pilot Error."

The Coast Guard's Towing Safety Advisory Committee studied the towing vessel horsepower issue in 1994 and 1995. In this paper will revisit that committee report and will ask the Coast Guard and TSAC to re-examine the towing vessel horsepower issue because at least one significant factor has changed in the past decade.

When speaking of "Oversized" tows, Captain Gwin noted a significant new factor in inland-river towing during the past 10 years. He stated: "Newly constructed barges are now loaded to 12-foot draft with an average of 2,130 tons per barge. These new 14-foot hull barges that draw 12 feet of water are replacing the old 12-foot hull barges that drew 9 feet of water and sufficed for many years. To the general public, these new barges may "look" the same (as other barges), but there is a noticeable difference in the ability of a towboat to handle them…"

The introduction of the 14-foot hull barges drawing 12 feet of water also challenge the waterway infrastructure although neither the Coast Guard as a regulatory authority nor the U.S. Army Corps of Engineers as the maintainer of the river channels appear to question the use of these barges. We now raise the question as to whether there is a need to consider changing the current laws to require the use of load lines on dry-cargo barges to protect the waterways.

The thrust of GCMA Report #R-391 was to define and report upon the problem of oversize and overloaded tows by citing the largest towing vessels currently pushing tows on the Lower Mississippi River between Cairo, IL, and New Orleans, LA.

At the March 17, 2004 TSAC meeting, Captain Gwin pointed out that although several companies owned the largest 10,500 horsepower towboats used on the Mississippi River, only one company continued to overload these vessels with more than 40 standard and/or oversize barges downstream. Captain Gwin did not identify the company by name at the TSAC meeting. However, Captain Gwin did characterize the existing situation as an accident waiting to happen.

M/V CRIMSON DUKE SLAMS INTERSTATE I-155 BRIDGE NEAR CARUTHERSVILLE, MO.

On Monday May 10, 2004, GCMA learned of a bridge allision between the oversize and overloaded tow of the M/V CRIMSON DUKE operated by the American River Transportation Company (ARTCO) pushing 42 barges downstream in a "6-long" by 7-wide configuration and the Interstate Highway I-155 Bridge at LMR Mile 839.8 below Caruthersville, Missouri.

We received a series of calls from a number of towboat pilots reporting four loaded grain barges were sunk and four additional barges were stranded on rock dikes below the bridge. Pictures of the accident scene showing a number of sinking and grounded loaded grain barges, damaged barges before the arrival of salvage equipment as well as superficial damage to the Interstate highway bridge pier are included as an integral part of this report on the following pages.

We learned that the river was closed to all traffic for over 27 hours and was only re-opened to restricted transits for days thereafter. Consequently, GCMA filed a FOIA request for this accident investigation report and communicated with the Commander of the Eighth Coast Guard District.

In our correspondence with the District Commander, GCMA identified the company operating the oversize and overloaded tow involved in this and a number of other high-profile accidents as the American River Transportation Company (ARTCO).

We noted that the M/V CRIMSON DUKE was not even one of ARTCO's 10,500 hp. Towboats pushing more than 40 barges. Its horsepower is cited as only 9,000 in the 2004 edition of the widely referenced Inland River Record.

In addition, we further noted an apparent discrepancy in that current 9,000 horsepower figure for this and other ARTCO towboats is 600 horsepower more than that the horsepower rating cited in the 2002 edition of the Inland River Record that shows the engines rated at only 8,400 hp. We believe the 9,000 horsepower figure represents "sales horsepower" not "shaft or brake horsepower" as the Falk reverse-reduction gears in the boat reportedly are rated at a maximum of only 8,400 horsepower and mariners report no mechanical upgrades to increase engine horsepower took place during this time period.

[GCMA Position: Clearly, the use of "sales" horsepower is a deceptive practice that is not limited to vessels of 10,500 horsepower. Nor is this practice limited to one towing company based on reports from our mariners.


5/10/2004 13:38


5/10/2004 12:57


5/10/2004 12:49


5/10/2004 12:46


5/10/2004 12:49


5/10/2004 12:41


5/10/2004 12:58


5/10/2004 12:45

[GCMA Comment: While this report specifically mentions ARTCO, other companies incorrectly report vessel horsepower ratings.]

[GCMA Position: In this report, GCMA encourages the Coast Guard to require the towing industry, as part of future inspection requirements, to uniformly and honestly report the horsepower of its vessels.]

GCMA, in its letter of May 12, 2004 to the Eighth District Commander, endeavored to "connect the dots" on a number of ARTCO river accidents that occurred since 1999 when ARTCO began to encourage by financially rewarding their pilots to push over 40 barges in various "6-long" configurations. A number of these accidents occurred in the past several years. Many of the barges this company pushes on the LMR draw 12 feet rather than the conventional 9-feet of water and carry up to 2,250 rather than 1,500 tons of cargo. We encouraged the Coast Guard to consult their accident statistics and compare their list of recent ARTCO accidents with our list. Our list included these accidents:

Bridge Allisions:

- M/V JOHN H. MACMILLAN, 10,500 hp., Oct. 28, 2002, Baton Rouge U.S. Route 190 Bridge, 42 barges, $940,000 damage, as described in GCMA Report #R-340, pages 10-12 inc. MISLE Activity #1697682, G-CIM FOIA 03-0317. [GCMA File M-299]

- M/V ANDREW CARGILL MACMILLAN, 10,500 hp., Memphis, TN, while pushing 46 barges, tow struck the Harahan Railway Bridge, damaging 4 barges and causing $150,000 damage, as described in GCMA Report #R-340, page 14. MISLE Activity #1716174; FOIA #03-429. [GCMA File M-402]

- M/V GINNY STONE, 9,000 hp., Greenville, MS, pushing 42 barges, struck Highway 82 Bridge, Nov. 22, 2003, 1 barge sunk while passing through a regulated navigation area and others reportedly damaged. Still awaiting accident report requested under FOIA #03-0491. Activity #1954954. File incomplete, "Still under investigation," Dec. 10, 2003. [GCMA File M-437]

Other Accidents: Aside from bridge allisions, mariners reported other ARTCO accidents involving oversize and overloaded tows:

- M/V SALLY ARCHER, 9,000 hp., July 28, 2003, at Victoria Bend, Rosedale, MS, while pushing 42 barges struck the bank and broke up tow leaving 12 barges adrift. FOIA #03-1955 & 04-0029. File incomplete, G-CIM says the case still under investigation. [GCMA File #M-428]

- M/V SALLY ARCHER, Baton Rouge area, July 12/13, 2003. Allision with dock, damaged facility. FOIA #03-1955, USCG Activity #1856725 (New Orleans). Sent request to LT Parker, MSU Baton Rouge on July 15th. No response. G-CIM could not find electronic files on this case on Oct. 17, 2003. Looking for CG-2692. File incomplete; case reported to be "still under investigation" on Jan. 4, 2004. [GCMA File #M-428]

- M/V VIKING QUEEN, 10,500 hp., on one southbound low water trip on August 15, 2003, at Mile 164, UMR, while pushing 36 barges, struck tow of M/V ROBERT GREEN, FOIA #04-0017 and reportedly sideswiped Meramec Power Plant, then grounded at Cape Girardeau, MO, and later knocked a fleet loose at Cairo, IL, on the same trip – but these later mishaps were apparently not reported. File incomplete; requested further information from MSO Paducah and MSO St. Louis with no records of these accidents available from either office. [GCMA File #M-430]

- M/V INEZ ANDREAS, 9,000 hp., March 1, 2004, while pushing 42 loaded barges, collided with stranded barge from M/V KEITH DARLING in Victoria Bend, LMR 595, as it was being unloaded by a crane barge being serviced by M/V CLINT DAVIS in spite of repeated warnings on broadcast notice to mariners. Scared all involved but fortunately little damage. Case #165298, Investigation Management Activities #2016017 & 2016004. [GCMA File #M-460]

- M/V AMERICAN PILLAR, 10,500 hp, March 14, 2003, where the head of the tow proceeding in fog reportedly hit and seriously damaged a shoreside structure known to pilots as the "Cajun Condo" at or near LMR Mile 266 near St. Francisville, LA. File incomplete; reported by G-CIM to still be "under investigation." Activity #1765805, FOIA #04-0758. [GCMA File #M-450]

- M/V COOPERATIVE SPIRIT, 10,500 hp, April 25, 2003, with 37 barges (5-long x 8 wide) was struck by T/S BOW LION in an overtaking situation near LMR mile 139 resulting in a 125 metric ton spill of xylene in the river. Accident blamed on ship pilot but report indicates tow pilot may possibly have altered course forcing ship into LDB bank suction. MISLE Activity #1782585. FOIA #04-0401. [GCMA File M-416]

The Eighth District's response appeared in a letter dated June 2, 2004 from Captain D.F. Ryan II, Chief, Marine Safety, Security and Environmental Protection and stated in part: "The overwhelming majority of transits on the Upper and Lower Mississippi Rivers and the Ohio River do not result in groundings or collisions.

We do not agree with you that the majority of inland river casualties are caused by "underpowered' towboats or large tows. For example, a joint Coast Guard-AWO work group conducted a detailed bridge allision casualty analysis in May 2003 for the years 1992-2001, and found no evidence that underpowered towboats or large tows contributed to the majority of the casualties. In fact, the work group concluded, "the human element, in particular decision making errors, is the predominant factor in bridge allisions."

[GCMA Comment: GCMA never stated that "the majority of inland river casualties are caused by "underpowered' towboats or large tows."]

[GCMA Comment: The 2003 USCG/AWO bridge allision work group focused on only one type of casualty, namely bridge allisions. Other types of towing casualties are also significant.]

[GCMA Comment: In accident investigations, the Coast Guard should consider the "human element" not only in regard to the mariners they superintend and discipline but also to the decisions made by unlicensed supervisors and dispatchers.]

We were disappointed that the Eighth District response stated that: "(we) will not set tow size or horsepower ratio standards at this point or declare 40+ barge tows as inherently "unsafe industry practice."

However, GCMA believes that a few more expensive losses like the accidents at Caruthersville and Baton Rouge should convince even a corporation as wealthy and powerful as ARTCO to reconsider the wisdom of their actions. These accidents should already have caused other more safety-minded companies to protest these practices.

MARINERS PETITION THE COMMANDANT ON "UNSAFE INDUSTRY PRACTICES"

A number of licensed towboat pilots experienced on the largest towboats working on the western rivers petitioned the Commandant at the time of the last TSAC meeting. These petitions urged the Commandant to set an upper limit to southbound tow size on the Lower Mississippi River as follows:

Dear Admiral Collins,

During my career on America's inland waters, I have served as a licensed towing vessel officer for _____ years. During that time, among other duties, I had occasion to operate some of the largest inland towboats on the Mississippi River system including vessels of up to 10,500 horsepower.

In doing so, I became familiar with the maneuvering and handling characteristics of the largest towboats on our rivers and know the size tows these boats can safely handle when maintained in top mechanical condition. These vessels were faced up to many different combinations of barges in all sorts of river and weather conditions.

Based on my personal experience, I believe that the Coast Guard needs to recognize that dispatching these 10,500 hp towboats to handle any downbound tow larger than 40 standard barges 195' x 35' x 9.5'draft and greater than 5 barges in length is "an unsafe industry practice." I believe that a public statement by you as Commandant of the Coast Guard in support of this position would give meaningful guidance to shippers, their insurance providers and be welcomed by most licensed personnel. Such a statement would set a meaningful upper limit to the size of any down bound tow on any free-flowing river in the United States.

I urge you to consider GCMA Report #R-340 that accompanies my petition and in which I am in general agreement. I encourage you or any knowledgeable Coast Guard officer you may delegate to contact me personally by phone or by mail to discuss this matter with me in greater detail.

Since this petition and future conversations may reveal "defects and imperfections…in matters subject to regulations," and since I am or was an "at will" employee, I respectfully request that you protect and not disclose my name as a petitioner under provisions of 46 U.S.C. §3315.

Very truly yours, _____.

To date, GCMA is not aware of any response given to these petitions. We respectfully request that the Towing Safety Advisory Committee to consider the substance of the petition and be prepared to advise the Commandant if asked to do so.

HOW THE COAST GUARD MEASURES HORSEPOWER

On March 5, 2004, before the March 17th TSAC meeting, GCMA posed a question about the measurement of "horsepower" to the Chief of the Coast Guard's Office of Compliance as follows:

"We seek to ascertain what the Coast Guard policy is in regard to the figures it uses in determining a vessel's horsepower that is posted on the vessel's Certificate of Inspection (COI). Further, where does the Coast Guard obtain the figures they use on the Certificate of Inspection? Do the engine manufacturers provide these figures, does the boat owner provide them, or does the Coast Guard obtain them through examining factory specifications for various engines? If a vessel is re-powered, is there any requirement to update the horsepower figures to reflect the "new" engines if they are a different size or horsepower.

"If the Coast Guard accepts figures furnished by the owner, is there any penalty for false reporting?"

The reply (to FOIA 04-1169) arrived in a letter from Captain J. A. Servidio dated April 29, 2004 that stated:

"This in response to your Freedom of Information Act (FOIA) request of March 5, 2004, concerning the "horsepower" entry that appears on the Certificate-of Inspection (COI) form for inspected vessels.[1] *[[1]This question does not apply directly to towboats because the Coast Guard does not currently issue Certificates of Inspection to the nation's 5,200 uninspected towing vessels. However, in GCMA Report #R-276 we urged Congress to reconsider this position. We are pleased to note that they did so in Section 415 of the Coast Guard and Maritime Transportation Act of 2004 that amends Title 46 U.S. Code §3301 to add towing vessels to the list of vessels subject to inspection.]*

"There is no requirement to use a specific horsepower figure obtained in a particular manner for this item. Manufacturers that test to the ISO 8665 standard will provide a **brake horsepower** figure. Shaft horsepower is generally acknowledged to be 97% of this brake horsepower figure. Given the slight difference between the two numbers, either is acceptable to the Coast Guard. As you know, rating claims often differ from actual performance for a variety of reasons including fuel specifications, air and fuel temperatures, and atmospheric and exhaust backpressures.

"Other than the COI, there is no actual Coast Guard form that specifically requires the submission of horsepower information for a vessel. During the vessel documentation process several forms are required and none of them specifically asks for horsepower. The form to apply for inspection of a vessel does not stipulate that vessel horsepower information be provided. In addition, the Coast Guard job aids used to inspect various vessels do not

specifically ask for a given vessel's horsepower. In light of this, it appears that this information is collected informally by the Coast Guard inspector conducting the initial inspection for certification and may be obtained from a variety of sources including the vessel's manufacturer, owner, operator, or person-in-charge. The data dictionary for the Coast Guard's electronic database for marine safety activities does not specify whether brake or shaft horsepower is to be used.

"This does not mean that any horsepower figure can be provided to the Coast Guard. Title 18, United States Code, § 507 and § 2197 prohibit the misuse of ship's papers and other federal certificates, licenses, or documents. These statutes carry both civil and criminal penalties including fines of up to $5,000 and imprisonment of up to five years. If a licensed individual possesses or knowingly uses or attempts to pass as true a falsified COI, they could be subject to a Suspension and Revocation proceeding, fine and imprisonment.

[GCMA Comment: The problem is not that mariners misstate horsepower but, rather, that owners do this for business reasons. While disciplining a mariner for a false statement is easy; disciplining a company presents a greater challenge.]

"Please refer any questions on this matter to Mr. Scott Kuhaneck at the telephone number provided above." Sincerely, J.A. Servidio, Captain, U.S. Coast Guard, Chief Office of Compliance, By Direction.

While citing "sales" horsepower may not be illegal, it is, nevertheless, a questionable and misleading practice. Not only are towboat charterers misled by specious numbers, but Coast Guard personnel using the Incident Command System (ICS) in emergency situations, as well as our licensed mariners who rely on these inflated horsepower figures may be misled to believe their vessels have power that simply is not there. GCMA believes that section 415 of the Coast Guard and Maritime Transportation Act of 2004 that envisions a new safety management system for towing vessels that reflected the views of the Coast Guard, NTSB and AWO clearly calls for transparency in reporting and recording vessel horsepower when towing vessels come under inspection. This should correct previous "misunderstandings" about horsepower!

Captain Gwin described the problem of "6-long" tows in words and pictures in GCMA Report #R-391. At the time of the March 17th TSAC meeting, a number of towboat pilots with similar experience on 10,500 hp towboats filled out and mailed identical petitions to the Commandant asking that the act of dispatching any tow over 40 barges of 195' x 35' downriver be cited as an "unsafe industry practice."

GCMA PETITIONS COAST GUARD ON HORSEPOWER RULEMAKING ISSUE

On May 28, 2004, GCMA addressed a **Petition for Rulemaking for Accurate Reporting of Towing Vessel Horsepower** to the Executive Secretary of the Coast Guard's Marine Safety Council as follows (in part):

"Under provisions of 33 CFR 1.05-20 the Gulf Coast Mariners Association (GCMA) as concerned members of the public in the interest of public safety and to safeguard the health, safety and welfare of our mariners, respectfully requests the Coast Guard to initiate rulemaking to require the owner of every commercial towing vessel to accurately and uniformly record, report and update information on their vessel's horsepower when filing any official papers with the Coast Guard or with any business correspondence or publication that the public relies upon to provide truthful information concerning the towing industry."

Since the towing industry dispatches and often prices its vessels based upon their horsepower, it is important that the customer who pays the bill, the Coast Guard as a regulatory agency, and the mariners who handle these vessels have a technically accurate measurement of horsepower on a vessel's document and on its (future) Certificate of Inspection. The Coast Guard has access to the knowledge and expertise to determine which measure of horsepower is suitable to prescribe for inclusion on its certificates. In addition, in the past, the Towing Safety Advisory Committee specifically recommended the use of "brake" horsepower.

We noted that the Towing Safety Advisory Committee (TSAC) previously studied this issue and made meaningful recommendations to the Coast Guard in 1994 and 1995 and offered some comments. The 1994-1995 TSAC report and our comments appear below.

GCMA also submittted to both the Marine Safety Council and the Eighth District Commander for their consideration two monographs, namely Preview of a Tow Configuration and Power Guide and Interim Recommendations for Tow Powering and Configuration for Western Rivers Push Tows by CDR John Deck, III, USCG, Retired, of the American Admiralty Bureau that deal with horsepower and tow size.

GCMA also submitted this comment by Captain Bill Beacom, a well known towboat Captain, that is pertinent to the regulation of tow size:

"The Government sets the limits for a reason. That reason is capitalist greed or rationalization can always influence subjective decisions that involve safety. The towing industry **employees** need the U.S. Coast Guard to set limits just like the Department of Transportation (DOT), Federal Aviation Administration (FAA) and the Federal Railroad Administration.

"It is way past time for the U.S. Coast Guard to remove the burden of capitalist greed from the decision-making process. Mariners should not have to argue and compete among themselves for the boss' favor by accepting an oversized or overloaded tow. Maximum tow size should be regulated and the licensed mariner given a final veto over pushing the maximum permissible tow size based upon his experience and evaluation of each situation."

GCMA believes all of the efforts of the Coast Guard, the Towing Safety Advisory Committee, and the towing industry to understand the role that horsepower plays in towing accidents will come to naught unless there is transparency, honesty and uniformity in the reporting of horsepower in all official and business documents with a suitable penalty. In light of the deceptive nature of artificially inflated "sales" horsepower and its acceptance by the Coast Guard and river advisory committees in high-

water emergencies there should be a re-evaluation of whether the penalties in 18 U.S.C. §507 and §2197 as mentioned in Captain Servidio's letter are appropriate in relation to the high costs of towing accidents.

1995 REPORT OF THE TOWING HORSEPOWER TASK GROUP OF THE TOWING SAFETY ADVISORY COMMITTEE (TSAC)

Since TSAC dealt with this matter a decade ago, GCMA suggested that this report be brought to their attention before the next meeting for their discussion at that time.

[GCMA 2004 Comment: We believe the work performed by TSAC in 1994 & 1995 on this issue is meaningful. GCMA offers comments from our working inland towboat officers that were not be reflected in earlier TSAC report. Two inland masters elected to submit comments in letter form that are attached.]

TSAC TASK STATEMENT

*[**GCMA Editorial Note:** This "Draft Proposal for Discussion at May 5, 1994 TSAC Meeting" outlines the Committee's discussion and is referred to as "Attachment I in this report.]*

Title: Towing Horsepower Guidelines.

Issue: Will towing horsepower guidelines contribute to towing safety? If so, what criteria should be used in developing such guidelines?

Background: Increasingly, horsepower guidelines are being suggested by the Coast Guard and some in the towing industry as a tool for improving safety for inland barge traffic. Most recently, the Eighth Coast Guard District, reacting to concerns over operational safety during high water conditions, asked the towing industry to develop horsepower guidelines for use on the lower Mississippi River.

Horsepower guidelines have been temporarily instituted in a number of places and circumstances in the past. In most cases they have been developed by industry or with the close counsel of industry. One example would be in the Port of St. Louis during the flood of 1993.

Task: As yet, there has been no basic analysis of the components of an effective horsepower guideline and as a result there has been no methodology for standardizing either the process of the developing guidelines or the ultimate implementation of guidelines.

TSAC should perform that analysis, and if possible, develop the criteria that can be used by industry and Coast Guard Captains of the Port in establishing guidelines for local application.

The exercise should begin by identifying problems caused by underpowered tows and defining existing Coast Guard and industry standards. Some attention should be given to scrutinizing Coast Guard and industry assumptions and concerns over the applicability of horsepower guidelines. Following that, a number of contributing criteria should be considered, including:

1. definition and testing methodology for horsepower;
2. water level and current;
3. upriver vs. downriver movement;
4. product carried;
5. full vs. empty barges; and
6. application to specific areas vs. blanket application.

References: U.S. Coast Guard CASMAIN database Background documents from areas with existing guidelines.

Resources needed: Industry representatives with experience in:

1. dry cargo line haul movement;
2. liquid cargo line haul movement;
3. fleeting;
4. short distance movement.

Coast Guard personnel with experience in local marine safety enforcement.

Projected Completion Date: September, 1994.
*[**GCMA Editorial Note:** The resulting report that was completed in 1995 was scanned and is reproduced below.]*

THE TSAC REPORT

Summary

On May 6, 1994, following a request from the U.S. Coast Guard (CG) that the towing industry develop horsepower standards for the Lower Mississippi River, the Towing Safety Advisory Committee (TSAC) accepted the task (Attachment I) of developing criteria which could be used by industry and Coast Guard Captains of the Port (COTP) in establishing guidelines for local application. A work group representing a broad spectrum of the industry and the Coast Guard was formed to study the inland applications of horsepower use and guidelines.

The Task Group met three times and produced the following recommendations:
*[**GCMA Editorial Note:** Even though TSAC is a Federal advisory committee, the Coast Guard is under no obligation to accept its recommendations.]*

1. The Coast Guard should recognize the need for and recommend through the issuance of a NVIC that individual companies develop written, defensible policies and procedures for tow powering and configuration in normal, as well as adverse conditions.

[GCMA 2004 Comment: In the index of NVICs, we note that TSAC Recommendation #1 was never acted upon in that no NVIC (and perhaps not even a USCG "policy" letter) on this subject was prepared.]

2. Coast Guard Captains of the Port seeking to utilize horsepower guidelines should in-advance, before adverse or special conditions arise:

a. Seek the advice and expertise of local operators (e.g. via Notice to Mariners);
b. Utilize trigger points (e.g. high water stages) which are worked out in ,advance and generally accepted by the industry as horsepower decision-making tools;
c Limit restrictions to adverse or special conditions;
d. Limit restrictions to site specific areas;
e. Re-evaluate or curtail the restrictions as conditions change; and
f. Recognize that the industry has a role in achieving consistency between Captain of the Port zones.

[GCMA 2004 Comment: The Coast Guard seldom seeks the expertise of "local operators" by which we specifically mean the mariners who actually operate the towboats on a daily basis. Without mariner participation, freely given, solution of the oversize and overloaded tow problem will remain elusive.]

3. The Coast Guard and TSAC should continue to study licensing and training as the most effective ways to reduce the frequency of accidents in which human error relating to horsepower use is a factor.

[GCMA 2004 Comment: Since 1995, the Coast Guard studied and then drafted regulations that deal with both licensing and training "as the most effective ways to reduce the frequency of accidents in which human error relating to horsepower use is a factor." Yet, the problem persists].

4. The Coast Guard casualty data collection process should be revamped to capture the real root causes of navigational accidents, including adequacy of horsepower and horsepower use.

[GCMA 2004 Comment: The "Coast Guard casualty data collection process should be revamped to capture the real root causes of navigational accidents, including adequacy of horsepower and horsepower use as per TSAC Recommendation #4. Horsepower issues appear to have been sidetracked after the TSAC report.]

5. For reference purposes, the use of the word "horsepower" should be understood to mean brake horsepower, as this is the most universally accepted, available, and accurate measurement method.

[GCMA 2004 Comment: GCMA submitted correspondence and technical literature from Binfield Engineering, Inc. on the measurement of horsepower to the Marine Safety Council for its consideration on the discussion of towing vessel horsepower.]

Background

The relationship between towing horsepower and cargo tonnage or tow size and configuration has repeatedly been the focus of attention stretching back 25 years and beyond. Efforts to set horsepower standards have reached roughly the same conclusion, that the issue involves too many variables to allow for hard and fast guidelines. One example can be found in the Coast Guard's formation of a special board in 1972 to study the safety aspects of towing vessel operations on the Western Rivers system. At that time RADM O. W. Siler, Commander, Second Coast Guard District, wrote: "We invariably arrive at the same conclusion; that is, there is no 'magic number' formula that could be applied universally to all vessels. This is because of the many factors which affect the capability of a towing vessel, such as, horsepower, number of screws, hull design, Kort nozzles, number and configuration of rudders, waters to be navigated, etc."

Admiral Siler also warned at that time that in the event of an accident, operators "... may be called upon to show what guidelines were used to determine the make up of the tow."

[GCMA 2004 Comment: Such guidelines should be part of a company's Safety Management System.]

In September, 1974, a special working group on horsepower issues reported to the Towing Industry Advisory Committee that it would be impossible to develop horsepower/tonnage regulations. Those themes have been echoed by subsequent efforts to address the relationship between horsepower and safety.

TSAC Horsepower Task Group

The TSAC horsepower task group held three meetings: June 24, 1994, August 16, 1994, and September 29, 1994. Participants in the group were

Mike Williams..... Exxon Company, USA
Cherrie Felder.....Marine Inland Transportation Co.
Billy Harbison .....Arkansas River Company
Bill Loefstedt,..... National Marine, Inc.
Mike Marshall .....Mid South Towing
Norb Whitlock..... American Commercial Barge Line
Sonny Ivey ..... American Commercial Barge Line Co.
Royce Wilken..... American River Transportation Co.
Robert Goolsby .....Dixie Carriers, Inc.
Jerry Orgeron .....Dixie Carriers, Inc.
John Hoopaugh..... Hollywood Marine Inc.
CAPT James Calhoun..... 8th District, USCG
CDR [redacted] .....MSO New Orleans, USCG
LT [redacted] .....8th District USCG
LTJG [redacted] .....MSO New Orleans, USCG

[GCMA Comment: The members of the working group are predominately "management" and Coast Guard personnel with relatively little actual towing experience. The practical expertise of working towboat pilots was seriously under-represented. This GCMA report seeks to fill these gaps.]

As a starting point, the group agreed that the core value of their effort should be to promote responsible operation and industry safety, as measured by reduced frequency of collisions, injury and spills.

The group agreed on three broad goals flowing from the original TSAC task statement:

1. Development of an acceptable horsepower definition.
2. Identification of criteria which are used in horsepower decision making.
3. Development of guidelines or processes which can be

used by local Coast Guard Captains of the Port and industry to produce horsepower requirements on a case-by-case basis, as needed.

To this, the Coast Guard participants suggested an additional goal that each operator develop written policies and procedures governing horsepower use. This suggestion was similar to the warning from Admiral Siler in 1972 that in the event of an accident, operators might be called upon to produce guidelines used for tow makeup. The group accepted that this should be addressed in its study.

The group decided to survey the industry to determine the current operating good practice and standard of care with regard to horsepower use. Questions focused on horsepower definitions, internal policies and operation, including internal trigger points for increasing horsepower or decreasing tow size. Respondents were asked to give ranges of tow power and configuration for inland rivers. Some 235 surveys were mailed and 30 responses were received to date. Those 30 responses, while small as compared to the number of mailed surveys, represent most of the larger towing companies. A copy of the survey questions is enclosed (Attachment II).

[GCMA 2004 Comment: Out of approximately 1,200 towing companies in the United States listed by the U.S. Army Corps of Engineers, we question how a concrete solution to the horsepower problem can be based on a response rate of less than 13% of only 235 of these companies, especially when that response is heavily weighted with the opinions of large towing companies.]

[GCMA Request: We asked the Office of Operating Standards (G-MSO) to let us review the 1994 responses to the questionnaire described in "Attachment 2".]

Analysis of Group Discussion

Horsepower Use: Traditionally, any discussion of horsepower use has been initiated by a call for some sort of universal standard. The group believes that a fresh approach to the issue will result in a more positive impact on operational safety. That approach focuses on the responsibility of each company to develop policies governing horsepower use during normal and adverse conditions, as well as determining those circumstances in which locally developed operating restrictions are necessary.

Horsepower use may be the most fundamental issue in the towing industry, in that it determines how much of a given product can be moved by a given towboat at a given time. However, it is also among the most complex. The group identified more than three-dozen main categories of factors and myriad variations therein. The typically used towboat horsepower decision-making factors are included in Attachment III. As a result of these factors, a "magic number" representing a horsepower/tonnage ratio has eluded the industry and the Coast Guard whenever it was attempted.

The responses to the industry survey[(1)] illustrate why the horsepower/tonnage ratio has been so difficult to determine and, in fact, may have little bearing on the much more important goal of improving safe operation. *[[(1)]GCMA requested a copy of all completed surveys for examination under FOIA.]*

[GCMA 2004 Comment: The few responses to the 1994 questionnaire show a lack of enthusiasm for any regulation of the towing industry even after the AMTRAK Bayou Canot accident. Although burdensome, in light of high profile accidents in the past decade, regulation has become necessary.]

The survey results show the many variables and wide diversity in towing industry operational practice. Those variables may reflect:

1. Differing barge sizes and tow configurations;
2. Horsepower needs, at points of origin and destination, rather than for a given waterway;
3. Contractual obligations which require that some products be delivered more quickly than others; and
4. The seasonal nature of some products which results in their movement during periods of high or low water.

The opinion of the group was that any attempt to condense the survey results into a ratio number would lack both validity and utility. Furthermore, development of a comprehensive matrix (horsepower, tow size, river stage) was judged to be impractical and of little benefit for normal operating conditions.

[GCMA 2004 Comment: Uniform, honest and transparent horsepower guidelines would improve safe practices within the towing industry.]

On the other hand, many years of operation have produced a general framework of horsepower use which relies on the experience of the decision makers, the skill of the operators and the performance of the towboats being utilized. In everyday practice, horsepower use is determined on a case-by-case basis. Each boat may have unique handling capabilities, but over time, that boat's abilities may be viewed as a constant; i.e., the boat can push a fairly well defined range of barges or tonnage.

[GCMA 2004 Comment: While individual towboats have unique handling characteristics, over time deterioration sets in and some of these capabilities can be significantly reduced. Therefore, we do not share the work group's view that a vessel's abilities are a "constant." Refer to GCMA Report #R-391.]

In determining how many barges that boat can safely handle in a given situation, a decision-maker would weigh a fairly small number of factors, such as the river level, rate of rise and personnel qualifications and experience. In common practice, a boat's named horsepower may only be incidental to decision-making which is based on experience and track record.

[GCMA 2004 Comment: Any experienced Pilot will tell you that horsepower is a key element in handling a tow. Those pilots without years of this experience simply do as they are told until they gain the hard experience their managers may be unable to provide.]

The group did not discuss specialty tow arrangements, such as cranes or deck barges. Nor did the group address coastal towing or harbor tugboat operations. The recommendations contained in this report should not be applied to those areas.

Company Policy: The group believes that the greatest potential for improved safety comes, not from an industry-wide blanket policy, but from a policy that holds each company accountable for its internal operation. It is the responsibility of each company to understand the capabilities of its equipment and personnel and develop policies which will ensure safe operation. This involves developing internal policies based on experience with individual vessels.

[GCMA 2004 Comment: We concur in theory. However, in actual practice, requirements for developing and enforcing comprehensive safety policies should be based upon law and regulation. GCMA asserts that this should be part of any new Safety Management System.]

The opinion of the group was that those policies should outline which persons are to be involved in tow makeup decisions and consider the role that historic experience with vessels, river conditions (trigger points) and personnel play in that decision making. A prime consideration for any policy should be accountability, recognizing that ultimate responsibility rests with company executives.

It is reasonable that the Coast Guard expect companies to develop definable and defensible policies for normal conditions as well as extreme conditions. This may be accomplished through the issuance of a NVIC or as a requirement for participation in a Model Company Program. The following example is part of one company's policy on tow power and configuration:

"The Operations Manager has responsibility to approve tow sizes, areas of operations and exceptions to normal operating practice. The Port Captains support and enforce the Operations Managers and (company) policies and procedures. All tows that are out of normal operating practices are reviewed with the Vessel Captain before assigning tow."

[GCMA 2004 Comment: This "example" is based on the response to one questionnaire and should not be applied as a general operating statement. Our mariners consider this statement as "double talk" hinting at a lack of on-board experience in the real world of inland towing.]

In general, a company attempting to establish a policy and procedure for tow power and configuration should focus on maintaining safe operations, based on a recognized standard of care, which takes into account the decision-making factors identified in Attachment III. .

Accident Relationship: One area of concern addressed by the group was the relationship between horsepower and accidents. On a common-sense level, a deficiency of horsepower, which results in an inability to maneuver or stop, can directly cause accidents. However, the statistical data shows that horsepower is seldom the lone culprit in towboat accidents. The CASMAIN system in use by the Coast Guard only identifies 28 towboat accidents, or 0.2% of the total number of accidents in which inadequate horsepower was the primary cause.

[GCMA 2004 Comment: We are concerned that many accidents and personal injuries are not reported as required by Coast Guard regulations. We note many instances where accidents and injuries that are not initially reported to the Coast Guard but later are brought to court. We recently filed a formal complaint with the Commandant (G-MOA).]

[GCMA 2004 Comment: We cite the 1994 report by the USCG Research and Development Center titled U.S. Coast Guard Casualty Investigation and Reporting: Analysis and Recommendations for Improvement as an explanation of why only 0.2% of the total number of accidents cite inadequate horsepower as a primary cause of towing vessel accidents.]

The industry view is that more often accidents may be caused by a boat operator's poor use of a boat's horsepower, whether it is through a lack of caution or in misjudging the maneuvering capabilities of a tow. Horsepower and the proper use of horsepower are two distinctly different things and require different solutions. It is the belief of the group that personnel factors relating to proper horsepower use, such as judgment and operational knowledge, are being addressed through other TSAC and Coast Guard studies in the areas of training and licensing.

[GCMA 2004 Comment: New licensing regulations effective May 21, 2001 require demonstrations of proficiency for new license candidates and those returning to the industry from license suspension.]

For prevention of those accidents in which purely inadequate horsepower is to blame, clearly defined company policies and procedures for tow powering and configuration in normal as well as adverse conditions, should offer a solution.

Horsepower Definition: A contributing factor to the horsepower controversy has been the widely divergent opinion over what is meant by the term "horsepower." The group identified four different types of horsepower which are widely referenced in the towing industry:

1. Plate Horsepower
2. Shaft Horsepower
3. Brake Horsepower
4. Bollard Pull

Generally speaking, brake horsepower is the more accepted, available, and accurate measure of a towboat's potential power. Brake horsepower was successfully incorporated into the Coast Guard's high water navigation guidelines for the 1993 high water in St. Louis. It should be noted that Kort nozzles may increase a towboat's real power by up to 25% at minimum speeds and up to 10% at maximum speed.

[GCMA Comment: Bollard pull is not a type of horsepower, rather it is a test that determines the amount of static pull the vessel can exert when tethered to a measuring device under strict conditions established by a classification society or authority that ultimately certifies the results. Companies that elect to document their vessel's bollard pull could use that information for "sales" purposes.]

[GCMA 2004 Comment: We are unable to find the definition of "plate horsepower" in our technical publications.]

[GCMA 2004 Comment: Brake horsepower is an engine's output available to the gearbox as measured on a dynamometer. We concur with its acceptance by TSAC in 1994 as the suggested measure of horsepower.]

Local COTP Guidance: There are circumstances under which a local Captain of the Port may need to impose horsepower guidelines, in advance, before adverse or special conditions arise. The group made four recommendations which could help in the effective development of those guidelines:

1. The effort to impose restrictions should only be done with the advice and active involvement of industry. That process should draw on the operational expertise of area operators. The goal should be on gaining widespread acceptance so that the restrictions will be an effective safety tool.

[GCMA 2004 Comments: Port Captains and dispatchers need to have greater respect for the opinions of their experienced, licensed pilots in regard to tow size.]

2. Restrictions should be tied to extreme circumstance events as opposed to normal operations. Those are events in which an adverse condition results in a heightened risk of accident. Events in which horsepower restrictions could cut accidents were identified as high water, flooding, rapidly rising water level, current, and in some limited cases, low water. This follows the reasoning that as most factors (individual boat maneuverability, etc.) become constants in the decision-making process, a sharp change in some variable (sudden river rise) may force an operator to increase horsepower or cut down on barge numbers.

[GCMA 2004 Comment: A number of accidents can be avoided in cases when a Pilot has the means to stop a tow quickly or at least within a reasonable distance. Refer to GCMA Report #R-391.]]

3. Restrictions should be limited to select areas rather than entire rivers, COTP zones or long expanses. Those areas may be identified by factors such as abnormal accident history, congestion, or geography.

4. The COTP should be open to re-evaluation and/or curtailment of the restrictions as conditions change or return to normal. Policies must be flexible and adaptable.

5. Some attention should be paid to achieving consistency between COTP zones. Operators have a large role in working with different COTP and district offices to achieve that consistency. Ultimately, a Coast Guard district may play a pivotal role in managing the interface between zones.

An effective case study of these points would be the guidelines worked out by the Coast Guard and the River Industry Action Committee for the 1993 high water in St. Louis (see Attachment IV).

The fundamental elements of those successful guidelines were that they were limited to certain hazardous conditions, covered a limited geographic area, and were worked out with industry input. Significantly, when 1994 brought different high water circumstances, the Coast Guard was open to revising the restrictions.

Trigger Points: The group believed that an analysis of current industry practice would help identify those points at which the industry recognizes adverse conditions which result in raising horsepower or lowering the tow size. These trigger points, worked out well in advance of an adverse weather event, would serve to standardize the decision-making apparatus available to the COTP.

One example of a trigger point would be the Carrollton Gauge on the Mississippi River in New Orleans. It is accepted by industry as the determinant of water level in the port and is used to determine tow size.

A second example of trigger points being used by the industry and the Coast Guard can be seen in Memphis, where operators have agreed that when the gauge reaches 0 feet, it will automatically trigger a meeting with the local COTP to discuss safety measures. **Attachment V** provides an illustration example of one company's trigger points on tow power and configuration.

Conclusions

Based on its collective experience and expertise, supported by the results of a survey of the towing industry, the task group does not believe that a horsepower/tonnage formula can be developed to adequately encompass the many factors which go into decisions on tow power and configuration.

[GCMA 2004 Comment: We suggest that the "experience and expertise" in the work group report should have included participation by active towboat pilots working on the river. This viewpoint is contained in this report.]

[GCMA 2004 Comment: Unfortunately, the composition of the "work group" assigned to this task was over-represented by "management" and under-represented by mariners. Nevertheless, the report contains many valid points that were not acted upon.]

[GCMA 2004 Comment: We understand the difficulty in recruiting working mariners to attend TSAC meetings since travel and per diem are not available to working group members who are not appointed as members of the TSAC committee. We will recommend that Congress revisit the TSAC Committee structure.]

Furthermore, development of a comprehensive matrix (horsepower, tow size, river stage, etc.) was judged to be impractical and of little benefit to the Coast Guard or Industry for a broad range of normal operating conditions.

In many cases, what are believed to be inadequately powered tows may be tows that are inadequately handled.

[GCMA 2004 Comment: Blaming the Pilot may be indicative of company personnel problems. A Port Captain should be able to perform the job that his company expects a Pilot to perform. In current licensing terminology, a Port Captain should at least be required to be a fully qualified Designated Examiner (DE).]

Where this is the case, Coast Guard and industry initiatives on training and licensing provide the best avenues for improved safety.

However, towing companies are ultimately responsible for their safe operations; and they should be expected to develop policies that are defensible and accountable.

For those cases in which a Coast Guard Captain Of The Port believes tow power and configuration restrictions are a necessary safety step, those restrictions should only be attempted with involvement by industry; and they should follow the trigger points model.

Recommendations

The Task Group's final recommendations are included in the Summary on the first page of the report.

ATTACHMENT II
TSAC INLAND TOWING HORSEPOWER SURVEY

[*GCMA Editorial Note: This was a fill-in-the-blanks questionnaire that was sent to 250 companies. Only 30 completed questionnaires representing the larger towing companies were returned.]*

1. Describe type of service (line haul, fleeting, shifting, etc.)
   - Area of operation (where):
   - Routes (typical shifts and approximate miles):
   - Number and horsepower range of vessels:
   - Typical Tow size:
2. What is your internal company definition of horsepower?
3. Do you typically match a boat to a specific tow (YES or NO) or find a tow for a specific boat (YES or NO)?
4. What are your top 5 to 10 criteria (i.e. river conditions, etc.) for determining tow size?
   Are they documented? YES or NO
5. Do you have established company protocols (i.e. minimum standards or restrictions – a "rule of thumb") as guidelines for tow building? YES or NO?
   If so, please list:
   If so, are they documented? YES or NO
6. Who has final responsibility for tow size (dispatcher, port captain, etc.)?
7. Additional Comments:

[This information is considered confidential. Please complete and fax to Cherrie Felder [redacted] by July 1, 1994.]

ATTACHMENT III
TOWBOAT HORSEPOWER DECISION-MAKING FACTORS
[October 5, 1994 Meeting]

I. River/Water Conditions
   A. Stage, Current
   B. Rate of Rise/Fall
   C. Recent Trip Experience
   D. Condition
      1. Excessive Shoaling (Bar/Reefs)
      2. Swift Restricted Channels (Bottlenecks)
      3. Channel Restrictions (Bridges Dredging, Jetties,
      4. Geographic Conditions (Channel/Bottom)
      5. USCG Provisions/Requirements
      6. Local Standards/Emergency Conditions
   E. Construction
   F. Lock Outdraft
   G. Aids to Navigation

II. Weather
   A. Temperature
   B. Icing
   C. Wind
   D. Fog (Restricted Visibility)

Ill. Towboat
   A. Brake Horsepower Rating/Performance Experience

[GCMA 2004 Comment: If this "Brake Horsepower/ Performance Experience" criteria was presented to experienced towboat Pilots in 1994, regulations might already have been promulgated.]

   B. Design
      1. Main Engines/Wheels (Open and Closed)
      2. Hull
      3. Navigation Aids / Equipment
      4. Rudder/s
   C. Dimensions
      1. Height (Bridge Clearances)
      2.Length (Canal Navigation)
      3. Draft

IV. Tow
   A. Number of Rakes versus Boxes
   B. Number Loads versus Empties
   C. Loaded Drafts (Dry or Liquid)
   D. Upriver/Down river
   E. Number/Location of Drops/Length
   F. Bow Thrusters, Steering Assists, Assist Boats
   G. Specialty Tow (Crane/Work Barge/Vessel)

V. Personnel
   A. Recommendations about Tow Size
   B. Experience of Captains/Pilots/Crew – Capability Assessment
   C. Posting (Recent Trips over River/Canal)
   D. Licensing Changes/Requirements

VI. Customer Requirements
   A. Scheduling
   B. Tow Size Restrictions
   C. Trip Length, Speed Required

VII. Company Requirements

A. Standards or Practices (Documented and Undocumented; e.g., *BBL/HP,* HP/Barge)
B. Areas of Operation, Approved Routes, Exceptions to Normal Practice
C. Responsible Party for Tow Configuration
   1. Operations Manager with Concurrence from Captain
   2. Captain with Concurrence with Operations Manager

ATTACHMENT IV
HIGH WATER NAVIGATION

Vessel Operating Protocol - St. Louis:
I. Harbor Transit Standards –
- local terminal movements OK - dry cargo & red flag with adequate horsepower (see below)
- transits to/from Wood River/Illinois River -

> Dry Cargo: 500 hp per 1500 tons up to 6 barges (2X3).
> Liquid Cargo: 1000 hp par 1500 tons up to 4 barges (2X2)

[GCMA 2004 Comment: Here and in the regulations affecting Berwick Bay, LA, for example, the Coast Guard appears to have no problem in establishing horsepower limits in high water conditions in a congested area that has been prone to serious accidents.]

II. When (lock) 27 closes on STL gauge, vessels may use old Chain of Rocks channel in daylight hours only both downbound and upbound with same tow configuration and horsepower as above.

III. Southbound from fleets - no more than 20 barges for tows less than 7000 H.P. with at least 300 H.P. per 1500 tons of cargo – no more than 25 barges for tows greater than or equal to 7000 H.P.

USE PARAGRAPHS I AND II ABOVE AS CG MSO HARBOR TRANSIT STANDARDS

Tab A To Port Operations
Standard Operating Procedures
High Water Conditions On Western Rivers

1. General. High water conditions is a common occurrence in our AOR particularly during the Spring and Fall . Every effort should be made to stay on top of the situation by working closely with the Army Corps of Engineers (ACOE) and National Weather Service .(NWS). At times these high water conditions will necessitate the need for an advisory and/or safety zone. There are two different general river conditions when considering high water advisory and/or safety zone. The first is the rapidly rising river as it passes 20 and 25 feet on the St. Louis gauge. The second is the more gradually rising river level.

1.a. An advisory should be put out when a rapid rise in river level is predicted and the St. Louis gauge is at 20 feet. As a minimum, the advisory should cover all tows operating between mile 179.0 to 201.4 UMR. However, if necessary the advisory zone should be extended to encompass larger stretches of the river. The advisory should contain the following:

1.a.1. Harbor characteristics (i.e., Time and level of most recent gauge reading);

1.a.2. Recommend horsepower minimums (historically 250 horsepower per 1,500 tons of cargo which is approximately equivalent to one loaded barge);

1.a.3. Recommend using operators who have high water experience.

1.b. A safety zone should be established a day before the St. Louis gauge is predicted to exceed 25 feet. The safety zone should cover all tows operating between mile 179.0 to mile 184.0 UMR and contain the following:

1.b.1 Harbor characteristics (i.e., Time and, level of most recent gauge reading);

1.b.2 Require horsepower minimums (historically 250 horsepower per 1,500 tons of cargo which is approximately equivalent to one loaded barge);

1.b.3. Limit southbound tows greater then 600 feat in length (excluding towboat) to daylight hours transit only;

1.b.4. Recommend using operators who have high water experience;

1.b.5. Include the following: "This safety zone will remain in effect until the river drops below 25 feet St. Louis Gauge."

Prior to putting out an advisory or establishing a safety zone, discuss the situation with the River Industry Action Committee (RIAC)**.** This will ensure industry's concerns are addressed, and it will facilitate word of the advisory or safety zone getting to the mariners.

Other High Water Considerations: Due to the large number of fleeters in the local area it is recommended they be contacted and advised to check their moorings; Keep Lock 27 and Mel Price L/D informed-on the status of the safety zone to avoid any confusion; Contact Mel Price L/D to find out when they are going "open river" conditions; if it has been a long time since high water has occurred in the harbor consider arranging a towboat ride to ascertain pilots' concerns as they transit the area.

ATTACHMENT V
"TRIGGER POINTS"

*[**GCMA Editorial Note**: We had to deal with the poor copy quality of the report in our archives. Under the circumstances, we reproduced the numbers as accurately as possible.]*

ATTACHMENT V

EXAMPLES-TRIGGER POINTS

Waterway	Location of Trigger Points	Gauge Reading	Southbound # of Loads	Southbound Horsepower (Min.)	Northbound # of Loads	Northbound Horsepower (Min.)	Type of Tow	
Upper Mississippi	Hannnibal	10'-12'	15	3000	18*	3000	3	*15?
		12'-14'	15	3500*	15	3800	3	
		14' +	12	4500	15	4500	3	
Illinois River	Marsailles	Pool	15	2250	15	2250	3	
		10'-20'	15	3200	15	3200	3	
(Chicago to Hennepin)		20'-28'*	15	3800	15	3800	3	20'-25'*?
		*28'-30'	12	4200	15	4200	3	*25'-30'?
		Over 30'	Nav. Stops		9	4200		
(Hennepin to Mouth)	Beardstown	Pool	15	2250	15	2250	3	
		14'-18'	15	3200	15	3200	3	
		18 +	15	3800	15	3800	3	
		Any Stage	15	5000	15	5000	3	
Missouri	Kansas City	10	8	3800*				*3600?
Upper Mississippi 0-190	St. Louis	0'-18'	30	7200	30L 5E	5400*	3	*8400?
(Cairo to St. Louis)			25	5800	20L	8200*	3	*5200?
(Cape Girardeau and Cairo)		18'-30'	30	8400	20L 15E	8400*	3	*5400?
			25	8200	20L 4E	8200	3	
Gauges have to be taken		30' +	30	8400	18L 12E	8400	3	
into consideration.			25	7200	15L 9E	8200	3	
			20	5800				

Legend- Type of Tow: 1= Unit, 2= Dry, 3= Mixed(Dry and Liquids)

All barges are 195'x35'.

* = illegible in original report.

EXAMPLES-TRIGGER POINTS

			Southbound		Northbound		
Waterway	**Location of Trigger Points**	**Gauge Reading**	**# of Loads**	**Horsepower (Min.)**	**# of Loads**	**Horsepower (Min.)**	**Type of Tow**
Ohio River	McAlpine L/D	0'-20'	15	2250	15	2250	3
	Lower Gauge	20'-30'	15	3000	15	2800	3
		30' +	15	3400	15	3200	3
		20'-30'	25L 5E	5800	30	5800	3
		30 +	20L 5E	5800	30	5800	3
Tennessee River	Pickwick	100,000 CFS	15	5600?	18	5800	
		150,000 CFS	22	5400*	15	5800	
		0-100,000 CFS		5600?	21	5800	
Kanawha River	Winfield		5	1350			
Cumberland River	Barkley		15	4200	15	4200	
Lower Mississippi River	Memphis	neg.0.9 - neg.0.5	28	8400	15L 15E		
			20	5600	10L 14E		
		negative 0.5-?	30L 5E	8400	20L 22E		
			25	5600	15L 13E		
		0-23'	35	8400	20L 28E		
			25	5600	15L 10E		
		23' +	30	8400	20L 28E		
			20	5600	15L 13E		

Legend- Type of Tow: 1= Unit, 2= Dry, 3= Mixed(Dry and Liquids)
* = illegible in original report.

All barges are 195'x35'.

EXAMPLES-TRIGGER POINTS

			Southbound		Northbound		
Waterway	**Location of Trigger Points**	**Gauge Reading**	**# of Loads**	**Horsepower (Min.)**	**# of Loads**	**Horsepower (Min.)**	**Type of Tow**
Lower Mississippi River	CarrolLton	0'-4'	9	1350	8	1350	
(Baton Rouge South)		0'-4'	12	1600	12	1800	
		0'-4'	35	5600-6000	30	5600-6000	
		4'-10'	6	1350	8	1350	
		4'-10'	9	1800	9	1800	
		4'-10'	30*	5600-6000	30	5600-6000	
		11'-17'	6	1350	4	1350	
		11'-17'	9	1800	8	1800	
		11'-17'	30	5600-6000	25	5600-6000	
Gauges have to be taken							
into consideration.							

Legend- Type of Tow: 1= Unit, 2= Dry, 3= Mixed(Dry and Liquids)
* = illegible in original report.

All barges are 195'x35'.

MARINER COMMENT LETTERS

*[**GCMA Editorial note:** Two members of the GCMA Towing Horsepower Committee submitted written statements that we include in their entirety.]*

LETTER FROM CAPTAIN DAVID C. WHITEHURST

[Captain David C. Whitehurst is a member of the GCMA Board of Directors with 38 years' service on the river and inland waters as a towboat pilot.]

The issue of true horsepower on towing vessels on our waterways is a very serious one. I watched the Captain of the Port (COTP) set "voluntary" horsepower restrictions and saw 5,600 horsepower vessel listed as a 6,000 horsepower vessel and an 8,400 horsepower boat turn into a 9,000 horsepower boat overnight with no mechanical changes or upgrades applied to the main engines.

The true horsepower developed by any towing vessel depends upon the main engine horsepower and the ability of the gearbox to transmit that horsepower and the size and pitch of the propellers being used.

The main engine horsepower is where it all starts and depends on the size of the injectors, the size of the pistons and heads, and the hours that the engine has run since the last overhaul. Most main engines on towing vessels run well over the manufacturer's recommended hours between overhauls and when overhauls are done re-manufactured parts are often used.

The gearbox has a manufacturer's recommended horsepower rating and the gears in the unit are set up for the engine that it is coupled to.

The wheel size is also matched to the engine and gearbox. There are a number of towing vessels that have had their wheel size reduced to save on fuel. When either the pitch or the diameter of a wheel is changed it affects the performance of the vessel.

I have seen 1,800-horsepower vessels with fifteen loaded barges in tow running south through the New Orleans harbor. The operator of the vessel will openly say that he can't stop his tow and that when he reaches the fleet where he must drop his barges the fleet boats will have to come out and help him stop the tow.

The dispatchers that assign the barges to the vessels have no responsibility for the safety of the tow. They hold no licenses and take no courses that qualify them to tell when they are overloading a towboat. This responsibility falls on the master of the towing vessel. The Coast Guard looks to the master and not the dispatcher when there is an accident.

If the master of the towing vessel refuses to take an oversized tow, he will be replaced with someone who **will** take the tow.

All towing vessel officers have bills to pay. But, why should a licensed master or pilot be put in a situation that forces him to operate a towing vessel with an overloaded tow with an underpowered vessel and risk losing his license?

The Department of Transportation has regulations that set trailer size and weight limits for our highways.

There is a real need to set standards governing tow tonnage size to vessel horsepower because shippers are loading more tonnage of cargo in barges and barge lines are building deeper draft barges to haul that cargo.

Many of the towing vessels in operation today were built in the 1960s and 1970s. Some companies are replacing their barges with barges with deeper-draft hulls and higher coamings in order to haul more tonnage of cargo per-barge. More tonnage is being hauled using the same number of barges per-tow but with deeper-drafts barges. These barges sit higher on the water when empty. This, coupled with their higher coamings, restricts visibility from the pilothouse and makes it very hard for the operator to maneuver the vessel. Drafts on inland barges that once were 9 ft. 6 inches are now as much as 10 ft to 12 ft deep. These deeper draft barges matched to the aging towing vessels with an eye level of only about 22 feet makes it very difficult for the pilot to see how to pass the tow through bridges or enter lock chambers, as well as seeing a small craft operating around the tow.

The towing industry and the Coast Guard need to establish mandatory and meaningful barge tonnage to true vessel horsepower standards. We need these standards so there is no guesswork and no misunderstanding between the towing company dispatchers and the vessel officers. Very truly yours, s/ Capt. David Whitehurst, Seventh Issue, Master of Towing Vessels. Member, Gulf Coast Mariners Association Board of Directors.

LETTER FROM CAPTAIN JOHN R. SUTTON

[Captain John R. Sutton is a past President of the American Inland Mariners Association (AIM), a voluntary mariner membership organization.]

RE: Towing Vessel Horsepower-to-Barge Ratio

Dear Richard,

I appreciate your thinking of me when distributing your latest work on the elusive horsepower to barge ratio for towing vessels.

Richard, as you are aware, I have participated in numerous conversations and meetings with industry leaders and Mariners alike as the past President of the American Jnland Mariner's Association. I would like to start discussion on this topic by saying, all towing vessels are not created equally, and there will never be an all-encompassing ratio that solves all towing vessel accidents.

In reviewing the spreadsheet attachment you forwarded me, I can say its drafters were headed in the right direction with the recommended horsepower per barge. However, I would argue that the horsepower selected for some of the less used tributary rivers is questionable at best.

The bottom line is my personal experience as a river mariner leads me to state, that at no time should the horsepower-to-barge ratio fall below 150 horsepower per 2,000-ton barge and only then during extreme slack current periods.

Real world experience tells me, the more realistic horsepower to barge ratio for each 2,000 ton barge lies somewhere between 175 and 240 horsepower per barge during normal to medium high river conditions. While arguably this is a large variance of horsepower,. inside this variance lies the most important factor in determining the appropriate horsepower to barge ratio for any given towing vessel, the experience of the individual standing at the helm of the vessel and the conditional shape of that horsepower, (i.e., does the vessel have kort nozzles?, are the wheels in good shape?, are the engines actually performing at peak performance?).

Richard, the bottom line is that many of the towing vessels operating today are overloaded first at the helm and secondly at the shaft. Many of the mariners working onboard towing vessels today lack the experience to safely navigate their vessels onboard when they are faced with adverse river conditions and/or vessel performance problems. Because these individuals have either been rushed into service as river pilots and/or these individual mariners lack the ability to perform at the level they are attempting to work at.

Richard, on a closing note, the USCG and the AWO are often quick to cite statistics from the Coast Guard's database, because it favors their argument. However, the statistics are flawed because what we discovered long ago at AIM was that the USCG 2692's fail to collect the adequate data to prove what all rivermen already know, "that boats are being overloaded on a daily basis."

It may seem simplistic, but what needs to be done first is the USCG 2692 needs to be changed to collect such data as, total barges in tow, total tonnage of the tow and the "documented" horsepower of the towing vessel. These three key pieces of data are capable of giving the industry and Coast Guard alike, the clearest picture of the appropriate vessel horsepower to barge ratio (and) where accidents are more likely to occur.

In addition, to better hone this information, one could include the river stage of the nearest river gage, in addition to key river ports such as Cairo, Memphis, or New Orleans, etc.

Once again, many thanks for thinking of me, till the next time we speak, take care! Respectfully, s/Captain John R. Sutton, Master of Any Gross Tons for Great Lakes and Inland Waters, Master of Towing Vessels for Great Lakes, Inland Waters and Western Rivers, First Class Pilot for the Mississippi River, Radar Observer (Unlimited).

Post Script

In a subsequent telephone call, Captain Sutton pointed out that one of the most important factors in preventing towing vessel accidents is to assure the proper "posting" of river pilots. Posting is the process where a Pilot who has not worked on a particular river or waterway is given the opportunity to make one or more familiarization trips on that waterway before being placed in charge of a watch on that waterway. The practice of using pilots that are not "posted" on their routes is a dangerous practice but is widespread in the towing industry..