HANDS ON™

Summer 1999

The Newsletter of JMS Naval Architects & Salvage Engineers

Volume 7.1

Special Services for the Tank Barge Industry

Letter from the President

Dear Readers,

This past year has been one of excitement and growth for JMS. We have recently completed the acquisition of Divers Institute of Technology. The 30-year-old commercial diving company is located in Seattle, WA and will be operated as a subsidiary. In my last letter I thanked Bruce Banks for his vote of confidence in turning over the helm of JMS to me. As our chairman, he has stepped up to the plate once again, by becoming Director of DIT, and for this, our directors and shareholders are most grateful. We feel the school will compliment our existing salvage services and add to our commitment of balancing engineering and technical expertise with hands-on operational services.

We are also making an effort to coordinate many of the varied services we have been providing the tug and barge industry. We have obtained AWO certification as Responsible Carrier Program auditors, we are implementing a fleet maintenance system for Weeks Marine, and are providing computerized loading programs for several tank barge operators. This is all additional to the salvage engineering services we have been providing for years.

Several of our projects from the past year are featured in this newsletter. They cover a wide range of services including naval architecture, diving support, and vessel operations. One thing they all have

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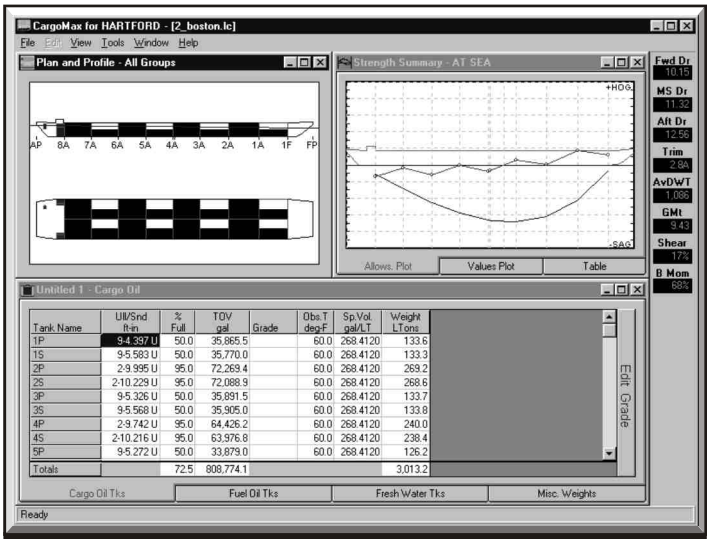
Recognizing that a significant portion of JMS's Emergency Response network™ [ERnet] customers consists of tank barge operators, JMS has focused its attention towards serving these same customers in other capacities. As a full service naval architecture and salvage engineering firm, offering these outsource engineering support services has proven financially attractive to ERnet customers.

CargoMax for Reinauer's Barge Fleet

Reinauer Transportation has been an ERnet customer since 1994. JMS provides 24-hour emergency response salvage engineering to their fleet of over 20 tank barges and maintains complete HECSALV™ 3-D computer models for nearly every one. These computer models are used for rapid salvage engineering calculations of strength & stability in the event of a salvage incident. JMS has also provided engineering support for day-to-day operations at Reinauer for over 4 years and recognized the benefit Reinauer could experience through computer-aided load planning. CargoMax™, a class society approved loading program, will allow Reinauer to quickly pick-and-choose which barges will be most effectively



CargoMax™ cargo loading program for oil tank barge HARTFORD. CargoMax allows

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JMS Aquires DIT

JMS has completed its purchase of Divers Institute of Technology [DIT], the well-respected commercial diving school located in Seattle, WA. Bruce Banks, JMS founder and Chairman will manage DIT. Commander Banks comes to DIT with extensive, in-depth knowledge and leadership experience in the field of diver training. He served over 20 years in the US Navy as a Diving and Salvage Officer with tours as Commanding Officer of numerous diving and salvage ships, as Executive Officer of the US Navy Experimental Diving Unit, and as Commanding Officer of the US Naval Diving and Salvage Training Center. Banks retired from the Navy in 1988 to form JMS.

DIT was founded in Seattle, WA in 1968 and is located on the Washington Ship Canal. DIT is accredited by the Accrediting

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CargoMax for Reinauer... from page one...

utilized for particular cargo transits. Through "on-the-fly" load planning, CargoMax will decrease Reinauer's decision-making time for more competitive cargo contract bidding. Analysis of very sophisticated load arrangements can now be performed that evaluate strength and stability of hypothetical load conditions, thus making Reinauer a safer and more confident oil transportation company.

CargoMax is a sister program to HECSALV. Because Reinauer's tank barge fleet was modeled in HECSALV, and most data files are interchangeable between both programs, JMS is developing CargoMax installations for their entire fleet of tank barges at significant cost savings. Development of these CargoMax installations will be completed by June 1999.

To learn how CargoMax can help your company, contact Rick Fernandes at 860.448.4850 x16.

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More complete CargoMax™ information, options and standard features are available on the JMS web site at: www.jmsnet.com/cmax.htm

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30 Yr Longitudinal Strength Reports

JMS is also using existing computer models to perform USCG required Longitudinal Strength Reports for barges 30 years or older [46 CFR 31.10-21(a)]. Utilizing the HECSALV models of the barges and their significant shipyard experience, JMS is able to offer Reinauer, and other tank barge operators, comprehensive reports and repair plans (if they should be necessary) that take into consideration their unique operational needs. These reports must be reviewed and stamped by in-house Professional Engineers [P.E.]. JMS's excellent working relationship with the USCG has also proved valuable when serving as owner representatives, thus expediting review and approval.

Maritrans Signs Emergency Response Salvage Engineering Contract

Maritrans Operating Partners has signed-on as JMS' most recent ERnet customer. Coverage of their fleet of 30 tank vessels began as of January 1st 1999. Previously, Maritrans modeled all their barges in the GHS computer program. However, Maritrans recognized the strengths of the HECSALV program and the high regard held for the program by the USCG, US Navy and other major players in the marine transportation industry. Maritrans

MARITRANS

saw JMS' combination of salvage experience, naval architecture expertise and HECSALV modeling proficiency, as a distinct advantage over competing response providers. Maritrans contracted JMS to convert their library of GHS models to HECSALV format. A built-in function of HECSALV allows for this semi-automated conversion. Maritrans has also expressed an interest in developing CargoMax installations for its fleet. The first such CargoMax installation has been completed by JMS and has been approved by ABS for the newly converted double-hull tank barge M192. Incremental installations for the rest of their fleet will begin soon.

Computerized Maintenance Program for Weeks Marine Tug Fleet

Extensive sea going and shipboard operation experience backs the technical expertise of JMS personnel. This gives JMS a unique understanding of its customers' operations and requirements. JMS has recognized a need, not only within its own customer base, but also throughout the marine industry in general, for a more automated way of tracking and initiating vessel machinery maintenance. Weeks Marine, JMS' partner in salvage response, provides JMS with the heavy equipment assets necessary for large-scale salvage response. Like most companies, Weeks' tug fleet crews track routine maintenance of their vessels' equipment the old fashioned way - pencil and paper. Until recently, these "log books" were the only way operations managers could check what maintenance had been done. Weeks contracted JMS to custom design a fleet maintenance system, compliant with the Responsible Carrier Program, for all of Weeks' tugs. This system includes a computer program that will run on the standard Win95/98 operating systems. For each tug the program will:

- Generate schedules for maintenance due.
- Generate reports of maintenance items that are past due.
- Record scheduled and unscheduled maintenance history.
- Mantain a database of vessel equipment specs, maintenance procedures and spare parts requirements.

This low-cost and user-friendly program can be tailored to any operator within the marine industry. It is the ideal system for vessels with limited manning including research vessels, tugs and small passenger vessels.

For more detailed info and release date, contact Matt Wetmore at 860.448.4850 x17.

AWO RCP Auditor Certification

The American Waterway Operator's [AWO] Responsible Carrier Program [RCP] is a code of practice for its 300 association member companies that is intended to improve marine safety and environmental protection in the barge and towing industry. This program is mandatory for all AWO members and requires third party audits of vessels and management policies to ensure compliance with RCP prior to certification. With a solid understanding of shipboard operations and safety inspection experience, JMS easily acquired AWO Auditor Certification for its vessel inspection team earlier this

year and offers RCP audits to all AWO members and nonmembers alike. The deadline for AWO compliance with the RCP is December 31, 1999.

For more detailed information contact Blake Powell at 860.448.4850 x14.

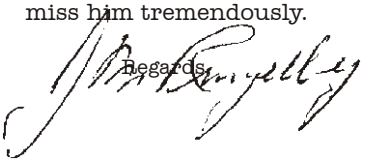
Letter From The President... from page one...

in common however is JMS' dedication to quality. We are currently formalizing our Quality Policy by becoming ISO 9002 certified. We feel this will further benefit our customers while maintaining our position as an industry leader.

On a sad note, Archie Campbell passed away this past May. Captain Campbell was one of the original founders of JMS and served as a Director. His career included participation in over 40 salvage operations while assigned as a U.S. Navy Salvage Officer. These operations included the raising of the USS Bluegill submarine and various vessel and aircraft deepwater recoveries. He was awarded the Navy Legion of Merit and the Defense Superior Service Medal. After his Navy career, he formed his own commercial salvage consultation company and also assisted JMS as project manager during the development of the U.S. Navy Program of Ship Salvage Engineering [POSSE] software, known commercially as HECSALV.

JMS and the salvage community will miss him tremendously.

Regards,



NAVAL ARCHITECTURE

JMS naval architects have been busy with a wide range of projects, all of which further demonstrate our ability to provide rapid and practical solutions to our customers' requirements. Some recent examples include:

- Structural analysis of tankers for pre-acquisition surveys.
- Class Society approved gauging reports for overhaul planning of tank barges and ships.
- Reflagging of a tug & barge including issuance of new Load Line Certificates and Tonnage Certificates.
- Conversion of a tank barge to a deck barge.
- Design and oversight of modifications to a 766-foot Military Prepositioning Ship operated by Waterman Steamship. The modifications were the result of a Military Sealift Command directive for the vessel to carry additional containers on deck. JMS designed the securing system and necessary backup structure. The modifications were designed, approved by ABS, and installed in less than 3 weeks in order to meet emergent operational requirements related to the Kosovo conflict. JMS' comprehensive services not only included an ABS approved design but also a revised Trim & Stability Book, Stability Letter, Cargo Securing Manual, computerized loading program and lashing diagrams.
- Generation of ullage tables for a fleet of tank ships on the west coast. The ships had installed a hermetic tank gauging system & required ullage tables that correspond with the new tank gauging locations.

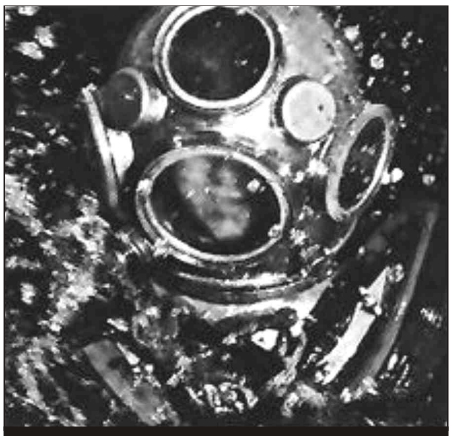
JMS Aquires DIT... from page one...

Commission of Career Schools and Colleges of Technology [ACCSCT] and is a member of the Association of Commercial Diving Educators [ACDE]. Its facilities include over 40,000 square feet of dock and land-based facilities. DIT's unique location and numerous training vessels offers a unique natural diving environment and enables students to train in waters as deep as 200 feet.

DIT students are trained in:

Diving physics & physiology

- Decompression theory
- Medical aspects of diving / first aid
- Rigging
- Diving equipment
- Deep sea diving techniques
- Commercial SCUBA
- The hot water system
- Underwater working techniques
- Offshore industry terminology



DIT deep dive training in open water - not tanks.

- Salvage
- Underwater cutting & welding
- Underwater photography
- Underwater television, video & ROV
- Mixed gas diving
- Safety standards
- Haz-Mat
- Hyperbaric chamber operations
- Saturation diving
- Non-destructive testing
- Inspection reporting
- JMS believes DIT offers the most current, safest and professional commercial diver training available. The rigorous diver training program is 7 months in length [900 hours] with new classes beginning every month. DIT graduates nearly 200 students each year.

For more information about DIT, contact Bruce Banks at 800.634.8377

JMS Pursues ISO 9002 Certification

JMS is implementing an ISO 9002 quality system. JMS is committed to continuously improve quality and will continue to evaluate the level of quality by measuring customer satisfaction and how well customers need have been met. Management Representative Matt Wetmore adds, "We take pride in the quality of the work we do, so certification will justify all the efforts made by the JMS team."

It is this unseparable relationship between quality, service and customer satisfaction that has led JMS to seek ISO 9002 certification. JMS realizes that the success of its Quality Policy is influenced by the actions of all of its employees. They believe that only through the continuous improvement of quality in all jobs can customer satisfaction be maintained, ensure their competitive position, and further their success.

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"*We take pride in the quality of the work we do, so [ISO 9002] certification will justify all the efforts made by the JMS team.*"

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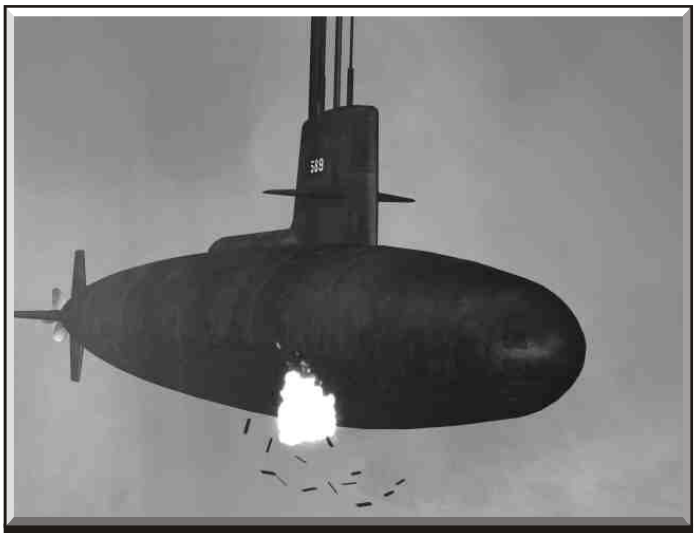
Becoming certified under an internationally recognized quality standard has many benefits; an improvement in product quality, better work efficiency, and significant marketing advantages. Increasingly, customers acknowledge the merit associated with certification and are requiring some form of accreditation in their own solicitations. JMS expects to undertake the final step in ISO 9002 certification, an external quality audit,

JMS Supports Ocean Technology Foundation Initiatives

JMS has recently formed an alliance with the Ocean Technology Foundation [OTF], a Connecticut based not-for-profit (501-(c) 3) foundation whose mission is to "realize the potential of the final frontier on earth by stimulating and supporting ocean exploration, research, commerce and education." OTF was specifically created to stimulate and support marine research, education, industrial and economic development with an emphasis on undersea activities. OTF, together with JMS and other marine industry companies, are developing national and international programs that include:



The nuclear submarine, USS SCORPION *suffers a fatal, internal explosion as*

- Continued development of the "Connecticut Marine Cluster" as part ofConnecticut's economic strategy forgrowth.
- Implementation and operation of along-term, comprehensive Science, Education, and Marine Archeology Program in Portugal" in partnership with academic, business, government, and non-profit institutions.
- Development of aquaculture programs that include sophisticated research and development centers that focus on environmentally responsible methods and new technologies for streamlining the growth of fish, shellfish, and marine plants.

OTF's long term vision is to develop deep-water technologies and state-of-the-art undersea systems to support ocean exploration, marine research, education, commerce, and government activities.

JMS president, Capt. John M. Ringelberg, also serves as OTF's CEO & President. In addition, JMS has hired a full-time staff member, Mr. Christopher Cooper, to work closely with OTF members in achieving common goals. The alliance places JMS in a visionary position within the maritime industry, allowing JMS to continue a leadership role as the industry enters the new millenium.

VIDEO PROJECTS...

The Latest Discovery Channel Project

Our latest animation project was for a three-hour series on nuclear submarine accidents as part of the Discovery Chan-

nel's new series called "On The Inside". The USS Scorpion episode first aired on 4 January 1999 and will be rebroadcast throughout the coming months. (Check your local listings for rebroadcast information in your area.) The series involves some of the most complex forensic engineering analysis work we've done so far, made more difficult by government secrecy. The program includes details regarding the search and eventual discovery of Scorpion's wreckage in October 1968 and its re-examination in 1984. Most of the material in the program has never been revealed on TV, or for that matter anywhere else.

This fast attack submarine was lost with a crew of 99 when she suffered, what most experts believe was, an internal explosion. She sank to the Atlantic sea floor, where she lies in three major pieces, 11,000ft down. Detailed computer models of the sub were developed to illustrate her design as well as to recreate what happened after the explosion. JMS simulated the sinking and "break-up" sequence the sub experienced during her decent to the bottom. By studying her design, and debris field photographs, taken from submersibles that searched the wreck, JMS was able to create the first 3-dimensional reconstruction of the debris field scene.

Delta P Video for ADC

JMS has been asked by the Association of Diving Contractors [ADC] to produce a short length diving safety/instructional video to increase industry awareness of the hazards inherent in volatile differential pressure diving environments. Computer generated images [CGI] and computer animated re-enactment will be developed to describe in detail the past diving accidents involving Delta P and ways they can be avoided. The video project is due for completion this fall.

Safety Training Video Distributed to UNOLS Fleet

During the fall of 1997, the University National Oceanographic Laboratory System [UNOLS] awarded JMS the contract to produce a safety training video for its Research Vessel Operators Committee [RVOC] safety panel. The purpose of the video is to quickly instruct first-time-at-sea scientists and graduate students unfamiliar with the inherent hazards of working in a laboratory at sea.

JMS recently conducted inspections aboard the R/V KA'IMIKAI O KANALOA *for*

JMS began shooting the video in the summer of 1998 and filmed a significant portion of the video on the RV Endeavor during her transit from Woods Hole Oceanographic Institute to the University of Rhode Island. During this short cruise, JMS filmed scenes covering subjects such as: man overboard procedures, life raft deployment, drill mustering, proper on-deck work clothes, fire prevention & control, stability & watertight integrity, electrical systems and health and medical concerns. 3D-computer animation was created for hard-to-grasp concepts such as progressive flooding and crane stability problems as well as subjects too difficult or costly to film. Dr. Robert Gagosian delivered the on-camera introduction and closing remarks. The completed video was distributed to the UNOLS fleet in September 1998.

VESSEL INSPECTIONS

Expanding Research Vessel Inspections

The National Science Foundation [NSF], University-National Oceanographic Laboratory System [UNOLS], the Office of Naval Research, and the U.S. Army Corps of Engineers have recognized JMS as experts on the operation of research vessels.

In August 1997, JMS was awarded a contract to conduct vessel inspections of the UNOLS research fleet on behalf of NSF. UNOLS is a consortium of 57 academic institutions with significant marine science research programs that either operate or use the U.S. academic research fleet. The research vessels in the UNOLS fleet stand as the largest fleet of oceanographic research vessels in the world. To date, JMS has conducted 21 inspections of UNOLS vessels from Alaska to Panama.

The UNOLS fleet operates by safety standards that exceed the regulations set by the U.S. Coast Guard. The inspection program ensures these standards are adhered to, resulting in improved operating efficiency and reliability of the vessels. The inspection encompasses hull, mechanical and electrical systems, safety equipment, training, records and the oceanographic outfit. Our inspection philosophy is to identify which institutions/vessels excel in certain areas and transfer this knowledge to the vessels that need assistance.

JMS' research vessel expertise is recognized beyond the UNOLS fleet as well. During the past year, JMS has been selected to conduct research vessel inspections for the Office of Naval Research, U.S. Army Corps of Engineers, U.S. Geological Survey, Antarctic Support Associates, the University of Hawaii, and

Because of their R/V operations expertise, JMS was selected by the Office of Naval

the University of Minnesota.

JMS was selected by the Office of Naval Research to conduct a decommissioning survey of the R/V MOANA WAVE. JMS' R/V operations expertise provided valuable insight into the vessel's material condition and ability to conduct science missions that the Navy's INSURV inspection would not have provided.

The U.S. Army Corps of Engineers is currently constructing a fisheries research vessel to meet ABS, U.S. Coast Guard and Research Vessel Safety Standards. Due to JMS' unique expertise with both research vessel operation and naval architecture, the USACE specifically cited JMS as being the only firm qualified to provide certification that their vessel meets these standards.

JMS has conducted hull, mechanical, electrical, scientific and safety inspections aboard Great Lakes Science Center [GLSC] ships. GLSC is a part of the US Geological Survey and Department of Interior. It operates vessels throughout the Great Lakes. The results of these inspections served as supporting documentation for overhaul planning and formed the basis for a long-term ship replacement schedule.

JMS has been contracted to conduct inspections of the R/V NATHANIEL PALMER and R/V GOULD. These are ice strengthened research vessels that are operated by Antarctic Support Associates in the Antarctic and Southern Oceans. JMS will focus the inspection on science operations and safety during the vessels' winter yard period in Chile.

The National Science Foundation requires JMS inspections as a prerequisite for any research vessel in order to become eligible for NSF funding of science operations. As a result, JMS has recently conducted inspections aboard the R/V KA'IMIKAI O KANALOA for the University of Hawaii and the R/V BLUE HERON for the University of Minnesota.

JMS personnel also have unique qualifications related to research vessels. In addition to being degreed naval architects, JMS engineers include experienced ROV operators as well as military/commercial divers. JMS is very familiar with the operational requirements of diving including remotely operated vehicles, occupied submersibles and manned diving. Unlike traditional engineering firms, JMS naval architects have gained valuable experience at sea and many hold licenses as Master or Engineer. All of our naval architects have considerable experience with USCG regulations, ABS rules, commercial vessel construction standards, and Research Vessel Safety Standards [RVSS]. **JMS**

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