DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON, D.C. 20314-1000

CECW-CO

MEMORANDUM FOR COMMANDERS, MAJOR SUPPORT COMMANDS AND DISTRICT COMMANDS, CHIEFS OF OPERATIONS

SUBJECT: Silent Inspector Implementation Guidance

1. References:

a. Memorandum from MG Riley, 17 Apr 2006, subject: Implementation of Automated Dredging Quality Assurance Monitoring.

b. Memorandum from William W. Fuller, 2 October 2006, subject: Silent Inspector Implementation Guidance.

c. Regulatory Guidance Letter, number 06-04, Guidance for the Implementation of the Silent Inspector (SI) for dredging projects requiring Department of the Army (DA) permits.

2. Reference 1.b was developed to guide implementation of Silent Inspector (SI), per MG Riley's April 2006 memorandum. Since April a technical support center has been stood up at the Mobile District under the Chief, Operations Division, Mr. W. Wynne Fuller, to provide long term SI support, including a number of services described in the enclosed document. Additionally a Regulatory Guidance Letter has been prepared for SI use on dredging work performed under DA permits.

3. SI represents a significant step forward in the monitoring of dredging efforts. Use of SI on all U.S. Army Corps of Engineers hopper and scow dredging is to be implemented immediately. In the coming year SI will be expanded to pipeline and mechanical dredges. Utilizing SI 24/7 creates a very valuable engineering and performance database to improve our business practices, ensure environmental compliance, and increase our understanding of dredging science and technology.

4. If you have any questions, please contact Mr. W. Wynne Fuller, Chief, Operations Division, Mobile or Gary L. Howell, SI Program Manager at (251) 441-5732.

FOR THE COMMANDER:

Encl

GERALD W. BARNES
Chief, Operations
Directorate of Civil Works

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON, D.C. 20314-1000

CECW-CO

APR 17 2006

MEMORANDUM FOR COMMANDERS, MAJOR SUPPORT COMMANDS

SUBJECT: Implementation of Automated Dredging Quality Assurance Monitoring

1. The U.S. Army Corps of Engineers will use automated dredging quality assurance monitoring in our navigation mission to provide much needed tools and metrics for improving our dredging program, including management of threatened and endangered species and overdepth dredging. Silent Inspector (SI) was developed under our Dredge Operations and Environmental Research Program (DOER) and tested for several years by a number of districts. The mission of the SI Program is to provide standardized Corps-wide technical support of dredging through automated tools and services and to evolve these capabilities to meet our growing needs.

2. The Engineering Research and Development Center (ERDC) will lead SI development in the Corps. ERDC has developed and matured SI technology and services for continuously monitoring Corps dredging operations using automated on-board dredge systems communicating to centralized data storage servers coupled with GIS technology. The Silent Inspector Program has demonstrated inspection cost savings at Mobile, New Orleans, and Portland Districts. Additionally, SI improves environmental sustainability of our dredge operations by building stakeholder confidence in our compliance efforts. Data from SI monitored dredging operations will flow into Dredging Operations Decision Support Software (DODSS), which will increase the alternatives for advancing dredging work. The Dredging Operations Decision Support Software will also improve estimation of scope and cost of dredging projects, increasing their efficiency, effectiveness, and productivity for greater value of the Federal investment in channel maintenance Corps-wide.

3. I have directed ERDC and HQUSACE, Operations to establish operations through the Mobile District to implement SI Corps-wide. The SI website, http://si.wes.army.mil, contains the necessary background information supporting implementation. Beginning immediately, all hopper and scow type dredging contracts are required to incorporate SI into their monitoring plan and to budget 0.875 percent of the contract cost to cover SI. These funds are to be sent to Mobile to cover the SI program. For assistance implementing SI, contact Mr. Gary Howell, ERDC, at telephone number (601) 634-2006, or email: Gary.L.Howell@usace.army.mil, for district support.

FOR THE COMMANDER:

We will conduct semi-annual reviews with MSC Ops Chiefs to ensure we implement deliberately and effectively

DON T. RILEY
Major General, USA
Director of Civil Works

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

October 2, 2006

REPLY TO
ATTENTION OF:

CESAM-OP

MEMORANDUM FOR Commander, Headquarters, U.S. Army Corps of Engineers (CECW-LRD/ Gerald W. Barnes) 441 G. Street, NW, Washington, DC 20314

SUBJECT: Silent Inspector Implementation Guidance

1. Enclosed is a guidance document to assist Districts as they implement the Silent Inspector (SI) automated dredge monitoring capability, per MG Riley's memorandum dated 17 April 2006. The guidance provides a summary of the SI capability and benefits, the national support team, points of contact for direct support, and information on training, tools, GIS and resource management. This document is also available at http://si.wes.army.mil/ and will be continuously updated as new information is developed. Additional guidance specific to Regulatory or permit dredging will be provided shortly through the issuance of a Regulatory Guidance Letter.

2. Since the April memorandum, a technical and administrative support team has been established at the Mobile District to provide USACE-wide support. The support team is fully operational and ready to support all contract and permit dredging that utilize hoppers and scows. Training is being scheduled for this fall and arranged through each Division. Desktop tools to access and utilize SI data are available now and additional web-based tools are coming on-line this month.

3. We request the designation of SI Points of Contact (POC) for each Division and District and that those names be provided directly to us by 31 October 2006. Each Division and District should appoint SI POCs for Operations or Construction and Regulatory. The Division POC's responsibilities are to coordinate regional standardization efforts among the Districts, coordinate training requirements across the Districts, and act as the POC for SI training. The District POC's responsibilities are to ensure District review of SI data, interface with the SI support team, identify District needs and issues, coordinate training and technical support with the Division, and provide the SI support team District POCs for transfer of information.

4. If you have any questions, please contact Mr. Gary Howell at (251) 441-5732, directly.

FOR THE COMMANDER

Encls

WILLIAM W. FULLER
Chief, Operations Division

Silent Inspector Implementation Guidance

Executive Summary

Commanders may use this document to guide their initial implementation of the Silent Inspector (SI) automated dredge monitoring. The Director of Civil Works (DCW) directed the immediate implementation of SI in his Memorandum of 17 April 2006. The policies for operation and use of SI will be defined by amendments to the existing dredging Engineer Regulations and Pamphlets. Until these regulations are complete, the guidance in this document will assure compliance with the DCW Memorandum.

Silent Inspector automatically monitors numerous dredge parameters in real-time on a 24 hour/7days a week basis. This information is recorded onto the on-board computer where it is then available to the U.S. Army Corps of Engineers (Corps) Quality Assurance Representatives (QAR) for examination and for periodic download and transmittal via an automated email service for inclusion in the SI database. Benefits of SI implementation include quality assurance monitoring cost reductions, increased productivity, reduced claims, and standardized procedures.

The objective of the initial implementation is to transition industry and government dredge monitoring from per project implementation to a per dredge implementation. An analysis of the costs of SI implementations has shown that implementation on selected contracts/government orders leads to frequent reinstallation and startup costs. By installing and certifying instrumentation and software and keeping it "always-on", the Corps will achieve full coverage of dredging operations and reduced monitoring costs for the Corps and dredge operators.

The initial SI deployment is for hopper dredges and scows. For hopper dredges the Corps has three authorities that cover the dredges operation: contract dredging, permit dredging, and reserve fleet designation. All hopper and scow dredging contracts shall require SI certification and operation. All hopper and scow permits shall require SI certification and operation. Additional guidance for implementing SI for permit jobs is provided in Regulatory Guidance Letter No. 06-XX, XX September 2006. For transit time, the SI team will work directly with the hopper dredge industry to require SI operation based on the requirements of the reserve fleet. Operation during transit enables location reporting and checks of the monitoring system.

This document requests Commanders assistance to assure that all permits and contracts for hopper and scow dredging contain SI requirements. This should occur even in the case that data are not specifically required for a project. The objective is to effectively cover industry with a continuous requirement that achieves the goal of "always-on".

This guidance requests that each Division and District designate SI Points Of Contact (POC). A separate POC for Regulatory and Operations can be designated; or these may be combined.

The SI national team will provide most of the services needed for SI operation. These include dredge certifications, data quality control, database management, and support for the desktop software. The services are resourced by a charge-back to districts based on a 0.875% of hopper and scow dredging contracts. The intent is to use contract value as a metric of the amount of dredging so that resources scale with support requirements.

1. Background:

This document provides guidance to Districts for the implementation of the Silent Inspector (SI) system in accordance with the memorandum from the Director of Civil Works dated 17 April 2006 (attached). A national support team has been established to assist Districts in SI implementation and to fully utilize the capabilities of SI.

2. Silent Inspector (SI):

a. Silent Inspector consists of government furnished software developed through the U.S. Army Engineer Research and Development Center (ERDC), on-dredge hardware owned and operated by the dredging contractor, a centralized SI database, and desktop SI software developed by ERDC.

b. The SI automatically monitors numerous dredge parameters in real-time on a 24 hour/7days a week basis. This information is recorded onto the on-board computer where it is then available to the U.S. Army Corps of Engineers (Corps) Quality Assurance Representatives (QAR), formerly referred to as dredge inspectors, for examination and for periodic download and transmittal to the SI database. Automated email reports for Corps District staff are generated whenever new data arrives in the database. Desktop computer tools are provided to examine the data, identify trends in production, and to monitor compliance with permit conditions (such as disposing outside the limits of offshore disposal areas). These functions enhance existing construction quality assurance capabilities.

c. The objective of the implementation is to transition industry and government dredge monitoring from a per project implementation to a per dredge implementation. An analysis of the costs of SI implementations has shown that implementation on selected contracts/government orders leads to frequent reinstallation and startup costs. By installing and certifying instrumentation and software and keeping it "always-on", the Corps will achieve full coverage of dredging operations and reduced monitoring costs for the Corps and dredge operators.

d. The initial SI deployment is for hopper dredges and dump scows. For hopper dredges the Corps has three authorities that cover the dredges operation: contract dredging, permit dredging, and reserve fleet designation. All hopper and scow dredging contracts and permits shall require SI certification and operation. For transit time, the SI team will work directly with the hopper dredge industry to require SI operation based on the requirements of the reserve fleet. Operation during transit enables location reporting and checks of the monitoring system.

3. SI Benefits:

a. Quality assurance monitoring cost reductions and increased productivity will be realized as Districts gain experience and confidence with SI monitoring data. Some near-term direct cost savings are:

i. Support QAR in performing duties and potentially reduce QAR coverage on contract dredging.

ii. Improved production and more efficient assignments for rental jobs by continuously monitoring dredge production
iii. Reduced claims and more efficient claim resolution for unit price jobs because SI data is available for review.
iv. More efficient and informative responses to environmental incidents.
v. Reduced startup time following shutdowns due to equipment or sensor failure and environmental compliance issues, improving probability of completion.
vi. Improved productivity for data management and reporting through automated procedures.
vii. Reduced costs due to nationally standardized performance specifications.
viii. Previously, some monitoring data were not owned by the Corps. SI implementation will reduce analysis and graphics costs since dredging data will be Corps accessible and owned.

b. Long-term cost savings will be realized through a reduction in paperwork by digital Corps reporting to the U.S. Environmental Protection Agency (EPA), state, and local agencies, and standardization of procedures. All data/reports will be reviewed and approved by the Corps District prior to submittal to a non-Corps agency. The Corps Districts are responsible for submittals to non-Corps agencies.

4. National SI Support Team:

a. The mission of the national SI team is to provide Corps-wide technical support including dredge certifications, data quality control, database management, and support for the desktop software, and to continue to evolve these and complementary capabilities to support Corps dredging needs. Operational support includes tools and services to assimilate, analyze, and report dredging quality assurance data.

b. The team is based in the Mobile District and provides SI support and diffusion of dredging technologies developed under the Dredging Operations and Environmental Research (DOER) program of ERDC. The team is composed of personnel from Mobile District and ERDC. The Mobile District, Operations Division, Spatial Data Branch operates the national infrastructure of the SI and dredging quality assurance tools in support of the goal of nationwide "always-on" operation. "Always-on" means that all contractor and government dredges will be monitored through the SI for all dredging projects, and that the SI system is always operational; even between projects. These include regulatory jobs performed for non-Corps clients.

c. Technologies developed by ERDC in close coordination with District Operations/Construction Divisions, which have reached a level of maturity and are ready for Corps-wide operational implementation will be made available through the SI team. The team has an R&D role to continue development of the SI tools and to apply them to the solution of other dredging problems, as defined by the SI Board of Directors. The Board of Directors, comprised of representatives from Headquarters, Divisions, and Districts, provide management oversight to the SI program.

d. The SI implementation and operation is structured so that the Major Subordinate Commands (MSCs) and Districts require no additional personnel. The national team will provide support to Districts and dredging contractors. Costs for this support are shared by a funding formula based

on a percentage of Corps dredging contract costs. There are no additional costs for the SI software, and a District my install multiple copies of the software as needed.

e. The national SI support team provides the following services:

i. Maintain the SI database including Quality Control (QC) of data.
ii. Monitor performance of the dredges' monitoring system and resolve performance issues with dredge captains.
iii. Maintain automated reporting of data and incidents to District QARs and project personnel.
iv. Perform custom data analysis as requested to assist project engineer response to incidents or claims.
v. Maintain desktop software providing data access, plotting, and analysis tools to QARs and project personnel.
vi. Provide support on SI software and QAR duties.
vii. Provide support to District environmental compliance activities through eGIS.
viii. Organize regional training for Corps personnel. There are no registration fees for training; however, each District is responsible for covering student labor.
ix. Coordinate with industry to facilitate competitive and responsive bids on dredge solicitations containing SI requirements.
x. Perform annual certification on all dredges and scows requiring SI.

f. Support for all SI functions and applications are available from the national SI support team:

Mr. Gary Howell, 251-441-5731 (office) / 601-831-0769 (mobile)
Ms. Rhonda Lenoir, 251-690-3011 (office) / 601-618-0755 (mobile)
Mr. Jay Rosati,,251-441-5535 (office) / 601-831-7227 (mobile)
Ms. Linda Lillycrop, 251-690-2593 (office)
Mr. Eddie Culpepper, 251-690-3467 (office)

The SI website provides current email and telephone numbers (http://si.wes.army.mil). After-hours support for emergencies and incident response can be arranged. Support requests should be coordinated through the District POC.

5. SI Implementation:

a. Corps-wide SI implementation requires the use of SI for all contract and permit jobs utilizing hopper dredges and scows. Specific guidance for implementing SI for permit jobs is provided in Regulatory Guidance Letter No. 06-XX, XX September 2006 (draft attached). Language shall be included in each dredging contract or permit requiring: the dredging contractor or permittee provide on-dredge/scow hardware to support SI software; the dredge/scow be certified by the SI support team to ensure that the installation is compliant with SI requirements and fully functioning; and that data are to be transmitted by email to the District QAR, Dredging Program Manager, SI support team, and others identified by the District; or data are to be physically downloaded from the on-board computer to CD, external drive, etc and transported to the District QAR and the SI support team on a weekly basis. The contractor or permittee shall establish contact with the SI support team regarding required formats, hardware, transfer of data, etc. Districts should review the data for accuracy and completeness, and for compliance with contract

and permit specifications and terms. Specifications for hopper and scow contracts are available at http://si.wes.army.mil/. It is recommended that Districts contact the SI support team for assistance with specifications.

b. The contractor and permittee shall incur all expenses associated with installing and maintaining SI aboard the vessel including computers and other hardware as needed, transmittal of data, and qualified personnel for certifications and monitoring.

c. The implementation is time-phased beginning with hopper and scow contracts and permits in Fiscal Year (FY) 2006. A demonstration implementing SI aboard large pipeline dredges will be conducted in FY06 and FY07. Implementation of SI for Pipeline dredges will follow completion of the demonstrations and validation of the SI for pipeline dredges.

d. All active government owned hopper dredges must be certified for SI. Each District with a Government hopper dredge should jointly develop an implementation plan for their dredge with the SI support team. The plan should document the current compliance state, required additional sensors or data acquisition, schedule and budget. The plan should be submitted through the dredge operators chain of command to CECW-OP no later than 30 November 2006.

e. The SI Implementation is a nationwide "always-on" operation. "Always-on" means that all contractor and government dredges will be monitored through the SI for all dredging projects, and that the SI system is always operational; even between projects. These include regulatory jobs performed for non-Corps clients. By implementing "always-on", the Corps will achieve full coverage of dredging operations and reduced monitoring costs for the Corps and dredge operators. If a dredge or scow is shutdown or becomes non-operational due to equipment or sensor failure, environmental compliance issues, etc, the SI Team shall be notified through email at the following address: chl-sics@erdc.usace.army.mil. The SI Team shall be notified once the dredge or scow is again operational.

f. Under the national SI implementation, all dredge certifications will be managed at the national level by the SI team. Dredge certifications are required annually, as a minimum. The support team will track all hopper dredges and scows and will perform certification inspections. A list of certified hopper dredges and scows is maintained by the national SI team and will be available at http://si.wes.army.mil/.

g. Each MSC and District should appoint main and alternate SI Point of Contacts (POCs) for Operations or Construction and Regulatory. The MSC POCs should have oversight responsibilities for navigation and environmental compliance of the MSC and District dredging mission. The POC's responsibilities are to coordinate regional standardization efforts among the Districts, coordinate training requirements across the Districts, and act as the POC for SI training courses. The national SI team will support the MSC in negotiations with the EPA and other regulatory agencies in regional standardization of reporting requirements. The District POC's responsibilities are to ensure District review of SI data, interface with the SI support team, identify District needs and issues, coordinate training and technical support with the MSC SI POCs, and provide the SI support team District POCs for transfer of information.

h. Several mechanisms for funding SI were considered and the best practice was decided to be a 0.875 percent fee for each hopper and scow contract. This approach was selected because it

scales with the actual amount of dredging being executed in any given fiscal year. On an average year the SI program's annual budget will be approximately $1,575,000, with fluctuations due to the actual amount of dredging. These funds cover the services described above, including annual certification of all hopper and scow dredges; 24/7 technical support; software to utilize SI dredging monitoring data; training; assistance in response to claims and incidents; and others (see 4.e).

6. SI Operational Tools:

a. SI includes desktop programs (SI Data Explorer and SI Plots) which are the standard SI tools which allow users to view and plot all data from all dredges in the SI database. The District POCs should use the SI desktop programs to monitor dredging operations and review SI data. The SI software is provided to Districts at no cost and installation can be conducted through District Information Management staff. Installation support is available from the SI support team. The detailed time series SI data are considered proprietary by dredging contractors. Only the Corps has access to the SI Data Explorer program. The permittee or consultant must make arrangements for access to process data directly with the contractor. Summary data (i.e., automated email load reports) can be made available from the SI to the permittee at the discretion of the District Regulatory POC.

b. SI includes automated data transfer capabilities. Data are automatically sent via email after each load cycle. The hopper dredge SI uses a satellite internet connection. The Scow SI uses a contractor provided connection that can be implemented via satellite, cellular phone, or other mechanism at the contractor's discretion. Scow SI sends all data after each load. Hopper dredge SI sends summary data similar to that contained in the standard dredging report form 27. The complete hopper data set is transmitted using a manual transfer of a flash disk copy from the hopper dredge SI computer to another computer that has an email connection. A program is available that automatically sends the data on the flash disk via email and creates a receipt file on the flash disk. The receipt file can be automatically read by the SI computer on the dredge to inform it that data has been transferred.

c. The SI Mail Robot is a program that runs at the central SI database site. It automatically receives the data email messages sent by dredges, scows, and the flash disk transfer program. When a message arrives, the Mail Robot checks the message, reads the data, and transfers the data into the database. The Mail Robot also sends reports to users who have registered interest in a dredging contract or government order. A variety of load and daily reports are available.

7. SI Training:

Training courses on SI implementation and use of the SI software will be coordinated by the MSC SI POCs. Training will be organized on a regional basis and held at an MSC selected District. The MSC POCs shall coordinate with Districts and the SI team to coordinate training dates and select venues. There are no registration fees for training; however, each District is responsible for labor and travel. SI Training is scheduled to initiate in September 2006. Information on the training schedule and locations will be available on the SI web site http://si.wes.army.mil/.

8. GIS Integration:

The SI national team will support digital data reporting from Corps Districts to EPA for Open Water Disposal (OWD) compliance requirements through the Enterprise Geographic Information System (eGIS). The application provides on-line approval by the OWD coordinator before any data are transmitted. The OWD eGIS application can be accessed on the Internet and is being standardized for Corps-wide use. The OWD eGIS application is available for all Districts and requires that Districts provide base-map data, channel boundaries, and dredging and disposal areas for use of the eGIS application. Districts interested in using the OWD eGIS application should contact the national SI support team.

9. Resource Management:

Funding to support SI comes from each dredging contract by sending via MIPR an amount equal to 0.875 percent of the hopper or scow contract total, to Mobile District, P2 resource code is OTHFACSVCS and the Org Code is K5R0N00. The financial POC is Evelyn D. Davis, 251-690-3211 and the program POC is Mr. T. Mike Nettles, 251-694-3769.