

INTERNET DOCUMENT INFORMATION FORM

A . Report Title: A Guide to the DRP

B. DATE Report Downloaded From the Internet: 07/08/99

**C. Report's Point of Contact: (Name, Organization, Address, Office
Symbol, & Ph #):** Dredging Operations Technical Support
Attn: Dr. Engler (601) 634-3624
3909 Halls Ferry Road
Vicksburg, MS 39180-6133

D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

**F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: __VM__ Preparation Date 07/08/99**

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Dredging Research Technical Notes



A Guide to the DRP

Purpose

This technical note describes the work, products, and personalities of the Dredging Research Program (DRP). It has been prepared to assist you, the user of DRP products, to better understand how the DRP works. It is our hope that a well-informed user can better use DRP products and be in a position to provide much-needed feedback on DRP activities and products. For the DRP to be successful, it must be responsive to present and future user needs. Therefore, continual feedback from the field is essential for developing effective and usable products.

Background

Established in Fiscal Year 1988, the DRP is a seven-year program with the objective of developing products that reduce the cost of dredging operations. DRP work units address a diverse range of dredging problems and are grouped into the following five technical areas:

- Analysis of Dredged Material Placed in Open Water (Area 1).
- Material Properties Related to Navigation and Dredging (Area 2).
- Dredge Plant Equipment and Systems Processes (Area 3).
- Vessel Positioning, Survey Controls, and Dredge Monitoring Systems (Area 4).
- Management of Dredging Projects (Area 5).

Additional Information

For additional information concerning the contents of this technical note, contact the author, Mr. Russell K. Tillman, (601) 634-2016, or the manager of the Dredging Research Program, Mr. E. Clark McNair, Jr., (601) 634-2070.

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US Army Engineer Waterways Experiment Station
3909 Halls Ferry Road, Vicksburg, MS 39180-6199

PRINTED ON RECYCLED PAPER
AQI 99-10-1771

DRP Products

The DRP uses a wide range of products to convey research results to the Corps dredging community. The following paragraphs describe traditional publication products, as well as a series of new products that customize the delivery of DRP results toward special audiences and situations. (Refer to the Bibliography, page 7, for a current listing of all distributed DRP products.)

Instruction Reports (IRs)

These reports outline or propose techniques or procedures for implementing usable DRP-developed technology for solving field problems. IRs are used by the DRP to provide documented guidance for field use.

Technical Reports (TRs)

These reports contain the methodology of research investigations. TRs provide documentation of what was done in the program research work unit but may not provide directly applicable cost-saving techniques. TRs document the work unit methodologies and foundations, and serve as a reference for developing DRP products which provide specific cost-savings assistance.

Miscellaneous Papers (MPs) and Contract Reports (CRs)

MPs are investigation reports that are usually less technical than TRs but provide specific guidance. CRs are prepared by DRP contractors and describe work aimed at achieving specific goals of DRP work units.

Technical Notes (TNs)

Technical Notes are one of the quickest mechanisms to relay research results to the DRP users. While most IRs provide the user with results at the end of a work unit, TNs are short (approximately 5 to 10 pages), loose-leaf documents published at any time during a work unit. TNs allow the DRP to provide interim products, methodologies, and guidance that are of use to the field when normal distribution of the results would not occur until later, when published in a formal product.

Users should be aware that TNs are not limited to DRP activities. Rather, all Corps personnel are encouraged to submit TNs that describe innovative or cost-saving dredging activities occurring at their project.

HQUSACE Proponent Guidance

At request, the DRP prepares draft Engineer Manuals, Engineer Technical Letters, and Engineer Circulars for distribution by HQUSACE proponents.

Information Exchange Bulletin (IEBs)

The newspaper of the DRP, *Dredging Research*, is distributed to over 5,000 readers. Unlike TNs, which are designed to provide specific guidance, *Dredging Research* provides newsworthy information about the DRP and the Corps dredging program. It is a goal of the DRP to make *Dredging Research* a two-way forum for discussing a wide range of dredging activities. Therefore, readers are always invited to submit articles and newsworthy information.

Executive Notes (ENs)

DRP Executive Notes provide brief summaries about ongoing DRP events. ENs are designed to quickly inform Corps dredging-related management personnel about upcoming DRP activities, products, and events.

Video Reports

The DRP uses video reports to provide quick overviews on specific accomplishments to a wide audience. Furthermore, video reports easily highlight and stress research accomplishments and concepts that may normally not be brought out in formal publications.

Personal Computer (PC) Programs

The DRP prepares numerous computer programs, allowing methodology to be customized to the user's specific situation. All programs are designed for use on IBM 286, 386, or 486 compatible systems.

Demonstration Disks

Slide shows describing DRP PC Programs have been placed on floppy disks. Demonstration Disks allow DRP users to review and learn DRP PC Program capabilities at their own pace. Presently, demonstration disks are being prepared for all DRP PC Programs.

Workshops

While DRP products are designed to stand alone, user workshops provide direct assistance in learning or refining new techniques. DRP workshops remain flexible and, depending on interest, can be conducted on a

Corps-wide, Division, or District level, and can include non-Corps entities where appropriate.

Field Demonstrations, Experiments, and Prototype Testing

From time to time, cost-saving techniques and equipment developed by DRP work units require refinement by testing in real-world conditions. Assisted by Corps District office personnel, the DRP conducts field demonstrations and experiments on cost-saving techniques that are monitored in a test environment. Products documenting these exercises are prepared, and the knowledge gained from these demonstrations or experiment is used to refine existing and future DRP products.

DredgeNet

A computer-based teleconferencing network, DredgeNet, provides informal and timely exchange of information regarding the Corps' dredging program. The 75-plus DredgeNet members allow for an important and unique two-way forum to rapidly relay, critique, discuss, evaluate, and exchange ideas about DRP activities. The DRP Management monitors DredgeNet daily and shares its discussion with DRP Technical Area Managers and Principal Investigators. In addition, an update of DRP activities is provided to DredgeNet members every three months.

Displays, Brochures, and Pamphlets

A display describing DRP activities is available for workshops, conferences, and conventions. A single-sheet pamphlet, five-page color brochure, and TV/VCR program describing DRP activities support this display.

Mailing Lists

A crucial link in the delivery of DRP products is mailing lists. Even the best DRP product is totally useless if it is not delivered to the appropriate audience. Therefore, users are strongly urged to notify the DRP Management of address changes or corrections. The DRP has targeted Corps offices involved with dredging to receive various products. Furthermore, all Corps libraries receive DRP publications. When requested, the DRP will add names to mailing lists.

DRP Personalities

The success and effectiveness of the DRP lies in a team effort with numerous people having specific roles and responsibilities. If users are to provide constructive feedback on DRP products and ongoing work, it is necessary for them to know and understand this team and its role and responsibilities. The following paragraphs provide a brief description of each role. Table 1 provides the names of all the current DRP contacts.

Users

Users play a crucial role in the DRP and provide work unit and product evaluation. Users must provide much-needed feedback on the effectiveness and clarity of DRP products, as this feedback will be used to improve future products. In addition, comments on any manpower, time, and cost savings resulting from use of the product are also needed. The DRP looks to its users to assist in evaluating work unit direction by participating in Program Reviews, Field Review Group meetings, workshops, and other DRP activities. While sometimes it is not feasible to attend these meetings, users are encouraged to relay their comments to their respective Field Review Group member or other meeting participants.

Directorate of Research and Development (CERD)

CERD, one of the five HQUSACE directorates, is the financial sponsor of the DRP and is ultimately responsible for the DRP and other Corps research programs. One way that CERD ensures DRP responsiveness to field needs is by conducting semiannual program review meetings where a Corps-wide audience reviews, evaluates, and recommends research priorities.

Technical Monitors and Advisors

To assist and monitor the direction of the DRP, HQUSACE has appointed technical monitors and advisors. Located at HQUSACE, each technical monitor has been assigned responsibility for one of the five DRP technical areas. While this is an "other duties as assigned" position, these individuals perform a very important role in program direction by establishing work unit priorities and funding levels and reviewing draft user products.

Field Review Group (FRG)

Composed of Corps personnel representing diverse backgrounds in dredging operations, the FRG provides constructive guidance to Technical Monitors on DRP activities. A unique aspect of the FRG is that members are assigned to specific DRP technical areas, in which they provide candid advice to Technical Monitors, DRP management, and Principal Investigators on specific program or work unit activities. While the FRG meets twice a year to review DRP progress, members also provide much-needed support to the DRP concerning any activities occurring in their respective Division or District.

Program Management Office

Located at the Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, the DRP Management Office is

responsible for the day-to-day management of the program. The main objective of DRP Management is to ensure program continuity, success, and effectiveness by planning and managing work units, approving initial draft products, and managing product deadlines and expenditures. DRP Management is also responsible for coordinating Program Review and Field Review Group meetings.

Technical Area Managers

Each of the five DRP Technical Areas has a Technical Manager who reports directly to the DRP Manager. Technical Managers oversee, coordinate, and provide direction to Principal Investigators' work unit methodology and activities.

Principal Investigators (PIs)

PIs are responsible for planning and conducting DRP research. In addition, PIs develop user products which are the end result of DRP work unit efforts. Working under tight time constraints, PIs must plan and implement their study methodology within the delivery deadlines of work unit products established with DRP management. In addition, to ensure effective production development, PIs constantly seek informal day-to-day contact and evaluation with Corps personnel on the direction of their work unit.

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Displays, Brochures, and Pamphlets

DRP Display Themes:

- DRP Overview.
- Technical Area 1 Overview: Analysis of Dredged Material Placed in Open Water.
- DRP Hydrographic Surveying Work.
- Why Dredge? (Economics of Dredging).
- Technical Area 2 Overview: Material Properties Related to Navigation and Dredging.
- Dredging and Navigation Branch.
- Beneficial Uses of Dredged Material.
- GPS: Meters Today Decimeters Tomorrow.
- Submersible Pumps as an Alternative to Dredging.
- Subbottom Site Characterization Using Acoustic Impedance.
- Results of the Tylers Beach Plume Tracking Study.
- Water Injection Dredging.

DRP Pamphlet, May 1989.

DRP Brochure, March 1990.

Table 1

Dredging Research Program Key Personnel

	<u>Office</u>	<u>Office Symbol</u>	<u>Telephone No.</u>
DRD Coordinator, HQUSACE			
Jesse A. Pfeiffer, Jr.	Civil Works Program	CERD-C	(202) 272-1846
Technical Monitors and Advisors, HQUSACE			
Robert H. Campbell	Operations, Construction, and Readiness Division	CECW-OD	(202) 272-0397
John H. Lockhart, Jr. (Area 1)	Engineering Division	CECW-EH-D	(202) 272-8503
Barry W. Holliday (Area 2)	Operations, Construction, and Readiness Division	CECW-OD	(202) 272-8834
Dave A. Roellig (Area 2)	Engineering Division	CECW-EG	(202) 272-8684
Gerald Greener (Area 3)	Operations, Construction, and Readiness Division	CECW-OD	(202) 272-8830
M. K. Miles (Area 4)	Engineering Division	CECW-EP-S	(202) 272-8885
David Mathis (Area 5)	Office of Environmental Policy	CECW-PO	(202) 272-8843
Program Management			
E. Clark McNair, Program Manager	Coastal Engineering Research Center	CEWES-CP-D	(601) 634-2070
Lyndell Z. Hales, Asst. Manager	Coastal Engineering Research Center	CEWES-CP-D	(601) 634-3207
Russell K. Tillman	Coastal Engineering Research Center	CEWES-CP-D	(601) 634-2016
Karen R. Wood	Coastal Engineering Research Center	CEWES-CP-D	(601) 634-4271
Field Review Group			
Patrick Cagney (Area 1)	Seattle District	CENPS-EN-PL-ER	(206) 764-3624
Douglas M. Pirie (Area 1)	South Pacific Division	CESPD-CO-O	(415) 705-1443
J. Patrick Langan (Area 1)	Mobile District	CESAM-OP-O	(205) 690-2591
Robert E. Parker (Area 1)	Seattle District	CENPS-OP	(206) 764-3455
Robert M. Parry (Area 1)	Seattle District	CENPS-OP-NP	(206) 764-3400
Timothy Pope (Area 2)	South Atlantic Division	CESAD-EN-FG	(404) 331-6703
Braxton Kyzer (Area 2)	Charleston District	CESAC-PM-N	(803) 724-4489
Gregory E. Breerwood (Area 2)	New Orleans District	CELMN-OD-ON	(504) 862-2302
Robert A. Neal (Area 3)	North Central Division	CENCD-CO-MO	(312) 353-6378
Larry A. Rabalais (Area 3)	Lower Mississippi Valley Division	CELMV-CO-O	(601) 634-5814
David C. Beach (Area 3)	Portland District	CENPP-OP-N	(503) 326-6082
Robert J. Hopman (Area 4)	North Pacific Division	CENPD-CO-O	(503) 326-3778
Herbie A. Maurer (Area 4)	Galveston District	CESWG-CO-M	(409) 766-3966

Table 1 (Continued)
Dredging Research Program Key Personnel

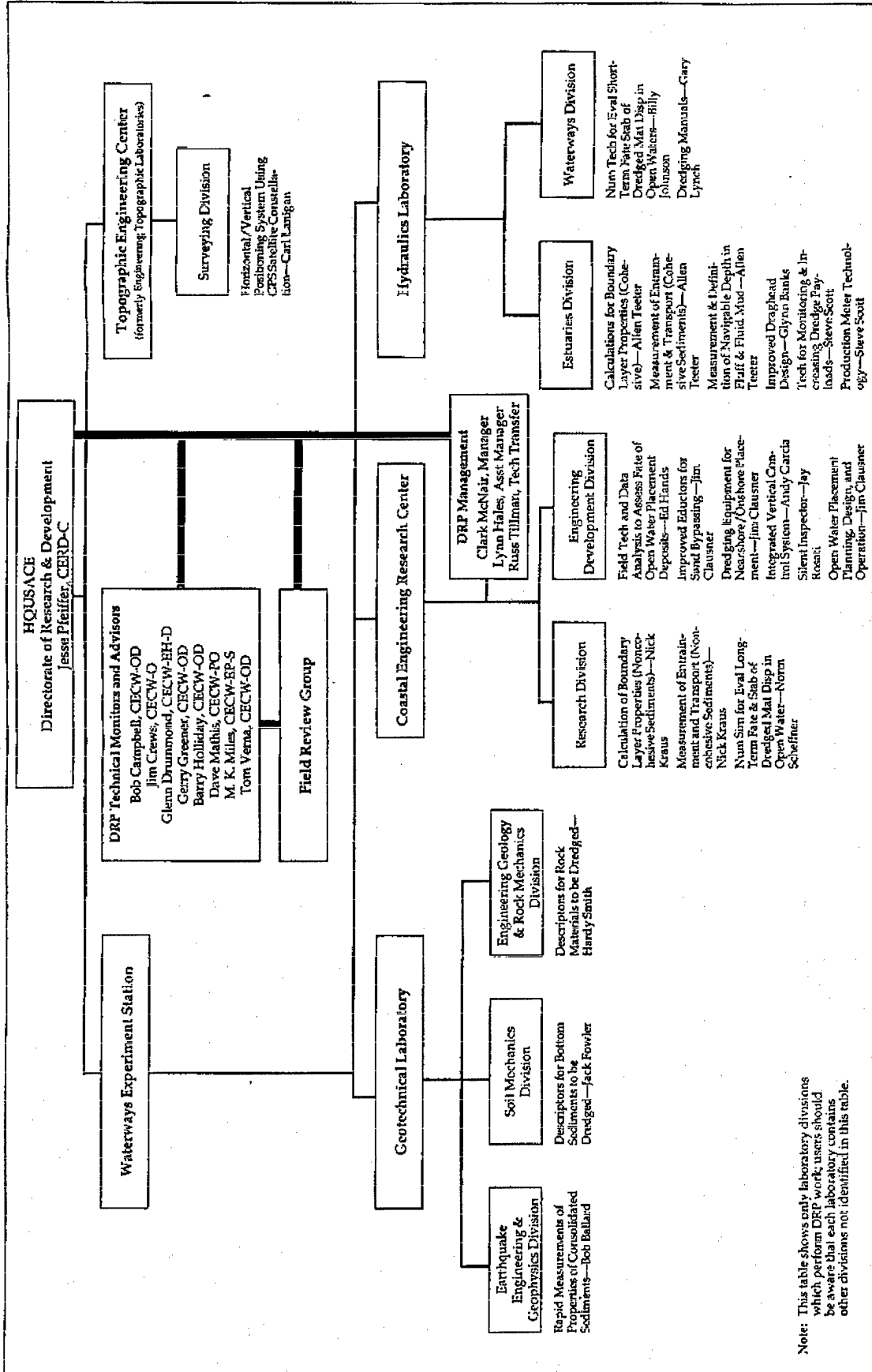
	<u>Office</u>	<u>Office Symbol</u>	<u>Telephone No.</u>
Field Review Group (Continued)			
Ronald G. Vann (Area 4)	Norfolk District	CENAO-ED-C	(804) 441-7057
Jacob F. Redlinger (Area 4)	North Pacific Division	CENPD-CO-O-N	(503) 326-3779
Charles E. Settoon (Area 5)	New Orleans District	CELMN-ED-C	(504) 862-2726
Kenneth H. Patterson (Area 5)	Portland District	CENPP-OP	(503) 326-3404
Paul J. Warren (Area 5)	Mobile District	CESAM-FO-MO	(205) 957-6019
Carl G. Boutilier (Area 5)	New England Division	CENED-OD-N	(617) 647-8330
James Reese (Area 5)	North Pacific Division	CENPD-PE-R	(503) 326-2832
John Tavoraro (Area 5)	New York District	CENAN-OP	(212) 246-9020
Susan Rees (Area 5)	Mobile District	CESAM-PD-EC	(205) 690-2724

Technical Managers			
Nicholas C. Kraus (Area 1)	Coastal Engineering Research Center	CEWES-CV-CS	(601) 634-2018
Don C. Banks (Area 2)	Geotechnical Laboratory	CEWES-GS	(601) 634-2630
William D. Martin (Area 3)	Hydraulics Laboratory	CEWES-HE-E	(601) 634-4157
George P. (Pat) Bonner (Area 4)	Instrumentation Services Division	CEWES-JV-Z	(601) 634-2538
Thomas W. Richardson (Area 5)	Coastal Engineering Research Center	CEWES-CD	(601) 634-2019

Principal Investigators			
	<u>DRP Work Unit</u>	<u>Technical Area</u>	<u>Telephone No.</u>
Nicholas C. Kraus CEWES-CR	Calculation of Boundary Layer Properties (Noncohesive Sediments)	1	(601) 634-2018
Micheal W. Tubman CEWES-CD-P	Measurement of Entrainment and Transport (Noncohesive Sediments)	1	(601) 634-3009
Allen M. Teeter CEWES-HE-P	Calculation of Boundary Layer Properties (Cohesive Sediments)	1	(601) 634-2820
	Measurement of Entrainment and Transport (Cohesive Sediments)	1	
	Measurement and Definition of Navigable Depth in Fluff and Fluid Mud	2	
Billy H. Johnson CEWES-HR-M	Numerical Simulation Techniques for Evaluating Short-Term Stability of Dredged Material Disposed in Open Waters	1	(601) 634-3425
Norman W. Scheffner CEWES-CR-P	Numerical Simulation Techniques for Evaluating Long-Term Stability of Dredged Material Disposed in Open Waters	1	(601) 634-3220
Edward B. Hands CEWES-CD-SE	Field Techniques and Data Analysis to Assess Fate of Open-Water Disposal Deposits	1	(601) 634-2088
Robert F. Ballard CEWES-GG	Rapid Measurements of Properties of Consolidated Sediments	2	(601) 634-2201

Table 1 (Concluded)
Dredging Research Program Key Personnel

	<i>DRP Work Unit</i>	<i>Technical Area</i>	<i>Telephone No.</i>
Principal Investigators (Continued)			
Jack Fowler CEWES-GS-S	Descriptors for Bottom Sediments to Be Dredged	2	(601) 634-2703
Hardy J. Smith CEWES-GS-R	Descriptors for Rock Materials to Be Dredged	2	(601) 634-2431
Glynn E. Banks CEWES-HE-E	Improved Draghead Design	3	(601) 634-3597
James E. Clausner CEWES-CD-SE	Improved Eductors for Sand Bypassing Dredging Equipment for Nearshore/ Onshore Placement	3 3	(601) 634-2009
Stephen H. Scott CEWES-HE-E	Technology for Monitoring and Increasing Dredged Payloads in Fine Grain Sediments Production Meter Technology	3 4	(601) 634-4286
Andrew W. Garcia CEWES-CD-P	Integrated Vertical Control System	4	(601) 634-3555
Sally Frodge CETEC-TL-SP	Horizontal/Vertical Positioning System Utilizing GPS Satellite Constellation	4	(703) 355-2819
James R. Rosati CEWES-CD-P	Silent Inspector	4	(601) 634-2022
Gary C. Lynch CEWES-HR-N	Dredge Plant Manuals	5	(601) 634-4165
Sandra K. Lemlich CEWES-CD-SE	Open Water Placement Site Planning, Design, and Operation	5	(601) 634-2090
Cheryl Pollock CEWES-CD-SE	(Berm Management)		(601) 634-4029
Russell K. Tillman CEWES-CP-D	Dredging Technology Transfer	Program Management	(601) 634-2016



Note: This table shows only laboratory divisions which perform DRP work; users should be aware that each laboratory contains other divisions not identified in this table.