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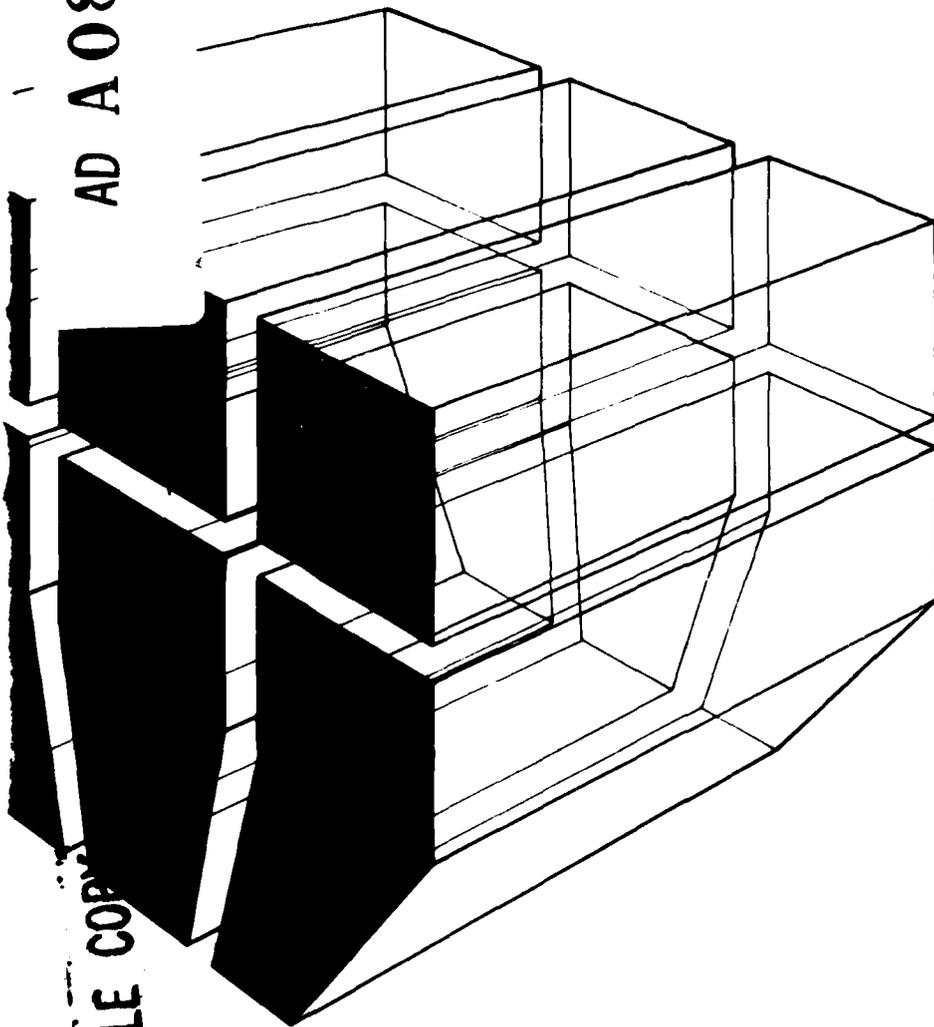


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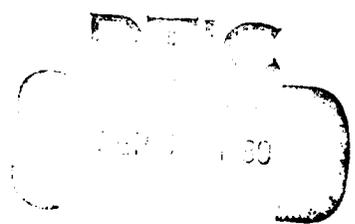
TECHNICAL REPORT P-110
August 1980

ZERO BASE BUDGET, CIVIL WORKS OPERATION
AND MAINTENANCE SYSTEM: EXECUTIVE SUMMARY

AD A 088634



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report provides a management level overview of the Zero Base Budget, Civil Works Operations and Maintenance (ZBB/CWOM) system, a tool to develop funded programs which reflect management objectives. The ZBB/CWOM system requires that work in support of each project be defined in terms of that base effort which is absolutely essential to the accomplishment of the most significant aspects of the project. Those efforts which go beyond this base effort are expressed in logical increments of work. The ZBB/CWOM system develops a prioritization of the incremental work efforts, ranging in importance from the		

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Block 20 continued.

most needed to the least needed, thereby integrating the work increments of a single project with the work increments of other projects. A single listing of all work elements, regardless of project, is developed in priority order; i.e., decision packages (DPs) which describe the work increments are developed and ranked.

This report, in addition to providing a management overview, serves as a guide to the ZBB/CWOM system codes.

[Note: Since the development of the system described herein, the system proponent has made major changes to the system design, has changed the data base manager from SYSTEM 2000 to FOCUS, and has re-installed the system on TYMSHARE's computer. Thus, this report describes the system as it existed when CERL transferred it to the user. It does not describe the Civil Works ZBB/CWOM system as it currently exists.]

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FOREWORD

This study was performed by the U.S. Army Construction Engineering Research Laboratory (CERL) for the Office of the Chief of Engineers (OCE), Directorate of Civil Works, Inter-Agency Order numbers CWO-M-78-2 and CWO-M-77-4.

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COL Louis J. Circeo is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.

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CONTENTS

	<u>Page</u>
DD FORM 1473	1
FOREWORD	3
1 INTRODUCTION.....	5
Background	
Purpose and Scope	
Outline of Report	
2 SYSTEM OVERVIEW.....	6
General	
Decision Packages	
Ranking	
3 SYSTEM INPUT.....	7
Districts	
Divisions	
Office of the Chief of Engineers	
4 SYSTEM OUTPUT.....	9
Standard-Format Reports	
Immediate Access Queries	
SYSTEM 2000 "Report Writer"	
APPENDIX A: INPUT FORMS AND CODES	12
APPENDIX B: ANNOTATED BIBLIOGRAPHY	23
APPENDIX C: STANDARD FORMAT REPORTS	24
APPENDIX D: USING "IMMEDIATE ACCESS"	36
DISTRIBUTION	

ZERO BASE BUDGET, CIVIL WORKS OPERATION
AND MAINTENANCE SYSTEM: EXECUTIVE SUMMARY

1 INTRODUCTION

Background

By 15 September each year, the Office of the Chief of Engineers (OCE) must forward the Civil Works Operations and Maintenance (O&M) budget for FY+2 to the Office of Management and Budget (OMB). This budget is the vehicle by which OCE defends the total Civil Works O&M program. The budget must reflect the trade-offs associated with eliminating work items in response to a budget cut and with adding work items in a request for a higher funding level. The budget must also reflect the priorities of the individual work items in the budget. The method adopted to achieve these budget features is the Zero Base Budget (ZBB) procedure. In November 1976, the Director of Civil Works requested the U.S. Army Construction Engineering Research Laboratory (CERL) to develop an automated ZBB system.

CERL developed the automated ZBB system in two phases. In phase I, accomplished during FY 77, CERL designed a prototype system in which the Districts and Divisions submitted input data via paper reports to OCE. The data were then input to the computer at the OCE level. In phase II, accomplished during FY78, CERL improved and documented the system, provided the capability for Districts and Divisions to input data directly to the computer, and greatly expanded the "standard reports" capability of the system.

Purpose and Scope

This report provides a management level overview of the Zero Base Budget Civil Works Operations and Maintenance (ZBB/CWOM) system and serves as a guide to the interpretation of the system codes. The report does not present the technical details of the development and maintenance of the ZBB/CWOM data base. It addresses only those aspects of the system that are essential to understanding the system output.

Outline of Report

Chapter 2 of this report presents the ZBB/CWOM system overview, Chapter 3 describes the system input, and Chapter 4 describes the system output. Appendix A contains sample input forms and codes. An annotated bibliography of material available on the ZBB/CWOM system is in Appendix B. Appendix C includes standard format report samples. Instructions for using the "IMMEDIATE ACCESS" feature of the ZBB/CWOM are given in Appendix D.

2 SYSTEM OVERVIEW

General

The ZBB/CWOM system is used as a management tool to develop a funded program which reflects management's objectives. ZBB requires that the work in support of each project be defined in terms of that base effort which is absolutely essential to the accomplishment of the most significant aspects of the project. Those efforts which go beyond this base effort are expressed in logical increments of work. The ZBB technique then develops a prioritization of the incremental work efforts, ranging in importance from most needed to least needed. In doing this, ZBB provides the method of integrating the work increments of a single project with the work increments of other projects such that a single listing of all work elements, regardless of project, is developed in priority order. Thus, there are basically two steps in the accomplishment of ZBB: developing decision packages (DPs) that describe the work increments and ranking these DPs.

Decision Packages

A DP is a logical, concise, systematic description of the scope of discrete element(s) of work. An example DP is shown in Appendix A.

The total work effort for a particular project consists of all DPs that describe each of the work increments comprising that project. For most projects, for example, a single DP will describe the essential "base effort" required. Other DPs will in turn describe the incremental effort required to achieve increasingly higher levels of output from the project.

Ranking

Once DPs have been developed for all projects, they are ranked in order of importance. At each level -- project manager, District, Division, and OCE -- the information in the DP is used to estimate the relative worth of each work element. At each managerial level, the decision packages are then arranged sequentially in order of importance. Since the ZBB/CWOM system machine-produces prioritized lists of DPs, each level of management has a ready means to check that the priorities indicated by its subordinates truly reflect the management objectives it has established.

3 SYSTEM INPUT

Information describing the budget request is input each year at three organizational levels--District, Division, and OCE. This chapter describes the input responsibilities at each level in general terms.

Districts

Thirty-six Districts -- and the New England and Pacific Ocean Divisions -- are responsible for developing the work requirements and funding needs for Civil Works budget requests. Districts within the Lower Mississippi Valley Division (LMVD) must also develop similar data for the O&M, Mississippi River and Tributaries (MR&T) Appropriation. These 38 organizations actually develop the DPs, which are basic building blocks of the ZBB/CWOM system. Each project is assigned a Civil Works Identification System (CWIS) number. A maximum of 50 DPs may be used for each project. Appendix A contains an example DP and descriptions of authorized codes and certain definitions used in the DP.

Each DP within a project is assigned priorities by the project manager. District engineers or their authorized representatives then review the priorities within each project and assign priorities to all DPs across all the projects within their organization. (The maximum rank that a District may assign is "999".) The District program is then submitted to the Division for review and/or integration into the Division program. After the District program is approved by the Division, the District codes the DP data, punches these data onto cards, and inputs the card deck into the ZBB/CWOM system via remote terminal. This is done by May 20 of each year. When notified by the Data Base Administrator (DBA) that its submission is "loaded" into the data base, the District may then request reports that are available from the ZBB/CWOM system. Initially, "bogus" OCE ranks (60,000 to 96,000) are automatically assigned by the computer to each DP, such that each 1,000 increment of OCE ranks is unique to a particular District. "Bogus" Division ranks in the range of 1,000 to 6,000 are also computer generated at this time.

Divisions

Eleven Divisions (including the New England and Pacific Ocean Divisions) review the District O&M budget requests. LMVD reviews requests on both the "General" and "MR&T" programs. When the Division Engineer is satisfied with the program configuration of all subordinate Districts, Division priority is assigned to each DP, and the DPs are integrated into a single Division program, arranged in priority order. These priority assignment cards are input to the ZBB/CWOM system by 15 June of each year. When advised by the DBA that the ranks have been loaded, the Division may use the ZBB/CWOM system to generate Division-level reports. When the actual Division ranks are loaded, second series "bogus" OCE ranks in the range of 30,000 to 52,000 are automatically generated by the computer for each DP by the addition of an appropriate constant to each Division rank.

Office of the Chief of Engineers

In July and August of each year, the Chief, Operations Branch (DAEN-CWO-M), using the "bogus" OCE ranks, generates Division-level statistics to aid in the process of assigning actual OCE priorities to the DPs across all Division programs. The actual OCE rank for every DP is negotiated and assigned. The DBA then loads the actual first pass OCE rank assignments. OCE-level analysis reports are run on the new program configuration. OCE changes the priorities as desired; OCE rank changes are loaded by the DBA. The cycle is repeated until the final program configuration is determined. The system is then used to generate OCE-level through District-level reports to advise the field units of what DPs have been requested for funding. It should be noted that the system is designed to allow only one DBA to actually "write" on the data base; Districts and Divisions do *not* have "write" authority. Districts and Divisions input their data for cataloging only. This catalog file is then used by the DBA to actually load the data into the data base.

4 SYSTEM OUTPUT

Standard-Format Reports

Ten paper format and one tape format reports are computer generated through the Program Language Interface (PLI) capability of System 2000. Specific instructions for generating the reports are contained in the ZBB/CWOM Guidebook (see Appendix B for an annotated bibliography of ZBB-related publications). A brief description of each report is presented below.

Ranking List

This report provides priority and cumulative funding information by decision package. The report may be requested for OCE level, Division level, or District level. (See Appendix C.)

Project List (by District)

This report provides project identification type information by program for each District (and for New England and Pacific Ocean Divisions). Its main use is to help determine if the data on each project have been entered into the data base correctly. The listing for each organization is begun on a new sheet. The report may be requested for OCE level, Division level, or District level. An example is in Appendix C.

Project Data Summary

This report provides a summary by project of all the inputs and outputs of a particular project as defined in all of the DPs included as part of a funded program. An OCE rank is used to describe the lowest priority package considered as part of the program. The project information is always reported at the District level, and the report may be requested for a District or a Division but not for OCE. The pages are reported alphabetically by organization code, then alphabetically by classification code, then numerically by CWIS number. All projects within an organization are reported for each report requested on that particular organization. (See Appendix C for a sample page.)

Feature Costs/Manpower Summary

This report is a program summary, by organization and by each project classification, of cost and manpower information on the DP forms. The information can be requested for a District, for a Division, and for OCE for either program. District-level summaries can be optionally suppressed in a Division-level report; Division and/or District-level summaries can be optionally suppressed in an OCE-level report. (See Appendix C for a sample page of a District-level report.)

DP Descriptor and Numerical Output Measure Summary

This report is a program summary, by organization and by project classification, of certain information presented in the "DP Descriptor" and "Numerical Output" sections of the DP form. The options for requesting the report and for suppressing portions of the report are the same as for the Feature Costs/Manpower Summary. Page format for a District-level report is shown in Appendix C.

Project Total Cost Summary

This report is a summary, by organization and by project classification, of the total costs of each project within a specified fund ceiling. If a District-level report is requested, a listing of projects within the particular District specified is generated. If a Division-level report is requested, a consolidated listing of all projects within that Division is generated. If an OCE-level report is requested, a consolidated listing of all projects within OCE is generated. Each project classification listing and each category total and the program total on the OCE consolidated listing are printed on separate sheets to enable easier processing and analysis by the various OCE staff elements. Division- and District-level reports do not begin different categories on new pages. An example page format for a District-level report is shown in Appendix C.

Decision Package Format

This report prints all DP information stored in the data base for all DPs within specified OCE ranks and within the designated organization. The report may be requested as a District-, Division-, or OCE-level report. One format is shown in Appendix C.

Dredging Requirements Summary

This report summarizes all dredging-related information for all DPs within specified OCE rank boundaries. The report may be requested for a District, Division, or OCE. The format for an OCE-level report is shown in Appendix C.

DP Qualifier and Qualitative Output Listing

This report summarizes all "DP Qualifier" and "Qualitative Output" information in the data base for all DPs within specified OCE rank boundaries. The report may be requested for DPs of a single District, a Division, or OCE. The format for a District-level report is shown in Appendix C.

Project Descriptor Summary

This report summarizes all project descriptor information within a Corps-funded program. The report may be requested for data of a single District, a single Division, or all of OCE. The format for an OCE-level report is shown in Appendix C.

Project Cost by Feature/Subfeature

This output report summarizes, by project, the total feature or subfeature costs of all Corps projects within a specified funding limit. Total costs for feature or subfeature codes with zero entries are not reported. If subfeature code data are recorded, the parent feature code is not reported. Totals for "Operations" or for "Maintenance" are not reported. Total "Budgetary Authority" is reported for each project under code "TC." "Credits" are reported under code "CR." The data are presented by program; first alphabetically by organization code, then alphabetically by project classification code, then numerically by CWIS number, then numerically by feature code. The format and specifications for this report are described more fully in Appendix C.

Immediate Access Queries

A wide variety of these queries can be made using commands such as "PRINT," "LIST," "TALLY," and the system functions, user-defined functions, and unary, binary, ternary, and boolean operators available in the "Immediate Access Feature" of SYSTEM 2000. A few examples are presented in Appendix D.

SYSTEM 2000 "Report Writer"

This capability can be used to generate "Cumulative Total" reports, but this feature is limited to reporting information elements that lie along a single vertical path of the data base "tree." The data base definition ("tree") for the ZBB/CWOM data base is described in Appendix D.

APPENDIX A: INPUT FORMS AND CODES

	<u>Page</u>
Decision Package, Page 1	13
Decision Package, Worksheets	14
Project Class Codes and Project Codes	15
State Codes and Organization Codes	16
Decision Package Types and Project Qualifier	18
Decision Package Qualifiers	19
Qualitative Outputs and Project Descriptors	20
Decision Package Descriptors	21
Numerical Outputs and Supplementary Cost Codes	22

DECISION PACKAGE			OCE USE ONLY	
ZBB/CWOM SYSTEM			BY <u>80</u>	
1a. CWIS#		2a-f. PROJECT NAME (Max of 48 characters and spaces)		
11550		MISSISSIPPI R. BETWEEN MISSOURI R. AND MN (RID)		
3a. PROJECT CLASS		3b. PROJECT CODE	3c. STATE CODE (One only)	3d. ORGANIZATION CODE
NL		D	IL	NCR
4a. DECISION PACKAGE TYPE	4b. DP RANK IN PROJECT	4c. TOTAL DP's IN PROJECT	4d. DISTRICT RANK	
B	1	10	6	
5. PROJECT DESCRIPTION 314 miles of 9 foot commercial navigation channel; 14 locks with 44,000 commercial lockages; annually 25,000,000 tons of commercial traffic; over 20,000 recreational lockages of 46,000 recreational craft; 11 navigation dams; 94,000 acres of land; 26 Public Use areas; 11 small boat harbors & access channels.				
6. FUNCTIONS, THIS DP Base funding necessary for O&M of the project as per guidelines.				
7. FUNDING ARGUMENT Base level funding - Minimum effort level.				
8. ALTERNATIVES: <input checked="" type="checkbox"/> a) CONTRACTS; <input type="checkbox"/> DELAY 'TIL NEXT FY; <input type="checkbox"/> OTHER (Explain)				
a) \$150 ^K of preventive maintenance.				
9. PROJECT QUALIFIER		CODE	12. PROJECT DESCRIPTORS	AMOUNT (To nearest 0.0)
a. NAVIGATION TYPE USE		CR	a. POWER CAPACITY (KILOWATTS)	
			b. FLOOD DAMAGES PREVENTED (\$1000)	
			c. RECREATION DAYS OF USE (1000 days)	15,000.0
10. DP QUALIFIERS		CODE	13. DP DESCRIPTORS	AMOUNT (To nearest 0.0)
a. TYPE DREDGE CODE			a. DOLLARS, THIS DP (\$1000)	6,168.0
b. SPECIAL WORK CODE			b. TOTAL DREDGING (1000 CY)	
c. C&O-PERIODIC INSP. FLAG			c. AMOUNT OF NEW WORK (\$1000)	
d. C&O-REPLACE. STUDY FLAG			d. \$ INCR DUE TO W.B. RAISE (\$1000)	106.0
e. C&O-SAFETY STUDY FLAG		Y	e. \$ CHANGE-OTHER CAUSES (\$1000)	500.0
f. C&O-OTHER STUDIES FLAG			f. COST OF MASTER PLANS (\$1000)	
11. QUALITATIVE OUTPUTS		CODE	14. NUMERICAL OUTPUTS	AMOUNT (To nearest 0.0)
a. VISITOR EXPERIENCE			a. NAV. LOSS PREVENTED (\$1000)	
b. PREVENTIVE MAINTENANCE			b. MAINT. LOSS PREVENTED (\$1000)	
c. BOUNDARY ENFORCEMENT			c. GRF BACKLOG REDUCED (No. permits)	
REFERENCE ER 11-2-101. BUDGETARY INFORMATION IS NOT TO BE RELEASED OUTSIDE DEPT OF ARMY				

TEST FORM, LOCAL REPRODUCTION AUTHORIZED

DECISION PACKAGE		PAGE 3	
ZBB/CWOM SYSTEM		(WORKSHEET)	
PROJECT NAME MISSISSIPPI R. BETWEEN MISSOURI R. AND MN (R10)		DP RANK IN PROJECT	DISTRICT RANK
		1	6
15	FEATURE COSTS IN THOUSANDS (To nearest hundred dollars)		
01	LOCKS, DAMS, RESERVOIRS	80.0	2440.0
02	SERVICE FACILITIES	2.0	498.0
03	LEVEE, FLOWALL, PUMP PLANT		
04	POWER PLANT		
05	NATURAL RESOURCE MGMT		10.5
06	RECREATION MANAGEMENT	100.0	64.5
07	CONDITION & OPER'N STUDIES		130.0
08	REMOVE SUNK VSL & OBSTR'S		
09	WATER CONTROL MANAGEMENT		55.0
10	INSPECTION & REPORTS	100.0	203.0
11	SURVEY NORTH CENTRAL LAKES		
14	PREVENT OBSTR DEPOSITS		
15	01 GEN REG SECTIONS 9 & 10		
15	02 GEN REG SECTION 4B2		
15	03 GEN REG SECTION 103		
15	04 GEN REG SECTION 404		
15	05 GEN REG OTHER REG FUNCTIONS		
15	06 GEN REG MEPA		
15	07 GEN REG ENFORC. LIT. SURV'L		
15	08 GEN REG NAVIG'N STUDIES		
15	09 GEN REG PUBLIC HEARINGS		
15	10 GEN REG MISCELLANEOUS		
16	01 LAW ENFORCE CONTRACT ONLY		
16	02 SBA FOR LAW ENFORCE ONLY		
19	SBA ALL EXCEPT LAW ENFORCE	20.0	837.0
19	SUB TOTAL OPERATIONS	200.0	4238.0
19	ST		857.0
19	TOTALS		4540.0

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TEST FORM LOCAL REPRODUCTION AUTHORIZED

DECISION PACKAGE		PAGE 3	
ZBB/CWOM SYSTEM		(WORKSHEET)	
PROJECT NAME MISSISSIPPI R. BETWEEN MISSOURI R. AND MN (R10)		DP RANK IN PROJECT	DISTRICT RANK
		1	6
15	FEATURE COSTS IN THOUSANDS (To nearest hundred dollars)		
20	LANDS, DAMAGES		
21	DAMS	40.5	304.0
22	LOCKS	27.0	258.0
23	POWER PLANT		
24	NATURAL RES. FACILITIES		
25	ROADS, RR, BRIDGES		
26	BREAKWATER, SEAWALLS		
27	LEVEES, FLOODWALLS	30.0	72.0
28	PUMPING PLANTS		
29	RECREATION FACILITIES	21.5	244.0
30	PERMANENT OPER. EQUIP.	30.0	70.0
31	BANK STABILIZATION		
32	BLOGS, GROUNDS, UTILITIES	10.0	30.0
33	01 CHNL & CANAL DREDGING		
33	02 CHNL & CANAL ALL OTHER		
34	E&O		30.0
35	S&A	20.0	380.0
35	ST SUB TOTAL MAINTENANCE	57.0	1408.0
35	GT GRAND TOTAL O&M	267.0	6846.0
35	CR CREDITS (NEGATIVE ENTRY)		
35	BA BUDGET AUTHORITY REQUEST	267.0	5646.0
18	MANPOWER IN MAP YEARS (To nearest tenth man year)		
	NON DISTRICT	3.0	115.0
	DISTRICT INDIRECT	1.0	12.0
	DISTRICT DIRECT		
01	GOVERNMENT PERMANENT		
02	GOVERNMENT OTHER		
03	NON GOVERNMENT		

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PROJECT CLASS CODES
(DP Block 3a)

<u>Category</u>	<u>Classification</u>	<u>Code</u>
Flood Control	Channel Improvements, Inspections and Miscellaneous Maintenance	FC
	Inspection of Completed Works	FI
	Reservoirs	FR
	Scheduling Reservoir Operations	FS
Multi-Purpose	Multiple Purpose Including Power	MP
Navigation	Channels and Harbors-Regular	NC
	Channels and Harbors-Diked Disposal	ND
	Locks and Dams	NL
Protection of Navigation	Removal of Aquatic Growth	PA
	Protect, Clear and Straighten Channels	PC
	Prevention of Obstruction Deposits	PD
	General Regulatory Functions	PG
	Surveillance of Northern Boundary Waters	PN
	Project Condition Surveys	PS
	Drift Removal	PR
Removal of Sunken Vessels and Obstructions	PV	

PROJECT CODES
(DP Block 3b)

<u>Code</u>	<u>Description</u>
A	New project to be activated in Budget Year (BY)
B	Existing project with scope increase in BY
C	Existing project with periodic maintenance in BY
D	Existing project with continuing maintenance

STATE CODES
(DP Block 3c)

<u>Code</u>	<u>State</u>	<u>Code</u>	<u>State</u>
AL	ALABAMA	NE	NEBRASKA
AK	ALASKA	NV	NEVADA
AZ	ARIZONA	NH	NEW HAMPSHIRE
AR	ARKANSAS	NJ	NEW JERSEY
CA	CALIFORNIA	NM	NEW MEXICO
CO	COLORADO	NY	NEW YORK
CT	CONNECTICUT	NC	NORTH CAROLINA
DE	DELAWARE	ND	NORTH DAKOTA
DC	DIST. OF COL.	OH	OHIO
FL	FLORIDA	OK	OKLAHOMA
GA	GEORGIA	OR	OREGON
HI	HAWAII	PA	PENNSYLVANIA
ID	IDAHO	RI	RHODE ISLAND
IL	ILLINOIS	SC	SOUTH CAROLINA
IN	INDIANA	SD	SOUTH DAKOTA
IA	IOWA	TN	TENNESSEE
KS	KANSAS	TX	TEXAS
KY	KENTUCKY	UT	UTAH
LA	LOUISIANA	VT	VERMONT
ME	MAINE	VA	VIRGINIA
MD	MARYLAND	WA	WASHINGTON
MA	MASSACHUSETTS	WV	WEST VIRGINIA
MI	MICHIGAN	WI	WISCONSIN
MN	MINNESOTA	WY	WYOMING
MS	MISSISSIPPI	GU	GUAM
MO	MISSOURI	PR	PUERTO RICO
MT	MONTANA	VI	VIRGIN ISLANDS

ORGANIZATION CODES
(DP Block 3d)

<u>Code</u>	<u>District/Division</u>	<u>Code</u>	<u>District/Division</u>
LMK	Vicksburg	NPW	Walla Walla
LMM	Memphis	ORH	Huntington
LMN	New Orleans	ORL	Louisville
LMS	St Louis	ORN	Nashville
MRK	Kansas City	ORP	Pittsburgh
MRO	Omaha	POD	Pacific Ocean (Div)
NAB	Baltimore	SAC	Charleston
NAN	New York	SAJ	Jacksonville
NAO	Norfolk	SAM	Mobile
NAP	Philadelphia	SAS	Savannah
NED	New England (Div)	SAW	Wilmington
NCB	Buffalo	SPK	Sacramento
NCC	Chicago	SPL	Los Angeles

<u>Code</u>	<u>District/Division</u>	<u>Code</u>	<u>District/Division</u>
NCE	Detroit	SPN	San Francisco
NCR	Rock Island	SWA	Albuquerque
NCS	St. Paul	SWF	Fort Worth
NPA	Alaska	SWG	Galveston
NPP	Portland	SWL	Little Rock
NPS	Seattle	SWT	Tulsa

DECISION PACKAGE TYPES
(DP Block 4a)

<u>Code</u>	<u>Description</u>
B	Base Decision Package - describes the minimum level of effort required to provide only the most essential project purposes.
M	Manpower Incremental Decision Package - describes <u>only</u> a change in <u>method</u> of performing an increment of work already described in a DP of higher priority.
W	Work Incremental Decision Package - describes work required that does not qualify for inclusion as part of the base effort.

PROJECT QUALIFIER
(DP Block 9)

<u>Code</u>	<u>Description</u>
CR	Project is used primarily by commercial traffic.
RC	Project is used primarily by recreational traffic, but there is also some commercial use.
RR	Project essentially supports only recreational traffic.
XX	Economic worth of maintaining the project is questionable.

DECISION PACKAGE QUALIFIERS
(DP Block 10)

<u>Qualifier</u>	<u>Code</u>	<u>Significance</u>
Type Dredge	HS	Corps hopper dredge, small class
	HM	Corps hopper dredge, medium class
	HL	Corps hopper dredge, large class
	SC	Corps side caster dredge
	AL	All other Corps dredge types
	CH	Contract hopper dredges
	CA	All other contract dredges
Special Work	DR	Dredging Requirements
	GR	Great River Environmental Action Team Work
	LE	Law Enforcement Requirements
	VC	Development of a Visitor Center
	EC	Energy Conservation Requirements
	PA	Pollution Abatement Requirements
	OS	OSHA Requirements
Periodic Inspection Flag	Y	Used on DPs which specifically provide for a "condition and operation" (C&O) periodic inspection
Replacement Study Flag	Y	Used on DPs which specifically provide for a "C&O" replacement study.
Safety Study Flag	Y	Used on DPs which specifically provide for a "C&O" safety and adequacy study.
Other Studies Flag	Y	Used on DPs which specifically provide for a "C&O" study other than those above.

QUALITATIVE OUTPUTS
(DP Block 11)

<u>Code</u>	<u>Level of Significance</u>
C	Critical function
I	Important function
S	Significant function
R	Regular function

PROJECT DESCRIPTORS
(DP Block 12)

<u>Descriptor</u>	<u>Significance</u>
Power Capacity	Name-plate power capacity rating of the project effective during the budget year.
Flood Damages Prevented	Most currently reported (or estimated) real value of <u>average annual flood damages actually prevented</u> by the project over the operational life of the project.
Recreation Days of Use	Most current computation (or estimate) of the annual recreation days of use provided by the project.

DECISION PACKAGE DESCRIPTORS
(DP Block 13)

<u>Descriptor</u>	<u>Significance</u>
Dollars, This DP	Total "Budget Authority Request" needed to accomplish the functions
Total Dredging	Total volume of dredge material to be removed from the project as a result of the work proposed in the DP.
Amount of New Work	Price of work in the DP that is budgeted for the first time and which will be a repetitive requirement over the life of the project.
\$ Increase Due To Wage Board Raise	That amount of the wage board labor cost of the DP function that is attributable to wage board pay increases over the salary used for the previous budget year.
\$ Change -- Other Causes	That amount of the DP function cost, other than wage board labor cost, that is attributable to inflation over the previous budget year's cost base.
Cost of Master Plans	That amount of the DP function cost that is attributable to the development of Master Plans, not including S&A costs.

NUMERICAL OUTPUTS
(DP Block 14)

<u>Output</u>	<u>Significance</u>
Navigation Loss Prevented	Value of the navigation loss prevented by reducing the need to "light load," or by reducing queueing delays at locks, or by otherwise increasing the operational efficiency of the system.
Maintenance Loss Prevented	Estimated dollar <u>increase</u> in the "real" cost of providing the maintenance function if the function is delayed for 1 year.
GRF Backlog Reduced	Number of permits by which the permit backlog will be reduced if the DP is funded.

SUPPLEMENTARY COST CODES
(DP Block 15)

<u>Code</u>	<u>Item</u>	<u>Definition</u>
19ST	SUB-TOTAL, OPERATIONS	Sum of all items with "Operations" Codes
35ST	SUB-TOTAL, MAINTENANCE	Sum of all items with "Maintenance" Codes
35GT	GRAND TOTAL, O&M	Sum of amounts in cost codes "19ST" and "35ST"
35CR	CREDITS	Any monies credited to projects which defray the cost of operating or maintaining that project
35BA	BUDGET AUTHORITY REQUEST	Amounts in cost code "35GT" reduced by the amounts in cost account "35CR"

APPENDIX B: ANNOTATED BIBLIOGRAPHY

The following documents describe various aspects of the ZBB/CWOM system:

1. *Zero Base Budget, Civil Works Operation and Maintenance System Guide Book*. This guidebook provides detailed instructions on how and when the budget data are to be developed, reported, coded, and input into the ZBB/CWOM system. It also describes how to access the system's "Standard Format" reporting capability and the "Immediate Access" capability (direct query of the data base). The guidebook, now in draft form, will be published as an Engineer Pamphlet before January 1979.

2. *Zero Base Budgeting System Maintenance Manual*. This is a maintenance manual for the use of the "Assigned Responsible Agency" (the Engineering Data Processing Center [EDPC]) and for the DBA (in the Operations Branch, Construction-Operations Division of OCE (DAEN-CWO-M)). The manual details the structure of the system, the file layouts, descriptions, and access routines, and the detailed procedures for modifying the data base and creating and modifying programs. A reference copy is available at the OCE Engineer Information and Data Systems Office (DAEN-DS).

3. *ZBB/CWOM System Overview*. A revised version of this document was published on 25 July 1978. The document explains how the system evolved and presents the economic justification for it. A reference copy is available at DAEN-DS.

4. *ZBB/CWOM System Source Code and Update Library*. This is a computer printout of the system source code and update library, the compiler listing for every program, the BEGIN/REVERT control card procedures, and sample system input and output. The only copy is at Engineer Data Processing Center (EDPC).

5. *SYSTEM 2000 Reference Manual*. This manual is published by MRI Systems Corporation, which developed the "SYSTEM 2000" Data Base Manager used in the ZBB/CWOM system. The "Immediate Access Feature" chapter of the manual is of interest to those who desire to make direct queries of the data base. The referenced chapter provides detailed instructions and examples of how to use each of the direct query capabilities of SYSTEM 2000. Pertinent parts of the "Immediate Access Feature" chapter have been provided to all Division offices using the ZBB/CWOM system and to the DBA. Additional copies must be ordered from MRI Systems Corporation, P.O. Box 9968, Austin, TX 78766. (When ordering copies of this chapter, one should also specifically request a copy of the "Portfolio Foldout," which is a description of the sample data base used in the practical examples of the chapter, and which is necessary to understand the examples.)

6. *Computer Center Reference Manual*. This manual is published by the Naval Ship Research and Development Center (NSRDC), in Carderock, MD. It is an introductory manual on the use of the NSRDC 6600/6700 CDC computers on which the ZBB/CWOM system is installed.

APPENDIX C: STANDARD FORMAT REPORTS

	<u>Page</u>
Ranking List	25
Project List (by District)	26
Project Data Summary	27
Feature Cost/Manpower Summary	28
DP Descriptor and Numerical Output Measure Summary	29
Project Total Cost Summary	30
Decision Package Format	31
Dredging Requirements Summary	32
DP Qualifier and Qualitative Output Listing	33
Project Descriptor Summary	34
Project Costs by Feature/Subfeature	35

1R JUL 78

PROJECT LIST (BY DISTRICT)

PROGRAM GENERAL
CORPORATION: WDC - SEATTLE

PROJ CLS	CASE	DESCRIPTION	NRD EXIS	PROJ CODE	STATE	NAV. TYPE USE	DOWER CAPACITY- KILOBARIS	AV. ANNUAL FLO DAMAGE PWP F-TEC. --\$1000--	AV. ANNUAL RECREATION DAYS OF USE IN 1000 DAYS
FC	17510	STILLACWANISH RIVER	2	0	WA		32.0		
FC	17020	TACOMA-BUYALLUP FLOOD CONTROL	2	0	WA		0.7		
FT	0-100	INSEPECTION OF COMPLETED WORKS	2	0	WA				
FB	07700	ROBERTS A. HANSON DAM	3	0	WA		4685.0	97.4	
FB	11000	AND WASHINGTON DAM	3	0	WA		1630.0	58.8	
FB	67007	LYNCHOFF LAKE	3	0	WA		40.0		
FS	10530	SCHWIFFO RESERVOIR OPERATIONS	2	0	WA				
WB	09200	PLENI FALLS DAM	5	0	ID			21.1	
WB	01500	CHIEF JOSEPH DAM, COLUMBIA RIVER, WA	5	H	WA		42400.0		
WB	67002	LEWIS DAM	4	0	MT		479000.0	100.3	
WC	01210	BELLINGHAM HARBOR	2	C	WA	CO			
WC	04770	GEAYS HARBOR & CHEWELIS RIVER	4	0	WA	CO			
WC	13070	BUFF SANDS & TRIBUTARY WATERS	2	0	WA	CO			
WC	14700	WILLAMETTE RIVER	3	0	WA	CO			
WC	17070	COLUMBIAN CHANNEL	2	0	WA	CO			
WC	13000	WILHELM RIVER AND WARDON & NOSELLE RIVER	2	C	WA	CO			
WC	67010	FARM BAY	2	C	WA	CO			
WC	67014	SEATTLE HARBOR	2	D	WA	CO			
WC	70010	PORT LOCK	1	A	WA	CO			
WL	09000	LAKE WASHINGTON SHIP CANAL	5	0	WA	CO		852.8	
WS	16000	PROJECT CONDITION SURVEYS	1	A	WA	CO			

19 MAY 78

PROJECT DATA SUMMARY REPORT

THRU OFF RANK: 99909

ORGANIZATION: SWF - FOOT WORTH

PROGRAM: GENERAL
 PROJECT CLASS: FR
 STATE CODE: TX
 PROJECT CODE: D
 PROJECT CUIS#: 12260

PROJECT NAME: NAVARRO MILLS LAKE

CODE	FEATURE & COSTS (\$1000)	CONTRACIS	MIL-S	SPLY	GOVERNMENT	TOTALS	PROJECT DESCRIPTIONS	AMOUNT
01	LOCKS, DAMS, RESERVOIRS	20.0	7.0	23.0	50.0		POWER CAPACITY (KILOWATTS)	1533.9
02	SERVICE FACILITIES	57.0	8.0		60.0		FLOOD DAMAGES PREVENTED (\$1000)	1038.0
03	LEVER-FLOOD-ALL-PUMP PLANT						RECREATION DAY OF USE (1000 DAYS)	
04	PUMP PLANT							
05	NATURAL RESOURCE MGMT	20.0	4.0	5.0	29.0			
06	RECREATION MANAGEMENT	66.2	112.0	119.8	298.0			
07	CONDITIONS/OPERIN STUDIES	20.0	.8	18.2	39.0			
08	REMOVE SUMP VSL/SNOBSTOPIS							
09	WATER CONTROL MANAGEMENT	24.0	2.0	43.3	71.3			
10	INSPECTION & REPROPTS							
11	SURVEY NO. CENTRAL LAKES							
14	PREVENT OBSTR DEPOSITS							
1501	GFN REG-SECTION 9 & 10							
1502	GFN REG-SECTION 402							
1503	GFN REG-SECTION 103							
1504	GFN REG-SECTION 404							
1505	GFN REG-OTHER REG FUNCT							
1506	GFN REG-NEPA							
1507	GFN REG-ENFORCE/IT-SURVL							
1508	GFN REG-REVIOPN STUDIES							
1509	GFN REG-P-LIC HEARINGS							
1510	GFN REG-MISCELLANEOUS							
1501	LAW ENFORCE-CONTRACT ONLY							
1502	SAA-FOR LAW ENFORCE ONLY							
19	SAA-ALL EYC LAW ENFORCE	152.2	177.8	67.2	67.2			
19ST	SUR-TOTAL OPERATIONS			284.5	614.5			
20	LANDS, DAMAGES							
21	DAMS	76.4			76.4			
22	LOCKS							
23	POWER PLANT							
24	NATURAL RES. FACILITIES							
25	Roads, DR., BRIDGES	255.0		2.0	257.0			
26	BREAKWATER, SEAWALLS							
27	LEVEES, FLOODWALLS							
28	PUMPING PLANTS							
29	RECREATION FACILITIES	25.2	6.0	3.0	34.2			
30	PERMANENT OPER. EQUIP.		73.3	3.0	76.3			
31	BANK STABILIZATION							
32	MUDS/GROUNDS UTILITIES	8.0			8.0			
3301	CANAL & CANAL - DREDGING							
3302	CANAL & CANAL - ALL OTHER							
34	EXD							
35	EXD							
35ST	SUB-TOTAL MAINTENANCE	364.6	79.3	27.0	27.0			
35GT	GRAND-TOTAL, O&M	516.8	257.1	61.6	505.5			
36CP	CPDITS			346.1	1120.0			
3594	BUDGET AUTHORITY REQUEST	516.8	257.1	346.1	1120.0			
3600	NON-DISTRICT							
3601	DISTRICT							
3602	NON-DISTRICT							
3603	DISTRICT							
3604	NON-DISTRICT							
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3699	DISTRICT							
3700	NON-DISTRICT							

DE DESCRIPTIONS
 TOTAL OPERATING (1000 CY)
 AMOUNT OF NEW WORK (\$1000)
 INCR DUE TO W.B. PAISE (\$1000)
 \$CHANGE-OTHER CAUSES (\$1000)
 COST OF MASTER PLANS (\$1000)

NUMERICAL QUERIES
 NAV. LOSS PREVENTED (\$1000)
 MAINT. LOSSES PREVENTED (\$1000)
 GRF-BACKLOG REDUCED (NO. PERMITS)

14 JUL 1974

FEATURE COST/MANPOWER SUMMARY REPORT

PROGRAM: GENERAL
 ORGANIZATION: NCS - SEATTLE
 PROJECT CLASS: ALL
 PCE RANKS: 40000 THRU 42000

CODE	FEATURES & DESCRIPTION	COMPLETION	MILITARY	GOVERNMENT	TOTAL
01	LOCKS, DAMS, RESERVOIRS	127.2	115.6	1321.7	1347.7
02	SERVICE FACILITIES			460.6	1103.4
03	LEVEE/FLOODWALL/DAMP PLANT		42.0	3.0	3.0
04	POLE PLANT			1150.9	1232.9
05	NATURAL RESOURCE MGMT	103.0	14.0	229.3	346.3
06	RECREATION MANAGEMENT	105.0	39.0	321.1	465.1
07	CONDITION/OPERATION STUDIES	199.0	10.0	656.2	865.2
08	REMOVE SUNK VESSELS/STRAIS				
09	WATER CONTROL MANAGEMENT	127.3	36.0	1265.2	1428.5
10	INSPECTION & REPORTS	25.0	128.0	448.0	641.0
11	SURVEY AND CENTRAL LAKES				
12	PREVENT OBSTR DEPOSITS			15.0	15.0
13	GENERAL REC FUNCTIONS				
14	LAW ENFORCE-CONTACT ONLY				
15	SEA-FOR LAW ENFORCE ONLY				
16	SEA-ALL EXC LAW ENFORCE				
17	SUB-TOTAL, OPERATIONS	686.5	451.6	7549.7	8687.8
20	LOCKS, DAMS	64.0	5.0	44.5	113.5
21	LOCKS	7.0	80.6	271.0	415.6
22	DAMP PLANT	275.0	20.0	70.0	365.0
23	NATURAL RES. FACILITIES	33.0	245.0	1232.0	1752.0
24	POLES, DAM, BRIDGES	42.5	30.0	5.5	78.0
25	RECREATED, SEAWALLS	2520.0	10.0	14.4	2544.4
26	LEVEES, FLOODWALLS	38.0	9.0	70.0	117.0
27	MOUNDING PLANTS			12.0	12.0
28	RECREATION FACILITIES	5.0		37.5	42.5
29	PREVENT OPEN, FOUID.	10.0	50.0	107.6	167.6
30	SEA STABILIZATION				
31	WATER UTILITIES	471.0	60.0	410.9	921.9
32	WATER UTILITIES	3190.0	897.0	550.0	4637.0
33	CANAL & CANAL - OPENING	335.0	282.0	473.0	1100.0
34	CANAL & CANAL - ALL OTHER	55.0	32.0	370.4	457.4
35	SEA	3.0	6.0	916.4	925.4
36	SUB-TOTAL, MAINTENANCE	7048.5	1715.6	4581.1	13345.2
367	GRAND-TOTAL, O&M	7735.0	2167.2	12130.0	22033.0
368	CREDIT				
369	NETT AUTHORITY W/ ADJUST	7735.0	2167.2	12130.0	22033.0
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CODE	MANPOWER LINE MANAGEMENT	DISTRICT	DISTRICT	DISTRICT
01	GOVERNMENT, GOVERNMENT	37.2	63.4	322.3
02	GOVERNMENT, OTHER	5.0	4.3	27.8
03	NON-GOVERNMENT	46.1		

17:20

18 JUL 78

DE DESCRIPTION AND NUMERICAL OUTPUT MEASURE SUMMARY

PROGRAM: GENERAL
 ORGANIZATION: NDS - SEATTLE
 PCF DATES: 6000 TDDY 4200

PROJECT CLASS	ROLLUP TDDY \$1000	\$ INCREASE DUE TO W.S. WISE \$1000	\$ INCREASE FROM OTHER CAUSES \$1000	AMOUNT OF NEW WORK \$1000	COST OF WASTED PLANS \$1000	DEFECTIVE VOLUME 1000 CY	NAVTG-LOSS PREVENTED \$1000	MAINT-LOSS PREVENTED \$1000	GRF BACKLOG PRODUCTION-MO. BASIS
FC	55.0								
FI	40.0								
FD	2003.0	65.0	-21.0		47.0				
FS	101.0		6.0						
VP	7317.0	121.0	399.0	356.0	100.0			330.0	
VC	945.0	46.0				20.0	1612.0	100.0	
VO									
VI	2427.0	165.0	67.0	72.0					
VE									
VF									
VG									
VH									
VI									
VJ									
VK									
VL									
VM									
VN									
VO									
VP	145.0								
VQ									
VR									
VS									
VT									
VU									
VV									
VW									
VX									
VY									
VZ									
TOTAL	22032.0	435.0	449.0	478.0	147.0	20.0	1612.0	400.0	

PROJECT TOTAL COST SUMMARY 14 JUL 78 17:15

PROGRAM:	GENERAL	AMOUNT			
ORGANIZATION:					
OFF OFFICE:					
PROJECT CLASS	STATE	CLASS	PROJECT NAME	AMOUNT	ORG
FC	WA	17-10	STILLWATER RIVER	\$ 50	MPS
FC	WA	17-20	TACOMA-PIVALLUP FLOOD CONTROL	\$ 45	MPS
			CLASSIFICATION TOTAL	\$ 95	
FI	WA	09180	INSPECTION OF COMPLETED WORKS	\$ 40	MPS
FI			CLASSIFICATION TOTAL	\$ 40	
FD	WA	07790	HONAF'S A. HANSON DAM	\$ 489	MPS
FD	WA	11490	MUD MOUNTAIN DAM	\$ 865	MPS
FD	WA	67327	BYNOOCHEE LAKE	\$ 669	MPS
			CLASSIFICATION TOTAL	\$ 2003	
FS	WA	16530	SCHEDULED RESERVOIR OPERATIONS	\$ 101	MPS
FS			CLASSIFICATION TOTAL	\$ 101	
F			CATEGORY TOTAL	\$ 2230	
MD	ID	00200	ALBANI FALLS DAM	\$ 1555	MPS
MD	MT	67352	LITBY DAM	\$ 2169	MPS
MD	WA	03200	CHIEF JOSEPH DAM, COLUMBIA RIVER, WA	\$ 3593	MPS
			CLASSIFICATION TOTAL	\$ 7317	
M			CATEGORY TOTAL	\$ 7317	
MC	WA	01710	BELLINGHAM HARBOUR	\$ 440	MPS
MC	WA	02170	GOALS HARBOUR & CHEHALIS RIVER	\$ 4390	MPS
MC	WA	13970	PUGET SOUND & TRIPUITY WATERS	\$ 1055	MPS
MC	WA	14760	QUILLAYUTE RIVER	\$ 1575	MPS
MC	WA	17-70	SWANISH CREEK	\$ 235	MPS
MC	WA	15560	WILLAPA RIVER AND HARBOUR & MASSELL RIVER	\$ 110	MPS
MC	WA	67314	NEA-WAY	\$ 1600	MPS
MC	WA	67316	SEATTLE HARBOUR	\$ 255	MPS
MC	WA	75264	FOIZ HOOK	\$ 25	MPS
			CLASSIFICATION TOTAL	\$ 9685	
ML	WA	60400	LAKE WASHINGTON SHIP CANAL	\$ 2627	MPS
ML			CLASSIFICATION TOTAL	\$ 2627	
M			CATEGORY TOTAL	\$ 12312	
MS	WA	14500	PROJECT COMPLETION SURVEYS	\$ 165	MPS
MS			CLASSIFICATION TOTAL	\$ 165	
P			CATEGORY TOTAL	\$ 165	
			PROGRAM TOTAL	\$ 22033	

19 MAY 78

DECISION PACKAGE FORMAT

OCF RANK: 92145
 DIVISION RANK: 6145
 ORGANIZATION: SWF - FOOT WORTH
 DISTRICT RANK: 145

DECISION PACKAGE TYPE: W
 DP RANK WITHIN PROJECT: 11
 TOTAL DPCS IN PROJECT: 13

PROJECT NAME: NAVARRO MILLS LAKE

PROJECT QUALIFIER
 NAVIGATION-TYPE USE

TOTALS

CONTRACIS MILLS-SPLY GOVERNMENT

CONTRACIS MILLS-SPLY GOVERNMENT

CODE

CODE

CODE

CODE

CODE

CODE

CODE	DESCRIPTION	AMOUNT	DISIBICI	INDIBICI	DISTRICT	DIBICI	AMOUNT
01	FEATURE & COSTS						
02	LACS, DAMS, RESERVOIRS						
03	SERVICE FACILITIES						
04	LEVEE/FLOOD-ALL-PUMP PLANT						
05	POWER PLANT						
06	NATURAL RESOURCE MGMT						
07	RECREATION MANAGEMENT						
08	CONDITION/OPERIN STUDIES						
09	REMOVE SUNK VLS/KORSTRAS						
10	WATER CONTROL MANAGEMENT						
11	INSPECTION & REPORTS						
12	SURVEYING, CENTRAL LAKES						
13	PREVENT OBSTR DEPOSITS						
14	GEN REG-SECTIONS 9 & 10						
1501	GEN REG-SECTION 402	20.0	5.0				25.0
1502	GEN REG-SECTION 103						
1503	GEN REG-SECTION 404						
1504	GEN REG-SECTION 404						
1505	GEN REG-OTHER GEN FUNCT						
1506	GEN REG-NFER						
1507	GEN REG-REFORC-LIT-SUPVL						
1508	GEN REG-NAVIGIN STUDIES						
1509	GEN REG-PUBLIC HEARINGS						
1510	GEN REG-MISCELLANEOUS						
1511	LAW ENFORCE-CONTRACT ONLY						
1512	SEA-FOR LAF ENFORCE ONLY						
1513	SEA-ALL EYC LAF ENFORCE						
1514	SUR-TOT'L OPERATIONS						
1515	LARDS, NAVAGEC						
1516	DAMS						
1517	LOCKS						
1518	POWER PLANT						
1519	NATURAL RES. FACILITIES						
1520	WEARS, BR. HOUSERS						
1521	BREAKWATER, SEABALLS						
1522	LEVEES, FLOODBALLS						
1523	PUMPING PLANTS						
1524	REGULATION FACILITIES						
1525	PERMENT OPERA EQUIP.						
1526	WALK STABILIZATION						
1527	WALK STABILIZATION						
1528	CHNL & CANAL - ALL OTHER						
1529	CHNL & CANAL - ALL OTHER						
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1A JUL 74 17:07

DWELLING REQUIREMENTS SUMMARY

PROGRAM: GENERAL
 ORGANIZATION: OCE
 OCE BANKS: 30700 TDRU 50000

TYPE	CLASSIFICATION CATEGORY (CLASS NL)		MULTI-PURPOSE CATEGORY (TNCL POWFR)		ALL OTHER CATEGORIES (FC & PROTECT NAV)		PROGRAM TOTALS (BY TYPE D-EDGE)	
	VOLUME	COST	VOLUME	COST	VOLUME	COST	VOLUME	COST
D-EDGE	1000-CY	\$1000--	1000-CY	\$1000--	1000-CY	\$1000--	1000-CY	\$1000--
MS	8218.0	14943.0					8218.0	14943.0
MW	52370.1	45480.0					52370.1	45480.0
HL	8510.0	4314.0					8510.0	4314.0
SC	1812.0	3630.0					1812.0	3630.0
AL	50669.0	13372.0	7540.0	10350.0	25.0	57.0	67761.0	23973.0
CM	4590.0	6206.0					4590.0	6206.0
CA	121127.4	137210.0			100.0	386.0	142949.4	162607.0
TOTALS	266244.4	233195.0	29094.8	34421.0	125.0	443.0	286110.7	249189.0

NOTE: WENTONER ADJUSTMENT PACKAGE INFORMATION IS NOT ADDRESSED BY THIS REPORT.

DP QUALIFIER AND QUALITATIVE OUTPUT LISTING

19 MAY 78

PROGRAM: GENERAL
 ORGANIZATION: SNF - FORT WORTH
 OCE RANKS: 0 THRU 99999

OCE RANK	OBS SNF	PROJECT NAME	DP AMOUNT	Δ	PACKAGE QUALIFIERS	QUALITATIVE OUTPUTS
92041	SNF	WHITNEY LAKE	\$1000			A B C
92042		SAM RAYBURN DAM AND RESERVOIR	17.0			
92043		LAVON LAKE	3.0			
92044		WACO LAKE	5.0			
92045		STILLHOUSE HOLLOW LAKE	1.0			
92046		RELTON LAKE	4.0			
92047		SOMERVILLE LAKE	1.0			
92048		PROCTOR LAKE	5.0			
92049		CANYON LAKE	17.0		Y	
92040		HORDS CREEK LAKE	16.0			
92041		GRANGER LAKE	5.0			
92042		NORTH FORK LAKE	5.0			
92043		INSPECTION OF COMPLETED WORKS	12.0	Y		
92044		SCHEDULED RESERVOIR OPERATIONS	18.0			
92045		WHITNEY LAKE	284.0			
92046		SAM RAYBURN DAM AND RESERVOIR	91.0			I S S
92047			42.0			S S S
92048		TOWN BLUFF DAM AND B A STEINHAGEN LAKE, TEXAS	30.0			S S I
92049			16.0			S
92070		LEWISVILLE LAKE	100.0			
92071		LAVON LAKE	87.0			T R S
92072		REPROOK LAKE	23.0			T S I
92073		WACO LAKE	151.0			T I I
92074		STILLHOUSE HOLLOW LAKE	135.0			T I I
92075			34.0			T S S
92076		RELTON LAKE	166.0			T S S
92077		SOMERVILLE LAKE	43.0			T S S
92078		PROCTOR LAKE	71.0			T S S
92079			25.0			T S S
92080			27.0			T S S
92081		NAVARRO MILLS LAKE	72.0			T C C
92082		RARDWELL LAKE	25.0			T C C
92083			69.0			T S C
92084		CANYON LAKE	45.0			T S C
92085			5.0			T S C
92086		O. C. FISHER DAM AND LAKE	47.0			T C R
92087		HORDS CREEK LAKE	137.0			T S S
92088		GRANGER LAKE	110.0			T S S
92089		NORTH FORK LAKE	62.0			T I I
92090		WHITNEY LAKE	24.0			T I I
92091		SAM RAYBURN DAM AND RESERVOIR	16.0			T S S
92092		LEWISVILLE LAKE	13.0			T S S
92093			133.0			T S S
92094		LAVON LAKE	39.0			T S S
92095		REPROOK LAKE	95.0			T S R
92096		WACO LAKE	22.0			T S R
92097		SOMERVILLE LAKE	183.0			T C C
92098		NAVARRO MILLS LAKE	46.0			T C C
92099		RARDWELL LAKE	25.0			T C C
92100		CANYON LAKE	50.0			T C C

PROJECT DESCRIPTION SUMMARY

18 JUL 78

PROGRAM: GENERAL
ORGANIZATION: OCF
OCF RANKS: 30000 THRU 50000

<u>PROJECT</u> <u>CLASS</u>	<u>POWER</u> <u>CAPACITY</u> <u>IN KILOWATTS</u>	<u>AVERAGE ANNUAL</u> <u>FLOOD DAMAGES</u> <u>PREVENTED</u> <u>IN \$1000</u>	<u>AVERAGE ANNUAL</u> <u>RECREATION DAYS</u> <u>IN 1000 DAYS</u>
FC		19743.4	74.0
FI		7546.8	
FP		692984.4	114915.6
FS		262.4	
WP	7466275.0	87453.6	131503.8
WC			5315.8
WL		4385.1	59681.7
TOTALS	7466275.0	812375.7	311490.9

PROJECT COSTS BY FEATURE/SUBFEATURE
(TAPE OUTPUT)

1. General specifications:
 - a. Output on 7 channel 556 BPI tape
 - b. Record length = 80 characters
 - c. Blocking Mode: Binary coded decimal (BCD)
 - d. Blocking factor = 19
 - e. Label omitted from tape

2. Format specifications:

<u>FIELD NAME</u>	<u>RECORD POSITIONS</u>	<u>FIELD SIZE</u>	<u>REMARKS</u>
EROC	1 - 2	2	
(Blank)	3	1	
CLASS	4 - 5	2	
PROJECT NUMBER	6 - 10	5	
RECORD TYPE	11	1	
(Blank)	12	1	
FEATURE CODE	13 - 14	2	"TC" for "BUDGET AUTHORITY" "CR" for "CREDITS"
SUBFEATURE	15	1	Use "A" for sub-feature "10"
(Blank)	16 - 17	2	
AMOUNT	18 - 24	7	(See notes below)
(Blank)	25 - 80	56	

3. Comments regarding "AMOUNT" field:
 - a. The assumed decimal point is between record positions 23 and 24.
 - b. The "minus" sign is recorded in the low-order position for negative amounts, i.e., in record position 24.
 - c. AMOUNT fields contain leading zeros.

APPENDIX D: USING "IMMEDIATE ACCESS"

	<u>Page</u>
Data Base Definition	37
Annotated Examples of SYSTEM 2000 Queries	39

ZBB/CWOM DATA BASE DEFINITION

1*	PROGTYP	Program Type ("GENERAL" or "MR&T")
2*	PROGDUM	Dummy - For use by DBA only
10*	DIVISION	Repeating Group Designator
11*	DIVNAM	Division Name
12*	DIVDUM	Dummy - For use by DBA only
100*	DISTRICT	Repeating Group Designator
101*	DSTNAM	District Name (DP Block 3d)
102*	EROCCD	EROC Code
103*	DSTDUM	Dummy - For use by DBA only
110*	PROJECT	Repeating Group Designator
111*	CWIS	OCE CWIS Number
112*	PROJNAM	Project Name (DP Block 2)
113*	PROJCLS	Project Class (DP Block 3a)
114*	PROJCD	Project Code (DP Block 3b)
115*	STATE	State (DP Block 3c)
116*	NBRPKTS	Number of Packets (DP Block 4c)
117*	NAVTP	Navigation Type Use (DP Block 9)
118*	PWRCAP	Power Capacity (DP Block 12a)
119*	FLDPREV	Flood Damages Prevented (DP Block 12b)
120*	RECDAY	Recreation Days of Use (DP Block 12c)
121*	PROJDUM	Dummy - For use by DBA only
1000*	DECISION PACKAGE	Repeating Group Designator
1001*	PKGTYP	Package Type (DP Block 4a)
1002*	PKTNBR	Packet Number (DP Block 4b)
1003*	DSTRNK	District Rank (DP Block 4d)
1004*	DIVRNK	Division Rank
1005*	OCERNK	OCE Rank
1006*	TYPDREG	Type Dredge (DP Block 10a)
1007*	SPWKCD	Special Work Code (DP Block 10b)
1008*	DOLSDP	\$<K>, This DP (DP Block 13a)
1009*	TOTDREG	Total Dredging, <K>CY (DP Block 13b)
1010*	NEWWORK	\$<K> Amount, New Work (DP Block 13c)
1011*	WGINCR	\$<K> Increase to W.B. Raise (DP Block 13d)
1012*	OTHINCR	\$<K> Increase, Other Causes (DP Block 13e)
1013*	MPCOST	\$<K> Master Plan Cost (DP Block 13f)
1014*	DPDUM	Dummy - For use by DBA only
1100*	DP QUALIFIERS	Repeating Group Designator
1101*	STDYFLG	Line letter of C&O Study (DP Blocks 10c-f)
1200*	QUALITATIVE OUTPUTS	Repeating Group Designator
1201*	QUALCD	Qual. Output Line letter (DP Block 11)
1202*	QUALVAL	Qual. Output Value - C,I,S, or R (DP Block 11)
1300*	NUMERICAL OUTPUTS	Repeating Group Designator
1301*	NUMCD	Num. Output Line letter (DP Block 14)
1302*	NUMVAL	Num. Output Value (DP Block 14)

1400* FEATURE COSTS

1401* FCCD

1402* CNTRCTS

1403* MATLSUP

1404* GOVCOST

1405* TOTCOST

1500* MANPOWER

1501* MPCODE

1502* NONDSTR

1503* DSTIND

1504* DSTDIR

Repeating Group Designator

Feature Cost Line No. (DP Block 15)

\$<K> Contracts (DP Block 15, Col. a)

\$<K> Material and Supplies

(DP Block 15, Col. b)

\$<K> Government (DP Block 15, Col. c)

\$<K> Total Cost (DP Block 15, Col. d)

Repeating Group Designator

Manpower Line No. (DP Block 16)

Non-District Man-years

(DP Block 16, Col. a)

District, Indirect MY

(DP Block 16, Col. b)

District, Direct MY

(DP Block 16, Col. c)

NSRDC 6600 INTERCOM V 4.6
DATE 08/22/78
TIME 15.09.04.

NOTE: Operator input is underlined
in these examples.

LOGIN, PUADZBBDPC, SUP

***** ENTER ACCESS NUMBER-

COMMAND- ATTACH, PROCFIL, ZBB80PROCFIL, ID=PUAD

PF CYCLE NO. = 048

COMMAND- BEGIN, S2K

08/22/78 15.11.22. BEGIN SYSTEM 2000 VERSION 2.60D

USER, ZBBREP:

ECHO OFF:

-556- ASSIGNED ZBB

\TALLY C114:

ELEMENT- PROJCD

FREQUENCY VALUE

6	A
33	B
124	C
675	D

4 UNIQUE VALUES

838 OCCURRENCES

\TALLY/ALL/C114:

ELEMENT- PROJCD

MINIMUM- A

MAXIMUM- D

4 UNIQUE VALUES

838 OCCURRENCES

\TALLY/ALL/STATE:

ELEMENT- STATE

MINIMUM- AK

MAXIMUM- WV

48 UNIQUE VALUES

838 OCCURRENCES

*The "default" setting for the "TALLY" command is "TALLY/EACH/" which gives the frequency of each unique value for the element requested. Exercise caution when using the "TALLY" command since the number of unique values is often excessively long.

*It is recommended that one use the "TALLY/ALL/" command, which format is shown here, to first determine the number of unique values for a particular element.

*This is a case where there are many unique values for a data element. In such cases, one may route the output to Local Files for later routing to a high speed printer. This process is shown below.

\REPORT FILE IS EXAMPL;

\TALLY/EACH/STATE;

\REPORT FILE IS OUTPUT;

\PRINT C1005,C1008 WHERE

\C101 EQ POD AND C1001 EQ W:

1005*	7185
1008*	67.0
1005*	7190
1008*	1000.0
1005*	9060
1008*	6.0
1005*	9075
1008*	200.0

\PRINT OCERNK,DOLSDP WHERE

\DSTNAM EQ POD AND PKGTYP EQ W:

1005*	7185
1008*	67.0
1005*	7190
1008*	1000.0
1005*	9060
1008*	6.0
1005*	9075
1008*	200.0

\PRINT/NAME/OCERNK,DOLSDP,

\OB DOLSDP WH SAME:

OCERNK*	9060
DOLSDP*	6.0
OCERNK*	7185
DOLSDP*	67.0
OCERNK*	9075
DOLSDP*	200.0
OCERNK*	7190
DOLSDP*	1000.0

\PRINT COUNT DOLSDP,MAX DOLSDP,

\MIN DOLSDP,SUM DOLSDP,SIGMA DOLSDP,

\AVG DOLSDP WH PROGTYP EQ MR&T:

CNT DOLSDP*	132
MAX DOLSDP*	9488.0
MIN DOLSDP*	1.0
SUM DOLSDP*	81969.000
SIG DOLSDP*	1016.794
AVG DOLSDP*	620.977

*Routes output to Local Files and names file "EXAMPL".

*See output on last page of this appendix.

*Returns output routing back to the interactive terminal.

*Example of a simple "PRINT" command with a qualifying "WHERE" clause.

*Same example as above except that element names are used in the request instead of element numbers.

*Example of specifying the "NAME" output format option and of using an "OB" (Ordered By) clause for the same case as above.

*Example shows use of "built-in" system functions to analyze the "DOLSDP" (Dollars per DP) element for the MR&T program.

\PRINT C1000 WH OCERNK EQ 3060:

```
PKGTYP* W
PKTNBR* 30
DSTRNK* 20
DIVRNK* 1056
OCERNK* 3060
SPWKCD* OS
DOLSDP* 15.0

FCCD* 35BA
CNTRCTS* 0.0
MATLSUP* 5.0
GOVCOST* 10.0
TOTCOST* 15.0

FCCD* 35GT
CNTRCTS* 0.0
MATLSUP* 5.0
GOVCOST* 10.0
TOTCOST* 15.0

FCCD* 35ST
CNTRCTS* 0.0
MATLSUP* 5.0
GOVCOST* 10.0
TOTCOST* 15.0

FCCD* 35
CNTRCTS* 0.0
MATLSUP* 0.0
GOVCOST* 1.0
TOTCOST* 1.0

FCCD* 34
CNTRCTS* 0.0
MATLSUP* 0.0
GOVCOST* 1.0
TOTCOST* 1.0

FCCD* 21
CNTRCTS* 0.0
MATLSUP* 5.0
GOVCOST* 8.0
TOTCOST* 13.0

MPCODE* 01
NONDSTR* 0.0
DSTIND* 0.0
DSTDIR* 0.4
```

\PRINT/GROUP/C1000 WH SAME:

```
PKGTYP* W
PKTNBR* 30
DSTRNK* 20
DIVRNK* 1056
OCERNK* 3060
SPWKCD* OS
DOLSDP* 15.0
```

*This example shows that when a repeating group is printed without specifying the "GROUP" format option, every descendent of that group is also printed out. The command "PRINT PROGTYP" would cause the entire data base to be printed out! Thus, one should exercise caution if the "GROUP" option is not specified.

*This shows the effect of specifying the "GROUP" option when making the same "PRINT" request as above.

```

\LIST/NAME, GROUP, REPEAT SUPPRESS,
---
\TITLE D(15)EXAMPLE OF USING LIST PROCEDURE,
---
\F(15) END OF LIST EXAMPLE, L(4)FCCD,
---
\R(10)CONTRACTS+($1000) ,
---
\R(11)MATL & SPLY+($1000) ,
---
\R(10)GOVERNMENT+($1000) ,
---
\R(10)TOTAL COST+($1000) /
---
\CI401, CI402, CI403, CI404, CI405, OB FCCD WH
---
\PROGTYP EQ GENERAL AND OCERNK EQ 3060:

```

*This example illustrates how the "LIST" command can be used to arrange output in a more readable format.

EXAMPLE OF USING LIST PROCEDURE 1
08/22/78

FCCD	CONTRACTS (\$1000)	MATL & SPLY (\$1000)	GOVERNMENT (\$1000)	TOTAL COST (\$1000)

* 21	0.0	5.0	8.0	13.0
* 34	0.0	0.0	1.0	1.0
* 35	0.0	0.0	1.0	1.0
* 35BA	0.0	5.0	10.0	15.0
* .35GT	0.0	5.0	10.0	15.0
* 35ST	0.0	5.0	10.0	15.0

END OF LIST EXAMPLE

```

---
\EXIT:
-306- CLOSED ZBB
08/22/78 15.25.49. END SYSTEM 2000 VERSION 2.60D
COMMAND- FILES
--LOCAL FILES--
*PROCFIL EXAMPL
COMMAND- ROUTE, EXAMPL, DC-PR, TID=YX, FID=EXAMP
COPYING Q FILE
COMMAND- LOGOUT
CPA 31.174 SEC
SS 50.254 SEC
EST. SYSTEM COST $ 9.26
EST. CONNECT COST $ 0.75
CONNECT TIME 0 HRS. 18 MIN.
08/22/78 LOGGED OUT AT 15.27.06.
<

```

*Routes Local File "EXAMPL" to high-speed printout terminal located at "YX" (CERL).

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Zero Base Budget, Civil Works Operations and Maintenance system: executive summary. -- Champaign, IL : Construction Engineering Research Laboratory ; Springfield, VA : available from NTIS, 1980.
43 p. (Technical report ; P-110)

1. Zero base budgeting. 2. U.S. Army. Corps of Engineers -- Civil Functions.
I. Title. II. Series: U.S. Army. Construction Engineering Research Laboratory.
Technical report ; P-110.