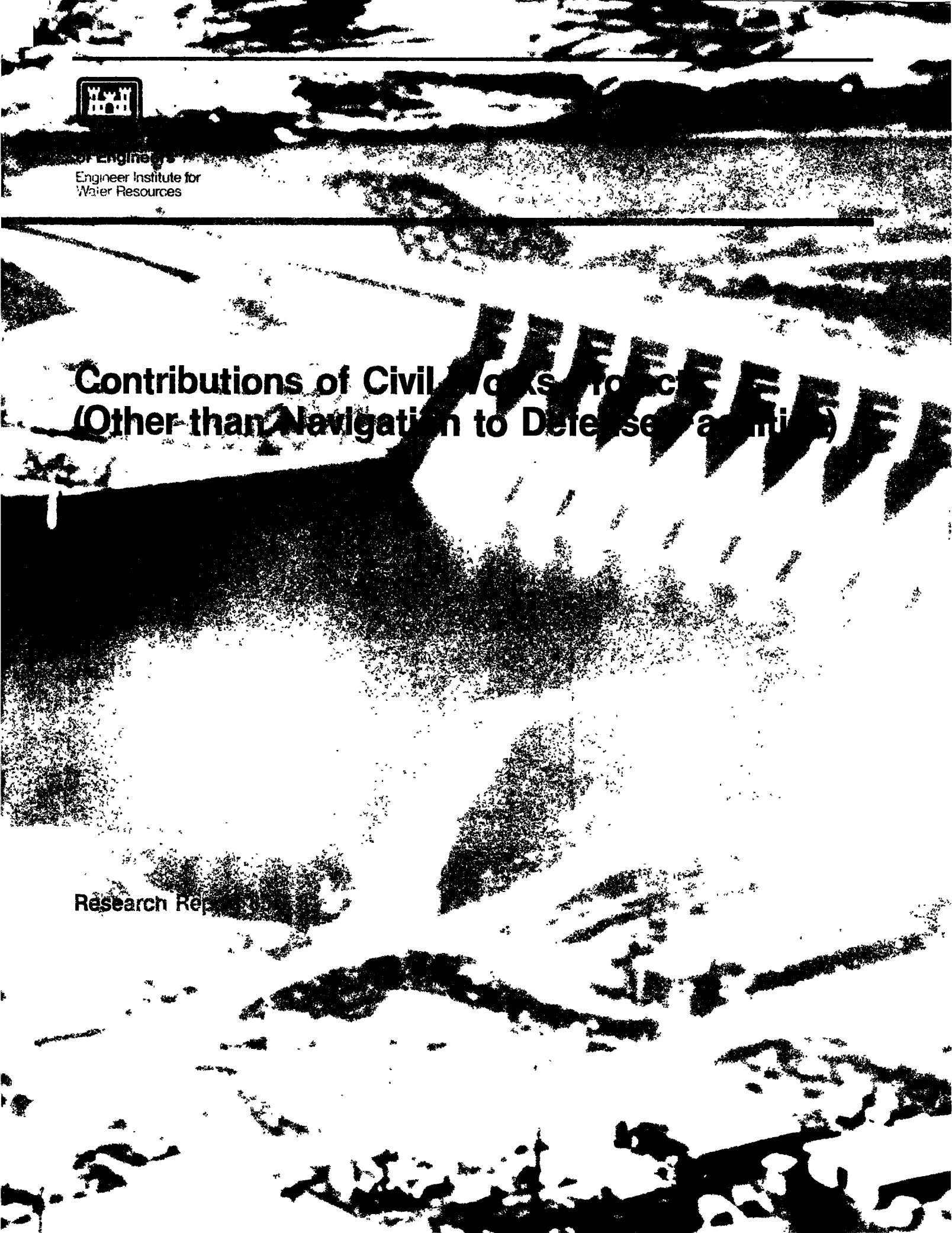

Engineer Institute for
Water Resources

Contributions of Civil Works Projects (Other than Navigation to Defense and Emergency)

Research Report

UNCLASSIFIED

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The purpose of this study was (1) to document the ways which Corps of Engineers Civil Works Projects support Defense Installations, (2) to determine the extent to which Corps authorization studies evaluate Defense benefits and (3) to recommend procedures by which Defense benefits can be better estimated and displayed.

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CONTRIBUTIONS OF CIVIL WORKS PROJECTS (OTHER THAN NAVIGATION) TO DEFENSE FACILITIES

U.S. ARMY ENGINEER INSTITUTE FOR WATER RESOURCES
WATER RESOURCES SUPPORT CENTER
CASEY BUILDING, FT. BELVOIR, VIRGINIA 22060-5586

April 1985 Research Report 85-R-3

PREFACE

The purpose of this study was (1) to document the ways which Corps of Engineers Civil Works Projects support Defense Installations, (2) to determine the extent to which Corps authorization studies evaluate Defense benefits and (3) to recommend procedures by which Defense benefits can be better estimated and displayed.

Ms. Arlene Dietz, a professional economist on the Navigation Division of the U.S. Army Engineer Institute for Water Resources lead this study and prepared this report. Dr. Lloyd G. Antle, Chief of the Navigation Division and Mr. James R. Hanchey, Director of the Institute for Water Resources provided oversight and some editorial modifications. Mr. Richard Schultz of the Economics Branch of the Planning Division, Office, Chief of Engineers made substantial contributions to the report's summary and conclusions.

CONTRIBUTIONS OF CIVIL WORKS PROJECTS
(OTHER THAN NAVIGATION)
TO DEFENSE FACILITIES

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CONTRIBUTIONS OF CIVIL WORKS PROJECTS (OTHER THAN NAVIGATION) TO DEFENSE FACILITIES

The purpose of this study is (1) to document the ways which Corps of Engineers Civil Works Projects support Defense Installations, (2) to determine the extent to which Corps authorization studies evaluate Defense benefits and (3) to recommend procedures by which Defense benefits can be better estimated and displayed. The data used to prepare this report was obtained by a nationwide inquiry distributed to each Corps district office in January 1984. This inquiry was prepared by the Institute for Water Resources in coordination with OCE Planning Division and a task force from Ohio River and Southwest divisions and Galveston and Louisville districts. This report summarizes the results of that survey for non-navigation uses. Navigation uses are covered in a separate report.

SUMMARY OF FIELD INQUIRY

Four basic categories of defense facilities were delineated to facilitate data gathering:

Regular Forces

National Guard and Reserves

U.S. Government Owned and Operated

U.S. Government Owned - Contractor Operated

Results from a pretest in the Galveston and Louisville Corps of Engineers Districts led to a decision not to include Contractor Owned - Contractor Operated facilities, because consistent quality responses would have required a disproportionate increase in survey efforts. A copy of the request for data from each Corps District is attached (Attachment 1). Each Defense facility located in each District was identified and information about how Civil Works Projects support the Defense Facility in current and mobilization conditions was requested.

All Corps districts responded, however two, Pacific Ocean Division (POD) and Fort Worth District (SWF), did not report any relationships between Corps projects and military installations. The survey produced somewhat limited information in some areas due to the limits on field work and information sources.

All districts reporting relationships cited one or more major military installations in their districts receiving benefits from a Corps project. The Defense Mapping Agency map "Major Army, Navy and Air Force Installations in the United States" served as the basis for defining a major installation. As previously discussed, the information obtained is not complete, but gives a good cross section of the ways that Civil Works Projects serve Defense Installations:

Regular Forces

Major Facilities - 34 districts

Minor Facilities (e.g. remote radar site) - 15

Minor Facilities (no location given) - 5

U.S. Coast Guard Facilities - 17

National Guard and Reserves

Major Facilities - 18

Minor Facilities (e.g. armory) - 7

Minor Facilities (no location given) - 7

U.S. Government Stockpiles (excluding armories) - 8

Hospitals - 6

Contractor Owned-Contractor Operated - 3

The differing responses by district suggest a potential for identifying additional relationships between Corps projects and defense facilities. For example, protection and service to minor facilities was one area where the field suggested existance of relationships but because of the number of sites and lack of time and funding, only identification of a linkage was possible.

Table 1 summarizes the number of Corps projects, defense facilities, and project-facility linkages for non-navigation uses. Line totals are not displayed because projects often served more than one purpose. The highest number of relationships with named facilities were for Flood Protection (119); followed by Hydropower (91); Training (45); and Water Supply (34 under mobilization conditions).

The Districts were requested to provide a measure of use when possible. Flood control use did not display measures, whereas water supply offered a half dozen water requirements (measured in million gallons per day - mgd) placed on

Table 1

Summary of Corps Projects Providing Non-Navigation Service to Defense Facilities

	Flood Prot.	Hurricane Prot.	Hydro-Power	Water Supply	Rec.	Training	Landing	Therapy
Corps Projects	87	1	68	32	6	24	6	1
Named Defense Facilities	73	3	25	26	6	45	9	1
Project-Facility Relationships	119	3	91	26/34*	4/6*	45	11	1

*mobilization

Corps projects by defense facilities. Facility power requirements from hydropower projects were not given, however the generating capacity of the Corps projects were sufficient to estimate the regions dependency on Corps projects. The training, helicopter landing, recreation, therapy and hurricane uses provided no measures. Much more detailed "project level" analysis would be required to identify and quantify the use, let alone develop the benefits. Selection of a limited number of facility-project pairs for performing an expost analysis would be sufficient to establish measures and ultimately the full benefit methodology for evaluating projects serving defense facilities.

SUMMARY OF FINDINGS

The Field Survey used a narrow definition of defense, specifically "activities by and in direct support of the military". A somewhat broader definition is contained in the Defense Production Act as amended, but it too relies on association with the military as a key criterion. By general agreement, military use does not capture the meaning of defense use, but neither is there agreement on any other concise definition of the term.

In fact, defense encompasses all those activities necessary to insure the territorial integrity of the Nation. For various reasons, there is a tendency in the United States to equate a strong economy with a strong defense, but as demonstrated in many other countries, there is a distinction between economic and social well-being and defense. Based on this distinction, an appropriate definition of defense for additional analysis of Civil Works projects is,

those activities specifically necessary to insure the territorial integrity of the U.S.

Considering its narrow definition of defense, the Field Survey has identified a significant amount of defense use of Civil Works projects. Among the various types of projects, use of navigation projects can be quantified more precisely than for non-navigation projects, but the Survey does demonstrate that defense use can verify project benefits. However, the traditional measure of benefits is contribution to National economic development, whereas by the definition above, economic and defense benefits are independent of each other.

Similar to quantification of project use, the Field Survey found that project features required for defense use could be identified most clearly for navigation projects. In other projects, the flood control or other services to a military facility may be essential to the reliable performance of the facility, but the type of service is the same for defense and other users. Where there is a clearly identifiable defense feature such as channel overdepth, the Survey found examples where the incremental cost was identified and accounted for. However, the incremental cost of defense features is unlikely to be representative of the defense value of the project.

Basically, the Field Survey demonstrated that it is possible to count the type of benefits that are now being counted (NED) based on defense use, and it would be possible to count all benefits now attributable to defense uses if it was determined such statistics would be useful. The Survey also indicated

that there are additional "defense benefits" that are not now being counted, and because those benefits or "defense values" may not be quantifiable in the same monetary units that are used for traditional project evaluation, it may not be possible to incorporate defense directly into the present project justification methodology.

Present Corps procedures for Civil Works project planning are designed to identify all needs, specifically including defense requirements. Because project justification is based on economic considerations, defense requirements are carried by economic benefits, or in exceptional cases the incremental costs are identified. Analysis based on the Survey indicates the two basic options to improve this process are as follows:

(1) Provide a specific defense assessment in the plan formulation process, similar to the present for environmental considerations. This would not require a monetary quantification of defense "benefits", but it will be necessary to develop an evaluation procedure or model to handle the non-monetary considerations. This improvement can be introduced administratively.

(2) Produce a monetary quantification of defense value or benefits, and, subject to Congressional approval, incorporate this in project justification. Several approaches have been identified that could be used to attribute a value to Civil Works projects, including costing the alternatives that would assure the continued reliable operation of the defense facility and econometric modelling. These are described more explicitly later in this Report under Additional Studies Option.

Although the two options produce very different end products, and can be pursued independently, the analysis involved is complementary. Depending on time and budget constraints, work on either one or both merits further consideration.

ANALYSIS OF FIELD INQUIRY BY USE

Flood Control

The flood protection service was provided to 73 different installations by 87 civil works projects. The level of service provided by projects to defense facilities varied from "unknown" to "major" for 119 associations as shown below:

- o Exclusive beneficiary - 0
- o Major beneficiary - 13
- o Minor beneficiary - 82
- o Located in service area - 24

Defense Facilities Protected by Projects

Nationwide, 73 different defense facilities which include Federal and state military installations used for training, operations and testing in addition to arsenals, depots and transportation installations are served by Corps of Engineer civil works projects providing flood control. It was reported that numerous reserve and National Guard facilities in widely dispersed locations are also served by projects. However, district offices could not generally

relate project service to the many national guard and reserve facilities using only existing data. Therefore few were included. The 73 separately reported defense facilities are all government owned.

Eighty-seven Corps civil works projects in 21 states were identified as protecting defense facilities. In some instances several Corps projects worked as part of a total flood control system to protect a single defense facility. With these 87 projects, 119 associations were made between individual Corps projects and defense facilities. On only 13 occasions was it reported that a defense facility was a major beneficiary of the project. The remaining associations included 82 which showed the facility was a minor beneficiary and another 24 for which the reporting officer could not determine any relationship, but noted the facility was in the project's service area.

Only in one instance was the nature of protection to a defense installation described. This installation was not, however, identified as either a major or minor user of the project. The reporting officer in this instance reported the project offered 100-year protection level to the lower end of the runway of a major air force base which served as Strategic Air Command Headquarters. Although the facility's size (acres and personnel) were included as were the activities at the facility no economic measures were provided. The unquantified value appeared to be the risk to national defense from flooding all or part of the facility.

Major Defense Benefactors are Key Facilities

The significant finding from this sampling of defense use of civil works flood control projects is that the major defense beneficiaries shown in Table 2 involve highly strategic activities. These activities are grouped into 5 categories:

- o Large test facility for conventional weapons
- o Large Army, Navy, Marine Corps and Air Force training and operations bases
- o Navy construction battalion base
- o Naval ship weapon testing and engineering center
- o Ammunition manufacturing plant

Hydropower

OCE's January 1984 inquiry into the existing service provided by hydropower projects to defense facilities asked as it did for flood control if the defense facility was an exclusive, major, or minor beneficiary of the project or if it were in the service area. The following summarizes the service provided by hydropower projects to defense installations:

- o Exclusive beneficiary - one reported in license stage
- o Major beneficiary - 2 reported
- o Minor beneficiary - 60 reported
- o Located in service area - 28 reported

Table 2

Major Flood Control Protection to Defense Facilities[1]

State (Cong. Dist)	Project (CWIS)	Defense Facility	Defense Activities
Alaska(1)	Chena River Lakes (72738)	Fort Wainwright, Fairbanks, AK	Army, air transport
Arizona(2,3)	Painted Rock Dam (13560)	Yuma Proving Gd, Yuma, AZ (3)	Army, large test facility for conv. weapons
Arizona(2,3)	Painted Rock Dam (13560)	Marine Corps Air Station, Yuma, AZ (2)	Marine and Navy air training
Arizona(3)	Trilby Wash (McMicken Dam) (none)	Luke Air Force Base, Glendale, AZ (3)	Airfield TAC and combat training
Calif.(19,21)	Santa Clara River Levee Imp. (none)	Navy Base - Port Hueneme, Oxnard, CA (19)	Construction Battalion and ship weapons tests & eng.
Texas(16)	El Paso Local Protection Proj. (05340)	Ft. Bliss, El Paso, TX (16)	Army troop training
Arkansas(1)	St. Francis River Basin Ditch 27 & Trib. (17320)	Blytheville Air Force Base, AR (1)	Air Force operations base
Missouri(4)	Little Blue River Basin Projects (72277, 72276)	Lake City Army Ammunition Plant Independence, Mo (4)	Manf. ammunition-3900 acre facility
Minnesota	Mississippi River at Aitkin, MN (none)	Air National Guard Atkin, MN	Runway
Minnesota	Redwood R. at Marshall (none)	Air National Guard, U.S. Army Reserve, Marshall, MN	Runway
Iowa	Dry Run (none)	U.S. Army Reserve Ctr. Decorah, IA	---
North Dakota	Minot. (none)	Minot Air Force Base; Air National Guard and U.S. Army Reserve Ctr. Minot, ND (3)	Air Force operations
West Virginia	Rainelle Local Prot. Proj. (71055)	PFC Ralph E. Pomery Army Res. Ctr, E. Rainelle, WV[2]	---

Source: FY 1984 defense use data from U.S. Army Corps of Engineers District offices in response to DAEN-CWP-D letter of 30 January 1984. This preliminary survey did not canvass all Defense facility - Corps project relationships.

Defense Facilities Served by Projects

Nationwide 68 separate Corps hydropower projects were identified as supplying power to 25 different defense facilities ranging from military installations to arsenals. Generally the field offices noted that all defense facilities in a power grid served by the Corps project were minor beneficiaries. There were twelve states with military facilities located within the power pools served by these projects. The importance of Federal projects is directly linked to hydropower's contribution to each National Electric Reliability Council (NERC) region. One region, the Western Systems Coordinating Council (WSCC)[1] depends on hydropower for 40 percent of its power. This region encompasses the western half of the U.S. and produces 57% of all hydropower in the nation. Within WSCC there are sub-regions called power pools. The Northwest Power Pool serves predominately Oregon, Washington, and Idaho. This sub-region is heavily dependent on hydropower since it comprises 73% of the pool's generating capabilities (37,330 MW). The Corps projects contribute 42% of all power to this Northwest Power Pool making these Federal projects essential to all defense facilities as well as to the entire economy in the Northwest.

In no other region or sub-region does hydroelectric power or Corps projects comprise so much of the electric generating capacity as in the Northwest. Hydropower (Federal and non-Federal) contributes 12% of the capacity in the

---

1. WRCC region includes states of Arizona, California, Colorado, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming, and most of Montana and New Mexico, and small sections of Nebraska, South Dakota and Texas.

Southeastern Electric Reliability Council (SERC) region, 10 percent in Northeast Power Coordinating Council (NPCC) region and less than 10% in the remaining regions.

Value of Hydropower to Defense - A Regional Issue

The 25 defense facilities listed by the reporting districts plus the hundreds of others within WSCC and to a lesser extent SERC and NPCC regions are sensitive to hydropower electricity generation. Those defense facilities listed included Federal and state military installations used for training, operations and testing in addition to arsenals and depots. All defense facilities within WSCC's Northwest Power Pool are especially vulnerable to disruption of hydropower input into the pool. The districts reported 44 project-military facility linkages within the SERC pool. Although hydropower makes up 12% of the electric generating capability, a significant share, the Federal hydropower facilities input to the pool makes up only 3%. The same is true for NPCC. Therefore the relative importance of Federal projects in SERC and NPCC compared to all others becomes rather minor. Defense facilities reliance on Federal projects in the whole eastern half of the U.S. is relatively insignificant. This is in contrast to the West where Federal power is critical to military facilities. Heightening the importance of WSCC hydropower is the fact that the inter-regional transfer capability between WSCC and all other councils is very small. This is in contrast to the well developed inter-regional transfer capability among the eastern regions and

pools. Only Texas Regional Power system does not connect with other regions. Its hydropower generation capacity, however, is less than 1% of the region's power generation capacity.

The value of hydropower to national defense becomes a function of the proportion of total energy supplied by water within not only the region, but if inter-regional linkages exist, within these larger interconnected geographical areas. Hydropower is essential in the West, but pales in importance in the East because of alternative power sources and closely linked interconnections between the eastern regions.

Water Supply

The Corps districts determined several Corps projects which provided water supply to 26 named defense facilities. The level of service for each project - defense facility relationship identified is summarized below:

- o Exclusive beneficiary - 0
- o Major beneficiary - 2 peacetime, 7 mobilization
- o Minor beneficiary - 17 peacetime, 20 mobilization
- o Located in service area, no determination of service - 7

Defense Facilities Served by Projects

There were 26 different defense facilities named. These were located in 13 states. In addition, districts reported that other facilities probably would

be served but did not have readily available data to identify them. Several of the facilities reported included, among others, DOE's nuclear reservation in Washington State which draws cooling water from a project, DOE's Los Alamos Scientific Laboratory in New Mexico, the Pine Bluff Arsenal in Arkansas, and the Iowa Army Ammunition Plant in Burlington, Iowa. The dominant users of water from Federal projects are the defense facilities responsible for manufacturer of weapons or inputs to weapons such as phosphate from the Phosphate Development Works in Alabama. Geographically, these facilities are well distributed, located in the West, Mid-west and East.

Defense Use is Quantified

The Corps districts reported quantities of water used (peace and/or mobilization) for six of the defense facilities identified. The use ranged from 3 mgd (million gallons per day) to 500 mgd for the facilities. Table 3 displays the quantities reported for those facilities classed as major beneficiaries. Interestingly enough, an historical analysis of major users of Federal water supply projects would have sorted out only Cherokee Dam and Abiquiu Dam among the seven listed in Table 3 because only these two projects listed water supply among the project purposes. A lesson drawn from this is that uses associated with water resource historical projects may evolve with time and to assess a projects present value based solely on historical project purposes may overlook a critical Federal resource needed for defense.

To assign all operations and maintenance costs to historical project purposes may not always be appropriate as Table 3 projects exemplifies. The non-water

Table 3

Major Defense Beneficiaries of Water Supplies Provided by Projects

State	Name of Project[1]	Name of Defense Facility	Measure of Use
NM	Abiquiu Dam and Res. (FW)	Los Alamos Sci. Lab	not reported
IA	Burlington, IA Levee (F)	Iowa Army Ammunition Plant	3 mgd via city of Burlington
OH	Michael J. Kirwan Dam and Res. (F)	Revenna Army Ammunition Plant[2]	not reported
TN	Cherokee Dam (WFHR)	Holston Army Ammunition Plant[2]	500 mgd via Kingsport
TN	Chickamauga Lock and Dam (NFH)	Volunteer Army Ammunition Plant[2]	50 mgd
AL	Pickwick Landing Lock and Dam (NFH)	Phosphate Development Works[2]	70 mgd
AL	Wheeler Lock and Dam (NFH)	Redstone Arsenal[2]	40+ mgd

1. Authorized Project Purposes are in parentheses: F = Flood Control; W = Water Supply; H = Hydropower; R = Recreation; N = Navigation.
2. Major beneficiary under mobilization conditions.

supply projects generally displayed flood control and navigation as project purposes but served unofficially as a major water supply source for a defense facility.

Other Project Uses

The field reported several other defense related uses of projects. These uses with the number of Corps projects involved are as follows:

- Training -- 24 projects in 9 states
- Landing Sites -- 6 projects in 3 states
- Recreation -- 6 projects in 5 states
- Therapy -- 1 project in 1 state
- Hurricane Projection -- 1 project in 1 state

Like all other projects reported, none of these projects displayed defense as a purpose nor discussed the specific defense function (e.g., training, landing site, etc.)

The Huntington District reviewed all National Guard and reserve units to identify the uses of Corps projects for West Virginia and Kentucky. For training the National Guard and Army reserve units in West Virginia and Kentucky relied on six projects. The use of Corps projects for training would be reduced during mobilization. These projects with the number of defense users are as follows:

- o Beech Fork Lake, WV-3
- o Burnsville Lake, WV-1
- o R. D. Bailey Lake, WV-3
- o Sutton Lake, WV-1
- o Grayson Lake, KY-1
- o Yatesville Lake, KY-2

Kansas, West Virginia and Kentucky were the only states reporting helicopter landing sites on project lands in the survey, with the latter two states citing existance of major beneficial uses. The projects involved in those two states and number of major users are as follows:

- o Fishtrap Lake, KY-2
- o R. D. Bailey Lake, WV-1
- o Bluestone Lake, WV-2

Drawing on the detailed reports from Huntington District, if similar relationships exist in even a fraction of the other 35 districts and Pacific Ocean and New England divisions, a very large number of associations would result.

POTENTIAL ADDITIONAL STUDIES

New Project Benefit Test Projects

- Select 3 new projects (water supply, flood control, hydroelectric) which will serve defense facilities. If no new projects are apparent, assess O&M projects.

- Establish a point of contact with the commander of the facility and his headquarters liaison.

- In close coordination with the defense facility do the following: (1) measure without project use (e.g., level of flooding and frequency for each component within the defense facility); (2) estimate economic costs for the without plan; (3) estimate strategic risk of without plan (e.g., inability to use runway for 5 days every 4 years etc); (4) develop a single purpose protection plan for facility (5) establish costs of single purpose plan and seek concurrence of headquarters office of that facility with the benefits added by the project.

- Following completion of these test projects prepare guidelines for working with defense facilities to assess economic benefits and security risks.

Existing Project Benefit Test Project

Based on the field responses the Corps of Engineers civil works projects:

- o Serve project purposes but often in a modified distribution,
- o Serve unauthorized project purposes;
- o Serve defense facilities via both project and non-project purposes and in support of national security.

Since an accounting of current uses for all projects would be impractical, it is recommended that a sample of projects stratified by project purposes be selected in each district. An equivalent to a preliminary feasibility study would then be conducted for each project in the sample. Included in addition to conventional water resource uses, will be a separate category called defense (national security). Not only will the traditional benefits be allocated to defense but the unquantifiable national security benefits will be discussed (no alternative project cost evaluation proxy for willingness to pay is expected).

Attachment I

Identification of Defense Use of Civil Works Projects

30 January 1984

U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314

REPLY TO
ATTENTION OF:

30 JAN 1984

DAEN-CWP-D

SUBJECT: Identification of Defense Use of Civil Works Projects

SEE DISTRIBUTION

1. This is a data request to determine identifiable defense-related uses of Civil Works projects. The information will augment mobilization classification of Corps projects, and may be used in responding to program review and budget inquiries.

2. The inclosure describes the information needed and suggests a format for your response. The objective is to identify specific defense uses with specific Corps projects, i.e. transportation using navigation projects, flood or shore protection and water or power supply by non-navigation projects. At present there is no central inventory of such uses that is project-specific by type and amount.

3. No additional funding is available for the time required to respond to this request. The immediate use of your information will be in a study to determine how defense requirements and benefits can be incorporated into project planning and evaluation.

4. Questions concerning this request should be directed to OCE Planning Division, Richard Schultz or Robert Daniel, (202) 272-0134. The requested information should be sent to DAEN-CWP-D by 30 April 1984.

FOR THE COMMANDER:

for JOHN F. WALL
Major General, USA
Director of Civil Works

1 Incl
as

DISTRIBUTION:
(See Page 2)

DAEN-CWP-D
SUBJECT: Identification of Defense Use of Civil Works Projects

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30 JAN 1984

DAEN-CWP-D

DEFENSE USE OF CIVIL WORKS PROJECTS

Preface

The purpose of this data request is to determine the identifiable defense uses of Civil Works (CW) projects. This requires identification of specific uses of specific Corps projects by specific defense-related facilities. This level of detail is not provided by the mobilization classification of Corps projects, but the research associated with that effort may be very useful in this one. The immediate need for the specific information is to respond to Congressional inquiries, and to provide a basis for determining how defense requirements and benefits can be incorporated in project planning and evaluation. The data may also be relevant for MOBEX and enhanced project operations.

The level of detail required in your response is described in the following directions, and has been limited to minimize the time involved and to avoid classification of the data if possible. The intent is to use publicly available data, but it should be marked "For Official Use Only" and classified if sensitivity falls under the classification criteria of AR 380-5. Since use is the link with defense facilities, typically only completed projects will be involved. Since the amount of transportation use of navigation projects may not be readily available, quantification is not always required. (However, CWP-D may be able to provided statistics for an identified facility.)

Your contribution is essential, to make this defense use inventory complete and useful, and it will be appreciated.

Directions

1. Sample responses prepared at OCE are attached to indicate an appropriate level of detail and format. Please provide separate responses for navigation project purposes and non-navigation purposes to facilitate OCE's use of the data. Copies of the blank format used in the OCE sample response are enclosed for reproduction. No site surveys are expected. The inventory pretests found public data sources ranging from the telephone directory and road atlas to printed chamber of commerce material to suffice in locating defense facilities. These sources in conjunction with the use of internal Corps data from Real Estate, Military Construction and MOBEX will generally be adequate to establish relationships to CW projects.

2. The defense facilities and project defense uses that should be covered by your responses are as follows:

a. Defense Facilities and Typical Activities

(1) Government-Owned, Government-Operated (GOGO)

(a) Federal and state military installations including Army, Navy, Air Force, Marines, Coast Guard, National Guard and reserve for training, operations, testing or other activities, whether presently active or not are to be included.

(b) Federally-operated defense-related health, including VA and Public Health hospitals (if readily identifiable), education, research, supply and transportation installations, arsenals, depots and stockpiles, military air and ocean terminals, shipyards, ordnance or other activities are to be reported.

(2) Government-Owned, Contractor-Operated (GOCO)

Federally-Owned installations that are currently operated (or may be operated under mobilization) exclusively for defense-related purposes including storage or stockpiles, service and supply, manufacturing or repair. Include Defense Fuel Supply depots and Federal Emergency Management Agency (FEMA) stockpiles that are, or may be, essential to GOGO and GOCO activities.

(3) Contractor-Owned, Contractor-Operated (COCO)

Identification of COCO plants which produce DOD consumed products and their CW project use is not required. This level of detail was scoped out of this data acquisition phase based on field pretests.

b. Defense Facility or Activity Use of Civil Works Projects

(1) It is expected that "Mobilization" use compared to "Current" CW project use may be much greater. Therefore, defense facility use of the CW project under both conditions should be identified if there is project use under either condition. Some limited contact with the identified defense facility, the Corps Real Estate and MOBEX personnel for information may be needed. Show the symbols + or - for increased or decreased use under "Mobilization" if that can be determined. Alternately, note "NA" if the mobilization use or the change in use cannot be determined. A measure of this use under "Current" and "Mobilization" is important for at least a sampling of projects and should be provided where possible. Recognizing that measures are complex, this effort should avoid new surveys or analysis.

(2) Navigation Projects—Identify in terms of "yes" or "no" the following transportation-related uses that can be associated with specific defense facilities: (a) Military or Naval vessel traffic, (b) Military personnel movements, (c) fuel supply, (d) cargo shipments or receipts, (e) other (specify). Quantify these uses by displaying the annual number of vessel movements, number of personnel, tons of fuel, and tons of cargo if that information is readily available. Also, if military vessel draft requirements are known, specify them. If no measurement data can be obtained show "NA".

(3) Non-Navigation Projects--Identify for each specific facility whether the project provides (a) flood protection, (b) shore or bank erosion protection, (c) water supply, (d) hydropower (e) other (specify). Also, show one of the following numbers for each identified use (a-e) shown above, if applicable:

1. The facility is the exclusive beneficiary of this project purpose.

2. The facility is a major beneficiary of this project purpose.

3. The facility is a minor beneficiary of this project purpose.

4. No determination of direct CW project purpose service to the facility or its activities can be made, however it is located in the service area.

3. Regardless of whether you start with Corps projects to identify associated defense facilties and uses of CW projects, or start by screening defense installations (i.e. using the Defense Mapping Agency's Map #8205 as one source) to identify associated projects, the end product inventory should include only those projects and facilties linked by use. OCE will assume that any CW project listed in the Annual Report FY 82 of the Chief of Engineers and not listed in your responses provides no identifiable defense service, either current or during mobilization.

4. Specific information provided via your responses should include the following:

a. Control Information. Each separate response sheet should be numbered. The names of FOA contact(s) should be entered along with his (her) phone number(s) and office symbol.

b. Project Information

(1) Name — enter CW project name. Include in a footnote other pertinent information such as closely associated or supporting CW projects and the sheet number where they are discussed.

(2) CWIS (Civil Works Information System) — the number for O&M (or most O&M in the case of multiple numbers) that can provide a unique computer address for data tabulation.

(3) Purposes — name the authorized purposes.

(4) Location — states as shown in the Chief's Annual Report, Congressional Districts within each state, and, as appropriate, city or nearest city, river and mile point, and other locators.

(5) Description and Discussion — supplementary information (see 4 e (1) below), description of project features and other relevant discussion.

c. Defense Facility Information

(1) Name — official name of facility, plus the commonly used name in parenthesis, if different.

(2) Location — state, Congressional District, and city (for facilties outside municipal limits, the nearest city prefixed with "near"). Use place names indexed in standard reference source such as Rand McNally's Road Atlas. Add other appropriate geographic locators such as river mile.

(3) Description of Activity and Size of Facility — describe the principal activity or activities of the defense facility. This involves identification of the facility's defense use as distinguised from its use of the project. Activities listed in paragraph 2 a (1) and (2) are an adequate level of detail.

d. Defense Facility or Activity Use of CW Project

Show the use of the CW project by the defense facility or activity as it is currently used and as it may potentially be used under mobilization or other defense preparedness conditions. Paragraph 2.b. above provides directions for completing this block. Note that navigation and non-navigation project uses have specific directions in paragraphs 2.b.(2) and 2.b.(3), respectively.

e. Supplementary Information

(1) Identify any project in your district authorized for defense purposes in whole or in part. List all such projects regardless of whether they presently have identified defense uses, and provide supplementary information showing (a) the key language in the authorizing document, (b) cost sharing applied to final costs and O&M if any, and (c) describe any benefits claimed.

(2) Provide location maps to identify the defense facility location. An outline or pinpoint of the location on a Rand McNally-type state map will suffice.

5. Your survey responses should be sent to DAEN-CWP-D by 30 April 1984. If you have any questions, contact Dick Schultz or Bob Daniel at DAEN-CWP-D, telephone (202) 272-0134, FTS 272-0134.

ice Symbol SAVCW-E Contact's Name [illegible] Phone No. _____ (commercial)

Project Information

me Charleston Harbor 1] & 2]	CWIS(s) 02980	Purpose Navigation
cation: (States and Congressional Districts*) SC (25 & 26)	Specific locators Mile 15 to mouth of Cooper River. "near" Charleston (Nearest city, river and mile point and/or other)	

scription and Discussion: Deepening to 40' authorized by Act of July 18, 1918 subject to avy Drydock Authorization- Act of Jan. 21, 1927 changed proviso to "Only as found necessary f ational Defense" 40' recommended by CW study now at ASA(CW). See attached sheet for more deta

DEFENSE FACILITIES OR ACTIVITIES					DEFENSE FACILITY OR ACTIVITY USE OF CW PROJECT ***	
Name	Location			Description & Size**	Current	Mobilization
	States	Cong. Dist.*	Other Locators			
harleston Navy Yard	SC	26	Charleston Co. and City. 8 mi. from ocean on West Bank of Cooper R.	Ship construction and repair. Operations base	Served directly by project. a. yes (See NOTE 3) b. no c. yes (N.A) d. yes (see NOTE 4)	a. yes ⊕ b. NA c. yes ⊕ d. yes ⊕
S Navy Reservation	SC	31	"near" City of Charleston 16 mi. from ocean. Above head of project on East Bank of Cooper R. Served by Navy channel.	Large - 500 acres Supports: 1a & 1c. Storage: Military cargo, Strategic mat'ls	a. yes (see NOTE 3) b. no c. yes (NA) d. no (NOTE 4)	a. yes ⊕ b. no c. yes ⊕ d. NA
harleston Air Force Base	SC	23	"near" city of Charleston .5 miles inland, NW of harbor.	Air Transport. Operations Base Shares airstrip with Charleston Int'l Airport.	a. no b. no c. yes (NA) d. no	a. no b. no c. yes ⊕ d. no

NOTES: 1] See separate listing for Cooper R. rediversion project (Sheet 5)
2] Related harbor projects that do not serve the facilities and are not otherwise listed include: Ashley River, Shipyard River, Shem Creek, and AIWW.
3] Record of 1980 movements for entire harbor, no facility specified: 932 (in & out). Most were Navy, some were MSC & CG. (MSC records)
4] FY79 MSC records for harbor showed 812,000 s/tons. Most thru Commer

* Include two predominant districts if three or more are involved.

** Include size only if readily available, estimates acceptable.

*** Follow paragraph 2b of "Directions", note that paragraph 2b for navigation and 2b(3) is for non-navigation. Specify under "Current" the normal use of CW project and include measure use (eg. Military fuel @ 10,000 tons/year; water supply, xms hydropower, ziwh). Show NA if measure is not available. "Mobilization" show +, - or NA to signify the direction chan use during mobilization compared to current use.

ce Symbol NEDPL Contact's Name John Craig Phone No. 011-641-0011 (commercial)

Project Information

ne Conn. River Basin Projects	CWIS (s) 09932	Purpose Flood Protection
cation: (States and Congressional Districts*) (18&19); NH(13&18); MA(2&22); CT(2&1)	Specific locators Conn. River and tributaries (Nearest city, river and mile point and/or other)	

cription and Discussion: Project developed as system of FC projects under MSS terstate Compact. Reserboirs reduce tributaries' floodflows. Dikes, floodwalls, channe provements on mainstem protect highly developed areas in 4 states. 1/

DEFENSE FACILITIES OR ACTIVITIES					DEFENSE FACILITY OR ACTIVITY USE OF CW PROJECT ***	
Name	Location			Description & Size**	Current	Mobilization
	States	Cong. Dist.*	Other Locators			
2stover ir Force Base	MA	21	Hampden Co "near" Springfield N.E. of Chicopee, MA.	Large Base @ 2000 acres Operations Base	a. 4 (see note 2)	a. 4, NA
radley ir Force Base	CT	03	"Near" Windsor Locks (CT). Integrated into Bradley International Airport	Small size Reserve training Operations deactivated	a. 4	a. 4, NA

TES:
Local projects near but not directly serving above facilities clude Chicopee, Chicopee Falls, Holyoke, Springfield (MA) nd Hartford(CT).
Receives fuel via Defense Fuel Supply Depot at New Haven(CT) See New Haven Harbor Project on sheet 20 of 39.

Include two predominant districts if three or more are involved.

Include size only if readily available, estimates acceptable.

*** Follow paragraph 2b of "Directions", note that paragraph 2b(2) is for navigation and 2b(3) is for non-navigation. Specify under "Current" the normal use of CW project and include measure of use (eg. Military fuel @ 10,000 tons/year; water supply, xmgd; hydropower, xkwh). Show NA if measure is not available. Under "Mobilization" show +, - or NA to signify the direction change in use during mobilization compared to current use.

Sheet No. _____

Office Symbol _____ Contact's Name _____ Phone No. _____ (commercial)

Project Information

ame	CWIS (s)	Purpose
ocation: (States and Congressional Districts*)	Specific locators (Nearest city, river and mile point and/or other)	

escription and Discussion:

DEFENSE FACILITIES OR ACTIVITIES					DEFENSE FACILITY OR ACTIVITY USE OF CW PROJECT ***	
Name	Location			Description & Size**	Current	Mobilization
	States	Cong. Dist.*	Other Locators			

TES:

* Include two predominant districts if three or more are involved.

** Include size only if readily available, estimates acceptable.

*** Follow paragraph 2b of "Directions", note that paragraph 2b(2) is for navigation and 2b(3) is for non-navigation. Specify under "Current" the normal use of CW project and include measure of use (eg. Military fuel @ 10,000 tons/year: water supply, xmgd, hydropower, xkwh). Show NA if measure is not available. Under "Mobilization" show +, - or NA to signify the direction change in use during mobilization compared to current use.

ice Symbol_____ Contact's Name_____ Phone No. _____
(commercial)

Project Information

me	CWIS (s)	Purpose
cation: (States and Congressional Districts*)	Specific locators (Nearest city, river and mile point and/or other)	

scription and Discussion:

DEFENSE FACILITIES OR ACTIVITIES					DEFENSE FACILITY OR ACTIVITY USE OF CW PROJECT ***	
Name	Location			Description & Size**	Current	Mobilization
	States	Cong. Dist.*	Other Locators			

TES:

Include two predominant districts if three or more are involved.

Include size only if readily available, estimates acceptable.

*** Follow paragraph 2b of "Directions", note that paragraph 2b(2) is for navigation and 2b(3) is for non-navigation. Specify under "Current" the normal use of CW project and include measure of use (eg. Military fuel @ 10,000 tons/year; water supply, xmgd; hydropower, zkwh). Show NA if measure is not available. Under "Mobilization" show +, - or NA to signify the direction change in use during mobilization compared to current use.

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