

CHAPTER XV
CIVIL ENGINEER SUPPORT

On 1 March 1968, the Naval Facilities Engineering Command approved the establishment of a Seabee Systems Engineering Office to consolidate under single management at the Construction Battalion Center, Port Hueneme, the functions being accomplished by the Provisioning and Allowance Coordinating Office of the Supply Department, the Material Department, and the STINGER Systems Analysis Office. On 1 August 1968, the Seabee Systems Engineering Office (SSEO) was officially established at Port Hueneme. The new organization quickly acquired additional responsibilities. On 8 November 1968, the Command delegated contract authority to SSEO and on 1 July 1969 it was assigned the function of a 2C Cognizance Inventory¹ Control Point.

The acquisition of new responsibilities, coupled with a steady expansion of functions was a major characteristic of the Command's new support office during the years 1968-1974. The Seabee Systems Engineering Office was to become the action component of the Command's military readiness function. Most Naval Construction Force and material management functions were to be delegated to the Seabee Systems Engineering Office for execution during the period under

¹Memo from CBC, Port Hueneme Code 15A to Code 12A of 5 Aug 1969, p. 1. See Chapter 14 for a discussion of the origins of STINGER.

consideration. These functional transfers made the new office one of the Command's fastest growing organizations during the 1970s.

The reorganizations and transfers of responsibilities that the Seabee Systems Engineering Office underwent led to its name being changed twice during its first five years of existence. These name changes were carried out primarily so that the two major mission areas of the office, Civil Engineer/Seabee support and NAVFAC equipment management, might be emphasized in its title.

The first change took place on 10 March 1971, when the name "Seabee Systems Engineering Office" was changed to "Seabee Support and Equipment Office." The second change took place on 1 July 1972 when the name was changed to "Civil Engineer Support Office" (both functions being encompassed in the term "Civil Engineer Support").²

In 1969, the mission of the Civil Engineer Support Office (CESO) was to (1) define, develop, coordinate, and maintain NAVFAC elements of the STINGER System, (2) analyze existing subsystems, and establish measures of operational readiness and cost effectiveness, (3) implement an integrated logistic support planning system to permit management decisions required in the acquisition of men, facilities, equipment, and data, (5) support Department of Defense standardization and cataloging programs, (6) accomplish NBy

²Memo from CBC, Port Hueneme Code 15 to Code 173 of 28 Dec 1971, subj: Command History Report, enclosure (1) "Seabee Support and Equipment Office Historical Activities 1 Oct 1970-30 Jun 1971 (NAVFAC Archives)." For consistency, henceforward the name "Civil Engineer Support Office" will be used to identify this office, without regard to any anachronisms that might result.

contracting for hardware procurement and provisioning, (7) act as inventory control point for 2C Cognizance items, (8) and perform other tasks as assigned.³ After the merging in 1968 of the STINGER Systems Analysis Office, Provisioning and Allowance Coordinating Office of the Supply Department and the Material Department which led to the creation of the Civil Engineer Support Office, the STINGER function of the new office was carried out by what was henceforward called the Systems Analysis Group.⁴ During 1969, this group worked with a number of simulation models to determine Seabee requirements. These models were the Combat Construction Identification Model, the Construction Materials Model, Construction Equipment Simulation Model, and Seabee Personnel Models. In addition this office carried out special studies involving planning and technical report documentation.⁵

Computer requirements to accomplish the technical effort were satisfied by renting time locally on the two IBM 7094 computers at the Pacific Missile Range at Port Mugu, the IBM 1620 at the Naval

³ Memo from CBC, Port Hueneme Code 15 to Code 173 of 18 Dec 1971, subj: Command History Report, enclosure (1) "Seabee Support and Equipment Office Historical Activities 1 Oct 1970-30 Jun 1971 (NAVFAC Archives)."

⁴ See Chapter 14 for a discussion of STINGER.

⁵ Memo from CBC, Port Hueneme Code 15 to Code 173, subj: Command History/Information Reports, 4th Quarter FY 1969, enclosure (2), "Seabee Systems Analysis Group Progress Report."

Civil Engineering Laboratory and the IBM 360/40 at what was then the Data Processing Division of the Construction Battalion Center, Port Hueneme.⁶

The Combat Construction Identification Model was designed to identify the combat construction needs of the various units comprising a Marine expeditionary force. This was done by defining the construction effort involved in terms of the needed man-days of each Seabee skill, e.g. builder, electrician, etc., along with the civil engineering support equipment required. Computer programs were also developed to process data furnished by the Marine Corps to identify ammunition storage and POL storage requirements by T/O number. These programs were to provide the flexibility required to accept Marine Corps changes to a Marine expeditionary force in terms of equipment allowance, etc., and identify changes in POL and ordnance storage requirements.⁷

The Construction Materials Model was designed to allow for the development of a capability to accept the requirements of national planning and compare these requirements to the inventory in a rapid manner and identify shortages in a priority sequence together with cost information.⁸ The model was subsequently modified

⁶Memo from CBC, Port Hueneme Code 15 to Code 173, subj: Command History/Information Reports, 4th Quarter FY 1969, enclosure (2), "Seabee Systems Analysis Group Progress Report."

⁷Memo from CBC, Port Hueneme Code 15 to Code 173, subj: Command History/Information Report, 1st Quarter FY 1970, enclosure (2), "Systems Analysis Group Progress Report."

⁸Ibid.

to accommodate Chief of Naval Operations Special Projects. The type of information forwarded to Command Headquarters included, by plan (Cloud, Storm, etc.), the Advanced Base Functional Components (ABFC) required, the dollar cost of each ABFC, the dollar amount of the material (by ABFC) held in custody by the Command, and the dollar cost of material short.

The equipment Simulation Model was designed to determine the replacement and repair cycles of civil engineer support equipment. In 1970, this model was exercised for the purpose of forecasting, for selected pieces of equipment, the number of each type that would be required annually over the next twenty years. However, since there was a varying demand for Seabees in a deployed area, the model was modified to forecast the equipment needs when the number of Seabees required in the deployment varied monthly.⁹

Beginning in 1968 technical effort was also expanded in analyzing equipment utilization data. This effort provided the first Seabee Tactical Equipment Management System Equipment Utilization Report, which covered the period from November 1968 to April 1969 for RVN equipment. In addition, operation and maintenance costs were also retrieved by equipment cost code for the Vietnam War period.¹⁰

⁹ Memo from CBC, Port Hueneme Code 15 to Code 173 of 14 Jan 1970, subj: Command History/Informational Report for period 1 Oct-31 Dec 1969.

¹⁰ Memo from CBC, Port Hueneme Code 15 to Code 173 of 8 Jul 1969, enclosure (2), p. 2.

A special study was performed for Commander, Construction Battalions Pacific Fleet, to estimate the amount of gasoline and diesel fuel required by a P-25 (functional component for a Mobile Construction Battalion) and a P-25 plus a heavy construction company¹¹ for a one-month period based on three years of Vietnam experience.

During this same year it was determined that the Equipment Simulation Model required data identifying the STINGER System's characteristics in order to forecast the probable results of management actions and equipment wear-out. A preprocessing system was developed for extracting and analyzing selected information from this data base. This preprocessing system was operating by¹² 30 June 1969.

Efforts continued to evaluate the validity of data used to perform long-range forecasts of equipment needs by type. Data was obtained from the Naval Civil Engineering Laboratory in order to determine how well equipment operational data obtained at the Construction Battalion Center, Port Hueneme could be expected to correlate repair costs with equipment age. This information was compared with data obtained from the Seabees. In addition, scatter diagrams were prepared to display visually the meaning of some of¹³ the statistical measures used to judge the validity of the data.

¹¹ Memo from CBC, Port Hueneme Code 15 to Code 173 of 8 Jul 1969, enclosure (2), p. 2.

¹² Ibid.

¹³ Memo from CBC, Port Hueneme Code 15 to Code 173 of 14 Jan 1970, p. 2.

In late 1969 a study was performed which addressed the implied level of repair costs necessary to economically justify the Seabee equipment replacement policy. This policy, which consisted of acquisition, 16 months of usage, depot maintenance, 16 months of usage, and disposal, was referred to as the 16/16 policy. For the four equipment codes studied (1587, 1826, 4420 and 4893), the implied cost was compared with the actual cost experienced, as estimated from shop repair order data for the period January 1969 to June 1970. The results were published in Technical Memorandum 69-30. In addition, a supplement to TM 69-30 was written which applied the same analysis.

The final model that the STINGER Systems Analysis Group worked on in the late 1960s and early 1970s was the Seabee Personnel Model. By 1969, documentation of the Group VIII personnel simulation was completed and published as a technical memorandum. In addition, documentation of a special officer study was completed. The results of this study were used to develop the proposed Civil Engineer Corps Officer Promotion Plan which was submitted to the Bureau of Naval Personnel.¹⁴ That same year a project to compare a simulation projection with the actual levels of Civil Engineer Corps Officer strength for a five year projection, 1965-1969, was initiated.¹⁵

¹⁴ Memo from CBC, Port Hueneme Code 15 to Code 173 of 8 Jul 1969, enclosure (2), p. 3.

¹⁵ Memo from CBC, Port Hueneme Code 15 to Code 173 of 14 Jan 1970, p. 3.

Also in progress was the development of a technical approach to the Group VIII Management System (GEMS) model.¹⁶

Work continued on these projects during the next two years. Results, as they emerged, were published in the form of technical memoranda.

In addition to its work on the models, the Systems Analysis Group also carried out numerous special studies during 1969 and 1970. Among these special studies was the Seabee Parts Supply Management (SPSM) Program. This program was concerned with the possibility of adapting a Rand Corporation base stockage model (originally developed for the Air Force) for use by the Command.¹⁷ The Advanced Base Functional Component (ABFC) Committee was another special project. As a result of the problems identified by military planners in trying to use the ABFC system for contingency planning and the Civil Engineer Support Office's own experience with Combat Construction requirements this committee was assigned an operations research analyst to assist in a definition of ABFCs such that the DOD category code system could be integrated into the ABFC.¹⁸ During 1970, the Operations Research Planning Committee (ORPC) was created to define and screen operations research efforts so that a high probability of success would accompany each study.

¹⁶ Memo from CBC, Port Hueneme Code 15 to Code 173 of 15 Apr 1970, p. 2.

¹⁷ Memo from CBC, Port Hueneme Code 15 to Code 173 of 21 Oct 1970, p. 4.

¹⁸ Ibid.

The year 1972 saw the initiation of the Advanced Base Functional Component Systems Engineering/Management Study. The principle objective of this study was to identify the resources required to obtain effective systems engineering and management. Two operations research analysts initiated the task effort at Naval Facilities Engineering Command Headquarters and at other systems commands during December 1971. Industrial Mobilization Production Planning (IMP) was also undertaken by the System's Analysis group.¹⁹

Two other studies undertaken during the 1971-1972 time frame were the Seabee Pile Driver Study and the Seabee Equipment Utilization Study. The former was requested by COMCBLANT²⁰ and was to provide an economic analysis on the cost per unit of pile driving output for contractor accomplishment. In addition, it was requested that an ABFC list be compiled of the items required to establish and support a Mobile Construction Battalion expanded pile driving capability, as such capability might be required in future contingencies. During the period, a literature search was initiated as was a search for data. The end result desired from the study was a decision as to whether the Naval Construction Force should have increased pile driving capability, including better equipment.²¹

¹⁹ Memo from CBC, Port Hueneme Code 15 to Code 173 of 21 Mar 1972, p. 2.

²⁰ Ltr from COMCBLANT to CCBL (S-3:Fr. 10200 ser: 578) of 1 May 1971.

²¹ Memo from CBC, Port Hueneme Code 15 to Code 173 of 21 Mar 1972, p. 2.

The Seabee Equipment Utilization Study began as a preliminary study to locate data reflecting Seabee equipment utilization and provide analysis on two equipment types in order to identify histograms of equipment utilization over a one year period (1966-1967) at one of the Seabee camps (Haskins South) in Vietnam. Additionally, a ninety day moving average study was accomplished over two deployments to identify the change in utilization between thirty and ninety day periods. As a consequence of a presentation made to the Equipment Program Manager on the results of the technical efforts, additional work was requested.

The Systems Analysis Division (the last name of what had originally been the STINGER Analysis Group and later the Systems Analysis Group) continued to perform its diverse functions until 1 May 1972 when it was disestablished. Its functions were for the most part picked-up by other departments especially by the Management Systems Division which was enlarged and renamed the Planning/Analysis Department. The systems analysis personnel were transferred to other departments of the Civil Engineer Support Office.

During the 1970s, the Command continued to assign additional responsibilities to the Civil Engineer Support Office. By 1974, that office was responsible for: (1) executing assigned NAVFAC programs in support of the Naval Construction Force, (2) managing 2C Cognizance

²² Memo from CBC, Port Hueneme Code 15 to Code 173 of 21 Mar 1972, p. 2.

²³ Memo from CBC, Port Hueneme Code 15A to Code 173 of 24 Jul 1972.

equipment and material for total Navy support, (3) managing and designing designated segments of the Advanced Base Functional Component system, (4) executing NAVFAC responsibilities for data management and assigned portions of the DOD Standardization Program and (5) executing the Mobile Utilities Support Equipment Program to provide utility support.

Naval Construction Force support called for the Civil Engineer Support Office to assist active and reserve units of the Naval Construction Force to maintain a maximum state of readiness by coordinating the determination of personnel, training, and hardware requirements, acquiring and managing prepositioned material, developing allowances, reviewing equipment utilization, and reviewing training and utilization of Group VIII personnel.

In the area of equipment management, the Civil Engineer Support Office developed programs to provide economical Navy-wide equipment service including the determination of requirements for procurement, assignment, and management of transportation, construction, weight handling, and specialized equipment for shore activities and fleet units.

The Civil Engineer Support Office also developed Advanced Base Functional Component system facilities, including determination of construction man-day requirements and development of material

²⁴Organization Manual, Naval Construction Battalion Center, Port Hueneme, California (CBC Instruction 5450.1, Ch. 8 of 9 Aug 1973), p. 8.

²⁵Ibid.

lists. The office also implemented assigned portions of the DOD Standardization Program and executed the NAVFAC Data Management Program.

In the area of management support, CESO conducted operations research studies and coordinated development and documentation of all Naval Construction Force and Construction Battalion Center management information systems in order to increase the effectiveness of support to the Naval Construction Force and military readiness programs as assigned. It also functioned as a working proponent and monitored the use of management information systems in support of the Naval Construction Force and other Naval Facilities Engineering Command programs.²⁶

When first established in 1968, as the "Seabee Systems Engineering Office," the Civil Engineer Support Office was divided into the Systems Analysis Group (the successor of the old STINGER Analysis Office), the Support Management Division, Procurement Management Division and the Functional Component Engineering Division.

The many reorganizations and functional expansions that were part of the next six years led to a rapidly altered organization by 1974. In 1974, CESO was divided into seven departments: Administration, Management Systems, Equipment Management, Material Support, Functional Components, Standardization and Data Management, and Seabee Support.²⁷

²⁶Organization Manual, CBC, Port Hueneme, p. 8.

²⁷Ibid., pp. 5-17.

In the following sections the mission of each department as it had evolved by 1974 will be given and something will be said about that department's activity during the period under consideration. The description of activities and accomplishments does not pretend to be complete as this would be beyond the scope of this chapter. Instead only significant or particularly representative projects are included in order to give the reader some idea of the nature of CESO's activity.

ADMINISTRATION

The Administrative Department was responsible for the day-to-day administration of the Civil Engineer Support Office. As such it maintained departmental control of official correspondence and maintained the central CESO files and classified files. It also provided such support services as mail handling, duplicating and messenger service. Finally it maintained distribution control of manuals and publications, prepared and controlled CESO notices and instructions of an administrative nature and coordinated control of forms, reports, and records.

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MANAGEMENT SYSTEMS

By 1974, the Management Systems Department was responsible for the design, development, documentation, and implementation of

²⁸ Organization Manual, CBC, Port Hueneme, p. 5.

all CESO, Naval Construction Force, and Construction Battalion Center management information systems. It also acted as data control point within CESO and as liaison between the Civil Engineer Support Office and Facilities Systems Office. It also was responsible for systems analysis and maintenance of computer models, having inherited this functions from the defunct Systems Analysis Group.²⁹

The Management Systems Department came into existence in 1972, when it assumed most of the functions of the old Systems Analysis Group. Effective 1 May 1972, the Systems Analysis Division was disestablished. The Management Systems Division assumed what functions were continued and was renamed the Planning/Analysis Department.³⁰ Within a few months this was changed to Management Systems Department. During 1972, the Management Systems Department carried out much systems analysis work. A five phase task, the Advanced Base Functional Component Engineer/Management Study, was accomplished. The purpose of this study was to objectively determine the bureau and systems command resources needed to support the Naval Facilities Engineering Command's system engineering responsibilities as defined by NAVFAC Instruction 4040.11 of 2 August 1971.³¹

²⁹Organization Manual, CEC, Port Hueneme, p. 6.

³⁰Memo from CBC, Port Hueneme Code 15A to Code 173 of 24 Jul 1972, p. 1.

³¹Memo from CBC, Port Hueneme Code 15A to Code 173 of 24 Apr 1972, p. 1.

That same year the Seabee Equipment System Simulator was used to produce a projection of the Port Hueneme Construction Equipment Department peacetime workload. The Civil Engineer Corps Projected Annual Strength Simulation Model was used to prepare the Command promotion plan. In addition, special studies were accomplished on pile drivers and fuel stocking.

During the remainder of the year work was carried out on the Personnel Readiness Capability Program, the Construction Automotive Specialized Equipment/Management Information System (CASEMIS) Master Equipment Inventory File, a DOD Data Call (collecting information on military construction equipment overhaul) and on Project PATSI (an indepth study of procurement, acceptance, transportation, surveillance and issuance of Prepositioned War Reserve Stocks which was to lead to significantly improved methods and substantial cost savings to the Navy).

During the last quarter of the year a CASEMIS milestone was achieved when maintenance of the Equipment Management System (EMS) transcript masters for all Prepositioned War Reserve Stocks equipment was transferred to the Management Systems Department. This marked the actual implementation of an essentially complete Navy inventory of equipment under either the Equipment Management System or the Automatic Construction Equipment Management Information System (ACEMIS).

³² Memo from CBC, Port Hueneme Code 15A to Code 173 of 5 Oct 1972, p. 1.

³³ Memo from CBC, Port Hueneme Code 15A to Code 2231 of 10 Jan 1973, p. 6.

With the establishment at CESO of the Navy Housing Management System preponency, the processing of Housing Cost Reports from approximately 175 worldwide naval housing activities was implemented. The system design included the generation of management reports for both field and Headquarters use.

During 1973, the Planned Maintenance System Support to CBLANT was set in a more operational mode when procedures were established allowing project related data to be entered directly into the Facilities Systems Office's computer from Davisville, with resulting information being printed back out at Davisville within 24 hours. ³⁴

That same year, the Personnel Readiness Capability Program (PRCP) was expanded to the active Seabees with the loading of personnel data from two construction battalions. The data resulted from personnel interviews. The active and reserve PRCP systems were subsequently combined into a single operating system. A study was conducted to determine the feasibility of centralizing the surveillance of Prepositioned War Reserve Stocks in a single organization. It was concluded that increased readiness should result with some concurrent manpower savings over the methods then in use. ³⁵

Interim procedures were implemented at the three Construction Battalion Centers for the Centralized Surveillance and the Quality

³⁴ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 16 Apr 1973, p. 6.

³⁵ Ibid.

Assurance and Inspection programs. Implementation at the eastern
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centers was based on a pilot model installed at Port Hueneme.

During the last quarter of 1973, the analysis necessary for
the restructuring of the Group VIII Management System report module
supporting Naval Facilities Engineering Command and Bureau of Naval
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Personnel Group VIII functions was completed.

During 1974 the system specifications for project level
Shipping Documentation aids and Supply Overhaul Assistance Program
(SOAP) inventory aids were completed.

A workshop was held the week of 18 February 1974 with partici-
pants from the Facilities Systems Office and the system working
proponents. The result was a program integrating all proponent
projects for the planned Facilities Systems Office workload in
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fiscal year 1975.

EQUIPMENT MANAGEMENT

In 1974 the Equipment Management Department executed the
Command's policies and procedures to provide transportation, con-
struction, weight handling, and specialized Navy-wide mobile equip-
ment.

³⁶ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 18 Oct
1973, p. 2.

³⁷ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 17 Jan
1974, enclosure (1).

³⁸ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 19 Apr
1974, enclosure (1).

It also supported the Chief of Naval Operation's established Navy-wide Civil Engineering Support Equipment (CESE) and Civil Engineering End Items (CEEI) requirements. The department prepared CESE and CEEI budgets for submission to the Command. It procured and assigned equipment consistent with the needs of the Navy's shore activities, fleet command headquarters ashore, ships, the Naval Construction Force (NCF), and special operating groups. In addition it supported the Command's Transportation Equipment Management Centers in the execution of Command transportation equipment responsibilities.

Equipment Management also developed inputs for Naval Construction Force tables of allowance, provided Navy-wide equipment application support in selecting types of equipment to meet specific operational requirements (with the exclusion of aircraft crash fire trucks and aircraft crash cranes), provided management guidance, direction and control to the Seabee Tactical Equipment Management Program, established maintenance and overhaul policies and standards for NCF equipment, reviewed and analyzed NCF equipment maintenance data, performed Construction, Automotive, and Specialized Equipment Management Information System working proponent functions and executed the Mobile Utilities Support Equipment program to provide interim utility support. In addition Equipment Management support performed industrial mobilization planning on assigned items, registered USN-numbered equipment Navy-wide, coordinated war reserve requirements planning for 2C Cognizance material and prepared material

³⁹ Organization Manual, CBC, Port Hueneme, p. 6.

readiness reporting requirements as directed by higher authority. Finally, it conducted operations research studies to identify alternative courses of management action in order to solve equipment management problems and acted as a focal point for and executed Navy responsibilities in the Program Manager - Mobile Electric Power program.

During 1969, the Equipment Management Division carried out a number of significant projects. A major project was coordination of the development and production of Flash Distillation Barges for use in Southeast Asia. At the Command's orders, a reliability prediction was run for the barge, the Flash Distillation Unit and supporting equipment such as the diesel generator. Maintainability data from the Navy Maintenance and Material Management System (3M) were reviewed to establish a reasonable estimate of the maintenance burden that might be expected. Training requirements and capabilities⁴⁰ were also investigated.

A contract was awarded for six units with delivery anticipated at a rate of one per month starting 27 May 1969. As a result of contractor unfamiliarity with this type of an operation, some adverse weather, and some problems in procurement of material, the delivery date slipped to 21 July 1969 for the first unit, with follow-on units to be delivered approximating one per month thereafter. By July 1969, one fuel barge was completed and one barge

⁴⁰ Memo from CBC, Port Hueneme Code 15 to Code 173 of 9 Apr 1969.

mounted Flash Distillation Unit had been transported to a waterfront site, which would allow launching following completion. An extension of the basic contract to include the training of personnel for⁴¹ operation and maintenance of these units was also negotiated.

By January 1970, the contract for six barge-mounted water distillation units was completed. The six units were accepted by the Resident Officer in Charge of Construction, Point Mugu, California and were either delivered, picked up for delivery, or stored⁴² at Long Beach Naval Shipyard awaiting transportation.

The problem involved in this procurement action was a lack of production planning at the system level by the contractor. Program plans, milestones and other management tools should have been required submission items by the contractor either prior to⁴³ award or immediately upon award of the contract.

Other projects carried out for the Command during 1969 were an analysis of the MRS tractor, and a review of Advanced Base⁴⁴ Functional Components for adequacy of support and equipment. In addition a repair parts support agreement was signed between

⁴¹ Memo from CBC, Port Hueneme Code 15 to Code 173 of 7 Jul 1969.

⁴² Memo from CBC, Port Hueneme Code 15 to Code 173 of 14 Jan 1970.

⁴³ Memo from CBC, Port Hueneme Code 15 to Code 173 of 9 Apr 1969.

⁴⁴ Memo from CBC, Port Hueneme Code 15 to Code 173 of 7 Jul 1969.

the Ships Parts Control Center and the Construction Battalion Center, Port Hueneme so that the Naval Facilities Engineering Command could carry out, through CESO, certain duties in repair parts support normally performed for other commands.

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During the second half of 1969, a team was formed to evaluate the retrograde of material from the Republic of Vietnam. This team included the division director and personnel from the Material Management and the Supply Support Branches. Existing deficiencies were screened against the excess listings of the Officer in Charge of Construction, Vietnam and RMK/BRJ, the major civilian contractor consortium. The repair parts assets which were identified as CBC requirements amounted to \$376,892. These were requested to be returned to CONUS for entrance into CBC stock. The equipment and construction materials assets identified and requested for return totaled \$1 million.

During 1970, CESO's Support Management Division continued to work on various ongoing projects, such as training for the operation of the Flash Distillation Barges delivered the previous year. That same year responsibility for most of the Command's training functions was transferred to CESO (NAVFAC Notice 1510 of 17 June 1970). A continuing project for review of qualification manuals was undertaken and progressed well as did the efforts for defining

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⁴⁵ Memo from CBC, Port Hueneme Code 15 to Code 173 of 7 Jul 1969.

⁴⁶ Memo from CBC, Port Hueneme Code 15 to Code 173 of 15 Apr 1970.

Group VIII skills in a manner acceptable to both CBLANT and CBPAC.⁴⁷

A review of one-quarter ton vehicle assignments was performed and the activities holding these vehicles were advised of specified mechanical defects.

During 1971, an Integrated Logistics Support Plan was developed to comply with DOD directives. It was anticipated that the final ILS plan would be a useful management tool to continuously monitor procurement status.⁴⁸

In the area of maintenance, at the Command's request CESO's Equipment Management Department developed an update of the total funding requirements to complete overhaul on all retrograde equipment and to accomplish needed repairs on Prepositioned War Reserve Stock items in non-ready-for-issue condition at all three Construction Battalion Centers. The total requirement amounted to \$3.5 million.

During March 1972, the Command approved a program to alter and modify existing fourteen cubic yard earthmoving scrapers. This program was originated by CESO's Program Management Department, after an examination of projected needs showed that the funds available for future procurement were insufficient to meet fleet requirements. An analysis of existing assets showed that many of these units could be altered and modified to meet fleet requirements

⁴⁷ Memo from CBC, Port Hueneme Code 15 to Code 173 of 16 Jul 1970.

⁴⁸ Memo from CBC, Port Hueneme Code 15 to Code 173, subj: Report for 1 Oct 1970-30 Jun 1971, enclosure (1), p. 24.

at substantially lower costs than new procurement. As a result of this analysis, CESO formulated a mixed program of new procurement and alteration of selected, existing assets which the Command subsequently approved. It was estimated that this program would procure thirty-six additional fourteen cubic yard scrapers (with a total value of \$2.6 million) as compared to a program of procuring only new units as originally planned.⁴⁹

In 1972 a pilot program was initiated to utilize available L-3 excess repair parts, rather than procure new parts, for the overhaul of SEA Retrograde Equipment. Initially forty units of Southeast Asia retrograde equipment were selected for the pilot test to determine the merits of the program. A savings of \$45,000 was realized from the units processed. This saving provided additional capability for the overhaul of other units previously unfunded. Based on experience gained from the pilot program, L-3 excess repair parts were also made available to the equipment overhaul program for CBPAC and CBLANT.⁵⁰

Funding of SEA retrograde equipment was completed at all three centers with the additional allocation provided by the Command in the amount of \$673,200. Action was initiated by CESO to dispose of all other on-hand SEA retrograde equipment where the estimated repair costs exceeded the uneconomical repair limits imposed by the Command and/or for on-hand equipment for which no requirement existed.

⁴⁹Memo from CBC, Port Hueneme Code 15 to Code 173 of 24 Apr 1972, p. 4.

⁵⁰Ibid.

During 1972, a contract was awarded to the MRS Manufacturing Company for the modification of seventy-eight Navy-owned MRS tractors. The contract amounted to \$1.6 million or \$20,500 per unit. This modification program saved approximately \$30,000 per unit when compared to the cost of new unit procurement.

In the area of maintenance, CESO represented the Naval Facilities Engineering Command as a member of a Navy team which made an assessment of Federal Prison Industries in order to determine their capabilities for performing depot level repairs on 2C Cognizance Civil Engineer Support Equipment. It was determined that the⁵¹ necessary facilities were not available at that time.

Effective 10 October 1972, the Command designated CESO as the centralized control point for all matters relating to DOD depot level equipment maintenance reporting systems required by higher⁵² authority.

The barge-hospital that the Command constructed on Lake Titicaca, Bolivia was successfully launched on 17 December 1972.

During 1973, CESO executed a procurement for thirty-eight recruitmobiles having a value of approximately \$1 million for the Navy Recruiting Command. The time frame for the procurement was extremely short. The request was received by CESO on 25 October

⁵¹ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 10 Jan 1973, p. 3.

⁵² Ibid.

1972. The contract was awarded on 12 December 1972. Preproduction
was completed on 12 March 1973 and delivery of the vehicles commenced
on 1 May 1973.⁵³

On 16 and 17 July 1973, CESO representatives met with CBLANT/CBPAC/
31st NCR and NMCB 4 personnel in a Reindeer Station (Diego Garcia)
Equipment Planning Conference. The purposes of the conference was
to plan for the orderly transfer of equipment responsibilities on
Reindeer Station from CBLANT to CBPAC and to plan for the orderly
replacement of overage equipment on the atoll.⁵⁴ CESO also
monitored repair of DESAL barge #227 at Diego Gracia. CESO's
MUSE Field Office continued execution of plans to support Minimum
Essential Requirement (MER) and "cold iron" requirements.⁵⁵

During 1973 additional procurement of Mobile Utilities Support
Equipment was carried out. This included procurement of both elect-
trical generating plants as well as mobile boiler plants.

In the area of maintenance, analysis of current Civil Engineering
Support equipment fuel requirements resulted in a recommendation
to the Command for a 30 percent fuel reduction in the Table of
Allowance. This recommendation was to reduce total gasoline re-
quirements by 120,600 gallons and diesel fuel requirements by
1,271,000 gallons. Monetary savings in procurement and shipping

⁵³ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 16 Apr
1973, p. 3.

⁵⁴ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 18 Oct
1973, p. 3.

⁵⁵
Ibid.

charges and prices, as of 1 December 1973, amounted to approximately \$186,700 for the initial outfitting of a Mobile Construction Battalion.

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A major issue addressed by CESO during 1973 was how to improve the large quantity of overage automotive and construction equipment in the hands of fleet and shore activities. A NAVMAT/NAVFAC/CESO decision was reached to (1) extend the life expectancy of such equipment by one year, (2) reduce the shore establishment inventory in use by 10 percent and (3) request an additional \$8 million per year for the next eight years in order to improve the quality of

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the equipment.

During 1974, a CESO representative assisted in salvage determinations aboard the USNS Merrell, subsequent to that vessel's collision with the MS Pearl Venture. At the time of the collision, the Merrell was hauling supplies to Diego Garcia. CESO provided a cost breakdown of lost-damaged equipment and repair parts to the Twelfth Naval District to facilitate a decision whether to halt salvage operations and took action to replace the lost or damaged equipment to meet the reshipping schedule to Diego Garcia.

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Various actions were taken to integrate the Command's Oil Spill Program within existing CESO functions. Continuous liaison was

⁵⁶ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 17 Jan 1974, p. 3.

⁵⁷ Ibid.

⁵⁸ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 19 Apr 1974, enclosure (1), p. 1.

maintained with Command Headquarters on this matter. It was decided to acquire the equipment for cleaning up all types of harbor oil spills. Approximately \$13 million worth of procurement actions were planned over the following two years for this equipment.⁵⁹

MATERIAL SUPPORT

CESO, through Material Support, processed procurement documents and expedited assigned Command procurements, accomplished provisioning and allowance functions in support of Command equipment, and managed the Command's Prepositioned War Reserve Stocks, final title, and special inventory accounts. Finally Material Support performed inventory manager cataloging functions for NAVFAC cognizant and specifically assigned items and was responsible for assigned Construction Battalion Center Supply Management Information System proponent functions.⁶⁰

In 1969, CESO awarded its first contract providing for the services of outside technical representatives to assist the Third Naval Construction Brigade in erection and operation of asphalt plants in Vietnam.⁶¹

A team was formed to evaluate the retrograde of material from Vietnam. Existing deficiencies were screened against the excess

⁵⁹Memo from CBC, Port Hueneme Code 15 to Code 2231 of 19 Apr 1974, enclosure (1), p. 1.

⁶⁰Organization Manual, CBC, Port Hueneme, p. 9.

⁶¹Memo from CBC, Port Hueneme Code 15 to Code 173 of 9 Apr 1969, p. 2.

listings of the Officer in Charge of Construction, Vietnam and the civilian contractor. The repair parts assets that were identified as Construction Battalion Center requirements amounted to \$376,892. It was requested that these assets be returned to the United States
62
for entrance into CBC stock.

The development of a computer program to provide reliability and maintainability analysis from historical data was also completed. Work was also carried out in support of the Personnel Readiness
63
Capability Program and the Group VIII Management System.

During 1970, conferences were held dealing with the reconciliation of Ships Parts Control Center and Construction Battalion Center provisioning functions and with stock coordination between CESO
64
and the Naval Supply Systems Command.

Most of the training functions which previously were the responsibility of Command Headquarters were transferred to CESO by NAVFAC Notice 1150 of 17 June 1970.

During 1971 the program for the interchange of catalog data utilizing AUTODIN was completed; this procedure reduced schedules for these actions by approximately thirty days. During fiscal year 1971, the Civil Engineer Support Office accomplished 22,694 supply

⁶² Memo from CBC, Port Hueneme Code 15 to Code 173 of 14 Jan 1970, p. 4.

⁶³ Ibid., p. 5.

⁶⁴ Memo from CBC, Port Hueneme Code 15 to Code 173 of 15 Apr 1970, p. 4.

actions and 1,040 item identifications were processed. As of 30 June 1971, CESO had received for processing a total of 533 MIPR/Requisitions for fiscal year 1971 having a total value of \$41.7 million.⁶⁵

During 1972, work on all ongoing projects continued. In January, representatives of CESO visited the Fleet Material Support Office for a joint Naval Supply/NAVFAC/FMSO/CBC Port Hueneme Conference to review Naval Construction Force Coordinated Shipboard Allowance List requirements.⁶⁶

During January 1973, a NAVFAC/NAVSUP/SPCC/CESO conference was held and later that year, a Joint Services Procurement Coordination Committee was formed (to meet annually) to identify construction equipment common to two or more services in order to effect common buys. This committee selected twenty such common items for procurement consolidation in fiscal year 1974. The procurement of these twenty items involved approximately \$15 million.⁶⁷

The Centralized Quality Assurance and Inspection Program, assigned to CESO by the Command (COMNAVFAC ltr of 21 June 1973), was implemented at all three Construction Battalion Centers as of 1 November 1973. This program was expected to standardize and

⁶⁵ Memo from CBC, Port Hueneme Code 15 to Code 173 of 1971, enclosure 1, p. 24.

⁶⁶ Memo from CBC, Port Hueneme Code 15A to Code 173 of 24 Apr 1972, p. 4.

⁶⁷ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 17 Jan 1974, p. 6.

simplify surveillance procedures, provide for better condition of equipment in storage and generate some tangible monetary savings in personnel requirements in support of the surveillance operation. ⁶⁸

That same year a new program was instituted for the reporting of all USN numbers for 2C Cognizance material by federal stock number, and quantity received and issued by the three Construction Battalions Centers. This new program furnished 2C Cognizance Inventory Managers with the information required to assist in the maintenance of an updated Equipment Management System file and the preparation of the allowance repair parts lists. ⁶⁹

During 1974, the Command, through CESO, continued to work toward the completion of its portion of the Navy's conversion to National/NATO Stock Numbers in all supply systems. The main effect of this change was to add two digits designating country of origin to the stock number. ⁷⁰

CESO also carried out preparation for the reduction of the Davisville Construction Battalion Center to a 2C Cognizance material storage location with a small shop store operation. Specifications were developed and forwarded to the Facilities Systems Office for a 10 October mechanical transfer of PWRR/PWRS requirements from the Davisville Center to the Gulfport Center and for the associated

⁶⁸ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 17 Jan 1974, p. 6.

⁶⁹ Ibid.

⁷⁰ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 19 Apr 1974, p. 3.

issue and shipment of assets to Gulfport and the establishment of
71
prepositioned due cards.

FUNCTIONAL COMPONENTS

CESO Functional Components engineering coordinated and provided guidance and systems integration for Advanced Base Functional Components to assist the Naval Facilities Engineering Command in carrying out its assigned responsibilities as the Navy's ABFC Systems Engineer. The responsibilities included the development and administration of ABFC design and advanced technological methods for utilizing ABFCs in future fleet operations, and the development of any automatic data processing capability to provide ABFC technical planning data for tactical operational contingencies when required by the Chief of Naval Operations and fleet commanders.⁷²

Functional Components engineering translated conceptual requirements and objectives, technological developments and guidance from higher authority into facilities designs and construction planning for the ABFC system. It prepared the necessary instructions for issuance by the Command to carry out the Command's role as ABFC Systems Engineer and performed ABFC working proponent functions. It monitored and/or carried out ROICC duties for assigned contracts for tests and evaluation of new concepts applicable to ABFCs and A&E design contracts for ABFC Systems. It prepared the necessary

⁷¹ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 20 Nov 1974, p. 3.

⁷² Organization Manual, CBC, Port Hueneme, p. 12A.

planning estimates by skill, type, and number required to accomplish ABFC missions and finally it prepared material take-offs for ABFCs.⁷³

During 1969, many projects were carried out in the area of functional components. A tactical Support Functional Component helicopter pad, and a C-130 airfield were completed. An Advanced Base Functional Component fixed road bridging (P23A) was also 95 percent completed. Purchase descriptions were prepared that year for several pieces of major equipment. The Navy Mobile Electrical Power Program also continued to receive priority in 1969.⁷⁴

In 1970, a specification covering the basic thirteen types of Tactical Container Shelter System (TACOSS) units was developed. From this document, a refrigerated TACOSS unit, and five prototype expendable TACOSS units providing complete berthing, messing, laundry, sanitary, recreation, and utility facilities for thirteen to twenty-six man detachments was to be procured.⁷⁵

The Preventative Maintenance/Mobile Electric Power Program continued to receive emphasis that year, and an ABFC System status analysis was carried out. Several additional special sketches were also done.⁷⁶

⁷³Organization Manual, CBC, Port Hueneme, p. 12A.

⁷⁴Memo from CBC, Port Hueneme Code 15 to Code 173 of 9 Oct 1969, enclosure (4).

⁷⁵Memo from CBC, Port Hueneme Code 15 to Code 173 of 15 Apr 1970, p. 2.

⁷⁶Ibid.

During 1971, CESO rendered design assistance for installation of desalination barges and prepared lists of construction materials for maintenance and modification of camp facilities on the atoll
77
of Diego Garcia.

In 1972, North American Rockwell completed fabrication of the TACOSS IV, 250-man galley for CESO. That same year CESO personnel began preparing drawings of LST causeways for the Amphibious Construction Battalions. A new schedule for the update of all functional components was also prepared. It was estimated that the update would be completed by 1975. Various ABFCs were also redesigned
78
during the course of the year.

In 1973, a tri-service design meeting was held at CESO (in February). The meeting was attended by representatives of the Marine Corps, Army, Air Force, and Navy (NAVFAC), who were involved in advanced base facilities design. Results of the meeting included division between the services of design management to avoid duplication of effort.
79

Work progressed on medical/dental ABFCs, and on POL storage and distribution systems. Numerous ABFC drawings were also completed during the course of the year. Work on the new Mount-out Inter-model Box System (MIBS) was carried out and a contract was let for

⁷⁷ Memo from CBC, Port Hueneme Code 15 to Code 173 of 1971, enclosure (1).

⁷⁸ Memo from CBC, Port Hueneme Code 15A to Code 2231 of 10 Jan 1973, p. 5.

⁷⁹ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 16 Apr 1973, p. 4.

design, fabrication test and delivery of the system. CESO personnel also completed the design and material take-off for a 350 Seabee construction camp. The design utilized expeditionary structures, and the ABFC system procedures and ADP capability were used to develop it.⁸⁰

During 1974, TACOSS Unit I (galley/mess for thirteen to twenty-six men), TACOSS Unit IV (berthing for twelve men) and TACOSS Unit VII (utility unit) were sent with Seabee Team 0523 to Camp Pendleton for field deployment and maneuvers.⁸¹ Work on other ABFCs, both updating and development, continued.

STANDARDIZATION AND DATA MANAGEMENT

CESO Standardization and Data Management was responsible for implementing assigned portions of the DOD Standardization and Data Management Programs. It also managed for the Department of Defense all standardization actions in six federal supply classification classes. In addition, Standardization and Data Management prepared and reviewed all specifications, standards, purchase descriptions, engineering practice studies and data item descriptions in assigned classes covering materials, equipment, and systems in support of worldwide Naval Construction Force and shore facilities programs.

⁸⁰ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 17 Jan 1974, p. 6.

⁸¹ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 20 Nov 1974, p. 4.

It also developed federal guide specifications for use by all
82
government agencies.

Through this function, CESO also provided engineering consultation to the Department of Defense and other federal agencies, carried out engineering investigations for the Command as assigned, and developed technical requirements and tests for preservation,
83
preparation for delivery, and quality assurance.

In 1969, CESO Standardization and Data Management placed emphasis on the Program Manager/Mobile Electric Power Program. CESO also actively monitored the Lewis Building Test Program, Naval Civil Engineering Laboratory work on Quick Camps, and "On-Fast" fiberglass matting development. Reports were prepared on two fast curing concrete mixes and on parameters to be used by the Naval Civil Engineering Laboratory when testing elevating scrapers. Purchase descriptions and specifications were prepared for numerous
84
pieces of equipment during the course of the year.

During 1970 the Program Manager/Mobile Electric Power program continued to receive priority and the preparation of purchase
85
descriptions and specifications continued.

⁸² Organization Manual, CBC, Port Hueneme, p. 14.

⁸³ Ibid.

⁸⁴ Memo from CBC, Port Hueneme Code 15 to Code 173 of 9 Oct 1973 and 8 Jul 1969, enclosure (4).

⁸⁵ Memo from CBC, Port Hueneme Code 15 to Code 173 of 15 Apr 1970, p. 3.

During 1971, CESO assisted in the first step evaluation of a two-step procurement for all containment booms which were to be used for pollution control of oil spills. The routine of preparing procurement descriptions and specifications continued.⁸⁶

During 1972, Standardization and Data Management carried out several emergency specifications projects in addition to other routine work.⁸⁷

During 1973, responsibility for typing and editing of final specifications drafts for all NAVFAC cognizant federal supply classes was transferred from the Construction Battalion Center, Davisville, to CESO. Due to the phase-down of operations at Davisville, the orderly transfer of standardization and data management functions to Port Hueneme began. In addition the routine work of preparing purchase descriptions and specifications continued as before.⁸⁸

During 1974 Standardization and Data Management continued its normal work.⁸⁹ At the beginning of the year a divisional reorganization was completed which centralized the Command's field personnel involved in the preparation and review of specifications, standards, purchase descriptions, engineering practice studies, and data item

⁸⁶ Memo from CBC, Port Hueneme Code 15 to Code 173 of 16 Dec 1971, p. 6.

⁸⁷ Memo from CBC, Port Hueneme Code 15 to Code 173 of 24 Apr 1972, p. 5.

⁸⁸ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 17 Jan 1974, p. 6.

⁸⁹ Memo from CBC, Port Hueneme Code 15 to Code 2231 of 24 Jan 1975, appendix B.

descriptions in assigned federal supply classes. These major areas included the data management program, Civil Engineering Support Equipment, facilities and special items, and various commodities (i.e. cement, tile, shop, service and trade, plumbing and heating equipment, etc.). The Commodities Division was established to include responsibility for many of the federal supply classes assigned to CESO from the Construction Battalion Center, Davisville.⁹⁰

SEABEE SUPPORT

For the Seabee Division of the Command's Military Readiness Program, CESO Seabee Support provided staff support in determination of Naval Construction Force requirements, developed and coordinated Group VIII training programs, developed allowance support material input for other than 2C Cognizance material for the Naval Construction Force tables of allowance and coordinated, as the focal point within CESO, all sections concerning tables of allowance.⁹¹

Seabee Support managed the basic subsystems for material, other than 2C Cognizance, supporting the Naval Construction Force. It also provided management assistance to active and reserve Naval Construction Force units. In addition, Seabee Support studied and documented existing techniques and developed new techniques applicable

⁹⁰ Memo from CBC, Port Hueneme Code 15 to Code 20 of 14 Dec 1973.

⁹¹ Organization Manual, CBC, Port Hueneme, p. 15.

to construction tasks assigned to the Naval Construction Force or required by the Advanced Base Functional System. To do this, it coordinated closely with field Naval Construction Force units to keep abreast of methods being employed on actual construction assignments. From this experience it prepared manuals such as Lessons Learned, Construction Methods and the Seabee Planning and the Seabee Planning and Estimating Handbook.

Within CESO itself, Seabee Support effected liaison with and represented the Naval Construction Force and other Fleet support requirements. It also performed working proponent functions for: (1) the Personnel Support MIS portion of Civil Engineer Support Management Information System, (2) development of computerized management systems for the Naval Construction Force, and (3) the Project Management System for planning battalion deployments and projects.

Seabee Support also prepared allowances for maintenance shop tools, and equipment for the Naval Construction Force and for Advanced Base Functional Components. It analyzed equipment maintenance characteristics and requirements to ensure compatability with existing Naval Construction Force maintenance support skills, shop tools and equipment. Finally it coordinated Naval Construction Force research, development, test and evaluation.

⁹² Organization Manual, CBC, Port Hueneme, p. 15

In the area of Seabee Support a personnel Readiness Capability

Program conference was hosted at CESO during the period 26-30 October 1970. The results had a significant effect on developing new interview standards for Seabee rates. Other projects for the year were an underwater construction capability development study which was done for the Command. Studies were also carried out in the area of repair parts support, reliability, and maintainability⁹³ of equipment.

In 1972, CESO continued to work with Seabee rate classifications. Work on the personnel Readiness Capability Program also went⁹⁴ forward. During the course of the year a new recruit training concept proposed by the Chief of Naval Technical Training to improve training, was developed jointly by CESO and the Naval Schools,⁹⁵ Construction, Port Hueneme.

Among the actions carried out in 1972 at the Command's request were the establishment of a construction inspection naval enlisted classification code, and the evaluation of the feasibility of devising practical factors and correspondence courses to provide

⁹³Memo from CBC, Port Hueneme Code 15 to Code 173 of 16 Dec 1971.

⁹⁴Memo from CBC, Port Hueneme Code 15 to Code 173 of 24 Apr 1972, p. 3.

⁹⁵Memo from CBC, Port Hueneme Code 15A to Code 173 of 24 Jul 1972, p. 2.

objective means for evaluation of the enlisted man's ability at self-expression.⁹⁶

In 1973, the Command's CESO representatives participated in a joint services curriculum review subcommittee meeting at Fort Leonard Wood, Missouri, that recommended continued investigation of common training curricula for "A" level training of equipment operator and construction mechanic type personnel.⁹⁷

During 1974, CESO continued to conduct management assistance visits to selected Naval Construction Force units and participated in several personnel conferences in support of the Military Readiness Program. A Mobile Construction Battalion table of organization was developed that year to provide minimum facilities for the initial (six months) operational support of a battalion. Work continued on Personnel Readiness Capability skill definitions.⁹⁸

⁹⁶Memo from CBC, Port Hueneme Code 15A to Code 2231 of 10 Jan 1973, pp. 2-3.

⁹⁷Memo from CBC, Port Hueneme Code 15 to Code 2231 of 16 Apr 1973, p. 2 of 8.

⁹⁸Memo from CBC, Port Hueneme Code 15 to Code 2231 of 15 Jul 1974, p. 5.