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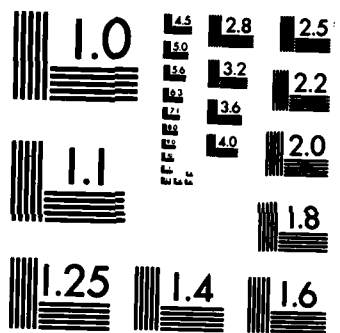
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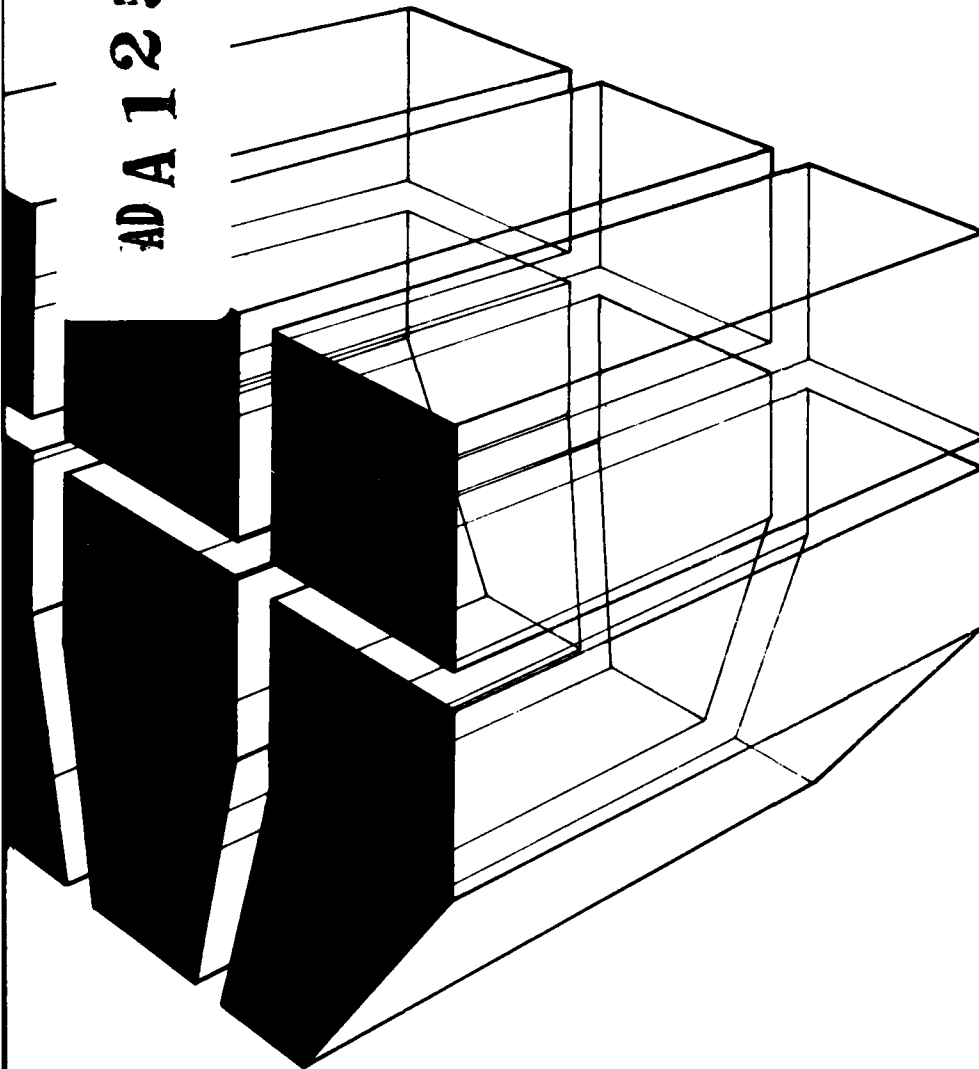
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CW-CELDS USER MANUAL

by
Elizabeth T. Herrick
Ronald D. Webster



MAR 23 1983
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the user through a series of questions based on the tasks required by the statutes. Based on answers supplied by the user, the system will identify most cases where a project does not comply with a particular statute. The system will then give the user a chart of the logic path taken in each session. This chart can be used to certify compliance with a particular law. CW-CELDS is an effective means for project managers to certify compliance and to help with project planning. The system is a component of the Environmental Technical Information System.

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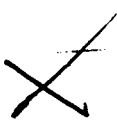
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FOREWORD

This investigation was performed for the Office of the Chief of Engineers (OCE), Directorate of Civil Works, under CWIS No. 31731, "Modification of CELDS for Civil Works." The OCE Technical Monitor was Dr. John Belshé, DAEN-CWP-V.

The work was done by the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratory (CERL). CERL personnel directly involved were Mr. Ronald Webster, Mr. Calvin Corbin, and Ms. Elizabeth Herrick. Dr. R. K. Jain is Chief of CERL-EN.

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



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CW-CELDS USER MANUAL

1 INTRODUCTION

Background

In May 1979, the Federal Office of Management and Budget determined that all Federal agencies performing water resources activities would certify that each proposed or ongoing water resources project in the planning or construction stage complies with 15 applicable environmental protection statutes. This directive has monumental implications for the U.S. Army Corps of Engineers and its 37 District offices. Each District with eligible water resource projects must assess each project for compliance with the applicable statutes. Each District engineer must then sign a certification of compliance.

The directive applies to projects being budgeted for planning (advanced engineering and design) or construction after Fiscal Year 1981. Any of these projects, as well as ongoing projects which could be classified as new construction after FY 1981, will also be included.

In July 1980, the Office of the Chief of Engineers (OCE) issued a package of flowcharts which provided information on the statutes to be used as guidance for compliance. However, one problem which quickly became apparent was the need to constantly update the information in the package. As laws and their regulations changed, the package became obsolete.

This problem led to the need for a centralized system which could be updated without the delays caused by reprinting and redistribution. OCE therefore tasked the U.S. Army Construction Engineering Research Laboratory (CERL) with developing such a centralized system as part of its computerized Environmental Technical Information System (ETIS).¹ The system would be based on the package of flowcharts of the statutes.

Objective

The objective of this study was to develop and provide user instructions for a computerized system which would (1) help District engineers and environmental

planners determine what tasks are required for water resources projects to achieve compliance with statutes and their pursuant regulations and (2) provide a means of documenting this compliance using a systematic, computer-aided approach.

Approach

A computerized system based on the OCE package flowcharts was developed as part of ETIS and pilot tested. The system was then revised to incorporate user suggestions. Methods for updating the system were established and user instructions were written.

Mode of Technology Transfer

It is recommended that the information in this report be disseminated as an Engineering Regulation. The computer program will be transferred in accordance with provisions in Army Regulation 18-1.

2 NEED FOR AND DEVELOPMENT OF CW-CELDS

Problems With Determining Compliance

Because the 15 statutes have so wide a scope, it is very hard for District offices to determine compliance with their requirements. Each statute has its own timetables, permit requirements, reporting requirements, and compliance schedules. Each requires coordination with responsible Federal and state agencies and officials. Not all of the statutes apply to all projects; therefore, the engineer must first determine the statute's applicability to a particular project and then manipulate a complex set of compliance schedules and required tasks for all applicable statutes. Since the National Environmental Policy Act (NEPA) is one of the 15 statutes, the engineer must also address the issue of compliance in the environmental impact statement or other NEPA documentation.

Corps compliance with environmental statutes has been difficult in the past because District planners lacked knowledge of all the tasks required by the legislation. An even greater problem is integrating these tasks and compliance schedules into the pre-planning stage. In this case, the planner is often faced with last-minute ("panic-mode") compliance, which can delay projects and increase costs. The system will eventually encompass 35 statutes, as well as implement regulations, executive orders, and regulations and Corps directives issued pursuant to the statutes; therefore,

¹R. D. Webster, et al., *Modification and Extension of the Environmental Technical Information System for the Air Force*. Special Report N-81/ADA079441 (U.S. Army Construction Engineering Research Laboratory [CERL], 1979)

planners must be aware of new pertinent regulations and of what constitutes compliance with all of these different statutes for each eligible project. District planners need some effective tools to:

1. Determine which statutes apply to a given project
2. Determine what other legislation is involved in compliance (e.g., implementing regulations, executive orders, and Corps directives)
3. Determine what tasks in the statutes are required for Federal agencies
4. Determine compliance schedules in the statutes
5. Integrate tasks and schedules for the statutes into one overall planning schedule for a project at the pre-planning stage.

Development of Flowcharts

OCE had to design a system to help District planners and engineers determine what constituted compliance with the statutes for each eligible project. The first task was to try to identify which parts of each statute apply to Federal activities. Once that task was completed, the body of legislation issued pursuant to the law and orders issued to clarify and expand the law had to be examined. This legislation includes implementing regulations, regulations mandated by the law, executive orders, and Corps directives. Finally, the Federal and state agencies responsible for promulgating the regulations and for reporting and coordinating activities had to be identified.

The approach taken by OCE was to draw up a flowchart of the 15 statutes, based on those portions of the laws, regulations, and Corps directives which mandate tasks for Federal agencies. The flowcharts were issued in a package to District and Division offices in July 1980 and again in March 1981. (The latter package contained revisions for FY 1983.) The packages briefly summarize each statute, as it pertains to Corps advanced engineering, design, and construction projects, and provide references to related regulations and a flowchart of the law.

The flowcharts are binary (yes or no), with a question and answer format. Figure 1 shows the flowchart for the Archeological and Historic Preservation Act. The main purpose of the flowcharts is to help identify when a project does not comply with a statute. The packages were issued with the precaution that non-compliance with regulations and directives issued pur-

suant to the law is equivalent to noncompliance with the law. In Figure 1, there are two separate ending points. One clearly identifies when a project is "not in compliance." The other merely says the "project may proceed." This means that, at that point, the major tasks have been completed and the project may continue in planning and construction. However, because of the complexities of the laws and regulations, the package urges the Districts and Divisions to coordinate project review and certification with their legal staffs.

When the packages were issued, it became apparent that another problem would have to be addressed. As quickly as the package was issued, changes in laws and regulations made it obsolete. For example, in December 1980 Congress passed significant changes in the National Historic Preservation Act. These changes eliminated the Heritage Conservation and Recreation Service and gave enforcement and coordination responsibilities to the Departmental Consulting Archeologist of the National Park Service. Thus, the problem became one of trying to keep the District and Division offices informed of changes in the laws and regulations without constantly reprinting and redistributing the packages.

Development of CW-CELDS

One solution to this problem was to develop a computer system which could be centrally updated as needed and would be accessible to all Division and District offices. Any changes in legislation could be centrally recorded and immediately available to system users. Such a computerized system would reflect the current state of relevant legislation and OCE guidance. OCE therefore tasked CERL's Environmental Division with developing such a system based on the 15 laws. In response, CERL developed a pilot system—called Civil Works (CW-CELDS)—based on OCE's package flowcharts for five of the 15 statutes. The pilot system was demonstrated to potential users and was revised to incorporate their suggestions. The revised system was completed for all 15 statutes in 1981 and is now available for use by Corps installations as part of CERL's ETIS. Like the flowcharts, the computerized system relies on a binary answer system.

Corps planners and engineering and construction personnel may use CW-CELDS to help determine which of the listed laws apply to a given project and whether the specified procedures have been followed. The system is a planning tool for finding out if a project is in a state of noncompliance which must be rectified before the work proceeds. It can also be useful early in the planning stage by showing the best way

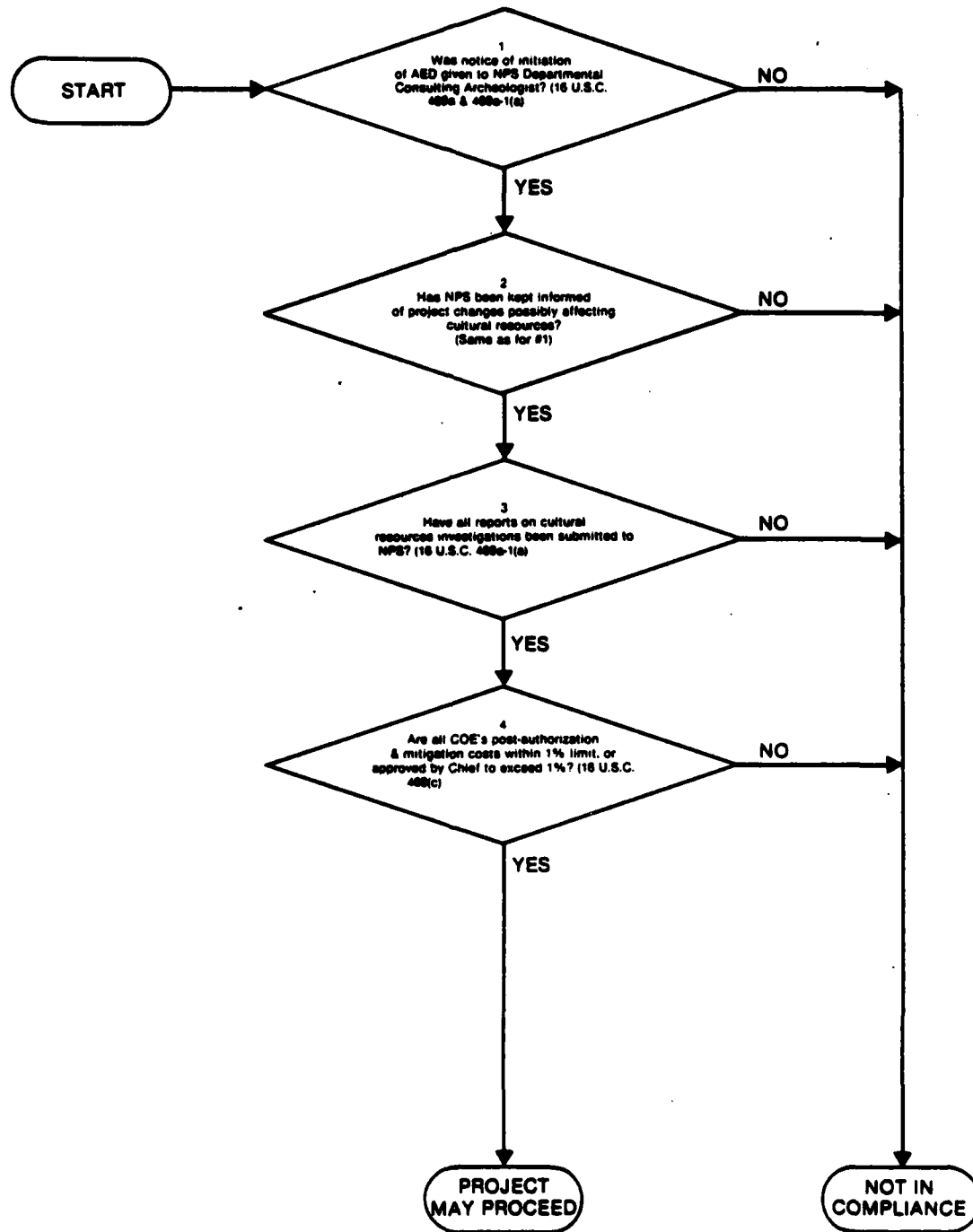


Figure 1. Flowchart for the Archeological and Historic Preservation Act.

to assure timely compliance with the appropriate laws and thereby avoid errors which would cause procedural delays.

3 HOW TO USE CW-CELDS

The Environmental Technical Information System

ETIS, which uses the UNIX* operating system, is made up of a number of subsystems designed to help the user prepare environmental impact assessments and statements. Three basic subsystems are available: the Environmental Impact Computer System (EICS),² the Economic Impact Forecast System (EIFS),³ and the Computer-Aided Environmental Legislative Data System (CELDS).⁴ CELDS, which is the parent system of CW-CELDS, provides detailed abstracts of Federal and state environmental regulations. Although these abstracts are not intended to replace the actual document, they do provide clear, concise information without legal jargon on areas such as standards (numeric standards), permit and variance requirements, monitoring and reporting requirements, and compliance schedules. CELDS also provides information such as effective dates, legal citations, names and addresses of agencies promulgating each regulation, and geographic scope of each regulation. Since CELDS contains regulations, it is very closely linked to CW-CELDS.

CW-CELDS may be used interactively. This means the user will receive an immediate response from the program at the computer terminal. Once the user has entered ETIS, he** can use any one or all of the programs available, as well as the CW-CELDS system.

Accessing and Using ETIS

ETIS is available through CERL or through the University of Illinois Bureau of Urban and Regional Planning Research—the ETIS contractor. These agencies will issue the necessary material and manuals to

use the system and provide a login and password to anyone who does not already have one. The system is easy, efficient, and cost effective to use. The user needs no computer expertise or training.

Once the user has acquired a login and password, he can access ETIS by remote computer terminal. The terminal should be one which can be set on full duplex and uses either upper- and lower-case or lower-case characters only. It should be designed to be coupled acoustically to an ordinary voice-quality telephone.

The user should first dial the computer's telephone number. If there is no answer, the entire system is down for maintenance and the user should try again later. If there is a continuous tone, the phone should be plugged into the terminal so that the earpiece and the speaker are in the proper openings according to the diagram on the terminal. Now the system can be logged into with the correct name and password. If the proper connection is made, the output should look like that shown in the sample session of Appendix A.

There are several things to keep in mind when using the system. The symbol (cr) in instructions means to press the carriage return button. This is a signal to the computer to go to the next prompt. To exit the CW-CELDS program, the user signals CTRL-d by simultaneously depressing the button marked "control" and the letter "d." This command is also used to log out of ETIS. If an input error is made and the user has not yet pushed the return button, the answer may be changed (i.e., the spelling corrected) by typing CTRL-h (hitting the CTRL and "h" keys simultaneously). The carriage will back up one space each time this is done. This can be done as often as necessary to correct the error. For example, if the first digit of a six-digit number is mistyped, the CTRL-h is hit six times and then all six digits are retyped. The corrected symbols will be overprinted on the paper. The user can also type an @ symbol and re-enter the entire line. Depressing the key marked DEL (delete) will stop a long listing.

Definition of ETIS Terms

The user will need to know the following terms to use the ETIS and CW-CELDS.

Access: Entering the computer system with a login and password.

CTRL-d: Control-d; a command which tells the computer that use of the program is finished. The control key is depressed while simultaneously depressing the d-key.

²R. Baran and R. D. Webster, *Interactive Environmental Impact Computer System*, Technical Report N-80/ADA074890 (CERL, 1979).

³J. W. Hamilton and R. D. Webster, *Economic Impact Forecast System, Version 2.0: Users Manual*, Technical Report N-69/ADA073667 (CERL, 1979).

⁴J. van Weringh, et al., *Computer-Aided Environmental Legislative Data System (CELDS) User Manual*, Technical Report N-56/ADA061126 (CERL, 1978).

*UNIX is a registered trademark of Bell Laboratories.

**The male pronoun is used to refer to both genders.

- CTRL-h:** Control-h; if a mistake is made when typing, CTRL-h will backspace as many times as needed to correct the error. The control key is depressed while simultaneously depressing the h-key to backspace.
- Coupler:** The connection between the computer terminal and the telephone receiver; same as a modem. It may be built into smaller terminals or it may be a separate device.
- (cr):** Carriage return key. This key must be hit after each response to tell the computer the user is ready to receive the next computer question.
- DEL:** Delete; the key used to stop a computer printout (usually a lengthy printing) or to cancel a request after the system has started to perform it. (Some terminals label this key RUB.)
- Duplex:** A computer setting that regulates rate in feedback. ETIS requires the terminal to be set on FULL duplex. If the letters in input are typed twice on the printout, the duplex should be changed from HALF to FULL.
- Login:** Entering the computer system with a user identification word provided by CERL. All logins must be followed by a password.
- Logout:** Leaving the computer system by depressing the "CTRL-d."
- Password:** A code word which allows access to the system. The password will not be typed on the printout to assure maximum security of the system.
- Prompts:** Questions asked by the computer which request specific information from the user.
- \$** Symbol designating a computer prompt.
- ?** Symbol which indicates that the computer does not understand a response. Check for typographical or spelling errors and re-enter the response.
- @** The "abort" symbol. This symbol is typed to cancel input for an entire line; the entire line is then retyped correctly.

Using CW-CELDS

CW-CELDS takes the user through a series of queries about the tasks required for each of the 15 statutes. Each query is reinforced by additional helpful information at three levels of detail: Level I gives the legal citation for the question; Level II gives the full text of the cited portion of the law or regulations; and Level III gives an abstract of that text.

Valid responses to each query, except where otherwise noted, include the following:

1. Yes
2. No
3. Citation—for the legal citation, usually in reference to the "Code of Federal Regulations," the "United States Code," an Executive Order, and/or an engineering regulation (ER).
4. Text—for the full text of the referenced legal citation.
5. Abstract—for an abstract of the referenced citations, as well as other relevant information, including accession numbers for regulations contained in the parent CELDS system.

Each of these responses may be abbreviated in ways in which the system recognizes, as follows:

yes [yes, Yes, y]

no [no, NO, n]

citation [Citation, cite., cite, cit., cit, c]

text [text, Text, t]

abstract [abstract, Abstract, abs, Abs, ab, Ab]

After each query, the user should type a response. If one of the "help" options is used, the query will occur again at the end of the help session. The user can continue responding to queries until the system indicates "project may continue" or "project is in non-compliance."

At the end of a session, CW-CELDS provides an output chart which graphically shows the user his path through the logic of a particular law. This logic path records the questions asked and the user's responses during a session. The chart or output will eventually

evolve into a report which can be submitted with budget requests as certification of compliance. The chart also contains other information. For example, if a law requires the filing of a report, the system will ask the user for the date of filing; this date will be recorded in the chart.

At the end of a session, the user will be given two options. The first will let him see a graphic display of the logic path used in the session. The second will allow him to save this graphic display in a file for later use. [When using the following commands, notice that the information in boldface is the computer prompt and the information in italics is what the user actually types.] To save a display, the user must give the saved file a filename. This file can be retrieved later and printed at the user's terminal by typing the following in the ETIS system:

ETIS: What program? (Type <cr> to see list):
!cat <filename>

If the user gets the computer prompt \$ when he first logs into the UNIX system, he can print the saved file by typing:

\$cat <filename>

To remove a saved file, the user types:

ETIS: What program? (Type <cr> to see list):
!rm <filename>

Or, after getting the prompt \$, he can remove the saved file by typing:

\$rm <filename>

The following commands will end a session:

end
bye
quit

Also, by typing the command "news," the user can receive the contents of a "news" file which contains items of current interest about the CW-CELDS system, such as revisions and added features.

To use one of the other ETIS systems during a session, the user can type:

!etis

This will return him to the beginning level to use another system. This feature is convenient if the user sees a reference to a CELDS accession number in one of the help files and wants to go to CELDS to see that number without leaving the current law. At the end of the CELDS session, he can type a control-d and be returned to where he was initially. This feature can be used at any time.

Updating of CW-CELDS

CERL personnel will scan Federal legislation daily and make any changes centrally on the pilot database. The changes will be available to users immediately.

Future Developments

During FY 1983, CERL will enlarge CW-CELDS from 15 to 35 statutes. Appendix B lists the current 15 statutes and Appendix C provides the 20 new ones.

Another enhancement will be a pre-session that will allow a user to determine which of the 35 laws apply to his particular project. The user can then query the system for those laws for which he needs certification.

Once the user has checked the individual applicable laws, he can use the third planned enhancement—a milestone chart, in which milestones are listed in an orderly, chronologic fashion. This chart will allow the user to compute compliance schedules for laws which apply to his project. This enhancement will provide an overview of all necessary tasks and allow the user to see them as a whole. He can then plan projects around these milestones.

4 SUMMARY

CW-CELDS—a computer-aided system which is an extension of CELDS—has been developed to help District engineers and environmental planners determine the tasks required in order to insure that water resources projects comply with 15 Federally mandated environmental statutes and regulations. The system provides a systematic, cost-effective means for documenting compliance.

CW-CELDS provides an effective way for project managers to certify compliance with required environmental statutes and to help them with project planning. The project manager will be able to plan for mandated milestones in advance and incorporate required tasks into the planning process. CW-CELDS will allow planners to have access to the most current legislation.

**APPENDIX A:
SAMPLE CW-CELDS SESSION**

ETIS: What program? (Type <cr> to see list): 7

Welcome to the Experimental Subsystem of ETIS
These are pilot systems and databases which may change quickly

XPER: What Program? (Type <cr> to see list): 12

Would you like instructions on CW-CELDS usage? (y or n): n

Do you want to see the CW-CELDS menu? (yes or no): y

Welcome to the Civil Works CELDS system. Please choose a number from the menu below to select the law you wish to see.

1. Archeological and Historic Preservation Act (Reservoir Salvage Act)
2. Clean Air Act
3. Federal Water Pollution Control Act (Clean Water Act)
4. Coastal Zone Management Act
5. Endangered Species Act
6. Estuary Protection Act
7. Federal Water Project Recreation Act
8. Fish and Wildlife Coordination Act
9. Land and Water Conservation Fund Act
10. Marine Protection, Research, and Sanctuaries Act
11. National Environmental Policy Act
12. National Historic Preservation Act
13. Rivers and Harbors Appropriation Act
14. Watershed Protection and Flood Prevention Act
15. Wild and Scenic Rivers Act

:1

Archeological and Historic Preservation Act/Reservoir Salvage Act, 16 U.S.C. 469-469c, Public Law 86-523, June 27, 1960; as amended by Public Law 93-291, May 24, 1974, and Public Law 95-625, November 10, 1978; and Public Law 96-515, December 12, 1980.

Was notice given to the Departmental Consulting Archeologist of the National Park Service (NPS)?

citation

16 U.S.C. 469a Notice of dam construction to be given Secretary of the Interior by United States agencies.

16 U.S.C. 469a-1 Threat of irreparable loss or destruction of significant scientific, prehistorical, or archeological data by Federal construction projects; notice to Secretary of the Interior; survey; recovery, preservation, and protection of data.

Type carriage return to continue.

Was notice given to the Departmental Consulting Archeologist of the National Park Service (NPS)?

yes

Enter date notice was given if answer is "yes." If notice has not been given, type carriage return <cr> to continue.

:4 Apr 81

Has National Park Service been kept informed of project changes possibly affecting cultural resources?

abstract

16 U.S.C. 469a & 469a-1(a)

A Federal agency must give written notice to the Secretary of the Interior whenever it finds, or is notified in writing, by an appropriate historical or archeological authority that the proposed construction of a dam or any other of its activities may cause irreparable loss or destruction of significant scientific, prehistorical, historical, or archeological data. The agency may request the Secretary to undertake recovery, protection, and preservation of such data, or it may, with funds appropriated for such project, undertake such activities. Copies of reports of any investigation the agency undertakes must be submitted to the Secretary.

Type carriage return (cr) to continue.

Has National Park Service been kept informed of project changes possibly affecting cultural resources?

yes

Have all reports on all cultural resources investigations been submitted to National Park Service?

yes

Enter the date on which reports were submitted on all cultural resources investigations. If reports were not submitted, type carriage return to continue.

:4 Apr 81

Are all Corps of Engineers post-authorization investigation and mitigation costs within a 1% limit?

text

16 U.S.C. 469c Assistance to the Secretary of the Interior by Federal agencies responsible for construction projects; authorization of appropriations.

(a) To carry out the purposes of sections 469 to 469c of this title, any Federal agency responsible for a construction project may assist the Secretary and/or it may transfer to him such funds as may be agreed upon, but not more than 1 per centum of the total amount authorized to be appropriated for such project, except that the 1 per centum limitation of this section shall not apply in the event that the project involves \$50,000 or less: Provided, That the costs of such survey, recovery, analysis and publication shall be considered nonreimbursable project costs.

16 U.S.C. 470h-3

(3) Federal agencies, with the concurrence of the Secretary and after notification of the Committee on Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate, are authorized to waive, in appropriate cases, the 1 per centum limitation contained in section 7(a) of such Act [see above].

Type carriage return (cr) to continue.

Are all Corps of Engineers post-authorization investigation and mitigation costs within a 1% limit?

yes

Project May Continue

Do you want to see the path you took during this session? (yes or no): yes

Do you want the path saved in a file? (yes or no): no

Following is a listing of your path through the tree:

Was notice given to the Departmental Consulting Archeologist of the National Park Service (NPS)?

4 Apr 81

|
|
yes
|
|

Has National Park Service been kept informed of project changes possibly affecting cultural resources?

|
|
yes
|
|

Have all reports on all cultural resources investigations been submitted to National Park Service?

4 Apr 81

|
|
yes
|
|

Are all Corps of Engineers post-authorization investigation and mitigation costs within a 1% limit?

|
|
yes
|
|

Project May Continue

**APPENDIX B:
LIST OF ENVIRONMENTAL STATUTES CURRENTLY AVAILABLE**

1. Archeological and Historic Preservation Act (Reservoir Salvage Act)
2. Clean Air Act
3. Federal Water Pollution Control Act (Clean Water Act)
4. Coastal Zone Management Act
5. Endangered Species Act
6. Estuary Protection Act
7. Federal Water Project Recreation Act
8. Fish and Wildlife Coordination Act
9. Land and Water Conservation Fund Act
10. Marine Protection, Research, and Sanctuaries Act
11. National Environmental Policy Act
12. National Historic Preservation Act
13. Rivers and Harbors Appropriation Act
14. Watershed Protection and Flood Prevention Act
15. Wild and Scenic Rivers Act

**APPENDIX C:
LIST OF ENVIRONMENTAL STATUTES TO BE ADDED**

1. American Folklife Preservation Act
2. Anadromous Fish Conservation Act
3. Antiquities Act
4. Bald Eagle Act
5. Federal Environmental Pesticide Control Act
6. Federal Land Policy and Management Act
7. Federal Nonnuclear Energy Research and Development Act
8. Forest and Rangeland Renewable Resources Planned Act
9. Historic Sites of 1935
10. Marine Mammal Protection Act
11. Migratory Bird Conservation Act
12. Migratory Bird Treaty Act
13. National Forest Management Act
14. Native American Religious Freedom Act
15. Resource Conservation and Recovery Act
16. Soil and Water Resources Conservation Act
17. Submerged Lands Act
18. Surface Mining Control and Reclamation Act
19. Toxic Substances Control Act
20. Water Resources Planning Act

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