
Monday
September 29, 1980

Part III

**Water Resources
Council**

**Environmental Quality Evaluation
Procedures for Level C Water Resources
Planning; Final Rule**

Reprint with Editorial Corrections
(Includes corrections published at
45 FR p. 73034 on November 4, 1980.)

WATER RESOURCES COUNCIL**18 CFR Part 714****Environmental Quality Evaluation Procedures for Level C Water Resources Planning****AGENCY:** U.S. Water Resources Council.**ACTION:** Final rule.

SUMMARY: This final rule establishes the procedures for evaluation of the beneficial and adverse effects of alternative water and related land resources plans on Environmental Quality (EQ).

Performing evaluation in accordance with the rule is intended to ensure consistency and compliance with the Principles and Standards for Water and Related Land Resources Planning—Level C; the National Environmental Policy Act of 1969 (NEPA); the CEQ NEPA regulations; and other requirements related to EQ evaluation.

EFFECTIVE DATE: October 29, 1980.

FOR FURTHER INFORMATION CONTACT: Frank H. Thomas, U.S. Water Resources Council, 2120 L Street, N.W., Washington, D.C. 20037 (202/254-6453).

SUPPLEMENTARY INFORMATION:**1. Purpose**

The Water Resources Council (WRC) is publishing as a final rule the Environmental Quality Evaluation Procedures for Level C Water Resources Planning (EQEP). The purpose of the rule is to provide Federal agencies with procedures for evaluation of the beneficial and adverse effects of alternative water and related land resources plans on environmental quality (EQ). Performing evaluation in accordance with the rule is intended to ensure consistency and compliance with the Principles and Standards for Water and Related Land Resources Planning—Level C (P&S: 18 CFR Part 711); the National Environmental Policy Act of 1969 (NEPA); the CEQ NEPA regulations (40 CFR Parts 1500-1508); and other requirements related to EQ evaluation.

These procedures represent one of five parts of the set of Level C planning procedures prepared or to be prepared by WRC at the direction of the President. Portions of the Procedures for Evaluation of National Economic Development (NED) Benefits and Costs in Water Resources Planning (Level C) (18 CFR Part 713) were published as a final rule in the December 14, 1979 *Federal Register*. The procedures for evaluation of Regional Economic Development (RED) effects (18 CFR Part 715), procedures for evaluation of Other Social Effects (OSE) (18 CFR Part 716),

and planning procedures (18 CFR Part 712) are scheduled for preparation. This final rule reflects changes made as a result of public comments received on the proposed rule published in the April 14, 1980 *Federal Register* (45 FR 25329-25346), and consultations among member agencies of the Water Resources Council.

2. Background

(a) *Initial development of principles, standards and procedures.* The Water Resources Planning Act of 1965 was enacted by the Congress to provide for the optimum development of the Nation's natural resources through the coordinated planning of water and related land resources. Title I of the Act established the Water Resources Council (WRC) and outlined its principal duties. One of these duties was to establish, with the approval of the President, principles, standards, and procedures for Federal participants in the preparation of comprehensive regional or river basin plans, and for the formulation and evaluation of Federal water and related land resources projects (Section 103). Title IV of the Act authorized WRC to make necessary and appropriate rules and regulations for carrying out the Act (Section 402).

Work to develop principles and standards was begun by WRC in 1968, culminating in the President's approval of the "Principles and Standards for Planning Water and Related Land Resources" (September 10, 1973; 38 FR 24778-24862), which became effective on October 25, 1973. The Principles provided the broad policy framework for water resources planning activities. The Standards provided for uniformity and consistency in formulating alternative plans; and in measuring, comparing, and judging beneficial and adverse effects of alternative plans. Responsibility for establishing procedures was given to the administrators of Federal and Federally-assisted programs covered by the Principles and Standards. Subsequently, procedures were developed by covered Federal agencies within the framework of the Principles and the uniformity provided by the Standards.

(b) *Water policy initiatives of 1978.* The current effort to revise the Principles and Standards and to develop consistent procedures is the result of the President's Water Policy Reform Message of June 6, 1978. In that Message to the Congress, the President stated that reforms in agency planning were essential to achieve economic efficiency and environmental quality in water resources management. The Message also called for the reduction of duplication and inconsistency in

policies, and less "red tape" to implement Federal program requirements and plans.

On July 12, 1978, the President issued a memorandum titled "Improvements in the Planning and Evaluation of Federal Water Resources Programs and Projects." In addition to noting problems related to economic evaluations, the memorandum stated that too little attention had been paid to environmental values in past planning and review of water resources projects. It also required consideration of nonstructural alternatives and emphasis on water conservation. The memorandum directed WRC to carry out a thorough evaluation of current agency practices for making benefit and cost calculations and to publish a planning manual that will ensure that benefits and costs are estimated using the best current techniques; and are calculated accurately, consistently, and in compliance with the Principles and Standards and other applicable requirements. This directive provided the impetus for WRC's development of a single set of procedures to ensure accurate, consistent analyses among covered agencies. Additional direction of a similar nature was given by the President in Executive Order 12113: Independent Water Project Review, published January 5, 1979.

WRC undertook work to carry out the President's directive in a three-phased program. In Phase I, which was initiated in August 1978, the Procedures for Evaluation of National Economic Development (NED) Benefits and Costs in Water Resources Planning (Level C) were developed and published as a final rule (18 CFR Part 713) in the December 14, 1979 *Federal Register*. Also in Phase I, the Principles and Standards of 1973 were revised to reflect the full integration of water conservation into project and program planning and review, and to require the preparation and inclusion of a primarily nonstructural plan as one alternative whenever structural project or program alternatives are considered. These revisions were published as a notice in the December 14, 1979 *Federal Register* (44 FR 72978-72990).

Phase II, which was initiated in August 1979, was undertaken to develop procedures for environmental quality evaluation, pursuant to the President's directive and in compliance with Sections 103 and 402 of the Water Resources Planning Act of 1965 and Section 102(2)(b) of NEPA. This Section of NEPA requires Federal agencies to "identify and develop methods and procedures * * * which will insure that

presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations."

In addition, Phase II included revising the Principles and Standards for clarity and conciseness; and integration of the requirements of Urban and Community Impact Analysis (Executive Order 12074), NEPA, and the CEQ NEPA regulations (40 CFR Parts 1500-1508) into the Principles and Standards (18 CFR Part 711). Development of two additional subparts to the NED evaluation procedures (18 CFR Part 713, Subparts J and L), and two subparts to the Other Social Effects (OSE) evaluation procedures (18 CFR Part 716, Subparts A and E), was also undertaken during Phase II. The revised Principles and Standards, as well as the NED and OSE subparts, are being published as final rules concurrently with the publication of these Environmental Quality Evaluation Procedures for Level C Water Resources Planning (18 CFR Part 714).

Phase III is scheduled to be initiated in late 1980, and will focus on development of the following for publication as final rules:

(1) Principles, Standards, and Procedures for Water and Related Land Resources Planning—Level B (18 CFR Part 710) scheduled to be published in 1982.

(2) Procedures for Level C Water Resources Planning (18 CFR Part 712) scheduled to be published in late 1983.

(3) Regional Economic Development Evaluation Procedures for Level C Water Resources Planning (18 CFR Part 715) scheduled to be published in late 1983.

(4) Other Social Effects Evaluation Procedures for Level C Water Resources Planning (18 CFR Part 716) scheduled to be published in full in late 1983.

(c) *Development of the Environmental Quality Evaluation Procedures (EQEP)*. The Secretary of the Interior established a task force to accomplish the aforementioned Phase II work, including revising the Principles and Standards (P&S) and developing the EQEP. The task force, staffed by personnel provided by the Water Resources Council, the Departments of Agriculture, Army and Interior, the California Department of Water Resources, and the University of Connecticut, was formed in August 1979.

Scoping workshops were held in September 1979 to provide the public an opportunity to assist the task force in identifying specific tasks that should be undertaken during Phase II. Public workshops were conducted in

Washington, DC (September 12) and Chicago, Illinois (September 19). A workshop for representatives of Federal agencies was also conducted in Washington, DC (September 27). A total of forty-four people attended these three workshops.

Four concurrent workshops were held from October 29–November 2, 1979 in Washington, DC to examine and report on the definition, measurement, and evaluation of ecological, geophysical, cultural, and aesthetic EQ values. A total of thirty people, representing environmental groups, universities, consultants, and government agencies, participated in the workshops.

Workshops were held in January 1980 to obtain comments on preliminary drafts of the EQEP and revised P&S. Public workshops were conducted in San Antonio, Texas (January 23) and Washington, DC (January 29). A workshop for representatives of Federal agencies was also conducted in Washington, DC (January 25). A total of fifty-eight people attended these three workshops.

In addition to workshops, continuous and direct public input was obtained by review contracts with the National Wildlife Federation, the National Governors' Association, and the Water Resources Congress. These organizations served as points of contact for obtaining general public input from environmental, State, and developmental interests, respectively. Supplemental technical input was obtained by review contracts with various experts from universities and consultant organizations.

WRC published the EQEP (as well as the revised P&S and the NED and OSE subparts) as proposed rules in the April 14, 1980 *Federal Register* (45 FR 25302), and announced that the period for public review and comment extend for 60 days to June 13, 1980. Public meetings were held in Kansas City, Missouri (May 20, 1980), San Francisco, California (May 23, 1980), and Washington, DC (May 29, 1980) to provide the public with additional opportunities to comment on the proposed rules. A total of approximately 60 people attended the three meetings, with 17 attendees presenting oral statements.

At the close of the comment period, a total of 122 responses, including letters, memoranda and transcripts, had been received on the April 14, 1980 proposed rules. Forty-five of the responses included comments on the proposed EQEP. Commentors included the Water Resources Congress, which coordinated testimony and responses from 13 public and private water resources organizations; the National Governors'

Association, which cooperated with the Association of State and Interstate Water Pollution Control Administrators and the Western States Water Council to provide the insights and opinions of professionals from six State water resources management agencies and the two interstate water resources organizations; and the National Wildlife Federation, which presented comments from four environmental groups.

Comments on the proposed EQEP were also received from nine State agencies; numerous private groups, including environmental interests, developmental interests, universities and consultants; individuals, and Indian tribes. Several Federal agencies, including the Departments of Agriculture, Army, Commerce, and Interior; the Environmental Protection Agency; the Missouri River Basin Commission; the Public Health Service; and the Tennessee Valley Authority, also commented on the proposed rule.

The proposed EQEP was reappraised by the Council in consideration of comments received during the 60-day review period. Each comment was reviewed to determine its relevancy to the rule. Suggested changes were discussed and reviewed to determine their validity and usefulness. A discussion of the comments received and WRC responses is presented in Section 4 of this supplementary information.

3. Required Analyses

These proposed rules have been determined to be significant under Executive Order 12044, and a final regulatory analysis has been prepared.

Based on an environmental assessment prepared in accordance with 40 CFR 1500-1508, the Acting Director, Water Resources Council, has determined that these proposed rules will not significantly affect the quality of the human environment, and has signed a finding of no significant impact.

Copies of the final regulatory analysis, environmental assessment, and the finding of no significant impact may be obtained from the Director, U.S. Water Resources Council, 2120 L Street, NW, Washington, DC 20037.

4. Comments and Responses

This section summarizes the issues raised during the 60-day period for public review and comment (April 14–June 13, 1980). The comments are arranged in the order in which they relate to the format of the final rule. Each comment summary is followed by a response that describes changes reflected in the final rule or reasons for not making a change.

Several commentors stated that the proposed rule was complicated, confusing, vague, and unorganized. Other commentors stated that the proposed rule was too detailed. The final rule has been substantially revised to improve its readability. Definitions have been consolidated and expanded and Subpart B provides a more complete reference for words, phrases, abbreviations and acronyms used in the final rule. Section headings have been expanded in Subpart D to make it easier for users to find specific topics.

Illustrative examples have been added throughout the text to better explain requirements. Table 1 compares the final rule with the proposed rule (April 14, 1980 Federal Register), and summarizes the major changes made in the final text.

Introduction (Proposed: Subpart A; Final: Subpart A).

Comment: One commentor said that "land" use planning was not addressed.

Response: In § 714.100, the full title "water and related land resources" is given, with the abbreviated form indicated as "water resources".

Therefore, even though the abbreviated form is used throughout the text, all of Part 714 is directed to both water and related land resources.

Comment: One commentor recommended that after Part 714 is final that Part 713 be revised for consistency.

Response: When the complete set of procedures are completed, WRC will consider reviewing the entire set for consistency. Appropriate revisions will also be made to accommodate changes needed to reflect advancements in the state-of-the-art, experience, research and planning conditions.

Table 1.—Supplementary Information—A Summary of Major Changes in the Proposed (Apr. 14, 1980, FEDERAL REGISTER) Environmental Quality Evaluation Procedures for Level C Water Resources Planning

Section No. proposed	Final	Title in final	Nature of changes
714.100	714.100	Purpose	The statement of purpose was clarified. The discussion of the scope of EQ within the NEPA human environment was moved to 714.120. Limitations.
714.110	714.110	Authority	The statement of authority was clarified and limited to public laws.
714.100(b), 714.300(b), and 714.400(b)(1)	714.120	Limitations	Discussions from the Proposed Rule were consolidated, and text was added to clarify the limitations of EQ evaluation with respect to the planning process, the other evaluation accounts, and the NEPA human environment.
714.120	714.130	Agency activities covered	No major changes were made.
714.130	714.140	Application	No major changes were made.
714.140	714.150	Modification	A reference to WRC's <i>Reference Handbook</i> was added.
714.150	714.160	Judicial review	No major changes were made.
714.200, 714.340, 714.350, 714.360 (b) and (c), 714.420 (b)(2) and (c)(2)	714.200	Definitions	Definitions included in various parts of the Proposed Rule were consolidated and clarified. Definitions for alternative plan, period of analysis, and planning area have been deleted and referenced to the P&S (Part 711).
Not included	714.210	References for terms	References to the locations of definitions in the Final Rule and NEPA regulations were added as an aid to readers.
Not included	714.220	Abbreviations and acronyms	The full phrases for abbreviations and acronyms used in the Final Rule were added as an aid to readers.
714.310	714.300	Interdisciplinary planning	The requirements for interdisciplinary planning were clarified.
714.320	714.310	Public involvement	The requirements for, and the objectives and means of, public involvement were clarified. Text was added to encourage the public to take an early and continuing role in EQ evaluation.
714.330 and 714.410(a)(2)	714.320	Integration of other review, coordination and consultation requirements.	Text was added to clarify the relationship between EQ and other requirements.
714.370 and 714.410(a)(2)	714.330	Documentation	No major changes were made.
714.380	714.340	Performance objectives	No major changes were made.
714.300(a), 714.400 (b)(2), (c) and (d)	714.400	Orientation	Discussions from the Proposed Rule were consolidated and text was added to clarify: the role of EQ evaluation in the planning process; phases, activities and stages of EQ evaluation; and the management of evaluation demands.
714.410	714.410	Define resources phase	The general description of the Define Resources Phase was separated from the descriptions of the activities in the phase.
714.410(a)	714.411	Identify resources activity	The requirements of the Identify Resources Activity were separated into a section. Text was added to clarify the interrelationships among attributes, the meaning of "likely to be affected," the level of information required, and future conditions. Text was revised to clarify the meaning of technical recognition and the extent of public involvement. The sources of Institutional Recognition (Table 714.411) was expanded.
714.410(b) and 714.420(a)(4)	714.412	Develop evaluation framework activity	The requirements of the Develop Evaluation Framework Activity were separated into a section. Text was added to clarify the specification of indicators, units, guidelines, and techniques. An illustration of the generic model of the evaluation framework (Figure 714.412), and examples of techniques (Table 714.412) were added.
714.420	714.420	Inventory resources phase	The general description of the Inventory Resources Phase was separated from the descriptions of the activities phase.
714.420(a)	714.421	Survey existing conditions activity	The requirements of the Survey Existing Conditions Activity were separated into a section.
714.420(b) and 714.430(a)(2)	714.422	Forecast without-plans conditions activity	The requirements of the Forecast Without-Plans Conditions Activity were separated into a section. Text was added to clarify the relationship of the activity to Step 2 of the planning process, the relationship to techniques specified in the evaluation framework, and the specification of forecast dates. Text was revised to clarify the bases for estimating without-plans conditions.
714.420(b)(5) and 714.420(c)	714.423	Forecast with-plan conditions activity	The requirements of the Forecast With-Plan Conditions Activity were separated into a section. Text was added to reference requirements of the previous activity (Section 714.422) that also apply to this activity.
714.430	714.430	Assess effects phase	The general description of the Assess Effects Phase was separated from the descriptions of the activities in the phase.
714.430(a)	714.431	Identify effects activity	The requirements of the Identify Effects Activity (titled "Compare Without-Plans Conditions to With-Plan Conditions in the Proposed Rule) were separated into a section.
714.430(b)(1)	714.432	Describe effects activity	The requirements of the Describe Effects Activity were separated into two sections (714.432 and 714.433).
714.430(b)(2)	714.433	Determine significant effects activity	The requirements of the Determine Significant Effects Activity were separated into a section. Text was added to clarify the bases for determining whether or not an effect would be significant.
714.440	714.440	Appraise effects phase	The general description of the Appraise Effects Phase was separated from the descriptions of the activities in the phase.

Table 1.—Supplementary Information—A Summary of Major Changes in the Proposed (Apr. 14, 1980, FEDERAL REGISTER) Environmental Quality Evaluation Procedures for Level C Water Resources Planning—Continued

Section No. proposed	Final	Title in final	Nature of changes
714.360(d) and 714.440(a)	714.441	Appraise significant effects activity	The requirements of the Appraise Significant Effects Activity were separated into a section. Text was added to clarify cases where an effect may be beneficial part of the time and adverse other times; the bases for judging the desirability of an effect on an EQ attribute; and the use of various approaches to judge the desirability of such effects. Illustrated examples of beneficial and adverse effects (Figures 714.441-1-3) were added. The table for recording the results of this activity (Table 714.441) was simplified.
714.440(b)	714.442	Judge net EQ effects activity	The requirements of the Judge Net EQ Effects Activity were separated into a section.
Not included	Appendix A	Example documentation formats	Examples of tables that can be used to record the results of EQ evaluation activities were added to clarify the type of documentation that may be used. Examples of how the results of EQ evaluation activities could be recorded in the table formats is also presented as an aid to follow through the EQ evaluation process.
Table 714.100	Appendix B	Relationships between NEPA requirements for EIS contents and the requirements of these procedures.	Table has been revised to focus more specifically on the EIS requirements.

Purpose (Proposed: Section 714.100; Final: Section 714.100).

Comment: Several commentors stressed the need to integrate EQ evaluation with NEPA and other related requirements.

Response: This section briefly describes the rule's relationships to NEPA and other related requirements. Appendix B presents the relationships between the contents of the Environmental Impact Statement (EIS), required by NEPA and the CEQ NEPA regulations, and the requirements of the rule that lead to information that may aid in the preparation of an EIS. Section 714.320 requires that EQ evaluation and its documentation be conducted and prepared concurrently and integrated with NEPA and other related requirements. Other relationships between the final rule for EQ evaluation and related requirements are noted throughout the text.

Comment: One commentor stated that the final rule would require major revisions in agency instruction manuals and technical guides. Another commentor stated: "Regarding the Environmental Quality procedures, we currently follow a similar process for determining environmental effects of proposed transportation improvements. As you know, this is required from implementation guidelines of U.S. DOT Administrations of NEPA as well as our own requirements * * *"

Response: The major EQ evaluation actions required by the final rule are based on NEPA and P&S requirements that have been in effect for some time:

1. The NEPA regulations "scoping" requirement, which is reflected in part in the Identify Resources Activity (§ 714.411).
2. The P&S with-and-without analysis requirement, which is reflected in the Inventory Resources Phase (§§ 714.420-

714.423) and Identify Effects Activity (§ 714.431).

3. The NEPA impact analysis requirement, which is reflected in Assess Effects Phase (§§ 714.432 and 714.433) and Appraise Significant Effects Activity (§ 714.441).

4. The P&S net effect determination requirement, which is reflected in the Judge Net EQ Effects Activity (§ 714.442).

Some activities and concepts that are implicit in these requirements such as the Develop Evaluation Framework Activity (§ 714.412) and the concept of using a guideline to appraise effects as beneficial or adverse, have been made explicit in the final rule. Therefore, while some minor revisions in existing agency guidance may be necessary to reflect some of the specific requirements of the final rule, WRC does not believe major revisions will be necessary.

Limitations (Proposed: Sections 714.100(b) and 714.400(b)(1); Final: Section 714.120).

Comment: One commentor stated that it is not clear how the results of the analysis described in these procedures will be used.

Response: Sections 714.120(a) and 714.400(a) describe the role of EQ evaluation in the P&S planning process.

Comment: Several commentors indicated that EQ was not treated equally with NED.

Response: As national objectives, NED and EQ are equal bases for specifying problems and opportunities, formulating alternative plans, and selecting a recommended plan. As evaluation accounts, EQ has not been developed to the level of specificity found for NED (18 CFR Part 713) due to the lack of a common measurement unit for EQ (which is dollars in NED), and the comparatively young state-of-the-art of specific, procedural measurement techniques. This is not to say that EQ

evaluation is less critical to decisionmaking than NED evaluation. Rather, it reflects an early stage in the conceptual development of EQ evaluation. Future improvements in ability to measure contributions to EQ will provide a better basis for equalizing the national EQ and NED objectives in decisionmaking.

Comment: One commentor felt that the rule would be used as a tool for opposition to projects, and expressed a fear of indiscriminant application. Conversely, several commentors felt that EQ had been deemphasized, and that there was a bias against EQ.

Response: One of the goals of the P&S procedures (18 CFR Part 712-716) is to provide rules that will give NED and EQ equal status in water resources decisionmaking. The final rule for NED evaluation was published in December, 1979 (18 CFR Part 713). This final rule for EQ evaluation is being established to parallel the rule for NED evaluation. As this is accomplished decisionmakers will be better able to readily determine the beneficial and adverse effects of alternative plans in both EQ and NED. Therefore, instead of allowing a project to be stopped or implemented through indiscriminant application of either EQ or NED, the process will permit a rational, balanced decision to be made based on rules that are consistent among all water resources programs.

Comment: Several commentors suggested that the relationships between evaluation of effects recorded in the EQ account and effects in the other accounts be more fully explained.

Response: Section 714.120 has been added for additional explanation of these relationships.

Comment: Several commentors said that the rule should provide guidance and standards for monetary quantification.

Response: The rule provides procedures for evaluating the

nonmonetary effects of alternative plans on certain attributes of natural and cultural resources. Effects on these resources that can be expressed in monetary terms will be shown in the other accounts. See § 714.120(c).

Comment: Several commentors stated that EQ should include the entire human environment defined by NEPA, thus addressing the broad range of environmental values, and that it was unrealistic to separate EQ from the (NEPA) human environment because the aspects of the human environment are all interrelated.

Response: Section 714.120(c) and (d) of the final rule addresses the relationship between the EQ account and the other three accounts which comprise the NEPA human environment.

Agency Activities Covered (Proposed: Section 714.120; Final: Section 714.130).

Comment: Several commentors objected to the coverage and exemption requirements for the following reasons:

1. The list of agencies and projects covered is believed to be too limited; coverage should go beyond Level C studies to include Level B studies.

2. The definition of "under construction" is believed to be too broad.

3. The limitations on a Secretary's discretionary authority to exempt a project are believed to be insufficient.

4. Since the analysis required by the procedures is virtually identical to that required by NEPA, there is believed to be no justification for grandfathering projects and exempting agencies from tasks they should have already undertaken pursuant to NEPA, albeit under a different procedure.

Commentors suggested the following changes in this section:

1. Require that projects in the planning stage at the time the final rule becomes effective to be accountable and covered.

2. Include coverage of those projects already constructed for which significant EQ values were adversely affected and were not mitigated or compensated.

3. Require that projects that are constructed with funds from general Congressional appropriations (as opposed to projects for which funds are specifically appropriated) remain subject to the rules until the agency clears the advertising for a project's construction contract, or until an EIS is prepared for the project.

4. Define "construction" as the time when an agency makes irrevocable commitments from which it cannot escape without detriment.

5. Specify which projects require no post-authorization planning, including

the personnel and criteria which determine that a project can forego post-authorization planning.

6. Exempt only projects "substantially under construction," which should be defined to mean at least 20% completed.

7. Specify the "appropriate planning documents" referenced in § 714.130(c)(1).

8. Expand the criteria, described in § 714.130(c)(2), that a Secretary must use to determine that additional planning is unnecessary.

9. Limit the discretionary exemption authority to planning that was already underway as of June 1980 and is close to completion.

10. Provide for exemption of projects with a completed EIS that substantively satisfies the rule's requirements, and cases where an agency is irretrievably obligated to undertake a project.

11. Require that, prior to exempting any project, the Secretary will consult with WRC and other interested agencies and will include their replies in the planning document.

12. Require that exemptions from the rule should only occur after CEQ review and review and consent by the Secretary of the Interior.

13. Allow exemptions from the procedures only by an act of Congress.

Response: The text of this section has been edited but is essentially the same as the text adopted by WRC for the NED evaluation procedures (18 CFR 713.3) and included in the Principles and Standards (18 CFR 711.1(b) and 711.3). After considering several options related to coverage, the definition of construction, and exemptions, it was concluded that the adopted text represents the best balance of the need to prevent undue loss of time or expenditure of public funds, and planning improvements resulting from new rules.

Comment: One commentor suggested that the phrase "heads of agencies" be added after "Secretaries of Departments."

Response: The phrase "heads of independent agencies" has been used to cover independent agencies not within one of the Federal executive departments.

Comment: One commentor asked, "What is the situation in ongoing planning efforts where current Principles and Standards guidelines are being ignored?"

Response: Ongoing planning efforts will be required to conform to the final rule if they are covered by § 714.130.

Application (Proposed: Section 714.130; Final: Section 714.140).

Comment: One commentor suggested that the following be added: "If no

environmental values are affected or if they are enhanced and if gross annual benefits are \$1 million or less, these principles and standards shall not apply, and a simplified agency or department format may be used. Projects in this economic range have an insignificant effect on Gross National Product and National Economic Development."

Response: It is expected that there will be few cases in which no EQ effects would result from an alternative plan. However, if no EQ resources are identified as required in § 714.411, then EQ evaluation would not be required. However, neither the type of effect (enhancement, for example) nor the magnitude of monetary benefits derived from a project are valid bases for determining when to apply the procedures. Significant effects, which should be accounted for in decisionmaking, are not solely related to either factor.

Comment: One commentor suggested adding, "Until these procedures are adopted the existing EQ procedures will remain in effect."

Response: The sentence was not added since § 714.140 requires that responsible agency administrators adopt the final procedures 30 days after the date of publication as final rules in the **Federal Register**.

Modification (Proposed: Section 714.140; Final: Section 714.150).

Comment: One commentor suggested that the modification requirement be qualified such that changes to the final procedures would be made only if they would not unreasonably burden the planning and implementation of projects that have been substantially begun by the planning agency.

Response: If WRC decides to modify the final procedures, an appropriate phase-in period will be provided, based on the extent of the change, to prevent undue loss of time or expenditure of public funds.

Comment: One commentor suggested that WRC prepare a user manual.

Response: Section 714.150(b) has been added to indicate that WRC will periodically publish a *Reference Handbook* as an aid to users of this rule.

Judicial Review (Proposed: Section 714.150; Final: Section 714.160).

Comment: Several commentors suggested deletion of this section. Others suggested expanding this section to define and provide examples of a trivial violation, to add civil penalties for non-compliance, and to provide that when an agency takes no action within a reasonable time a plaintiff is not barred for failure to show irreparable injury.

Response: This section has been adopted essentially unchanged from the Council on Environmental Quality's EPA regulation (40 CFR 1500.3). It is not intended to restrain judicial action that may be necessary, but rather to encourage potential plaintiffs to give agencies a reasonable opportunity to comply with requirements prior to initiation of judicial action.

Definitions (Final: Section 714.200; Proposed: Sections 714.200, 714.340, 714.350, 714.360, 714.420(b)(2), and 714.420(c)(2)).

Comment: One commentator suggested deleting the phrase "in the study area" from the definition of alternative plan.

Response: The definition of alternative plans has been deleted from this part and referenced to the P&S (§ 711.50(a)). The phrase "study area" has been replaced by "planning area" which is defined in § 711.15.

Comment: Issue "A" in the supplementary information to the proposed rule (45 FR 25303) specifically requested comments on the validity and completeness of EQ values used as a basis for defining resource quality: ecological, aesthetic, historic, educational/scientific, and pristine values.

Several commentators agreed with the proposed values. Several other commentators suggested the following types of changes to the EQ values structure:

1. Expand the set of EQ values, including:

a. Add specific values, such as human health value, physical value, cultural value, recreational value, social value, economic value, paleontological value, and archeological value.

b. Change the scope of specific values, including changing historic to cultural, aesthetic to sensory, and ecological to living ecological and non-living ecological.

c. Recast EQ values to include the entire scope of the NEPA human environment.

d. Add an "other" category that can be used to cover EQ values that are not identified in the final rule, but that can be justified by planners.

2. Subsume the educational/scientific and pristine values within the other values.

3. Focus more on the measurable attributes that define the values, including urban and suburban landscapes, erosion, wildlife habitat, water quality parameters, wetlands, life cycle, income, employment, community, cohesion, community stability, stream flows, horizontal alignments, stream bed profiles, and sediment loadings.

Other suggestions on EQ values were to delete the phrase "of utility to man"; provide better examples; address both quantity and quality; and restructure the values to include preferences, social norms and function/utility.

Response: The definition of EQ values, which was included as § 714.350 in the proposed rule and appears as EQ attributes in § 714.200 in the final rules, was revised as follows:

1. The word "value" has been replaced by the word "attribute" primarily to eliminate confusion caused by the many different ways in which people commonly use the word value.

2. A set of three EQ attributes has been included: ecological (including living and nonliving functional and structural aspects of the environment); cultural (replacing historic); and aesthetic. Education/scientific and pristine are subsumed within these three attributes. This categorization continues that of the original 1973 version of the P&S (38 FR 24816).

3. The basic value statements included in the proposed rule (that is, the reasons why natural and cultural resources sustain and enrich human life) have been revised and included in the introductory sentence to the definition of each EQ attribute. The definition of each attribute has been revised to focus on the quantitative and qualitative properties of natural and cultural resources that reflect those values (also see the definition of "Indicator"). Additional discussion and examples have been added for each attribute.

Suggestions to expand the scope of EQ by adding values or attributes beyond those encompassed by ecological, cultural, and aesthetic; by including the full NEPA human environment; by adding an "other" category; or by restructuring EQ along a different conceptual approach, were not adopted. All of these areas are covered by the EQ account or one of the other accounts.

Comment: One commentator suggested that the definition of effect should indicate the time frame within which the without-plans and with-plan conditions should be compared. Another suggested that the definition should be tied to the "future without" concept of measuring effect.

Response: The definition of effect that appeared in the proposed rule has been replaced by a reference to the CEQ NEPA regulations (see Table 714.210). Section 714.431(a) described how effects are identified based on comparisons of without-plans and with-plan conditions. The time frame for these conditions is discussed in §§ 714.422(f) and 714.423(d).

Comment: One commentator suggested that the definition of EQ resource be changed by expanding the requirement of location in the planning area, deleting the significance requirement, and adding a requirement that the resource has potential for individual and/or cumulative effects. Another commentator stated that it was not clear that all of the requirements had to be present concurrently for consideration as an EQ resource.

Response: The locational and significance requirements have been deleted, and the individual/cumulative effect requirement was not added, since these considerations are addressed in the evaluation process and are not necessary conditions for defining an EQ resource.

Comment: One commentator criticized the lack of emphasis on interactions among resources.

Response: The words "process" and "system" are included in the definition of EQ resource to emphasize the interactive properties of resources. Numerous other revisions have been made throughout the text to better reflect the need to consider such interactions.

Comment: One commentator suggested deletion of the terms "standard, criterion, threshold or optimum level" from the definition of guideline since these terms are not used in the dictionary definition guideline.

Response: The purpose of the definitions section is to explain words that have specialized meanings in the rule; meanings that do not necessarily strictly coincide with dictionary definitions. The terms that the commentator suggested for deletion have been retained since they help to define guideline as it used in the final rule.

Comment: One commentator questioned whether a guideline is to reflect an objective or desired state, or the smallest significant unit of change.

Response: The definition of guideline states that it is a "desirable level." A numerically measured unit of change may be translated into a guideline by adding and/or subtracting the amount of desired change from the existing condition.

Comment: Several commentators objected to the examples used in the definition of indicator. One commentator stated that quantity and quality indicators are not as separable as the definition implies.

Response: Examples in the definition of indicator have been changed in response to the comments. The descriptions of quantity and quality indicators have been revised.

Comment: One commentor stated that the period of analysis used for EQ evaluation should be limited to 50 years. Another commentor stated that it should not be limited to 100 years. Another commentor stated that the period of analysis should be made consistent with that used in the P&S and NED evaluation procedures.

Response: The definition of period of analysis has been deleted from this section and referenced to the P&S (§ 711.20) and to § 714.422. The forecast period over which effects on EQ resources are to be analyzed and reported may be less than, equal to, or greater than the period of analysis as described in §§ 714.422(f), 714.423(d), and 714.432(b).

Comment: Several commentors objected to the definition of planning area (changed from "study area" in the proposed rule) because it appeared to be too limited, too constraining, focused only on the locations of alternative plans, and not inclusive of the locations of effects.

Response: The definition of planning area has been deleted from this part and referenced to the P&S (§ 711.15). The definition in the P&S indicates that the locations of alternative plans (often called "project areas") are only one of the determinants of a planning area. The locations of resources that would be directly, indirectly, or cumulatively affected by alternative plans (often called the "affected area") are also a part of the overall planning area and are included in the definition.

Comment: One commentor suggested that the phrase "insignificant issues will not be included in evaluation" should be deleted from the definition of significance.

Response: The phrase has been deleted as suggested.

Comment: One commentor suggested that the phrases without and without project conditions used in the NED evaluation procedures (18 CFR Part 713) should be changed to without and without plan conditions as used in the EQ evaluation procedures.

Response: WRC will consider the wording change in the NED evaluation procedures at a later date.

Interdisciplinary Planning (Proposed: Section 714.310; Final: Section 714.300).

Comment: One commentor suggested that the interdisciplinary planning requirements of the P&S and NEPA should be referenced.

Response: Section 714.300(a) has been added in response to the comment.

Comment: One commentor suggested that a phrase indicating the interaction among disciplines necessary at each step of planning should be added.

Response: Section 714.300(b) reflects the suggestion.

Comment: One commentor suggested that the term "experts" be used instead of "planners."

Response: The term planners has been retained in the final rule. Section 714.300(c) describes planners as "generalists and specialists from various disciplines," which includes "experts."

Public Involvement (Proposed: Section 714.320; Final: Section 714.310).

Comment: Several commentors said the rule provided insufficient guidance on determining public preferences.

Response: Such guidance is beyond the intended scope of the rule. The agencies must seek public opinion, but have the option on how to accomplish this.

Comment: Two commentors suggested that the public involvement requirements of the P&S should be referenced, and that public involvement should be required in EQ evaluation.

Response: Section 714.310(a) has been added in response to the comment.

Comment: One commentor suggested that Indian tribes should be identified in the final rule.

Response: Indian tribes have been added to the list of types of public groups in § 714.310(a).

Comment: One commentor suggested that the section should be rewritten to cite the specific special interest processes as only one means of involving a segment of the public.

Response: Section 714.310(c) addresses means to achieve public involvement, including specific specialized processes established by law.

Comment: One commentor suggested that this section could be interpreted to mean that verbatim records of all meetings would be required, and that only summaries of decisions made at meetings should be required.

Response: The final rule requires that EQ evaluation be "documented in such a way that an independent reviewer can fully and clearly understand the decisions that were made and the reasons for making them" (§ 714.330(a)); and that "The reasons and bases for action, decisions, and results required in the EQ evaluation activities are to be documented in an appropriate form" (§ 714.330(d)). Summaries, verbatim records, or other formats may be used to record meetings, depending on the agency's documentation needs in each particular case.

Integration of Other Review, Coordination, and Consultation Requirements (Proposed: Section 714.330; Final: Section 714.320).

Comment: One commentor suggested that a reference to the Clean Water Act (Pub. L. 92-500) should be added to this section.

Response: As stated in § 714.320(a), integration of other requirements into EQ evaluation is not limited to the public laws listed, which are included as examples of the type of requirement that would be relevant. Requirements of the Clean Water Act and other related requirements are to be integrated into EQ evaluation where they are appropriate.

Documentation (Proposed: Section 714.370; Final: Section 714.330).

Comment: One commentor stated that the documentation requirements appear to require elaborate and detailed documentation contrary to the NEPA regulations.

Response: The documentation requirements in § 714.330 provide for the type of recordkeeping that is usually required with any scientific analysis; such as recording the date and place of information collection, the technique used to collect information, etc. The section is consistent with the NEPA regulation's requirements for a list of preparers (40 CFR 1502.17), appendices (40 CFR 1502.18), and methodologies and scientific accuracy (40 CFR 1502.24).

Comment: One commentor suggested that the rationale used in selecting a technique should be included in the documentation.

Response: Section 714.330(b)(3) has been revised in response to the comment.

Comment: Several commentors suggested changes in proposed Table 714.410-1:

1. Column 1 (types of EQ resources required to be evaluated) comments were:

a. Add marine mammals, marine sanctuaries, cultural landmarks, national trails, national parks, national monuments, migratory bird areas, and estuaries.

b. Delete prime and unique farmland.
c. Change "endangered species critical habitat" to "endangered species critical/essential habitat," or "endangered species and their critical habitat."

2. Column 2 (source of national recognition) comments focused on adding public laws for the resources already included in the table, and adding public laws to cover the other resources that were suggested as additions to the table.

3. Column 3 (source for identification of specific resources) comments were:

a. Add the *National Wetland Inventory* as a source for wetlands.

b. Add Federal and State natural resource agencies, including the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, for wetlands in particular and all natural resources in general.

4. Column 4 (procedures for identification and evaluation of resources) comments were:

a. Add the *Habitat Evaluation Procedures* (HEP), the *Habitat Evaluation System* (HES), the *Instream Flows Incremental Methodology* (IFIM), and the *Classification of Wetlands and Deepwater Habitat* for the appropriate resources.

b. The listed procedures are very general, vague, and inapplicable to EQ evaluation.

5. Column 5 (quantitative measurement of resources, indicator/unit/guideline) comments focused on various suggested changes in the indicators and units for the listed resources, such as change "acres" to "habitat units" for fish and wildlife.

6. Several commentors suggested adding another column for qualitative measurement of resources.

Response: Proposed Table 714.410-1 has been revised and included as Table 711.71-1 in the P&S (18 CFR Part 711). The purpose of the table is to provide a format that, when completed for a particular study, will enable agency decisionmakers to readily identify the quantitative magnitude of effects on certain types of nationally recognized resources. The table was moved to the P&S since the importance of resources listed in it is not limited to EQ considerations, but rather spans the scope of all four accounts. Specific changes from the proposed table are:

1. Column 1 of the proposed table has been retained as the first column in Table 711.71-1. WRC decided that the resources listed in the column are the complete set that is to be included in the table; therefore, no other types of resources were added. WRC decided that prime and unique farmland is to be included in the table. The endangered species entry was changed to read "endangered and threatened species critical habitat."

2. Column 2 of the proposed table has been retained as the second column in Table 711.71-1 and retitled "principal sources of national recognition." No additional citations were added for the resources already included in the table since the listed citations are meant to reflect only the principal, rather than all, sources of national recognition. Since no resources were added in the left column, citations to cover the other resources suggested as additions were not included. However, public laws,

executive orders, and other Federal policies related to the EQ account that were suggested for inclusion in that table were included in Table 714.411, Sources of Institutional Recognition: Federal Policies.

3. Column 3 of the proposed table was not included in Table 711.71-1. Information on data bases, such as the *National Wetland Inventory* and other sources for identifying resources, will be included in WRC's *Reference Handbook*.

4. Column 4 of the proposed table was not included in Table 711.71-1. Information on Federal rules and regulations related to resources will be included in WRC's *Reference Handbook*. References to HEP, HES, and IFIM have been included in Table 714.412, Example Techniques. Information on classification systems, such as the *Classification of Wetlands and Deepwater Habitat*, will be included in WRC's *Reference Handbook*.

5. Column 5 of the proposed table was revised and included as the third column in Table 711.71-1. The purpose of this column is to display effects on the listed types of resources in terms of specific, standardized, quantitative indicators and units (for example, area of each habitat type as the indicator and acres as the unit, for fish and wildlife habitat). Qualitative indicators and units were not added since there was no general agreement on the specific qualitative entries that should be included. Guidelines were not included since they are specified on a case-by-case basis (see § 714.412(d)).

Comment: One commentor said that unaffected categories listed in proposed Table 714.410-1 should be deleted from the process.

Response: Any resource that is determined to be unaffected is to be dropped from further study (§§ 714.412(f)(2); 714.431(b); 714.433(e)), and "no effect" would be entered in Table 711.71-1.

Performance Objectives (Proposed: Section 714.380; Final: Section 714.340).

Comment: One commentor suggested that a requirement be added for planning agencies to make available and share all compiled information, thus acting as an information transfer center.

Response: Section 714.340(b) requires that an agency's documentation is to be accessible in a form readily available to members of the public interested in participating in the evaluation. It does not, however, require that all information be "shared," since the question of which members of the public would be interested in what types of information will vary from study to

study. Interested members of the public should specifically request information that is of interest to them, and agencies are to share such information upon request (see 40 CFR 1506.6(f)).

Comment: One commentor suggested that material developed during EQ evaluation should be in a form that will be easily and readily transferrable to the public.

Response: Section 714.340(b) has been revised in response to the comment.

Comment: Several commentors questioned why scientific validity was qualified by the phrase "to the extent practical" in § 714.340(g).

Response: The qualification was meant to apply to the term "acceptable", not scientific validity. Section 714.340(g) has been corrected accordingly.

Comment: One commentor stated that EQ performance standards should not be set on a project-by-project basis.

Response: The performance objectives listed in § 714.340 apply to EQ evaluation in all studies and need not be redefined on a study-by-study basis.

Comment: One commentor suggested that the final rule should contain language similar to § 1502.22 of the CEQ NEPA regulations to cover situations of incomplete and unavailable information.

Response: Section 714.340(i) has been added in response to the comment to assure that needed information is available.

EQ Evaluation Process (Proposed: Subpart D; Final: Subpart D).

Comment: Issue "B" in the supplementary information to the proposed rule (45 FR 25303) specifically requested comments on the rule's focus on a process for EQ evaluation. Most commentors supported the rule's four-phase process approach (define, inventory, assess, appraise) for EQ evaluation. Several commentors had questions or suggestions about specific parts of the process. Responses to those comments are included in appropriate sections. Several other commentors suggested alternative processes, including:

1. A process that would use an outline focusing on the administratively defined classes of resources, such as endangered species, cultural resources, water quality, etc.

2. A system that discusses questions concerning development versus preservation from an economic analysis perspective.

3. A heuristic system which relates to problem solving by utilizing self-educating techniques to improve performance.

4. A single set of procedures, that would encompass all the environmental requirements dictated by Federal law

relating to water resource planning, instead of procedures for each of the four evaluation accounts.

Response: The four phase process approach for EQ evaluation has been retained in the final rule. While numerous changes have been made to the specifics of the process to improve its performance, the basic approach has not been changed.

A process focusing on administratively defined classes of resources would tend to duplicate other, existing requirements related to such resources (see § 714.100(c) and § 714.320). The procedures for NED evaluation (18 CFR Part 713) already provide a system for evaluation from an economic analysis perspective. A strictly heuristic system could be used in conjunction with the various activities within EQ evaluation, but would not provide the proper degree of consistency to serve as an overall substitute approach. A single set of evaluation procedures in place of procedures for each evaluation account would be overly confusing and cumbersome due to the differences among the scopes of the subjects, Federal requirements, and state-of-the-art for each account.

Comment: Several commentors stated there were too many judgmental factors in EQ evaluation.

Response: EQ evaluation emphasizes the use of scientific techniques, and requires agencies to insure professional and scientific integrity (see § 714.412(e)). Throughout the process, planners are required to analyze information and, based upon their professional and scientific expertise, make judgments. Such judgments are not unique to EQ evaluation, but rather are inherent to the P&S planning process (including evaluation) in general.

Comment: One commentor suggested that the P&S net benefits rule be repeated in the EQ evaluation procedure, and that guidance should be added concerning nonmonetary cost and benefit accounting.

Response: Readers should refer to the P&S, § 711.92, for the text of the net beneficial effects rule. Guidance concerning the accounting of nonmonetary adverse and beneficial EQ effects is presented in Subpart D of the final rule.

Comment: Several commentors suggested that the EQ evaluation procedures should not be published as a final rule until after they are field tested.

Response: The WRC decided to publish the procedures as final rules without field testing based on the following:

1. The final rule does not mandate any specific measurement techniques;

consequently, field testing does not appear necessary prior to publication as a final rule.

2. The final rule provides a systematic process for EQ evaluation that can be implemented immediately by all covered agencies of WRC.

3. WRC has undertaken a program to screen and select specific measurement techniques during the next three years. WRC will supplement these procedures in accordance with § 714.150, as appropriate.

4. WRC plans to monitor these procedures for uniform and efficient application.

Orientation Proposed: Sections 714.300(a), 714.400(b)(2) (c) and (d); Final: Section 714.400).

Comment: Several commentors said that too much research, documentation, record-keeping, data collection, etc. would be required, which would lead to an endless impossible task that would not aid in decisionmaking, and would cause unnecessary delay (even to the point of preventing any development).

Response: The language, tables, and figures of the final rule were carefully revised to emphasize the early identification of the resources effected (§ 714.400(c)(1) (i) and (ii)). This is to be done with a minimum of data collection to eliminate problems associated with an indepth study of resources that would not be significantly affected.

Comment: One commentor suggested that, except for projects having a basic environmental purpose, avoidance of degradation should be substituted as a preference for enhancement.

Response: Section 714.400(a)(4) was not changed in response to the comment since it would be inconsistent with the national environmental quality objective established by the P&S, which provides for the protection and enhancement of environmental quality.

Comment: Two commentors stated that one of the goals of EQ evaluation is to identify adverse effects that should be avoided, minimized, and mitigated.

Response: Section 714.400(a)(4) has been revised to incorporate the comment.

Comment: One commentor suggested that to emphasize enhancement and avoidance of degradation, environmental concerns must be integrated from the start of the planning process.

Response: The need for early and continuing integration of EQ considerations into the planning process is noted in § 714.400(c) and elsewhere throughout the final rule.

Comment: One commentor said that it was unclear when "survey," "forecast

without," and "forecast with" were to be done.

Response: Figures were developed to aid the planner in understanding the relationship of phases to activities (Figure 714.400-1) and the relationship of phases to stages (Figure 714.400-2). The figures and the accompanying explanations in the text describe how and when these activities are to be performed.

Comment: One commentor stated that the rule did not address the problem of a lack of baseline data for most project proposals, and that even existing data was not fully utilized (especially on an ecosystem basis).

Response: Section 714.400(c)(1)(i) directly addresses this concern. First, readily available information is to be collected. Second, by providing an early focus for evaluation, information needs are identified. Third, where information gaps are found, data collection programs are to be undertaken.

If it is determined that there is a need for additional information on an ecosystem basis, then a data collection program for this would be initiated.

Define Resources Phase (Proposed: Section 714.410; Final: Section 714.410).

Comment: Several commentors noted that the use of the term "scoping" in the proposed rule was not consistent with the use of the term in the CEQ NEPA regulations, thereby causing confusion.

Response: The title of the first phase of EQ evaluation has been changed from "Scope Resources" to "Define Resources Phase" to eliminate the confusion. The basic intents of NEPA scoping and the first phase of EQ evaluation are the same. However, their specific requirements are different in that the first phase of EQ evaluation focuses primarily on the NEPA scoping requirements related to public involvement and identification of significant issues (40 CFR 1501.7(a)(1)-(3)).

Comment: One commentor suggested that proposed § 714.410 belongs in § 714.420 because the former section seemed to require either an initial survey or an identification of an initial list of resources.

Response: The Define Resources Phase (§§ 714.410-714.412 in the final rule) guides planners in the development of an initial list of resources to be evaluated and a framework for their evaluation. The next step, Inventory Resources Phase (§§ 714.420-714.423 in the final rule), is undertaken to collect information on those resources that were designated in the first phase.

Identify Resources Activity (Proposed: Section 714.410(a); Final: Section 714.411).

Comment: Issue "C" in the supplementary information to the proposed rule (45 FR 25303) specifically requested comments on the validity and completeness of criteria for identifying resources to be evaluated. The proposed criteria were location in the study area; likelihood of being affected; possession of material EQ value; and significance based on institutional, public, or technical recognition. Most commentors supported the criteria. One commentor questioned whether a resource must meet the criteria in part or in whole. One commentor suggested that the possession of EQ value and significance criteria be deleted or substantially modified.

Response: Section 714.411 has been revised to further clarify the criteria to be used in identifying EQ resources and attributes to be evaluated. The significance and likelihood of being affected criteria have been retained. Both must be met in order to include an EQ resource in EQ evaluation. The location in the planning area criterion was deleted since it is one of the conditions for defining the planning area (§ 711.15), not for determining whether or not a resource should be evaluated. The possession of EQ value criterion was deleted since this is established in the planning process Step 2 inventory.

Comment: One commentor asked how the significance of EQ resources is to be determined, and who is responsible for determining significance.

Response: Section 714.411(c) describes the requirements for identifying significant resources. The ultimate responsibility for identifying significant EQ resources rests with planners in the planning agency, although public involvement is necessary to accomplish this activity (see § 714.411(g)).

Comment: One commentor suggested that only the amounts of various categories that would be significantly affected should be measured.

Response: Before a resource is evaluated it must pass a significance test (§ 714.411(c)). This eliminates the unnecessary collection of information for resources that should not be evaluated.

Comment: Several commentors requested that various Federal policies, including WRC's list of environmental statutes for compliance certification, be incorporated in various places in the final rule.

Response: A consolidated list of Federal policies that should be considered in identifying significant EQ resources is presented in Table 714.411.

Comment: One commentor suggested that "State comprehensive fish and wildlife management plans and State

comprehensive outdoor recreation plans" should be added as examples of State sources of institutional recognition.

Response: Section 714.411(c)(1)(ii) now includes State fish and wildlife management plans. Recreation plans were not included because recreation is not considered in EQ evaluation.

Comment: One commentor said that the Audubon Society's Blue list was not based on scientific and technical information and therefore should not be included as a source of institutional recognition.

Response: The Audubon Society's Blue List is a policy statement of a nationally recognized private group which meets the criterion in §§ 714.411(c)(1) and (c)(1)(iii). Therefore, it was retained.

Comment: One commentor suggested that public desire for the use and enjoyment of the resource should be added as a significance criterion. Another commentor suggested that the level of use of a resource should be included in the public recognition criterion.

Response: The comments are reflected in § 714.411(c)(2), which indicates that "significance based on public recognition means that some segment of the general public recognizes the importance of the resource." If the public is using or enjoys a resource, the resource would be significant based on its use (public recognition).

Comment: One commentor stated that the phrase "or merely implied" made the definition of public recognition too broad.

Response: The phrase "or merely implied" was deleted.

Comment: One commentor thought that significance based on technical recognition was entirely covered by the Endangered Species Act.

Response: While the Endangered Species Act covers plants and animals that are technically significant, it does not cover other types of EQ resources, such as unique geological formations, that are scarce, fragile or otherwise in a critical state based on scientific or technical knowledge. The technical recognition criterion (§ 714.411(c)(3)) has been retained to provide a basis for identifying such significant resources.

Comment: Several commentors felt that proposed § 714.410(a)(7) should be deleted or reworded. Many felt that the burden of proof that a resource was significant should not rest on the public.

Response: The proposed § 714.410(a)(7) was replaced by separate public involvement and documentation §§ (714.411(g)) and 714.411(h)) to

eliminate the mixing of these requirements.

Develop Evaluation Framework Activity (Proposed: Section 714.410(b); Final: Section 714.412).

Comment: One commentor said that proposed Table 714.410-1 was the only place where even brief detail was given about indicators and guidelines.

Response: Indicators and guidelines are defined in § 714.200 and their function is discussed in detail in § 714.412.

Comment: Several commentors suggested that EQ should be measured numerically wherever it is possible to do so. Others suggested that EQ should not be boiled down to a number, and that the rule should not force the use of numeric measurement.

Response: Numeric measurement should be used where it is appropriate. However, non-numeric descriptions may, in some cases, provide a more appropriate means for analyzing and communicating information about resources and effects. The phrase "measure or otherwise describe" is used in the final rule to provide planners with the option of using either numeric or non-numeric means of measurement and description, depending on the particular circumstances at hand.

Comment: One commentor suggested that if two indicators for the same resource produce different results, the evaluation should be redone.

Response: There will be many instances where an effect may be adverse for one indicator (such as area) and beneficial on another indicator (such as habitat suitability). This does not mean that the analysis is incorrect, or that it should be redone. Consequently, this section of the rule was not changed.

Comment: One commentor objected to the use of the term "presence" as an example of a unit of measurement because the use of this term would be inappropriate when working with endangered species.

Response: The example was deleted.

Comment: Issue "G" in the supplementary information to the proposed rule (45 FR 25303) specifically requested comments on the use of descriptive categories, such as enhancement, improvement, conservation, etc., in EQ evaluation; whether or not such categories should be included, what function they should perform, and the differences among categories that should be included.

Several commentors suggested that the descriptive categories should be included and defined in the final rule. Other commentors suggested against their inclusion and definition. One

commentor suggested that the final rule should permit their use, with direction that planners be responsible for providing meaning to such terms within the context of individual studies.

Response: Descriptive categories have been addressed in § 714.412(d)(5) of the final rule, where their use as bases for guidelines is discussed. Specific definitions have not been included due to various meanings that people commonly attach to certain categories; including, in some cases, cost-sharing requirements (fish and wildlife "enhancement", for example). If such categories are used in specifying guidelines, then planners are responsible for providing meaning to them (in terms of specific guidelines) within the context of an individual study.

Comment: One commentor said that the example used under "Develop measurement framework" relating to minimal accessibility to a scenic river be changed.

Response: This example was deleted.

Comment: One commentor requested that an example be provided to clarify the meaning of "first preference to legally established guidelines".

Response: Section 714.412(d)(2) was added in response to the comment.

Comment: One commentor suggested that guidelines should be identified locationally.

Response: Section 714.412(d)(4) has been added in response to the comment.

Comment: One commentor asked how to specify a guideline when public opinion differs over the desirability of a particular resource.

Response: Sections 714.412(d) (2) and (7) have been added in response to the comment.

Comment: Issue "D" in the supplementary information to the proposed rule (45 FR 25303) specifically requested comments on measurement and forecasting techniques; including which techniques (if any) should be referenced in the final rule, and whether or not specific techniques should be mandated at this time.

Commentors generally opposed mandating the use of any specific techniques at this time, but supported the inclusion of references to techniques and other guidance, including specific suggestions to include:

1. A tabular presentation of state-of-the-art measurement techniques.

2. References to the Habitat Evaluation Procedures (HEP) and the Instream Flow Incremental Methodology (IFIM), developed by the U.S. Fish and Wildlife Service.

3. Criteria for selecting measurement techniques to be used in EQ evaluation.

Response: Table 714.412 has been added in response to the comments. HEP, IFIM and other techniques are referenced in the table. The examples of techniques included in the table are not mandated for use, but are presented as an aid to planners in identifying techniques (see § 714.412(e)). The NEPA regulations' requirement related to the professional and scientific integrity of techniques (40 CFR 1502.24) has been included in § 714.412(e) as the criterion for technique selection.

WRC has undertaken a three year effort to screen and select measurement techniques for use in EQ evaluation.

Comment: Several commentors said that proposed Table 714.410-2 contained poor examples and was not clear.

Response: The table was revised (see Figure 714.412), and new examples were provided in Appendix A.

Comment: Several commentors said that proposed Table 714.410-3 was unworkable and the format should be left to the discretion of the agencies.

Response: The table was deleted and the format is an agency option.

Survey Existing Conditions Activity (Proposed: Section 714.420(a); Final: Section 714.421).

Comment: One commentor stated that the rule does not explain what happens if a trend condition is not known.

Response: Section 714.421(b) was revised to indicate that the trend condition information should be collected where it is readily available.

Comment: One commentor suggested that the National Wetlands Inventory should be referenced as a data base for wetlands.

Response: The suggested reference has not been included since it is only one information base among many sources of information on wetlands, and among the many sources of information on all EQ resources. Such references will be discussed in WRC's *Reference Handbook*.

Forecast Without Plans Conditions Activity (Proposed: Section 714.420(b) and 714.430(a)(2); Final: Section 714.422).

Comment: Several commentors suggested that the with and without plans conditions and the assessment section should address cumulative effects, secondary effects, and effects of the planning process itself.

Response: Sections 714.422(c) and 714.423(b) require that with and without plans conditions be based on direct, indirect, and cumulative effects.

Comment: One commentor stated that specific forecasting techniques should not be designated. Another commentor stated that numeric measurement may not be relevant in forecasting without-plan conditions, and that several

forecasting approaches had been left out.

Response: Several, general forecasting approaches that can be used to derive numeric or descriptive estimates of future conditions, are listed in § 714.422(d). The list is illustrative and not all inclusive. None of the listed approaches is required to be used. Rather, planners have the flexibility to use the forecasting approach that is most appropriate for the situation.

Comment: One commentor suggested that the "additional" bases for with-plan forecasts in proposed § 714.420(c)(5) should also be included in the without-plan discussion.

Response: Sections 714.422 (c)(6) and (d)(5) have been added in response to the comment.

Comment: One commentor stated that it should be explicitly recognized in the "period of analysis" definition that some environmental effects may outlast the period of analysis.

Response: Although the definition of "period of analysis" has been referenced to the P&S (§ 711.20), § 714.422(f) addresses effects that may extend beyond the period of analysis.

Comment: One commentor suggested that forecasts should reflect "most likely conditions" rather than "worst case/best guess" approaches.

Response: Section 714.422(h) has been added to explain the selection of the without-plans condition as the most probable future condition.

Forecast With Plan Conditions Activity (Proposed: Section 714.420(c); Final: Section 714.423).

Comment: One commentor wanted to know how the agencies would document the with- and without-plan conditions.

Response: The agencies must document the type of approach used for forecasting and the information that the forecast is based on in accordance with § 714.330. Tables 4 and 5 in Appendix A present example documentation formats for estimates of with-plan and without-plans conditions.

Assess Effects Phase (Proposed: Section 714.430; Final: Section 714.430).

Comment: One commentor suggested that assess be changed to evaluate because the NEPA regulation uses "assessment" to denote reports and "evaluation" to denote action.

Response: No change was made because it was determined that assess more correctly expressed the intent of this section than did evaluate.

Comment: One commentor recommended that the sections covering the Assess Effects Phase and the Appraise Effects Phase be combined since they both relate to actions and effects.

Response: The sections were not combined since the Assess Effects phase relates to identifying, describing, and determining the significance of effects; whereas the Appraise Effects Phase relates to appraisal of effects and judging of net effects.

Describe Effects Activity (Proposed: Section 714.430(b)(1); Final: Section 714.432).

Comment: One commentator suggested that the location of effects not be described by specific project areas, but by functional systems.

Response: As stated in the Definition section (714.200), locations of resources (such as functional systems) that would be directly, indirectly, or cumulatively affected by the alternative plan are included in the planning area. Locations of effects are not limited to the project area.

Comment: One commentator said that the Assess Effects section should address irreversible and irretrievable effects.

Response: The coverage of long-term effects are addressed in §§ 714.421(f) forecast, 714.432(b) duration, and 714.432(e), which lists three of the "other" characteristics that could be included.

Comment: Several commentators said that unaffected resources in the study area should also bear on the decision, and should be displayed. Others felt that resources not significantly affected should be dropped from the evaluation, and that the reasons for dropping them should be documented as required by the NEPA regulations.

Response: If a resource is not affected, it is dropped from consideration (see §§ 714.412(f)(2), 714.431(b), 714.433(e)). This is done to eliminate an endless list of resources that would require collection of data, preparing displays, comparisons, etc. Also, Tables 6 and 8 in Appendix A provide example formats for documenting elimination of EQ resources or attributes that are not significantly affected by an alternative plan (§ 714.433(f)).

Determine Significant Effects Activity (Proposed: Section 714.430(b)(2); Final: Section 714.433).

Comment: One commentator stated that sheer magnitude of an effect does not convey any sense of importance.

Response: The significance (importance) of an effect is to be determined based on institutional, public and technical recognition as described in § 714.433. Magnitude is only one of the characteristics of an effect that should be considered in determining an effect's significance.

Comment: One commentator requested modifying the language within the quote

of 40 CFR 1508.27 to include the term "educational" in the list of significant resources that could be destroyed.

Response: The quote has been replaced by a reference to the NEPA regulation in § 714.433(b).

Appraise Effects Phase (Proposed: Section 714.440; Final: Section 714.440).

Comment: One commentator said that before net adverse or net beneficial effects are determined that consideration must be given to opportunities for management, preservation, or enhancement that would be lost by project implementation.

Response: The judgment of net effect, as well as the determination of the desirability (beneficial or adverse) of individual effects, provides the basis for comparing alternative plans in Step 5 of the P&S planning process. This comparison, in turn, provides the basis for identifying opportunities for further management to preserve or enhance EQ resources, as well as for identifying mitigation needs that should be acted on in reiterations of the planning process.

Comment: Several commentators stated that the appraisal section provides no discussion of how to determine what effects might be critical to survival or loss of a resource.

Response: Section 714.433(d) has been added to provide for technical recognition of the significance of effects.

Comment: One commentator suggested that assessment be directed at costs and benefits (monetary and nonmonetary) of plan implementation, and that appraisal be part of the overall comparison of the NED, EQ, and nonstructural plans.

Response: In the P&S planning process, the assessment of costs and benefits is called "evaluation" (planning process Step 4), and the comparison of plans is called "comparison" (planning process Step 5). Appraisal, which focuses on judgments about effects of each plan, is a part of evaluation as defined in the P&S (§ 711.105).

Appraise Significant Effects Activity (Proposed: Section 714.440(a); Final: Section 714.441).

Comment: One commentator suggested that the appraisal of significant effects would be clearer and more readily understood if those effects were displayed in a cause-effect network.

Response: Network analysis is useful as a tool to help planners to think about and describe possible future conditions by showing relationships between events (such as plan implementation actions and effects) over time. As such, it could be of some utility in forecasting without-plans and with-plans conditions. It is not, however, germane

to the appraisal procedure described in this section.

Comment: One commentator stated that this section should make it clear that any change in an undisturbed natural ecosystem is adverse.

Response: The determination of whether or not an effect on an undisturbed natural ecosystem, or any other resource, would be beneficial or adverse is to be based on the criteria described in § 714.441. The social values and empirical conditions that provide the bases for determining the desirability of effects vary from place to place and change over time. Therefore, categorical definitions of effects on certain types of resources as always beneficial or always adverse have not been included in the final procedures.

Comment: Issue "E" in the supplementary information to the proposed rule (45 FR 25303) specifically requested comments on the comparison of future resource conditions with and without plans to guidelines as the basis for appraising effects as either beneficial or adverse. One commentator suggested that the appraisal should be based on a comparison of conditions with and without plans.

Response: The comparison of an indicator's without- and with-plan conditions to a guideline is discussed in § 714.441(b).

Comment: One commentator said that there should be a method of determining and displaying the relative importance of the various resources.

Response: Section 714.441(c)(2) states that the agencies may use various approaches, such as weighting, scaling, or ranking, to consider factors in judging effects on EQ attributes.

Comment: One commentator suggested that agency decisionmakers be presented with information about the preferences of affected publics for consideration in judging net EQ effects.

Response: Table 714.441 requires that the rationale for beneficial and adverse determinations be briefly stated in the table that is provided to the agency decisionmaker. When public preferences have a bearing on such determinations (§ 714.441(c)(1)(v)), then they are to be included in the statement of rationale.

Comment: Several commentators stated that the table used to record appraisals of significant effects (Table 714.440 in the proposed rule) was too restrictive and confusing. They suggested that the table be simplified, and designed so that it would satisfy the comparative tabular summary of effects requirement of the NEPA regulation.

Response: Table 714.441 in the final rule has been simplified. The CEQ NEPA regulations do not require a tabular

summary, but rather state that an EIS "should present the environmental impacts of the proposal and the alternatives in comparative form" (40 CFR 1502.14). Table 714.441 is intended to be used as a basis for judging the net EQ effect of an alternative plan (§ 714.442). The display required by the P&S (18 CFR Part 711, Subpart G) parallels the comparative presentation suggested in the CEQ NEPA regulations.

Judge Net EQ Effects Activity
(Proposed: Section 714.440(b); Final: Section 714.442).

Comment: One commentator stated that it would be difficult to determine whether an action was beneficial or adverse to fish and wildlife when it is beneficial to one species and not to another.

Response: The determination of effect on a resource, such as fish and wildlife, is to be based on the considerations specified in § 714.441(c).

Comment: One commentator objected to having the agency decisionmaker consider related public views in judging net EQ effects, since such consideration could subject the judgment to special-interest lobbying or other pressure.

Response: Public views are not the only basis for judging net EQ effect. However, where the public has views on net EQ effects, the agency decisionmaker should have the benefit of such views to ensure that a judgment is made with full consideration of all relevant information.

Comment: One commentator stated that there appears to be no way to measure net EQ effect. Another stated that it is not possible to calculate net EQ effect.

Response: As described in § 714.442, net EQ effect is to be based on the informed judgment of the agency decisionmaker. In this judgmental sense, net EQ effect is measurable. However, in a strictly mathematical sense, it is not required to be measured or calculated.

Comment: One commentator stated that the planning agency should not make judgments of net EQ effect, noting that fish and wildlife agencies are responsible for protection and perpetuation of wildlife resources.

Response: The lead planning agency is ultimately responsible for all decisions that lead to its recommendations, including any judgments of net EQ effect. In reaching such a judgment, planning agency decisionmakers must consider related public views (Section 714.442(c)), such as those that may be expressed by a fish and wildlife agency. However, the responsibility for the decision rests with the planning agency decisionmaker.

Comment: Issue "F" in the supplementary information to the

proposed procedures (45 FR 25303) specifically requested comments on techniques and alternative approaches that would be useful in determining net EQ effect. Commentors suggested the following in response to this request.

1. Techniques for improving individual and group decisionmaking should be used.

2. Weighting factors, which can be multiplied by an effect to yield results that can be summed to obtain a total, should be used.

3. A scale approach, in which each effect would be ranked on a scale (for example +10 to -10), should be used.

4. A qualitative method of measurement that is the same across categories should be derived so that pluses and minuses can be properly compared.

5. EQ resource weighting criteria, from the Federal perspective, should be established.

Response: After consideration of the comments received and other views, WRC determined that no specific technique for judging net EQ effect would be required in the final procedures. However, in assisting agency decisionmakers in this judgment (§ 714.442(c)), planners could use approaches such as those suggested in the comments. If used, such approaches would need to meet the documentation requirements of the final procedures (§ 714.330) and the NEPA regulations (40 CFR 1502.24).

5. Rule Promulgation

Accordingly, the Water Resources Council amends the Code of Federal Regulations, Title 18, Chapter VI by adding Environmental Quality Evaluation Procedures for Level C Water Resources Planning.

Cecil D. Andrus,
Chairman.

Approved: September 19, 1980.

Part 714 is added to read as follows:

PART 714—ENVIRONMENTAL QUALITY EVALUATION PROCEDURES FOR LEVEL C WATER RESOURCES PLANNING

Subpart A—Introduction

- Sec.
- 714.100 Purpose.
 - 714.110 Authority.
 - 714.120 Limitations.
 - 714.130 Agency activities covered.
 - 714.140 Application.
 - 714.150 Modification.
 - 714.160 Judicial review.

Subpart B—Definitions

- 714.200 Definitions.
- 714.210 References for terms.
- 714.220 Abbreviations and acronyms.

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- Sec.
- 714.300 Interdisciplinary planning.
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Subpart D—EQ Evaluation Process

- 714.400 Orientation.
- 714.410 Define resources phase.
- 714.411 Identify resources activity.
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- 714.431 Identify effects activity.
- 714.432 Describe effects activity.
- 714.433 Determine significant effects activity.
- 714.440 Appraise effects phase.
- 714.441 Appraise significant effects activity.
- 714.442 Judge net EQ effects activity.

Appendix A—Example documentation formats.

Appendix B—Relationships between NEPA requirements for EIS contents and the requirements of these procedures.

Authority: Sec. 103 and 402, Pub. L. 89-80, 79 Stat. 245 (42 U.S.C. 1962a-2 and d-1); sec. 102(2)(b), Pub. L. 91-190, 83 Stat. 852 (42 U.S.C. 4332)

Subpart A—Introduction

§ 714.100 Purpose.

The Principles and Standards for Water and Related Land Resources Planning (P&S) (Part 711 of this chapter) establish the basic policy for planning Level C Federal and Federally assisted water and related land resources (referred to hereinafter as water resources) programs and projects. Operational guidance on how to implement the basic P&S policy is provided in a set of procedures included or to be included as Parts 712 through 716 of this chapter. This part (18 CFR Part 714) gives the procedures to be used for evaluating the effects of alternative water resources plans on environmental quality (EQ). The purpose of these procedures is to:

(a) Establish the process for identification and description of beneficial and adverse effects of alternative plans on significant natural resources and historic and cultural properties (referred to hereinafter as natural and cultural resources).

(b) Assist agencies in meeting the requirements of the National Environmental Policy Act of 1969, as amended (NEPA; Pub. L. 91-190; 42

U.S.C. 4321, *et seq.*), as specified in the CEQ NEPA regulations (40 CFR 1500-1508), with respect to the EQ account. Relationships between the CEQ NEPA regulations and these procedures are noted in the text. Appendix B lists relationships that may aid in the preparation of an Environmental Impact Statement (EIS).

(c) Provide a basic analytical framework for focusing the concurrent integration of other related review, coordination, and consultation requirements into the planning process. These other related requirements include those mandated by the Fish and Wildlife Coordination Act of 1958, as amended (Pub. L. 85-624; 16 U.S.C. 661, *et seq.*); the National Historic Preservation Act of 1966, as amended (Pub. L. 89-655, 16 U.S.C. 470, *et seq.*); the Endangered Species Act of 1973, as amended (Pub. L. 93-205; 16 U.S.C. 1531, *et seq.*); and the Coastal Zone Management Act of 1972, as amended (Pub. L. 92-583, 16 U.S.C. 1451, *et seq.*). These procedures for EQ evaluation are intended to rely on and make use of, rather than duplicate, analyses and documentation already used by agencies for compliance with such other requirements.

§ 714.110 Authority.

These procedures were developed by the U.S. Water Resources Council (WRC) under the authority of the Water Resources Planning Act of 1965 (Pub. L. 89-80, 42 U.S.C. 1962) and NEPA.

(a) Section 103 of the Water Resources Planning Act of 1965 directs WRC to establish "principles, standards, and procedures for Federal participants in the preparation of comprehensive regional or river basin plans and for the formulation and evaluation of Federal water and related land resources projects." Section 402 of the Act authorizes WRC "to make such rules and regulations as it may deem necessary or appropriate for carrying out those provisions of this Act which are administered by it."

(b) Section 102(2)(b) of NEPA requires Federal agencies to "identify and develop methods and procedures * * * which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations." This requirement is also included in the CEQ NEPA regulations (40 CFR 1507.2(b)).

§ 714.120 Limitations.

These procedures are limited by the following factors:

(a) EQ plays two major roles in the six-step water resources planning process (see Part 711, Subpart J, of this chapter).

(1) First, as a National Objective, EQ is a basis for specifying problems and opportunities, and formulating and reformulating alternative plans that emphasize resolution of EQ-related problems and realization of EQ-related opportunities. In this capacity, the EQ objective is equal with the national economic development (NED) objective.

(2) Second, EQ is one of the four P&S evaluation accounts in which effects of alternative plans are to be evaluated and displayed (EQ, NED, regional economic development (RED), and other social effects (OSE)). The evaluation accounts provide the basis for comparing the likely effects of alternative plans; these comparisons in turn give planners the bases for reformulation. These procedures are limited to describing EQ in this second role as an evaluation account (see § 714.400(a)).

(b) In the limited context of evaluation, the P&S require that the effects of alternative plans be evaluated and displayed categorically in the four evaluation accounts. The basis for the division into four accounts is the WRC policy decision established in the original 1973 version of the P&S (38 FR 24778-24862), which is retained and clarified in Part 711 of this chapter. These procedures are limited to evaluation of effects included in the EQ account, which are effects on the ecological, cultural, and aesthetic attributes of significant natural and cultural resources.

(c) During the course of the EQ evaluation, the planner should be aware that contributions or effects that can be measured in monetary terms are to be monetized and included in the NED and RED accounts and in the OSE account, if appropriate.

(d) The "human environment" cited in NEPA and the CEQ NEPA regulations (40 CFR 1500.2(f), 1508.14, and elsewhere) is made up of the full range of resources and attributes collectively covered by the four P&S evaluation accounts. Therefore, EQ evaluation itself addresses only those human environment effects included in the EQ account; other effects are to be evaluated in accordance with the appropriate evaluation procedures for the other accounts. Evaluation in all four accounts is necessary to fully address effects on the NEPA human environment.

§ 714.130 Agency activities covered.

(a) These procedures are to be used for the evaluation of beneficial and

adverse EQ effects of Federal and Federally assisted water resources studies covered by the P&S (§ 711.1(b) of this chapter). They apply to all Level C planning studies subject to the P&S including—

(1) Plans that may be approved by agency administrators;

(2) Plans requiring Congressional authorization; and

(3) Plans authorized on or after October 25, 1973, that are not yet being implemented or under construction and for which agencies currently prepare postauthorization planning documents. Postauthorization studies for plans authorized prior to October 25, 1973, are exempt from complying with these procedures except—

(i) Where the Secretary of a Department or head of an independent agency requires compliance; or

(ii) Where the plan is resubmitted to Congress for authorization.

(b) For the purposes of these procedures a plan is considered as "being implemented or under construction" when funds have been appropriated by the Congress or budgeted by the President for land acquisition or physical construction activity. Plans for which postauthorization planning documents are not required shall be considered as being implemented or under construction when authorized for implementation or construction.

(c) The Secretaries of Departments and the heads of independent agencies have the discretion to review those plans not being implemented or under construction and may, under their discretionary authority, wholly exempt the studies for a plan from complying with these procedures, or partially exempt such studies and direct expedited additional planning to meet specific procedures. This discretionary authority may not be exercised after July 31, 1982. When this discretionary authority is exercised, the decision and reasons for it are to be recorded in the appropriate planning document.

(1) This discretionary authority applies to those studies for plans not yet authorized for which preauthorization planning is now complete or will be complete by the end of Fiscal Year 1981, and to studies for those authorized plans requiring postauthorization planning if such studies are now complete or will be complete by the end of Fiscal Year 1981. For purposes of these procedures, preauthorization or postauthorization studies shall be considered complete when the appropriate planning documents have been approved by the responsible agency's field office.

(2) Discretionary authority to exempt studies from these procedures is provided to prevent undue loss of time or expenditure of public funds in those cases in which the Secretary of a Department or head of an independent agency judges additional planning to be unnecessary.

§ 714.140 Application.

The administrator of each Federal or Federally assisted program covered by the P&S (§ 711.1(b) of this chapter) is responsible for applying these procedures. The responsible agency administrator is to adopt these procedures within 30 days after the date of their publication in the **Federal Register**.

§ 714.150 Modification.

(a) To ensure that the best available techniques and accurate and consistent analyses are used, WRC will periodically supplement these procedures with specific measurement techniques as the state-of-the-art advances and revise these and subsequently adopted procedures as WRC determines that experience, research, and planning conditions dictate.

(b) WRC will periodically publish information related to these procedures in its *Reference Handbook*. Such information will not legally supplement or otherwise modify these procedures, but should be helpful to users of these procedures.

§ 714.160 Judicial review.

WRC intends that judicial review of agency compliance with these procedures not occur before an agency has filed a final EIS for a recommended plan, or has made a final finding of no significant impact for a recommended plan, or initiates action that will result in irreparable injury. Further, it is WRC's intent that trivial violation of these procedures not give rise to any independent cause of action under law.

Subpart B—Definitions

§ 714.200 Definitions.

Alternative plan

See § 711.50(a) of this chapter.

EQ account

The EQ account describes that part of the NEPA human environment that identifies beneficial and adverse effects on significant EQ resources and attributes.

EQ attributes

EQ attributes are the ecological, cultural, and aesthetic properties of

natural and cultural resources that sustain and enrich human life.

(1) *Ecological attributes* are components of the environment and the interactions among all its living (including people) and nonliving components that directly or indirectly sustain dynamic, diverse, viable ecosystems. In this category are functional and structural aspects of the environment, including aspects that require special consideration because of their unusual characteristics.

(i) Functional aspects of the environment include production, nutrient cycling, succession, assimilative capacity, erosion, and other dynamic, interactive processes and systems. Examples are the role of wetlands as a potential sink for nutrients and pollutants; the high productivity of marshes that is often exported to other systems; and prime and unique farmlands.

(ii) Structural aspects of the environment include plant and animal species populations and communities; habitats; and the chemical and physical properties of air, water (surface and ground), and soil and other geophysical resources. Examples are water quality factors that support or are indicative of trout fisheries; the substrate characteristics and the aggregations of plants and animals that support a rookery; the pH of the rainfall; pristine wilderness areas; endangered, threatened, and other unique or scarce plant and animal species; and rock strata with scientific or educational uses.

(2) *Cultural attributes* are evidence of past and present habitation that can be used to reconstruct or preserve human lifeways. Included in this category are structures, sites, artifacts, environments, and other relevant information, and the contexts in which these occur. Cultural attributes are found in archaeological remains of prehistoric and historic aboriginal occupations; historic European and American areas of occupation and activities; and objects and places related to the beliefs, practices, and products of existing folk or traditional communities and native American groups. Examples are campsites of prehistoric mammoth hunters, a 19th century farmstead, and a stream crossing in longstanding use by an Appalachian community for baptizing church members.

(3) *Aesthetic attributes* are perceptual stimuli that provide diverse and pleasant surroundings for human enjoyment and appreciation. Included in this category are sights, sounds, scents, tastes, and tactile impressions, and the interactions of these sensations, of

natural and cultural resources. Examples are the sight of a pristine landscape, the view of a historic fortress, the sound of a waterfall or brook, the scent of a hedgerow of honeysuckle or a pine forest, and the taste of mineral water.

EQ resource

An EQ resource is a natural or cultural form, process, system, or other phenomenon that—

(1) Is related to land, water, atmosphere, plants, animals, or historic or cultural objects, sites, buildings, structures, or districts; and

(2) Has one or more EQ attributes (ecological, cultural, aesthetic).

Guidelines

A guideline is a standard, criterion, threshold, optimum, or other desirable level for an indicator that provides a basis for judging whether an effect is beneficial or adverse. Guidelines are to be based on institutional, public, or technical recognition.

Indicator

An indicator is a characteristic of a EQ resource that serves as a direct or indirect means of measuring or otherwise describing changes in the quantity and/or quality of an EQ attribute.

(1) Quantity indicators describe how much of a resource attribute is present in terms of physical size, magnitude, or dimension. They are usually measurable in numeric units (example: The indicator "depth" is measurable in meters, feet, etc.); but they may be described in non-numeric terms (example: The indicator "amount" could be described on a scale of "abundant/adequate/scarcely/unique"). The diversity or stability of an ecosystem or natural community may be a numeric or non-numeric indicator.

(2) Quality indicators are characteristics that describe the degree or grade of an attribute's desirability (how good or how bad). Some quality indicators are measurable in numeric units (example: The indicator "landscape beauty" measured by an ordinal ranking of landscapes); some represent composites of numeric measurements (example: The indicator "class 'A' water quality" is a composite of measurements of concentrations of dissolved oxygen, suspended solids, etc.); some are described in non-numeric units (example: The indicator "desirability of scent" described on a scale of "offensive/neutral/pleasant").

Period of analysis

See § 711.20 of this chapter. Also see § 714.422.

Planning area

See § 711.15 of this chapter.

Significant

Significant means likely to have a material bearing on the decisionmaking process. In EQ evaluation, significant EQ resources and attributes (see § 714.411) and significant effects (see § 714.433) are identified based on institutional, public, and technical recognition.

Technique

A technique is a systematic procedure for measuring or otherwise describing current and future conditions of a specified indicator in terms of the indicator's specified unit.

Unit

A unit is a numeric or non-numeric term in which change in an indicator is measured or otherwise described.

With-Plan Condition

The with-plan condition is an estimation of the most probable future condition expected to occur as a result of implementation of a specific alternative plan formulated during a study. The with-plan condition includes changes likely to directly, indirectly, or cumulatively result both from the alternative plan and from all reasonably foreseeable actions that are not part of the plan.

Without-Plans Condition

The without-plans condition is an estimation of the most probable future condition expected to occur in the absence of any of the study's alternative plans. The without-plans condition includes any changes expected to directly, indirectly, or cumulatively result from all reasonably foreseeable actions without any of the study's alternative plans. For example, if it is most probable that within the next 20 years 60 percent of a woodland will be cleared for agricultural purposes without any of the plans being considered by the agency, the effects of such clearing would be included in the without-plans conditions. Similarly, if existing legislation, such as the Clean Water Act, is expected to improve water quality in a river, such improvement would be included in the without-plans conditions. The without-plans condition is synonymous with "No Action" as used in NEPA and the CEQ NEPA regulations (40 CFR 1502.14(d)).

§ 714.210 References for terms.

Table 714.210 lists key terms and indicates where their definitions or explanations are located in these

procedures or in the CEQ NEPA regulations.

§ 714.220 Abbreviations and acronyms.

Table 714.220 lists commonly used abbreviations and acronyms that appear in these procedures.

Table 714.210—References for terms.

Term	Reference
Activity	714.400(b)(1)
Aesthetic attribute	714.200—EQ attribute
Affected area	714.200—Planning area
Alternative plan	714.200
Cooperating agency	40 CFR 1501.6
Cultural attribute	714.200—EQ attribute
Cumulative effect	40 CFR 1508.7
Direct effect	40 CFR 1508.8(a)
Ecological attribute	714.200—EQ attribute
Effect	40 CFR 1508.8 and 714.431(a)
Environmental impact statement	40 CFR 1508.11
EQ account	714.200
EQ attribute	714.200
Existing condition	714.421(a)
Forecast dates	714.422(g)
Guideline	714.200
Human environment	40 CFR 1508.14
Indicator	714.200
Indirect effect	40 CFR 1508.8(b)
Institutional recognition	714.411(c)(1) and 714.433(b)
Natural and cultural resources	714.100(a)
Period of analysis	714.200
Phase	714.400(b)(1)
Planners	714.300(c)
Planning area	714.200
Project area	714.200—Planning area
Public recognition	714.411(c)(2) and 714.433(c)
Scoping	40 CFR 1501.7
Significant	714.200
Stage	714.400(c)(1)
Technical recognition	714.411(c)(3) and 714.433(d)
Technique	714.200
Trend condition	714.421(a)
Unit	714.200
With-plan condition	714.200
Without-plan condition	714.200

Table 714.220—Abbreviations and acronyms.

Abbreviations and acronyms	Phrase
CEQ	Council on Environmental Quality.
EIS	Environmental impact statement.
EQ	Environmental quality.
<i>et seq.</i>	<i>et sequens</i> (and the following).
F.R.	Federal Register.
HEP	Habitat Evaluation Procedures.
NED	National economic development.
NEPA	National Environmental Policy Act.
OSE	Other social effects.
P&S	Principles and Standards.
Pub. L.	Public law.
RED	Regional economic development.
U.S.C.	United States Code.
WRC	Water Resources Council.

Subpart C—General Evaluation Requirements

§ 714.300 Interdisciplinary planning.

(a) In performing EQ evaluation, agencies are to use an interdisciplinary approach, as required by NEPA, the CEQ NEPA regulations (40 CFR 1501.2(a) and 1507.2(a)), and the P&S (§ 711.13 of this chapter).

(b) The wide range of resources that must be viewed from the perspective of the EQ account is beyond the scope of

any single scientific discipline. Therefore, the use of many scientific disciplines, in an ongoing, interactive approach, is necessary to deal effectively with the range of EQ resources to be considered in decisionmaking.

(c) The types of generalists and specialists from various disciplines, referred to hereinafter as "planners," needed for an interdisciplinary approach will vary from study to study. An interdisciplinary approach is not limited to the expertise immediately available in the planning agency. As necessary for a particular study, agency expertise may be supplemented by knowledge and skills from cooperating agencies, universities, consultants, and other sources. Regardless of the source of expertise, the types of expertise brought to bear on a given EQ analysis, judgment, or other decision requiring professional judgment are to be relevant to the decision.

§ 714.310 Public involvement.

(a) Agencies are to invite the early and continuing involvement of government entities at the Federal, regional, State, and local levels; national, regional, and local, public and private organizations and groups, including Indian tribes; and individuals. Public involvement is required by the P&S (§ 711.11 of this chapter), and the CEQ NEPA regulations (40 CFR 1506.6).

(b) Public involvement in EQ evaluation is required for the following reasons:

(1) First, the public is the basic source, and in many cases the only source, of knowledge and opinions that are needed to make the process work. Such knowledge and opinions are especially critical in determining public recognition and concerns (see §§ 714.411, 714.412, 714.433, and 714.441).

(2) Second, as a reviewer of the results of EQ evaluation, the public will have opportunities to ensure that their views have been properly incorporated; understand the implications of their views on plan formulation; and react to evaluation results in a way that will facilitate modification of alternative plans.

(c) The means to achieve public involvement in EQ evaluation are left to the discretion of agencies. The P&S (§711.11 of this chapter) and the CEQ NEPA regulations (40 CFR 1506.6) suggest several means of public involvement. In some cases, means of public involvement are specifically established in law and should be relied upon to provide input to EQ evaluation. Examples of specifically established means are:

(1) The NEPA scoping process (see the CEQ NEPA regulations, 40 CFR 1501.7).

(2) The participation of cooperating agencies with jurisdiction by law or special expertise (see the CEQ NEPA regulations, 40 CFR 1501.6, 1501.7, 1508.5, 1508.15, and 1508.26).

(3) Procedures, developed pursuant to Federal laws other than NEPA, that require a specific type of review, coordination, or consultation between planning agencies and agencies with custodial responsibilities for certain EQ-related factors. Such procedures include, but are not limited to, the "Section 7 Consultation Process" pursuant to the Endangered Species Act of 1973, as amended (Pub. L. 93-205; 16 U.S.C. 1531, *et seq.*); the "Section 106 Procedure" pursuant to the National Historic Preservation Act of 1966, as amended (Pub. L. 89-655; 16 U.S.C. 470, *et seq.*); the "Coordination Act Report" pursuant to the Fish and Wildlife Coordination Act of 1958, as amended (Pub. L. 85-624; 16 U.S.C. 661, *et seq.*); and the "Consistency Determination" pursuant to the Coastal Zone Management Act of 1972, as amended (Pub. L. 92-583; 16 U.S.C. 1451, *et seq.*).

(d) The public must recognize that the burden of public involvement is shared by both agencies and the public. While agencies must actively seek the public's knowledge and opinions, they cannot force necessary involvement by all segments of the public. Therefore, the Water Resources Council strongly encourages the public to take an early and continuing role in EQ evaluation to ensure that their knowledge and opinions are known and considered by agencies charged with the stewardship of the Nation's water and land resources, and to provide agencies with the public knowledge and opinions that are essential to making the process work.

§ 714.320 Integration of other review, coordination, and consultation requirements.

(a) To the fullest extent possible, EQ evaluation and its documentation are to be conducted and prepared concurrently and integrated with the analyses and documentation required by other review, coordination, and consultation requirements related to EQ evaluation, as required by the CEQ NEPA regulations (40 CFR 1500.2(c), 1501.7(a)(6), 1502.2(d), 1502.25, and 1506.2). Such requirements include, but are not limited to, those related to NEPA; the Endangered Species Act of 1973, as amended (Pub. L. 93-205; 16 U.S.C. 1531, *et seq.*); the National Historic Preservation Act of 1966, as amended (Pub. L. 89-655; 16 U.S.C. 470,

et seq.); the Fish and Wildlife Coordination Act of 1958, as amended (Pub. L. 85-624; 16 U.S.C. 661, *et seq.*); and the Coastal Zone Management Act of 1972, as amended (Pub. L. 92-583; 16 U.S.C. 1451, *et seq.*).

(b) These procedures for EQ evaluation are not intended to duplicate or in any way modify such other requirements. Rather, the EQ evaluation process described in these procedures (see Subpart D) is to be used as the basic analytical framework for concurrently integrating into water resources planning the information developed in response to other requirements. The relationship between the requirements of NEPA for contents of environmental impact statements and the requirements of these procedures is given in further detail in Appendix B.

§ 714.330 Documentation.

(a) EQ evaluation is to be documented in such a way that an independent reviewer can fully and clearly understand the decisions that were made and the reasons for making them. Documentation in Level C feasibility reports, however, should be limited to that required for the agency decisionmaking process. Other documentation required by this regulation should be retained on file and its availability referenced in the Level C report. Documentation should be clear and concise, as required by the CEQ NEPA regulations (40 CFR 1502.2(a) and (c) and 1502.8).

(b) Information collected by field sampling, laboratory experiments, interviews, literature searches, and other means are to be documented to include:

- (1) Date and place of information collection;
- (2) Name of person(s) who collected the information;
- (3) Techniques and methods used; including assumptions and rationale for selecting techniques and methods used.
- (4) Known or suspected factors that could affect the accuracy of information collection techniques and methods, including gaps in relevant information and scientific uncertainty;
- (5) Information collected; and
- (6) Interpretations of the information.

(c) Information collected prior to initiation of an EQ evaluation and referenced or incorporated in the EQ evaluation is to be documented as described in paragraph (b) of this section to the extent practical.

(d) The reasons and bases for actions, decisions, and results required in the EQ evaluation activities are to be documented in an appropriate form. Narrative statements, ranging from short

notes to extensive descriptions, are appropriate for most documentation needs. Other formats that may be used are: Maps, including composites and overlays; graduated scales, including time lines; graphs; lists; tables; scale models; sound recordings; photographs; films; conceptual drawings; and other formats that accurately record information. Appendix A presents examples of documentation formats that may be used.

§ 714.340 Performance objectives.

Performance objectives are statements of intent that serve as guides to planners in making decisions on how to carry out and document EQ evaluation. In accordance with the intent of the CEQ NEPA regulations, EQ evaluation and its documentation are to be:

(a) Generally understandable to members of the public interested in the evaluation (see 40 CFR 1502.8).

(b) Accessible in a form readily available to members of the public interested in the evaluation (see 40 CFR 1506.6(f)).

(c) Traceable so that members of the public interested in knowing the bases and events that led to decisions can follow these factors through the process (see 40 CFR 1500.2(b), 1502.18, and 1502.24).

(d) Focused on analysis of significant issues (see 40 CFR 1500.1(b), 1501.7(a)(2) and (3), and 1502.2(b)).

(e) Analytic rather than encyclopedic, with information that will be useful to making decisions in advancing the planning process (see 40 CFR 1500.1 (b) and (c), 1500.2 (a) and (b), and 1500.4(f)).

(f) At a level of detail comparable to economic and technical analyses (see 40 CFR 1501.2(b)) and necessary for reasonable accuracy of measurements, estimates, and other descriptions needed in understanding and making decisions about alternative plans (see 40 CFR 1502.15).

(g) Based on scientifically valid and, to the extent practical, acceptable precepts (see 40 CFR 1502.24).

(h) The means to identify and describe the effects of alternative plans, rather than to justify decisions already made (see 40 CFR 1502.2(g)).

(i) Complete and timely, so that information about effects that is essential to a reasoned choice among alternative plans is available when needed for decisionmaking, in accordance with 40 CFR 1502.22.

Subpart D—EQ Evaluation Process**14.400 Orientation.**

(a) *EQ evaluation in the planning process.* (1) This subpart describes the EQ evaluation phases and activities that are to be used to identify the significant beneficial and adverse effects of alternative plans on significant EQ resources. Step 4 in the six-step P&S water resources planning process is Evaluation of Effects (§ 711.105 of this chapter). The purpose of evaluation is to identify and describe effects of alternative plans.

(2) The P&S require that effects of alternative plans be evaluated categorically in four accounts: EQ, NED, RED, and OSE. Each account provides a different perspective for viewing the range of effects that would result, either intentionally or unintentionally, from alternative plans.

(3) While planning process Step 4 (evaluation) can be seen as a distinct increment in the planning process, it is important that evaluation not be viewed as an end in itself. Rather, evaluation should be seen in the context of its relationships to the other planning steps, particularly Step 3 (formulation) and Step 5 (comparison). Repetition of the Step 3–4–5 sequence is the essence of an formulation. Based on specified problems and opportunities from Step 1, and using information in the planning area inventory from Step 2 (inventory and forecast), alternative plans are formulated (Step 3) to resolve specified problems and realize specified opportunities. Next, using inventory and forecast information, each alternative plan is evaluated (Step 4) to identify and describe its effects in terms of the EQ, NED, RED, and OSE accounts. Effects of alternative plans are then compared (Step 5) to identify plans that would contribute to the NED and EQ objectives. Based on this comparison and other criteria, some plans may be eliminated while others may be reformulated (repeat of Step 3) to improve beneficial effects and eliminate or reduce adverse effects. Reformulated plans are again evaluated (repeat of Step 4) and their effects are compared (repeat of Step 5) to further narrow the range of choices. Additional repetitions of the Step 3–4–5 sequence, that continually respond to new problems and opportunities (from Step 1) and use the latest inventory and forecast information (from Step 2), will eventually produce a set of candidate plans from which a recommended plan may be selected in Step 6 (selection).

(4) The early and continuing interaction of EQ evaluation with other actions in the planning process is

intended to emphasize enhancement; avoid degradation; and, where degradation is unavoidable, identify mitigation needs for EQ resources in the formulation of alternative plans.

(b) *EQ evaluation phases and activities.* (1) Evaluation in the planning process (Step 4) consists of the assessment and appraisal of effects. As described in these procedures, it also includes the necessary definition and inventorying that are preparatory to assessment and appraisal. These four general actions—define, inventory, assess, appraise—are called *phases* in these procedures. Each phase is divided into specific actions defined in terms of operational instructions. These specific actions are called *activities* in these procedures. The phases and their activities that make up the EQ evaluation process described in these procedures are graphically illustrated in Figure 714.400–1.

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Figure 714.400-1

EQ Evaluation Process: Phases and Activities

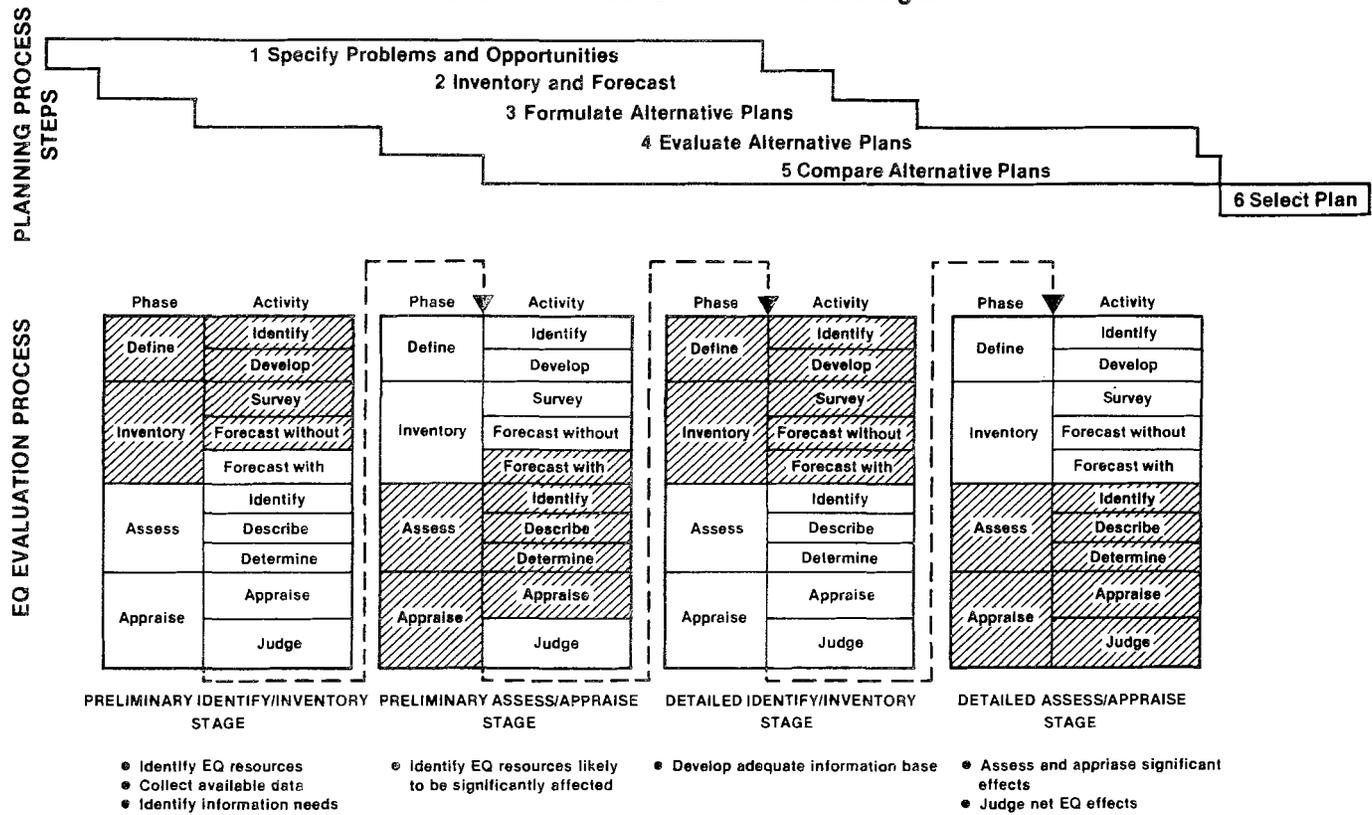
PHASES	ACTIVITIES
Define Resources (714.410)	Identify Resources (714.411)
	Develop Evaluation Framework (714.412)
Inventory Resources (714.420)	Survey Existing Conditions (714.421)
	Forecast Without-Plans Condition (714.422)
	Forecast With-Plan Condition (714.423)
Assess Effects (714.430)	Identify Effects (714.431)
	Describe Effects (714.432)
	Determine Significant Effects (714.433)
Appraise Effects (714.440)	Appraise Significant Effects (714.441)
	Judge Net EQ Effects (714.442)

(2) Although these phases are presented in a linear sequence, many interrelationships exist among the phases and their activities. Planners may have to repeat phases and activities in stages to complete a given EQ evaluation.

(c) *EQ evaluation stages.* (1) The interrelationships among EQ evaluation phases and activities, as well as the interrelationships between EQ evaluation and the planning process, usually necessitate performing and repeating phases and activities in increasing levels of detail, each level commensurate with the evaluation needs of the overall planning effort. Such repetitions are called *stages* in these procedures. Conducting EQ evaluation in stages of increasing levels of specificity and detail is a study-specific adaptation of the tiering concept described in the CEQ NEPA regulations (40 CFR 1502.20 and 1508.28). The level of detail and number of stages will vary with each planning study, but the following stages, shown graphically in Figure 714.400-2, should be considered for every study.

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**Figure 714.400-2
Relationship between Planning Process
and EQ Evaluation Phases and Stages**



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(i) *Preliminary definition-and-inventory stage.* In accordance with the requirements of the CEQ NEPA regulations (40 CFR 1501.2, 1501.7, and 1507.2(e)), a preliminary definition-and-inventory stage should be undertaken in early planning. The objective of this stage is to identify EQ resources, develop an evaluation framework, and collect readily available information. This stage emphasizes the activities of the Define Resources Phase to provide an early focus for evaluation and reveal information needs. Where information gaps are found, allocation and initiation of data collection and forecasting programs are to be undertaken in accordance with the CEQ NEPA regulations (40 CFR 1501.6 and 1501.7(a)(4)-(6)).

(ii) *Preliminary assessment-and-appraisal stage.* A preliminary assessment-and-appraisal stage should be undertaken following the preliminary formulation of alternative plans. The objective of this stage is to identify resources likely to be directly, indirectly, or cumulatively affected by one or more plans. This stage emphasizes the activities of the Assess Effects Phase, further focusing information needs on those resources that would be affected by alternative plans. The assessment and appraisal of effects at this stage will help planners understand the enhancement and degradation potentials of alternative plans, thereby providing bases for further reformulations in Steps 3 through 5 of the planning process. Since a substantial amount of time in most planning studies is spent in exploring a wide range of alternative plans, this EQ evaluation stage will probably be repeated several times in a given study. While a complete, detailed inventory is usually not essential at this stage, effects are to be identified in adequate detail so they can be compared with economic and technical analyses as required by the CEQ NEPA regulations (40 CFR 1501.2(b)).

(iii) *Detailed definition-and-inventory stage.* In accordance with the requirements of the CEQ NEPA regulations (40 CFR 1502.14(b) and 1507.2(e)), a detailed definition-and-inventory stage should be undertaken during the formulation of specific alternative plans. The objective of this stage is to develop an adequate information base for a detailed assessment and appraisal of effects. This stage emphasizes the activities of the Inventory Resources Phase, including completion of information collection and forecasting programs.

This stage may often be conducted concurrently with, or during later repetitions of, the preliminary assessment-and-appraisal stage.

(iv) *Detailed assessment-and-appraisal stage.* In accordance with the requirements of the CEQ NEPA regulations (40 CFR 1502.14(b)), a detailed assessment-and-appraisal stage should be undertaken following final formulation of specific alternative plans. The objective of this stage is to identify, describe, and appraise individual effects, and appraise the net EQ effect, of each alternative plan. This stage emphasizes the activities of the Assess Effects and Appraise Effects Phases to provide the agency decisionmaker with reasonable bases for judging net EQ effects. The results of this appraisal will form the EQ basis for plan selection in planning process Step 6 (selection).

(2) Repeating phases and activities in stages of increasing levels of detail will aid in focusing on resources and effects that will play a role in decisionmaking, rather than on resources unrelated to, or not affected by alternative plans.

(d) *Managing evaluation demands.* During the course of EQ evaluation, the number of variables (such as the number of resources, indicators, forecast dates, etc.) identified at a given point in the process will vary. Most activities in these procedures are designed to limit the number of variables being considered. It is important that the number of variables be adequate to fully account for all significant effects. However, increases in the number of variables will increase demands on study time, funds and expertise. Therefore, a proper balance between adequate analysis and study resources must be achieved.

§ 714.410 Define resources phase.

This phase is performed to identify the EQ resources and attributes that will be evaluated, and to specify how they will be measured or otherwise described in EQ evaluation. In the first activity, EQ resources and attributes to be evaluated are identified on the basis of their significance and their likelihood of being affected by an alternative plan. In the second activity, an evaluation framework is developed for measuring or otherwise describing the conditions of identified EQ resources and attributes in terms of indicators, units, guidelines, and techniques.

§ 714.411 Identify resources activity.

(a) This activity is performed to identify EQ resources and attributes that will be analyzed in later EQ evaluation activities. This is accomplished by reviewing the planning process Step 2

information base to identify EQ resources and attributes that are—

- (1) *Significant*, based on institutional, public, or technical recognition; and
- (2) *Likely to be affected* by one or more of the alternative plans.

(b) Many EQ resources will have more than one EQ attribute; these attributes may be interrelated. For example, a wetland may have both ecological and aesthetic attributes, and the ecological attribute may complement the aesthetic attribute. Also, many resources may have attributes beyond the scope of the EQ account. For example, a wetland with ecological and aesthetic attributes may also have monetary recreational attributes associated with hunting that should be evaluated in the NED account (§ 711.61 of this chapter). The wetland may also have a safety attribute associated with storage of flood waters that should be evaluated in the OSE account (§ 711.64 of this chapter). Only when the full range of a given resource's significant attributes is identified and evaluated can the requirements of the NEPA human environment and planning process Step 4 (evaluation) be met.

(c) *Significant EQ resources and attributes* that are insitutionally, publicly, or technically recognized as important to people should be taken into account in decisionmaking. Focusing on significant issues is required by the CEQ NEPA regulations (40 CFR 1500.1(b), 1501.7(a)(2) and (3), and 1502.2(b)).

(1) Significance based on *institutional recognition* means that the importance of an EQ resource or attribute is acknowledged in the laws, adopted plans, and other policy statements of public agencies or private groups. Sources of institutional recognition include:

(i) Public laws, executive orders, rules and regulations, treaties, and other policy statements of the Federal government. Table 714.411 lists the Federal policies that should be considered in all studies as basis for identifying institutionally recognized resources or attributes. Other Federal policies are to be considered as applicable.

(ii) Plans and constitutions, laws, directives, resolutions, gubernatorial directives, and other policy statements of States with jurisdiction in the planning area. Examples are State water and air quality regulations; State historic preservation plans; State lists of rare, threatened, or endangered species; and State comprehensive fish and wildlife management plans.

(iii) Laws, plans, codes, ordinances, and other policy statements of regional and local public entities with jurisdiction in the planning area.

Regional entities include river basin commissions, councils of government, and regional planning boards. Local entities include counties, districts, parishes, cities, towns, and villages. Examples of these entities' sources of institutional recognition are regional open space plans, county lists of historic sites, and town zoning ordinances.

(iv) Charters, bylaws, and formal policy statements of private groups. Examples are the National Audubon Society Blue List of Species, properties of the National Trust for Historic Preservation, and properties of the Nature Conservancy.

Table 714.411—Sources of institutional recognition: Federal policies.

(a) *Public laws.*

(1) American Folklore Preservation Act, Pub. L. 94-201; 20 U.S.C. 2101 *et seq.*

(2) Anadromous Fish Conservation Act, Pub. L. 89-304; 16 U.S.C. 757, *et seq.*

(3) Antiquities Act of 1906, Pub. L. 59-209; 16 U.S.C. 431 *et seq.*

(4) Archeological and Historic Preservation Act,¹ Pub. L. 93-291; 16 U.S.C. 469, *et seq.* (Also known as the Reservoir Salvage Act of 1960, as amended; Public Law 93-291, as amended; the Moss-Bennett Act; and the Preservation of Historic and Archeological Data Act of 1974.)

(5) Bald Eagle Act; 16 U.S.C. 668.

(6) Clean Air Act, as amended,¹ Pub. L. 91-604; 42 U.S.C. 1857h-7, *et seq.*

(7) Clean Air Act,¹ Pub. L. 92-500; 33 U.S.C. 1251, *et seq.* (Also known as the Federal Water Pollution Control Act; and Public Law 92-500, as amended.)

(8) Coastal Zone Management Act of 1972,¹ as amended, Pub. L. 92-583; 16 U.S.C. 1451, *et seq.*

(9) Endangered Species Act of 1973,¹ as amended, Pub. L. 93-205; 16 U.S.C. 1531, *et seq.*

(10) Estuary Protection Act,¹ Pub. L. 90-454; 16 U.S.C. 1221, *et seq.*

(11) Federal Environmental Pesticide Control Act, Pub. L. 92-516; 7 U.S.C. 136.

(12) Federal Water Project Recreation Act,¹ as amended, Pub. L. 89-72; 16 U.S.C. 460-11(12), *et seq.*

(13) Fish and Wildlife Coordination Act of 1958,¹ as amended, Pub. L. 85-624; 16 U.S.C. 661, *et seq.* (Also known as the Coordination Act.)

(14) Historic Sites of 1935, as amended, Pub. L. 74-292; 16 U.S.C. 461, *et seq.*

(15) Land and Water Conservation Fund Act,¹ Pub. L. 88-578; 16 U.S.C. 460l-460l-11, *et seq.*

(16) Marine Mammal Protection Act of 1972, Pub. L. 92-522; 16 U.S.C. 1361 *et seq.*

(17) Marine Protection, Research and Sanctuaries Act of 1972,¹ Pub. L. 92-532; 33 U.S.C. 1401, *et seq.*

(18) Migratory Bird Conservation Act of 1928; 16 U.S.C. 715.

(19) Migratory Bird Treaty Act of 1918; 16 U.S.C. 703 *et seq.*

(20) National Environmental Policy Act of 1969,¹ as amended, Pub. L. 91-190; 42 U.S.C. 4321, *et seq.* (Also known as NEPA; often incorrectly cited as the National Environmental Protection Act.)

(21) National Historic Preservation Act of 1966,¹ as amended, Pub. L. 89-655; 16 U.S.C. 470a, *et seq.*

(22) Native American Religious Freedom Act, Pub. L. 95-341; 42 U.S.C. 1996, *et seq.*

(23) Resource Conservation and Recovery Act of 1976, Pub. L. 94-580; 7 U.S.C. 1010, *et seq.*

(24) River and Harbor Act of 1899,¹ 33 U.S.C. 403, *et seq.* (Also known as the Refuse Act of 1899.)

(25) Submerged Lands Act of 1953, Pub. L. 82-3167; 43 U.S.C. 1301, *et seq.*

(26) Surface Mining Control and Reclamation Act of 1977, Pub. L. 95-89; 30 U.S.C. 1201, *et seq.*

(27) Toxic Substances Control Act, Pub. L. 94-469; 15 U.S.C. 2601, *et seq.*

(28) Watershed Protection and Flood Prevention Act,¹ as amended, Pub. L. 83-566; 16 U.S.C. 1001, *et seq.*

(29) Wild and Scenic Rivers Act,¹ as amended, Pub. L. 90-542; 16 U.S.C. 1271, *et seq.*

(b) *Executive orders.*

(1) Executive Order, 11593, Protection and Enhancement of the Cultural Environment. May 13, 1979 (36 FR 8921; May 15, 1971).

(2) Executive Order, 11988, Floodplain Management. May 24, 1977 (42 FR 26951; May 25, 1977).

(3) Executive Order, 11990, Protection of Wetlands. May 24, 1977 (42 FR 26961; May 25, 1977).

(4) Executive Order, 11514, Protection and Enhancement of Environmental Quality, March 5, 1970, as amended by Executive Order, 11991, May 24, 1977.

(5) Executive Order, 12088, Federal Compliance with Pollution Control Standards, October 13, 1978.

(c) *Other Federal policies.*

(1) Council on Environmental Quality Memorandum of August 11, 1980: Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act.

(2) Council on Environmental Quality Memorandum of August 10, 1980: Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory.

(3) Migratory Bird Treaties and other international agreements listed in the Endangered Species Act of 1973, as amended, Section 2(a)(4).

(4) Presidential Memorandum of July 12, 1978: Environmental Quality and Water Resources Management.

(2) Significance based on *public recognition* means that some segment of the general public recognizes the importance of an EQ resource or attribute. Public recognition may take the form of controversy, support, conflict, or opposition and may be expressed formally (as in official letters) or informally. Environmentally related customs and traditions are also to be considered. EQ resources or attributes

recognized by the public will often change over time as public awareness and perceptions change.

(3) Significance based on *technical recognition* means that the importance of an EQ resource or attribute is based on scientific or technical knowledge or judgment of critical resource characteristics. Examples are a graveyard recognized by an archeologist as being the focal point of a 19th century community; a rock outcropping identified by a landscape architect as being an important scenic element based on aesthetic rating criteria; and a meadow identified by a wildlife biologist as the major breeding ground for a deer herd.

(4) The significance of many EQ resources and attributes will be recognized on more than one basis. For example, a specific bird species may be institutionally recognized (protected by Federal and State law), publicly recognized (of interest to a community), and technically recognized (due to its uniqueness in the environment).

(d) At this early point in the process, a determination of whether or not an EQ resource or attribute would be *likely to be affected* is to be based on some preliminary judgments about causes (in terms of alternative plans) and effects (in terms of EQ resources and attributes). Such preliminary judgments are to be based on the following considerations:

(1) Likely to be affected means that an effect on an EQ resource or attribute is reasonably possible.

(2) The cause of an effect may be one or more alternative plans or individual measures.

(3) The relationship of the cause to the effect may be direct, indirect, or cumulative.

(e) Information included in the planning process Step 2 (inventory and forecast) should be adequate for the purposes of this activity. A fully definitive body of evidence is not required to conclude that an EQ resource or attribute is significant and likely to be affected. For example, it would not be necessary to develop all of the information needed to reach a determination of eligibility for inclusion on the National Register of Historic Places to conclude that a specific archeological site has a cultural attribute.

(f) Future conditions may change the types of EQ resources or attributes or create new ones that may be significant and likely to be affected; these should be considered in this activity. For example, a currently eutrophic lake that is forecast to develop into a wetland ecosystem in the without-plans

¹ Included in WRC's list of public laws for compliance certification referred to in Office of Management and Budget Circular No. A-11.

condition should be considered in this activity. Forecasts developed in later evaluation activities (see § 714.422 and 714.423) will provide the bases for identifying such EQ resources and attributes.

(g) Agencies are to invite the public to participate in the identification of EQ resources and attributes that are significant and likely to be affected. Agencies are encouraged to integrate the public's participation in this activity into the means used to meet the scoping requirements of the P&S (§ 711.16 of this chapter) and the CEQ NEPA regulations (40 CFR 1501.7) to avoid duplication of public involvement efforts.

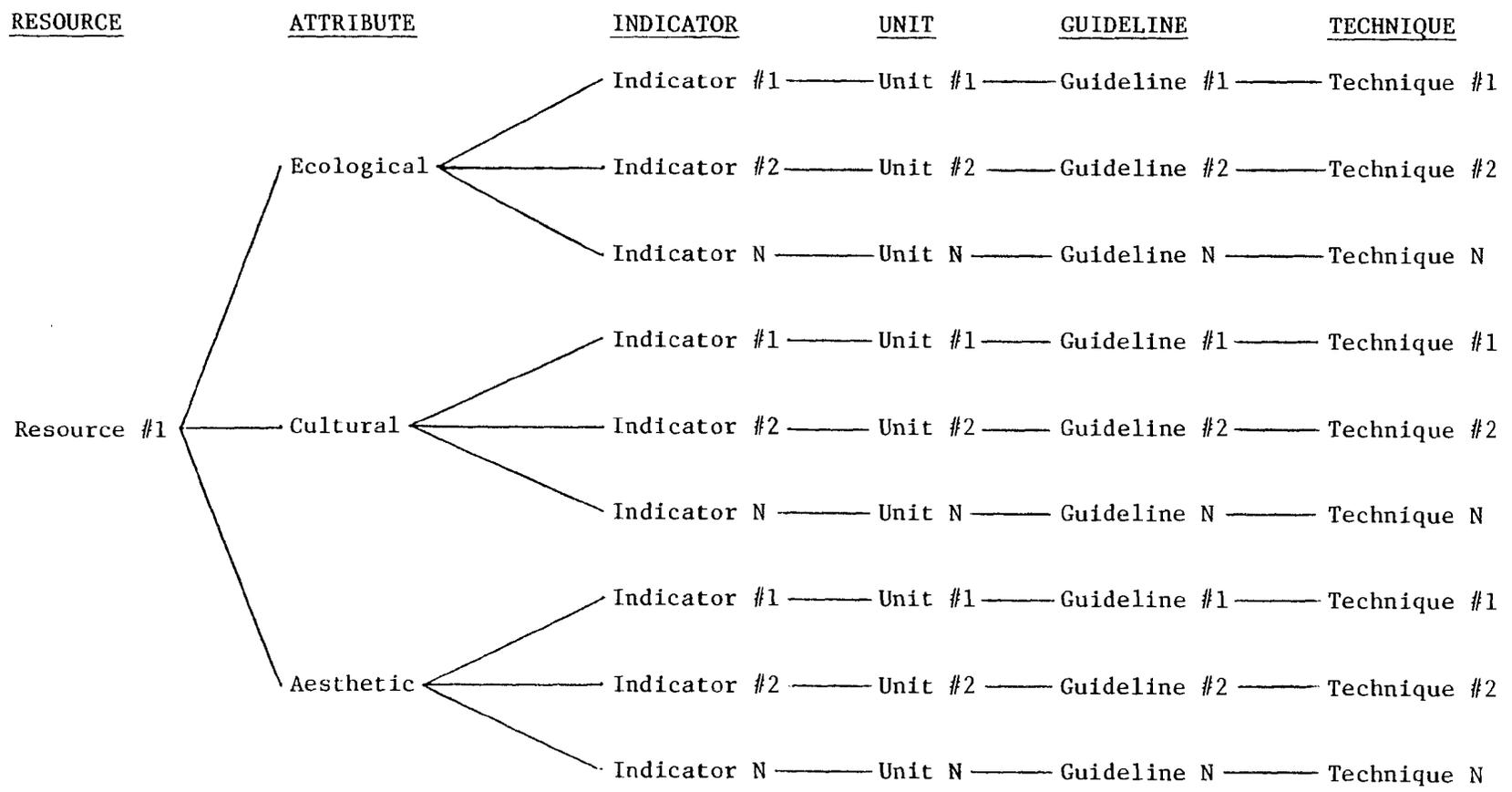
(h) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.412 Develop evaluation framework activity.

(a) This activity is performed to specify the ways in which changes in EQ resources and attributes, as identified in the previous activity, will be measured or otherwise described. For each EQ attribute, planners are to specify one or more *indicators* of quantity and/or quality. Indicators are used to measure or otherwise describe existing and future conditions and the effects of alternative plans. For each indicator, planners are to specify a *unit* (numeric or non-numeric term in which the indicator is measured or otherwise described); a *guideline* (institutional, public, or technical basis for determining whether an effect on an indicator is beneficial or adverse); and a *technique* (procedure for measuring or otherwise describing the indicator in terms of its unit). Figure 714.412 graphically illustrates the evaluation framework.

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Figure 714.412
Evaluation Framework



See Appendix A, Table 2 for an example.

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(b) For each EQ resource attribute, planners are to specify one or more indicators. The number of indicators specified are to be sufficient to adequately measure or otherwise describe changes in the quantity or quality of an EQ attribute. Since indicators are the primary factors that will determine the amount and level of detail of information collection, care must be exercised to ensure that the number of indicators is not so large that information requirements are unreasonably demanding. See § 714.200 for examples of indicators.

(c) For each indicator, planners are to specify a unit of measurement or description. Units will usually be readily identifiable from the nature of an indicator. For example, the indicator "area" could be described in terms of the unit "acres" or "square miles." See § 714.200 for other examples of units.

(d) For each indicator, planners are to specify a guideline.

(1) Guidelines are to be based on institutional, public, or technical recognition. Examples of institutional guidelines are State air and water quality standards and the access criterion for Federally designated wild rivers. Examples of guidelines based on public recognition are preservation of a locally valued natural viewscape and the protection of a regionally popular reach of white water river. Examples of guidelines based on technical recognition are a minimum dissolved oxygen concentration of five parts per million for brown trout and the preservation of an archeological site's sense of association with an important event.

(2) The decision to use a guideline based on technical or public recognition instead of an existing institutional guideline, or to use one institutional guideline instead of another, must be justified. Examples of this situation are the choice of a more restrictive

suspended solids standard based on a recent limnological study (technical recognition) over a less restrictive State suspended solids standard (institutional recognition); and the choice of a more restrictive, locally established noise level standard over a State or federally established standard.

(3) Planners should recognize recent and anticipated future changes in guidelines based on changing institutional, public, and technical concerns. The phased implementation of State water quality standards developed pursuant to Pub. L. 92-500 is an example of a change that could be anticipated.

(4) Planners should also recognize that guidelines may differ for a given indicator among localities and regions. For example, air quality standards vary among the States and often vary for areas within a given State.

(5) Guidelines that are stated in a word or phrase may, in some cases, be translated into a number.

(i) For example, the guideline "protection of a popular reach of white water river" could be restated in terms of the physical dimension of the reach, such as "two miles," that provides a specific working definition of "protection".

(ii) Examples of words that may provide a basis for a guideline are enhancement, improvement, preservation, protection, conservation, maintenance, creation, restoration, repair, and rehabilitation.

(6) Guidelines may be expressed as a single level (example: habitat suitability index of 1.0); as a range between two levels (example: pH between 6.5 and 8.0 for fish); or as a threshold level (example: total dissolved solids not greater than 500 parts per million).

(7) In cases where several seemingly conflicting guidelines have been proposed, planners should attempt to specify a single guideline by determining the specific reasons why each proposed guideline is desirable.

(i) For example, the Blue River has an indicator "water flow," which is described in "cubic feet per second (cfs)" units; a local agricultural cooperative that uses the river for irrigation water proposes a guideline of "X cfs;" a homeowners association that enjoys the view of the river proposes a guideline of "Y cfs;" and a fisheries biologist proposes a "Z cfs" based on the needs of the river's anadromous fish populations.

(ii) In this example the "Y cfs" guideline would be appropriate for the river's visual aesthetic attribute, but would not be used for its ecological or cultural attributes. Similarly, the "Z cfs" guideline would be appropriate for the river's fishery ecological attribute. The "X cfs" guideline would not be appropriate for EQ evaluation since it is not related to an EQ attribute.

(e) For each indicator, planners are to specify a technique for measuring or otherwise describing current and future conditions of the indicator in terms of the indicator's specified unit. Table 714.412 lists several examples of techniques currently used by WRC member agencies in water resources planning. Use of the listed techniques is not mandated, nor must agencies document the reasons for not using any of the listed techniques. The list is presented as an aid to planners in identifying available techniques. The list of example techniques will be periodically updated in WRC's *Reference Handbook*. Regardless of the technique used to measure or otherwise describe an indicator, agencies are to ensure the professional and scientific integrity of techniques and their resultant analyses, as required by the CEQ NEPA regulations (40 CFR 1502.24).

(f) Although the parts of the evaluation framework are presented in a specific order, planners may, after first selecting indicators, select units, guidelines, and techniques in any sequence.

Table 714.412.—Example Techniques

Technique	Document reference	Availability	Indicator measured	Current uses	Comments
Habitat Evaluation Procedures (HEP).	U.S. Dept. of the Interior, Fish and Wildlife Service. <i>Habitat Evaluation Procedures</i> . Washington, DC 20240, March 1980. ESM 102.	Chief, Div. of Ecological Services, Fish and Wildlife Service, U.S. Dept. of the Interior, Washington, DC 20240, (202) 343-4764. Team Leader, WELUT, Project Impact Evaluation Team, Div. of Ecological Services, Fish and Wildlife Service, U.S. Dept. of the Interior, Creekside One, 2625 Redwing Road, Fort Collins, CO 80526, (303) 223-2040.	Carrying capacity.....	Nationwide. Major Corps, WPRS, and SCS water projects. Also applicable to BLM and USFS projects and projects licensed by FERC and NRC.	
Habitat Evaluation System (HES).	U.S. Army Engineer Div., Lower Mississippi Valley. <i>A Tentative Habitat Evaluation System (HES) for Water Resources Planning</i> . Vicksburg, MS, July 1979.	Chief, Environ. Res. Branch, U.S. Army Engineer Division, Lower Mississippi Valley, P.O. Box 80, Vicksburg, MS 39180, (601) 634-5000, ex. 5849.	Habitat quality.....	Lower Mississippi Valley area.	Information/analysis base fully developed only for the lower Mississippi Valley area.
Instream Flow Incremental Methodology (IFIM).	BoVee, K. D. and T. Cochnaur, 1977. <i>Development and Evaluation of Weighted Criteria, Probability-of-Use Curves for Instream Flow Assessments: Fisheries</i> . Instream Flow Information Paper No. 3, FWS/OBS-77/63, 38 pages.	Team Leader, WELUT, Instream Flow and Aquatic Systems Group, Div. of Ecological Services, Fish and Wildlife Service, U.S. Dept. of the Interior, Creekside One, 2625 Redwing Road, Fort Collins, CO 80526, (303) 223-2040.	Minimum, sustained, augmented, and maximum flows.	Nationwide. Major Corps, WPRS and SCS Projects. Also applicable to BLM and USFS projects and projects licensed by FERC and NRC.	

Table 714.412.—Example Techniques

Technique	Document reference	Availability	Indicator measured	Current uses	Comments
	BoVee, K. D. and R. T. Milhous, 1978. <i>Hydraulic Simulation in Instream Flow Studies: Theory and Techniques</i> . Instream Flow Information Paper No. 5, FWS/OBS-78/33, 131 pages.				
	Stalnaker, C. D., 1979. <i>The Use of Habitat Structure Preferences for Maintenance of Fish Habitat</i> . The Ecology of Regulated Streams, Edited by J. U. Ward and J. S. Starrford, Plenum Publishing Corp., pp. 31-337.				
Visual Resource Contrast Rating.	U.S. Dept. of the Interior, Bureau of Land Management. <i>BLM Manual Section 8431—Visual Resource Contrast Rating</i> . Washington, DC, August 1978.	Bureau of Land Management, U.S. Dept. of the Interior, Washington, DC 20240, (202) 343-9353.	Visual contrast.....		
Upland Visual Resource Inventory and Evaluation.	U.S. Dept. of the Interior, Bureau of Land Management. <i>BLM Manual Section 8411—Upland Visual Resource Inventory and Evaluation</i> . Washington, DC, August 1978.	Bureau of Land Management, U.S. Dept. of the Interior, Washington, DC 20240, (202) 343-9353.	Scenic quality		
Procedure To Establish Priorities in Landscape Architecture.	U.S. Dept. of Agriculture, Soil Conservation Service. <i>Technical Release No. 65, Procedure to Establish Priorities in Landscape Architecture</i> . Washington, DC, October 1978.	Soil Conservation Service, U.S. Dept. of Agriculture, Washington, DC 20250, (202) 447-7443.	Landscape resource quality.	Primarily used for SCS studies.	Developed for nationwide use.
Visual Management System....	U.S. Dept. of Agriculture, Forest Service. <i>National Forest Landscape Management, Vol. 2, Chapter 1, The Visual Management System</i> . Washington, DC, April 1974.	Forest Service, U.S. Dept. of Agriculture, Washington, DC 20250, (202) 447-7754.	Scenic variety classes and sensitivity levels.	Primarily used for Forest Service studies.	Developed primarily for the northwestern U.S.; criteria should be adapted for other regions.

(1) Planners should recognize that indicators, units, guidelines, and techniques are highly interdependent and that the specification of one influences the specification of the others. For example, if "dissolved oxygen" and "coliforms" are selected as indicators of the ecological attribute of a river resource and a State's water quality standards for dissolved oxygen and coliforms are selected as guidelines, then the units, such as milligrams per liter (mg/l) for dissolved oxygen and most probable number (MPN) of coliforms, would follow.

(2) If either a unit, a guideline, or technique cannot be specified for an indicator, then the indicator should not be used.

(g) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.420 Inventory resources phase.

This phase is performed to collect and develop information, within the previously defined evaluation framework, for use in assessing the effects of alternative plans. In the first activity, the trend and existing conditions of identified EQ resource attributes are measured or otherwise described. In the second and third activities, future without-plans and with-plan conditions of identified EQ resource attributes are estimated.

§ 714.421 Survey existing conditions activity.

(a) This activity is performed to collect information that measures or

otherwise describes the trend and existing conditions of the identified EQ resource attributes. The trend condition is the recorded historic measurement or other description of an attribute. The existing condition is the most recent measurement or other description of an attribute as it existed at the latest date of the trend condition. Trend and existing conditions of attributes are to be described in terms of the quantity and quality indicators and their related units, as specified in the previous activity.

(b) This EQ evaluation activity is an integral part of the planning process Step 2 (inventory and forecast). It is to begin with a review of that information base to determine whether or not information for the identified EQ resource attributes is included. Relevant trend condition information should be collected where it is readily available. If existing condition information for an attribute (in terms of its specified indicators) is not included in Step 2 or, if such information is invalid or out of date, an information collection program is to be developed and implemented to provide the necessary information.

(c) Information collection programs are to produce information in accordance with the evaluation framework developed in the previous activity, including the use of specified techniques to develop information for each indicator in terms of its specified unit. Information collection programs are to use professionals with expertise relevant to each EQ resource attribute for developing and analyzing

information, in accordance with the CEQ NEPA regulation requirements related to cooperating agencies (40 CFR 1501.6) and scoping (40 CFR 1501.7(a)(4) and (6)). Information collection programs are to be initiated early enough to ensure that required information is available when needed for EQ evaluation. The EQ information base is to be reviewed during each stage of EQ evaluation to progressively focus it at the proper level of detail and completeness necessary for evaluation.

(d) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.422 Forecast without-plans conditions activity.

(a) This activity is performed to develop information that measures or otherwise describes the future conditions of EQ resource attributes in the absence of any of the alternative plans under consideration. Without-plans conditions are to be estimated in terms of the same quantity and quality indicators used in the previous activity.

(b) This activity is also an integral part of the planning process Step 2 (inventory and forecast), and is to begin with a review of that information base to determine whether or not information for the identified EQ resource attributes is included. If without-plans condition information for an EQ resource (in terms of its specified indicators) is not included in Step 2 or, if such information is invalid or out of date, a forecasting program is to be developed and

implemented to provide necessary information. The requirements related to information collection programs (§ 714.421(c)) are also applicable to forecasting programs for without-plans conditions.

(c) Without-plans conditions are the most probable conditions based on consideration of the following:

(1) Trend and existing conditions information, as developed in the previous activity;

(2) Other available related forecasts (for example, local land use plans, population projections, plans of commercial and industrial developers);

(3) Established institutional objectives and constraints and customs and traditions related to the resource (for example, State historic preservation plans, management goals for wildlife refuges, zoning ordinances, local agricultural practices);

(4) Direct, indirect, and cumulative effects of all reasonably foreseeable actions of people expected to occur in the absence of any of the study's alternative plans (for example, effects of a habitat management program, a water supply project, or an on-farm drainage action); and

(5) Direct, indirect, and cumulative effects of natural occurrences, such as natural succession or the passage of time (for example, an existing abandoned farmland might be shown to succeed to a grassland, a shrubland, and finally to a woodland over the period of analysis; a public building may be forecast to be of historic interest in the future).

(6) Known effects of comparable past actions on the same or similar resources. (A considerable body of information has been developed on the known effects of existing water resources projects, industrial developments, highways, etc.; many of these include programs to monitor and record ongoing effects.)

(d) General forecasting approaches that may be considered are—

(1) Adoption of available forecasts developed by other sources;

(2) Use of scenarios to estimate hypothetical futures and the likely sequences of events that might lead to those futures;

(3) Use of expert group judgment approaches, such as Delphi and nominal group, in which the views of relevant professionals about future conditions are systematically elicited and analyzed; and,

(4) Use of extrapolation approaches, such as trend analysis and simple modeling, which rely on historic trend information to estimate the future.

(5) Use of analogy and comparative analyses, in which the effects of actions

similar to those expected in the without-plans condition, on the specified indicators, in similar environmental settings are used to estimate future conditions.

(e) Forecasting approaches should be compatible with the measurement and description techniques specified in the evaluation framework.

(1) For example, if the *Habitat Evaluation Procedure* (HEP; U.S. Fish and Wildlife Service, 1980) is used in the previous activity to describe the existing condition of a particular habitat, the forecasting approach(es) used to estimate the without-plans condition of the habitat must produce information that can be used in the HEP analysis.

(2) In most cases it is not possible to directly forecast change in an indicator. It will usually be necessary to forecast changes in factors that influence the indicator. Influencing factors may include changes in the uses and conditions of related land, water, and air. For example, given the indicator "stream water temperature," it may be necessary to forecast changes in streamside vegetation, upstream water uses, and other influencing factors in order to derive the information needed to apply the technique specified in the evaluation framework for measuring changes in the indicator (stream water temperature).

(f) Forecasts should estimate future conditions over the entire period of analysis; but if this is not realistic or reasonable, planners are to develop a forecast of the longest possible duration and give their reasons for not estimating to the end of the period. Conversely, the period of analysis is not to constrain longer-term forecasts if they can be realistically and reasonably made and if they are needed to describe irreversible or irretrievable commitments of resources or the relationship of short-term uses of man's environment to long-term productivity, as required by NEPA and the CEQ NEPA regulations (40 CFR 1502.16).

(g) A without-plans condition should be expressed for several specified future dates, hereinafter called forecast dates. A sufficient number of forecast dates should be selected to permit adequate description of future changes in the indicator. However, the number of forecast dates should not be so large that an unreasonable information burden is created. A proper balance between adequate description and information demands must be achieved. Without-plans conditions are not to be expressed as an average or median over the period of analysis if such expressions would obscure future changes in an indicator.

(h) A without-plans condition is to be the most probable future condition for an indicator.

(i) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.423 Forecast with-plan conditions activity.

(a) This activity is performed to develop information that measures or otherwise describes the future conditions of EQ resource attributes under each of the alternative plans being considered. With-plan conditions are to be estimated for each alternative plan in terms of the same quantity and quality indicators used in the previous activity.

(b) The bases for estimating with-plan conditions include those used in forecasting without-plans conditions: Trend and existing conditions, related forecasts, institutional objectives and constraints, effects of other actions, the effects of natural occurrences, and the known effects of comparable past actions (see § 714.422(c)).

(c) Approaches that should be considered for forecasting with-plan conditions include those used in forecasting without-plans conditions: adoption, scenario writing, expert judgment techniques, extrapolation techniques, and analogy and comparative analyses. (See § 714.422 (d) and (e)).

(d) The requirements related to information collection programs (§ 714.421(c)) and forecasting without-plans conditions over the entire period of analysis (§ 714.422(f)) are also applicable to with-plan conditions. With-plan conditions should be estimated for the same forecast dates used for the without-plans condition (see § 714.422(g)).

(e) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.430 Assess effects phase.

This phase is performed to identify and describe effects of alternative plans on EQ resource attributes. In the first activity, without-plans conditions and with-plan conditions are compared to identify differences between them. In the second activity, identified differences (effects) are described in terms of duration, location, and magnitude. In the third activity, the significance of these effects is determined.

§ 714.431 Identify effects activity.

(a) This activity is performed to identify differences between the without-plans and with-plan estimates

for each indicator. An effect is shown to occur whenever without-plans and with-plan estimates of an indicator are different at one or more of the forecast dates.

(b) If all of the specified indicators for a particular EQ attribute of a resource are shown to be unaffected by each of the alternative plans (that is, each indicator's without-plans and with-plan estimates are the same for all forecast dates), the unaffected attribute is to be eliminated from EQ evaluation. The attribute is to be reintroduced into EQ evaluation if it is likely to be affected by a new alternative plan.

(c) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.432 Describe effects activity.

(a) This activity is performed to describe each effect identified in the previous activity. Effects are to be described in terms of their *duration*, *location*, and *magnitude*.

(b) *Duration* is the time at which, or over which, an effect is expected to occur. It is to be described for the forecast dates and may be summarized in terms of a time period beginning at a specific time, such as "20 years beginning in 1990." Duration will usually be confined to a span of time within the period of analysis, but some effects, such as the loss of a distinctive land-form, may exceed the period of analysis (see § 714.422(f) and § 714.423(d)).

(c) *Location* is the place at which an effect is expected to occur. It is to be described in terms of an identifiable geographic location, such as "between river miles 57 and 63." The location of an effect should be described as specifically as possible without revealing the location of sensitive resources such as archaeological sites and endangered species habitats that could be jeopardized by wide distribution of the information.

(d) *Magnitude* is the size of the difference between an indicator's without-plans and with-plan estimates for a particular forecast date. If an indicator is measured in cardinal units (that is, the units can be added, subtracted, multiplied, and divided), magnitude is to be expressed as the numeric difference between the without-plans and with-plan estimates for each forecast date. If an indicator's unit is based on some other type of numeric scale or is descriptive (such as an ordinal scale of "great diversity moderate diversity, low diversity,") magnitude is to be expressed in either a numeric or descriptive form suitable for accurately describing the difference for each forecast date.

(e) Other characteristics of effects may be described if the description is relevant and useful to decisionmaking. Such characteristics could include reversibility, retrievability, and the relationship to long-term productivity.

(f) Appendix A provides an example documentation format for recording the results of this activity.

§ 714.433 Determine significant effects activity.

(a) This activity is performed to identify which of the previously described effects are significant; that is, that are *institutionally*, *publicly*, or *technically* recognized as important to people, and should therefore be taken into account in decisionmaking. Focusing on significant issues is required by the CEQ NEPA regulations (40 CFR 1500.1(b), 1501.7(a)(2) and (3), and 1502.2(b)).

(b) Significance based on *institutional recognition* means that the importance of the effect is acknowledged in the laws, adopted plans, and other policy statements of public agencies and private groups. See § 714.411(c)(1) for examples of sources of institutional recognition. Institutional recognition of an effect is often explicit in the form of specific criteria for determining whether or not an effect is significant. Examples are the criteria in the CEQ NEPA regulation (40 CFR 1508.27), Executive Order 11990 concerning the protection of wetlands, and the regulations of the Advisory Council on Historic Preservation covering the protection of historic and cultural properties (36 CFR Part 800).

(c) Significance based on *public recognition* means that some segment of the general public recognizes the importance of the effect. Public recognition may take the form of controversy, support, conflict, or opposition; it may be expressed formally (as in official letters) or informally. Environmentally related customs and traditions are also to be considered in determining sources of public recognition. An example of public recognition of an effect is local concern over the potential decline of a trout fishery caused by an alternative plan.

(d) Significance based on *technical recognition* means that the importance of an effect is based on technical or scientific criteria related to critical resource characteristics. Examples are maintenance of permanent low flow in a previously intermittent stream that leads to a year round fishery, and reduction in the number of a certain type of archeological site that contains information related to a particular historic period to the extent that

currently numerous sites would become scarce.

(e) If none of the effects on a particular EQ attribute is significant, the attribute is to be eliminated from EQ evaluation. The attribute is to be reintroduced into EQ evaluation if it is likely to be affected by a new alternative plan.

(f) Appendix A provides an example documentation format for recording the results of this activity. Attributes and resources that are not significantly affected are to be documented as required by the CEQ NEPA regulations (40 CFR 1501.7(a)(3)).

§ 714.440 Appraise effects phase.

This phase is performed to identify the desirability of significant effects on EQ resources, individually and collectively, for each alternative plan. In the first activity, significant effects on indicators and EQ attributes are to be appraised as either "beneficial" or "adverse." In the second activity, each alternative plan's overall net effect on EQ is to be judged as "net beneficial," "net adverse," or "no net effect."

§ 714.441 Appraise significant effects activity.

(a) This activity is performed to appraise each alternative plan's individual significant effects on each significant EQ resource attribute as either beneficial or adverse. The activity is to be performed in two steps. In the first step, the desirability of effects on indicators is appraised based on guidelines. In the second step, the effects on EQ attributes are appraised.

(b) First, the effects on indicators are to be appraised as either beneficial or adverse based on the following criteria:

(1) An effect is *beneficial* if, for a given indicator, the with-plan condition more closely approaches or attains the indicator's guideline than its without-plans condition. For example, the Julian City archaeological site has been identified as an EQ resource with an indicator "sense of association with a significant event" for its cultural attribute. The indicator's guideline has been specified as "preservation of the site's sense of association." If, for a given forecast date, the site's without-plans condition shows that the association would be lost as a result of planned residential development, but its with-plan condition for Plan X shows that the association would be preserved as a result of Federal land acquisition included in the plan, the effect of Plan X would be classified as beneficial. See Figure 714.441-1 for a graphic illustration of this example.

(2) An effect is *adverse* if, for a given indicator, the without-plans condition more closely approaches or attains the indicator's guideline than its with-plan condition. For example, the Gradey Swamp habitat has been identified as an EQ resource with an indicator "habitat suitability" for its ecological attribute. The indicator's guideline has been specified as "habitat suitability index of 1.0." An adverse effect would occur if, for a given forecast date, the habitat's without-plans condition showed a habitat suitability index of 0.7 and its with-plan condition for Plan Y showed a habitat suitability index of 0.5. See Figure 714.441-2 for a graphic illustration of this example.

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Figure 714.441-1
Example of Beneficial Effect

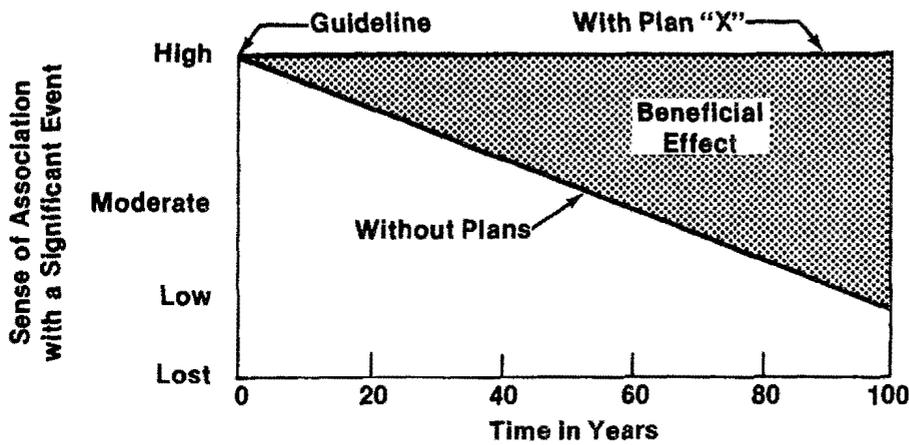


Figure 714.441-2
Example of Adverse Effect

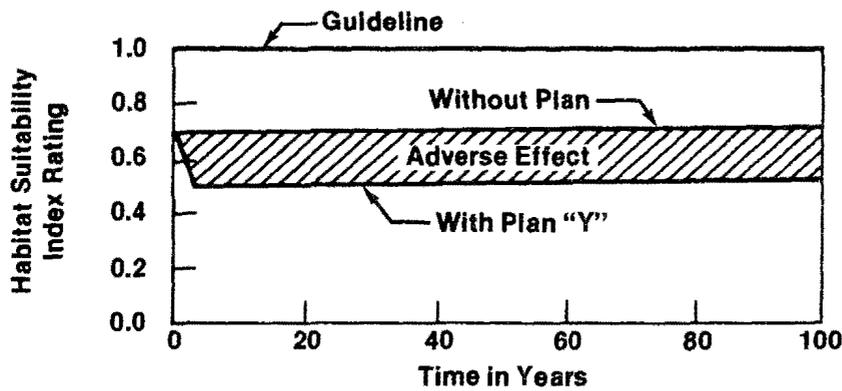
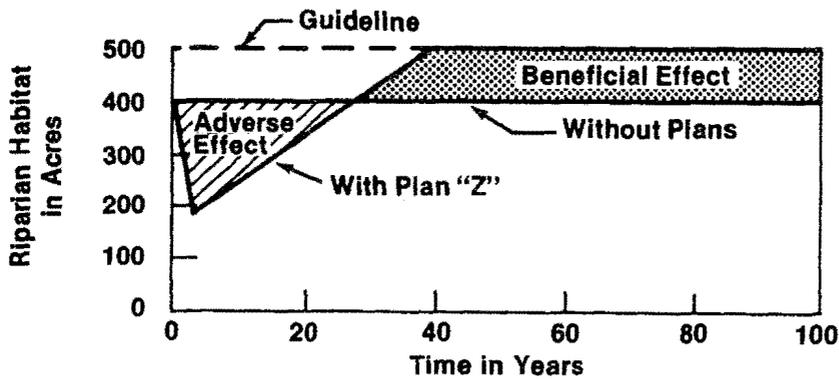


Figure 714.441-3
Example of Beneficial & Adverse Effects



(3) If the relationship between an indicator's without-plans and with-plan condition changes over the period of analysis so that an effect would be beneficial part of the time and adverse at other times, the different desirabilities are to be shown as identified for each of the forecast dates. For example, a levee to be constructed as a part of Plan Z would initially destroy 200 acres of streamside riparian habitat. However, with the habitat management program included in the plan, the habitat would be restored and an additional 100 acres would be changed to become riparian habitat. See Figure 714.441-3 for a graphic illustration of this example.

(c) Second, the effects on each EQ attribute are to be appraised as either beneficial or adverse based on the judgment of professionals with expertise relevant to each attribute.

(1) The following are to be considered in judging the desirability of an effect on an EQ attribute:

(i) The *duration, location, magnitude*, and other relevant characteristics of effects on the attribute's indicators as previously identified (see § 714.432).

(ii) The *appraisal of effects* on the attribute's indicators (beneficial or adverse), as identified in the previous step (see paragraph (b) of this section).

(iii) The relationships among the attribute's *quantity and quality* characteristics, as expressed in effects on the attribute's indicators. For example, the acreage (quantity) of a particular habitat may be beneficially increased with an alternative plan, but the habitat's productivity (quality) could be adversely affected by human activities, such as recreation, attracted to the area. Conversely, an improvement in the productivity of a habitat would not necessarily be beneficial unless an adequate amount of habitat would be available.

(iv) Whether effects on the indicators, the attribute, or the resource would fulfill or violate a public law, executive order, or other source of *institutional*

recognition. See § 714.411(c)(1) for examples of sources of institutional recognition.

(v) Whether effects on the indicators, the attribute, or the resource would be supported or otherwise viewed as beneficial by *the public*, or would be opposed or otherwise viewed as adverse by the public.

(vi) Whether or not effects on the indicators, the attribute, or the resource would be critical based on *scientific or technical knowledge or judgment*.

(vii) Other considerations that may have a material bearing on decisionmaking. Such other considerations are to be clearly described.

(2) Agencies may use various approaches, such as weighting, scaling or ranking, to consider these factors in judging effects on EQ attributes. Approaches used are to be documented as required in § 714.330.

(d) Appendix A provides example documentation formats for recording the results of this activity. A table is to be prepared in accordance with the format illustrated in Table 714.441 for each candidate plan (see § 711.52 of this chapter) and provided to the agency decisionmaker for judgment of net EQ effects.

§ 714.442 Judge net EQ effects activity.

(a) This activity is performed to describe the net (overall) EQ effect of each alternative plan. Net effect is to be described as "net beneficial EQ effect," "net adverse EQ effect," or "no net EQ effect" based on the following criteria:

(1) A *net beneficial EQ effect* occurs when, in the judgment of the agency decisionmaker, an alternative plan's combined beneficial effects on EQ resources outweigh the plan's combined adverse effects on EQ resources.

(2) A *net adverse EQ effect* occurs when, in the judgment of the agency decisionmaker, an alternative plan's combined adverse effects on EQ resources outweigh the plan's combined beneficial effects on EQ resources.

(3) *No net EQ effect* occurs when, in the judgment of the agency decisionmaker, an alternative plan's combined beneficial effects on EQ resources equal the plan's combined adverse effects on EQ resources.

(b) The agency decisionmaker is responsible for judging which of these types of net EQ effects best reflects the desirability of an alternative plan's overall effect on environmental quality. This judgment is to be based on a thorough consideration of significant effects on significant EQ resources. In making a judgment of net EQ effect, the agency decisionmaker is acting on behalf of the public and must therefore consider public views related to the judgment. The decisionmaker may change a judgment on the net EQ effect of an alternative plan based on a reevaluation of existing information or whenever relevant new information is brought to his or her attention. Reasons for the change are to be properly documented.

(c) Planners are to assist agency decisionmakers by presenting information bearing on the judgment of net EQ effect in a manner that aids the judgment process. As a minimum, the tables used to document the previous activity, as illustrated in Table 714.441, are to be provided to the decisionmaker prior to his or her judgment of net EQ effect.

(d) The net EQ effect of each alternative plan is to be expressed in a clear and complete narrative statement that identifies the type of net EQ effect expected and, as specifically as practical, the reasons that provided the basis for the judgment.

Appendix A.—Example Documentation Formats

Note.—This appendix is provided for background information only. Adherence to material in this appendix is not required.

(a) *Introduction.* (1) This appendix provides examples of tables that can be used to record the results of EQ evaluation activities. The tables and the activities are as follows:

(i) Table 1—Identify resources activity (§ 714.411).

(ii) Table 2—Develop evaluation framework activity (§ 714.412).

(iii) Table 3—Survey existing conditions activity (§ 714.421).

(iv) Table 4—Forecast without-plans conditions activity (§ 714.422).

(v) Table 5—Forecast with-plan conditions activity (§ 714.423).

(vi) Table 6—Identify effects activity (§ 714.431).

Table 714.441.—Significant EQ Effects

Alternative Plan "X"

Significant resources	Effects on EQ attributes			Notes
	Ecological	Cultural	Aesthetic	
Resource No. 1. Resource No. 2. Resource No. 3. Resource N.	For each attribute of a resource, enter "beneficial" or "adverse", and briefly state the rationale for each entry. For example: "Adverse, effect would violate State water quality standards", and "Beneficial, effect would stabilize ecosystem trophic relationships".			Briefly enter any other information that may be relevant to the judgment of net EQ effect of the plan, such as notes concerning mitigation, incomplete or unavailable information, etc.

(vii) Table 7—Describe effects activity (§ 714.432).

(viii) Table 8—Determine significant effects activity (§ 714.433).

(ix) Table 9—Appraise significant effects activity (§ 714.441(b)), appraisal of effects on indicators.

(x) Table 10—Appraise significant effects activity (§ 714.441(c)), appraisal of effects on attributes.

(2) The tables are intended for use as working documents; if developed for a given EQ evaluation, they could be included as an appendix to an agency's planning document or EIS (see 40 CFR 1502.10(k) and 1502.18).

(3) See § 714.330(d) for a discussion of other documentation formats that may be used to record the results of EQ evaluation.

(b) *Table examples.* In addition to format guidance, this appendix presents examples of how the results of EQ evaluation activities could be recorded in the table format. The examples are presented as an aid to follow through the EQ evaluation process. The examples are based on the following hypothetical water resources planning situation:

(1) An alternative plan, designated Plan A, was formulated for the Pine Valley area to address the following problems and opportunities:

(i) Periodic flooding of a portion of the town of Pine Valley due to overtopping of the natural streambanks of Pine Creek.

(ii) The existing stream channel is eroding badly, endangering an Indian winter camp site (Pine Valley Village).

(iii) Pine Valley is noted for its natural beauty, and many people visit the area to view the valley and its surroundings.

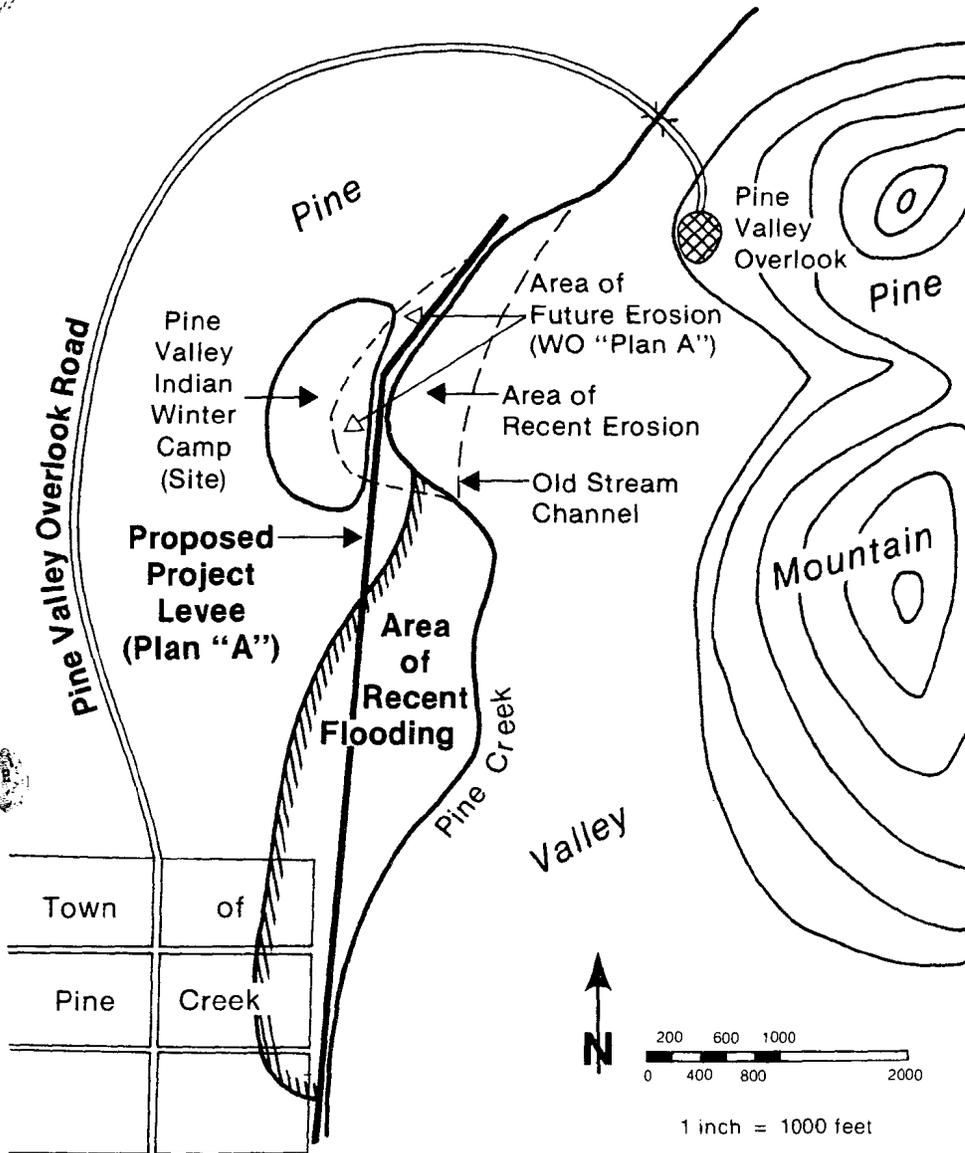
(iv) Pine Valley is a major deer fawning area for the Pine Mountain deer herd.

(2) Plan A, which consists of a two-mile long levee, was formulated to protect the town from flooding, and the Indian village site from being destroyed by streambank erosion. However, construction of the levee would require removal of streamside riparian vegetation along the right bank of Pine Creek. This vegetation comprises most of the fawning area for the Pine Mountain deer herd.

(3) Figure 1 presents a map of this planning setting.

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Appendix A — Figure 1



Appendix A - Table 1. Identification of EQ Resources to be Evaluated.

Resources	EQ Attributes			Significance			Likely To Be Affected (yes/no)	Resource To Be Evaluated (yes/no)	Notes
	Ecological	Cultural	Aesthetic	Institutional Recognition	Public Recognition	Technical Recognition			
R1 Pine Valley Meadow	Deer fawning Area	—	—	—	—	Major Fawning Area For Pine Mt. Deer Herd	Yes	Yes	
	—	Indian Winter Camp (site)	—	Included In State List of Historic Sites	—	—	Yes	Yes	
	—	—	View of Meadow & Winter Camp	—	Public Acknowledged Desirability of Meadow & Winter Camp	—	Yes	Yes	
R2 Pine Creek (river miles 169-171)	Trout Spawning Habitat	—	—	—	—	40% of Suitable Spawning Gravels Located In This Reach of Pine Cr.	Yes	Yes	
R3 Pine Valley Overlook Area	—	—	View Site For Pine Valley	—	—	—	No	No	
R4 Town of Pine Creek (Area of Flooding)	—	—	—	—	Acknowledged As A Problem That Needs Resolution	—	Yes	No	To Be Evaluated In NED

Resources	EQ Attributes	Indicators	Units	Guidelines	Techniques		Notes
					Names	Documentation References	
R ₁ Pine Valley Meadow	Ecological	Terrestrial Habitat (Quality & quantity aspects)	Habitat Units	Not Less than 19 Habitat Units	HEP	Habitat Evaluation Procedures (FWS-ESM 102)	
		Deer Fawns	Number of Fawns	75 or more Fawns per Year	State Annual Deer Census (Pine V. Herd)	See Bibliography # 1	
	Cultural	Area of Site	Acres	Preservation of Entire Site	Map Planimeter	See Bibliography # 2	
		Representativeness	Importance Ranking	Preservation (High Ranking)	Importance Ranking Technique	See Bibliography # 3	
Aesthetic	Research Value	Importance Ranking	Preservation (High Ranking)	Importance Ranking Technique	See Bibliography # 4		
	Landscape Priority	Landscape Priority Ranking	H ⁹ Ranking	PEPLA	Procedures to Establish Priorities in Landscape Architecture (SCS TR # 65)		
R ₂ Pine Creek (etc)							

Appendix A - Table 3. Trend and Existing Conditions.

Resources	EQ Attributes	Indicators	Trend Conditions			Existing Condition (Units/Date)	Notes
			Trend (Units/Date)	Trend (Units/Date)	Trend (Units/Date)		
R ₁ Pine Valley Meadow	Ecological	Habitat	22 (1950)	20 (1970)	19 (1978)	19 (1980)	Trend Conditions Estimated From 1950, 1970, & 1978 Surveys (Photos)
		Fawns	50 (1950)	58 (1970)	60 (1975)	65 (1980)	
	Cultural	Area of Site	6 ac. (1942)	6 ac (1950)	6 ac (1970)	6 ac (1979)	Indian Winter Camp Discovered In 1942
		Representative- ness	unknown	unknown	unknown	High	
		Research Value	unknown	unknown	High	High	
	Aesthetic	Landscape Priority	unknown	unknown	H ⁸ Ranking (1978)	H ⁸ Ranking (1980)	
R ₂ Pine Creek							

Resources	EQ Attributes	Indicators	Without-Plans Conditions					Forecast Techniques		Notes	
			Start Implemen- tation Date (1990)	End Implemen- tation Date (1995)	Forecast Date 1 (2005)	Forecast Date 2 (2025)	Forecast Date 3 (2045)	Locational Changes	Names		Documentation References
R1 Pine Valley Meadow	Ecological	Habitat	22	24	27	29	30	None	Extrapolation	See Bibliography #5	Local Wildlife group is very active in Wildlife Management Program
		Deer Fawns	68	69	75	78	80	None	Extrapolation	See Bibliography #6	
	Cultural	Area of Site	5.9 ac.	5.6 ac.	5.3 ac.	3.0 ac.	2.9 ac.	Loss Along Eastern Side of Winter Camp due to Erosion. Loss of Some Artifacts & Part of Site	Extrapolation	See Bibliography #7	
		Representativeness	High	High	High	High	High		Scenarios	See Bibliography #8	
		Research Value	High	High	Moderate	Low	Low		Extrapolation	See Bibliography #9	
Aesthetic	Landscape Priority	H8	H8	H7	H6	M7	None	Scenarios	Pine County Planning Dept. Report - Future Landscapes For Pine Valley 1978-2028, Vol. II		
R2 Pine Creek											

Appendix A - Table 5. With-Plan Conditions For Plan A.

Resources	EQ Attributes	Indicators	With-Plan Conditions					Locational Changes	Forecast Techniques		Notes
			Start Implementation Date (1990)	End Implementation Date (1995)	Forecast Date 1 (2005)	Forecast Date 2 (2025)	Forecast Date 3 (2045)		Names	Documentation References	
R1 Pine Valley Meadow	Ecological	Habitat	19	8	10	14	19	None	Model	See Bibliography #10	Riparian Vegetation Slowly Returned After Construction
		Deer Fawns	65	20	32	47	65	None	Model	See Bibliography #11	
	Cultural	Area of Site	5.9 ac.	5.9 ac.	5.9 ac.	5.9 ac.	5.9 ac.	0.1 ac. of Camp Site & Artifacts Lost Due to Erosion	Model	See Bibliography #12	
		Representativeness	High	High	High	High	High	None	Scenario	See Bibliography #13	
		Research Value	High	High	High	High	High	None	Scenario	See Bibliography #14	
Aesthetic	Landscape Priority	H ⁸	L ⁴	L ⁴	M ⁵	M ⁶	None	Scenario	See Bibliography #15		
R2 Pine Creek											



Resources	EQ Attributes	Indicators	Difference Between Without-Plans and With-Plan Conditions (yes/no)					Effect (yes/no)	Notes
			Start Implementation Date (1990)	End Implementation Date (1995)	Forecast Date 1 (2005)	Forecast Date 2 (2025)	Forecast Date 3 (2045)		
R1 Pine Valley Meadow	Ecological	Habitat	Yes	Yes	Yes	Yes	Yes	Yes	
		Deer Fawns	Yes	Yes	Yes	Yes	Yes	Yes	
		Area of Site	No	Yes	Yes	Yes	Yes	Yes	
	Cultural	Representativeness	No	No	No	No	No	No	
		Research Value	No	No	No	Yes	Yes	Yes	
	Aesthetic	Landscape Priority	No	Yes	Yes	Yes	Yes	Yes	
R2 Pine Creek									

Appendix A - Table 7. Descriptions of Effects For Plan A

Resources	EQ Attributes	Indicators	Effect Characteristics					Duration	Location	Other Effects Characteristics	Notes
			Magnitude								
			Start Implementation Date (1990)	End Implementation Date (1995)	Forecast Date 1 (2005)	Forecast Date 2 (2025)	Forecast Date 3 (2045)				
R1 Pine Valley Meadow	Ecological	Habitat	-3	-16	-17	-15	-11	55 Years + Long Term (starting 1990) " " " "	-	-	
		Deer Fawns	-3	-49	-43	-31	-15				
	Cultural	Area of Site	0	+0.3	+0.6	+1.4	+2.9	" " " "	-	-	
		Representativeness Research Value	No Change	No Change	No Change	No Change	No Change	20 Years + Long Term (start 2025)			
R2 Pine Creek	Aesthetic	Landscape Priority	No Change	Great Decrease	Moderate Decrease	Slight Decrease	Slight Decrease	45 Years + Long Term (starting 1995)	-	The levee would detract from the "natural" look of the meadow even after revegetation	

Resources	EQ Attributes	Indicators	Significant			Significant Effect (yes/no)	Notes
			Institutional Recognition	Public Recognition	Technical Recognition		
R1 Pine Valley Meadow	Ecological	Habitat	40 CFR 1508.27(b)(3) (Ecologically Critical Areas)	Pine Creek Wildlife Club states the Deer Population Will Decrease	State & Federal Wildlife Biologists Recognize that the Project Will Decrease Habitat Below Threshold Levels	Yes	
		Deer Fawns				Yes	
	Cultural	Area of Site	40 CFR 1508.27(b)(8) & (10) (Loss of Historic Resource and Loss of Historic Site)	State Historic Preservation Officer Supports Protecting the Site	Site & Associated Characteristics Saved	Yes	
		Representativeness Research Value				No	
Aesthetic	Landscape Priority	None	Community Groups Support Saving the Area from Erosion, but Want Plantings Made on the Levee to Compensate for loss of Aesthetic Values	None	Yes		
R2 Pine Creek							

Appendix A - Table 9. Appraisals of Effects (Indicators) For Plan A.

Resources	EQ Attributes	Indicators	Appraisals (beneficial/adverse)					Notes
			Start Implementation Date (1990)	End Implementation Date (1995)	Forecast Date 1 (2005)	Forecast Date 2 (2025)	Forecast Date 3 (2045)	
R ₁ Pine Valley Meadow	Ecological	Habitat	Adverse	Adverse	Adverse	Adverse	Adverse	
		Deer Fawns	Adverse	Adverse	Adverse	Adverse	Adverse	
	Cultural	Area of Site	No Change	Beneficial	Beneficial	Beneficial	Beneficial	
		Representativeness Research Value	No Change	No Change	No Change	No Change	No Change	
Aesthetic	Landscape Priority	No Change	Adverse	Adverse	Adverse	Adverse		
R ₂ Pine Creek								

Resources	EQ Attributes	Appraisal Considerations						Appraisal Judgment (also enter in significant EQ Effects table 714.441)	Notes	
		Description (magnitude, duration, location; see Table 7)	Appraisal (Beneficial/ Adverse; see Table 9)	Quantity/ Quality Factors	Institu- tional Factors (see Table 8)	Public Factors (see Table 8)	Technical Factors (see Table 8)			Other Factors
R ₁ Pine Valley Meadow	Ecological	MAJOR LOSS of Fawning Area	Adverse For All Indicators	Quantity & Quality of Habitat & Deer Popu- lation De- creased	Destruction of Critical Ecological Areas	Opposed By Pine Creek Wildlife Club	Habitat & Population Will Drop Below Threshold Levels	—	Adverse - Major Loss of Deer Fawn- ing Area	Mitigation Recommended
	Cultural	Site Saved From Loss Due to Erosion Which Would Have Been Irretrievable	BENEFICIAL BECAUSE LONG TERM LOSSES FROM EROSION ARE PREVENTED	THE QUANTITY OF THE SITE (AC.) IS SAVED ∴ THE QUALITY IS SAVED	State Historic Site Saved	State Historic Preservation officer Supports Plan A	Area, Repre- sentativeness & Research Value Saved	—	Beneficial - Site Saved From Poten- tial Loss Due to Erosion	
	Aesthetic	Site Marred By Construction of Levee, but Major Erosion Is Curtailed	A Long Term Adverse Effect on Aesthetics Occurs, But Decreases As Vegetation Covers Levee	Views Are Degraded	None	Community Groups Want Restrictions Placed On the Project	None	—	Adverse - Because View of Meadow As A Whole Is Marred	
R ₂ Pine Creek										

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Appendix B.—Relationships Between NEPA Requirements for EIS Contents and the Requirements of These Procedures

NEPA regulations requirements for EIS contents. (40 CFR 1502.10–1502.18)	Related requirements of these procedures. (18 CFR 714)
(a) <i>Cover sheet.</i> (40 CFR 1502.10(a) and 1502.11)	None.
(b) <i>Summary.</i> (40 CFR 1502.10(b) and 1502.12):	
(1) Major conclusions	714.432, Judge net EQ effects activity.
(2) Areas of controversy	714.411(c), Significance of EQ resources and attributes. 714.433, Determine significant effects activity. 714.441(c), Appraisal of effects on EQ attributes.
(3) Issues to be resolved	714.411(c), Significance of EQ resources and attributes. 714.433, Determine significant effects activity. 714.441(c), Appraisal of effects on EQ attributes.
(c) <i>Table of contents.</i> (40 CFR 1502.10(c))	None.
(d) <i>Purpose of and need for action.</i> (40 CFR 1502.10(d) and 1502.13).	None; but see P&S, 18 CFR 711.102.
(e) <i>Alternatives including proposed action.</i> (40 CFR 1502.10(e) and 1502.14):	
(1) Present effects in comparative form	None; but see P&S, 18 CFR 711, Subpart G.
(2) Explore and evaluate alternatives	Subpart C, General evaluation requirements: Subpart D, EQ evaluation process.
(3) Substantial treatment to each alternative considered in detail.	714.400(c)(1)(iii), Detailed definition-and-inventory stage. 714.400(c)(1)(iv), Detailed assessment-and-appraisal stage.
(4) Include alternatives beyond agency jurisdiction	None; but see P&S, 18 CFR 711.50(c).
(5) Include no action	714.422, Forecast without-plans conditions activity.
(6) Identify preferred alternative(s)	None; but see P&S, 18 CFR 711.107.
(7) Include mitigation measures	None; but see P&S, 18 CFR 711.50(g).
(f) <i>Affected environment.</i> (40 CFR 1502.10(f) and 1502.15)	714.420, Inventory resources phase.
(g) <i>Environmental consequences.</i> (40 CFR 1502.10(g) and 1502.16):	
(1) Effects of alternatives	714.430, Assess effects phase. 714.440, Appraise effects phase.
(2) Unavoidable adverse effects	714.440 Appraise effects phase.
(3) Relationship between local short-term uses of man's environment and maintenance and enhancement of long-term productivity.	714.432(b), Duration. 714.432(c), Location.
(4) Irreversible and irretrievable commitments of resources	714.432(b), Duration.
(5) Direct effects	714.422, Forecast without-plans conditions activity. 714.423, Forecast with-plan conditions activity.
(6) Indirect effects	714.422, Forecast without-plans conditions activity. 714.423, Forecast with-plan conditions activity.
(7) Conflicts between the recommended plan (or candidate plans) and land use objectives.	714.441(c)(1)(v), Institutional recognition.
(8) Energy requirements	None; but see P&S, 18 CFR 711.64(f).
(9) Natural or depletable resource requirements	Subpart D, EQ evaluation process.
(10) Urban quality, historic and cultural resources	Subpart D, EQ evaluation process.
(11) Mitigation means	None; but see P&S, 18 CFR 711.50(g).
(h) <i>List of preparers.</i> (40 CFR 1502.10(h) and 1502.17)	714.300, Interdisciplinary planning.
(i) <i>List of agencies, organizations, and individuals to whom copies of the statement are sent.</i> (40 CFR 1502.10(i)).	714.310, Public involvement.
(j) <i>Index.</i> (40 CFR 1502.10(j))	None.
(k) <i>Appendices.</i> (40 CFR 1502.10(k) and 1502.18)	714.330 Documentation. Appendix A, Example documentation formats.

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