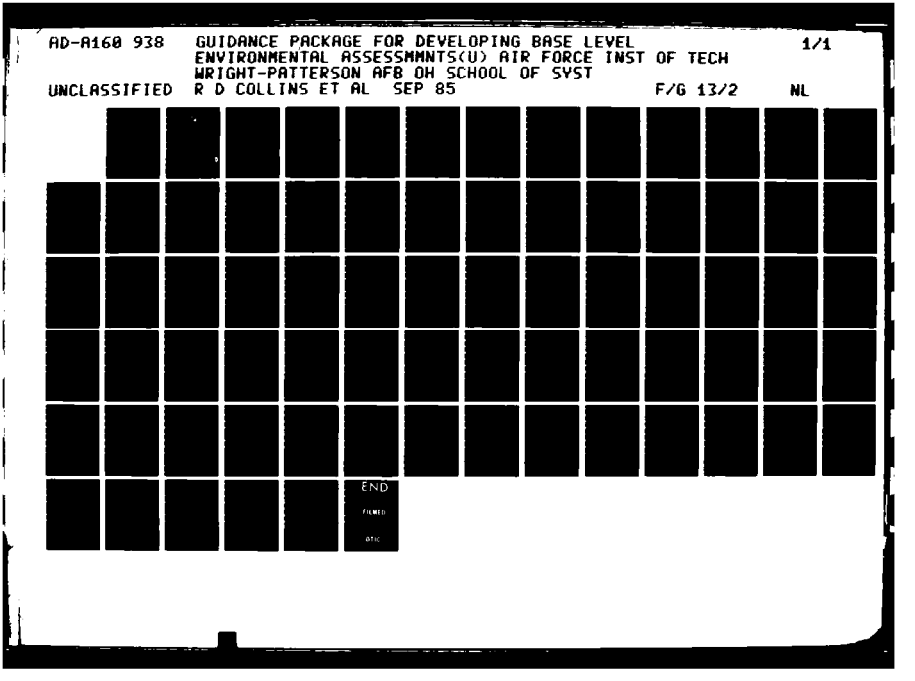
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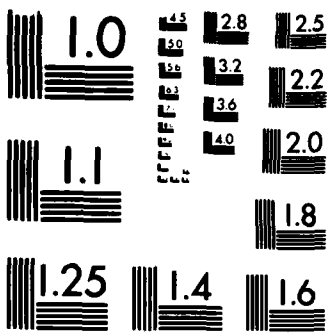

GUIDANCE PACKAGE FOR DEVELOPING BASE LEVEL ENVIRONMENTAL ASSESSMENTS

THESIS

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AFIT/GEM/LS/85S-05

GUIDANCE PACKAGE FOR DEVELOPING BASE LEVEL ENVIRONMENTAL ASSESSMENTS

THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Engineering Management

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Abstract

The Air Force Engineering Division (HQ USAF/LEEV) has identified the need to develop guidelines to ensure that AF environmental assessments (EAs) cover all topics relevant to an action's impact on the environment. This thesis examined the problem areas of current AF EAs, and the regulations currently used.

From the research, a draft pamphlet has been developed and is being worked for future publication. The pamphlet was developed from interviews with Air Force personnel who work with EAs on a daily basis, and from examining past AF assessments that have covered the required information. Besides publishing the pamphlet, other recommendations include a field training class on EA preparation, and leadership and management awareness programs on the importance of assessments.

GUIDANCE PACKAGE FOR DEVELOPING BASE LEVEL ENVIRONMENTAL ASSESSMENTS

I. Introduction

Issue

The Air Force is required to comply with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations. The administrative rules are published in Air Force Regulation (AFR) 19-2, titled Environmental Impact Analysis Process. One of the requirements of the regulation is for the environmental planner to develop a high quality Environmental Assessment (EA) under certain circumstances. The EA is a document used to closely scrutinize the environmental attributes which may be affected by a proposed action. The Air Force Environmental Division (HQ USAF/LEEV) has identified the need to develop guidelines to ensure that an EA will cover all topics relevant to an action's impact on the environment.

Problem Statement

The research problem was to develop general guidelines that will help environmental planners at base level to write complete and accurate EAs.

Background

"For many years, environmental considerations were ignored in the development of the United States" (6:1). This

ignorance on the part of mankind has resulted in an accumulation of detrimental effects that have exceeded the carrying capacity of the natural environment. For example, the industrial waste storage of hazardous chemicals at Love Canal, New York has forced the occupants of the community to seek residence elsewhere. Our generation may affect the environment in ways that only nature can correct, taking several thousand years to get the environment back to its original state.

The past two decades have been marked by the enactment of legislation to control man's adverse effects on the environment. According to Larry W. Canter, author of Environmental Impact Assessment, "Perhaps the most significant legislation is the National Environmental Policy Act (NEPA) of 1969 (PL 91-190), which became effective on January 1, 1970" (2:1).

As a result of NEPA, the Air Force (AF) must notify the public when its proposed actions may adversely affect the environment and mankind. Under AFR 19-2, the environmental planners have three avenues by which they fullfill the requirements of NEPA: a Categorical Exclusion (CATEX), an Environmental Assessment (EA), and an Environmental Impact Statement (EIS). An environmental assessment is a written document providing "sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" (4:37). The Civil Engineering planners currently writing assessments

have little or no guidance when tasked to prepare an assessment. The EAs fail to meet the procedural and documentation requirements of NEPA and thus do not support AF position.

The remainder of this chapter lists the research questions and describes the scope and limitations of the research.

Research Questions

In order to solve the stated problem, the following research questions were proposed:

1. Who are the authorities on Air Force environmental assessments?
2. What are the key characteristics of a "good" Environmental Assessment (EA)?
3. With respect to the National Environmental Policy Act, what topics need to be addressed in order to prepare "good" EAs?
4. Does AFR 19-2, Environmental Impact Analysis Process, need further work with respect to the EA preparation? If so, what change is needed to make the regulation deal more effectively with EAs?
5. What are the problem areas of Air Force EAs?

Scope and Limitations

The scope of this research was limited to Environmental Assessments written by base level planners. EAs and EISs written by contractors and Major Command planners were inappropriate for this project, since our purpose was to develop

a guidance package useful to the base environmental planner writing an EA.

In addition, the general guidance package for preparing an EA was intended to be only a starting point for an inexperienced environmental planner. The package was not intended to provide all the answers. The reason for this limitation was that each EA is unique. Therefore, it was impossible to cover every aspect relevant to an action's impact on the environment.

II. Methodology

The research questions mentioned in chapter one were answered by reviewing the literature dealing with environmental assessments (EAs) and by interviewing Air Force authorities on EAs. The results of the research process were used to develop a pamphlet to assist base level planners in writing assessments.

Research Steps

Step 1. The first step involved compiling a list of topics needed to prepare a good assessment. This step was accomplished by reviewing the current literature on EAs and by interviewing authorities on EAs.

After the development of our research questions, we conducted a literature review (Chapter Three) to familiarize ourselves with the Environmental Impact Analysis Process (EIAP). From this review, we developed interview questions that would provide answers for our research questions.

We then generated a list of Air Force personnel experienced in the EA process. This list was developed with assistance from Air Staff Environmental personnel and from the Air Force Institute of Technology (AFIT) School of Civil Engineering environmental instructors. The people listed were considered to be our experts because they work with assessments on a day-to-day basis. Once we had the names,

we conducted telephone interviews, along with personal interviews, with our experts.

Having completed the interviews, the results were compiled into a set of findings. These findings were then sent to the people interviewed for their additional comments and recommendations. No one was quoted by name or job title so as to minimize bias on the part of the respondents. This decision to keep the respondents anonymous was to encourage the flow of free and open information. Without this openness, we felt that the real problems and issues would not surface.

Then, the additional comments were incorporated into the findings (Chapter Four). This concluded the formal portion of our research process, leading us into the development of the pamphlet.

Step 2. The second step involved developing general guidelines, in the form of a pamphlet, to help base level environmental planners write good assessments. These guidelines were developed from the problem areas found in our interviews conducted in step one. The pamphlet contains guidance not only on the problem areas but also on all areas of the assessment. Since each EA is unique in itself, the pamphlet does not cover every aspect relevant to an action's impact on the environment. Instead, the pamphlet is only a starting point for an environmental planner not experienced in writing an EA.

Development of the pamphlet consisted of reviewing EAs and using the information obtained in our interviews. We organized the pamphlet into the following two sections: introduction and EA organization. The introduction states the reasoning behind the pamphlet, with a description of the purpose for completing environmental assessments. The EA organization describes the various components associated with the assessment.

In describing the components, examples were given to help the reader better understand the content and context of assessments. The examples were presented as attachments to the pamphlet. We developed the examples from EAs received from the various commands and Air Staff. Although our examples were taken from Air Force EAs, we made the examples generic to preserve anonymity.

We did not provide current analysis techniques used in assessing proposed actions. Since these techniques would be useful to someone writing an assessment, we referred the reader to sources that would explain in detail the analysis techniques.

To better understand the assessment process, the next chapter provides a literature review concerning the environmental planner, legal and regulatory basis, and Council on Environmental Quality regulations.

III. Literature Review

This chapter discusses three major areas: environmental planner, legal and regulatory basis, and key items in Council on Environmental Quality (CEQ) regulations.

Environmental Planner

The Base Environmental Planner has two main responsibilities: environmental planning functions and environmental protection planning.

The first responsibility involves (1) maintaining and improving mission capability and (2) placing major emphasis on base livability and related people considerations (5:13). This planning function is accomplished by "ensuring compliance with the National Environmental Policy Act, the Intergovernmental Cooperation Act and related legislation ... and Air Force policies and regulations pertaining to environmental planning and protection matters" (5:13). Other planning functions include "avoiding conflicts with environmental policies, plans and programs of other governmental agencies," "ensuring that decisions are based on the best available environmental, economic and social data," and "anticipating, recognizing and preventing or minimizing adverse impacts from external sources" (5:13-14).

The other responsibility includes managing "the development, preparation, implementation and maintenance of plans and programs related to environmental quality and

protection, and pollution abatement and control" (5:14). This protection planning involves "environmental impact assessments and statements" and includes pollution control programs such as air, water, and noise (5:14).

Normally, the individual involved in preparing the environmental assessment will have an engineering background. The planner usually lacks experience in this area, having just entered the Air Force or having entered the Environmental Planning section for the first time.

Legal and Regulatory Basis

National Environmental Policy Act (NEPA). As a means of combatting the detrimental effects that man has been inflicting on his environment, the Congress of the United States enacted the National Environmental Policy Act. "On January 1, 1970, the President of the United States signed the National Environmental Policy Act (NEPA), PL 91-190, into law" (6:7). The purpose of this law was to "encourage productive and enjoyable harmony between man and his environment," while promoting "efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man" (6:7-8). Also, the act encouraged the enrichment of the "understanding of the ecological systems and natural resources important to the Nation," while establishing "a Council on Environmental Quality" (6:7-8;2:243). There are four major elements of

interest within NEPA: national policy, national goals, individual rights, and areas of special concern.

National Policy. In the area of national policy, Congress stressed the importance of man and nature existing in harmony. The Environmental Management course book states,

> The Congress ... declares that it is the continuing policy of the Federal Government ... to use all practicable means and measures ... to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (7:E-3).

In addition to national policy, NEPA has set forth various goals in order to enforce this policy.

National Goals. Within NEPA, there are six goals that are used to carry out the policy. The first goal is to make each generation responsible for its actions. That is, the safety of the environment for the succeeding generations is entrusted to the present generation (2:244). The next goal is to "ensure for all Americans safe, healthful, productive and esthetically and culturally pleasing surroundings" (2:244).

The third goal is for man to use the environment to its fullest, without degrading the environment by unintentional or undesirable consequences (2:244). A fourth goal of NEPA is to preserve the important "historic, cultural, and natural aspects" of the environment, while trying to main-

tain "an environment which supports diversity and variety of individual choice" (2:244).

The last two goals deal with man and his resources. The fifth goal is to achieve a balance between the population and the resources the population uses to maintain its high standard of living (2:244). To achieve this balance, the last goal of NEPA states that man should "enhance the maximum attainable recycling of depletable resources" (2:244). Hopefully, by maximizing the use of recycled resources, man will not use up all of the environment's resources.

Individual Rights. The individual rights are also recognized by NEPA. According the act, "each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment" (2:244).

Area of Special Concern. NEPA requires that all Federal agencies use a systematic and interdisciplinary approach in their decision making (2:244). They must identify and develop methods and procedures in agreement with the Council on Environmental Quality (2:245). Any proposed action which may significantly affect the quality of the human environment must be evaluated for the long term effects (2:245).

Council on Environmental Quality (CEQ) Regulations. As a result of the National Environmental Policy Act, the Council on Environmental Quality was established to uphold

the goals of NEPA. The council addresses three areas: NEPA provisions, CEQ policy, and CEQ functions.

NEPA Provisions. NEPA requires that the President report annually to Congress the status of the environment (6:173). The act also establishes a Council on Environmental Quality within the Executive office of the President. This council consists of three members chosen by the President and approved by the Senate.

CEQ Policy. The policy of the CEQ is to "make the NEPA process more useful to decision makers and the public" (7:E-5). In addition to reducing paperwork and extraneous background data, the policy stresses real environmental issues and alternatives (7:E-5).

Functions of the Council on Environmental Quality (CEQ). The council has several functions to fulfill in accomplishing the goals of the National Environmental Policy Act. These duties are divided into two general areas. One area involves directly assisting the President, while the other pertains to analyzing the effect of programs on environmental quality.

In the first area, the council assists and advises "the President in the preparation of the Environmental Quality Report" (2:247). In preparing the report, the CEQ is tasked to gather and analyze information on the conditions in the quality of the environment, both for current and for future actions (2:247). The council keeps the President informed by compiling and submitting to him studies of the above

findings and trends (2:247). At least once a year, the council must report to the President "on the state and condition of the environment" (2:247).

In addition to reporting the state of the environment, the CEQ also assists the President in developing environmental policies "to foster and promote the improvement of environmental quality to meet the conservation, social, economic, health, and other requirements and goals of the nation" (2:247). In doing so, the council makes and furnishes "studies and recommendations with respect to matters of policy and legislation as the President may request" (2:247).

In analyzing the environmental effects of programs, the council reviews and appraises "the various programs and activities of the Federal Government" (2:247). To do this, the CEQ conducts "investigations, studies, surveys, research, and analyses relating to ecological systems and environmental quality" (2:247). Finally, the council documents and defines "changes in the natural environment, including the plant and animal systems," while accumulating the "necessary data and other information for a continuing analysis of these changes or trends and an interpretation of their underlying causes" (2:247).

AFR 19-2, Environmental Impact Analysis Process (EIAP). In addition to including the procedures, policies, and responsibilities for the Air Force environmental impact analysis process, Air Force Regulation (AFR) 19-2

promulgates the National Environmental Policy Act and the Council on Environmental Quality regulations; this regulation applies to all Air Force organizations (4:1). AFR 19-2 discusses both its purpose and the assigned areas of responsibilities for Air Force personnel.

Purpose. AFR 19-2 "provides a process for making decisions based on an understanding of the potential environmental consequences of proposed actions and alternatives" (4:1).

Responsibilities. At the top, the Deputy for Environment and Safety, Office of the Secretary of the Air Force, serves as the Air Force's official in environmental matters. The HQ USAF Staff point of contact is the Environmental Division (of the Major Command), while at the installation level, the Base Civil Engineer provides the environmental planning functions (4:2).

Key Items in CEQ Regulations

There are four categories in the CEQ regulation that pertain to the Air Force planner when implementing the requirements of NEPA. These four categories are a categorical exclusion from the requirements of NEPA, an environmental assessment, an environmental impact statement, and a finding of no significant impact.

Categorical Exclusion (CATEX). Actions that have no significant impact on the human environment are grouped into a list of categorical exclusions (4:36). According to CEQ

regulation 1508.4, a CATEX is "a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency ... " (4:36). When actions fall into one of these categories, no further action is required (i.e., no environmental impact statement or environmental assessment is needed).

If no significant effect was found in a previous environmental assessment, then this could be considered a categorical exclusion (4:64). Other examples of Air Force CATEXs would be airplanes flying above 30,000 feet, temporary increases (up to 50 percent) in the number of air operations a day, and maintenance and repair of facilities and utilities (4:64). For a more complete list of the exclusions, see attachment 7 of AFR 19-2.

Environmental Assessment. An environmental assessment is a concise public document which "provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement [EIS] or a finding of no significant impact [FONSI]" (4:37). When a FONSI is determined, no environmental impact statement is required and the assessment fulfills the agency's compliance with NEPA (4:37). However, when an impact statement is required, the assessment aids in this EIS preparation process (4:37). According to Jain, Urban, and Stacey, authors of Environmental Impact Analysis, the environmental assessment

serves three purposes: "provide sufficient analysis for determining whether an EIS or a 'finding of no significant impact' is needed," "aid in the agency's compliance with the Act [NEPA] when no EIS is necessary," and "facilitate preparation of an EIS when one is necessary" (6:23).

Larry W. Canter, author of Environmental Impact Assessment, explains the environmental assessment process as composed of five activities: basics, description of environmental setting, impact prediction and assessment, selection of proposed action, and preparation of environmental impact statement.

In fulfilling the basic activity, the prerequisites required to prepare a proper assessment are a "knowledge of NEPA, CEQ, and pertinent agency guidelines," a "knowledge of study," and an "interdisciplinary team" (2:22). A knowledge of the guidelines is necessary because it "enables more effective planning of the intermediate steps" (2:22). According to Canter, a knowledge of the study enables the planner to "be familiar with the need for the project and the general types of possible solutions" (2:22). Once the knowledge has been gained, the interdisciplinary team is formed to analyze the problem and the possible solutions. At a minimum, Canter suggests that the team "consist of a physical scientist or engineer, a biologist, and an archeologist" (2:22).

The second activity involves a description of the environmental setting, which provides "base-line information

necessary to assess the predicted impacts associated with the various alternatives under consideration" (2:22). Items included in the environmental setting are knowledge of impacts, guidelines, other Environmental Impact Statements (EISs), and methodologies for impact analysis (2:22).

Impact prediction and assessment is the third activity in the assessment process. According to Canter, this activity is the major step which requires "the greatest degree of scientific application of technology" (2:21). Canter goes on to say that "This particular step involves projecting the environmental setting into the future without the proposed action and then performing the necessary calculations or studying the approaches for actually predicting impact of the proposed action and assessing the consequences" (2:21). The fourth activity is the selection of the proposed action. During the decision process, the proposed action, along with each alternative, should be reviewed for "environmental, technical, and economic factors" that affect each outcome (2:27). Canter also suggests that other decision factors should be examined such as "unique technical considerations or technical difficulties associated with an alternative," or "economic analyses ... based on the benefit-cost ratio or excess benefits minus costs" (2:28).

The final activity is the preparation of the environmental impact statement. This step "involves the preparation of a draft EIS, the subjection of this draft statement

to review and comment by others, and the preparation of a final EIS and subsequent filing of this final statement with the CEQ" (2:28).

Environmental Impact Statement. "The environmental impact statement (EIS) is a document written in the format as specified by NEPA, CEQ [Council on Environmental Quality] guidelines, and specific agency guidelines" (2:3). The impact statement is a detailed statement used to plan and make decisions. Canter describes the EIS as "a summary of the environmental inventory and the findings of the environmental assessment" (2:3).

An EIS is composed of a draft statement and a final statement. The draft statement is the first step in the preparation of the EIS (6:24). During this step, the draft statement is sent out for inter-agency and public review (6:24). Based on Environmental Impact Analysis, "Whenever it is concluded that significant environmental impact will result from a proposed action, or that it may become environmentally controversial when others learn of the action, a draft EIS must be prepared" (6:25).

Once the draft EIS has been reviewed by all interested parties, the final EIS is prepared, addressing "opposing responsible views expressed by other federal agencies and the public" (6:24). Canter states that "the final statement is the draft statement modified to include a discussion of problems and objections raised by reviewers" (2:3). It is interesting to note that a construction project may not

start until the final statement has been on file with the CEQ for a period of at least thirty days (2:3).

According to Jain, Urban, and Stacey, the impact statement consists of four major elements: a list of activities, the environmental attributes, the environmental impact, and a report of the findings. The first element is compiling a list of activities relating to the implementation of the proposed project or action. Next, any specific changes to the environmental attributes that will occur from the action must be determined for its impact on the environment (6:37). As mentioned in Environmental Impact Analysis, "An EIA [Environmental Impact Analysis] or EIS [Environmental Impact Statement] is prepared to characterize the environment and potential changes to be brought about by a specific activity" (6:37). Such attributes include air, water, land, ecology, sound, human aspects, economics, and resources (6:38).

The third element is determining the environmental impact, which is composed of three steps: "identification of impacts on attributes," "measurement of impacts on attributes," and "aggregation of impacts on attributes to reflect impact on the environment" (6:62-63). Finally, the fourth element is the reporting of the findings.

Findings of No Significant Impact (FONSI). A "Finding of No Significant Impact" is a document that the proposed action will have no significant impact on the environment (4:37). It is during the stages of the environmental

assessment that a finding of no significant impact will result. The FONSI document is normally supported by an environmental assessment. According to AFR 19-2, the FONSI "shall include the environmental assessment or a summary of it and shall note any other environmental documents related to it (4:37).

Summary

An Environmental Assessment is a concise public document which "provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" (4:37). When the Air Force proposes a new action, it must comply with the appropriate environmental laws and regulations to ensure that its action does not harm the environment. Actions such as changing flight paths or altitudes, constructing new buildings or additions, and changing AF policy may adversely affect the environment.

If the action falls into a categorical exclusion (CATEX), then no further environmental analysis is required. An environmental assessment must be prepared whenever the action cannot be categorically excluded. The environmental assessment will result in either a finding of no significant impact (FONSI) or a requirement for an environmental impact statement (EIS).

The next chapter deals with the problem areas of Air Force EAs. Results from surveying Air Force authorities

have been compiled to determine why the assessments fail to support the Air Force's position when its actions conflict with the environmental laws. These results were then used to develop a pamphlet to aid the environmental planner developing an environmental assessment.

IV. Research Findings

In our research process, research questions were formulated in Chapter 1, and a comprehensive literature review was provided in Chapter 3. Then, a list of Air Force personnel who are familiar with the EA process was compiled as our source of experts. Air Staff Environmental personnel and the Air Force Institute of Technology's (AFIT) School of Civil Engineering instructors aided in identifying Air Force (AF) authorities. These people (see Appendix B for list of authorities) were considered to be Air Force authorities since they work with assessments on a day-to-day basis. Appendix B answers the first research question, which was who are the authorities on AF assessments.

The interview questions listed below were asked of each authority. The interviews were conducted by telephone and by personal meetings. Once the interviews were completed, the results were compiled and sent to each interviewee for their additional comments. The results and findings presented in this chapter are a combination of both the interviews and the additional comments.

This chapter will first introduce the interview questions presented to the authorities with a brief discussion of why these questions were developed for the interviews. Then, the replies of each question will be summarized separately.

Interview Questions

The following questions were used in our initial interviews. These interview questions were adapted from the research questions provided in Chapter 1:

1. What do you consider to be the key characteristics of a "good" Environmental Assessment (EA)?
2. With respect to the National Environmental Policy Act, what topics need to be addressed in order to prepare "good" EAs?
3. Does AFR 19-2, Environmental Impact Analysis Process, need further work with respect to the EA preparation? If so, what change is needed to make the regulation deal more effectively with EAs?
4. What are the problem areas of Air Force EAs?

Based upon the literature review, the above questions were thought to be important to the understanding of the EA process. The key characteristics, along with the topics, of an assessment have to be known to understand what information should be included in an EA. Then, current guidance (AFR 19-2) needed to be reviewed to see whether or not the guidance is helpful to the planners writing assessments. Finally, the current problem areas of Air Force EAs need to be identified in order to develop a guidance package on assessment preparation.

Replies to Question One

The first interview question (research question two) dealt with the key characteristics of a well written environmental assessment. The most important characteristic mentioned by most of the experts was a thorough description of the proposed action and alternatives (DOPAA). This component of the assessment describes the action contemplated by the proponent along with a description of the alternative that could be used to accomplish the objective.

The next important characteristic was that of identifying all applicable attributes of a proposed action. This identification needs to be complete, discussing the impacts caused by the action and the alternatives. The discussion relates to both the effects to the environment and the impact to the user should the action not be approved. The respondents stressed the importance of quantifying these impacts.

Other characteristics of a good assessment include its accuracy, comprehensiveness, and consistency. In addition to the three just mentioned, the assessment should be easy to read and understood not only by professional and technical personnel, but also by non-technical and non-professional people. However, the planner must be careful not to oversimplify the EA just to make it easy to read. Oversimplification tends to lead to inaccuracies and generalizations. The assessment is a technical discussion of an action's impacts. There will be technical terms used

to describe certain attributes or impacts. When this occurs, the technical terms should be defined for those readers unfamiliar with the meanings. Also, technical definitions should be provided when the words can be construed by other meanings than the one intended.

The last characteristic of a good assessment is a well-defined constituency. By constituency, we mean the people, wildlife, and plant species of the area's resources being disturbed by the action. A clear understanding of the constituency is needed to accurately describe the effects on the environment.

The above discussion answers the second research question dealing with the key characteristics of a "good" environmental assessment.

Replies to Question Two

Interview question two (research question three) concerned the topics that need to be addressed in order for the EA to fully comply with the National Environmental Policy Act (NEPA). Depending on the situation, the topics addressed will vary from assessment to assessment. However, a popular answer included the discussion of biophysical characteristics or environmental attributes of the proposed action and alternatives. Typical attributes include earth, air, water, and noise. Attributes are not restricted to just biophysical or environmental but include socioeconomic attributes, such as job impacts on the local community.

Socioeconomic attributes are important because they too can affect the biophysical environment.

Another topic mentioned was a discussion of the construction impact involving the implementation of the proposed action. This construction impact involves all phases including pre- and post- construction activities.

The above replies to interview question two answers research question three concerning the assessment topics that need to be addressed to comply with NEPA.

Replies to Question Three

The third interview question (research question four) concerned AFR 19-2, Environmental Impact Analysis Process. This question was asked in order to determine whether or not the regulation needs further work with respect to assessment preparation. If the regulation needs changing, then what are the changes that should be made to enhance EA composition.

Although the interviewees felt that AFR 19-2 was general in content, the consensus was that this regulation is "good as is"; that is, the regulation needs no changes. The reason given by the respondents was that the regulation is written "loosely enough" (short and concise) to give the major commands freedom in managing the preparation of EAs. Also, since no two assessments are identical, a specific regulation to cover all assessments would be too cumbersome to use for the assessment process. Thus, a "cookbook"

approach would be impractical since the planner would have no freedom in the design of his assessment.

On the other hand, most respondents felt that there was a need for some type of informational manual to assist the planners on the EA process. This manual or pamphlet would not be a how-to-do book. Instead, the manual would be used by a planner as a tool to identify items and information that should be considered when writing the EA.

Thus, the answer to research question four, should AFR 19-2 be changed, is that the regulation need not be changed or altered. However, a manual or pamphlet on writing EAs would be helpful to the base level planner.

Replies to Question Four

Interview question four (research question five) dealt with problem areas associated with Air Force EAs. Although the respondents all noted some major difficulties with EAs, each respondent mentioned particular problems which were important to him.

One major problem mentioned by most was that the planners fail to fully analyze the impacts of not only the primary action but also the impacts of the alternatives. This problem stemmed from the planners inadequate description of the proposed action and alternatives (DOPAA). In other words, this is a problem of comprehensiveness. Most of the respondents saw a need for the planners to write a clearer purpose and need statement. Although the primary

action was usually discussed, the alternatives to the problem were often omitted, or when listed, were often not assessed.

In addition to the failure to fully analyze the impacts, the planners do not thoroughly provide sufficient facts to support the impacts of the attributes. The planners will make statements within the EA about a proposed impact, and then will fail to support the impact with factual information. Some respondents feel that this lack of support or accuracy is caused by the planners not using a scientific or analytic approach in their assessment process. Also, some authorities view this lack of support as being caused by a failure of the planners to use all available resources. These resources may include personnel around an Air Force base who can help or assist the planner in performing tests and studies (i.e., noise studies, sedimentation tests, etc.). Finally, planners are not effectively using data bases that are available. The barrier to using these data bases is caused by the large amount of time needed in gathering and researching the data.

One problem associated with the assessments involves the misuse and documentation of Categorical Exclusions (CATEXs). Although the CATEX is a separate document from the EA (when one is done the other is not), the misuse of CATEXs is a real problem which should be corrected. Being inexperienced, the planner often uses a CATEX when a CATEX does not apply. The experienced planner, on the other hand,

will properly use the CATEX but will fail to document the reasoning to support the use of the CATEX. In addition to the misuse of CATEXs, the inexperienced planner contributes to the problem of unsupported assessments by being unfamiliar with the EA process.

Not only are the planners inexperienced with the EA process, but some proponents of the action also lack an understanding of the assessment process. This problem is compounded by the fact that the proponents do not realize the importance of the assessments, and why the assessments are needed. Another problem with the proponents is that they fail to support the planner when the planner prepares the EA. Once the proponents initiate the proposed action, they are reluctant to provide further assistance to the planner. This reluctance to help may sometimes be beyond the proponents' control due to other pressing priorities or their unfamiliarity with the assessment process. Most of the time, the proponents fail to initiate the assessment action, which they are normally supposed to do.

The assessments are to help the decision maker decide what action from a list of alternatives should be chosen. However, the EA is not being used for this purpose. Instead, the EAs are nothing more than a square filling exercise. This problem develops from the fact that the EAs are not started on a timely basis (i.e., before the decision has been made on the proposed action). The EAs are usually completed after the final decision has already been made;

and thus, the EAs are not being used as a decision making tool.

As noted by the authorities, people outside the environmental area do not take the program seriously because the EA process is often perceived as a square filling exercise. This attitude leads to misuse of CATEXs, to inaccurate work being done quickly, and to relatively little support from the proponents. The proponents see the EAs as a stumbling block that can be used to stop their action or proposed project. Thus, the proponents are reluctant to provide much help in fear that what they say will be used to halt their action. The above proponent problems are leadership and management problems that the base level planner can not solve.

Finally, the EAs have problems with format and content. Some EAs have conflicting information between the sections. Not only is the information conflicting, but the EA is unclear throughout the document. Since there is relatively little specific guidance (except what the Major Commands have published), each EA differs from one another with respect to format. As was mentioned earlier, no two EAs are alike. However, a general format could be provided that would help planners to write assessments (Section 1 being the description of the proposed action and alternatives, Section 2 listing attributes, etc.).

The above replies answer not only interview question four but also research question five.

Summary

The above information answers the research questions posed in Chapter 1 and represents the current problems with Air Force assessments. From this information, a pamphlet was developed to assist planners in preparing quality EAs (see Appendix A). In the next chapter, conclusions are drawn and recommendations are suggested based on the findings.

V. Conclusions and Recommendations

From analyzing the results of the interviews, we developed several conclusions and recommendations to solve the problems currently confronting Air Force environmental assessments. This chapter is divided into two sections: conclusions and recommendations.

Conclusions

During our analysis of the findings, we discovered a relationship between the answers for research question two (EA key characteristics) and research question five (EA problem areas). The answers received for research question three (NEPA topics) are problems which are embedded in the above relationship. It seems that the problems with Air Force assessments relate directly to the failure of the assessments to address the key characteristics found in well written environmental assessments (EAs). The replies to the applicability of AFR 19-2 (research question four) were that the regulation should not be changed; however, some type of pamphlet or manual is needed to provide the planners with further EA assistance.

We have divided our conclusions into two areas. The first area deals with the problems we found with the base level planner. The other area concerns problems which we classify as leadership and management problems.

Base Level Planner. From the comments we received from the authorities, the problem with the assessments revolve around the planner's lack of experience, education, and expertise. The lack of the above three items result in uncomprehensive, inaccurate, and inconsistent assessments.

The EAs lack comprehensiveness in the sense that planners fail to fully analyze the impacts of both the primary and alternate actions. The inaccuracy of assessments result from the planners not providing sufficient facts to support the attributes' impacts. Finally, the EAs are inconsistent because the assessments contain conflicting information between the various sections.

The inaccurate accounts of impacts, along with the failure to account for all impacts, are a result of the planners not having experience and expertise in the EA process. Their inexperience can also be seen by the lack of investigative techniques that they employ in EA development. The biggest problem caused by the planners' inexperience is that they fail to fully analyze the impacts of both the primary action and the alternatives.

The planners' lack of education and experience also result in poorly documented CATEXs. In addition, the planners will sometimes use an inappropriate CATEX for a certain action. Again, this is the result of not only their inexperience, but also of their lack of knowledge on the Environmental Impact Analysis Process (EIAP).

Leadership and Management. The other category of problems fell into our classification of leadership and management. This problem begins with the untimely request for an environmental assessment (EA). Most of the time, an EA is not considered in the implementation timeline of an action. Therefore, the assessment is usually an afterthought, resulting in the planner square filling the EA.

When the planner goes through this square filling exercise, he is hastily trying to fulfill his duties and responsibilities, with little creativity involved. Usually, the product that he turns out lacks accuracy, comprehensiveness, and consistency. Since the EA is not considered in the action's timeline, the planner does not have the opportunity to schedule his other work around the EA preparation, thereby, contributing to poorly written assessments.

Proponents view the above square filling exercise as a lack of seriousness on the EA process. Although the planner may square fill the EA, the proponent is responsible for this happening by not considering the EA within the action's timeline. Since the proponent views the planner's action as not being serious, the proponent will have the same attitude towards the assessment process.

The proponent's lack of assistance is compounded by the fact that the proponent rarely gets into trouble by not preparing an EA. Whether or not an assessment is prepared, the proponent can care less since he does not use the EA as a decision making tool. In addition, the proponent is often

reluctant to provide help because he sees the EA as an obstacle, a device that could halt the implementation of his action or project. The proponent may be afraid that what he says will be used to stop or delay his action.

As we started our research, we knew there were problems at the installation level. However, we did not suspect there were problems with leadership and management. These leadership problems can not be solved by any manual or pamphlet. Although our research purpose was to develop a guidance package to assist base level planners writing assessments, we have noted some recommendations that will hopefully deal with the leadership and management problems associated with environmental assessments.

Recommendations

Listed below are our recommendations suggested to combat the problem of poorly written Air Force environmental assessments (EA). We suggest the following five recommendations: implementing the attached pamphlet, developing an analysis techniques package, creating an information package, developing a one week field training class, and informing leaders and managers.

Pamphlet. The first recommendation involves implementing the attached pamphlet (see Appendix A). Although the pamphlet is in draft form, we suggest that this draft be used as a starting block for the development of an Air Force pamphlet to aid the planner writing an assessment. As we

have stressed thoughout the paper, the pamphlet does not cover every aspect relevant to an action's impact on the environment. Instead, the pamphlet is a starting point for the planner.

Analysis Techniques. Besides implementing the pamphlet, an analysis package should be developed to aid the planners. This package would include analysis methods, such as matrix and diagraming, that would be used in the analysis portion of the assessment. These methods would provide the planner with tools to effectively describe the impacts of the attributes affected by the proposed action.

Information Package. An information package is needed to provide the base environmental planner with the information to thoroughly write and develop an environmental assessment. This package would include graphs and tables of the Federal and State standards for attributes, i.e., air and water quality standards, noise levels, plant and wildlife in the region and on the endangered species list. Also, the package should include the operating characteristics of aircraft, vehicles, heavy equipment, and machinery. These characteristics should include, but not be limited to, the pollution levels emitted by each of the items mentioned above. This package would greatly reduce the planner's time used in data collection, allowing the planner more time to write a higher quality assessment.

Training Course. In addition to the pamphlet, a training course should be developed to familiarize the

planners with writing assessments. As a teaching aid, the pamphlet could be used as a text to instruct the planners as to what should be included with an EA. The course could be taught through a nonresident course at the Air Force Institute of Technology's (AFIT) School of Civil Engineering or be taught by field courses created and sponsored by each of the Major Commands. An alternative to a separate course would be expanding the current Environmental Management Course (MGT 520, AFIT School of Civil Engineering). The course expansion would include students actually writing assessments.

Leadership and Management. The fifth and final recommendation is to inform the base leaders and managers of the importance of environmental assessments. No pamphlet or manual can correct the problems that are caused by the lack of proponent support in accomplishing the EA. This lack of proponent support in the assessment process is a leadership and management problem.

The above leadership problem can be overcome by one of the following methods. One way is to brief leaders and managers at their respective commanders classes. Since all new base commanders attend a class at Maxwell AFB, they could be given information on the EA process during this time. Also, the AFIT Civil Engineering School teaches a class that Wing and Base commanders attend. Both of these classes currently talk about the environmental function of a Civil Engineering (CE) squadron, but have very little time

to actually discuss in any depth the importance of environmental assessments. We suggest that more time be given to stress the importance of assessments to a wing's operation.

The other way to inform the commanders is to have the Air Force Chief of Staff endorse this program. The Air Staff engineering division could draft a letter supporting the EA program for the Chief of Staff to sign. This memorandum would greatly boost the environmental assessment program by instilling the help of the various commanders.

Summary

Hopefully, the results of our research will benefit the base level planner writing an environmental assessment. Both the inexperienced and experienced planner should find the pamphlet useful. As we have mentioned throughout the chapters, no two assessments are alike, with each EA having its own unique characteristics. Therefore, the pamphlet is only a starting point for writing an assessment.

Besides the pamphlet, other recommendations, such as the training course and the information package, are suggested as a means to further enhance EA preparation. By implementing the recommendations, the Air Force should see improvements in the quality of its EAs. These improved environmental assessments will better support the Air Force's mission.

Appendix A: DRAFT AF PAMPHLET 19-XX ENVIRONMENTAL PLANNING ENVIRONMENTAL ASSESSMENT GUIDELINES

Introduction

An environmental assessment (EA) is a document used to closely scrutinize the environmental attributes which may be affected by a proposed action. According to AFR 19-2, an EA is "a concise public document" which provides "sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" and "aid an agency's compliance with the Act [NEPA] when no environmental impact statement is necessary" (2:37).

The assessment is part of the environmental impact analysis process (EIAP). As seen in Figure 1, a proposed action will follow one of two paths: categorical exclusion (CATEX) or No CATEX. A CATEX is "a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency ... " (2:36). If an action is CATEXed, no further analysis is necessary. Otherwise, the proposed action must follow the No CATEX path.

In the No CATEX path, an EA is required to be prepared. Once the assessment is completed, the results of the EA will either be a finding of no significant impact (FONSI) or the

requirement for an environmental impact statement (EIS). However, if the proposed action is known initially to have a significant environmental impact (which will result in an EIS), the EA step may be omitted and an environmental impact statement (EIS) prepared.

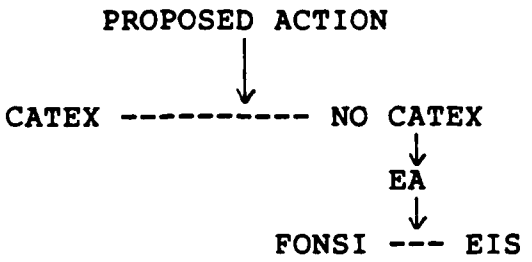

Figure 1. Environmental Impact Analysis Process

Purpose. Since the EA is part of the EIAP and fulfills requirements of the National Environmental Policy Act (NEPA), the assessment is an important document to the Air Force. By having well supported and documented EAs, the Air Force will be able to implement the actions it needs to satisfy its missions and objectives while considering the environmental impacts of its actions. On the other hand, a poorly written EA will prevent or delay the Air Force from completing actions required to support its missions.

This pamphlet is designed to help the base level environmental planner develop a complete and accurate Environmental Assessment (EA). The assumption is made that the preparer of an EA is familiar with AFR 19-2, the Council on Environmental Quality Regulations, and NEPA which give the legal and regulatory authority in directing this program.

Since each EA is unique in itself, the pamphlet will not provide a "cookbook" solution to developing an assessment. Instead, the pamphlet sets forth guidelines for the planner tasked with writing an environmental assessment.

EA Organization

As a minimum, an EA will contain six major items. This structure is similar to the recommended format for an EIS found in the Council on Environmental Quality (CEQ) Regulation 1502.10. The organization presented in this pamphlet will provide the planner with a systematic and scientific approach to writing an assessment.

The first item is the cover sheet, which gives basic information about the proposed project. The next item contains a summary of the findings of the EA. The third item describes the proposed action and alternatives (DOPAA). This is the first major section of the assessment. Following the DOPAA is the section depicting the impacts of the action and alternatives on the environment (Existing environment and environmental consequences). Within the fifth section, the offices, agencies, and persons consulted are listed so the reader knows who was contacted for help. Finally, the last section contains the references that were used when developing the assessment. This section also includes appendices and attachments to the EA.

Cover Sheet. The cover sheet contains the basic information concerning the assessment. The title of the project

or proposed action is given, along with information of who prepared the assessment (with the preparers' address and phone number). The date the assessment was prepared and reviewed should be in this section. Finally, the cover sheet should annotate the date that the base Environmental Protection Committee (EPC) reviewed and approved the document.

Summary. The summary provides the final findings of the assessment. As was noted in the introduction, the EA results in one of two documents: a FONSI or an EIS. If the findings indicate no significant impact on the environment, then a FONSI is written to indicate the action resulted in no significant impact. Otherwise, an EIS must be prepared to show the significant impact.

To avoid duplicating effort, the FONSI can serve as the assessment's summary. Please note that the FONSI is a complete and separate document, with the assessment supporting the FONSI's content. The summary needs to include a list of mitigation measures proposed to support the FONSI. For an example of a FONSI, see Attachment One.

Description of Proposed Action & Alternatives (DOPAA). The DOPAA is the most important section because it describes the proposed action and the alternatives to the action. In addition, the purpose and the need for the action are explained in this section. When writing the DOPAA, the planner needs to be comprehensive, ensuring that the alternatives are explained as to why they are not considered as

the primary action. Examples of the purpose and need, proposed action, and alternatives are provided in Attachment Two.

Purpose and Need. This paragraph should adequately describe why the action is to be implemented. A statement as to what has brought about this change should be given (such as mission change), as well as the effect on operational capability. In addition, a justification as to why the existing condition does not satisfy the problem should be stated in this paragraph.

Proposed Action. This paragraph should accurately describe the proposed action. That is, what is being done. If an addition is being built, tell the reader what type of building is being constructed along with the location of the construction. References to maps and appendices should be given to help the reader better conceptualize where the action is to have its effect.

Besides explaining the action, the proposed action should also describe its effect on operational and mission capability. If the action is being implemented to alleviate mission capability problems, then a statement as to how the action solves the problem should be included in this paragraph. Also, the cost of the action should be stated, realizing that cost is not the only factor to be considered in the decision making process.

Alternatives. These paragraphs include descriptions of the alternate actions to the problem being solved.

As with the proposed action, each alternative should be thoroughly explained as to what the action is doing. The No Action alternative must always be included when discussing the alternatives. If overlooked, the no action alternative may have detrimental environmental effects not obvious to the population. Be aware that no action is in fact an alternative.

As with the proposed action, the alternatives should include all key items discussed in the proposed action. Some of these items include a description of operational and mission capability, cost, and statement of how much of the problem is being corrected by that particular alternative.

Environmental Impacts. This section pertains to the environmental impacts caused or created by the proposed action and alternate actions. The impacts of the action and alternatives are discussed using two areas. The first area (existing or affected environment) describes the existing environment and the conditions of this environment. The second area (environmental consequences) explains the action's effects on the environment.

The environmental impacts section is the most time consuming because of the need to be comprehensive and accurate. When analyzing the impacts of the actions on the environmental attributes, the planner should use a scientific approach in developing the assessment. The environmental assessment is a technical paper, and must be treated as one.

Because of the technical nature, statements made in this section must be clearly supported with quantitative facts. Words such as high, medium, or low when related to impacts are not good enough in an EA. When describing an impact of a certain action on a attribute, quantitative information is required for the reader to know what is happening (quantitative information gives the reader a point of reference which qualitative information fails to do). Both future and existing conditions must be presented in order for a comparison to be made to determine the significance of the impact.

Different techniques exist for analyzing EAs. These techniques include matrices and checklists. A description of each is listed below:

> Matrix is a comparison of the proposed action and alternatives to the impacts, costs, benefits, etc.
>
> Checklist, similar to that on an AF Form 814, allows the preliminary check of the attributes that could be affected.

Larry W.Canter, author of Environmental Impact Assessment, describes these two techniques as methods of impact analysis for environmental assessments and environmental impact statements. Because of the complexity of the two approaches, this pamphlet does not provide a discussion of these approaches for analyzing assessments. The reader should consult Canter's work (see Note 1) listed above or other related books dealing with environmental impacts for information concerning the two approaches.

When gathering the quantitative information, the planner will need to use other organizations on base. The base bioenvironmental office can assist the planner in analyzing water samples, conducting noise level tests, and advising on certain chemical effects. The proponent of the action should be helpful as to what the action's effects are on the surroundings. For example, if the audiovisual center is the proponent cf an action dealing with developing solution, then their organization should be helpful in describing the effects of the solution on the environment.

One main point is that negative impacts are not the only items that go in this section. All positive impacts must be included since they are favorable considerations for the implementation of the action. Also, attributes are not just restricted to what is on the attached list. No two EA are alike, thus, the type of attributes affected by one type of action will not necessarily be affected by another type of action.

The impacts section should conclude with a matrix depicting the attributes and their impacts on the environment. The matrix "provides a means for evaluation of alternatives on a common basis" and provides "information in summary form for public participation" (1:174).

The Existing Environment and Environmental Consequences sections are discussed below. Although the sections are discussed separately, there will be some instances where the two sections may be combined into one (i.e., in cases when

there is no significant impact). However, the main points of each section still need a thorough discussion. Examples of the two sections are provided in Attachment Three.

Existing Environment. Within this sub-section, the existing or affected environment is described as to the current conditions of the attributes. Specific information should be given as to the existing quality of the environment, such as air pollutant and noise levels. What ever attributes are to be enhanced or disturbed, the existing conditions of those attributes must be presented in this sub-section.

Environmental Consequences. This sub-section describes the environment once the action or one of the alternatives has been initiated. The description includes the effects/impacts on the attributes caused by the action and alternatives. Not only are the expected increased or decreased effects presented, but the total effects on the attributes are provided. Thus, the existing conditions (from the above sub-section) are combined with the expected effects to give a total representation of the new environment.

Once the total impact of a specific attribute is known, then the quantity of the impact can be compared with the federal and state standards to determine whether or not there is a significant impact on the environment. In some cases, no standards exist. When this occurs, the planner will have to conduct research to determine what has been

done concerning this standard. The planner then makes a judgement on the significance of the impact based upon the research findings.

Even in cases where the quantity does not exceed standards, there may still be a significant impact caused by the increase in pollutant levels. An example of this would be an increased in the air pollutants of an area that has a zero level of air pollutants. The action could increase the level by 1000% and still be below the standards. However, for this area the impact would be significant.

Offices, Agencies, and Persons Consulted. All agencies, offices, and persons that may be involved with the proposed project should be contacted. Any persons or organizations involved in gathering information or facts should also be listed. When trying to gather information for section 2 (Environmental Impacts), the list of people consulted from previous EAs may be helpful as a starting point.

References, Appendices and Attachments. Any EAs that pertain to the proposed EA should be referred to in this section. These references are not limited to assessments, but also include any source of information used to support the proposed action. If no references were used, state so in this section.

This section should also include appendices and attachments used to clarify the project. Maps should be incorporated within the assessment to help the reader visualize

the location and size of the project. Also, test data may be placed in this section instead of the other sections so as to avoid distracting and confusing the reader. This section provides a consolidation of the material not directly pertinent to the project, but necessary for an understanding of the entire assessment.

Finally, this section may contain correspondence from other organizations in relation to the assessment. Examples of attached correspondence would be letters from State Fish and Game departments and State Historical Preservation offices.

Notes

1. Canter, Larry W. Environmental Impact Assessment. New York: McGraw-Hill Book Company, 1977.

2. Department of the Air Force. Environmental Impact Analysis Process (EIAP). AFR 19-2. Washington DC: HQ USAF, 24 October 1975.

Attachment One: Example of a Finding of No Significant Impact (FONSI)

Name of Action: Construct Ammo Storage Complex
XXX Air Force Base, State
Control Number XXX-XXXX

Description of Proposed Action and Alternatives:

The proposed action is to construct a new ammunition storage complex at XXX Air Force Base. The complex will be located on the west side of the base approximately 1500 ft north of Building XXXX. The purpose of the new ammunition storage complex is to provide adequate and safe multiple class storage of ammunition, explosives, and pyrotechnics. The complex will consist of an entry control point facility, a shipping, receiving and packing facility, eight storage igloos, retaining walls, security fencing, utilities, roads and a paved parking area.

The following alternatives were considered:

1. No action, continue to operate in existing facility.
2. Repair existing facility.
3. Build underground at the existing site.

An environmental assessment of the proposed action was accomplished which identified air pollution, biota, land use, noise, health/safety, and energy as areas that will be affected by construction of the ammunition storage complex. Air pollution will be generated during construction of the ammunition storage complex in the form of dust and vehicle

emissions. These will be typical for a project of this magnitude and will not significantly impact air quality. Construction of the new complex will have little effect on animal and plant species at XXX AFB. Some small animals will be dislocated, however, no known threatened or endangered plant or animal species will be impacted. A positive effect on land use will result from construction of the new facilities. Relocation of the ammunition storage complex to the west expansion area will allow land sterilized from use by the existing facility to be incorporated in airfield related activities. The new site will also satisfy the distance safety criteria for the storage of explosives. Noise levels at the new ammunition storage complex will be reduced since the site is located in an area having a lower Day Night Average Noise Level. Health and safety standards will be improved by the new ammunition storage complex. The quantity distance criteria for the storage of explosives will be met by the new facility as well as the elimination of several safety hazards. No significant increase in the use of energy will result from use of the new facility. Energy conservation measures will be incorporated in construction of the new ammunition storage complex.

Based on the environmental assessment, a Finding of No Significant Impact (FONSI) has been determined.

Attachment Two: Examples of Description of Proposed Actions and Alternatives

The following examples describe the proposed actions and alternatives for a construction project and a mission change action. These examples were chosen since they occur most often in the Air Force. In instances where the proposed action is of a differing nature (such as in an installation restoration program), some changes to the discussion will be necessary. The main point behind the examples is for the planner to recognize the typical information that is included in an Environmental Assessment (EA).

Purpose and Need Statements

For Construction. The purpose of this action is to provide additional space for an increase of approximately xx personnel in the xxxxxx organization. Existing space in Building xxx is overcrowded and cannot accommodate the increase in personnel.

For Mission Change. Air Force goals require that tactical fighters maintain a high state of combat capability. In order to meet this goal, the pilots must train as they would fight in actual combat. Due to expansion of the community, the number of people and buildings that have encroached upon the main flight path used to fly to the Mission Operational Area (MOA) has exceeded the Air Force standards. Because of this encroachment, the existing

flight path needs to be relocated to avoid flying over populated areas where possible. Without a new flight path, the base will have to decrease the number of its training sorties to meet the current safety standards. This decrease in sorties will have detrimental effects on the mission capability of the wing.

Proposed Action

For Construction. This proposed minor construction project will add xxx square feet of office space to the north side of the east wing of Building xxx (maps and drawings should be attached). The added square footage will give the organization the needed space for the increased in xx personnel, allowing the organization to effectively carry out its prescribed mission. The cost of the proposed project is $xxx.

For Mission Change. The Air Force proposes to relocate the main flight path from the existing path (xx degrees latitude, xx degrees longitude) to a new path of xx degrees latitude, xx degrees longitude (attach a map depicting the old and the new flight paths to help clarify the locations). The proposed path provides for the optimal flight time to and from the MOA, allowing for the minimum fuel consumption needed for the maximum training time in the MOA. This new path will meet the AF standards for flight safety, while allowing the wing to meet its training and mission sorties.

The result will enable the wing to maintain its high state of combat readiness and capability.

Alternatives

Below are two alternatives for both a construction project and a mission change. Please note that there are normally more than two alternatives for any assessment. Also, the no action alternative must always be included as an alternate action.

For Construction.

Alternative 1: Use Other Existing Building. One alternative is to locate the xx new personnel in another existing building. However, no facility exists with the adequate space to satisfy the new requirement. Constructing a new facility is cost prohibitive. Renovating or altering other existing buildings are also too costly.

Alternative 2: No Action. The other alternative is to not do the project. This alternative would force the organization to use its existing space, cramping an already overcrowded facility. This no action decision will reduce the mission effectiveness of the organization.

For Mission Change.

Alternative 1: Use of Another Flight Path. One alternative is to use another feasible flight path, located at xx degrees latitude, xx degrees longitude (refer reader to map showing the location). Since this is not the optimal flight path, the results will be a greater fuel consumption

limiting the training time in the MOA. This training limitation will decrease the wing's mission capability.

Alternative 2: No Action. The other alternative is to continue to use the existing flight path. This option will result in the wing flying a decreased number of sorties in order to maintain the flight safety standards. The overall effect will be a significant decrease in the wing's combat mission and readiness capability.

Attachment Three: Examples of Environmental Impacts

The examples listed below are some common attributes that should be discussed in a typical EA. When discussing the environmental impacts, the planners should refer to AF Form 814 to ensure that a complete discussion is made of all the affected attributes. Be aware that in some cases, an attribute not found on the Form 814 may be applicable to the assessment. In these isolated instances, the planners should refer to their respective commands for guidance.

The following examples are geared towards the construction projects. Some adaptation is necessary when describing other proposed actions such as mission change (altering flight paths or altitudes). The information in the brackets [] suggest additional items that should be considered when discussing that section.

Existing Environment

Earth. The earth in the area is mostly a combination of a compact dirt and sand mixture that sustains plant life. Because of the plant cover, no noticeable erosion of the land is known. The area of the proposed action does not lie on any fault lines and is not included in an earth quake prone zone.

Water. As noted in appendix xx, one stream runs through the project area. No aquatic life exists in this stream. Although the stream has xxx levels of suspended

solids, it contains no dissolved chemicals. The stream ph level is xx. The stream joins the xxx River, which is used as a water supply for the community. See the attached map for locations.

[If chemicals do exist in the water, the levels of those chemicals need to be stated. Also, the aquatic life should be discribed when present.]

Air. The air quality in the project area is significantly below the Federal and State Environmental Protection Agencies' (EPA) level for pollutants and toxic substances. The pollutants in the area are caused by operating aircraft, generators, and motor vehicles. Following is a list of the known pollutants: sulfur oxides, carbon monoxide, nitrogen oxides, and hydrocarbons.

[The planner should specify the levels of the air pollutants when possible. Also, the combined air quality level should be stated with a comparison to the existing quality standards.]

Biotic. The plant life in the area is common to the Southeast (or whatever area that your proposed action is located). The vegetation ranges from hardwood to pine trees, and from ordinary shrubbery to centepede grass. The animal life includes deer, rabbits, and black squirrels. There are no endangered or threatened plant or animal species in the proposed project area.

[The main plant and wildlife in the proposed area should be named, along with any endangered or threatened species on

the Federal or State endangered list. This includes any species that are being proposed for the endangered list. Also, both wildlife and plantlife should be quantified if the proposed action will adversely affect them.]

Environmental Consequences

When discussing environmental consequences, the planner needs to distinguish between short and long range impacts to the attributes. For example, the construction phase of an action will produce short range effects that will subside once the facility is in operation. An explanation of these short range impacts should be discussed separately from the long range impacts.

Earth. During the construction phase, some erosion will occur due to grading and foundation preparation. This will be controlled as much as possible by timely replacement of vegetative covers which will minimize erosion problems. [When the topography changes, a discussion of this change should be included, explaining the impacts of this change on the area.]

Water. Since some erosion will occur during the construction phase, there will be some runoff into the stream. However, the runoff will not affect the quality of the stream since it is already contains xxx levels of suspended solids. Runoff will cease upon completion of the project. The proposed action will not inject any chemicals into the stream.

[If the new building will add any chemicals or petroleum products to the surrounding water, then the levels of those contaminates should be stated. The different pollutant levels should be combined to obtain a total level. This value should then be compared to the Federal and State levels for that particular water supply. In some cases, each different pollutant should be compared to the quantity standards for that pollutant to determine the significance of the impact.]

Air. During construction, some air pollutants will be emitted from machinery operation. In addition, vehicles of the increase in personnel will also contribute to the air pollution. However, the air quality level will remain below the EPA levels. The combined projected pollutant level is approximated to be xxx, compared to the standard level of xxx. Thus no significant increase occurs, resulting in no major impact. Also, the individual pollutant level for each substance is below the standard.

[A table may be used to show the existing, the increase, and the combined levels of the substances. In the cases of a significant increase, a discussion of the air currents should be made with respect to wind direction, speed, and dispersion effect.]

Biotic. There are no known threatened or endangered animal or plant species that will be affected by the proposed action. The animal life in the area will not be affected by the proposed action. Some vegetation, in the

forms of pine trees and shrubs, will be removed from the project area. However, due to the abundance of plants in the surrounding area, the action will not completely destroy the plant species. Also, the proposed action will not affect the remaining plants surrounding the project. Care will be taken to ensure that the remaining wildlife will not be disturbed. Any plantlife damaged or disturbed will be replaced.

[This section should include a list of the different plant species being destroyed. Some discussion is needed if animal habitat will be disturbed. Discuss the feeding and living areas of the affected animals. If any threatened or endangered species exist in the area, a thorough discussion is necessary to explain the precautions to be taken to avoid destroying the species. If plant life is to be removed and relocated, state where this relocation is to be accomplished.]

Appendix B: Air Force Personnel Interviewed

Name	Office Symbol/ Location	Autovon
Anderson, Myron	AFIT/LS/GEM 85S WPAFB OH	785-7212
Glass, Dave	Environmental Planning Division, Eastern Region AFRCE, Atlanta GA	797-1001 plus 221-6776
Hartman, Lt Col Richard	AD/DEV Eglin AFB FL	872-4435
Jansing, Doug	HQ SAC/DEP Offutt AFB NE	271-5854
Lotz, Richard	HQ AFLC/JAM WPAFB OH	787-7142
Maraman, Dr. Grady	HQ AFRES/DEP Robins AFB GA	468-5596
Quaider, Wally	HQ AFLC/DEPV WPAFB OH	787-4920
Schmidt, Susan	AFIT/LS/GEM 85S WPAFB OH	785-7212
Sims, Col William R.	HQ AFSC/DE Andrews AFB MD	858-2191
Skintik, Edward	2750 CES/DEEX WPAFB OH	787-7152
Small, Maj Ken	USAF/LEEVP Bolling AFB DC	297-4156
Taylor, Capt Ed	HQ TAC/DEPV Langley AFB VA	432-4430
VanGasbeck, Dave	Air Directorate, NGB Andrews AFB MD	858-6693

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VITA

Lieutenant Russell D. Collins was born on 8 April 1959 in Charleston, South Carolina. He graduated from Hanahan High School in 1977. Upon graduation from the United States Air Force Academy in June 1982, he received a Bachelor of Science in Civil Engineering and a regular commission in the USAF. Lt Collins then served with the 354th Civil Engineering Squadron, Myrtle Beach, SC. As a Civil Engineering Officer, he assumed the various duties of Construction Manager, Community Planner, and Logistics Officer. In May 1984, he entered the School of Systems and Logistics, Air Force Institute of Technology to work on his *Masters of Science in Engineering* Management. Lt Collins' next assignment is with the 1st Civil Engineering Squadron, Langley AFB, Virginia.

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Lieutenant Richard W. Lamb was born on 2 July 1958 in Saigon, Vietnam. He graduated from Coeur d'Alene Senior High School in 1977. In June of 1982, he graduated from the United States Air Force Academy with a Bachelor of Science in Civil Engineering. Upon graduation, he received a regular commission in the USAF. Lt Lamb then served as a Civil Engineering Officer in the 92nd Civil Engineering Squadron, Fairchild AFB, WA. In May 1984, he entered the School of Systems and Logistics, Air Force Institute of Technology to complete work on his Master of Science in Engineering Management. Lt Lamb's next assignment is with the 21st Civil Engineering Squadron, Elmendorf AFB, Alaska.

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The Air Force Engineering Division ~~(HQ USAF/LEEV)~~ has identified the need to develop guidelines to ensure that AF environmental assessments (EAs) cover all topics relevant to an action's impact on the environment. This thesis examined the problem areas of current AF EAs, and the regulations currently used.

From the research, a draft pamphlet has been developed and is being worked for future publication. The pamphlet was developed from interviews with Air Force personnel who worked with EAs on a daily basis, and from examining past AF assessments that have covered the required information. Besides publishing the pamphlet, other recommendations include a field training class on EA preparation, leadership and management awareness programs on the importance of assessments, and an information package.

END

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