

National Environmental Policy Act Disclosure of Air Quality Impacts for Prescribed Fire Projects in National Forests in the Pacific Southwest Region¹

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Abstract

A key purpose of the National Environmental Policy Act (NEPA) is to “promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man” (NEPA, Sec 2). The Council on Environmental Quality states “the NEPA process is intended to help public officials make decisions that are based on understanding of the environmental consequences, and take actions that protect, restore, and enhance the environment” (40 CFR Part 1500.1(c)). Smoke from prescribed fire affects air quality and has the potential to impact human health and quality of life. Public concern about the air quality impacts associated with prescribed burning has led to an increasing need to disclose these effects in environmental documents prepared under NEPA. Prescribed fire projects are subject to NEPA regulations (40 CFR 1500 -1508). Smoke from prescribed fires must meet Federal, State, and local air quality regulations. Environmental planning for prescribed fire activities must include careful consideration of air quality impacts and requirements. This paper describes information that should be considered to ensure that prescribed fire projects meet the requirements of NEPA.

Introduction

As managers in California’s national forests plan prescribed burning projects, they consider three laws that contain provisions for managing air quality: 1) the National Environmental Policy Act (NEPA), 2) the Federal Clean Air Act, and 3) California State Clean Air Act. These laws establish the regulatory framework for assessing air quality impacts from prescribed burning projects in California’s national forests. Federal actions must comply with these laws and implementing regulations.

National Environmental Policy Act

NEPA is the nation’s basic charter for protecting the environment. NEPA declares that it is the Federal government’s continuing policy to use all practical means and measures to create and maintain conditions where man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. The Federal government is charged with cooperating with State and local governments and other concerned public and private organizations to achieve these goals.

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The Council on Environmental Quality (CEQ) has promulgated regulations (Title 40 of the Code of Federal Regulations, CFR, Part 1500) to implement NEPA. The CEQ regulations establish an issue-driven environmental analysis process that can be broadly summarized as follows: 1) the Federal agency, with help from other Federal, State, and local agencies and the public, identifies issues associated with implementing the proposed action, 2) the agency creates alternative ways of achieving the proposed action's objectives while addressing the issues, 3) the impacts of the proposed action and alternatives are evaluated and disclosed in the environmental document.

NEPA procedures ensure that environmental information is made available to public officials and citizens before decisions are made and before actions are taken. The regulations stress that the purpose of NEPA is to foster appropriate action on the part of Federal agencies. The NEPA process is intended to help public officials make decisions that are based on understanding environmental consequences and take actions that protect, restore and enhance the environment (40 CFR Part 1500.1(c)). The Forest Service's Environmental Policy and Procedures Handbook (Forest Service Handbook, FSH, 1909.15) provides additional direction regarding the Forest Service's policy and procedures for implementing NEPA and the CEQ regulations.

Federal Clean Air Act

The Clean Air Act is the nation's mandate for protecting and improving air quality. Forest Service managers consider two key elements of the Clean Air Act as they plan prescribed burning projects: 1) conformity with National Ambient Air Quality Standards and 2) protecting air quality related values in Class I Areas.

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQSs) for six criteria pollutants: particulate matter less than 10 and 2.5 microns in diameter (PM10, PM2.5), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), carbon monoxide (CO), and lead (Pb). An area that does not meet the NAAQS for any pollutant is designated a "non-attainment area" for that pollutant. Section 176 (c) of the Clean Air Act provides conformity rules, which prohibit Federal agencies from taking any action in a federal non-attainment area that: 1) causes or contributes to any new NAAQS violation, 2) increases the frequency or severity of an existing NAAQS violation, or 3) delays timely attainment of a NAAQS. Federal agencies must make a conformity determination whenever they conduct or approve a resource management project, such as a prescribed burning project, in a federal non-attainment area. Federal managers should work with local air quality regulators during development of State Implementation Plans (SIPs) for non-attainment areas to ensure that projected emissions from prescribed burning activities are included in the SIP emissions inventory. This will facilitate subsequent conformity determinations.

Class I areas include international parks, national parks larger than 6,000 ac, national wilderness areas larger than 5,000 ac, and national wildlife refuges in existence as of August 17, 1977. Federal land managers are responsible for protecting air quality related values (AQRVs) in Class I areas from the adverse effects of air pollution. AQRVs are features or properties of a Class I Area that can be affected by air pollution, such as flora, water, soil, and visibility. Final Regional Haze Rules (July 1999) allow no degradation of visibility in Class I areas during 20 percent of highest visibility days.

California Clean Air Act

The State of California's charter for improving air quality is embodied in the State's Clean Air Act. Managers planning prescribed burning projects in California national forests must comply with the newly revised smoke management guidelines in Title 17 of the California Code of Regulations. Another key consideration in planning prescribed burning projects is California's Nuisance Rule, which states, "No person will discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause, or which have a natural tendency to cause, injury or damage to business or property." Providing local air quality regulators with draft environmental documents for review ensures that issues related to State and local regulations can be proactively addressed during the planning process.

Relationship between the National Environmental Policy Act and Air Quality Laws and Regulations

NEPA requires Federal agencies to analyze the environmental impacts associated with a proposed action as well as alternatives to the proposed action. Once the environmental analysis has been completed, the responsible Federal official documents his or her decision regarding the proposed action, alternatives to the proposed action, and environmental impacts. The decision document includes findings required by other laws, including air quality laws. The environmental analysis provides the basis for these findings.

This paper describes NEPA procedures for documenting environmental analyses related to air quality impacts for prescribed burning projects in California National Forests. Relevant air quality laws and regulations are discussed under appropriate sections of the environmental analysis document, providing an integrated framework for ensuring that environmental analyses for prescribed burning projects comply with NEPA as well as State and Federal air quality laws and regulations.

Appropriate Environmental Disclosure Document

Federal land managers consider applying NEPA whenever they propose an action. Forest Service managers look to two key references to determine when and how to apply NEPA to their project proposals: 1) CEQ regulations for implementing NEPA (Title 40 of the Code of Federal Regulations (CFR), Parts 1500 through 1508) and 2) Forest Service Environmental Policy and Procedures Handbook (FSH, Part 1909.15).

Federal agencies use three different levels of environmental analysis and documentation for project proposals: 1) categorical exclusion (CE), 2) environmental assessment (EA), and 3) environmental impact statement (EIS). Categorical exclusions are used to document environmental analyses for routine administrative, maintenance, or other projects that normally do not have significant effects on the quality of the human environment. As potential impacts of a project become more extensive and intensive, the environmental analysis becomes more extensive and detailed. If an agency determines that an action will have significant impacts, as defined in 40 CFR Part 1508.27, the agency must prepare an EIS.

Key features common to all three levels of environmental analysis include: 1) a systematic, interdisciplinary approach for conducting the environmental analysis, 2) scoping, which is an early and open process for determining the range of issues to be addressed and for identifying the significant issues related to the proposed action, 3) written documentation of the environmental analysis process, and 4) documentation of the decision. Some routine administrative and maintenance activities are exempt from documentation requirements. Chapter 30 of FSH 1909.15 identifies these types of activities, which are categorically excluded and do not require a project file or decision memo. The appropriate level of environmental analysis is often clear; however, the dividing line between each level is not entirely distinct. The Forest Service line officer, acting as the responsible Federal official, relies on input from the project's interdisciplinary team and scoping to determine the level of analysis.

Categorical Exclusion

Projects likely to have minimal environmental impacts are typically documented in a categorical exclusion. Managers must determine whether a project falls within a category for exclusion (described in FSH 1909.15, Chapter 30.). In addition, small prescribed burning projects of limited duration that meet the following criteria can typically be documented under a categorical exclusion.: 1) the proposed project has few, if any, local, State and Federal government concerns or public controversy, 2) the relative "fire risk" is low to moderate, 3) the project is expected to produce limited amounts of smoke, and emissions are projected to fall within State and local guidelines. Projected emissions are of short duration, will not affect non-attainment areas or adversely affect Class I areas. (Title 17 suggests prescribed burning projects that treat less than 10 ac and generate less than 1 ton of PM10 meet these criteria.)

If the project meets the above criteria, managers should determine whether any extraordinary circumstances exist. An example of an extraordinary circumstance would be proximity to a sensitive area, such as a school, hospital, or Class I area (extraordinary circumstances are defined in FSH 1909.15). If there are no extraordinary circumstances, managers may proceed with a categorical exclusion. If extraordinary circumstances exist, managers must determine their potential significance by assessing the magnitude of the potential effects. If extraordinary circumstances exist, but the effects are considered minor in nature, the proposed action(s) may be categorically excluded. The responsible official ultimately decides whether a higher level of environmental analysis is warranted.

Environmental Assessment

Prescribed burning projects that are more extensive and intensive than those covered under a categorical exclusion can often be analyzed in an environmental assessment. An environmental assessment is prepared when a proposed project is anticipated not to have significant environmental impacts. For prescribed fire projects, managers must determine whether air quality impacts are likely to be significant. The presence of nearby sensitive receptors or nearness to a non-attainment area is a key criterion in assessing significance (criteria for significant impacts are defined in 40 CFR Part 1508.27). Throughout the scoping and environmental analysis process, the interdisciplinary team maintains ongoing discussions with the responsible official to assess whether any effects are potentially significant. If at any time it appears that effects may be significant, preparation of an EIS should be considered.

Environmental Impact Statement

A project with significant impacts, as defined in 40 CFR Part 1508.27, must be analyzed in an EIS. General guidelines for deciding whether an impact may be significant or needs further analysis include the following: 1) the project is highly controversial and likely to receive intense public scrutiny, 2) the project is located near a Class I area and activities are likely to impact visibility during “high visibility days” as defined in the Regional Haze Rules, 3) the project is viewed as precedent setting, for either air quality impacts or another aspect of its environmental consequences, 4) the project is located near key historical or cultural resources, parks or campgrounds, high-use recreational areas, or other sensitive areas, 5) the project is located in or near a non-attainment area, 6) the area has had a history of nuisance calls (CH2M Hill 1995).

Content of Environmental Assessments and Environmental Impact Statements

The general format for an EA or EIS includes four key chapters: 1) Purpose of and Need for Action; 2) Alternatives, including the Proposed Action; 3) Affected Environment; and 4) Environmental Consequences. Chapters 3 and 4 are often combined into a single chapter. The CEQ regulations (40 CFR Part 1502.10) provide additional requirements for formatting an EIS, including summary, table of contents, list of preparers, index, appendices, and so forth.

Chapter 1 Purpose of and Need for Action

The first chapter of the EA or EIS explains why the agency is considering an action. Existing conditions are compared with desired conditions to establish the need for the agency to take action. For example, if existing fuel levels exceed desired levels, the agency can establish a need to take action to reduce fuel loading. The purpose of the project is to meet management objectives in the national forest’s land and resource management plan.

Chapter 1 briefly summarizes the proposed action, explaining who wants to take action and when and how. It identifies the decision to be made; summarizes scoping efforts, including public involvement; and identifies significant issues used to formulate alternatives to the proposed action. An issue is a point of discussion, debate, or dispute. A debate about the effects of smoke from prescribed burning may lead to the formulation of alternative approaches for meeting the project’s objectives. Scoping and significant issues are sometimes described at the beginning of Chapter 2.

Chapter 2 Alternatives, Including the Proposed Action

The CEQ regulations (40 CFR Part 1502.14) describe Chapter 2 as the heart of the environmental document. Chapter 2 does more than simply describe the alternatives—it sharply describes differences between alternatives, particularly in terms of how their environmental impacts differ.

Chapter 2 describes the alternative development process, alternatives considered in detail, alternatives considered but not given detailed study, and environmental impacts of the alternatives. At a minimum, two alternatives are considered: the proposed action and the no action alternative. Significant issues provide the basis for the other alternatives. Title 17 of the California Code of Regulations requires consideration of a non-burning alternative for prescribed burning projects that propose to burn over 250 ac or over 100 ac near sensitive areas. All action alternatives must meet the purpose of and need for action described in Chapter 1.

Activities Common to All Alternatives

Activities common to all action alternatives are typically described in a single section and may include standard operating procedures for mitigation or monitoring.

Mitigation Measures are actions that avoid, minimize, rectify, reduce, eliminate, or compensate for impacts (40 CFR Part 1508.20). Mitigation techniques can be used to reduce smoke intrusions or smoke concentrations in sensitive areas. Mitigation measures also include items commonly described in burn plans, such as prescription windows and contingency measures.

Monitoring is used to determine whether the implemented alternative met the project's objectives and validate assumptions used to develop and analyze the implemented alternative. Real-time PM10 and/or PM2.5 monitoring of prescribed burning projects can be helpful in responding to nuisance calls as well as to ensure that NAAQS are not violated.

Unique Activities of Each Alternative

Activities unique to each alternative may include: 1) type, size, and amount of fuels to be treated; 2) acres to be treated in a specific manner; 3) time frames for burning; 4) general meteorological and fuel moisture conditions under which burning would occur.

No Action Alternative for prescribed burning projects is typically one that continues existing ongoing management activities but does not implement the proposed project. Wildland fire suppression activities would continue according to the specific land management plan. Some forest plans now have amendments that describe when and how a wildland fire will not be suppressed, and these should be described if applicable.

Action alternatives are designed to meet the purpose and need for action and respond to significant issues identified during scoping. These alternatives can explore different types of burns as well as other treatment methods. Newly revised Title 17 (2000) "Smoke Management Guidelines for Agricultural and Prescribed Burning" by California Air Resources Board (CARB) require consideration of "Alternatives to Burning" in NEPA documents for prescribed burns. Types of burns are dictated by the project objectives.

Comparison of Alternatives

This section compares and contrasts the alternatives based on how they meet the purpose and need and how they address the significant issues identified in Chapter 1. Air quality effects are displayed by comparing emissions generated under each alternative. The comparison, which is typically summarized in a table, is derived from the effects analysis presented in Chapter 4 "Environmental Consequences."

Chapter 3 Affected Environment

The "Affected Environment" chapter describes existing conditions in and around the project area. Key topics related to air quality include the following: 1) fuel types and fuel loadings; 2) sensitive smoke receptors are areas that could be impacted by the proposed burning activity and are considered sensitive due to legislation or public concerns (examples of sensitive smoke receptors are Class I areas, non-attainment areas, major transportation corridors nearby or downwind, hospitals, schools, and population centers); 3) regulatory environment—Agencies' current rules referring attainment status; 4) air quality conditions and trends, starting with the

County Emissions Inventory issued by the California Air Resources Board (USDA Forest Service); 5) typical activities on adjacent lands that could impact air quality; 6) visibility conditions; 7) geography and climatic influences; 8) proximity to non-attainment areas, based on the Conformity Handbook (USDA Forest Service).

Chapter 4 Environmental Consequences

The “Environmental Consequences” chapter forms the scientific and analytical basis for comparing the environmental impacts of the alternatives. The air quality section of this chapter should address the following topics: 1) methodology for analyzing air quality impacts, 2) direct and indirect effects on air quality under each alternative, 3) cumulative effects on air quality under each alternative, 4) a conformity determination if the project is in a non-attainment area for any NAAQS (Conformity Handbook), and 5) potential visibility impacts to Class I areas.

The methodology discussion should describe measures used to compare the alternatives (for example, emissions generated, visibility, and so forth). It should describe modeling methods used in the analysis and any technical assumptions or limitations. A worst-case scenario analysis should be conducted for multiple-day burns, using NFSPUFF or other dispersion models to verify that NAAQs will not be violated.

Direct effects are caused by the action and occur at the same time and place as the action. Indirect effects are caused by the action but occur later in time or farther removed in distance than the action. The air quality analysis typically includes: 1) fuel consumption by alternative, 2) emissions (PM10/2.5 and NOx) generated under each alternative and 3) visibility impacts by alternative. Cumulative effects include potential air quality impacts from the project when combined with other present and reasonably foreseeable future actions.

A conformity determination must be made if the prescribed burning project is in a non-attainment area. The determination is based on total emissions analysis and air quality modeling to show that the project does not cause or contribute to the violation of any standard or increase the severity or frequency of existing violations.

Summary

Environmental analysis is all about fully disclosing environmental impacts that includes air quality impacts. Environmental analysis informs agency decision makers and the public about environmental trade-offs associated with alternative ways of meeting the project objectives. Air pollutants are generated during wildland burning. NEPA procedures require complete documentation of the analysis; if any aspect of the analysis is not documented, the responsible Federal official has not considered it in making the decision.

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