

**GUIDELINES FOR COMPLIANCE WITH
THE NATIONAL ENVIRONMENTAL POLICY ACT
AND RELATED ENVIRONMENTAL REVIEW STATUTES
for the
DEVELOPMENT OF COMMERCIAL
SPACE LAUNCH SITES**

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Revised

Office of Commercial Space Transportation
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LIST OF ABBREVIATIONS AND ACRONYMS

CEQ	President's Council on Environmental Quality
CFR	United States Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FONSI	Finding of No Significant Impact
FR	Federal Register
N/A	Not applicable
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NMFS	United States National Marine Fisheries Service
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SHPO	State Historic Preservation Officer
USC	United States Code
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

49 U.S.C. Subtitle IX, ch. 701, the Commercial Space Launch Act of 1984, recodified at Commercial Space Launch Activities, 49 U.S.C. § 70101 et seq., (formerly referred to herein as the CSLA or the Act), [implemented by the Commercial Space Transportation Licensing Regulations, 14 C.F.R. Ch. III], authorizes the Secretary of Transportation to license, oversee and coordinate the operation of commercial launch sites in the United States or those operated by U.S. citizens abroad. The CSLA was enacted to encourage, facilitate and promote the establishment of a competitive United States commercial space transportation industry. The U.S. Department of Transportation (DOT) is charged with ensuring the protection of public health and safety, the safety of property, national security interests, and foreign policy interests of the United States through its licensing process. This authority is exercised through the Department's Office of Commercial Space Transportation (OCST).

In addition, the National Environmental Policy Act of 1969, as amended (NEPA), (42 U.S.C. 4321 et seq., Pub. L. 91-190, 83 Stat. 852), requires that Federal agencies consider the environmental consequences of major Federal actions; take actions that protect, restore, and enhance the environment; and ensure that environmental information is available to public officials and citizens before making decisions and taking actions (40 CFR§1500.1). Licensing the operation of a commercial space launch site is considered a major Federal action; consequently, the Office of Commercial Space Transportation (OCST) is responsible for analyzing the environmental impacts associated with proposed commercial space launch sites.

Furthermore, pursuant to Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, OCST is required to consider environmental impacts of certain overseas projects which require OCST licenses. Executive Order 12114 requires environmental review for major Federal actions significantly affecting the environment of: the global commons outside the jurisdiction of any nation (e.g., the oceans or Antarctica); a foreign nation not participating with the United States and not otherwise involved in the action; a foreign nation which provides to that nation either: a) a product or physical project producing a principal product or an emission or effluent which is prohibited or strictly regulated by Federal law in the United States because its toxic effects on the environment create a serious public health risk; or b) a physical project which in the United States is prohibited or strictly regulated by Federal law to protect the environment against radioactive substances. Executive Order 12114 also requires environmental documentation for major Federal actions outside the United States that significantly affect natural or ecological resources of global importance designated for protection under the Executive Order by the President, or, in the case of such a resource protected by international agreements binding on the United States, by the Secretary of State.

OCST is responsible for the preparation of NEPA documentation, including Environmental Assessments (EAs) and Environmental Impact Statements (EISs), and ultimately for licensing the operation of commercial space launch sites. Although an EA or EIS submitted by an applicant for a launch site operator license from OCST may be used in whole or in part to develop OCST's EA or EIS, **OCST is responsible for the facts, opinions, and judgments upon which a final environmental determination is based.** As discussed below in further detail, in accordance with the regulations for implementing NEPA (40 CFR Parts 1500 - 1508), promulgated by the Council on Environmental Quality (CEQ), when an applicant for a Federal license or permit prepares an EA or submits information for use in an EIS, the lead Federal agency shall furnish guidance and shall independently evaluate the document prior to its approval and take responsibility for the scope and content of the document (40 CFR 1506.5). In accordance with the CEQ regulations, OCST will ensure that all documentation for which it is responsible presents a full, accurate, and fair assessment of all potential environmental consequences of the proposed action. OCST will ensure that the EA or EIS fully complies with all applicable Federal regulations. In the event that a state agency sponsors an application for operation

of a commercial space launch site, the state agency may cooperate with OCST as a "joint lead agency" for the purposes of preparing environmental documentation. (40 CFR§1501.5(b)) In accordance with 40 CFR 1506.5(c), if the applicant uses a contractor to prepare the NEPA documentation, **the contractor must be selected by the lead agency (OCST)**, or by the lead agency in cooperation with any cooperating agencies, or where appropriate, by a cooperating agency to avoid any conflict of interest.

This Guide is intended to provide useful information and non-regulatory guidance. Throughout the document, source statutes, regulations, executive orders, and agency directives are summarized or paraphrased in order to convey the information and to enhance readability. Readers are advised that they should consult the current version of the cited written authorities where precise phrasing is important.

2.0 PURPOSE

This Guide is intended to aid applicants for launch site operator licenses in understanding OCST's policies and procedures for compliance with NEPA requirements by providing information on the NEPA process, the types of NEPA documents, related environmental statutes that bear on the NEPA process, and the importance of coordinating the NEPA process with the development process for programs and projects.

This guidance summarizes the requirements for NEPA environmental documentation, including Environmental Assessments and Environmental Impact Statements. The CEQ regulations implementing NEPA at 40 CFR 1500-1508 establish government-wide procedures which must be followed by agencies in the event of a major federal action. DOT Order 5610.1C sets Department-wide policies and procedures for DOT actions, and applies to OCST as part of DOT. This guidance does not establish explicit procedures, but summarizes provisions of the regulations and order. While this information is intended for use as a tool to assist in planning and achieving compliance with NEPA and other Federal requirements, it cannot substitute for the CEQ regulations and the DOT Order.

Section 3.0 provides guidance on the NEPA process and associated documentation for proposed licensing actions to be considered by OCST. The appendices address the preparation and review of EAs and EISs and coordination with related Federal environmental review requirements.

3.0 NEPA PROCESS AND DOCUMENTATION

To comply with the requirements and the spirit of NEPA, the NEPA process should be incorporated early in the applicants' planning of a proposed action. The selection of the appropriate NEPA documentation and the selection of lead agencies and cooperating agencies, as necessary, will be facilitated by the applicant initiating scoping early in its planning process to identify the significant environmental issues and deemphasize insignificant issues. The reason for early planning is established in the beginning of the NEPA regulations, Part 1500 - Purpose, Policy, and Mandate, which states that "NEPA procedures must insure that **environmental information is available to public officials and citizens before decisions are made and before actions are taken**" (emphasis added) (40 CFR 1500.1(b)). The NEPA regulations also state that "Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." (40 CFR 1502.2(g)).

3.1 Early Application of NEPA

Section 1501.2 of the CEQ regulations implementing NEPA requires that agencies "shall integrate the NEPA process with other planning at the earliest possible time to ensure that **planning and decisions reflect environmental values**, to avoid delays later in the process, and to head off potential conflicts" (emphasis added). To facilitate compliance with NEPA, applicants for a launch site operator license should consult with OCST at the beginning of their planning process, before committing to a specific launch site and prior to detailed design and engineering studies. This approach will prevent the applicant from violating the requirements of NEPA by **prematurely limiting the choice of reasonable alternatives** or creating an adverse environmental impact (40 CFR 1506.1). The NEPA regulations state that if "any agency is considering an application from a non-Federal entity, and is aware that the applicant is about to take an action within the agency's jurisdiction that would [have an adverse environmental impact or limit the choice of reasonable alternatives] then the agency shall promptly notify the applicant that the agency will take appropriate action to insure that the objectives and procedures of NEPA are achieved" (40 CFR 1506.1). To this end, Applicants are encouraged to work with OCST to assure that their activities will not limit the choice of reasonable alternatives in the site selection process. If an applicant for a launch site operator license violated the requirements described above, the applicant would jeopardize its chance of receiving a license from OCST and would leave themselves and DOT vulnerable to litigation.

It is DOT's policy that, to the maximum extent possible, the NEPA process be used to document compliance with other environmental review and coordination requirements. Once OCST has been contacted by an applicant with a conceptual or preliminary design for a launch site, OCST can initiate preparation of an EA or, if an EIS is required, OCST can issue a Notice of Intent (NOI), as discussed below in detail in Section 3.7, to officially initiate the NEPA process. Early coordination with OCST by the applicant will also allow OCST to assist the applicant by outlining the types of information required for the NEPA process.

During the early stages of the NEPA planning process, OCST and the applicant should identify the related Federal environmental statutes and regulations, i.e., those with review requirements that may also affect OCST or applicant implementation of a proposed action, and determine if there are any other agencies that also have jurisdiction by law or special expertise with respect to the proposed action (40 CFR 1508.5). Any other related environmental review requirements would then be addressed in, or coordinated with, the conduct by OCST of the requisite NEPA review. The CEQ regulations state that agencies **shall integrate the requirements of NEPA and other planning and environmental review procedures required by law** or agency practice so that the procedures can run

concurrently rather than consecutively (40 CFR 1500.2). Appendix E briefly describes many of the Federal statutes and regulations that a proposed action might trigger.

Unnecessary delay may result when inadequate attention is given to environmental requirements early in the planning process. Because construction cannot begin until the NEPA process has been completed (40 CFR 1506.1) as signalled by the issuance of a Record of Decision (ROD) (discussed below in further detail in Section 3.6) the EIS and other environmental review processes are critical path items. For example, a ripple effect is generated when preparation of the EA or EIS is delayed until the detailed design phase. (In many instances the agency with authority for environmental permitting will not commence review of permit applications until a draft EIS, at a minimum, has been circulated.) The permitting process may no longer be controlled by the availability of detailed design information, but instead by the availability of the draft EIS. In addition, the applicant's schedule may be further impacted if OCST or other cooperating agencies have objections (e.g., insufficient scope, alternatives analysis, data, faulty or inadequate analysis, etc.) to information submitted for use in the draft EIS which is submitted for review. Depending on the scope and magnitude of the objections, their resolution could take months. Again, because the licensing process is a major Federal action, the EIS must be acceptable to OCST prior to its adoption.

Occurrence of any of the events described previously could delay the start of construction. When an application is submitted for an environmental permit that requires NEPA review by an environmental permitting agency (e.g., Corps of Engineers Section 404 wetlands permit), input from the permitting agency should be actively sought throughout OCST's NEPA process. Moreover, when an EIS is required for the action, the environmental permitting agency should be invited to be a cooperating agency with OCST as the lead agency in preparation of the EIS. This involvement should enable the environmental permitting agency to adopt the OCST NEPA document and thereby avoid any possible delays from its own separate review.

Even when an application will be submitted for an environmental permit that does not require NEPA review (e.g., permits under the Clean Air Act), early involvement of the environmental permitting agency in the OCST NEPA process could ensure that information needed for the permit is available when the application for the environmental permit is submitted.

The following sections describe the various NEPA documents and procedures in terms of how the documents fit into the NEPA process and their content. Figure 1 illustrates the overall NEPA process and where the various documents fit in the process.

3.2 Categorical Exclusions

The categorical exclusion is defined as a category of actions which normally do not individually or cumulatively have a significant effect on the quality of the human environment and which require neither an environmental impact statement nor an environmental assessment (40 CFR Parts 1507.3 and 1508.4). OCST will be evaluating whether there are typical classes of OCST actions that may be categorically excluded.

3.3 Environmental Assessments

An Environmental Assessment (EA) has three defined functions: (1) to determine whether a proposed action requires preparation of an EIS; (2) to aid an agency's compliance with NEPA when no EIS is necessary, that is, to provide an interdisciplinary review of proposed actions and to help better identify alternatives and mitigation measures, if applicable; and (3) to facilitate preparation of an EIS when one is necessary. If an agency determines on the basis of an EA that an EIS is not required, a finding of no significant impact (FONSI) is issued (40 CFR 1501.4 and 1508.9). FONSI are discussed in detail in Section 3.4.

OCST prepares EAs for proposed actions that fall within the class of OCST actions that normally require EAs but not necessarily EISs (40 CFR Part 1507.3, Agency Procedures). OCST can forego preparation of an EA if it has decided that an EIS is required.

The CEQ regulations provide that an EA shall include a brief discussion of the need for the proposal, the environmental impacts of the proposed action, a listing of agencies and persons consulted, and discussion of alternatives as required by Section 102(2)(E) of NEPA(40 CFR 1508.9(b)). While the CEQ regulations discuss the scoping process in the context of EISs, in practice, the preparation of an EA will require a similar scoping effort in terms of identifying environmental areas that may be impacted by the proposed action and in terms of contacting and coordinating with appropriate agencies (e.g., the Fish and Wildlife Service for the potential presence of threatened and endangered species, the Army Corps of Engineers for wetlands, and the State Historic Preservation Officer for cultural resources). In the event that significant environmental impacts are identified, an EA should provide the basis for a full and fair discussion of the impacts in the EIS.

Evaluation of alternatives must include the environmental impacts. If alternatives are not considered, an explanatory paragraph is necessary. In practice, a brief analysis of alternatives, including the no action alternative, is normally needed for proposed actions. An EA should contain, as appropriate, the following information: a clear and concise description of the proposed action, including drawings, maps, and charts, if directly pertinent to analyzing the environmental consequences of the proposed action; description of the existing environment affected by the proposed action, only in sufficient detail to permit a meaningful evaluation of the potential environmental consequences of the proposed action; an assessment of the probable impacts of the proposed action, including direct and indirect effects and those adverse impacts which cannot be avoided should the proposal be implemented; and an evaluation of the probable cumulative and long-term environmental effects including any beneficial impacts.

3.4 Finding of No Significant Impact

A Finding of No Significant Impact (FONSI) is a document by a Federal agency briefly presenting the reasons why an action, not otherwise excluded, will not have a significant effect on the human environment and for which an environmental impact statement will therefore not be prepared (40 CFR 1508.13).

The FONSI is based upon an environmental assessment of the proposed action. It may be attached to or be combined into a single document with the environmental assessment.. If the EA is included as part of the FONSI package, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference. The format for the FONSI or EA is not strictly defined, thus, the following outline is only a general guideline.

- Summary - a summary of the proposed action and a declaration of why the proposed action would not have a significant impact on the environment and therefore would not require an Environmental Impact Statement. The summary should indicate what the analysis is based on, and the supporting documentation should be attached or referenced, as appropriate. If documentation is used that was not developed in cooperation with DOT, it should be clear that

OCST independently evaluated the documentation prior to its adoption as a basis for the FONSI, and determined it to adequately and accurately discuss the environmental issues and impacts of the proposed action. All supporting documentation should provide sufficient evidence and analysis for determining that an Environmental Impact Statement is not required.

- Availability - name, address, and telephone number for copies of the EA.
- Contact - name, address, and telephone number for additional information about the proposed action and the NEPA process.
- Proposed Action - brief description of the proposed action.
- Background - if needed, short description of the setting of the proposed action and information on the process or technology.
- Environmental Impacts - itemized and described briefly.
- Alternatives Considered - if alternatives were considered, briefly describe the alternatives and impacts considered.
- Findings (or Determination) - brief summary of potential environmental impacts, justification of the conclusion of no significance, and declaration of the finding (this declaration is also in the summary).

FONSIs are not automatically required to go through the same public review and comment process as a Record of Decision. However, on occasion, proposed FONSIs are subject to public review and comment. In the case of an action with **effects of national concern**, the FONSI or proposed FONSI must be published in the *Federal Register* in accordance with 40 CFR 1506.6 (see Section 3.7 below). Because the proposed action has effects of local concern in the case of a commercial space launch site, OCST strongly encourages that the FONSI be published in local newspapers. Also, under 40 CFR 1501.4, if a proposed action is, or is closely similar to, **one which normally requires the preparation of an EIS**, or the nature of the proposed action is **one without precedent**, then the agency shall make a proposed FONSI available for **public review and comment for 30 days** before making a decision whether to prepare an EIS. At a minimum, **the public shall be notified that a FONSI has been issued** in accordance with 40 CFR 1506.6.

3.5 Environmental Impact Statements

The CEQ regulations state that the primary purpose of an environmental impact statement (EIS) is to serve as an action-forcing device to ensure that the policies and goals defined in NEPA are infused into the programs and actions of the Federal government. An EIS should provide full and fair discussion of significant environmental impacts. The EIS should inform decisionmakers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.

The CEQ regulations further state that an EIS is more than a disclosure document. It is a document that should be used by Federal officials in conjunction with other relevant material to plan actions and make decisions.

Content. Environmental impact statements are to be analytical and concise, with only enough description of non-significant issues to show why more study is not warranted. Length should reflect potential environmental problems and project size (CEQ regulations state that the text for items d through g below shall normally be less than 150 pages, and for actions of unusual scope or complexity, less than 300 pages). Analysis of alternatives should encompass those to be considered by the

ultimate decisionmaker, including a complete description of the proposed action. The EIS is a means of assessing the environmental impact from the construction and operation of proposed OCST actions; it is not meant to justify decisions already made.

The following standard format is recommended (40 CFR 1502.10) unless there is a compelling reason to do otherwise.

- a. Cover Sheet
- b. Summary
- c. Table of Contents
- d. Purpose of and Need for Action
- e. Alternatives Including Proposed Action
- f. Affected Environment
- g. Environmental Consequences
- h. List of Preparers
- i. List of Agencies, Organizations, and Persons to Whom Copies of the Statement Are Sent
- j. Index
- k. Appendices (if any)

Tiering. CEQ encourages agencies to tier their EISs to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (40 CFR 1508.28). When a broad EIS has been prepared, such as a programmatic EIS, subsequent EISs or EAs related to the program need only summarize the issues discussed in the broader EIS and incorporate discussions from the broader EIS by reference and concentrate on issues specific to the subsequent action. In that regard, the following presents detailed summaries of information used to describe proposed actions related to commercial launch vehicle programs. The summaries were drawn from OCST's Programmatic Environmental Assessment of Commercial Launch Vehicle Programs.

The CEQ regulations require that the cover sheet not exceed one page (40 CFR 1502.11) and that it include basic information such as the lead agency (OCST) and any cooperating agencies; the title and location of the proposed action; the addresses and telephone numbers of agency contacts; and a one-paragraph abstract of the EIS. The summary should adequately and accurately summarize the EIS (40 CFR 1502.12) and stress the major conclusions, areas of controversy (including issues raised by agencies and the public during scoping or in comments on the draft EIS), and the issues to be resolved (including the choice among alternatives). The summary will normally not exceed 15 pages. The section on purpose and need should briefly specify the underlying purpose and need to which OCST is responding in proposing the alternatives, including the proposed action (40 CFR 1502.13).

The remainder of Section 3.6 briefly discusses the requirements for the smaller items and provides more detail for the sections on Treatment of the Proposed Action and Alternatives, Affected Environment Alternatives and Environmental Consequences.

3.5.1 Treatment of Proposed Action and Alternatives

The CEQ regulations refer to this section as the "heart" of the EIS (40 CFR 1502.14) because, based on the information and analysis presented in the sections on Affected Environment and Environmental Consequences, this section should compare the proposed action and alternatives to give the decisionmaker and the public a clear choice. This section should evaluate all reasonable alternatives and briefly discuss the reasons for eliminating alternatives from detailed study. The reasonable alternatives may include, but are not limited to, 1) alternative spaceport locations, 2) alternative scope of the spaceport (e.g., magnitude and complexity of perspective launch missions), and 3) alternative extent of spaceport operations. A rationale must be given as to why these alternatives are not selected as the proposed action. The EIS should also address reasonable alternatives outside

the jurisdiction of OCST and a No-Action alternative. When possible, the draft EIS will identify the preferred alternative or alternatives and the final EIS shall identify such alternative.

The basic functional elements of a commercial spaceport will roughly follow those of existing government launch sites. The configuration is likely to consist of some combination of the following: launch pad, launch control center, payload processing, vehicle and other assembly, processing facilities for vehicle and payload integration, operation support center, communications and control (e.g. range safety tracking and telemetry), administration and technical support facilities, maintenance facilities, site utilities, access roads, parking, and public/media areas. Overall spaceport operations information will also encompass launch vehicles, flight operations, launch operations, flight path, and size of launch site. Facilities associated with these functions will also be addressed in the proposed action.

The EIS must address reasonable cumulative impacts at full development and operation of the launch facility. In developing the EIS, maximum-case data should be used for both the number of launches from the site and launch vehicle size and attendant impacts. The use of maximum-case data will provide coverage of the largest reasonable and foreseeable envelope of impacts, even if initial plans are less extensive than the maximum case.

Launch Pads. The launch vehicle type determines the launch pad configuration. Selection of the launch vehicles to be used for a given mission is a function of both payload size and orbit, i.e., a heavier payload taken to a higher orbit requires a larger launch vehicle with its greater impacts. A spaceport developer planning to launch a variety of launch vehicle sizes must design for the largest vehicle likely to be used.

Launch Control Center. Telecommunications is a critical off-site function whose infrastructure supports overall spaceport operations as well as vehicle tracking and other in-flight control and monitoring activities. Both conventional and special communications facilities will be required for voice, data, and image transmissions in connection with these purposes.

Operations Support Facilities. Pre-launch space transportation activities include receipt of the launch vehicle stages, launch vehicle storage, inspection of launch vehicle parts, and assembly of the launch vehicle. Other launch related activities include general and technical maintenance, ground transportation, launch vehicle maintenance, fueling operations, and radar and other tracking. Activities such as these are housed in support buildings, as are emergency services that must be available during a launch in case of an accident or aborted mission at the launch site.

Site Utilities. Electrical power is used in the operation of range data acquisition systems such as tracking radars, telemetry, communications, and electro-optical facilities. Instrumentation support systems such as command transmission, surveillance radar, meteorological monitoring, and safety information computation and display will also require electricity.

Water facilities are necessary to the operation of wash systems, for fire safety, and for potable water needs. A water deluge system may be required if launch vehicles are of the so-called "Dry Bucket" type. It will be necessary to flush each pad after launch as well as to have water for fire safety purposes; water for both these purposes can be brackish. Requirements for potable water will be those normally associated with personnel in an industrial operation.

Wastewater treatment facilities will be necessary to collect, process, and dispose of sewage and other wastewater. Launch operations will not result in significant amounts of solid waste. Storm water management systems may also be required for the control and management of storm water discharges from industrial areas. The EIS should address storm water management discharge impacts.

Hazardous wastes are generated at spaceports. Among other activities, post-launch activities (i.e., pad refurbishment) will generate hazardous waste. These wastes may be contaminated with metals, solvents, and propellants. The EIS will discuss pollution prevention activities, how spaceport design and operation will minimize the generation of residual hazardous contamination, and how residual waste will be effectively managed.

Ultimately, the proposed action should be described in sufficient detail and accuracy to identify the potential impacts from spaceport development and operation. The description should include activities from the construction, operation, and post-operation stages. The construction phase should include information on site clearing, access road construction, parking lots, utility connections, other related construction and the amount of land required for such activities, the duration of the construction phase and the size of the work force. The operational phase can be subdivided into pre-launch, launch, and post-launch. The description of the operational phase should include the project and related support operations or facilities on-site and off-site, including identification of maintenance and transportation activities. In addition, the proposed action should identify procedures that limit environmental impacts from normal operations, safety systems, pollution prevention controls, and treatment and disposal methods for waste streams (including emissions). The post-operational description should include reasonably foreseeable future requirements such as site close-out and site restoration. When OCST has only limited information on decontamination, decommissioning, and other post-operational activities, the EIS should state that a separate NEPA review may be required for such activities.

3.5.2 Affected Environment

For the EIS process to culminate in an accurate determination of possible impacts from the proposed spaceport, existing (baseline) conditions at and in the immediate vicinity of a proposed site must be identified and thoroughly documented. The description of the affected environment should be limited to information that directly relates to the scope of the proposed action and alternatives whose impacts are to be analyzed. The CEQ regulations state that data and analyses in an EIS should be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced (40 CFR 1502.15). Such baseline site data must include information on air quality, water quality, land resources, biota, noise, and the local community.

3.5.3 Environmental Consequences

This section presents detailed summaries of the various potential impacts and consequences of commercial launches based on Section III of OCST's Programmatic Environmental Assessment of Commercial Launch Vehicle Programs. The potential impacts described below should be considered generic; each NEPA document covering proposed launch site alternatives will have to address the specific characteristics of those particular alternative sites. The EIS must address both direct and indirect impacts. Direct impacts (40 CFR 1508.8(a)) are those "caused by the action and occur[ring] at the same time and place." Indirect impacts (40 CFR 1508.8(b)) are reasonably foreseeable effects of the action that are likely to be manifest in the future or at some distance from site. The following are general environmental areas to be included in the EIS: air quality, water quality, land use, noise, biotic resources, and community impacts (socioeconomic and cultural). **The level of detail provided through data and analyses for each environmental area should be commensurate with the importance of the impact** (40 CFR 1502.15), e.g., if the proposed action would not have any effect on ground water, the EIS should not address ground water in detail, but only enough to state that the element was considered and that the project would not impact the resource.

Air Quality. Construction of the spaceport may generate particulate emissions during site clearing and development. In addition, the spaceport may be located in a non-attainment or maintenance area. Spaceport operations can affect air quality through several sources: launch exhausts, chemical releases, fuel combustion at support facilities (e.g., power plants), employee

vehicles, and other air emissions. The EIS should address each of these issues, where applicable, with a presentation of mitigative measures.

Contaminants from rocket launch emissions are determined variously by propellant type, propellant additives and/or impurities, or operational factors of the engine itself. Present-day launches are commonly known to emit, for example, the following products of combustion: water, carbon dioxide, carbon monoxide, hydrogen chloride, nitrogen, hydrogen, and aluminum oxide. Of these, carbon monoxide and hydrogen chloride are generally recognized as air pollutants and may present a toxicity hazard, contribute to ground-level ozone (because volatile organic compounds are precursors to ground-level ozone) and deplete the stratospheric ozone layer. Aluminum oxide (emitted as a particulate), water, and carbon dioxide (upper atmosphere pollutants) may also be of concern, because they may affect chemical/physical properties of the atmosphere and result in undesirable impacts such as global climatic changes. Failure of a rocket launch (i.e., launch abort) may result in the rupture of propellant tanks, which may in turn result in a release of propellants. These normally ignite and burn, potentially forming various oxides of nitrogen in the atmosphere. These can be of concern because nitrogen oxides are precursors to ground-level ozone.

The air quality evaluation should cover secondary emission impacts. Construction of a spaceport may impact land use near the project site resulting in development of residential and industrial areas and an increase in traffic. These activities will impact the existing air quality at/around the proposed facility.

Water Quality. Potential water quality impacts resulting from spaceport operations are likely to arise principally from wastewater treatment plant discharges, storm water runoff, impact of spent launch vehicle stages, dredging, construction, fallout, and accidental releases. The EIS will address each of these issues with a presentation of mitigative measures.

Wastewater treatment plant discharges must conform to limits set by the National Pollutant Discharge Elimination System (NODES) discharge permit and applicable state regulations. Control of runoff will prevent spilled propellants, pesticides, phosphorus, nitrogen and suspended solids from entering nearby waterways. Storm water runoff/discharges may also be required to conform with NODES permit requirement. Spent launch vehicle stages can contribute residual solid and liquid propellants from fallout or accidental release presenting a hazard to the marine environment. Dredging and construction can result in an increase of turbidity and pollutant loads in nearby waterways. Accidental release may result in pollutants leaching into the nearby groundwater system.

Land Quality. Potential land quality impacts from spaceport operations would most likely arise in launch site construction, disposal or treatment of solid wastes, fallout, and material storage activities. Potential issues include impacts to prime and unique farmland, wetlands, floodplains, barrier islands, and the coastal zone. The EIS will address each of these issues with a presentation of mitigative measures.

Construction of new or modifications to existing launch sites must comply with local and state zoning requirements and codes. The disposal/treatment, transportation, or storage of solid waste in connection with facility operations will be addressed in accordance with pertinent regulations.

Noise. Spaceport construction could affect ambient noise levels in addition to impacts generated by launches and other spaceport operations. Considering acoustic compatibility of a site with the surrounding land uses, the EIS shall address each of these issues by presenting mitigative measures, as necessary. Particular attention will be given to sonic and sub-sonic noise generation and its impacts to the environment. Noise emission projections are to be based on the rocket and engine design as well as trajectory.

Biota. The most immediate potential impact on flora, fauna, and associated ecosystems attributable to various spaceport operations will occur during the construction of the facility and in the vicinity of the launch complex at the time of an actual launch. The EIS shall address each of these issues with a presentation of mitigative measures.

The Endangered Species Act and the Marine Mammal Protection Act place responsibility on Federal agencies to avoid jeopardizing the existence of threatened and endangered species. Consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service and state authorities, as appropriate, is required if there may be impacts on endangered or threatened species.

Community (Socioeconomic) Impacts. Community impacts resulting from spaceport operations may include the economy, demographic patterns, land use, community services, energy consumption, and historical/cultural resources. Local economies, infrastructure, demographic patterns, land use, community services, and energy consumption will be altered because of the influx of workers and visitors to the launch site. The EIS will address each of these issues with a presentation of mitigative measures.

Historical and cultural resources are protected by the National Historic Preservation Act of 1966. Section 4(f) of the Department of Transportation Act, 49 USC 303, states that it is national policy to preserve the natural beauty of the countryside, parklands, refuges, and historic sites. The Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge, or land of an historic site of national, state or local significance only if 1) there is no feasible or prudent alternative to using that land and 2) the program or project includes all possible planning to minimize harm. Section 4(f) resources are protected from proximity impacts which substantially impair the use or integrity of Section 4(f) resources (referred to as a constructive use).

3.5.4 Mitigation Measures

Mitigation measures are those means by which adverse project-related impacts can be diminished or eliminated. The initial step in mitigation planning is to identify the impacts of the program and determine which impacts can be reduced or eliminated in some way. The second step is to decide on the mitigation measure based on consultation with the appropriate agencies and affected parties. The third step is actual implementation of the mitigating measures, and the fourth step is monitoring and reporting on their effectiveness. The EIS will address each adverse project-related impact during the preparation of mitigative measures.

3.6 Record of Decision

After the required time periods that limit agency action have expired (no decision on the proposed action can be made or recorded until 90 days after publication of the EPA's NOA for a draft EIS and 30 days after EPA's NOA for a final EIS), OCST will publish a record of decision in the *Federal Register* (40 CFR 1505.2) and also make the ROD available to the public, as described in 40 CFR §1506.6. The ROD will be considered issued upon signature by the responsible OCST official. In accordance with 40 CFR 1505.2, the ROD will:

- State OCST's decision.
- Identify all alternatives considered by OCST in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable.

OCST may discuss preferences among alternatives based on relevant factors, including economic and technical considerations and OCST statutory missions. OCST will identify and discuss all such factors, including any essential considerations of national policy which were balanced by it in making its decision, and state how those considerations entered into its decision.

- State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted and, if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation committed to in the ROD.

As previously discussed, until the ROD is signed, OCST and the applicant for a launch site operator license cannot take any action which would have an adverse environmental impact or limit the choice of reasonable alternatives (40 CFR 1506.1) and cannot commit resources prejudicing selection of alternatives before making a final decision (1502.2(f)).

3.7 Scoping Process: Notice of Intent/Public Involvement

When OCST decides that an EIS is required for a proposed action (because the proposed action is one that normally requires an EIS; an EA indicated that the proposed action is likely to cause significant impacts to the environment; or when OCST believes, without preparing an EA, that the proposed action could cause significant impacts to the environment), OCST conducts scoping to solicit public input to the EIS process to ensure that issues are identified early and properly studied, issues of little significance do not consume time and effort, the draft EIS is thorough and balanced, and delays occasioned by an inadequate draft EIS are avoided (40 CFR 1501.7). Although scoping meetings are often held, they are not required by CEQ regulations. The scope of issues to be addressed may also be determined from written comments and telephone calls. Scoping continues through the planning for an EIS. The CEQ has advised that an agency cannot shed its responsibility to assess each significant impact or alternative even if one is found after scoping. In addition, although a lead agency is responsible for managing the scoping process, cooperating agencies have responsibility under the CEQ regulations to participate in scoping (40 CFR 1501).

As soon as practicable after OCST decides that an EIS is required, a notice of intent (NOI) is published in the *Federal Register* to let the public know that an EIS will be prepared. Publication of the NOI initiates a public scoping period and the EIS process. If scoping meetings are held, the date, time and location(s) are included in the NOI. The CEQ regulations allow agencies great latitude in determining how to execute the scoping process. If there is a lengthy period of time between the time of decision and preparation of the draft statement, the NOI may be published at a reasonable time in advance of preparation. The NOI invites comments and suggestions on the proposed scope of the EIS, including environmental issues and alternatives, and invites participation in the NEPA process.

In addition to the *Federal Register* NOI, agencies are required to make diligent effort to notify and involve the public through, for instance, announcements in local newspapers, letters to interested or affected Federal, state, and local government officials, and interested citizens and/or community groups (40 CFR 1506.6).

3.8 Notice of Availability (and Public Hearing)

CEQ regulations require that agencies file EISs at the EPA Office of Federal Activities. The EPA publishes a weekly notice of availability (NOA) in the Federal Register of EISs filed with EPA during the preceding week. This EPA filing notice starts the public review period for the EISs. **No**

decision on the proposed action can be made or recorded until 90 days after publication of the EPA's NOA for a draft EIS and 30 days after EPA's NOA for a final EIS. Time periods may be modified as described in 40 CFR 1506.10.

3.9 Public Hearing Procedures

The CEQ regulations require agencies to hold or sponsor public meetings or hearings whenever appropriate or required by statute (40 CFR 1506.6). Public hearings are not required for scoping an environmental impact statement or for obtaining comment on a draft EIS. OCST makes case-by-case determinations on why to conduct hearings using the following criteria (40 CFR 1506.6):

- Whether there is substantial environmental controversy concerning the proposed action or substantial interest in holding a hearing.
- Whether there is a request for a hearing by another agency with jurisdiction over the action, supported by reasons why a hearing would be helpful.

If OCST determines that a hearing should be held, notice of the hearing can be published in the Notice of Intent to prepare an EIS or the notice of availability for a draft EIS. A hearing on a draft EIS should not be held sooner than 15 days after the draft EIS is made available to the public (40 CFR 1506.6(c)(2)). Guidance on distribution of notices for NEPA documents and related hearings can be found in 40 CFR 1506.6. OCST establishes procedures for the conduct of hearings and publishes these procedures in the notice announcing the hearing. An OCST official should preside over the hearing. To ensure that everyone who wishes to speak has a chance to do so, time limits can be established. OCST may allow longer times for representatives of organizations.

3.10 NEPA Document Distribution

The distribution requirements for NOIs, EAs, FONSIIs, and other NEPA documents are less defined than those for EISs. OCST officials prepare and sign letters which distribute or announce the availability of NEPA documents. OCST will coordinate, or direct the coordination of letters to Members of Congress or Governors, as well as with all levels of the Federal Governments. Generally, where the time for public involvement is limited (as with draft and final EISs), the NEPA document should be forwarded with letters announcing its availability (for example, an NOI or FONSI). Letters concerning the preparation of an environmental assessment and FONSI or issuance of a Record of Decision do not have to forward the document, but can merely announce its availability and where and how to obtain it.

Specific distribution procedures for any NEPA document, including EISs, must be decided on a case-by-case basis, taking into consideration such factors as the nature of the action and extent of public interest as required in 40 CFR 1506.6. The requirements of 40 CFR 1506.6 with regard to document distribution are as follows:

- Provide notice of the availability of environmental documents so as to inform those persons and agencies who may be interested or affected.
- In all cases mail notice of availability to those who have requested it on an individual action.
- In the case of an action with effects of national concern, the notice of availability shall be published in the *Federal Register* and mailed to national organizations reasonably expected to be interested in the proposed action.

- In the case of an action with effects primarily of local concern, the notice of availability actions might include:
 - Following the affected state's public notice procedures for comparable actions;
 - Publication in local newspapers;
 - Notice through other local media;
 - Notice to potentially interested community organizations including small business associations;
 - Publication in newsletters that may be expected to reach potentially interested persons;
 - Direct mailing to owners and occupants of nearby or affected property; and
 - Posting notice on and off site in the area where the action is to be located.

3.11 Supplements to Draft EISs or Final EISs

Supplements to draft EISs or final EISs are prepared if substantive changes are made in the proposed action that are relevant to environmental concerns; or there are significant new circumstances or information affecting the proposed action or its impacts that are relevant to environmental concerns (40 CFR 1502.9). If a supplement is required, the supplement to the draft or final EIS is prepared, approved, circulated, and filed in the same fashion as a regular draft or final EIS; however, scoping is not required for a supplement.

4.0 Sources for Further Guidance

Council on Environmental Quality (CEQ) Regulations For Implementing the Procedural Provisions of the National Environmental Policy Act (40 C.F.R. § 1500-1508).

Procedures for Considering Environmental Impacts, DOT ORDER 5610.IC, Department of Transportation, Office of the Secretary, September 18, 1979; as revised on July 13, 1982 and July 30, 1985.

Guidance for Preparing and Processing Environmental and Section 4(f) Documents (T6640.8A), U.S. Department of Transportation, Federal Highway Administration, October 30, 1987.

Airport Environmental Handbook, FAA ORDER 5050.4A, Department of Transportation, Federal Aviation Administration, October 8, 1985.

Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, Council on Environmental Quality, *Federal Register*, Volume 46, Number 55, March 23, 1981.

APPENDICES

Appendices A, B, C, D, and E present an EA checklist, a matrix for the preparation of EISs, a master checklist for EISs, a detailed checklist for EISs, and applicable Federal regulations for use in the preparation or review of EAs and EISs.

APPENDIX A
ENVIRONMENTAL ASSESSMENT CHECKLIST¹

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
1.1.0 SUMMARY (Optional in EAs)					
1.1.1 Does the summary address the entire EA?					
1.1.2 Is the summary consistent with information in the document?					
1.1.3 Does the summary highlight key differences among the alternatives?					
1.1.4 Does the summary describe: the underlying purpose and need for OCST action; ² the proposed action; each of the alternatives; the principal environmental issues and results?					
1.2.0 PURPOSE AND NEED FOR ACTION					
1.2.1 Does the statement of purpose and need define the need for <u>OCST</u> action [40 CFR 1508.9] ³ ?					
1.2.2 Does the statement of purpose and need relate to the broad requirement or desire for OCST action, and not to the need for one specific proposal?					
1.2.3 Is the statement of purpose and need written so that it does not inappropriately narrow the range of reasonable alternatives?					
1.2.4 Does the statement of purpose and need identify the problem or opportunity to which OCST is responding? ⁴					

¹ Source: Adapted from U.S. Department of Energy, Environmental Assessment Checklist 1994.

² In this case, the need for agency action can be defined more broadly than the licensing of a launch site to encompass OCST's mission and the need for the launch site.

³ See footnote 5.

⁴ In this case, the problem or opportunity can be defined more broadly than the legal requirement to approve licenses for commercial launch sites, i.e., that OCST is mandated by law to encourage, facilitate and promote the establishment of a competitive United States commercial space transportation industry

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
1.3.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES					
1.3.1 Is the proposed action described in sufficient detail so that potential impacts can be identified? Are all phases described (e.g., construction, operation, maintenance, and decommissioning)?					
1.3.2 Are environmental releases associated with the proposed action quantified, including both the rates and durations?					
1.3.3 As appropriate, are mitigation measures included in the description of the proposed action?					
1.3.4 Is the project description written broadly enough to encompass future modifications?					
1.3.5 Does the proposed action exclude elements that are more appropriate to the statement of purpose and need? ⁵					
1.3.6 Is the proposed action described in terms of the OCST action to be taken (even a private action that has been federalized)?					
1.3.7 Does the EA address a range of reasonable alternatives that satisfy the OCST's purpose and need, including reasonable alternatives outside OCST's jurisdiction?					
1.3.8 If there are alternatives that appear obvious or have been identified by the public, but are not analyzed, does the EA explain why they were excluded?					
1.3.9 Does the EA include the no action alternative?					
1.3.10 Is the no action alternative described in sufficient detail so that its scope is clear and potential impacts can be identified?					
1.3.11 Does the no action alternative include a discussion of the legal ramifications of no action, if appropriate?					
1.3.12 Does the EA take into account relationships between the proposed action and other actions to be taken by OCST in order to avoid improper segmentation?					
1.3.13 Does the proposed action comply with CEQ regulations for limitations on actions during NEPA process or interim actions [40 CFR 1506.1]?					
1.4.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT					

⁵ The discussion of the proposed action should focus on the specifics of the proposed action, while background information and the reasoning for the project should be kept to the discussion of purpose and need.

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
1.4.1 Does the EA <u>identify either the presence or absence</u> of the following within the area potentially affected by the proposed action and alternatives:					
floodplains [EO 11988]?					
wetlands [EO 11990; 40 CFR 1508.27(b)(3)]?					
threatened, endangered, or candidate species and/or their critical habitat, and other special status (e.g., state-listed) species [16 USC 1531; 40 CFR 1508.27(b)(3)]?					
prime or unique farmland [7 USC 4201; 7 CFR 658; 40 CFR 1508.27(b)(3)]?					
state or national parks, forests, conservation areas, or other areas of recreational, ecological, scenic, or aesthetic importance?					
wild and scenic rivers [16 USC 1271; 40 CFR 1508.27(b)(3)]?					
natural resources (e.g., timber, range, soils, minerals, fish, wildlife, water bodies, aquifers)?					
property of historic, archaeological, or architectural significance (including sites on or eligible for the National Register of Historic Places and the National Registry of Natural Landmarks) [16 USC 470; 36 CFR 800; 40 CFR 1508.27(b)(3)]?					
Native Americans' concerns [16 USC 470; 42 USC 1996]?					
minority and low-income populations (including a description of their use and consumption of environmental resources) [EO 12898]?					
1.4.2 Does the description of the affected environment provide the necessary information to support the impact analysis, including cumulative impact analysis?					
1.4.3 Does the EA appropriately use incorporation by reference? Is/are the incorporated document(s) up-to-date?					
1.4.4 If this EA adopts, in whole or in part, a NEPA document prepared by another federal agency, has OCST independently evaluated the information?					
1.50 ENVIRONMENTAL EFFECTS					
1.5.1 Does the EA identify the <u>potential effects</u> (including cumulative effects) to the following, as identified in question 1.4.1:					
floodplains [EO 11988]?					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
wetlands [EO 11990; 40 CFR 1508.27(b)(3)]?					
threatened, endangered, or candidate species and/or their critical habitat, and other special status (e.g., state-listed) species [16 USC 1531; 40 CFR 1508.27(b)(3)]?					
prime or unique farmland [7 USC 4201; 7 CFR 658; 40 CFR 1508.27(b)(3)]?					
state or national parks, forests, conservation areas, or other areas of recreational, ecological, scenic, or aesthetic importance?					
wild and scenic rivers [16 USC 1271; 40 CFR 1508.27(b)(3)]?					
natural resources (e.g., timber, range, soils, minerals, fish, wildlife, water bodies, aquifers)?					
property of historic, archaeological, or architectural significance (including sites on or eligible for the National Register of Historic Places and the National Registry of Natural Landmarks) [16 USC 470; 36 CFR 800; 40 CFR 1508.27(b)(3)]?					
Native Americans' concerns [16 USC 470; 42 USC 1996]?					
minority and low-income populations [EO 12898]?					
1.5.2 Does the EA analyze the proposed action:					
for both short-term and long-term effects [40 CFR 1508.27(a)]?					
for both beneficial and adverse impacts [40 CFR 1508.27(b)(1)]?					
for effects on public health and safety [40 CFR 1508.27(b)(1)]?					
for disproportionately high and adverse human health or environmental effects on minority and low-income communities [EO 12898]?					
1.5.3 Do the discussions of environmental impacts include (as appropriate) human health effects, effects of accidents, and transportation effects?					
1.5.4 As appropriate, does the EA address the degree to which the possible effects on the human environment may be highly uncertain or involve unique or unknown risks [40 CFR 1508.27(b)(5)]?					
1.5.5 Do the discussions of environmental impacts identify possible indirect and cumulative impacts?					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
1.5.6 Does the EA quantify environmental impacts where possible?					
1.5.7 Are all potentially non-trivial impacts identified? Are impacts analyzed using a graded approach - i.e., proportional to their potential significance?					
1.5.8 Does the EA identify all reasonably foreseeable impacts [40 CFR 1508.8]?					
1.5.9 If information related to potential impacts is incomplete or unavailable, does the EA indicate that such information is lacking [40 CFR 1502.22]?					
1.5.10 Are sufficient data and references presented to allow review of the validity of analysis methods and results?					
1.6.0 OVERALL CONSIDERATIONS/INCORPORATION OF NEPA VALUES					
1.6.1 Because conclusions of overall significance will be made in a FONSI or determination to prepare an EIS, are the words "significant" or "insignificant" absent from conclusory statements in the EA?					
1.6.2 Do the conclusions regarding potential impacts follow from the information and analyses presented in the EA?					
1.6.3 Does the EA avoid the implication that compliance with regulatory requirements demonstrates the absence of significant environmental effects?					
1.6.4 Are mitigation measures appropriate to the potential impacts identified in the EA [40 CFR 1500.2(f)]?					
1.6.5 Does the EA show that the OCST "has taken a 'hard look' at environmental consequences" [Kleppe v. Sierra Club, 427 US 390, 410 (1976)]?					
1.7.0 PROCEDURAL CONSIDERATIONS					
1.7.1 Were host states and tribes and, when applicable, the public notified of OCST's determination to prepare the EA? Does the EA address issues known to be of concern to the states, tribes, and public?					
1.7.2 Has the EA been made available to the agencies, states, tribes, and the public?					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
1.7.3 Have stakeholders including the public been involved in the extent practicable during the preparation of the EA [CEQ (46 FR 18037); 40 CFR 1506.6; 40 CFR 1501.4(b)]? Has the involvement of minority and low-income communities been proactively sought in the review and preparation process [EO 12898]?					
1.7.4 Have comments from host states and tribes and, when applicable, the public been addressed?					
1.7.5 Is a Floodplain/Wetlands Assessment required and, if so, has one been completed? If required, has a Public Notice been published in the Federal Register?					
1.7.6 Does the EA demonstrate adequate consultation with appropriate agencies to ensure compliance with sensitive resource laws and regulations? Are letters of consultation (e.g., SHPO, USFWS) appended [16 USC 1531; 36 CFR 800]?					
1.7.7 Does the EA include a listing of agencies and persons consulted [40 CFR 1508.9(b)]?					
1.8.0 FORMAT, GENERAL DOCUMENT QUALITY, USER-FRIENDLINESS					
1.8.1 Is the EA written precisely and concisely, using plain language, and without jargon?					
1.8.2 Is OCST listed as the preparer on the title page of the EA?					
1.8.3 Are technical terms defined where necessary?					
1.8.4 Are the units of measure consistent throughout the document?					
1.8.5 If regulatory terms are used, are they consistent with their regulatory definitions?					
1.8.6 Are visual aids used whenever possible to simplify the EA?					
1.8.7 Are abbreviations and acronyms defined the first time they are used?					
1.8.8 Is the use of abbreviations minimized to the extent practical?					
1.8.9 Do the appendices support the content and conclusions contained in the main body of the EA? Is information in the appendix consistent with information in the main body of the EA?					
1.8.10 Is information in tables and figures consistent with information in the text and appendices?					
1.9.0 KEY TO SUPPLEMENTAL TOPICAL QUESTIONS					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
1.9.1 Does the proposed action present potential for impacts on water resources or water quality?			If yes, complete questions in Section 2.1.0.		
1.9.2 Does the proposed action present potential for impacts related to geology or soils?			If yes, complete questions in Section 2.2.0.		
1.9.3 Does the proposed action present potential for impacts on air quality?			If yes, complete questions in Section 2.2.3.		
1.9.4 Does the proposed action present potential for impacts on wildlife or habitat?			If yes, complete questions in Section 2.4.0.		
1.9.5 Does the proposed action present potential for effects on human health?			If yes, complete questions in Section 2.5.0.		
1.9.6 Does the proposed action involve transportation?			If yes, complete questions in Section 2.6.0.		
1.9.7 Does the proposed action involve waste management?			If yes, complete questions in Section 2.7.0.		
1.9.8 Does the proposed action present potential for impacts on socioeconomic conditions?			If yes, complete questions in Section 2.8.0.		
1.9.9 Does the proposed action present potential for impacts to historic, archaeological, or other cultural sites or properties?			If yes, complete questions in Section 2.9.0.		

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
2.1.0 WATER RESOURCES AND WATER QUALITY					
2.1.1 Does the EA identify potential effects of the proposed action and alternatives on surface water quality and quality under both normal operations and accident conditions?					
2.1.2 Does the EA evaluate whether the proposed action or alternatives would be subject to:					
water quality or effluent standards?					
National Interim Primary Drinking Water regulations?					
National Secondary Drinking Water regulations?					
2.1.3 Does the EA state whether the proposed action or alternatives:					
would include work in, under, over, or having an effect on navigable water of the United States?					
would include the discharge of dredged or fill material into waters of the United States?					
would include the deposit of fill material or an excavation that alters or modifies the course, location, condition, or capacity of any navigable waters of the United States?					
would require a Rivers and Harbors Act Section 10 permit or a Clean Water Act (Section 402 or Section 404) permit?					
2.1.4 Does the EA identify potential effects of the proposed action and alternatives on groundwater quality and quality (including aquifers) under both normal operations and accident conditions?					
2.1.5 Does the EA consider whether the proposed action or alternatives may affect any municipal or private drinking water supplies?					
2.2.0 GEOLOGY AND SOILS					
2.2.1 Does the EA describe and quantify the land area proposed to be altered, excavated, or otherwise disturbed? Is this description consistent with other sections (e.g., land use, habitat area)?					
2.2.2 Are issues related to seismicity sufficiently characterized, quantified, and analyzed?					
2.2.3 If the action involves disturbance of surface soils, are erosion control measures addressed?					
2.3.0 AIR QUALITY					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
2.3.1 Does the EA identify potential effects of the proposed action on ambient air quality under both normal and accident conditions?					
2.3.2 Are potential emissions quantified to the extent practicable (amount and rate of release)?					
2.3.3 Does the EA evaluate potential effects to human health and the environment from exposure to radiation and hazardous chemicals in emissions?					
2.3.4 Does the EA evaluate whether the proposed action and alternatives would:					
be in compliance with the National Ambient Air Quality Standards?					
be in compliance with the State Implementation Plan?					
potentially affect any area designated as Class I under the Clean Air Act?					
be subject to New Source Performance Standards?					
be subject to National Emissions Standards for Hazardous Air Pollutants?					
be subject to emissions limitations in an Air Quality Control Region?					
2.4.0 WILDLIFE AND HABITAT					
2.4.1 If the EA identifies potential effects of the proposed action and alternatives on threatened or endangered species and/or critical habitat, has consultation with the USFWS or NMFS been concluded? Does the EA address <u>candidate</u> species?					
2.4.2 Are <u>state</u> -listed species identified, and, if so, are results of state consultation documented?					
2.4.3 Are potential effects (including cumulative effects) analyzed for fish and wildlife other than threatened and endangered species and for habitats other than critical habitat?					
2.4.4 Does the EA analyze the impacts of the proposed action on the biodiversity of the affected ecosystem, including genetic diversity and species diversity?					
2.4.5 Are habitat types identified and estimates provided by type for the amount of habitat lost or adversely affected?					
2.5.0 HUMAN HEALTH EFFECTS					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
2.5.1 Have the susceptible populations been identified - i.e., involved workers, non-involved workers, and the public (including minority and low-income communities, as appropriate)?					
2.5.2 Does the EA establish the period of exposure (e.g., 30 years or 70 years) for exposed workers and the public?					
2.5.3 Does the EA identify all potential routes of exposure?					
2.5.4 When providing quantitative estimates of impacts, does the EA use current dose-to-risk conversion factors that have been adopted by cognizant health and environmental agencies?					
2.5.5 When providing quantitative estimates of health effects due to radiation exposure, are collective effects expressed in estimated numbers of fatal cancers, and are maximum individual effects expressed as the estimated maximum probability of death of an individual?					
2.5.6 Does the EA describe assumptions used in the health effects analysis and the basis for health effects calculations?					
2.5.7 As appropriate, does the EA analyze radiological impacts under <u>normal operating conditions</u> for:					
<u>Involved workers</u>					
Collective dose?					
Maximum individual?					
Latent cancer fatalities?					
<u>Uninvolved workers</u>					
Collective dose?					
Maximum individual?					
Latent cancer fatalities?					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
<u>Public</u> Collective dose?					
Maximum individual?					
Latent cancer fatalities?					
2.5.8 Does the EA identify a spectrum of potential accident scenarios that could occur over the life of the proposed action?					
2.5.9 As appropriate, does the EA analyze radiological impacts under <u>accident conditions</u> for:					
<u>Involved workers</u> Collective dose?					
Maximum individual?					
Latent cancer fatalities?					
<u>Uninvolved workers</u> Collective dose?					
Maximum individual?					
Latent cancer fatalities?					
<u>Public</u> Collective dose?					
Maximum individual?					
Latent cancer fatalities?					
2.5.10 Are non-radiological impacts (e.g., chemical exposures) addressed for both routine and accident conditions?					
2.6.0 TRANSPORTATION					
2.6.1 If transport of hazardous or radioactive waste or materials is part of the proposed action, or if transport is a major factor, are the potential effects analyzed (including <u>to</u> a site, on-site, and <u>from</u> a site)?					
2.6.2 Does the EA analyze all reasonably foreseeable transportation links (e.g., overland transport, port transfer, marine transport, global commons) [EO 12114]?					
2.6.3 Does the EA avoid relying exclusively on statements that transportation will be in accordance with all applicable state and federal regulations and requirements?					
2.6.4 Does the EA address both routine transportation as well as reasonably foreseeable accidents?					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
2.6.5 Are the estimation methods used for assessing radiological impacts of transportation defensible?					
2.6.6 Does the EA address the annual, total, and cumulative impacts of all OCST and non-OCST transportation on specific routes associated with the proposed action?					
2.7.0 WASTE MANAGEMENT AND WASTE MINIMIZATION					
2.7.1 Are pollution prevention and waste minimization practices applied in the proposed action and alternatives (e.g., is pollution prevented or reduced at the source when feasible; would waste products be recycled when feasible; are by-products that cannot be prevented or recycled treated in an environmentally safe manner when feasible; is disposal only used as a last resort)?					
2.7.2 If waste would be generated, does the EA examine the human health effects and environmental impacts of managing that waste, including waste generated during decontaminating and decommissioning?					
2.7.3 Are waste materials characterized by type and estimated quantity, where possible?					
2.7.4 Does the EA identify RCRA issues related to the proposed action and alternatives (i.e., generation of hazardous waste)?					
2.7.5 Does the EA establish whether the proposed action and alternatives would be in compliance with federal or state laws and guidelines affecting the generation, transportation, treatment, storage, or disposal of hazardous and other waste?					
2.8.0 SOCIOECONOMIC CONSIDERATIONS					
2.8.1 Does the EA consider potential effects on land use patterns, consistency with applicable land use plans, and compatibility of nearby uses?					
2.8.2 Does the EA consider possible changes in the local population due to the proposed action?					
2.8.3 Does the EA consider potential economic impacts, such as effects on jobs and housing, particularly in regard to disproportionate adverse effects on minority and low-income communities?					
2.8.4 Does the EA consider potential effects on public water and wastewater services, stormwater management, community services, and utilities?					

List 1: General	Yes	No	N/A	Page	Adequacy Evaluation and Comments
2.8.5 Does the EA evaluate potential noise effects of the proposed action and the application of community noise level standards?					
2.9.0 CULTURAL RESOURCES					
2.9.1 Was the SHPO consulted?					
2.9.2 Was an archaeological survey conducted?					
2.9.3 Does the EA include a provision for mitigation in the event unanticipated archaeological materials are encountered?					

APPENDIX B

MATRIX FOR EIS PREPARATION AND REVIEW

A matrix, such as the one that follows, should be developed for each spaceport alternative prior to preparation of the EA or EIS. This matrix is to be used as an aid to develop alternatives and examine their respective potential impacts. Listed atop the matrix along the horizontal axis are construction and operation procedures for a spaceport. Down the vertical axis are listed environmental conditions in various categories that might be affected. The matrix shown encompasses only major actions and those environmental factors that are most likely to be involved. However, not all of those will apply to every project proposal, and more detailed ones may be added as appropriate.

Each of the actions on the horizontal axis is evaluated for likely magnitude of its effect on environmental characteristics (down the vertical axis). To indicate that a significant degree of impact may exist, a slash is placed diagonally (upper right to lower left) across each intersecting block.

In marking the boxes, unnecessary duplication can be avoided by concentrating on first-order effects of specific actions. After all the boxes where possible impact exists have been marked with the diagonal line, the most important ones are then evaluated individually. In doing this, a number from 1 to 10 should be placed in the upper left-hand corner to indicate the relative magnitude of impact (10 = greatest magnitude). In the lower right-hand corner of the box, a number from 1 to 10 is placed to indicate the relative importance of the impact.

No two boxes on any one matrix are precisely equatable. Rather, the significance of high or low numbers for any one box only indicates the degree of impact one type of action may have on one part of the environment. If alternative actions are under consideration, and a separate matrix is prepared for each action, identical boxes in the two matrices will provide a numerical comparison of the environmental impact for the alternatives considered.

INSERT MATRIX

APPENDIX C
MASTER CHECKLIST FOR THE PREPARATION
AND REVIEW OF ENVIRONMENTAL IMPACT STATEMENTS

- ☐ I. COVER SHEET
- ☐ II. SUMMARY
- ☐ III. TABLE OF CONTENTS (AS REQUIRED BY CEQ REGULATIONS)
- ☐ IV. PURPOSE OF AND NEED FOR ACTION
- ☐ V. ALTERNATIVES INCLUDING PROPOSED ACTION
- ☐ VI. AFFECTED ENVIRONMENT
- ☐ VII. ENVIRONMENTAL CONSEQUENCES
- ☐ VIII. LIST OF PREPARERS
- ☐ IX. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE DEIS/FEIS ARE SENT
- ☐ X. INDEX
- ☐ XI. COMMENTS AND COORDINATION
- ☐ APPENDIX(CES)

**APPENDIX D
DETAILED CHECKLIST
FOR THE PREPARATION AND REVIEW OF
ENVIRONMENTAL IMPACT STATEMENTS**

- ☐ I. COVER SHEET
 - 0 A. Title of proposed action (include location and designation of the statement (i.e., draft, final, etc.).
 - 0 B. Date
 - 0 C. Name(s) of responsible Agency(ies)
 - 0 D. In Cooperation with ...
 - 0 E. For further information, contact: (include name, address, and telephone number of person at the agency).

- ☐ II. SUMMARY
 - 0 A. Description of alternatives, including the proposed action.
 - 0 B. Description of any significant action proposed in the vicinity of OCST proposed action.
 - 0 C. Summary of significant environmental impacts.
 - 0 D. Summary of controversial and unresolved issues.
 - 0 E. FEIS will identify the preferred alternative and summarize the basis for its selection.

- ☐ 111. TABLE OF CONTENTS (AS REQUIRED BY CEQ REGULATIONS)
 - 0 A. Cover Sheet
 - 0 B. Summary
 - 0 C. Table of Contents
 - 0 D. Purpose of and Need for Action
 - 0 E. Alternatives Including Proposed Action
 - 0 F. Affected Environment
 - 0 G. Environmental Consequences
 - 0 H. List of Preparers
 - 0 I. List of Agencies, Organizations, and Persons to Whom Copies of the DEIS/FEIS Are Sent.
 - 0 J. Index
 - 0 K. Comments and Coordination
 - 0 L. Appendix(ces)

- ☐ IV. PURPOSE OF AND NEED FOR ACTION
 - 0 A. Identify Federal Action.
 - 0 B. Identify and describe the situation(s) that the proposed action is designed to address.
 - 0 C. It will clearly demonstrate that a need exists.

☐ V. ALTERNATIVES INCLUDING PROPOSED ACTION

- 0 A. Brief discussion with appropriate graphics and data displays of all alternatives, including the "No-action" alternative.
- 0 B. Concise discussion of how the alternatives were selected. It will give the basis for elimination of alternatives determined not reasonable.
- 0 C. The DEIS may, but normally does not, identify the desired alternative for the proposed action. The FEIS identifies which alternative for the proposed action is preferred.

☐ VI. AFFECTED ENVIRONMENT

- 0 A. Provide a concise description of the existing social, economic, and environmental setting for the area affected (including accident hazard zone) by the alternatives. Discuss when applicable.

() 1. Social Environment.

- [] a. population (levels and trends)
- [] b. housing
- [] c. transportation facilities
- [] d. recreation
- [] e. cultural aspects
- [] f. public institutions
- [] g. aesthetics
- [] h. community facilities
- [] i. neighborhoods

() 2. Economic Setting.

- [] a. land and improvements
- [] b. tax base
- [] c. income
- [] d. labor force
- [] e. industry and services

() 3. Natural Environment - all environmentally sensitive locations or features will be identified.

- [] a. topography
- [] b. geology
- [] c. soils
- [] d. meteorology and climatology
- [] e. hydrology
- [] f. vegetation
- [] g. fish and wildlife
- [] h. visual
- [] i. wetlands/floodplains

- 0 B. Describe other ongoing or planned projects for the area that may impact or be impacted by the alternatives being considered.

☐ VII. ENVIRONMENTAL CONSEQUENCES

0 A. The EIS will discuss the probable social, economic, and environmental effects of the alternatives and mitigating measures.

0 B. Analysis of the following types of impacts as applicable:

1. Direct impacts and their significance,
2. Indirect (secondary) impacts and their significance,
3. Adverse environmental effects which cannot be avoided,
4. The relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity (i.e., recoverable, recyclable, and renewable resources).

0 C. Impacts and mitigation measures associated with the selected alternative will be discussed in more detail in the FEIS than the DEIS.

0 D. Environmental consequences are presented in four subsections. Discuss as applicable.

() 1. Urban and Community Impacts

[] a. Social and Economic Impacts

- (1) Impacts on neighborhoods and community cohesion,
- (2) Regional economic impacts,
- (3) Efforts made to use the alternatives to support both public and private development plans,
- (4) Impact on existing business districts,
- (5) Social groups significantly impacted.

[] b. Relocation Impacts will be summarized in sufficient detail for each alternative.

[] c. Land Use Impacts

- (1) Describe State/Local plans and policies regarding land use and growth,
- (2) Assess the consistency of the alternatives with the plans and policies and the potential growth of each alternative.
- (3) Transportation impacts resulting in improved highways and shipping ports.

[] d. Visual Impacts

- (1) Assess the temporary and permanent visual impacts of the alternatives.

- () 2. Physical Impacts
- [] a. Air Quality Impacts
- (1) Describe present air quality.
 - (2) Identify air pollutants including criteria pollutants, VOCs, and air toxics generated by each alternative.
 - (3) Discuss whether applicable state air quality standards will be violated including secondary impacts.
 - (4) Discuss conformity to State Implementation Plan in accordance with Section 176 of the Clean Air Act.
- [] b. Water Quality Impacts
- (1) Describe the general water quality parameters.
 - (2) Coordination with EPA and Corps of Engineers.
 - (3) Discussed impacts due to the alternatives.
 - (4) FEIS will document EPA concurrence that the proposed project will not contaminate any principal or sole-source aquifer.
- () c. Noise Impacts
- (1) Identify existing receptors which may be impacted.
 - (2) Identify extent of the impact.
 - (3) Identify practical mitigating measures.
 - (4) Discuss unavoidable impacts.
 - (5) Include sonic and subsonic noise impacts.
- () d. Energy Impacts
- (1) Direct energy impacts of each alternative.
 - (2) Discuss indirect energy impacts of each alternative.
 - (3) Present mitigating measures.
 - (4) FEIS - identify which energy conservation measures will be implemented as part of the selected alternative.
- () e. Wild and Scenic Rivers
- (1) Identify impacts on wild and scenic rivers or rivers with potential for inclusion in the National Wild and Scenic Rivers System (NWSRS).
 - (2) Identify potential of foreclosing options to include the river in the NWSRS.
 - (3) FEIS indicate measures which will be included to avoid or mitigate impacts on wild and scenic rivers.
- () f. Floodplain
- (1) Identify floodplain areas using Federal Insurance Administration (FIA) maps.
 - (2) Determine if project encroaches Federally identified floodplains.
 - (3) Significant floodplain encroachment requires implementation of DOT ORDER 5650.2.

- ()
 - g. Coastal Zone Impacts
 - (1) Applicant has to certify that the alternative will be in compliance with the State Coastal Zone Management Program.
 - h. Wetlands Impacts
 - (1) Identify type of wetlands (use Department of the Interior classification system).
 - (2) Describe specific impacts.
 - (3) Identify alternatives to avoid wetlands or to minimize harm to wetlands.
 - (4) If new construction in wetlands is unavoidable, the FEIS will contain the finding required by Executive Order 11990 in a separate section or exhibit titled "Wetlands Finding."
 - (5) Determine if a Corps of Engineer permit is required.
 - i. Threatened or Endangered Species
 - (1) Determine and identify presence of threatened or endangered species.
 - (2) Documentation of the consultation and coordination with the Fish and Wildlife Service or the National Marine Fisheries Service.
 - j. Prime and Unique Agricultural Lands
 - (1) Identify these lands.
 - (2) Direct and indirect impacts will be described.
 - (3) Specific actions to avoid or mitigate direct and indirect effects will be identified.
 - k. Construction Impact
 - (1) DEIS and FEIS will discuss the significant impacts associated with construction of each of the alternatives.
 - l. Safety
 - (1) Discuss in-flight operations.
 - (2) Discuss launch operations.
- 3. Historic and Archeological Preservation Effects
 - a. Discuss the source or survey required by 36 CFR 800.4 for each alternative.
 - b. Document consultation and coordination with the State Historic Preservation Officer.

4. Section 4(f) Impacts
 - a. Description of section 4(f) resource (publicly owned parks, recreation areas, wildlife/waterfowl refuges and all historic sites).
 - (1) Resources will be described in detail including maps, type of property, etc.
 - (2) Unusual characteristics of the Resource will include severe hydrologic events, terrain conditions or other features that either reduce or increase the value of parts or all of the Resource.
 - b. Description of Impacts.
 - (1) Acreage of facilities impacted or acquired.
 - (2) Noise or visible impacts.
 - (3) Section 106 of National Historic Preservation Act of 1966.
 - (4) Impacts which substantially impair resource, even if not acquired.
 - c. Avoidance alternatives and their impacts.
 - (1) Description of all alternatives to avoid impact on the resource and impacts of those alternatives.
 - d. Mitigation measures.
 - (1) Describe reasonable and practicable measures to minimize the impacts.
 - e. Coordination.
 - (1) Results of preliminary coordination with agencies having jurisdiction will be documented.
 - (2) Draft Section 4(f) statement should be coordinated with the Department of Interior and agencies having jurisdiction.
 - f. Final EIS must include information to support a finding of feasible and prudent alternatives and all possible planning to minimize harm.

☐ VIII. LIST OF PREPARERS

- 0 A. State and local agency personnel responsible for preparing the DEIS/FEIS.
- 0 B. OCST personnel primarily responsible for preparation or review of the DEIS/FEIS.
- 0 C. Contractors responsible for preparing the DEIS/FEIS.
- 0 D. The areas of DEIS/FEIS responsibility for each preparer will be identified.

☐ IX. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE DEIS/FEIS ARE SENT

☐ X. INDEX

- 0 A. Include major subjects and areas of significant impacts.

☐ XI. COMMENTS AND COORDINATION

- 0 A. Summary of early coordination process
- 0 B. FEIS contains copies of all substantive comments and responses.
- 0 C. FEIS contains document compliance with all applicable environmental requirements.
- 0 D. FEIS contains summary and disposition of all substantive comments.

☐ XII. APPENDIX(CES)

APPENDIX E

COORDINATION WITH RELATED FEDERAL ENVIRONMENTAL STATUTES AND REGULATIONS⁶

The CEQ regulations state that agencies shall integrate the requirements of NEPA and other planning and environmental review procedures required by law or agency practice so that the procedures can run concurrently rather than consecutively (40 CFR 1500.2). This appendix describes many of the Federal statutes, executive orders and regulations that a proposed action might trigger. These descriptions are not intended to eliminate the need to become familiar with the contents of the statutes or implementing regulations, but rather to assist in rapid understanding of the pertinent points of each. Applicants should consult frequently the current implementing regulations in all cases to ensure proper compliance.

BIOTA

Endangered Species Act of 1973, as amended, 16 USC section 1531 et seq., protects proposed and listed threatened or endangered species. Formal consultation with the U.S. Fish and Wildlife Service is required under section 7 of the Act for Federal projects and all projects that require Federal permits (e.g., Corps of Engineers permits) where such actions could directly or indirectly affect any proposed or listed species, and Federal agencies are required to ensure that proposed actions are not likely to jeopardize the continued existence of a listed species (50 CFR 402).

Clean Water Act of 1977, 33 USC 1251 et seq. - See Water.

Rivers and Harbors Act of 1899, sections 9 and 10, 33 USC section 1344, regulates all types of development in or over navigable waters, including bridges, dams, dikes, piers, wharfs, booms, weirs, jetties, dredging, and filling by requiring a Corps of Engineers permit for such actions. Navigable waters are defined in Title 33 CFR section 329 to include past, present, and potential future use in transporting commerce. Court decisions have expanded protection to estuaries and wetlands (Dedrick 1984).

Executive Order 12088, Federal Compliance with Pollution Control Standards, requires the head of each executive agency to be responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to Federal facilities and activities under the control of the agency.

Executive Order 11990, Protection of Wetlands, requires that governmental agencies, in carrying out their responsibilities, provide leadership and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Each agency is to consider factors relevant to a project proposal's effect on the survival and quality of the wetlands by maintenance of natural systems, including conservation and long-term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, and wildlife. Agencies are required to provide for early public review of any plans or proposals for new construction in wetlands. Implemented by DOT Order 5660.1A.

Executive Order 11988, Floodplain Management, requires that governmental agencies, in carrying out their responsibilities, provide leadership and take action to restore and preserve the natural and beneficial values served by floodplains. This order requires each Federal agency to determine whether

⁶ Extracted from Draft Environmental Impact Statement for the Mineral Resource Management Plan. Department of the Air Force, June 1987 and updated in September 1994.

the project will occur in a floodplain and to consider alternatives. If no practical alternative is found, it requires minimizing harm and notifying the public if the project must be located in the floodplain, and it provides for public review and comment. Implemented by DOT Order 5650.2.

Federal Coastal Zone Management Act of 1972, 16 USC section 1451 et seq., authorizes the National Oceanic and Atmospheric Administration (NOAA) to make grants to states to develop coastal zone management programs in order "to preserve, protect, develop and where possible, to restore or enhance the resources of the nation's coastal zone." An applicant for a Federal license is required to certify that the proposed action complies with the state's approved program, and to obtain the state's concurrence with the certification.

Fish and Wildlife Coordination Act, 16 USC section 661 et seq., requires Federal agencies to consult with the U.S. Fish and Wildlife Service and state wildlife agency (or agencies) where any water body or wetlands under Corps jurisdiction is proposed to be modified by a Federal agency or an applicant for a Federal permit.

Marine Mammal Protection Act of 1972, 16 USC section 1361 et seq., prohibits taking or harassment of any marine mammals except incidental take during commercial fishing, capture under scientific research and public display permits, harvest by native Americans for subsistence purposes, and any other take authorized on a case-by-case basis as set forth in the Act. The Department of the Interior, Fish and Wildlife Service, is responsible for the polar bear, sea otter, marine otter, walrus, manatees, and dugong, while the Department of Commerce, National Marine Fisheries Service, is responsible for all other marine mammals.

Migratory Bird Treaty of 1972, 16 USC sections 703-711, protects migratory waterfowl and all seabirds by limiting the transportation, importation, killing, or possession of these birds.

Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, furthers the purposes of NEPA with respect to the environment outside the United States and enables Federal agencies to be informed of pertinent environmental considerations regarding major Federal actions abroad.

AIR

Executive Order 12088, Federal Compliance with Pollution Control Standards (see discussion above under biota)

Clean Air Act (CAA), implemented in part by Title 40 Code of Federal Regulations (CFR) part 50 states that all applicable state and Federal ambient air quality standards must be maintained during the operation of any emission source. The National Ambient Air Quality Standards (NAAQS) include both primary and secondary standards for various pollutants. Primary standards are mandated by the Clean Air Act to protect public health, including that of sensitive subgroups of the population, with an adequate margin of safety. Secondary standards are intended to protect the public welfare from adverse impacts of pollution, such as materials soiling, vegetation damage, and visibility impairment. Section 176(c) of this act provides that no Federal agency shall engage in, provide financial assistance for, license or permit, or approve an activity which does not conform to an approved state implementation plan for attainment of air quality standard.

The CAA was amended, on November 5, 1990, to include a phase-out of Class I Ozone Depleting Chemicals, including Chlorofluoro-Carbons (CFCs), halons, carbon tetrachloride, and Hydrochlorofluoro-Carbons (HCFCs).

Prevention of Significant Deterioration (PSD), Title 40 CFR 51.24 and 40 CFR 52.21, regulations were established to provide for the review of new major stationary (as opposed to mobile) sources of air pollution and modifications to major stationary sources to enable large sources to be constructed without significant adverse deterioration of clean air areas. PSD requirements apply only to attainment pollutants emitted from these stationary sources. A pollutant is considered in non-attainment if its Federal primary standard has been exceeded in a geographic area more than once a year.

The CAA conformity regulations for non-transportation Federal projects apply to Federal projects in nonattainment areas. The objective of the program is to assure that emissions from federal projects and programs do not hinder a State's progress toward attaining the NAAQS. A conformity analysis is required for projects that might significantly impact air quality. The regulations require analyses for projects exceeding the emissions levels for major sources in nonattainment areas. The thresholds for conformity analysis are the same as the definition of major source under Title V operating permits.

Executive Order 12114, Environmental Effects Abroad of Major Federal Actions (See discussion under Biota).

WATER

Clean Water Act, 33 USC 1251 et seq., requires a National Pollution Discharge Elimination System (NPDES) permit to reduce water pollution from all discharges including storm water discharges from industrial area. Section 404 of this act regulates discharge of dredged or fill material in waters of the U.S. and wetlands, and requires a permit from the U.S. Army Corps of Engineers.

Safe Drinking Water Act, 42 USC section 300f et seq., requires the Environmental Protection Agency (EPA) to establish a program which provides for the safety of the nation's drinking water. Regulations under this act can be found in 40 CFR, section 141 et seq.

Underground Injection Control (UIC) Program, 40 CFR 146. As part of the Safe Drinking Water Act, the UIC program establishes regulations for the injection of fluids into wells for storage or disposal which are designed to protect underground sources of drinking water. Wells which inject fluids which are produced in conjunction with oil or gas, or for storage of hydrocarbons, are Class I injection wells under the program.

Marine Protection, Research and Sanctuaries Act of 1972, 33 USC section 1401 et seq. Also known as the Ocean Dumping Act, this act regulates the dumping of materials at sea by preventing or limiting the dumping of materials which would have adverse effects. The Army Corps of Engineers is authorized to issue permits for transporting dredged materials for ocean disposal and for disposal of other materials in the territorial sea or waters contiguous to the territorial sea.

Executive Order 12088, Federal Compliance with Pollution Control Standards, requires the head of each executive agency to be responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to Federal facilities and activities under the control of the agency.

Oil Pollution Act of 1990 (OPA) is a comprehensive statute designed to expand oil spill prevention activities, establish new Federal authority to direct responses to oil spills, and improve spill preparedness and response capabilities. The OPA requires the Federal government to "ensure effective and immediate removal of a discharge, and mitigation or prevention of a substantial threat of a discharge, of oil or a hazardous substance" into the navigable waters of the U.S., adjoining shorelines, and the exclusive economic zone. For spills large enough to pose a substantial threat to the public health or

welfare, the Federal government is now required to direct all public and private efforts to remove the discharge or to mitigate or prevent the threat of the discharge.

Executive Order 11988, Floodplain Management (See discussion under Biota).

Executive Order 11990, Protection of Wetlands (See discussion under Biota).

Executive Order 12114, Environmental Effects Abroad of Major Federal Actions (See discussion under Biota).

GEOLOGY

Coastal Zone Management Act of 1972 (See discussion under Biota).

CULTURAL

Section 4(f) of the Department of Transportation Act, 49 USC 303 (See discussion under land use).

Antiquities Act of 1906, 16 USC sections 431-433, is the first piece of historic-preservation legislation. It was approved in reaction to the destruction of important historic and archaeological sites, and it established a system of permits for conducting archaeological investigations on Federal land. This act also specified penalties for noncompliance. Some antiquity permits issued under this law are still in effect, though new permits are now being issued under the Archaeological Resources Protection Act of 1979 and its implementing regulations (43 CFR 7).

Historic Sites Act of 1935, 16 USC sections 461-467, declares that it is national policy to "preserve for public use historic sites, buildings, and objects of national significance."

Reservoir Salvage Act of 1960, 16 USC sections 469-469c (Pub. L. 86-523), authorizes the expenditure of Federal funds for archaeological salvage at Federally funded reservoir projects. After World War II, dam construction took place throughout the United States, and numerous archaeological excavations were conducted in conjunction with this construction, leading to the passage of the act.

National Historic Preservation Act of 1966, 16 USC sections 470-470m, provides a broad base for the implementation of preservation goals. The act establishes a National Register of Historic Places (National Register) and the Advisory Council on Historic Preservation (Advisory Council). Section 106 (36 CFR 800) of this act requires that Federal agencies consult with the Advisory Council prior to any undertaking that would affect a property on or eligible for the National Register. Section 106 specifically states that Federal agencies "must take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register." Determination of eligibility is a process conducted by a Federal agency, the State Historic Preservation Officer (SHPO), and the National Park Service, with input from archaeologists, Native Americans, and other concerned parties. The procedures for eligibility determination and for determination of possible adverse effects (36 CFR 800) include the submission of a preliminary case report identifying possible eligible sites to the SHPO. The ultimate determination of "no effect," "no adverse effect," or "adverse effect" is made through ongoing consultation with local experts and the SHPO.

Executive Order 11593 directs Federal agencies to identify and nominate historic properties to the National Register and requires that these agencies should avoid damaging historic properties that might be eligible for the National Register.

Archaeological and Historical Preservation Act of 1974, 16 USC section 469a-469c, which amends the Reservoir Salvage Act of 1960, deals only with the preservation of data, not of historic properties as physical entities.

Archaeological Resources Protection Act (ARPA) of 1979, 16 USC section 470aa-470mm, ensures the protection and preservation of archaeological sites on Federal land. ARPA requires that Federal permits be obtained before cultural resource investigations begin at sites on Federal land. This act also requires that investigators consult with the appropriate Native American groups prior to initiating archaeological studies on sites of Native American origin.

American Indian Religious Freedom Act, 42 USC section 1996, states that it is the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.

LAND USE

Executive Order 12372, Intergovernmental Review of Federal Programs, directs Federal agencies to "make efforts to accommodate state and local elected officials' concerns with proposed ... direct Federal development." It further states, "for those cases where the concerns cannot be accommodated, Federal officials shall explain the bases for their decision in a timely manner." The executive order requires Federal agencies to provide state and local officials the opportunity to comment on actions that could affect their jurisdictions, using state-established consultation processes when possible.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The executive order requires each agency to develop procedures for the implementation of these requirements.

Coastal Zone Management Act of 1972, 16 USC section 1451 et seq. (See discussion under Biota).

Farmland Protection Policy Act, 7 USC section 4201 et seq., and 7 CFR §658, provides for Federal agencies to identify and take into account the adverse effects of their programs on the preservation of farmland, including prime and unique farmlands and farmlands of statewide or local importance, and to consider alternative actions, as appropriate, that could lessen adverse effects. The act does not authorize the Federal government, in any way, to regulate the use of private or non-Federal land, nor does it affect the property rights of owners of such lands.

Section 4(f) of the Department of Transportation Act, 49 USC 303, states that it is national policy to preserve the natural beauty of the countryside, parklands, refuges, and historic sites. The Secretary of Transportation "may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge, or land of an historic site of national, state or local significance only if 1) there is no feasible or prudent alternative to using that land and 2) the program or project includes all possible planning to minimize harms."

Executive Order 11988, Floodplain Management (See discussion under Biota).

DOT Order 5650.2, Floodplain Management and Protection, prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests.

Executive Order 11990, Protection of Wetlands (See discussion under Biota).

Executive Order 12114, Environmental Effects Abroad of Major Federal Actions (See discussion under Biota).

TRANSPORTATION

Transportation is regulated on the Federal level by the establishment of plans, policies, guidelines, and regulations, generally, by the United States Department of Transportation. The Federal Highway Administration has established highway design criteria and standards for traffic control devices for use in planning and design of Federally funded highway projects. The Federal Aviation Administration maintains jurisdiction over flight patterns for all aircraft.

Executive Order 12465, Commercial Expendable Launch Vehicle Activities, establishes the responsibilities of lead and other agencies and stipulates that the Department of Transportation is the Federal government's lead agency for encouraging and facilitating commercial expendable launch vehicle activities by the private sector. The order establishes an interagency group composed of the Department of State, the Department of Defense, the Department of Commerce, the Federal Communications Commission, and the National Aeronautics and Space Administration.

49 U.S.C. Subtitle IX, ch. 701, Commercial Space Launch Activities, 49 U.S.C. § 70101 et seq., (formerly the Commercial Space Launch Act of 1984) implemented by the Commercial Space Transportation Licensing Regulations, 14 C.F.R. Ch. III, authorize the Secretary of Transportation to license, oversee and coordinate United States commercial launch activities, issue and transfer commercial launch licenses authorizing those operations, and in doing so, protect the public health and safety, safety of property, and national security and foreign policy interests of the United States.

Hazardous Materials Transportation Act, 49 USC 1801 et seq. (HMTA), governs transportation of substances and materials in quantities and forms that the Secretary of Transportation has found may pose an unreasonable risk to health and safety or to property when transported in commerce. Regulations implementing the Act are found in 49 CFR Parts 171 through 179. Hazardous substances and wastes are defined in legislation and regulated for purposes of transportation by DOT. Hazardous substances are defined and regulated in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 9601), as amended by Superfund Amendments and Reauthorization Act (PL 99-499), and Clean Water Act (39 USC 1251 et seq.). Hazardous wastes are defined and regulated by the Resource Conservation and Recovery Act (42 USC 6901 et seq.). Transportation and handling of radioactive materials are regulated by the Nuclear Regulatory Commission and by DOT.

Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA) amends the Hazardous Materials Transportation Act of 1975, attempting to create consistent Federal laws and regulations, as necessary and desirable, to reduce the maze of conflicting State, local, and Federal regulations. HMTUSA requires that the DOT promulgate standards to be used by the states when designating highway routes for hazardous materials transportation. These standards must enhance overall public safety, provide for consultation with affected jurisdictions, offer an opportunity for public comment, and must not unreasonably burden commerce. The statute also enumerates twelve factors that states must consider when they establish routes. If a conflict arises between jurisdictions over routing restrictions,

any affected state may petition the Secretary of Transportation to implement dispute resolution provisions.

NOISE

Noise Control Act of 1972, PL 92-574, provides noise-level guidelines to protect public health and welfare with a sufficient margin of safety. The guidelines provide a basis for assessing the effectiveness of noise regulations and land use policies.

WASTE MANAGEMENT

Resource Conservation and Recovery Act, 42 USC 6901 et seq., sets forth definitions of hazardous wastes and associated testing protocols; requires a Hazardous Waste Generator ID to track hazardous wastes generated at the facility; sets standards for hazardous waste generators to properly manage their wastes; requires compliance with performance standards for hazardous waste Treatment, Storage and Disposal (TSD) facilities; and establishes an Underground Storage Tank (UST) program to protect underground sources of drinking water.

EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW (EPCRA)

EPCRA (40 CFR Parts 355-372) requires that facilities managing toxic chemicals exceeding the "threshold planning quantity" report annually on toxic chemical releases and offsite transfers and prepare/submit an emergency response plan to appropriate authorities and local community.

Executive Order 12856, Federal Facility Compliance with Right-to-Know Laws and Pollution Prevention Requirements, requires Federal facilities to comply with EPCRA.