

GUIDELINES FOR PREPARATION OF THE ENVIRONMENTAL INFORMATION VOLUME

The Participant shall develop and deliver to DOE a detailed, self-contained Environmental Information Volume (EIV) describing the environmental aspects and projected impacts of the Project. This information is necessary in order for DOE to fulfill its responsibilities under the National Environmental Policy Act of 1969 (NEPA). In meeting those responsibilities, DOE is required to conform to the Council on Environmental Quality's regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 C.F.R. Parts 1500 through 1508, and DOE Regulations for Implementation of NEPA (10 C.F.R. Part 1021). It should be noted that DOE's NEPA responsibilities must be fulfilled before it can share Project costs beyond Stage I Project activities. To minimize the risk of Project delays, therefore, it is imperative that the Participant considers carefully the effort and schedule required to prepare the EIV described herein.

This document is intended to provide guidance to the Participant concerning the types and extent of information required, but it is not to be interpreted as containing all necessary or sufficient requirements for any given project. In some cases, the guidance may not be applicable to the Participant's Project while, in other cases, the detail given may not be sufficient to cover all applicable environmental, health, safety, and socioeconomic impacts.

DOE will provide project specific guidance in the post-selection period to each Participant. The level of information should be compatible with the nature of the Project, its stage of development, and the complexity and scope of the environmental impacts. The Participant should keep in mind that the environmental information must be sufficient for DOE to prepare the appropriate documentation necessary to fulfill its obligation under NEPA to fully consider the environmental impacts that can be foreseen as a consequence of any particular project.

Guidelines for the structure and content of the EIV are shown below. The EIV should address all of the following elements. Where specific subtopics are not relevant to the Project, it should be so stated under that topic in the EIV.

EXECUTIVE SUMMARY

The Participant should prepare a brief summary, which provides the following types of information.

A description of the proposed action and a brief historical overview.

A description of alternatives to the proposed action.

A description of the potential beneficial and detrimental environmental, health, safety, and socioeconomic impacts that will result from the proposed action. This

description should include potential issues related to currently unquantifiable effluents/emissions that may affect the validity of the impact analysis.

A discussion and evaluation of the major environmental, health, safety, and socioeconomic risks associated with the construction, operation, maintenance, and dismantling/disposing, if applicable, of proposed facilities that are described in the proposed action.

A summary assessment of the severity of predicted environmental, health, safety, and socioeconomic effects, and a discussion of unresolved environmental, health, safety, and socioeconomic issues.

Alternatives available for meeting Federal, State, and local regulations, and for mitigating impacts.

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This section should describe both the objectives and need for the proposed action. Note, all of the actions to be considered here have as their general objective the need to develop technologies that have technical, economic, and/or environmental advantages compared with their commercial alternatives. The manner in which the proposed Project meets these objectives should be discussed in this section. Both the purpose of the proposed action and the manner in which the proposed action meets general objectives should be clearly presented.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section should provide a discussion of the proposed action and the alternatives to the proposed action that have been considered. The size, sensitivity, and complexity of the proposed action should dictate the depth to which these actions need to be discussed. DOE has basically two alternatives available relative to each proposed Project. To fund the Project or to not fund the Project. At a minimum, the following three alternatives need to be addressed.

The proposed action (assuming DOE funding).

At least one reasonable alternative to the proposed action (assuming no DOE funding).

No action (no funding and everything remains status quo).

Some of the topics, which may need to be discussed in the EIV, are listed below. If certain topics are not relevant to the decision making process for the proposed action and its alternatives, those topics need not be discussed in the EIV and should be so noted as not applicable. Relevant topics include the following:

Overall plant site(s) including maps and diagrams, as appropriate. The portion of site currently occupied by Project activities, and proposed new additions.

Zoning designations of the site and surrounding area. Borders of the Project site.

For facilities requiring construction, process flow diagrams, plan and elevation views as well as sizes and capacities of major equipment.

A non-detailed Project schedule and a summary of test plans.

Project resource requirements, including energy form and quantity, land, water, labor requirements (both during construction and operation), materials needed, and anticipated process residuals if anticipated. This information should be presented both qualitatively and quantitatively.

The quantities and types of materials to be used in the Project including feedstocks, utilities, fuels, reactants, and products.

Potential transportation corridors and access (including rail, road, barge, etc.).

Available or projected pipelines and/or transmission lines.

Fuel and waste storage areas including existing or projected waste treatment disposal or recycling/reuse facilities.

Plans for disposition/utilization once the demonstration period has been completed.

Coincident with the presentation of these topics, a comparative analysis should be presented of the proposed action and the reasonable alternatives. This analysis should provide both quantitative data (in tabular form) and qualitative information. Alternatives should be rigorously explored and objectively evaluated in this section.

3.0 AFFECTED ENVIRONMENT

The site, surrounding area, and potentially affected environment needs to be clearly described in this section. The following general types of information should be discussed in this portion of the document, if applicable.

General description of the area, terrain, waterways, wetlands, drainage areas, runoff areas, and meteorology.

Ambient air quality, visibility in Class I areas, and subsurface groundwater quality.

Discuss the flora and fauna (terrestrial and aquatic) of the area and provide information regarding threatened or endangered species in the area.

Describe land use for areas surrounding the proposed Project site (e.g., structures, farmland, industrial, residential areas and potentially impacted lake/river uses).

Note any surrounding areas, which may be environmentally or noise sensitive to the proposed Project (e.g., National Parks or wild life refuges, schools, and hospitals).

4.0 ENVIRONMENTAL CONSEQUENCES

The environmental consequences of the proposed action (and alternatives) need to be addressed. The following general topics should be addressed, although not all of the subtopics will apply for all Projects.

Air Quality Impacts

Include a discussion regarding potential environmental impact from the seven criteria pollutants in the Clean Air Act (e.g., sulfur dioxide, nitrogen oxides, carbon monoxide, hydrocarbons, particulate matter less than 2.5 micron (e.g., PM_{2.5}), lead, and ozone). Include a discussion regarding other gaseous emissions, including Greenhouse Gases and hazardous air pollutants. Consider construction and operation activities in assessing impact on air quality. Include emission rates and duration of emissions. Include a discussion regarding compliance with Federal, State, and Local environmental regulations. Discuss the status of Federal, State, and Local permits on air emissions. Current emissions and the projected effect of new emission sources need to be presented (quantitatively, in tabular form) and proposed mitigation measures to prevent environmental degradation need to be presented.

Water Quality/Quantity Impacts

Include a discussion estimating current water discharges, changes to current discharges, and any new discharges associated with the action under consideration, and the potential environmental impact to surface and ground waters (in quantitative, tabular fashion). Include changes in water quality and quantity. The uses of both surface and ground waters should be included in the discussion. The discussion should include sources of water supply (e.g., public water supply or dedicated well) and any National Pollutant Discharge Elimination System (NPDES) permit(s). Include a discussion concerning on-site treatment of wastewater. Include a discussion regarding compliance with Federal, State, and Local environmental regulations. Discuss status of Federal, State, and Local permits on water discharges. Describe any stream diversions caused by construction or proposed new operations activities. Proposed mitigation measures to prevent environmental degradation need to be discussed if relevant. The depth

of aquifers, other uses of aquifers, and potential for recharge should also be addressed.

Solid Waste Disposal

Include a discussion of current solid waste management practices and potential new solid waste streams. This information needs to be presented in quantitative, tabular fashion and should include waste characteristics, quantities, pretreatment, storage, transportation, and disposal practices. Identify any potentially hazardous waste materials including construction materials such as solvents and cleaning material. Include any results from analyzing the solid waste in accordance with the Resource Conservation and Recovery Act waste characterization tests. Include a discussion regarding compliance with Federal, State, and Local environmental regulations. Discuss status of Federal, State, and Local permits on solid waste management. Proposed mitigation measures to prevent environmental degradation need to be discussed if relevant.

Land Use

Include a discussion of short-term and long-term land use impacts from construction and operation activities. Effects of the proposed Project on area population, and land use (e.g., prime farmland, water bodies, and recreational areas). Proposed mitigation measures designed to prevent soil erosion or degradation during construction and operation need to be considered and presented if applicable. Describe site restoration activities following Project completion if appropriate.

Noise

Include a discussion of possible environmental impacts from noise generated by the Project both during construction and operation. Include a discussion of current noise levels and any possible increases in noise levels from the Project. In general, the noise level is measured at the nearest point of public access and noise impacts on site workers. Include a discussion regarding proximity and any possible impact to noise-sensitive sites such as schools, hospitals, and nursing homes. Consider impact of noise during construction and operation activities.

Floodplains or Wetlands

Include a discussion of possible environmental impacts to floodplains and wetlands on or near the site. Discuss contacts with Federal and State agencies to assess Project impact on floodplains and wetlands. If appropriate, include mitigation measures, which will be used to prevent effects to potentially affected floodplains and/or wetlands.

Native American Tribal and Religious Practices

Discuss any potential effects and mitigative requirements.

Historic Areas

Include information regarding contacts with State agencies to assess Project impact on archaeological, cultural, and historically-significant resources.

Ecological Impacts

Include a discussion regarding potential environmental impacts to vegetation, terrestrial wildlife, aquatic wildlife, threatened and endangered species, and ecologically sensitive habitats both on site and off site that may be affected by the proposed action. Include information regarding contacts with Federal and State agencies regarding impact to the ecology. Provide a discussion of potential mitigation measures if applicable.

Socioeconomic Impacts

Include information regarding availability of labor for the Project, availability of transportation, and any potential impact on housing and public services. Note any positive impact to socioeconomic factors (e.g., additional employment for local population). Address any potential concerns of local ethnic populations, including Native American Peoples. Note impacts to visual or aesthetic quality. Note any impact from visible (smoke) or odorous emissions. Where negative impacts are noted, discuss potential mitigation measures.

Occupational Safety and Health

Include information on worker safety and health protection programs and procedures, compliance with OSHA regulations, and facility design features related to mitigation of occupational impacts. Discuss hazards and mitigation measures related to construction activities and exposure to hazardous substances, heat, noise, and odors.

Cumulative Impacts

The cumulative impact is the sum of the incremental impact from the proposed action and impacts from past, present, and reasonably foreseeable future actions. Individual impacts may be minor, but the combined impact (e.g., cumulative) can be significant. Include a discussion of the contribution of environmental impacts from the proposed action to the cumulative impact. Each of the potential environmental impacts described above should be considered relative to their impact on the existing environmental setting and emissions. Generally, impacts, which contribute to the cumulative impact, include air emissions, water and liquid effluent treatment, solid waste management, and land use.

Summary of Impacts

Include a factual summary of potential environmental impacts considering statements included in this document.

LIST OF AGENCIES AND PERSONS CONTACTED

Provide complete addresses and phone numbers of agencies and persons contacted to collect information on EH&S aspects of the Project, and copies of clearance letters.

REFERENCES

List publicly accessible documents used in preparation of the Environmental Assessment.