FEDERAL ENERGY REGULATORY COMMISSION

Office of Energy Projects

GUIDANCE MANUAL
FOR
ENVIRONMENTAL REPORT
PREPARATION

For Applications Filed Under the
Natural Gas Act

Volume I

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GUIDANCE MANUAL FOR ENVIRONMENTAL REPORT PREPARATION

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ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effect
ATWS	additional temporary workspace
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Coast Guard	U.S. Coast Guard
COE	U.S. Army Corps of Engineers
Commission	Federal Energy Regulatory Commission
CZMA	Coastal Zone Management Act of 1972
CZMP	coastal zone management plan
dBA	decibels on the A-weighted scale
DOT	U.S. Department of Transportation
EA	environmental assessment
EFH	essential fish habitat
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service, U.S. Department of the Interior
GHG	greenhouse gas
HAP	hazardous air pollutant
HDD	horizontal directional drill
L_d	daytime noise equivalent ambient noise level
L_{dn}	day-night sound level
L_{eq}	24-hour equivalent sound level
L_n	nighttime noise equivalent ambient noise level
LNG	liquefied natural gas
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act of 1938
NGPA	Natural Gas Policy Act of 1978
NHPA	National Historic Preservation Act of 1966

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NO_2	nitrogen dioxide
NOAA Fisheries	National Marine Fisheries Service, National Oceanic and Atmospheric Administration
NO_X	nitrogen oxides
NRCS	Natural Resources Conservation Service, U.S. Department of Agriculture
NRHP	National Register of Historic Places
NSA	noise-sensitive area
NWI	National Wetlands Inventory, U.S. Fish and Wildlife Service
OEP	Office of Energy Projects, Federal Energy Regulatory Commission
PCB	polychlorinated biphenyl
Plan	Upland Erosion Control, Revegetation, and Maintenance Plan
Procedures	Wetland and Waterbody Construction and Mitigation Procedures
PSD	Prevention of Significant Deterioration
SHPO	State Historic Preservation Office
SIP	State Implementation Plan under the Clean Air Act of 1970
SSURGO	Soil Survey Geographic Database
THPO	Tribal Historic Preservation Officer
TSCA	Toxic Substances Control Act
USGS	U.S. Geological Survey
VOC	volatile organic compound
WSA	Water Suitability Assessment

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KEY TO DATA SOURCES

A Aerial Photographs
B Agency Consultation
C Agricultural Extension Agents
D Applicant
E State or county groundwater databases (e.g., Board of Health, Department of Natural Resource water divisions)
F U.S. Army Corps of Engineers
G Community Noise, U.S. Environmental Protection Agency 1971
H Comprehensive Plans, County or Land Management Agencies
I County/Municipal Agencies
J U.S. Environmental Protection Agency
K Erosion Control and Drainage Plan Handbooks, State and County
L Field Surveys
M Fishery Biologist, State or Regional
N U.S. Fish and Wildlife Service
O National Wetlands Inventory Maps
P Geological Survey Personnel, Federal, State, and Local
Q Landowners
R Manufacturer's Data
S Mineral Resource Maps, Federal and State
T National Oceanic and Atmospheric Administration, National Marine Fisheries Service
U Noise Surveys
V National Park Service
W Natural Resources Conservation Service
X Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
Y Upland Erosion Control, Revegetation, and Maintenance Plan
Z Wetland and Waterbody Construction and Mitigation Procedures
AA Resource Reports 2, 3, and 4
BB Resource Report 8
CC Soil Authorities, Other than Natural Resources Conservation Service
DD State Agencies
EE State Air Quality Agency

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1.0 INTRODUCTION

1.1 PURPOSE OF THE MANUAL

This manual is a guide to sponsors of natural gas projects who file environmental information with the Federal Energy Regulatory Commission (FERC or Commission). The manual provides helpful information about required environmental documentation, but does not substitute for the regulations.

The manual is intended to help applicants improve the overall quality and consistency of data analyses and formatting of the environmental documents in order to facilitate the environmental review process. The manual identifies information that we often find missing from filings, which can cause delays in the processing of applications and increase the need for extensive data requests.[1] It also discusses our preferred format for certain documents and data presentation. We hope that this manual will assist project sponsors in preparing complete filings that cover topics in a uniform fashion and that allow for efficient environmental review. Nevertheless, project sponsors and other participants who prepare, use, or review these types of documents are not required to use this manual.

The primary focus of the manual is to identify the environmental documentation that we recommend be included in the resource reports that comprise the Environmental Report to be filed under the Commission's regulations[2] that implement the National Environmental Policy Act of 1969 (NEPA). Those regulations supplement the regulations of the Council on Environmental Quality (CEQ).[3]

We have attempted to make this manual useful to all applicants proposing natural gas projects. The information provided here should apply to most, if not all, projects. However, each project is unique, and it is not possible to provide guidance that addresses all potential scenarios. Moreover, environmental issues and concerns evolve over time as a result of ongoing research and experience, and the NEPA process is driven in large part

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1 "We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects.

2 18 CFR 380.1 to 380.16 (2015); *id*. section 380.12 (Environmental reports for Natural Gas Act applications). The Commission's regulations, which appear in Title 18, Chapter 1 of the Code of Federal Regulations (CFR), are hereafter cited only by part or section, for instance part 380 or section 2.55, with no reference to title, chapter, or the CFR. References to other agencies' regulations include the full citation, for instance, a CEQ regulation at 40 CFR 1506.

3 40 CFR 1500.1 to 1508.28 (2015).

by public input. As noted further in section 4 of the manual, applicants should ensure that the information in their applications addresses issues relevant to their specific projects. Additionally, we suggest that applicants refer to other recent environmental assessments (EA), environmental impact statements (EIS), and Commission orders regarding similar projects (available on FERC's website, www.ferc.gov, and eLibrary) to see how various issues have been addressed.

1.2 OVERVIEW OF THE MANUAL

This guidance manual is divided into two volumes. Volume I is relevant to all natural gas projects and includes the sections described below. Volume II specifically addresses additional information required for liquefied natural gas (LNG) facilities, including the LNG-related sections of Resource Report 11 as well as Resource Report 13.

Section 2.0 of Volume I describes the requirements to notify affected landowners about certificate applications under sections 3, 7(b), and 7(c) of the Natural Gas Act of 1938 (NGA), as implemented in subparts A and F of part 157 of FERC's regulations. Section 2.0 also broadly addresses overall stakeholder outreach.

Section 3.0 addresses activities and environmental documents required during FERC's pre-filing process described in section 157.21 of FERC's regulations.

Section 4.0 covers environmental documentation required for certificate applications prepared under sections 7(a), 7(b), and 7(c) of the NGA, as implemented in subpart A of part 157 of FERC's regulations as well as some of the additional information required for LNG facilities proposed under section 3 of the NGA (see Volume II for additional details regarding requirements for applications involving LNG facilities). Section 4.0 also discusses some key principles applicants should follow when preparing resource reports, provides guidance on addressing cumulative impacts, and describes in detail the required basis, content, and format for the resource reports to satisfy current Commission and NEPA requirements.

Section 5.0 describes the process by which an applicant can submit an applicant-prepared draft EA with its application.

Section 6.0 describes the third-party EA and third-party EIS options available to applicants.

Section 7.0 outlines the environmental information requirements for Prior Notice Filings and Annual Reports for projects automatically authorized under the NGA, 30-day Advance Notification Filings and Annual Reports for projects done to provide transportation under the Natural Gas Policy Act of 1978 (NGPA), and replacement of facilities under section 2.55(b) of the Commission's regulations.

2.0 LANDOWNER NOTIFICATION AND STAKEHOLDER OUTREACH

2.1 LANDOWNER NOTIFICATION

This section describes the requirements for notification of all affected landowners for certificate applications prepared under sections 3, 7(b), and 7(c) of the NGA, as implemented in part 153 and in subparts A and F of part 157 of FERC's regulations.[4]

The applicant must make a good faith effort to notify all affected landowners; towns and communities; and local, state, and federal governments and agencies involved in the project. Applicants should also make an effort to include other stakeholders with an interest in the project in their outreach efforts (see section 2.2). All affected landowners (as defined in section 157.6(d)(2)) include owners of property interests, as noted in the most recent county/city tax records as receiving the tax notice, whose property:

- is directly affected (i.e., crossed or used) by the proposed activity, including all facility sites, rights-of-way, access roads, pipe and contractor yards, and temporary workspaces;
- abuts either side of an existing right-of-way or facility site owned in fee by any utility company, or abuts the edge of a proposed facility site or right-of-way that runs along a property line in the area in which the facilities would be constructed, or contains a residence within 50 feet of the proposed construction work area;
- is within 0.5 mile of proposed compressors or their enclosures or LNG facilities; or
- is within the area of proposed new storage fields or proposed expansions of storage fields, including any applicable buffer zone.

[4] Section 153 of FERC's regulations applies the landowner notification requirements of section 157.6(d) to applications under section 3 of the NGA.

Failure to make the required landowner notifications can cause delays in the environmental review process and potentially affect the project schedule. Applicants should review the landowner notification requirements in section 157.6(d) early in the process to allow time to identify landowners and prepare the notification materials. For prospective applicants using FERC's pre-filing process, also review section 157.21, which addresses landowner notifications and other stakeholder outreach to be conducted during the pre-filing period.

While the regulatory requirements and definitions provided here are current as of the time this manual is being prepared, regulations are periodically revised. Therefore, applicants should refer directly to the regulations in effect at the time they are preparing their filings

Landowner Notifications for Section 3 and Sections 7(b) and 7(c) Projects

For prospective applicants using FERC's pre-filing process (discussed in section 3.0 of this manual), affected landowners and other stakeholders who have not already been informed about the project must be contacted within 14 days of the Director of the Office of Energy Projects' (OEP) issuance of a notice commencing the pre-filing process.

Once an application is filed under section 3, 7(b)[5], or 7(c) of the NGA, good faith efforts to notify affected landowners and local, state, or federal jurisdictions must be made:

- by certified or first class mail sent within 3 business days following the date the Commission issues a notice of the application; or
- by hand, within the same time period; and
- by publishing notice twice of the filing of the application, no later than 14 days after the date that a docket number is assigned to the application, in a daily or weekly newspaper of general circulation in each county in which the project is located.

[5] The referenced notifications are not required for abandonment of facilities by sale or transfer where the easement will continue to be used for transportation of natural gas.

If any notice is returned as undeliverable, the applicant must make a reasonable attempt to find the correct address and notify the landowner. An updated list of landowners must be filed within 30 days of the date the application was filed, including information concerning any notices that were returned as undeliverable. Notifications to affected landowners must include:

- the docket number of the filing;
- the most recent edition of the Commission's pamphlet, *An Interstate Natural Gas Facility on My Land? What do I Need to Know?,* explaining the Commission's certificate process and addressing the basic concerns of landowners. However, the pamphlet need not be included for pipeline notifications of abandonment, or in published newspaper notices. Instead, they should provide the title of the pamphlet and indicate its availability at the Commission's internet address;
- a description of the applicant and the proposed project, its location (including a general location map), its purpose, and the timing of the project;
- a general description of what the applicant will need from the landowner if the project is approved, and how the landowner may contact the applicant, including a local or toll-free phone number and a name of a specific person to contact who is knowledgeable about the project;
- a brief summary of what rights the landowner has at the Commission and in proceedings under the eminent domain rules of the relevant state. Pipelines are not required to include the latter information in the published newspaper notice, but should provide the Commission's internet address and the telephone number for the Commission's Office of External Affairs;
- information on how the landowner can get a copy of the application from the company or the location(s) where a copy of the application may be found; and
- a copy of the Commission's notice of application, specifically stating the date by which timely motions to intervene are due, together with the Commission's information sheet on how to intervene in Commission proceedings. However, pipelines are not required to include the notice of application and information sheet in the published newspaper notice. Instead, the newspaper notice should indicate that a separate notice is to be mailed to landowners and government entities.

Subpart F Blanket Certificates

For automatic authorizations (section 157.203(b)) under the blanket certificate program, a good faith effort must be made to notify all affected landowners in writing at least 45 days prior to commencing construction or at the time the company initiates easement negotiations, whichever is earlier. [6] A landowner may waive the 45-day prior notice requirement in writing as long as the notice has been provided. The notifications must include:

- a brief description of the facilities to be constructed or replaced and the effect the construction activity will have on the landowner's property;
- the name and phone number of a company representative who is knowledgeable about the project; and
- a description of the company's environmental complaint resolution procedure, which must:
    - provide clear and simple directions for identifying and resolving environmental mitigation problems and concerns during project construction and restoration of the right-of-way;
    - provide a local or toll-free phone number and name of a specific person to be contacted by landowners who has responsibility for responding to landowner problems and concerns;
    - instruct landowners that if they are not satisfied with the response, they may call the company's Hotline; and
    - instruct landowners that if they are still not satisfied with the response, they may contact the Commission's Landowner Helpline at the current telephone number and email address, which must be provided in the notification.

[6] Section 157.203(d)(1).

For projects for which the Commission must receive prior notification,[7] a good faith effort must be made to notify affected landowners in writing within at least 3 business days following the date that a docket number is assigned to the application or at the time the company initiates easement negotiations, whichever is earlier. The notifications must include:

- a brief description of the company and the proposed project, including the facilities to be constructed or replaced and the location (including a general location map), the purpose, the timing of the project, and the effect the construction activity will have on the landowner's property;

- a general description of what the company will need from the landowner if the project is approved, and how the landowner may contact the company, including a local or toll-free phone number and a name of a specific person to contact who is knowledgeable about the project;

- the docket number (if assigned) for the company's application;

- a general description of the blanket certificate program and procedures, as posted on the Commission's website at the time the landowner notification is prepared, and the link to the information on the Commission's website;

- a brief summary of the rights the landowner has in Commission proceedings and in proceedings under the relevant eminent domain rules;

- the following paragraph:

  This project is being proposed under the prior notice requirements of the blanket certificate program administered by the Federal Energy Regulatory Commission. Under the Commission's regulations, you have the right to protest this project within 60 days of the date the Commission issues a notice of the pipeline's filing. If you file a protest, you should include the docket number listed in this letter and provide the specific reasons for your protest. The protest should be mailed to the Secretary of the Federal Energy Regulatory Commission, 888 First St., NE., Room 1A, Washington, DC 20426. A copy of the protest should be mailed to the pipeline at [pipeline address]. If you have any questions concerning these procedures

[7] Section 157.203(c).

you can call the Commission's Office of External Affairs at (202) 502-6088;[8] and

- a description of the company's environmental complaint resolution procedure as described above for automatic authorizations.

No landowner notice is required under the blanket certificate program if any of the four exceptions listed in section 157.203(d)(3) apply. The four exceptions include:

- replacements that would have been done under section 2.55 of the Commission's regulations but are not of the same capacity (as long as they are located in the same location as the replaced facilities) and do not cause any ground disturbance, or any replacement done for safety, U.S. Department of Transportation (DOT) compliance, environmental, or unplanned maintenance reasons that are unforeseen and require immediate attention;

- abandonments that involve only the sale or transfer of the facilities, and where the easement will continue to be used for transportation of natural gas;

- services or facilities requested by the landowner if that is the only landowner affected; or

- activities that do not involve ground disturbance or changes to operational air and noise emissions.

2.2 STAKEHOLDER OUTREACH

We have developed a document entitled, *Suggested Best Practices for Industry Outreach Programs to Stakeholders*, which is available on the FERC website. This document presents common practices and highlights the tools that we believe should be implemented by FERC-regulated entities to effectively engage stakeholders in the siting, construction, and operation of interstate natural gas facilities and LNG facilities.

[8] The Office of External Affairs can also be reached at toll-free number: (866) 208-3372, and by TTY at: (202) 502-8659.

3.0 FERC'S PRE-FILING PROCESS

The pre-filing process is required for LNG terminal facilities and for projects for which the applicant proposes to submit an applicant-prepared draft EA. We also recommend the pre-filing process for certain other natural gas projects, especially complex projects or those anticipated to involve significant public interest. The pre-filing process is meant to increase predictability and reduce risk by allowing proactive interaction between the prospective applicant, FERC staff, other agencies, landowners, and other stakeholders and by identifying and addressing issues before an application is submitted. The pre-filing procedures are described in section 157.21, which identifies various steps of the process, initial consultation with FERC, and content required in the prospective applicant's initial filing to request to use the pre-filing process. Section 157.21 also lists some of the activities undertaken by FERC staff and the third-party contractor (if one is used) during the pre-filing period.

As indicated in section 157.21, an application should not be filed until at least 180 days after the Director of OEP issues a notice commencing the pre-filing process. While this establishes a typical minimum period of 6 months, the actual duration of the pre-filing period varies by project and may be longer than 6 months. Prospective applicants are encouraged to work with the FERC Project Manager regarding the pre-filing schedule. The prospective applicant is not required to adhere to the prescribed timeframes identified in section 157.21(f) if project-specific issues warrant extensions and the pre-filing period is extended beyond 6 months.

3.1 INITIAL FERC CONSULTATION

Before submitting a request to use the pre-filing process, a prospective applicant must consult with the Director of OEP. The initial consultation, or "pre- pre-filing meeting," typically occurs at the FERC office in Washington, D.C. During the consultation, the prospective applicant introduces the project to FERC staff and discusses the status of efforts to obtain the information required for the pre-filing request letter. While not specifically required in the regulations, we recommend that the prospective applicant bring to the consultation an initial draft of the pre-filing request letter. During the initial consultation, FERC staff considers the regulatory path and NEPA document most appropriate for the project and whether a third-party contractor will be needed. If the prospective applicant anticipates that a third-party contractor may be needed, we also strongly recommend that the prospective applicant bring a draft Request for Proposal (RFP) for review by FERC staff.

3.2 INITIAL FILING/REQUEST TO USE PRE-FILING PROCESS

The required contents of the initial filing (for LNG projects) or pre-filing request letter (for other natural gas facilities) are listed in section 157.21(d). We do not reiterate

the requirements here as regulations may be revised over time and applicants should consult the regulations directly. However, it is important to note that several of the items listed require significant advance planning and actions. If the prospective applicant does not build sufficient lead time into the schedule to conduct these activities before initiating pre-filing discussions with FERC, the project schedule could potentially be at risk. Examples of some of the longer lead-time items include, but are not necessarily limited to:

- a list of relevant federal and state agencies in the project area with applicable permitting requirements, including:
    - a statement that those agencies are aware of the prospective applicant's intention to use the pre-filing process;
    - names and telephone numbers (we also recommend email addresses) of the agency personnel contacted;
    - whether the agencies have agreed to participate in the pre-filing process;
    - how the prospective applicant has accounted for agency schedules for issuance of federal authorizations; and
    - when the prospective applicant proposes to file applications with those agencies;
- a list and description of the interest of other persons and organizations who have been contacted about the project, including contact names and telephone numbers (we also recommend email addresses);
- a description of work that has already been done (e.g., contacting stakeholders [including Indian tribes], agency consultations, project engineering, route planning, environmental and engineering contractor engagement, environmental surveys/studies, and open houses), and identification of the environmental firms, engineering firms, and sub-contractors under contract to develop the project;
- proposals from at least three potential third-party contractors (if applicable) from which FERC staff may select to help prepare the requisite NEPA documents or a proposal to submit an applicant-prepared draft EA if approved by the Director of OEP;
- a description of a Public Participation Plan that identifies specific tools and actions to facilitate stakeholder communications and public information, including a project website and a single point of contact, as well as other information; and

- for LNG projects, certification either that a Letter of Intent and a Preliminary Waterway Suitability Assessment (WSA) have been submitted to the U.S. Coast Guard (Coast Guard) or, for modifications to an existing or approved LNG terminal, that the Coast Guard did not require such information.

3.3 PRE-FILING ACTIVITIES AND SUBMITTALS

Once the Director of OEP issues a notice commencing the pre-filing period, the prospective applicant must complete activities and file certain documents and reports in accordance with section 157.21(f), which specifies timeframes for these actions (i.e., the commencement of the pre-filing period "starts the clock" for these items). Refer directly to the regulations when planning and preparing these activities and documents.

While carrying out the pre-filing activities, prospective applicants are encouraged to communicate regularly with FERC staff to address project-specific questions, coordinate meetings and site visits, and keep FERC staff apprised of project developments. In addition to the monthly status reports required under section 157.21(f)(6), FERC Project Managers may establish a schedule of regular, e.g., weekly or bi-weekly, conference calls.

The following paragraphs do not address all of the items required under section 157.21(f), but are meant to provide guidance to assist applicants with certain key activities.

Open Houses

Within 7 days of the commencement of the pre-filing period and after consultation with Commission staff, prospective applicants must establish dates and locations of applicant-sponsored open houses and other meetings with stakeholders (including agencies). Although the general discussions that take place at the open houses are not part of the public record, FERC encourages prospective applicants to file comments received at these events to help identify project issues. Commission staff or the third-party contractor, or both, generally attend the open houses to respond to questions regarding the FERC environmental review process; therefore, coordination with FERC staff regarding meeting dates and logistics is recommended. If FERC staff will be in attendance, the prospective applicant's published notice of the open houses should reflect this information. FERC staff may also elect to conduct site visits or agency meetings in conjunction with travel for open houses.

Landowner and Stakeholder Contacts

Within 14 days of the commencement of the pre-filing period, the prospective applicant must contact all stakeholders not already informed about the project, including all affected landowners as defined in section 157.6(d)(2). The prospective applicant must

submit a stakeholder mailing list to FERC staff within 30 days. See section 2.0 of this manual for further discussion of landowner notification and stakeholder outreach.

Initial Draft Resource Report 1 and Summary of Alternatives

Within 30 days of the commencement of the pre-filing period, the prospective applicant must file a first draft of Resource Report 1 and a summary of alternatives considered. FERC staff recognizes that information available at this point in the process may not be complete or fully refined. However, at a minimum, these early drafts should provide sufficient information to allow FERC staff to issue a Notice of Intent to prepare a NEPA document. Such information includes, but is not limited to, a clear description of the proposed project, location map(s), purpose and need, schedule, land requirements, applicable permits, and construction methods. Draft Resource Report 1 should reflect the overall format and structure planned for future drafts and should indicate where information will be provided in a subsequent draft. Although the alternatives summary is not referred to at this point as a draft Resource Report 10, a similar approach is recommended. The alternatives summary should, at a minimum, identify major system and route alternatives considered as well as alternative sites considered for aboveground facilities.

Scoping

FERC's issuance of the Notice of Intent to prepare a NEPA document starts the NEPA process and scoping period. The Notice of Intent announces the dates and locations of scoping meetings, if applicable, that will be hosted by FERC. Public comments provided at the scoping meeting become part of the public record. Although the scoping meetings are FERC meetings, the FERC Project Manager may ask the prospective applicant to provide a brief overview of the project (which should be strictly informational and not promotional) or to be available to answer questions about the project before or after the formal part of the meeting, or both.

The Notice of Intent to prepare a NEPA document also identifies the closing date of the official scoping period during which interested parties should submit comments on the project. The purpose of specifying a scoping period closing date is to provide time for the prospective applicant to address comments in its draft resource reports. It is important to note, however, that we will continue to accept and respond to comments at any time during and after the pre-filing period until it is no longer practical as we prepare to issue the NEPA document.

Within 14 days of the close of the scoping period, the prospective applicant must respond to issues raised during the scoping period as required by section 157.21(f)(9). For projects with significant public interest, scoping comments may be voluminous, and it is not unusual for scoping comments to be filed after the end of the comment period. If prospective applicants find that 14 days is not sufficient to develop responses, they should file a statement by the 14-day deadline indicating when a complete response filing

is planned. Additionally, because the purpose of scoping is to identify issues to be addressed in the NEPA document, scoping comments raising similar issues can be grouped together for the purposes of preparing responses.

Draft Resource Reports

Within 60 days of the end of the scoping period, the prospective applicant must submit draft Resource Reports 1 through 12. Note that this includes a second draft Resource Report 1 which, in most cases, will be further developed than the initial draft that was submitted at the 30-day point. Where information is still not available or not considered final and complete, the prospective applicant should clearly indicate at the appropriate locations within the draft resource reports what information will be provided at what date. Clearly acknowledging missing information facilitates FERC staff's review and assures FERC staff that the applicant is aware the information is required and plans to provide it. FERC staff recommends that the prospective applicant create a table, similar to table 3.3-1, of outstanding information and when the applicant plans to provide that missing data. This may reduce the likelihood that FERC staff will request revised draft resource reports during the pre-filing period. If we do request revised draft resource reports, the prospective applicant must submit them at least 60 days prior to filing the application. For LNG projects, the prospective applicant must submit a draft of Resource Report 13 at least 90 days prior to filing the application. Section 4.0 of this manual provides the technical content requirements for each resource report at the time of application. Volume II specifically addresses additional information to be provided for LNG facilities.

TABLE 3.3-1

Information Outstanding for Draft Resource Reports

Information	Resource Report Location	Anticipated Submittal Date
Draft Plan X	Section x.x.x	Date
Numbers to support table x.x-x	Section x.x.x	With application
Species survey results for site Z	Section x.x.x	Date

Certification of Follow-on WSA Submittal

Upon commencement of the pre-filing period for LNG projects, the prospective applicant must certify that a Follow-on WSA will be submitted to the Coast Guard no later than the filing of an application with the Commission. For modifications to an existing or approved LNG terminal, the prospective applicant should certify that the Coast Guard has indicated that a Follow-on WSA is not required.

4.0 PREPARATION OF ENVIRONMENTAL REPORTS FOR NATURAL GAS ACT SECTION 7 APPLICATIONS

Applicants who do not use the pre-filing process initiate the environmental review process through filing of an application. The application must include resource reports as specified in sections 157.14(a)(6-a), 380.3, and 380.12 (as discussed in section 3.0, applicants using the pre-filing process submit draft resource reports prior to filing an application). The preparation of resource reports is addressed in detail in this section. The information provided in this guidance manual regarding the format and content of resource reports is based on FERC staff's needs and preferences to facilitate our preparation of a thorough, defensible NEPA document that will be useful to the Commission. If other federal agencies will also be using the applicant's resource reports (and/or the FERC NEPA document) to fulfill their NEPA responsibilities, additional information may need to be included in the resource reports. This should be discussed among the applicant, FERC staff, and the appropriate agency staff as early as possible.

The applicant may also propose to file an applicant-prepared draft EA (only if the applicant uses the pre-filing process and receives approval from the Director of OEP), or to retain a third-party contractor to assist FERC staff in preparing an EA or EIS paid for by the applicant but prepared under the sole technical control of the Commission staff. None of these options takes the place of the applicant's resource reports, which are a required part of the application. Sections 5 and 6 of this manual address the preparation of an applicant-prepared draft EA and use of a third-party contractor, respectively.

The purpose of this section is to clearly identify the technical content requirements for each resource report that will allow us to efficiently review an application and conduct the environmental review process. We also identify information that is often missing from resource reports, as well as information that may not be specifically required in the regulations, but is typically needed to allow for a complete and thorough environmental review. Note that the information required to develop a complete application for one project may not be the same as that needed for another project. We attempt in this section to be inclusive regarding the information required for most projects, but applicants should evaluate the specific issues, impacts, and comments relevant to their own projects and adjust the content of their resource reports accordingly while also meeting the filing requirements in section 380.12. This section also provides guidance on how to collect required data, which agencies to contact, what have been reliable data sources in the past, and recommended presentation techniques. In many cases, we provide sample templates for presenting information in tabular formats, some of which include sample content and/or footnotes for illustrative purposes. The templates are effective presentation formats based on our experience, but they are not mandatory

and applicants should modify them (including the use of footnotes where warranted for clarification) as appropriate for their individual projects.

Guidance is provided on all of the resource reports identified in section 380.12 as follows:

Volume I

Resource Report 1 – General Project Description
Resource Report 2 – Water Use and Quality
Resource Report 3 – Fish, Wildlife, and Vegetation
Resource Report 4 – Cultural Resources
Resource Report 5 – Socioeconomics
Resource Report 6 – Geological Resources
Resource Report 7 – Soils
Resource Report 8 – Land Use, Recreation, and Aesthetics
Resource Report 9 – Air Quality and Noise
Resource Report 10 – Alternatives
Resource Report 11 – Reliability and Safety (Pipeline Facilities)
Resource Report 12 – PCB Contamination

Volume II

Resource Report 11 – Reliability and Safety (LNG facilities)
Resource Report 13 – Engineering and Design Material

Note that material filed under another docket may be incorporated by reference if the applicant identifies the docket number, filing date, and document in which the information is contained. This incorporation by reference should be limited to items and issues that are not project specific. However, to facilitate our review, we recommend that the material be incorporated into the current filing rather than being incorporated by reference only.

KEY PRINCIPLES OF RESOURCE REPORT PREPARATION

There are certain general principles that should be followed throughout the preparation of the resource reports. These principles have often been overlooked in past filings, causing delays in the processing of applications as information must be verified through data requests to the company or independent research by FERC staff. These principles are summarized below:

- **Provide concise, specific statements of environmental impacts and proposed mitigation.** The detail provided in each resource report should be commensurate with the complexity of the action and the potential for environmental impact. Each resource report should address:

    - existing conditions or resources that may be directly or indirectly affected by the project or that may affect the project;
    - effects on the resource as a result of construction, operation (including maintenance and malfunctions), or abandonment of the project;
    - all proposed measures to enhance the environment or avoid, minimize, or mitigate for adverse effects;
    - a discussion of cumulative impacts that may result from the combination of the proposed project and other past, present, and reasonably foreseeable projects that affect one or more resources also affected by the project (further discussion of cumulative impacts is provided below);
    - a list of references/data sources (publications, reports, other literature, and communications, including agency contacts) that were used in the preparation of the resource reports, and appropriate citations to those references within the text; and
    - evidence of agency consultation used to identify existing resources, potential impacts, and appropriate mitigation measures.

    Although there is no required format for presenting information in resource reports, we have found that organizing each resource report to first discuss the existing environment with respect to a given resource, and then discuss potential project impacts and proposed mitigation measures related to that resource, facilitates our review. For example, the preferred format for addressing waterbody and wetland resources in Resource Report 2 would be as follows for a simple project involving a pipeline and a new

compressor station (numbering in the example assumes that section 2.1 addresses groundwater):

2.2 Surface Waters
  2.2.1 Proposed Pipeline
    2.2.1.1 Existing Environment
    2.2.1.2 Potential Impacts and Proposed Mitigation
  2.2.2 Compressor Station
    2.2.2.1 Existing Environment
    2.2.2.2 Potential Impacts and Proposed Mitigation
2.3 Wetlands
  2.3.1 Proposed Pipeline
    2.3.1.1 Existing Environment
    2.3.1.2 Potential Impacts and Proposed Mitigation
  2.3.2 Compressor Station
    2.3.2.1 Existing Environment
    2.3.2.2 Potential Impacts and Proposed Mitigation

This basic organizational approach can be adapted as needed to more complex projects involving multiple types of facilities and/or multiple states.

- **Clearly identify the facilities analyzed in the resource reports and ensure that the analysis addresses all of the currently proposed facilities**. Often applicants will initiate environmental studies on one set of project facilities, but will change the facilities, or the design or locations of the facilities, before the application is filed with FERC. Not infrequently, we find that resource reports include information on facilities or facility locations that are different from those proposed in the application, or that supporting documentation for a resource report (e.g., U.S. Fish and Wildlife Services [FWS] consultation letters and cultural resource survey reports) does not cover the facilities actually proposed in the application. Each resource report and the supporting agency documentation should clearly identify the facilities that are being evaluated. Similarly, all of the proposed facilities should be addressed in each resource report and covered by supporting documentation.

- **At a minimum, each resource report should provide the information required by the applicable subsection under section 380.12. If any of this information is not provided, identify the reason why it is not addressed or not applicable.** Attachment 1 of this manual provides the full filing requirements in section 380.12, as well as a copy of Appendix A to part 380, which lists the minimum filing requirements that must be included for application acceptance. For projects using the pre-filing

process, in which draft resource reports are submitted and reviewed by FERC staff prior to the application being filed, the resource reports in the application should cover all of the information required by section 380.12, as well as address FERC staff's comments on the draft resource reports and comments made by stakeholders during pre-filing. For projects that do not use the pre-filing process, including information beyond the minimum filing requirements allows for a more efficient review process, reducing the need for supplemental filings and reducing the number of data requests FERC staff may need to issue in order to obtain sufficient information. In the following sections that discuss the individual resource reports, we have included lists identifying additional information that should be included in each resource report, including information we often find is missing or that applicants often misinterpret from the regulations. Excluding this additional information from the resource reports may result in a larger number of data requests.

Failure to include any of the information specified in the minimum filing requirements can result in rejection of an application unless the Director of OEP determines that the applicant has provided an acceptable reason for the item's absence and an acceptable schedule for filing it. Failure to file within that accepted schedule may also result in rejection of the application.

- **If the project is exempt from certain filing or reporting requirements, clearly provide the basis for such an exemption in the appropriate resource reports.** It is frequently unclear if missing information is not applicable to a project or if the topic was inadvertently missed in the analysis. If the applicant believes that a particular resource report is not required for the project, include a cover sheet for that resource report with a brief explanation of why it is not required. The resource reports should clearly identify issues or topics that have not yet been adequately addressed, and studies or surveys that have not been completed at the time of filing (by milepost/location and percentage of total required survey), including the reason for the delay in providing this information. In each case, provide the anticipated schedule for completion of all outstanding issues or studies and the anticipated filing date of this information.

- **Ensure that all data are accurate and consistent throughout the resource reports.** Common data are often referred to in several different resource reports. Examples include the length of the pipeline or size of the aboveground facilities, acres required for construction and new permanent rights-of-way or extra work areas, acres of forest clearing, acres of wetlands affected, acres of land use types affected, and numbers and dimensions of temporary and permanent access roads.

These data are fundamental to the assessment of impacts and must be consistent between different resource reports. For acreages that are presented, clearly identify the mathematical basis for determining the acreages and use the values consistently throughout the resource reports.

- **Use consistent project nomenclature throughout the resource reports.** Similar to the above bullet regarding quantitative data, it is important to establish and define common nomenclature and terminology and to use it consistently throughout all of the resource reports. This applies to items such as the names of the proposed facilities, names and abbreviations for applicants and other entities referred to in the resource reports, types of workspaces, and referenced construction methods.

- **Provide documentation of consultation completed with federal, state, and local agencies and other individuals.** We must verify the data and conclusions presented in the resource reports as part of our environmental review and preparation of EAs and EISs. Each resource report should include a list of all publications, reports, and other literature or communications cited or used for analysis, including the name, title, and telephone number of each person or agency contacted. Note that records of communication should show both directions of correspondence (i.e., what was sent to the agency and the agency's response). All mapping should be included to document that the agency reviewed the same project presented in the FERC application. Agency correspondence is best divided by resource area and included in the respective resource report to facilitate review by each FERC staff specialist. For large or complex projects requiring extensive agency consultation and coordination, it is helpful to FERC staff if the applicant includes an index of agency correspondence identifying where each item can be found within the filing.

- **Ensure that the application includes Exhibit J (under section 7 of the NGA) or Exhibit H (under section 3 of the NGA).** Although not part of the Environmental Report, these exhibits, which are required for applications under sections 7 and 3 of the NGA, are often prepared in coordination with the applicant's environmental staff. We find that applicants sometimes overlook these exhibits, which can result in an application being found incomplete. Ensure that the information provided in Exhibits J and/or H, which provide information about federal authorizations required for the project, is consistent with the information provided in the resource reports.

CUMULATIVE IMPACTS

NEPA requires the lead federal agency to consider the potential cumulative impacts of proposals under its review. CEQ defines cumulative impact as "the impact on the environment which results from the incremental impact of the action [being studied] when added to other past, present, and reasonably foreseeable future actions…" Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

In accordance with section 380.12(b)(3), applicants are required to identify cumulative effects on the relevant resource in each resource report. We have found that some applicants prefer to provide their cumulative impact analysis in one place (e.g., as a subsection of Resource Report 1) rather than address cumulative impacts for each resource in the applicable resource report. This is acceptable as long as all of the resources are addressed, and an appropriate cross reference is provided in each resource report.

The analysis must describe cumulative impacts that would potentially result from implementation of the proposed project along with other projects within the geographic and temporal scopes identified for each resource. The geographical area to be considered, which is the general area in which the projects could contribute to cumulative impacts (sometimes referred to as the region of influence), varies depending on the resource being discussed. Thus, an important first step in approaching the cumulative impacts analysis is to define the region of influence for each resource. Typically, this depends on the type, extent, and location of the proposed project. As stated in CEQ guidance, the scope of the cumulative impact analysis is related to the magnitude of the environmental impacts of the proposed action. Proposed actions of limited scope typically do not require as comprehensive an assessment of cumulative impacts as proposed actions that have significant environmental impacts over a large area. The region of influence also varies depending on the type of resource. For example, the region of influence for buried cultural resources may be confined to the limits of the disturbed construction area, while the region of influence for air quality would extend beyond the immediate limits of the project.

In determining whether the project contributes to cumulative impacts within its region, consider the spatial and temporal migration of impacts away from construction and/or operation work areas. Robust erosion control mechanisms and swift stabilization of a right-of-way would limit the migration of disturbed soils from the disturbed right-of-way. An open-cut stream crossing, however, would generate turbidity and sedimentation impacts that would travel for some distance from the actual work areas.

The temporal migration of impacts is linked to the duration of time for stabilization and full restoration. Tree clearing, for example, is either a permanent or long-term impact. Consequently, it may make sense to consider other projects across a

longer span of time or across a larger region of influence and provide ample justification for the time span and region of influence used.

General considerations for constructing the cumulative impacts analysis should include the items identified below.

- The cumulative impacts analysis should only discuss resources that are directly or indirectly affected by the proposed project.

- CEQ guidance for identifying the geographic scope recommends the use of natural boundaries, (e.g., watersheds, mountain ranges). Resources that might be interdependent within larger natural boundaries may include soils that support vegetation that supports wildlife. Socioeconomic impacts, which do not lend themselves to natural boundaries, are better considered using administrative boundaries.

- The size of the geographic area used in the analysis should be commensurate with the extent of direct and indirect impacts of the proposed project. In determining the appropriate geographic scope, consider:

    - the type of resource impact, i.e., whether the impact would be confined and unlikely to affect off right-of-way areas other than potentially those abutting the construction workspace (e.g., disturbance of buried cultural resources or soils) or whether the impact would extend beyond the immediate area (e.g., air and noise impacts); and

    - the appropriate region of influence, which may be a defined distance from the project activities (e.g., x feet or x miles from construction areas), a physical resource boundary (e.g., watershed), an administrative boundary (e.g., county), or a modeled or measured impact distance (e.g., noise sensitive area [NSA], visual impact area).

- The duration of the impact and whether it is temporary or permanent (e.g., noise from construction would be short term and temporary, air quality impacts due to emissions from new LNG or compressor facilities would be permanent, impacts from forest clearing would be long term) must be considered and explained in the supporting analysis.

- The applicant should discuss how a project may affect a resource and how a resource may affect the design, mitigation, or construction of the project. For example, greenhouse gas (GHG) emissions from construction or

operation of a project would contribute to climate change impact, and current or projected climate change impacts, such as increased sea level rise or flooding, may require adaptation measures or altering in the design of facilities.

- The applicant should explain the rationale for the geographic and temporal scopes determined for each resource. For projects using the pre-filing process, we recommend that the applicant discuss its determinations and rationale with FERC staff prior to proceeding further.

Once the geographic and temporal scopes have been determined, the applicant should identify other past, present, and reasonably foreseeable projects that would contribute to cumulative impacts within the regions of influence for the affected resources. Where past actions have become part of the existing nature of an area, it may be appropriate to include them as part of the baseline for examining cumulative impacts (e.g., the forest clearing in the 1800s, which has been consistently farmed since). Consider whether the past action continues to contribute to discernable impacts on a resource. If it does not, then it should not be included. If it does, include the present effects of the past actions in the analysis. For example, in the case of a project involving expansion of an existing compressor station, the cumulative impact analysis should take into account the operational air quality and noise impacts of the existing facilities (past action) and the impacts of the proposed new facilities.

To facilitate the research process and identify the appropriate information sources, it may be helpful to divide projects into categories that have similar impacts on resources. For example, other linear projects such as jurisdictional and nonjurisdictional pipelines and electric transmission rights-of-way may share certain characteristics that would allow a more concise discussion. Sources of information may include, but are not limited to, federal and state agencies, local and regional planning and zoning departments, chambers of commerce, and economic development organizations. The cumulative impacts analysis should also include nonjurisdictional facilities associated with the proposed project, such as electrical transmission lines and water pipelines, as well as facilities proposed for the customer. For each project identified, the applicant should identify the county and state, distance from the proposed project, the milepost location where it crosses the proposed facilities or the nearest proposed project facility milepost, and the timeframe for construction.

The amount of environmental impact information available for other projects varies depending on the type of project and the applicable permitting processes. For example, specific and quantitative information for other FERC-regulated projects may be accessible through FERC's eLibrary, while available information for certain commercial developments may be more limited. Consequently, the cumulative impacts analysis is generally based on a combination of qualitative and quantitative information. As the cumulative impacts analysis is fundamentally an additive analysis, quantitative

information is far more meaningful and should be provided where available. Where quantitative information is not available, the text should include a discussion based on qualitative impacts.

To establish the geographic and temporal scopes of the cumulative impact analysis, we recommend that applicants present the regions of influence for each resource, the other past, present, and reasonably foreseeable projects considered in the cumulative impacts analysis for each resource, and impacts of other projects on those resources in tabular format. The format of the table(s) will depend on the size and complexity of the project and the number of other projects to be considered in the analysis. Attachment 2 provides three sample tables that could be adapted for use, alone or in combination, based on project-specific situations.

Table 1 in attachment 2 is an example of a format that might be used to present the geographic and temporal scope for each resource and the other projects considered in the cumulative impacts analysis for a project in a relatively remote area in which few other projects have been identified. Note that the information shown within the table is meant only to provide examples of the type of information and rationale that might be included. The applicant would need to populate the table based on the project-specific circumstances.

Table 2 in attachment 2 is an example of how an applicant might identify the other projects considered in the analysis for a project located in an area that is experiencing a lot of development, and the resources for which the geographic and temporal scopes would overlap with those of the proposed project. If this table is used, a separate table or text discussion would be needed to explain how the applicant defined the geographic and temporal scope for each resource.

Table 3 in attachment 2 provides an example of how an applicant might identify the other projects considered in the analysis and quantify the impacts of those projects on affected resources. Similar to table 2, this table could be used for a project located in an area that is experiencing a lot of development and where multiple resources and the associated geographic and temporal scopes overlap with those of the proposed project. However, the format of table 3 also allows for the inclusion of the quantitative information available. Table 3 could be used in place of table 2, or, if quantitative information is available for only some of the projects identified in tables 1 or 2, table 3 could be used to quantify the impacts of that subset of projects on affected resources.

Cumulative Impact Analysis for Air Quality and Noise

As discussed above, applicants should identify and provide supporting rationale for the geographic scope they identify for each resource affected by the proposed project as these would vary based on the project scope and location and the resources affected.

However, FERC staff has developed more specific guidelines for evaluating cumulative impacts on air quality and noise as described below.

Air Quality – For operating stationary sources (e.g., compressor stations, LNG facilities, storage facilities), consider the cumulative impacts with other air emission sources within 50 kilometers of the project source. Include an inventory of existing, proposed, and reasonably foreseeable air emission sources, documenting their location, distance from the proposed project facility, and estimated or permitted emissions for each criteria pollutant in tons per year. Also, identify the potential incremental cumulative operational impacts of the project. The emissions sources should include, but not be limited to, FERC jurisdictional projects, intrastate pipelines and compression, gathering pipelines, gas processing facilities, gas wells, industrial or commercial facilities, etc. Where Prevention of Significant Deterioration (PSD) cumulative modeling is performed, provide a justification that the cumulative model addresses the overall cumulative impacts on local and regional air quality, as appropriate.

For construction of project facilities, consider the cumulative impacts with other existing, proposed, and reasonably foreseeable construction emissions sources within 0.25 mile of the project construction. However, for construction of LNG facilities where construction activities could occur in one location for more than 1 year, it may be appropriate to consider the cumulative impacts with other construction emissions sources within 0.5 mile of the LNG facility construction.

Noise – Operation noise cumulative impacts should include other projects where noise from the other long-term projects/facilities would affect NSAs within 1 mile of the proposed facility. Construction noise cumulative impacts should include other projects within 0.25 mile of the proposed facilities. However, for construction of LNG facilities, applicants should consider the appropriateness of evaluating cumulative construction noise impacts at further distances and provide justification for using those distances.

4.1 RESOURCE REPORT 1 – GENERAL PROJECT DESCRIPTION

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Describe all authorizations required to complete the proposed action and the status of applications for such authorizations, including actual or anticipated submittal and receipt dates.	D
☐ Provide plot/site plans of all aboveground facilities that are not completely within the right-of-way.	D
☐ Provide detailed typical construction right-of-way cross-section diagrams for each proposed right-of-way configuration showing information such as widths and relative locations of existing rights-of-way, new permanent rights-of-way, and temporary construction rights-of-way. Clearly identify any overlap of existing rights-of-way for projects involving collocation. Identify by pipeline facility and milepost where each right-of-way configuration would apply.	BB
☐ Summarize the total acreage of land affected by construction and operation of the project.	BB
☐ Describe cathodic protection system; include associated land requirements as appropriate.	D
☐ Describe construction and restoration methods for offshore facilities as well as onshore facilities.	D
☐ For proposed abandonments, describe how the right-of-way would be restored, who would own the site or right-of-way after abandonment, who would be responsible for facilities that would be abandoned in place, and whether landowners were given the opportunity to request removal.	D
☐ If Resource Report 5, Socioeconomics is not provided, provide the start and end dates of construction, the number of pipeline spreads that would be used, and the workforce per spread.	D
☐ If project includes construction in the federal offshore area, include in the discussion of required authorizations and clearances the status of consultations with the Bureau of Ocean Energy Management, Regulation and Enforcement. File with the Bureau of Ocean Energy Management, Regulation and Enforcement for right-of-way grants at the same time or before filing the Federal Energy Regulatory Commission (FERC) application.	D
☐ For project involving the import or export of natural gas/liquefied natural gas and construction of liquefied natural gas facilities, include in the discussion of required authorizations and clearances the status of consultations and authorizations required from the U.S. Department of Energy, U.S. Coast Guard, and the Federal Aviation Administration, as applicable.	D
☐ Send two (2) additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects.	D
☐ Provide an electronic copy of the landowner list directly to the FERC environmental staff (check with FERC staff for required format).	D

[a] D Applicant
BB Resource Report 8

Resource Report 1 is required for all applications and lays the groundwork for the other resource reports. This resource report describes the facilities associated with the project, the purpose of and need for the project, procedures for construction, restoration, and operation of the facilities, timetables for construction, future plans for related construction, compliance with regulations and codes, and permits and consultations required for the project. Resource Report 1 also establishes the nomenclature for the various project components and the entities involved, which should be used consistently through all of the resource reports.

4.1.1 Proposed Facilities

4.1.1.1 Purpose and Need

Describe the purpose of and need for the proposed facilities. Include the specific geographic market(s) to be served, total volume of gas to be delivered by the facilities in cubic feet per day, the location of the gas receipt and delivery points, a listing of each customer, the status of precedent agreements with customers, and the volume of gas delivery to each customer. As noted in section 4.10 of this manual (Resource Report 10 – Alternatives), the purpose and need statement in Resource Report 1 should provide sufficient detail to support the analysis of alternatives to the proposed project.

4.1.1.2 Location and Description of Facilities

Provide a detailed description of the length, number, type, and size of all facilities to be constructed, modified, abandoned, replaced, or removed. Include the following information in the description:

- For each pipeline segment (new pipeline or loop), provide:
  - the name or segment designation;
  - the pipeline diameter in inches;
  - the existing and proposed maximum allowable operating pressure;
  - the approximate length in miles;
  - the beginning and ending mileposts;[9]
  - the type of activity (loop, new, replacement, or abandonment); and
  - the location by county and state.
- For abandonments, indicate:
  - whether facilities would be abandoned "in place" or removed (identify abandonment method by milepost if multiple methods are proposed);
  - the length of each segment to be abandoned; and
  - the beginning and ending milepost of each segment to be abandoned.

[9] Although mileposts are referred to throughout this manual, station numbers are also acceptable. It is also acceptable to use existing mileposts or surveyed station numbers for loops or abandonments. However, whatever method is chosen should be used consistently throughout the resource reports.

- For replacements, indicate:
    - whether pipelines would be replaced in the same trench;
    - the length of each segment to be replaced; and
    - the beginning and ending milepost of each segment to be replaced.
- For each aboveground facility (compressor or meter station, well, or LNG facility), provide:
    - the name or facility designation;
    - the type of facility;
    - the type of activity (modification, new, abandonment, replacement, or removal);
    - the amount of horsepower and source of power (gas or electric), if applicable;
    - the milepost location, if appropriate;
    - the location by county and state;
    - the amount of overlap with existing facilities versus new disturbance for facilities proposed to be modified; and
    - whether facilities proposed to be abandoned would be abandoned in-place or removed.
- For each associated facility (block valve, drip tank, regulator, pig launcher/receiver, etc.) that would be placed within existing or new permanent right-of-way or aboveground facility sites, provide:
    - the name or facility designation;
    - the type of facility;
    - the type of activity (modification, new, abandonment, replacement, or removal);
    - the milepost location;
    - the location by county and state;
    - the amount of overlap with existing facilities versus new disturbances for facilities proposed to be modified; and
    - whether facilities proposed to be abandoned would be abandoned in-place or removed.

For projects that involve multiple facilities, summarize the above information in tables as shown in example tables 4.1.1-1 and 4.1.1-2.

TABLE 4.1.1-1

Pipeline Facilities

Pipeline Diameter/Type	County, State	Mileposts [a] Begin	Mileposts [a] End	Length (miles)
New Pipelines				
xx-inch-diameter Mainline Pipeline				
Subtotal				
xx-inch-diameter Loop A				
Subtotal				
Pipeline Replacement				
xx-inch-diameter Replacement Segment A[b]				
Subtotal				
TOTAL PIPELINES				

[a] Mileposts are reference points and may not equal total length due to rounding.

[b] Old pipe to be removed and replaced in same trench.

TABLE 4.1.1-2

Aboveground Facilities

Facility Type and Name	Approximate Milepost	County, State	Description
Compressor Stations			
Compressor Station A	x.x	County, ST	Install [describe compressor units] with a total of xxx horespower of compression
Compressor Station B	x.x	County, ST	Retire one [describe compressor unit] and install a new xxx horsepower [describe compressor unit]
Meter and Regulation Facilities			
Meter Station A	x.x	County, ST	Install new meter and regulation facilities and tie-in with Company X pipeline.
Meter Station B	x.x	County, ST	Install new meter and regulation facilities
Pig Launchers and Receivers			
Pig Launcher	x.x	County, ST	Install pig launcher within Compressor Station A fenceline
Pig Receiver	x.x	County, ST	Install pig receiver within permanent pipeline right-of-way

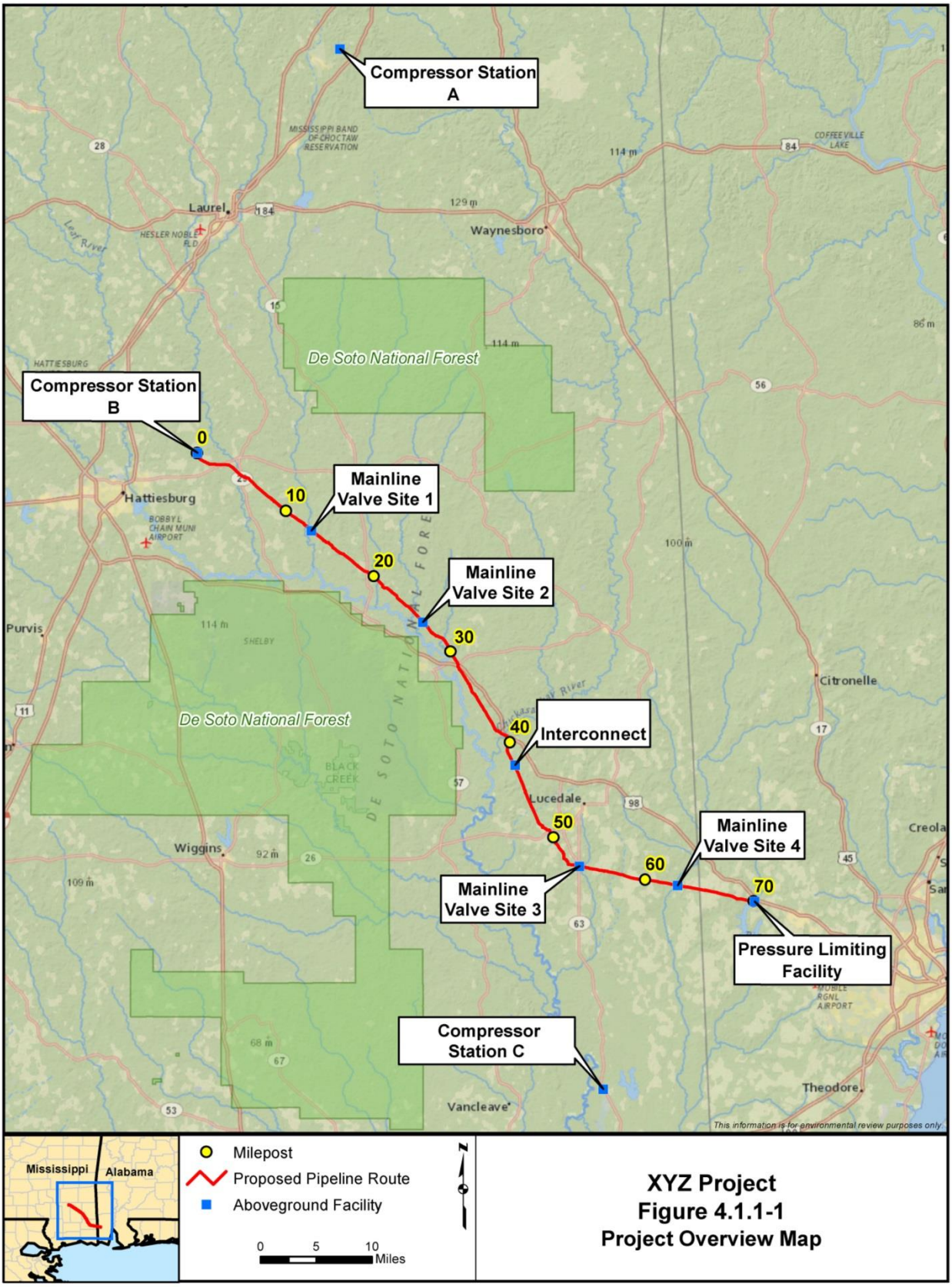
Identify all jurisdictional facilities related to the project, including blanket certificate activities (part 157 of subpart F) and auxiliary and replacement activities (section 2.55). Also identify jurisdictional facilities that would be constructed by other companies. Identify the other companies and describe where the facilities would be located and the status of the Commission's approval process. If an application has been filed, include the docket number.

4.1.1.3 Location Maps, Detailed Route Maps, and Plot/Site Plans

Provide a map showing the location of all pipeline and aboveground facilities in relationship to existing pipeline facilities (see figure 4.1.1-1).

All pipeline segments, aboveground facilities (including block valves, drip tanks, communications towers, etc.), pipe storage yards, extra work/staging areas, contractor yards, and access roads need to be clearly and accurately shown on current original 1:24,000/1:25,000 scale U.S. Geological Survey (USGS) 7.5-minute series topographic maps or maps of equivalent detail, and 1:6,000-or-greater scale aerial photographs or photo-based alignment sheets that are preferably not more than 1 year old. If older aerial photography is used, it must accurately depict current land use and development. Aerial photography or photo-based alignment sheets should be provided in D-size (22-inch by 34-inch, preferably in a bound roll rather than as individually folded sheets) or other size format acceptable to the FERC Project Manager. Ensure that each map sheet and alignment sheet includes a north direction arrow. Working copies of topographic maps (in color) and aerial photography/alignment sheets should also be provided in 17-inch by 11-inch format. In addition to the information required to be filed as part of the application, for projects in pre-filing, the applicant should consult with the FERC Project Manager to determine the number of copies of topographic maps and aerial photographs that should be provided directly to FERC environmental staff and the FERC third-party contractor.

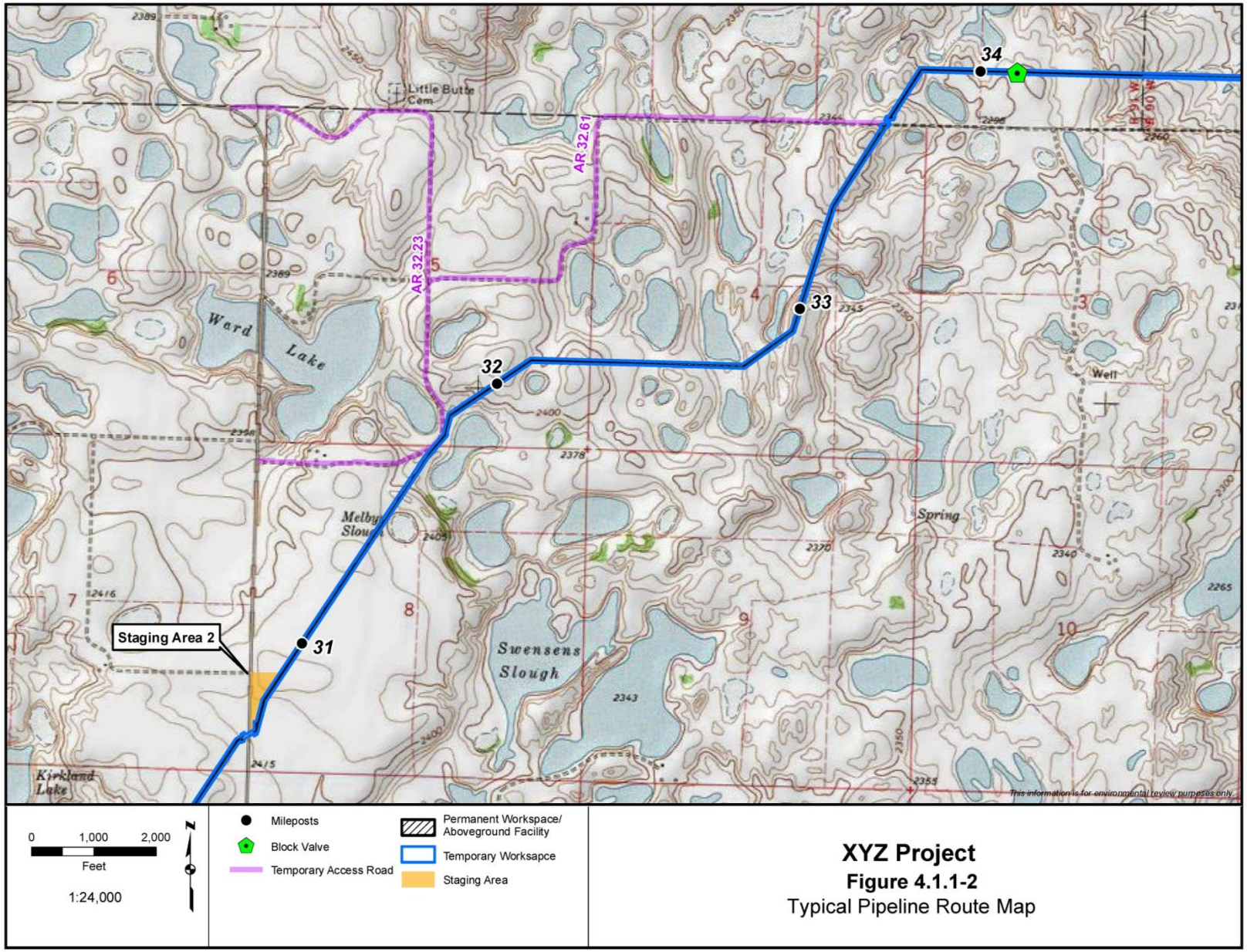
Pipeline alignment sheets and topographic maps should cover at least a 0.5-mile-wide corridor centered on the pipeline, and should clearly show the pipeline centerline with integer mileposts identified. Milepost markers must be shown clearly and accurately on the maps and photos because mileposts are used to locate and describe site-specific impacts, mitigation measures, and recommendations. In some cases it may be helpful to identify mileposts at smaller intervals (e.g., 0.1-mile or 0.5-mile), especially if there are numerous features of concern along the route or if the maps are of a scale that necessitates smaller intervals for reference points.

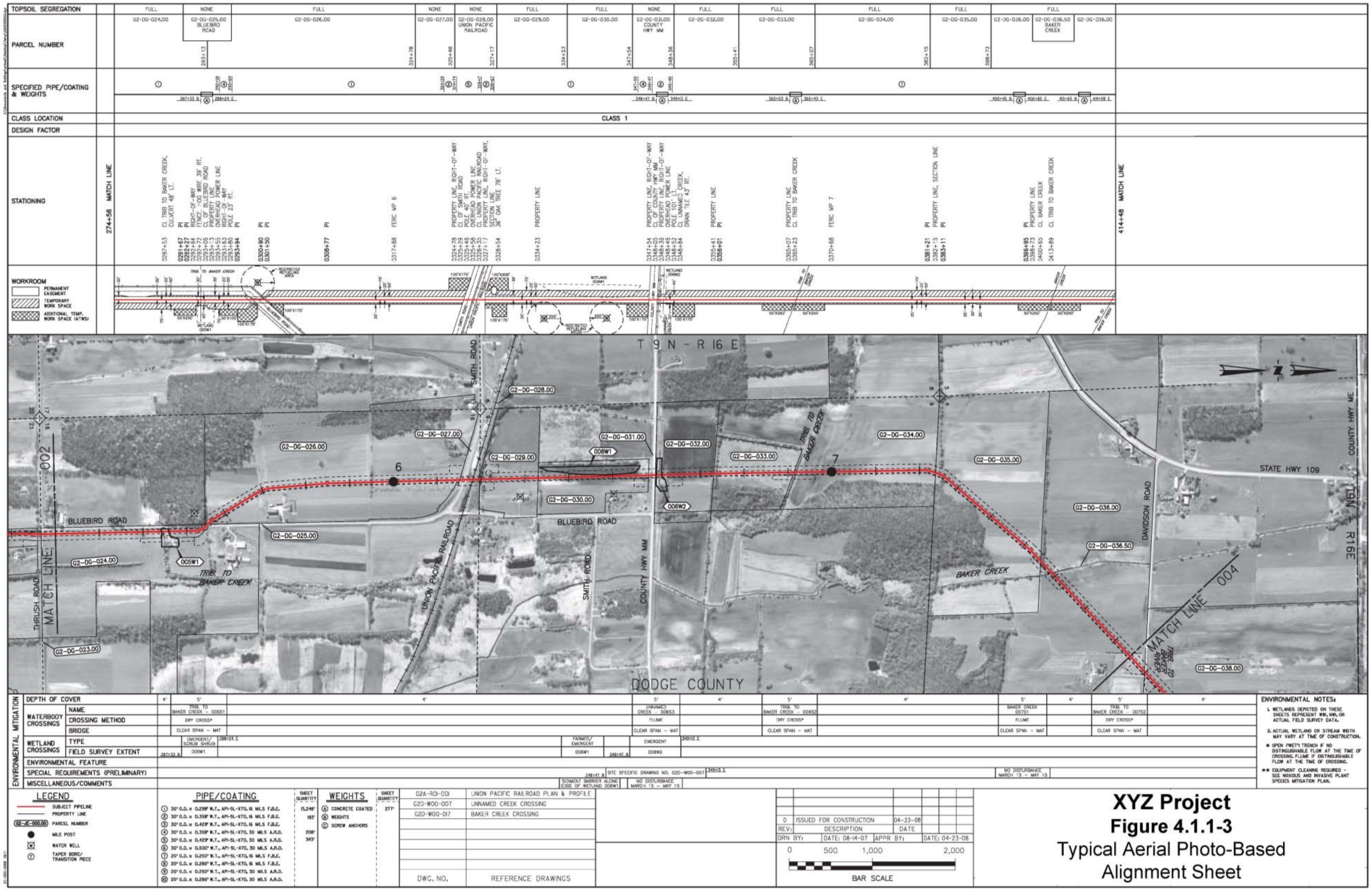

Compressor Station A
Compressor Station B
Mainline Valve Site 1
Mainline Valve Site 2
Interconnect
Mainline Valve Site 3
Mainline Valve Site 4
Pressure Limiting Facility
Compressor Station C
0
10
20
30
40
50
60
70
De Soto National Forest
Laurel
Waynesboro
Hattiesburg
Purvis
Lucedale
Wiggins
Citronelle
Vancleave
Theodore
Mississippi
Alabama
Milepost
Proposed Pipeline Route
Aboveground Facility
0 5 10 Miles
N
This information is for environmental review purposes only.
XYZ Project
Figure 4.1.1-1
Project Overview Map

The alignment sheets should also show the location and widths of the temporary and permanent rights-of-way, locations and dimensions of additional temporary workspaces (ATWS), property boundaries and tract numbers, temporary and permanent access roads, horizontal directional drill (HDD) entry and exit locations, and sensitive environmental resources such as streams and wetlands (use of different color shading or lines can assist us in identifying these sensitive resources) (see figures 4.1.1-2 and 4.1.1-3). Although not required, providing FERC staff and its contractors with copies of alignment sheets that include landowner names (or tract numbers with a reference table to the landowner of each tract) in addition to property boundaries, facilitates our analysis. These alignment sheets or tables may be filed as "**Privileged**" to maintain landowner privacy; however, a copy of the alignment sheets without landowner names would still be required to be filed as public within the docket.

For looping projects or projects that would follow an existing utility corridor, the aerial photographs or photo-based alignment sheets must clearly show on which side of the existing pipeline or other utility corridor the proposed pipeline would be placed.

Show new or additional compressor stations, meter stations, and other nonlinear construction areas on the 1:24,000/1:25,000 scale topographic maps and aerial photography. Identify the boundaries of the compressor or meter station property and, for compressor stations, the location of nearby NSAs (e.g., residences, churches, schools). For compressor stations, provide a plot/site plan at a 1:3,600-or-greater scale showing: the property boundary; existing and proposed compressor station facilities including buildings and other aboveground facilities; the area to be disturbed during construction and operation of the station (use of different color shading can assist us in distinguishing these impacts); compressor station fence line; existing and proposed pipelines, roads, and non-jurisdictional facilities; and the distance and direction to the nearby NSAs. If there are no NSAs within 1 mile of the site, note this on the plot plan or in the accompanying text. Figure 4.1.1-4 is an example of a compressor station location map and plot plan. Although not specifically required in section 380.12, we also recommend that applicants provide plot plans for new meter stations or existing meters stations for which modifications are being proposed.

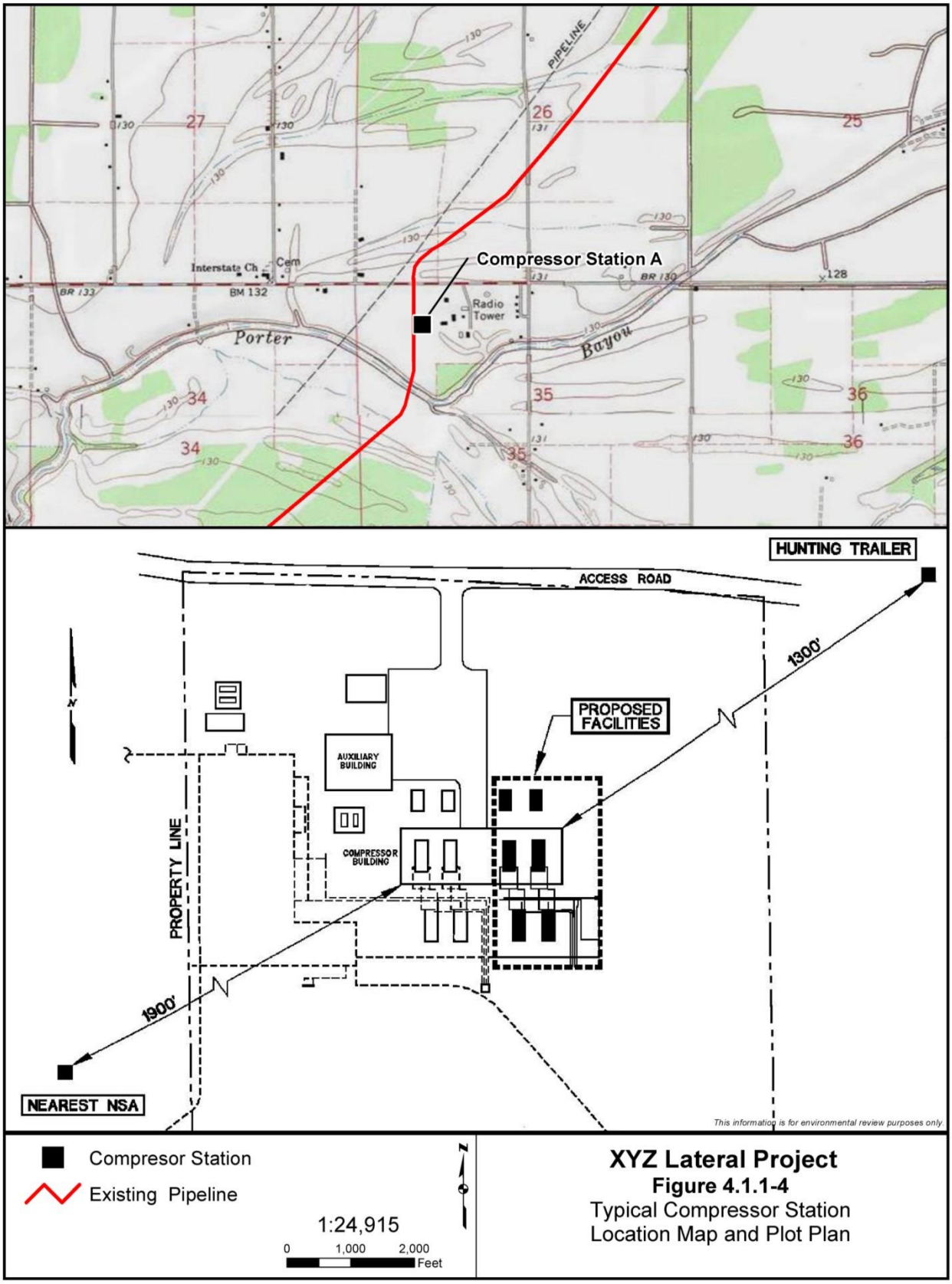

34
33
32
31
AR 32.61
AR 32.23
Little Butte Cem
Ward Lake
Melby Slough
Swensens Slough
Spring
Well
Staging Area 2
Kirkland Lake
This information is for environmental review purposes only
0 1,000 2,000
Feet
1:24,000
N
Mileposts
Block Valve
Temporary Access Road
Permanent Workspace/ Aboveground Facility
Temporary Worksapce
Staging Area
XYZ Project
Figure 4.1.1-2
Typical Pipeline Route Map



XYZ Project

Figure 4.1.1-3

Typical Aerial Photo-Based Alignment Sheet


PIPELINE
Compressor Station A
Interstate Ch
Cem
BM 132
BR 133
BR 130
Radio Tower
Porter
Bayou
HUNTING TRAILER
ACCESS ROAD
1300'
PROPOSED FACILITIES
AUXILIARY BUILDING
COMPRESSOR BUILDING
PROPERTY LINE
1900'
NEAREST NSA
This information is for environmental review purposes only
Compresor Station
Existing Pipeline
1:24,915
0 1,000 2,000 Feet
XYZ Lateral Project
Figure 4.1.1-4
Typical Compressor Station
Location Map and Plot Plan

4.1.2 Land Requirements

The extent of land requirements/disturbance must be clearly defined to determine the impacts associated with a project. Make the distinction between land requirements for construction and operation of the project facilities. The construction impact should be inclusive of both the temporary construction work areas and the operational (permanent) right-of-way. Additional guidance for calculating land requirements for the right-of-way, ATWS, staging areas, access roads, and contractor yards is included in section 4.8 of this manual. Make sure all calculations and numbers are consistent with those in other resource reports.

4.1.2.1 Pipeline Facilities

Describe the widths of the construction right-of-way and permanent right-of-way for each proposed pipeline. Provide typical right-of-way cross-section diagrams depicting each proposed configuration (e.g., greenfield, construction adjacent to or overlapping other pipelines or utilities, reduced right-of-way width in wetlands, various topsoil segregation methods). Identify the pipeline segment(s) and mileposts where each cross-section diagram applies. Include a table that identifies by milepost where the proposed pipeline would be adjacent to existing rights-of-way and quantify the overlap (width and acreage) of the construction and permanent rights-of-way where applicable.

Each typical diagram should identify the pipeline it pertains to and should show:

- the width of the total construction right-of-way;
- the width of the new permanent right-of-way;
- the width of the temporary construction right-of-way;
- the width of the existing right-of-way used for part of the construction right-of-way, if applicable;
- the location of existing and proposed pipelines; and
- the distance of the proposed pipeline from the nearest existing pipeline or other collocated facilities (e.g., power poles, roads).

If the temporary construction right-of-way or new permanent pipeline right-of-way or would overlap existing utility or transportation corridor rights-of-way, identify the type of facilities within the existing corridor, provide a table indicating where each diagram applies by milepost, and include the following in each typical diagram:

- the width of the existing utility or transportation right-of-way;
- the width of the existing utility or transportation right-of-way overlapped by the proposed temporary construction right-of-way;

- the width of the existing utility or transportation right-of-way overlapped by the proposed new permanent right-of-way or existing permanent right-of-way; and
- an estimate of the number of acres within the overlapped temporary and permanent rights-of-way.

Figure 4.1.2-1 is an example of a typical pipeline project right-of-way cross section for locations where the applicant would install a new pipeline adjacent to an existing pipeline.

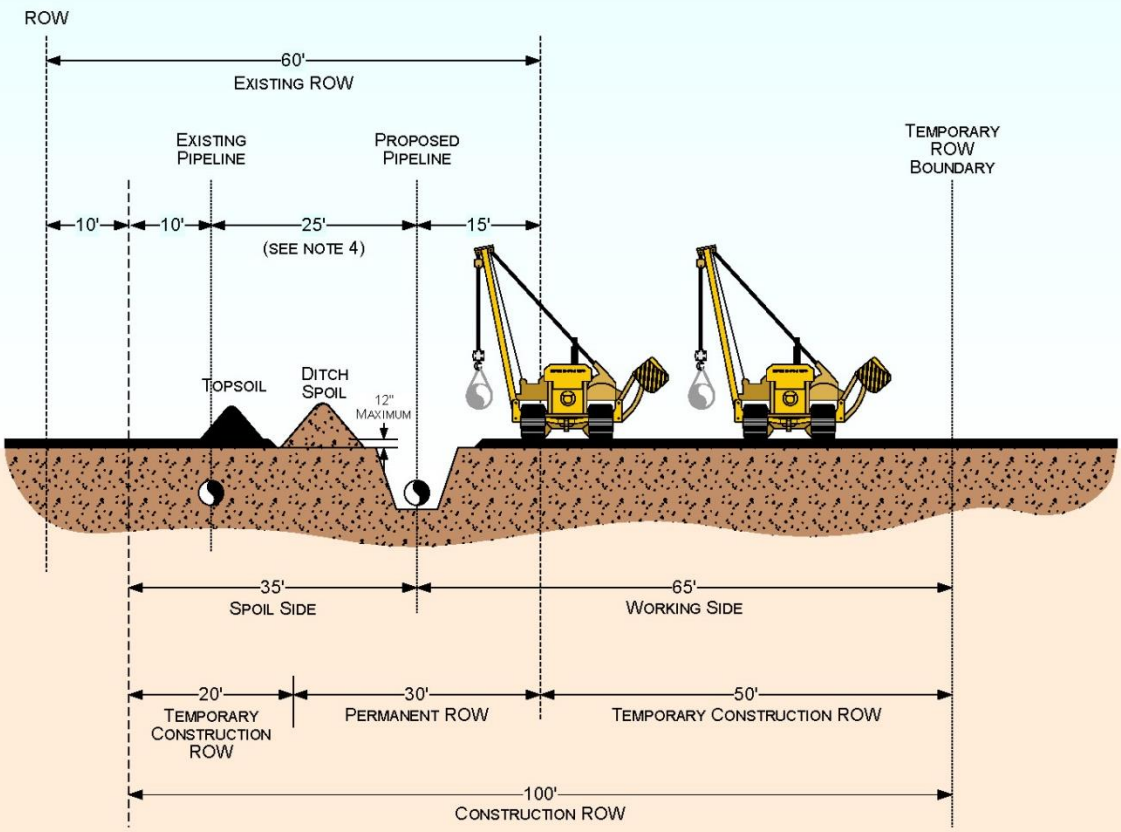
In addition to the construction and permanent right-of-way requirements, include land requirements for ATWS, staging areas for the project (e.g., as required for road, railroad, waterbody, and wetland crossings; areas of steep side slope; areas at the beginning and end of each pipeline segment for contractor mobilization/demobilization; pipe and contractor storage yards, new or modified access roads; staging and pull-back areas for HDDs). Summarize land requirements for the pipeline facilities in a table (see table 4.1.2-1).

TABLE 4.1.2-1

Summary of Land Requirements for Pipeline Facilities [a]

Facility	County, State	Land Affected During Construction (acres)[c]	Land Affected During Operation (acres)
Pipeline Right-of-Way[b]			
Subtotal			
Additional Temporary Workspaces			
Subtotal			
Staging Areas			
Subtotal			
Other Work Areas			
Temporary Access Roads			
Permanent Access Roads			
Contractor Yard			
Subtotal			
TOTAL LAND REQUIREMENTS FOR PIPELINES			

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.
[b] Based on a x-foot-wide construction right-of-way and a x-foot-wide permanent right-of-way.
[c] Land affected during construction includes both temporary and permanent work areas.



PROFILE

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100' WIDE. THE PERMANENT RIGHT-OF-WAY WILL BE 30' WIDE AND ENTIRELY WITHIN EXISTING PERMANENT EASEMENT. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL, RIVER CROSSINGS, SIDESLOPES, WHERE FULL RIGHT-OF-WAY TOPSOIL STRIPPING IS CONDUCTED, AND OTHER SPECIAL CIRCUMSTANCES AS REQUIRED.
2. THIS DRAWING REFLECTS "TRENCH AND SPOIL SIDE" TOPSOIL STRIPPING PROCEDURE.
3. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE INSPECTOR.
4. THE OFFSET FROM ACTIVE PIPELINE, WHERE APPLICABLE, WILL BE 25'.

For environmental review purposes only.

XYZ Pipeline Project

Figure 4.1.2-1

Typical Construction Right-of-Way Adjacent to Existing Pipeline

4.1.2.2 Aboveground Facilities

For each aboveground facility, provide the following information:

- total site area in acres (property size);
- amount of land required for construction, including access roads, laydown areas, and other areas (disturbed during construction);
- amount of land required for facility operation, including access roads, communication facilities, parking, and other areas (permanently disturbed); and
- amount of land to be fenced on the site.

Table 4.1.2-2 is an example of a summary presentation of this information.

TABLE 4.1.2-2

Summary of Land Requirements for Aboveground Facilities [a]

Facility	County, State	Land Affected During Construction (acres)[b]	Land Required During Operation (acres)
Compressor/Meter Station, MP x.x			
Pressure Regulating Station, MP x.x			
Block Valves [c]			
Block Valve, MP x.x			
Block Valve, MP x.x			
Block Valve, MP x.x			
Block Valve, MP x.x			
Pig Launcher [d]			
Pig Receiver [d]			
TOTAL LAND REQUIREMENTS FOR ABOVEGROUND FACILITIES			

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Land affected during construction includes both temporary and permanent work areas.

[c] Each block valve will be constructed within the x-foot-wide construction right-of-way and operated within the x-foot-wide permanent easement. No additional land will be required for construction or operation of these facilities.

[d] The pig launcher and pig receiver sites will be constructed and operated within the compressor/meter station site at MP x.x and within the pressure regulating station site at MP x.x, respectively. No additional land will be required for construction and operation of these facilities.

4.1.3 Construction Procedures

Describe the procedures and personnel training that would be implemented to ensure that construction of the project would comply with the mitigation measures identified in the filed application and the requirements of other federal and state permits.

State the anticipated number of environmental inspectors that would be assigned to each construction spread, and describe the role of the environmental inspector(s),

which, at a minimum, must include the responsibilities described in FERC staff's current Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

If Resource Report 5 (Socioeconomics) is not provided, include the following estimated work force requirements information as part of Resource Report 1:

- number of construction spreads and their milepost boundaries;
- average and peak workforce in each construction spread;
- anticipated percentage of the workforce that would be local hires;
- duration of construction (e.g., days, months) from initial clearing to final restoration;
- anticipated months and year(s) of construction; and
- number of new permanent employment positions created for project operations and where these employees would be located.

4.1.3.1 Pipeline

Summarize the construction and restoration techniques to be used for the project. For pipelines, the description should include:

- procedures for marking (e.g., flagging) the construction right-of-way, access roads, extra work/staging areas, and sensitive resource or restriction areas (e.g., wetlands, no-fueling zones);
- procedures for clearing, grading, trenching, stringing, bending, welding, x-ray or radiographic inspection, hydrostatic testing, pipeline coating and coating repair, backfilling, and restoration;
- procedures associated with installation of cathodic protection systems;
- procedures and locations to be used for disposing of timber, slash, and rock;
- excavation depths, range of estimated trench width, and depth of cover over the pipeline, including identification of any areas where the pipeline would be buried deeper than usual (e.g., streams, agricultural fields with drain tiles) and the burial depths at these locations; and
- pipeline construction schedule by segment/facility, including approximate start date and duration for overall construction/restoration.

In addition to the standard construction methods, describe the construction and restoration techniques to be used in the following areas or times:

- Rugged topography – Describe side slope construction techniques, width of the construction right-of-way, erosion control and revegetation procedures, and the milepost locations where the construction technique would be used (see sections 4.6 and 4.7, which address Geological Resources and Soils, respectively).

- Residential areas – Describe the specific construction mitigation techniques (e.g., reduced construction right-of-way, stove-pipe or drag-section techniques) that would be used in residential areas (see section 4.8.1 of this manual).

- Active croplands – Describe how drain tiles would be identified and repaired if damaged during construction. Also describe the methods of topsoil segregation, procedures for minimizing soil compaction and removing rock, and special construction techniques that would be used for orchards or other specialty crops (see sections 4.7 and 4.8.1 of this manual).

- Road and railroad crossings – Describe the methods for crossing federal, state, and local roads. Include a crossing table indicating milepost locations and the anticipated methods to be used at each road/railroad crossing. If roads would be open cut, describe the duration of construction, how access would be maintained along/across each road, and what safety controls (e.g., establishment of a detour, use of flagmen) would be implemented.

- Utility crossings – Describe the methods to be used for crossing existing pipelines or other utilities, including safety controls and coordination with utility owners/managers.

- Blasting – Describe blasting procedures including methods to reduce the amount of blasting needed (e.g., use of rock rippers), handling of explosives, measures to control each blast, and monitoring and mitigation measures to minimize impacts (e.g., use of mats to control fly rock, vibration monitoring at nearby structures, notification of landowners prior to blasting, pre- and post- construction well water yield testing). As appropriate, cross reference to relevant sections of Resource Reports 2, 3, and/or 6.

- Wetlands – Describe each construction technique (e.g., standard, push/pull, boring, HDD, direct pipe) that would be used and the conditions in which each would be used. Also see section 4.2.3 of this manual, and provide cross references if appropriate.

- Waterbodies – Describe each construction technique that would be used for waterbody crossings, including major or sensitive waterbodies, and the conditions in which each method would be used. Also see section 4.2.2 of this manual, and provide cross references if appropriate.

- Winter Construction – If construction would occur through winter months and construction or restoration methods would be modified during this timeframe, develop and file a winter construction plan in accordance with the Plan (section III.I).

For abandonment or replacement projects, explain, as appropriate, the sequence of steps to be followed to abandon facilities in place or to abandon and remove facilities. Describe how the pipeline would be cleaned and how the resulting materials would be handled and disposed. If facilities to be abandoned or replaced may have been exposed to polychlorinated biphenyl (PCB) contamination, provide a cross reference to Resource Report 12, which describes requirements related to potential PCB contamination. If asbestos may be present, cross reference to the appropriate resource report in which this issue is discussed (see section 4.8.1.3 of this guidance manual for further discussion). Also specify whether replacement pipeline would be placed adjacent to the existing pipeline or in the same trench as the existing pipeline after the existing pipeline is removed. If the existing pipeline would be removed, but same-trench replacement is not proposed, explain why and describe the sequence of removal and replacement activities. For facilities to be abandoned in place, identify who would own and be responsible for the site after abandonment and whether landowners had the opportunity to request removal. Indicate whether landowners' requests for removal of abandoned facilities would be honored, and provide explanations if they would not.

Specify whether the project would be constructed using our Plan and Wetland and Waterbody Construction and Mitigation Procedures (Procedures). If the applicant proposes any modifications/alternative measures to our Plan and Procedures or proposes to use its own erosion control and mitigation plan during construction and restoration, compare the proposed measures to the respective measures in the Plan and Procedures and indicate how they would provide equal or greater protection of environmental resources. Any proposed modifications/alternative measures to the Plan and Procedures should be identified and discussed further in the appropriate resource report and should be described and justified on a project- or site-specific basis, as appropriate. Note that the term "variance" does not apply until after the Commission issues an Order authorizing the project.

For projects that require offshore construction or dredging, jetting, or plowing for the installation of offshore pipelines or shipping facilities, provide the following in Resource Report 1 or provide a cross-reference to where the information can be found in another resource report:

- the volume in cubic yards of material to be excavated in total and for each component of the project including, as appropriate, the ship berth, turning basin, shipping channel improvements, and/or pipeline installation;
- aerial photography or alignment sheets showing the areas to be excavated;
- the area of seabed directly affected by excavation, spoil placement, and anchor placement;
- a description of each excavation method to be used (e.g., clamshell bucket, suction dredge jetting, plow);
- the days/weeks/months of anticipated construction and anticipated construction hours associated with each activity (including each dredging or trenching method; the pipe fabrication and lay method; and the trench backfilling method);
- if dredging is planned, indicate whether the dredge material would be sidecast onto the seabed or temporarily stored in barges;
- indicate if the trench would be backfilled and the material that would be used as backfill (e.g., whether it would be the excavated native material or imported material); if imported material would be used, include the volume and source of material required;
- the location where excess dredge material would be disposed of and the process used for dewatering the dredge material prior to disposal;
- the name, location, size, availability, and necessary federal and/or state permits for any dredged material placement areas to be used;
- a list of each type of equipment and vessel to be used and the numbers of each type that would be deployed during construction;
- the anticipated daily or weekly movements of vessels (i.e., vessel traffic), including the number of round trips to and from shore and the anticipated operating speed of each vessel;
- a discussion of the anchoring systems or dynamic positioning systems to be used to station and move the vessels during construction;
- a discussion of any piles that are proposed including the number and location of the piles; the pile material, diameter, length, and installation

depth; the method used to install the piles; and the duration of time to install the piles; and

- a description of procedures to be implemented to minimize sedimentation, turbidity, noise, and spills.

For LNG projects that involve shipping provide:

- the anticipated number ships that would call on the facility weekly and annually;
- the size of the ships including draft, length, width, carrying capacity, and height when loaded and unloaded;
- the duration of the transit from open ocean to the port;
- the ship route out to the Exclusive Economic Zone;
- the size of any anticipated security zones while the ship is transiting and moored at the facility;
- the length of time each ship would be at the terminal for unloading and loading;
- a list and description of the engines and other equipment would be operating during transit and while at the port; and
- a description of the use of tugs, harbor pilots, etc. to guide and maneuver the LNG ship.

4.1.3.2 Aboveground Facilities

Describe the stages and sequence of construction procedures for aboveground facilities. For LNG plants and compressor stations, include the approximate duration of construction of each facility, the number of construction workers for each facility, foundation excavation depths, number and depths of pilings, and associated facilities (e.g., access roads, office building). For sites that would be abandoned, describe the procedures for dismantling and disposing of buildings, foundations, and equipment, and for restoring the site. Indicate whether landowners' requests for removal of abandoned facilities would or would not be honored, and provide explanations if they would not.

Describe how the aboveground facilities to be abandoned or removed would be cleaned and how the resulting materials would be handled and disposed. If any of the facilities or sites are potentially contaminated (e.g., with PCBs, asbestos, hydrocarbons [including natural gas liquids, oils, lubricants, or fuels], or other regulated contaminants), briefly describe the cleanup and disposal techniques that would be used as well as the status of any necessary permits and approvals. Alternatively, include a cross reference(s) to the resource report(s) in which this information is provided.

4.1.4 Operation and Maintenance

Provide a general description of the operation and maintenance practices for the project, including federal, state, and local regulations and guidelines that would be followed.

For pipelines, include a description of the type and frequency of gas leak and cathodic protection surveys, aerial inspections, and right-of-way maintenance. For right-of-way maintenance practices, include the time of year for maintenance activities, the permanent right-of-way width that would be maintained in an herbaceous condition, and whether herbicides would be used.

For aboveground facilities, describe normal operation and maintenance procedures. Describe whether the facilities would be staffed 24 hours a day or maintained from a central operation center. Include a description of new operations or district offices that the project would require.

4.1.5 Future Plans and Abandonment

Provide information on the current or reasonably foreseeable plans for future expansion or abandonment of the project, or other reasonably foreseeable projects on the same system. Include type, size, and location of planned future facilities, extended schedule for construction or abandonment and the anticipated regulatory approvals that would be required, approximate volume of gas to be transported, and a description of how the current project affects these future plans.

4.1.6 Permits and Approvals

Identify all federal, regional, state, and local permits and consultations required[10] for the project (in addition to the FERC Certificate of Public Convenience and Necessity or Authorization) and provide the following information:

- the name of the permitting/approval agency and the name and telephone number of the person contacted;
- type of permits/approvals or consultation; and
- the current status of the permits/approval filing (e.g., estimated schedule for permit filing, date of actual filing, and date permit/approval was granted or is anticipated).

Table 4.1.6-1 is an example of a summary of this information. Note that the information regarding federal permits should be consistent with that provided in Exhibit J

[10] Include all permits the applicant plans to apply for and obtain, including permits that could be subject to federal preemption.

of the application under section 7 of the NGA (or Exhibit H, for applications under section 3 of the NGA), which must identify federal authorizations required for the project; the federal agency or officer, or state agency or officer acting pursuant to delegated federal authority, that would issue each required authorization; the date each request for authorization was submitted; why any request was not submitted and the date submission is expected; and the date by which final action on each federal authorization has been requested or is expected.

TABLE 4.1.6-1

Environmental Permits, Approvals, and Consultations

Agency	Permit/Approval/Consultation	Submittal Date (Anticipated)	Approval Date (Anticipated)
Federal			
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act	DATE	(DATE)
U.S. Army Corps of Engineers –[District]	Permit for the discharge of dredge or fill material into waters of the U.S. under Section 404 of the Clean Water Act, and for activities affecting navigable waters under Section 10 of the Rivers and Harbors Act	DATE	(DATE)
U.S. Fish and Wildlife Service – [Region/Field Office]	Consultations for impacts on federally listed threatened and endangered species and critical habitat under Section 7 of the Endangered Species Act, the Migratory Bird Treaty Act, the Bald and Gold Eagle Protection Act, and the Fish and Wildlife Coordination Act	DATE	(DATE)
U.S. Department of Agriculture, Natural Resources Conservation Service	Recommendations for seed mixes	DATE	DATE
	Consultation regarding lands enrolled in the Wetland Reserve Program, Wetland Reserve Easements Program, or other Agricultural Conservation Easement Programs	DATE	DATE
U.S. Department of Agriculture, Farm Service Agency	Consultation on lands enrolled in the Conservation Reserve Program	DATE	DATE
State			
[Applicable state agency]	Minor source operating permit	(DATE)	(DATE)
[Applicable state agency]	General Permit for Construction Stormwater Discharge under the National Pollution Discharge Elimination System	(DATE)	(DATE)
	General Permit for Construction Dewatering and Discharge of Hydrostatic Test Water under the National Pollution Discharge Elimination System	(DATE)	(DATE)
	Water Quality Certificate under Section 401 of the Clean Water Act	DATE	(DATE)
[Applicable state agency]	State Water Crossing Permit	(DATE)	(DATE)
[Applicable state agency]	Water appropriation permit	(DATE)	(DATE)
[Applicable state agency]	Consultation for impacts on fisheries, wildlife, and state-listed species	DATE	DATE
[Applicable state agency]	Consultation for impacts on historic properties under Section 106 of the National Historic Preservation Act	DATE	DATE
[Applicable state agency]	Right-of-Way Grant to cross state lands	(DATE)	(DATE)
Local			
[Applicable local agency]	Road Crossing Permits	(DATE)	(DATE)
[Applicable local agency]	Levee/Ditch Crossing Permits	(DATE)	(DATE)

4.1.7 Affected Landowners

Provide the names and addresses of all affected landowners and towns, communities, and local, state, and federal governments and agencies involved with the project. Affected landowners as defined in section 157.6(d)(2) include property owners directly affected (i.e., property crossed or used) by the proposed activity, adjacent landowners (landowners not directly affected but whose properties abut the edge of a proposed facility site or right-of-way that runs along a property line in the area in which the facilities would be constructed, or contains a residence within 50 feet of the proposed construction work area), landowners with property within 0.5 mile of proposed compressor stations or LNG terminals, tanks, and other facilities, and property owners within the area of proposed storage fields. Indicate that a good faith effort will be made to notify all affected landowners. The list provided to the Commission should include all the addresses used for the landowner notifications. To facilitate use by FERC staff in mailing notices (e.g., Notice of Intent to prepare an EIS or EA, or Notice of Availability of a draft or final EIS), check with the FERC Project Manager regarding the preferred format for the mailing list, and provide updated lists as warranted based on route modifications, returned mailings, or other new information. Landowner mailing lists may be filed as "Privileged" to protect landowner privacy.

Additional information on landowner notification requirements is included in section 2.0 of this guidance manual.

4.1.8 Nonjurisdictional Facilities

Under NEPA, FERC may need to consider the environmental impact of related nonjurisdictional facilities that would be constructed for the purpose of delivering, receiving, or using the proposed gas volumes. Examples of nonjurisdictional facilities could include major power facilities, such as cogeneration plants, as well as less significant facilities, such as lateral pipeline connections built by local distribution companies or utility services for compressor stations.

Non-jurisdictional facilities are typically included in FERC staff's cumulative impacts analysis. Therefore, provide the following information regarding the identified nonjurisdictional facilities, including auxiliary facilities and facilities built by other companies:

- a brief description of each facility, including its owner or sponsor;
- gas consumption or megawatt size, as appropriate;
- the length and diameter of any interconnecting pipeline or power line to be constructed;

- land requirements;
- required permits, including any applicable regulatory siting process;
- the latest status of federal, state, and local permits/approvals;
- construction status;
- current 1:24,000/1:25,000 scale topographic maps showing the location of the facilities relative to the proposed jurisdictional facilities;
- evidence that the appropriate State Historic Preservation Office (SHPO) or duly authorized Tribal Historic Preservation Office (THPO) has been contacted regarding whether properties eligible for listing on the National Register of Historic Places (NRHP) would be affected, or on the need to perform cultural resources surveys to support such a determination;
- evidence of consultation with the FWS (and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service [NOAA Fisheries], if appropriate) regarding potential impacts of the proposed facility on federally listed threatened and endangered species; and
- for facilities within a designated coastal management zone, a consistency determination or evidence that the owner has requested consistency determination from the state's coastal zone management program.

Evidence that adequate comment or consultation has taken place should be in the form of a letter from the responsible state agency.

4.2 RESOURCE REPORT 2 – WATER USE AND QUALITY

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	**DATA SOURCES [a]**
☐ Identify proposed mitigation for impacts on groundwater resources.	D
☐ Discuss the potential for blasting to affect water wells, springs, and wetlands, and associated mitigation.	D
☐ Identify all sources of water required for construction (e.g. hydrostatic testing, dust suppression, horizontal directional drills [HDD]), the quantity of water required, and methods for withdrawal. Identify the treatment of discharge, discharge volumes, rates, and locations, and any waste products generated.	D
☐ Identify operational water requirements for proposed liquefied natural gas facilities, including the operational use, source(s), and volumes.	D
☐ If underground storage of natural gas is proposed, identify how water produced from the storage field will be disposed.	D
☐ If salt caverns are proposed for storage of natural gas, identify the source locations, the quantity of water required, the method and rate of water withdrawal, and disposal locations and methods.	D
☐ Provide a site-specific construction plan for each proposed HDD crossing in accordance with section V.B.6.d of the Federal Energy Regulatory Commission's Wetland and Waterbody Construction and Mitigation Procedures.	
☐ Provide a site-specific construction plan for crossing each waterbody greater than 100 feet wide. If the proposed construction method is not HDD, direct pipe, or similar trenchless technique: • describe why an HDD or similar trenchless technique is not possible; • characterize the intensity and duration of turbidity and sedimentation impacts; and • provide a mitigation and restoration plan.	D
☐ Identify mitigation measures to avoid impacts on springs; especially those used for drinking water or livestock.	D
☐ Identify mitigation measures to ensure that public or private water supplies are returned to their former capacity or replaced in the event of damage resulting from construction.	
☐ In addition to identifying perennial surface waterbodies crossed or affected by the project, also identify intermittent and ephemeral waterbodies.	
☐ Show the locations of wetlands and waterbodies relative to the construction and permanent rights-of-way and additional temporary workspaces on mileposted alignment sheets or aerial photography.	D
☐ If wetlands would be filled or permanently lost or altered, describe proposed measures to compensate for permanent wetland losses. Include copies of any compensatory mitigation plans and discuss the status of agency consultations/approvals.	F, L, N, T, DD
☐ Describe measures to avoid or minimize impacts on forested wetlands. If impacts are unavoidable, describe proposed measures to restore forested wetlands following construction.	F, L, N, T, DD
☐ Describe techniques to be used to minimize turbidity and sedimentation impacts associated with offshore trenching, if applicable.	D

[a] D Applicant; F U.S. Army Corps of Engineers; L Field Surveys; N U.S. Fish and Wildlife Service; T National Oceanic and Atmospheric Administration, National Marine Fisheries Service; DD State Agencies

Resource Report 2 is required for all applications, except for projects that involve only facilities constructed within previously disturbed areas of existing aboveground facilities, and if no wetlands or waterbodies are on or abutting the site, and there would not be a significant increase in water use. The report must describe water quality and provide data sufficient to determine the expected impact of the project and the effectiveness of mitigative, enhancement, or protective measures.

In text and tabular form, this report should present the documentation used to identify and quantify impacts of construction on water use and quality. It should also discuss special techniques that would be used to mitigate or avoid impacts during construction across water resources.

4.2.1 Groundwater Resources

Provide a brief description of the existing groundwater resources in the project area. Identify:

- general information on each aquifer underlying the project area, including aquifer type (i.e. confined, semi-confined, or unconfined), depth and thickness, depth to water from ground level, current and projected uses, average yield, seasonal fluctuations, known or suspected contamination problems, and water quality;

- any other important groundwater withdrawal areas within 150 feet of the project area and their major uses (e.g., residential agricultural, industrial, livestock); and

- any springs within 150 feet of proposed construction areas.

This type of information is typically available from state and federal hydrologic publications, and databases maintained by the applicable state or county agency, (e.g., Board of Health, Department Natural Resources water division). If groundwater is not the main source of drinking water, indicate in the surface water section of the resource report the water supplier/company supplying water for residents in the area and the surface water source(s).

Identify segments of the pipeline and other aboveground facilities that overlie U.S. Environmental Protection Agency (EPA)-designated or state-designated sole source aquifers and state or local wellhead protection areas. Describe any restrictions associated with working within these areas. Information regarding sole source aquifers can be obtained from the regional EPA Groundwater Divisions. Areas of contaminated soil or groundwater should also be identified from computer databases and/or by contacting the appropriate state Waste Management Division or Groundwater Division.

If any areas of karst would be affected by construction and/or operation of the project (which should be identified in Resource Report 6), describe specialized techniques to protect groundwater resources in these areas and identify how the internal drainage/runoff towards karst features within project work areas would be addressed. If any HDD operations are proposed in karst areas, identify all wells and springs within 1,000 feet of the work areas and describe the degree of karst through desktop assessments, lineament/fracture trace and Lidar analysis, field reconnaissance, and site surveys including results of geophysical investigations that were conducted. (See also section 4.6.4 of this guidance manual.)

If a large quantity of groundwater would be used for the project (e.g., hydrostatic testing or solution mining storage caverns) provide a detailed groundwater resource and aquifer pumping test analysis to describe aquifer coefficients. Use these data to predict water-level drawdown impacts on other groundwater uses within the pumping zone of influence. Also, describe in detail proposed wastewater disposal methods. Identify all regulatory requirements for the groundwater withdrawal/disposal and the status of approvals.

4.2.1.1 Water Supply Wells

Identify by milepost all water supply wells, including private, community, irrigation, livestock, and municipal/public wells, and springs within 150 feet of any area that would be disturbed by construction. This includes the construction right-of-way, extra work areas, new access roads, pipe storage and contractor yards, and sites for new or modified aboveground facilities (see table 4.2.1-1 for an example). Public supply well information can generally be obtained from the local municipalities or county and/or state agencies that compile information on drinking water supplies. Information on private wells and springs will likely need to be obtained through field surveys or discussions with affected landowners. (Note: Although the regulations only require identification of water wells within 150 feet of work areas for the purposes of this resource report, it will also be necessary to identify wells beyond this distance prior to construction in order to implement the refueling restrictions discussed in section 4.2.1.2).

Contact the municipal or public well owners/operators and the state drinking water division for the counties crossed to determine if the pipeline crosses a protected watershed area associated with a supply well. Present the information, including the length of the protected watershed crossed by milepost, in the text of the report or in tabular form (see table 4.2.1-2).

TABLE 4.2.1-1

Water Supply Wells and Springs Within 150 Feet of Project Construction Areas

Facility	County, State	Approximate Milepost	Water Supply Type	Distance and Direction
Pipelines				
Mainline	County, ST	x.x	Domestic well	xx feet east
	County, ST	x.x	Rural water supply	xx feet west
	County, ST	x.x	Spring	xx feet east
Loop A	County, ST	x.x	Municipal well	xx feet northeast
	County, ST	x.x	Spring	xx feet west
Loop B	County, ST	x.x	Domestic well	xx feet southeast
	County, ST	x.x	Spring	xx feet west
Aboveground Facilities				
Compressor Station A	County, ST	N/A	Spring	xx feet southeast

TABLE 4.2.1-2

Locally Zoned Aquifer Protection Areas Crossed by the Pipeline Route

Facility	Town, State	Approximate Mileposts	Water Supply	Length of Crossing of Protection Area
Mainline	Town, ST	x.x to y.y	ABC Water District	xxx
	Town, ST	x.x to y.y	DEF Water District	xxx
Loop A	Town, ST	x.x to y.y	GHI Water District	xxx

Based on the information obtained above, determine whether construction or operation of the pipeline and aboveground facilities could potentially affect a groundwater supply.

Where blasting would be required, discuss the potential for blasting to affect water wells and springs, and measures to be taken to detect and remedy such effects. (See also section 4.6 of this manual.)

4.2.1.2 Groundwater Impacts and Mitigation

Discuss potential impacts on groundwater, including fluctuations in groundwater levels, potential effects on yields and/or water quality, and risks associated with encountering contaminated groundwater, potential for cross-contamination associated with encountering contaminated soil, and spills of hazardous materials during construction.

Identify measures for minimizing and mitigating impact on groundwater by describing the use of special blasting techniques, trench breakers, groundwater interceptor drains, dewatering methods, and restrictions on refueling and storage of hazardous substances (generally prohibit refueling and storage of hazardous materials within a 200-foot radius of private wells, and 400-foot radius of community and municipal wells). Include a plan for monitoring groundwater quality and yield for all

public and private supply wells within at least 150 feet of construction, with the owner's permission, before and after construction to determine whether water supplies have been affected by pipeline construction activities. Also indicate what types of mitigation measures would be undertaken to ensure that the water supply is returned to its former capacity in the event of damage resulting from construction (e.g., providing temporary sources of potable water, restoration, repair, or replacement of water supplies).

If contaminated soil or groundwater is present, describe its specific location, type of contaminant, and avoidance and/or other mitigation measures to minimize impacts.

If underground storage of natural gas is proposed, identify how water produced from the storage field would be disposed of. For salt caverns, identify the source locations, the quantity required, and the method and rate of withdrawal of water for creating salt cavern(s), as well as the means of disposal of brine resulting from cavern leaching. Include in this discussion the depths of the caverns and disposal wells, and how the wells would be cased.

4.2.2 Surface Water Resources

Identify all waterbodies[11] crossed by the pipeline based on field surveys and 1:24,000/1:25,000 scale USGS topographic maps. In areas where dry swales or dry washes are an issue, then relevant information should be provided in this resource report. Provide a table listing, by milepost, all of the waterbodies that would be crossed including unique identifier from field delineations (where applicable), name, type (e.g., perennial, intermittent, ephemeral, canal), the water's edge to water's edge width at the crossing location, the associated state water quality classification, and the proposed crossing method. If not provided in a separate table in Resource Report 3, also include the general fishery type (e.g., coldwater, coolwater, warmwater). This information can be obtained from the state water quality and fisheries departments. Table 4.2.2-1 is an example of how waterbody crossing information may be presented.

[11] Note that for the purposes of natural gas projects, the Commission's definition of a "waterbody" differs from the EPA definition of "waters of the United States." As defined in the Procedures, a "waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes.

TABLE 4.2.2-1

Waterbodies Crossed by the Project

Milepost	Feature ID [a]	Waterbody Name	Flow Regime [b]	Water's Edge to Water's Edge Crossing Width (feet)	State Water Quality Classification	County	Fishery Type	Crossing Method
Mainline Pipeline								
Loop A								

[a] Feature ID is unique code designated to waterbodies identified during field surveys.
[b] Flow regime based on USGS topographic mapping. IT = Intermittent; PN = Perennial; E=Ephemeral

If field data is not available due to lack of access permission or seasonal conditions, it is acceptable to use data obtained from desktop resources such as the FWS National Wetlands Inventory (NWI), National Hydrography Dataset, and USGS topographic maps until field surveys are completed. Features identified using desktop data should be clearly identified in the waterbody table. Identify, either within the waterbody crossing table or within the text discussion, any potable water intake sources within 3 miles downstream of any waterbody crossing locations (see section 4.2.2.5 below). Additionally, identify any waterbodies that would be crossed that are listed on the Clean Water Act (CWA) section 303(d) List of Impaired Waters, including the cause of the impairment.

Provide a site-specific crossing plan for each crossing of a major waterbody (i.e., greater than 100 feet wide at the water's edge), including offshore construction. Each crossing plan should include:

- the method to be used to excavate the trench underwater (e.g., dredging, HDD, direct pipe, plowing, jetting, redirecting flow);
- the planned depth below the river or seabed, including, for HDD crossings, a drawing with a plan and profile view showing the drill entry and exit locations;
- the location of the construction and permanent right-of-way and ATWS, including pipe fabrication and pullback areas, any areas disturbed between the entry and exit locations, and onshore and offshore equipment staging areas;
- for offshore construction, identify both the surface area to be occupied by equipment and the area of the bed to be disturbed by dredging, trenching, anchors, piles, etc.;
- the location of the spoil storage (e.g., on the river or seabed, on barges, and/or onshore) and the mitigative measures that would be used to control and store the spoil;
- the method to be used to pull the pipeline across the waterbody, including the amount of time required for the pull;
- the method to be used to backfill the trench underwater (such as natural redeposition, mechanical placement, or backfill plow);
- a description of the sequence and duration of each stage of construction and the total length of time to conduct the crossing (including estimated start date);

- a discussion of any special mitigation to minimize impact on riparian vegetation; and
- for navigable streams or waterbodies used for recreation, a discussion of how boat traffic through the construction area would be managed, and how the interruption of boat traffic would be minimized.

In addition to the above, if an HDD or direct pipe crossing is proposed, provide the following information:

- size and location of staging areas for the entry and exit pits;
- the source of water for both the drilling mud and hydrostatic testing of the pipe section;
- how the drilling operation would be monitored for inadvertent releases of drilling mud;
- the steps that would be followed to stop or minimize the size of an inadvertent release of drilling mud;
- the procedures that would be used to contain and clean up any inadvertent releases (include response procedures if the release occurs in an upland, wetland, or flowing stream, as applicable);
- the conditions under which a drilling operation would be abandoned and how an abandoned drill hole would be sealed, if necessary;
- the type and extent of any disturbance proposed to occur along the drill path (e.g., minimal hand clearing for tracking wires, clearing of an access path for equipment and water appropriation); and
- if there is a potential to encounter contaminated sediments during drilling, the measures that would be implemented, such as the use of casings, to avoid the migration of contaminants along the drill path.

Indicate if there is any contingency plan for the waterbody crossing in the event the drill is unsuccessful or proves infeasible. If so, provide site-specific plans that include a scaled drawing identifying all areas to be disturbed by construction and a copy of any permits issued.

If the proposed crossing method for a major waterbody is not HDD, direct pipe, or a similar trenchless technique:

- describe why an HDD or similar technique is not possible (e.g., due to results of the geotechnical feasibility study);

- characterize the intensity and duration of turbidity and sedimentation impacts from the proposed crossing method; and

- provide a mitigation and restoration plan.

For crossings of major waterbodies that would be completed using in-stream construction (e.g., clamshell dredging) and for offshore construction (including dredging at LNG dock facilities), described the riverbed or seabed material, and provide the results of sediment modeling indicating the predicted fate and transport of excavated or dredged sediments. Describe the models that were used; the assumed ambient average and range of total suspended sediments in the waterbody; the anticipated direction, duration, and concentration of sediment plumes during construction; and the anticipated extent and depths of redeposited sediments on the riverbed or seabed. If dredging is proposed, provide a detailed discussion of the dredge material disposal location and method, and associated coordination with the appropriate federal and state agencies.

4.2.2.1 Contaminated Sediments

Identify all waterbody crossings that may have sediments contaminated with toxic chemicals along with a description of the type of contamination (e.g., agricultural, industrial). Contact state water quality agencies for this information. For surface water crossings involving contaminated sediments, provide a copy of any approved sediment sampling plan(s) used and summarize the results of any physical or chemical analyses conducted. Discuss the potential impacts on water quality associated with disturbing the contaminated sediments and describe measures to prevent or minimize resuspension of sediments during construction. The proposed mitigation measures should include comments and recommendations of the appropriate state agency(ies). Provide the name and phone number of the agency contact, and include copies of all related correspondence.

4.2.2.2 Public Watershed Areas

Identify municipal watershed areas and associated reservoirs, if any, and any state/locally designated surface water protection areas that would be crossed by the pipeline or in which aboveground facilities would be located. State drinking water agencies typically have maps or reports that list public surface water supplies. Once these are identified, the appropriate local agencies should be contacted regarding the presence of designated protection areas. A table summarizing such areas should include the length of each area crossed by milepost or near aboveground facilities, the distance and direction of the water supply from the project facilities, and whether the project would cross the water supply upstream or downstream of where water is withdrawn (see table 4.2.2-2). Include a discussion of potential impacts and proposed mitigation measures. Proposed mitigation, if necessary, should include written comments and

recommendations of the appropriate state or local agencies and a clear indication whether those recommendations would be adopted.

TABLE 4.2.2-2

Public Water Supply Watershed Areas Crossed by the Pipeline Route or in Proximity to Aboveground Facilities

Facility	County, State	Approximate Milepost(s)	Surface Water Supply	Distance/Direction of Water Supply from Project Facilities	Project Facilities Upstream/ Downstream of Withdrawals
Pipelines					
Mainline	County, ST	x.x to y.y	ABC Reservoir	0.5 mile east	Downstream
Loop A					
Aboveground Facilities					
Compressor Station A					

4.2.2.3 Floodplains

Executive Order 11988 (1977) requires federal agencies to avoid (to the extent possible) long- and short-term adverse impacts associated with occupancy and modification of floodplains. If the project would require placing facilities within floodplains, identify the applicable facilities and locations. For each facility, describe the effect in terms of lost flood storage capacity (e.g., the volume) within the applicable floodplain. Describe efforts to avoid, minimize, and mitigate impacts within floodplains and justify why the facilities must be placed within floodplains.

4.2.2.4 Hydrostatic Test Water and Water for Dust Suppression

Identify all sources of water and the quantity of water required from each source for hydrostatic testing of each pipeline segment (including HDD segments prior to installation) and aboveground facilities such as LNG facilities and tanks, as well as for dust suppression. Describe the withdrawal and discharge methods, how access would be obtained to the withdrawal location, the anticipated withdrawal and discharge rates, and the discharge locations by milepost, and indicate if the test water would be discharged in upland areas or into a waterbody channel. If there are any plans to discharge water into a different watershed than the one from which it was obtained, provide documentation of any associated communication with appropriate agencies. Describe measures to minimize withdrawal or discharge impacts, such as sequential reuse of test water for multiple segments or for dust suppression. State whether the applicant would adopt the hydrostatic testing procedures identified in section VII of our Procedures, including screening of the intakes and energy dissipation devices at the discharge locations.

Contact appropriate state and federal agencies to determine if any significant fisheries or designated exceptional quality waters would be affected and if a permit is

needed for water withdrawal and discharge activities. Identify the applicable appropriation and discharge permits and the administering agency(ies). If sensitive surface waters would be used for withdrawal or discharge, provide comments and recommendations from the appropriate agency and indicate whether the recommendations would be adopted.

Discuss the quality of discharge water resulting from contact with the pipeline, particularly if an existing pipeline is being retested, and identify any physical or chemical testing of the discharge. Describe any chemical or physical treatment of the pipeline or hydrostatic test water. Discuss waste products generated and disposal methods.

4.2.2.5 Construction Permits

Contact state water resources agencies to identify the permits required for construction across surface waters, including but not limited to water quality certification under section 401 of the CWA. In addition, contact the appropriate U.S. Army Corps of Engineers (COE) office regarding the CWA section 404 project evaluation and state whether the COE believes that the project would meet the requirements of a nationwide permit (specify which one(s)), or would require a regional permit or an individual permit.

Identify navigable waterways that would be crossed and the associated need for authorization by the COE under section 10 of the Rivers and Harbors Act of 1899. Construction across a navigable waterway may require an individual permit. Provide a copy of all correspondence with the COE regarding permit determination.

4.2.2.6 Sensitive Surface Waters

Identify sensitive waterbodies that may be affected by the project. Coordinate with state water resource/management agencies to identify sensitive surface waters and obtain information on potential mitigation measures that may be required during construction. Sensitive surface waters include but are not limited to the following:

- waters that do not meet the water quality standards associated with the waters' designated beneficial uses;
- surface waters that have been designated for intensified water quality management and improvement;
- waterbodies that contain threatened or endangered species or critical habitat;
- waterbodies that are crossed less than 3 miles upstream of potable water intake structures. The distance from the crossing to the supply intake should be provided along with the name of the intake owner;

- outstanding or exceptional quality waterbodies;
- waters of particular ecological and recreational importance;
- waterbodies located in sensitive and protected watershed areas;
- waterbodies and intermittent drainages that have steep banks, potentially unstable soils, high volume flows, and actively eroding banks;
- surface waters that have important riparian areas; and
- rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory (see section 4.8 of this manual).

Describe the effects of construction and operation of the pipeline on designated sensitive waterbodies and proposed mitigation. Describe in appropriate detail the construction methods, the location of staging areas, and recommendations that were made by federal, state, and local agencies and how the recommendations would be implemented. If the applicant proposes not to carry out any of these recommendations, provide specific reason(s) and identify if other mitigation is proposed.

4.2.2.7 Waterbody Construction and Mitigation Procedures

Describe proposed waterbody crossing methods (or cross reference to the appropriate sections in Resource Report 1), including typical workspace and staging area requirements at waterbody crossings. Also, identify and describe waterbodies where staging areas are likely to be more extensive. FERC considers dry swales and dry washes to be waterbodies if there is water flowing in them at the time of construction. Therefore, the applicant should include these features in the discussion of waterbody construction and mitigation procedures, and be prepared to cross these features in accordance with the Procedures in the event of unforeseen water flow at the time of construction.

Discuss potential project impacts on surface waters including water quality impacts (both physical and chemical); increased potential for runoff, bank erosion, and sedimentation; effects of vegetation removal; and the potential for spills of hazardous material. Identify measures for minimizing impact on surface water by describing specific crossing and restoration procedures; erosion and sediment controls; dewatering methods; and restrictions on refueling and storage of hazardous substances.

Indicate whether our current Procedures would be adopted for the project. If not, include the proposed procedures for waterbody construction methods, compare them to our Procedures, and explain any differences. For any individual provisions that are considered unnecessary, technically infeasible, or unsuitable due to site-specific conditions, identify the location by milepost, describe the site-specific conditions that preclude use of the Procedures, and propose alternative measures, explaining how the proposed alternative measures would provide equal or greater protection to the resource.

For any ATWS that would be within 50 feet of a waterbody, provide a site-specific explanation of the circumstances and a detailed justification as to why a 50-foot buffer cannot be maintained. Include documentation of consultation with state agencies where appropriate to support proposed alternative measures.

4.2.3 Wetlands

4.2.3.1 Existing Resources

Identify wetlands that would be affected by the project based on field-based wetland delineations of all accessible areas using the current federal manual and applicable regional supplements. Include a summary of the wetland delineation report(s) as an attachment to this resource report.

Use FWS NWI maps, where available, to determine the locations and types of wetlands that would be affected by construction and operation of the facilities on inaccessible property tracts. If NWI maps have not been prepared for all or parts of the project area, identify wetlands using information from other available sources, which may include state wetland maps; U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) county soil maps; USGS topographic maps; and aerial photographs. Identify the information source and classify wetlands according to the NWI classification system. Include with the application labeled and mileposted alignment sheets or aerial photography showing the locations of the field delineated and mapped wetlands. FERC staff may also request copies of NWI maps with the facilities and mileposts clearly marked if field delineations have not been completed for most of the project. As a general rule of thumb, provide project mapping of wetland impacts using the best available resolution.

Provide a table of wetlands that would be affected by the project, including those affected by ATWS and staging areas, access roads, and contractor and pipe storage yards. List the facility and milepost location of each wetland and how it was identified (e.g., field delineated, NWI maps). For delineated wetlands provide a unique identifier that can be used to locate the wetland on the alignment sheets. Also list the classification of each wetland according to the NWI classification system, the crossing length, anticipated crossing method, and the acreage of construction and operational impact. Explain in a table footnote or in the text how the impact acreages were determined (e.g. using GIS to measure the area of the wetland polygon within the construction work area; calculating based on crossing length and right-of-way width). Table 4.2.3-1 is an example of how this information can be presented.

TABLE 4.2.3-1

Wetlands Crossed by the Pipeline Route

Approx. Milepost	Wetland I.D.	National Wetlands Inventory Classification [a]	Source [b]	Approximate Crossing Length (feet) [c]	Acreage Affected During Construction [d]	Acreage Affected During Operation [e]	Crossing Method
Mainline							
Subtotal							
Loop A							
Subtotal							
Project Total							

[a] PEM – Palustrine, Emergent, may be Temporarily, Seasonally, or Semi-permanently Flooded
PSS – Palustrine, Scrub/Shrub, may be Temporarily or Seasonally Flooded
PFO – Palustrine, Forested

[b] FD = Field Delineation. NWI = National Wetlands Inventory, used where field delineations not conducted due to lack of access permission.

[c] Length of centerline crossing calculated from field delineated or NWI polygons, rounded to the nearest foot. Zeroes indicate wetlands not crossed by the project centerline, but still located within the construction workspace.

[d] Based on a x-foot wide construction corridor; acreage determined by geographic information system polygon measurements. Construction impacts for wetlands crossed by horizontal directional drill (HDD) would be minimal, consisting only of hand-clearing of a narrow path for the HDD guide wires.

[e] In accordance with right-of-way maintenance practices specified in the Federal Energy Regulatory Commission's Wetland and Waterbody Construction and Mitigation Procedures, the company would maintain a 10-foot-wide strip over the pipeline in an herbaceous condition. Trees within 15 feet of the pipeline with roots that could compromise the integrity of the pipeline coating may be selectively cut. Values rounded to nearest hundredth of an acre. For HDD crossings, the company would not maintain the permanent right-of-way between the HDD entry and exit points.

Identify and discuss major wetland complexes or significant wetlands, as identified by field review and/or by state or federal agencies. Identify acres of affected wetland, if any, involving agriculture, silviculture, or rangeland.

4.2.3.2 Construction and Operation Impacts

Discuss impacts on wetlands that would result from construction and operation of the proposed facilities. Provide a summary table listing the total length crossed and total area affected by wetland type and by facility (see table 4.2.3-2). For pipelines, calculate the acreage of forested and scrub-shrub wetlands that would be within the proposed vegetation maintenance corridor in the permanent right-of-way and, therefore, converted to non-forested or non-woody wetland types. Identify any wetland areas that would be filled or otherwise permanently lost and the acreage associated with each loss. For wetland impacts that would be limited to construction, indicate the expected duration of restoration to pre-existing conditions; specifically estimating the time required to reestablish the vegetative community.

TABLE 4.2.3-2

Summary of Wetland Types Crossed by the Pipeline Route

National Wetlands Inventory Classification [a]	Approximate Crossing Length (feet) [b]	Acreage Affected During Construction [c]	Acreage Affected During Operation [d]
Mainline			
PEM			
PSS			
PFO			
Subtotal			
Loop A			
PEM			
PSS			
PFO			
Subtotal			
Project Total			

[a] PEM – Palustrine, Emergent, may be Temporarily, Seasonally, or Semi-permanently Flooded
PSS – Palustrine, Scrub/Shrub, may be Temporarily or Seasonally Flooded
PFO – Palustrine, Forested

[b] The length of centerline crossing was calculated from field delineated or National Wetlands Inventory polygons, rounded to the nearest foot.

[c] Based on a x-foot-wide construction corridor; acreage determined by geographic information system polygon measurements.

[d] No wetlands would be permanently filled as a result of pipeline construction or operation. In accordance with right-of-way maintenance practices specified in Federal Energy Regulatory Commission's Wetland and Waterbody Construction and Mitigation Procedures, company will maintain a 10-foot-wide strip over the pipeline in an herbaceous condition. Trees within 15 feet of the pipeline with roots that could compromise the integrity of the pipeline coating may be selectively cut. Values rounded to nearest hundredth of an acre.

Indicate whether our current Procedures would be adopted for the project. If not, include the applicant's procedures for wetland construction methods, compare them to our Procedures, and explain any differences. For any individual provisions that are considered unnecessary, technically infeasible, or unsuitable due to site-specific conditions, identify the location by milepost, describe the site-specific conditions that preclude the use of the Procedures, propose alternative measures, and explain how the proposed alternative measures would provide equal or greater protection to the resource. For each workspace that would be in or within 50 feet of a wetland, provide a detailed site-specific explanation of the circumstances and a detailed justification as to why a 50-foot buffer cannot be maintained. Provide similar site-specific information and justification at locations where a construction right-of-way greater than 75 feet wide is proposed in a wetland. Include documentation of consultation with state agencies where appropriate to support alternative measures. Where required by the Procedures (i.e., section II.B.), include site-specific plans for proposed exceptions to the Procedures.

Discuss potential construction impacts on vernal pools or other shallow wetlands, including the potential for these areas to be drained. Discuss the potential for blasting to affect wetlands, including the potential to drain perched wetlands, and measures to be taken to detect and remedy such effects (e.g., trench breakers, sealing the trench).

Describe typical ATWS and staging area requirements at wetland crossings. Also, identify and describe wetlands where staging areas are likely to be more extensive. Alignment sheets should clearly depict wetland boundaries and associated construction workspace (including the construction right-of-way and ATWS) and the boundaries of the permanent right-of-way as shown on figure 4.1.1-3).

Describe all efforts to avoid or minimize impacts on forested wetlands. If forested wetlands would be affected, describe proposed measures to restore these areas following construction, including as appropriate planting of wetland trees or shrubs. Restoration plans should include post-construction monitoring, and the development and application of criteria to determine restoration success. Consult with appropriate agencies such as the COE and land management agencies to develop restoration plans, and provide copies of written recommendations from agencies.

If the project would result in permanent wetland losses or the permanent conversion of woody wetland types to other wetland cover types, describe efforts that have been or will be taken to avoid and/or minimize these losses or conversions. Include any proposals to compensate (e.g., wetland banking, in-lieu fee programs, or permittee responsible mitigation) for these losses.[12] Compensation plans should identify the location of the mitigation site(s), describe the proposed mitigation, identify the party(ies) responsible for the mitigation, and identify the criteria to determine mitigation success. Include copies of compensatory mitigation plans submitted to the COE or appropriate state agency, and any correspondence with respective agencies regarding the plans.

Identify any special permits required for construction within wetlands, comments from respective permitting agencies, and if known, special permit conditions. For major projects, arrange for preapplication meetings with the EPA, COE, and appropriate tribal, state, and local authorities to determine wetland permitting requirements. Describe the results of any such meetings.

[12] In compliance with Clean Water Act section 404(b)1 guidelines, February 7, 1992, Memorandum of Agreement between the COE and EPA, and the White House guidance of August 24, 1993.

4.3 RESOURCE REPORT 3 – FISH, WILDLIFE, AND VEGETATION

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Provide copies of correspondence from federal and state fish and wildlife agencies along with responses to their recommendations to avoid or minimize impacts on wildlife, fisheries, and vegetation.	M, N, T, DD, D
☐ Provide a list of significant wildlife habitats crossed by the project. Specify locations by milepost, and include length and width of crossing at each significant wildlife habitat.	L, M, N, DD
☐ Provide a description of project-specific measures that would be implemented during construction and operation of the project to avoid or minimize impacts on migratory birds. Include comments from the U.S. Fish and Wildlife Service on the proposed measures.	D, N
☐ For offshore species be sure to include effects of sedimentation, changes to substrate, effects of blasting, etc. This information is needed on a location-specific (i.e., milepost) basis and may require completion of geophysical and other surveys. Results of such surveys and analyses should be included in the application.	D, T

[a] D Applicant; L Field Surveys; M Fishery Biologist, State or Regional; N U.S. Fish and Wildlife Service; T National Oceanic and Atmospheric Administration, National Marine Fisheries Service; DD State Agencies

Resource Report 3 is required for all applications, except those involving only facilities within the improved area of an existing compressor, meter, or regulator station. Applicants should also provide Resource Report 3 if the proposed activities within the improved area of an existing compressor, meter, or regulator station would affect wildlife due to increased noise or lighting. This resource report describes existing fish, wildlife, and vegetation resources that would be directly and indirectly affected by the project. The report should describe the existing resources; expected impacts on these resources, including potential effects on biodiversity, from construction and operation of the proposed facilities; and the mitigation measures that are proposed to avoid or reduce these impacts. Resource Report 3 should also describe all consultation with state fish and wildlife or land management agencies, the FWS, and NOAA Fisheries for projects potentially affecting marine species. Additionally, describe relevant consultations with federal land management agencies, Native American tribes, or private conservation organizations if the project would be within lands managed by these entities. Include as appendices or attachments to this resource report copies of all correspondence with appropriate agencies. For large or complex projects, include an index of agency correspondence identifying where each item can be found. Also include copies of any studies or reports on field surveys that have been completed for the project. Do not include extensive lists of all species known or suspected of inhabiting the project area.

For LNG projects or projects involving offshore pipelines, Resource Report 3 should address all aquatic/marine resources (e.g., marine mammals, sea turtles, benthic organisms, and submerged aquatic vegetation) that could potentially be affected in addition to fisheries.

4.3.1 Fisheries and Other Aquatic Resources

4.3.1.1 Fishery Classification

Classify the fishery type for each surface waterbody that would be crossed or otherwise affected by the project. Where available, use the state fishery classification, which indicates the type of fishery the surface water supports (e.g., warmwater, coldwater, saltwater, and anadromous).

The classification information may be included on the surface water table (see table 4.2.1-1 in section 4.2 of this manual) as a separate column, or it may be included in a separate table. It must identify the surface waters disturbed by each facility segment, the corresponding milepost at the crossing location, the county and state for each crossing, and the type of fishery the surface water supports.

If a state fishery classification is unavailable, contact the regional or local state fishery biologist to determine what type of fishery occurs in the general vicinity of each crossing location. Also provide, in tabular format, a list of the representative fish species known to occur in the project vicinity by type (see table 4.3.1-1).

TABLE 4.3.1-1

Representative Fish Species in Waterbodies Crossed by the Project

Freshwater
Coldwater
Anadromous
Catadromous
Estuarine
Marine

4.3.1.2 Fisheries of Special Concern

Describe any surface waters that support fisheries of special concern in the vicinity of the crossing location. These may include surface waters containing fisheries of

exceptional recreational value, such as waters that support coldwater fisheries through natural reproduction, provide habitat for protected species, are assigned special state fishery management regulations, or are designated as essential fish habitat (EFH). Other special-concern fisheries may include those where economic investments, such as clean-up or stocking programs, have been implemented, or those that support commercial or tribal harvests.

Provide documentation of coordination with the following, as applicable:

- NOAA Fisheries, Protected Resources Division – federally listed species and critical habitats (also see section 4.3.4 below);
- NOAA Fisheries, Habitat Conservation Division – EFH;
- state wildlife agencies or special interest groups – trout-stocking or other sports fisheries programs; and
- other federal and state agencies and Native American tribes – surface waters supporting fisheries of special concern in the vicinity of the project.

Identify the project components and corresponding milepost or location for each special-concern fishery, the name of the waterbody, and the fishery issue associated with that waterbody. See table 4.3.1-2 for an example of a tabular presentation of these data. Include threatened and endangered species and their critical habitat in this table if applicable.

TABLE 4.3.1-2

Fisheries of Special Concern in the Vicinity of the Project

Facility/Waterbody Name	Milepost	County	State	Fishery Concern [a, b]
Loop 1				
Loop 2				

[a] Threatened and endangered species are federally or state-listed threatened, endangered, or proposed species.

[b] Trout stocked waters are waters where trout are stocked for recreational fishing. Trout spawning habitat includes waters with naturally occurring spawning populations of trout.

4.3.1.3 Construction and Operation Impacts

Based on the proposed construction and operational procedures, determine and describe the effects of construction and operation of the project on fishery resources. Where special construction or operational techniques or procedures for site-specific areas

are proposed, describe the impacts based on using these techniques. Evaluation and discussion of impacts on fishery resources should take into consideration the time of year when construction within or across surface waters would occur, the site-specific need for underwater blasting, pile-driving, or dredging, and the potential for habitat loss, including shoreline and in-stream cover loss and loss or sedimentation of critical spawning habitat. Also address the potential for impacts caused by interruption of fish spawning migrations both upstream and downstream of in-water activities (where applicable), turbidity, water intake or discharge, and the potential for fish mortality from toxic substance spills or blasting activity.

For LNG projects or projects involving offshore pipelines, include an analysis of aquatic resource impacts associated with suspension and redeposition of sediments and potential disturbance of contaminated sediments; impacts on fish (including ichthyoplankton) and benthic organisms due to intake or discharge of ballast water, cooling water, and other ship hoteling requirements (e.g., impingement/entrainment; changes in temperature, pH, dissolved oxygen levels and salinity; and introduction of nonindigenous species); and an analysis and discussion of potential aquatic resource impacts associated with shipping, pile driving, dredging, plowing, and/or jetting (e.g., ship strike, impingement, lighting, underwater noise based on pressure waves in decibels re 1microPascal at 1 meter, and turbidity and sedimentation impacts on food/prey). Depending on the species affected (e.g., marine mammals or sea turtles), some of this information may be more appropriately included in the Threatened, Endangered, and Special Status Species section discussed below.

Proposed mitigation should address construction procedures or changes in operation that are proposed to reduce the impact on fishery resources. The measures discussed should be those proposed in addition to the typical construction and operation procedures. Mitigation may include scheduling waterbody crossings to avoid sensitive spawning or migration periods, or the use of specialized construction procedures, such as direct pipe, HDD, fluming, scare charges, bubble curtains, use of screens on water intakes, or use of portable construction bridges to avoid in-stream construction and reduce the levels of turbidity or downstream sedimentation. If screening is proposed, describe the mesh size as well as the fishery resource(s) that screening is intended to protect.

If fisheries of special concern would be affected by construction or operation of the project, the impact analysis should describe site-specific measures that the applicant would implement to avoid or minimize impacts. Provide complete copies of written correspondence to and from state and federal agencies. If the project would affect EFH, the applicant should prepare and submit with its FERC application a draft EFH Assessment containing a description of EFH present in the vicinity of the project, managed species potentially occurring in the area, analysis of potential effects on EFH and managed species, proposed mitigation that would eliminate or minimize these

potential impacts, and responses to all comments and recommendations from the NOAA Fisheries Habitat Conservation Division regarding EFH. Regulations regarding EFH consultation can be found at 50 Code of Federal Regulations (CFR) 600, subpart K.

4.3.2 Wildlife

4.3.2.1 Existing Resources

Describe the various types of terrestrial and wetland habitats that would be affected by the project. Describe habitat types by vegetative cover types and ensure they are consistent with vegetation cover types described in the vegetation section of Resource Report 3, wetlands described in Resource Report 2, and, where applicable, land use categories used in Resource Report 8. List representative wildlife species for each of the types of habitat described. Identify any species with significant recreational, aesthetic, or commercial value.

4.3.2.2 Construction and Operation Impacts

Describe short-term, long-term, and permanent impacts on wildlife resources caused by construction and operation of the proposed project. Calculate the loss of forested habitats and other habitats, and present in terms of temporary impact (i.e., the temporary portion of the construction right-of-way and all ATWS that would be allowed to revert to pre-construction condition after construction is complete) or permanent impact (i.e., the portion of the permanent right-of-way that would be maintained in a cleared condition or aboveground facility sites that would be converted to non-vegetated surfaces or to other vegetation types such as grass). As relevant, include a discussion of impacts from fragmentation of forested areas and a discussion of edge impacts/effects.

If nighttime construction activities are proposed, and for operation of large aboveground facilities such as LNG facilities or large compressor stations, provide an analysis of potential impacts on wildlife due to increased lighting, noise, or gas flaring and measures proposed to avoid or reduce these impacts. Describe proposed mitigation to avoid or reduce impacts on wildlife, especially significant habitats or habitat within wildlife management areas or preserves. Identify any mitigation measures recommended by state or federal agencies, including measures to allow for wildlife movement and protection during construction activities, and state whether those measures would be implemented.

4.3.2.3 Unique and Sensitive Wildlife and Habitat

Significant and Sensitive Habitat

Identify and describe significant or sensitive habitats. These may include habitats that provide breeding, rearing, nesting, or calving areas; migration routes; or high-quality cover or forage areas (e.g., large tracts of contiguous forest, mature cypress swamp,

established wildlife movement corridors). Significant wildlife habitat typically includes, but is not limited to, existing or proposed National Wildlife Refuges, state wildlife management areas, or privately owned management areas or preserves. Depending on the project area, examples of sensitive or significant wildlife habitat could also include big game winter ranges, wild horse or wild burro areas, elk ranges, and others. For each significant habitat, describe how and by whom they are managed.

Tabulate the significant wildlife habitats within the project area, indicating the pipeline segment or aboveground facility that would affect the habitat, the beginning and ending milepost locations, the habitat type or name, the length of the crossing in feet, and the width of the proposed construction right-of-way at the crossing location (see table 4.3.2-1). Provide timing windows, if applicable, and a description of specific restoration plans for sensitive habitats as well as applicable resource agency comments.

TABLE 4.3.2-1

Significant Wildlife Habitat Types Affected by Construction and Operation of the Project

Facility	Milepost (Entry)	Milepost (Exit)	Crossing Length (feet)	Crossing Width (feet)	Acreage Affected		Habitat Type / Name
					Constr.	Oper.	
Mainline 200							
	x.x	x.x	xxx	xx	x.x	x.x	ABC Wildlife Management Area
	x.x	x.x	xxx	xx	x.x	x.x	Mature pine forest
	x.x	x.x	xxx	xx	x.x	x.x	Cypress swamp
Mainline 300							
	x.x	x.x	xxx	xx	x.x	x.x	DEF National Wildlife Refuge
	x.x	x.x	xxx	xx	x.x	x.x	Cypress swamp
Meter Station A	NA	NA	NA	NA	x.x	x.x	Mature pine forest

Note: NA = Not applicable

Migratory Birds

Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, was issued in March 2001 and directs federal agencies to work with the FWS to promote the conservation of migratory bird populations. On March 30, 2011, the FWS and the Commission entered into a Memorandum of Understanding that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies.

Identify the Bird Conservation Region(s) that would be crossed by the project and the corresponding Birds of Conservation Concern potentially occurring within the project area. For each species, indicate seasonal occurrence within the region (i.e., breeding, wintering, migratory), nesting habitat if relevant, and potential occurrence within the

project area. See table 4.3.2-2 for an example of a tabular presentation of this information. Due to their sensitivity to human activity, identify colonial waterbird rookeries documented within 1 mile of the project area.

TABLE 4.3.2-2

Birds of Conservation Concern Potentially Occurring in the Vicinity of the Project

Common Name	Scientific Name	Colonial Waterbird	Breeds in Region	Nesting Habitat [a]		
				Ground	Shrub	Tree
American bittern	*Botaurus lentiginosus*	X	X	X	o	o

Note: "–" = not applicable; "o" = does not nest in habitat type

[a] Nesting habitat type is only provided for those species that breed in Bird Conservation Region XX. B=Breeding.

Sources: U.S. Fish and Wildlife Service, 2008; Cornell Lab of Ornithology, 2015.

Describe potential impacts on migratory birds due to construction and operation of the project. This discussion may reference the analysis in the wildlife section, but should provide a more detailed analysis that is specific to impacts on birds and their habitats that could be affected by the project. The level of analysis should be commensurate with potential impacts on migratory birds and their habitat and include a discussion of flyways, timing in relation to seasonal movement, and potential impacts from clearing, habitat conversion, artificial lighting, and flaring. If forest fragmentation or edge effects would occur, provide an analysis of potential impacts on both interior- and edge-dwelling species.

Describe project-specific conservation measures that would be implemented during construction and operation to avoid or minimize impacts on migratory birds, including, but not limited to, any timing restrictions for construction activities (if appropriate, develop a Migratory Bird Conservation Plan). Include documentation of coordination with the FWS and the agency's comments on the proposed mitigation measures.

4.3.3 Vegetation

4.3.3.1 Existing Resources

Provide descriptions of the major vegetative cover types that would be crossed or otherwise affected by the proposed project. Each cover type description should include characteristic plant species. Also provide a description of the vegetation on the existing rights-of-way (for a looping project or other project with construction within or adjacent

to existing rights-of-way) and within station yards or off-right-of-way workspaces that would be disturbed. If looping or replacing an existing pipeline, describe vegetation maintenance practices on the existing rights-of-way, including normal frequency and average width of the maintained right-of-way. Note that non-vegetated areas (e.g., commercial/industrial land, open water) should not be included as vegetative cover types.

Describe and identify by beginning and ending milepost and length of crossing (in feet) any unique, sensitive, or protected vegetation types, plant communities, or individual trees that would be affected (e.g., mature forest, large stands of contiguous forest, native prairie, mima mounds, sagebrush steppe community, state specimen trees). Federally or state-listed endangered or threatened plants should be discussed in the Resource Report 3 section that addresses Threatened, Endangered, and Special Status Species (see section 4.3.4).

4.3.3.2 Construction and Operation Impacts

Provide the total acreage of vegetation that would be affected, by cover type, during both construction and operation. Base acreage calculations on the dimensions of the construction and permanent rights-of-way as shown on the cross-section diagrams submitted in Resource Report 1. Describe maintenance practices as they would affect vegetation (e.g., conversion of forest vegetation within the maintained permanent right-of-way, whether any areas within HDD paths would be maintained during operations). Include all ATWS, staging areas, and contractor and pipe storage yards. The total acreage of vegetation affected should equal the total area affected by the project facilities as reported in Resource Reports 1 and 8 minus any non-vegetated areas (if not, explain the difference quantitatively).

Acreage of vegetation types affected may be determined by review of aerial photographs, supplemented with ground truthing as necessary. Emphasis should be placed on forest vegetation, or other vegetation types for which clearing or operational maintenance practices would result in a long-term or permanent impact. For large projects, present vegetation clearing information in tabular format (see table 4.3.3-1).

Calculate the area of unique or sensitive vegetation types or communities that would be affected by construction, and the area of these types that would be within the permanent right-of-way. Provide copies of correspondence with federal, state, and local agencies, and describe measures proposed to avoid or minimize impact on sensitive vegetation types.

TABLE 4.3.3-1

Vegetation Communities Affected by Construction and Operation of the Project (in acres) [a]

	Agricultural		Upland Herbaceous		Upland Shrub		Mixed Hardwood Loblolly Forest		Estuarine Wetland		Palustrine Wetland		Total	
Facilities	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.[b]	Oper.[c]
Pipeline Facilities														
Mainline 1														
Mainline 2 Loop														
Subtotal														
Aboveground Facilities														
Compressor Station 1														
Meter Station 1														
Meter Station 2														
Subtotal														
TOTAL														

[a] The totals shown in this table may not equal the sum of the addends due to rounding.
[b] Total construction impacts include both temporary and permanent work areas.
[c] Operation impacts include only new permanent easement or facility footprint (i.e., land within the existing meter stations is not included).

4.3.3.3 Noxious Weeds and Invasive Species

Describe noxious weeds and invasive species identified within the project area during surveys, including both aquatic and upland species. Describe measures that have been developed in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and/or soil pests resulting from construction and operation. If equipment cleaning is proposed, describe the timing, frequency, and procedures that would be used as well as how invasive plants would be removed from the site without increasing dispersion. If the use of water is proposed at cleaning stations, describe the source of the water, water volumes, and how the water would be withdrawn and disposed of.

4.3.4 Endangered, Threatened, and Special Status Species

In accordance with section 380.13, the project sponsor, acting as the Commission's non-federal representative, should initiate informal consultation with the FWS Ecological Services field office, NOAA Fisheries' Protected Resources Division, and state wildlife agencies, to determine if any federally listed or proposed endangered or threatened species or designated or proposed critical habitat potentially occur in the vicinity of the proposed project. If federal, state, or tribal lands occur within the proposed project area, determine during early project coordination whether any additional sensitive species may be present in the vicinity of the project. Documentation of early

coordination is particularly important if other agencies will adopt FERC's NEPA document in their permit review process. Regulations regarding consultation under the Endangered Species Act of 1973 (ESA) can be found in 50 CFR 402, subparts A and B.

Include in the FERC application recent copies of species lists from the relevant agencies and tribes. In particular, provide a copy of the FWS' Information Planning and Conservation (IPaC) Trust Resource Report (or the FWS, Ecological Services Field Office's official species list for the project area) dated no more than 90 days prior to submittal to FERC.

Include in the FERC application complete copies of written correspondence to and from the FWS, NOAA Fisheries, and/or other applicable agencies. Correspondence should clearly reflect the project description, project area, and any buffer zones reviewed by the FWS and/or NOAA Fisheries. If the FWS and/or NOAA Fisheries have issued clearance letters stating that no listed or proposed species would be affected, but the project has since been modified (e.g., pipeline reroute, modifications to the project footprint or area of affect) or clearance letters are more than 1 year old, contact the FWS and/or NOAA Fisheries to determine if updated letters are required and provide copies of the updated documentation. Although not required, the applicant may request written concurrence from the FWS and/or NOAA Fisheries if the project would have no effect on listed species or critical habitat. However, concurrence with no-effect findings is not required by section 7 of the ESA, so the FWS and/or NOAA Fisheries may not respond to such requests. In these instances, documentation of coordination with the agency (via a telephone conversation or meeting) should be submitted with the FERC application.

4.3.4.1 Existing Resources

Prepare a table that identifies the federally and state-listed and proposed endangered and threatened species that potentially occur in the vicinity of the project (see table 4.3.4-1). While candidate species have no legal protection, their inclusion is recommended to avoid future potential conflicts in the event they are later proposed for listing. The table should include the common and scientific name of the species, its federal and state status designations (including critical habitat), and the project component where the species or suitable habitat may occur. Also include in the table a brief description of the potentially suitable habitat for each species and anticipated project impacts on that species.

TABLE 4.3.4-1

Federally and State-listed Species Potentially Occurring in the Vicinity of the Project

Common Name *Scientific Name*	Federal Status	State Status	County, State	Project Components	Anticipated Project Impacts and Habitat Assessment
Birds					
Piping plover *Charadrius melodus*	Threatened, Critical Habitat	Threatened/ Endangered	County, ST	Mainline Lateral 1	*Impacts are not anticipated* The species breeds in the northern United States and Canada and overwinters along the coast of the Gulf of Mexico. Wintering habitat includes sandy beaches along the shoreline of the Gulf of Mexico. No suitable wintering habitat would be affected by Lateral 1. *No destruction or adverse modification of critical habitat* The nearest designated critical habitat is over 20 miles south of Lateral 1 and includes the shoreline on either side of the entrance to the Calcasieu Ship Channel. Therefore, no impacts on designated critical habitat are anticipated.
Reptiles/Amphibians					
Insects					
Mammals					
Plants					

If the FWS and/or NOAA Fisheries recommend that project-specific field surveys be conducted for one or more federally listed or proposed species, these surveys must be completed for all accessible project areas and the results filed with the application. For those areas not accessible due to lack of landowner permission or if surveys could not be conducted prior to filing due to seasonal survey restrictions, provide a timetable for completion of surveys and filing of survey reports. Surveys should be conducted by qualified biologists using methodology approved by the FWS and/or NOAA Fisheries. Provide copies of survey reports and FWS and/or NOAA Fisheries comments on the reports. Consult with the FWS and/or NOAA Fisheries to determine whether these documents should be filed with the Commission as public or privileged. Survey reports should include the following information:

- name(s) and qualifications of person(s) conducting survey;
- methods and date(s) of the survey;

- locations and sizes of areas surveyed, including milepost locations for pipeline routes;
- areas where species or potential habitats were located, including milepost locations for pipeline routes;
- potential impact on the species or habitat, both positive and negative, that could result from construction and operation of the proposed project; and
- proposed mitigation that would avoid or minimize potential negative impact.

Prepare a brief description of each federally listed or proposed endangered or threatened species that potentially occurs in the vicinity of the project. The description should include general background information that is appropriate to the project area (e.g., regional distribution, habitat preference, and important dates such as for breeding, nesting, calving, migration, or overwintering), as well as project-specific information such as known locations of designated or proposed critical habitat, suitable habitat, or occupied habitat. Identify specific recommendation made by the FWS or NOAA Fisheries.

Coordinate with the appropriate state agencies to determine state-listed endangered or threatened species that potentially occur in the vicinity of the project. Provide the same information for state-listed species as described above for federally listed or proposed species.

If nonjurisdictional facilities would be constructed in conjunction with the proposed project and if warranted based on the information provided in Resource Report 1 (see section 4.1.8 of this manual), the applicant should work with the nonjurisdictional company, and, if available, provide the same information for the nonjurisdictional facilities as described above for the proposed facilities.

4.3.4.2 Construction and Operation Impacts

Describe the impacts on each species identified in section 4.3.4.1 that would result from construction and operation of the project. If surveys for species could not be conducted because of timing or lack of landowner permission, and the species potentially occurs within the project area, the applicant may assume it is present and provide the information below (including mitigation) to facilitate a timely consultation process. The impacts analysis should address all comments and recommendations provided by federal and state agencies and describe mitigation and avoidance measures that would be implemented by the applicant. In accordance with section 380.13(b), if the project may affect federally listed or proposed species or designated or proposed critical habitat the

applicant should prepare and submit with its FERC application a draft Biological Assessment (BA) containing the following for the relevant species:

- life history and habitat requirements;
- results of detailed surveys (if warranted or requested by the agency) to determine if individuals, populations, or suitable unoccupied habitat exists in the proposed project's area of effect;
- potential impacts, both beneficial and negative, that could result from the construction and operation of the proposed project, or disturbance associated with the abandonment, if applicable;
- proposed mitigation that would eliminate or minimize these potential impacts; and
- responses to all FWS and NOAA Fisheries comments and recommendations for federally listed or proposed species.

4.4 RESOURCE REPORT 4 – CULTURAL RESOURCES

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCE [a]
☐ Identify the project area and the project's impacts in terms of direct and indirect effects on cultural resources.	D
☐ Provide a project map with mileposts clearly showing boundaries of all survey areas (right-of-way, extra work areas, access roads, etc.). Ensure mileposts are marked, and survey corridor widths are clearly specified, and clearly indicate where survey has not yet been completed.	D
☐ Provide documentation of consultation with applicable State Historic Preservation Offices (SHPO), Tribal Historic Preservation Offices (THPO), [b] and land-managing agencies regarding the need for and required extent of cultural resource surveys.	D
☐ Provide a narrative summary of overview results, cultural resource surveys completed, identified cultural resources and any cultural resource issues.	D
☐ Provide a project specific Ethnographic Analysis (can be part of Overview/Survey Report).	D
☐ Identify by mileposts any areas requiring survey for which the landowner denied access.	D
☐ Provide written comments on the Overview and Survey Reports, if available, from the applicable SHPOs, THPOs, and land-managing agencies.	D
☐ Provide a Summary Table of completion status of cultural resource surveys, and applicable SHPO or THPO and land-managing agency comments on the reports.	D
☐ Provide a Summary Table of identified cultural resources, and applicable SHPO or THPO and land-managing agency comments on the eligibility recommendations for those resources.	D
☐ Provide a brief summary of the status of federally recognized Indian tribe contact, including copies of all related correspondence and records of verbal communications.	D
☐ Provide a brief summary of comments received from stakeholders regarding cultural resources.	D
☐ Provide a schedule for completing any outstanding cultural resource studies.	D
☐ Provide an Unanticipated Discoveries Plan for the project area, referencing appropriate state statues.	D

[a] D Applicant

[b] As defined by the Advisory Council on Historic Preservation at Title 36 Code of Federal Regulations Part 800.16(w), THPO means the tribal official appointed by the tribe's chief governing authority or designated by a tribal ordinance or preservation program who has assumed the responsibilities of the SHPO for purposes of section 106 compliance (National Historic Preservation Act) on tribal lands in accordance with section 101(d)(2) of the act.

Resource Report 4 is required for all applications. This report addresses the nature (description) and significance of cultural resources including any "historic properties" (districts, buildings, structures, sites, and/or objects listed on or eligible for listing on the NRHP), or any traditional cultural properties within the project's Area of Potential Effect (APE). The APE includes the area that may be directly or indirectly affected by construction, operation, and maintenance of proposed facilities, and associated activities. It may extend beyond the limits of the project's construction and permanent right-of-way.

4.4.1 Application

Resource Report 4 should include:

- a description of the project's APE referencing both potential direct and indirect effects to cultural resources. This may differ from the construction

and permanent rights-of-way as indirect effects could include visual, auditory, emissions, vibration, or other physical effects from construction;

- documentation of the need for cultural resource survey, and the level of survey required, based on consultation with the applicable SHPO(s) or THPO(s), and land-managing agencies. If surveys are necessary, the Survey Report(s) must be filed with the application;

- documentation of initial cultural resources consultation/contact (including copies of pertinent meeting notes, emails, phone logs, and correspondence [including any attachments, in color if originally provided in color]) with the applicable SHPO(s), THPO(s), federally recognized Indian tribes, land-managing agencies, and, as appropriate, organizations and other stakeholders. Documentation should clearly show that the facilities reviewed by the agencies, tribes, and other parties are the same as those proposed in the application;

- a summary (tabular, if appropriate) of the status of cultural resources investigations undertaken to date (see tables 4.4.1-1, 4.4.1-2, and 4.4.1-3 for examples), including identification by milepost of any areas that could not be surveyed because the landowner denied access;

- a narrative summary of the completed Overview and Survey Reports, identifying any cultural resources issues. The summary should not identify specific property locations or sensitive information about cultural resource sites;

- copies of all completed Cultural Resource Overview and Survey Reports, as appropriate. The Survey Report(s) must include a brief management summary, including a statement of the number of acres surveyed. The Overview and Survey Reports may be combined;

- a project map clearly showing the boundaries of all areas that have been surveyed and that are to be investigated, with the survey corridor widths clearly specified;

- an Ethnographic Analysis specific to the project area included with or separate from the Survey Report. An Ethnographic Analysis may include one or more types of analyses that facilitate the identification of ethnographic resources such as traditional cultural properties, cultural or ethnographic landscape, oral history, or traditional ecological knowledge studies;

TABLE 4.4.1-1

Survey Status of Pipeline Route (current as of [DATE])

Facility	County, State	Milepost Start	Milepost End	Survey Status
Mainline Pipeline				Surveyed
				Pending survey completion [a]
				Surveyed
				Pending survey completion [b]
Lateral A				
Lateral B				

[a] Landowner denied access permission
[b] Flooded at time of survey
Note: Block valve and pig launcher/receiver locations are included within the survey corridor for the pipeline.

TABLE 4.4.1-2

Survey Status of Aboveground Facilities (current as of [DATE])

Facility	Approximate Milepost	County, State	Area (acres)	Survey Status
Compressor Stations				
Compressor Station 1				
Compressor Station 2				
Meter Stations				
Meter Station 1				
Meter Station 2				

TABLE 4.4.1-3

Cultural Resources Identified in Survey Corridor

Facility/County/ Resource Number	Resource Type	Applicant NRHP Assessment	Applicant Recommendations	SHPO Comments (if available)
MAINLINE				
Walworth/WI				
[Resource ID No]	Historic rock alignment	Not eligible	No further investigation	Concur, not eligible
[Resource ID No]	Precontact lithic scatter and historic rock cairn	Unevaluated	Avoid or additional testing	Avoid or additional testing
[Resource ID No]	Historic railroad (active)	Eligible/contributing	No further investigation; to be avoided by conventional boring	Concur, eligible/ contributing; cultural resource monitor; maintain 50-foot setback for bore entry and exit
LATERAL A				
McHenry/IL				
[Resource ID No]	Historic wagon road	Eligible	Avoid or develop mitigation plan	Concur, eligible; mitigation if avoidance is not possible
[Resource ID No]	Precontact lithic scatter	Not eligible	Evaluative testing completed; no further investigation	Concur; not eligible
[Resource ID No]	Historic road	Not eligible	No further investigation	Concur; not eligible

- a list identifying, by milepost, any areas requiring survey for which the landowner has denied access;

- written comments on the Overview and Survey Reports, if available, from the applicable SHPOs, THPOs, and land-managing agencies, as appropriate;

- applicable SHPO, THPO, and land-managing agency comments on the eligibility recommendations for identified cultural resources;

- a brief summary of the status of contact with federally recognized Indian tribes regarding traditional cultural properties and concerns, including copies of all related correspondence;

- information necessary to address comments filed in the public record, received from the public during open houses and scoping meetings;

- a plan, referencing the appropriate state statutes, for dealing with the unanticipated discovery of historic properties or human remains; and

- a schedule for completing any outstanding cultural resource studies.

Copies of Overview/Survey Reports, Evaluation Reports (if required), Unanticipated Discoveries Plans and documentation of consultation/contact should be provided as appendices to Resource Report 4. Specific cultural resources site location and ownership information should not be included in the main body of Resource Report 4. Such information should be confined to appended reports. Request privileged treatment for all material filed with the Commission containing **location, character, and ownership information** about cultural resources. The cover pages and all relevant pages or portions of the appended reports must be clearly labeled in bold lettering "**CONTAINS PRIVILEGED INFORMATION-DO NOT RELEASE**."

4.4.2 Post-filing, Pre-certificate/authorization Requirements

Submit the following additional information, which is necessary before the environmental analysis can be completed and a certificate or authorization can be issued:

- any applicable SHPO, THPO, or land-managing agency comments on reports not submitted with the application;

- any Evaluation Reports required by the applicable SHPO, THPO, or land-managing agencies. If required evaluation entails extensive subsurface testing, substantial excavation, or other procedures that impact the integrity

of a cultural resource, a testing plan should be prepared in consultation with the applicable SHPO, THPO, or land-managing agencies and the Commission;

- any applicable SHPO, THPO, or land-managing agency comments on Evaluation Reports;

- written comments from the applicable SHPO, THPO, and land-managing agencies on the NRHP eligibility of all identified cultural resources in the project's APE; and

- copies of any Treatment Plans, if required, addressing how impacts on historic properties that cannot be avoided would be mitigated, prepared in consultation/contact with the applicable SHPO, THPO, land-managing agencies, federally recognized Indian tribes, and the Commission, as appropriate. Authorization to implement approved Treatment Plans would be granted only after the certificate or authorization is issued.

4.4.3 Pre-construction Requirements

All additional reports of cultural resource investigations, except monitoring during construction, and any additional documentation of consultation/contact, must be submitted prior to construction in any given area. This could include:

- any of the items in section 4.4.2 not already provided;

- Survey Reports for areas of the APE for which the landowners had denied access, or which were not previously identified;

- written comments from the applicable SHPO, THPO, and land-managing agencies for all remaining reports; and

- Notification of completion of any implemented Treatment Plans.

Additional guidance on preparing cultural resources documents is provided in the most recent version of *Guidelines for Reporting on Cultural Resources Investigations for Pipeline Projects* issued by the OEP, which is available on the FERC website.

4.5 RESOURCE REPORT 5 – SOCIOECONOMICS

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Evaluate the impact of any substantial immigration of people on governmental facilities and services and describe plans to reduce the impact on local infrastructure.	D
☐ Describe on-site workforce requirements, including the number of construction personnel who currently reside within the impact area, would commute daily to the site from outside the impact area, or would relocate temporarily and permanently within the impact area.	D
☐ Estimate total worker payroll and material purchases during construction and operation.	D
☐ Estimate project-related ad valorem and local tax revenues.	D
☐ Determine whether existing housing within the project area is sufficient to meet the needs of the additional population.	I
☐ Describe the number and types of residences and businesses that would be displaced by the project, procedures to be used to acquire these properties, and types and amounts of relocation assistance payments.	D, I
☐ Describe impacts on local traffic due to construction- and operation-related traffic and worker commuting. Where applicable (e.g., LNG import/export facilities), address impacts on marine traffic.	D, I, DD
☐ Evaluate the effects of the project on minority and low income populations in consideration of Executive Order 12898.	J, KK
☐ Conduct a fiscal impact analysis evaluating incremental local government expenditures in relation to incremental local government revenues that would result from construction of the project. Incremental expenditures include, but are not limited to, school operating costs, road maintenance and repair, public safety, and public utility costs.	D, I, JJ

[a] D Applicant; I County/Municipal Agencies; DD State Agencies; JJ U.S. Department of Labor; KK U.S. Bureau of the Census

Resource Report 5 is required if the applicant proposes significant aboveground facilities, such as LNG facilities, large new compressor stations, or major pipeline projects. This resource report is not required under section 380.12(g) for projects that only involve minor to moderate lengths of pipeline, expansion or modifications to existing compressor stations, or other associated facilities. Additionally, applicants should provide this resource report for minor projects and those with only below-ground facilities in instances where concerns are raised during project coordination or as a result of public or agency comments. Furthermore, federal, state, or local land managing agencies may require the analysis of the socioeconomic impact of pipeline construction as part of their review process for right-of-way grants.

4.5.1 Existing Socioeconomic Conditions

Summarize the existing socioeconomic conditions in the socioeconomic impact area (section 380.12(g)(l)). The socioeconomic impact area generally comprises the municipalities or counties in which the facilities would be located or which might be affected by project construction and operation.

Depending on the specific agency/public concerns, prepare text and/or tables that describe the following existing socioeconomic conditions within the project area:

- current population and population density statistics;
- per capita income;
- minority populations and poverty rates;
- number and composition of workforce (e.g., manufacturing; transportation and public utilities; wholesale trade; retail trade; finance, insurance, and real estate; and services);
- current unemployment rate (latest year of record);
- number of units and vacancy rates for temporary housing (e.g., apartment rentals, hotels/motels, and campgrounds) and proximity to the construction area;
- location and availability of local government public services (e.g., police, fire protection, medical services, and schools);
- local tax revenues and sources of funding (e.g., personal property, sales, hotel/motel occupancy); and
- other relevant factors, such as condition and proximity of major transportation routes within the project area.

Tables 4.5.1-1, 4.5.1-2, 4.5.1-3, 4.5.1-4, and 4.5.1-5 are examples of summary presentations of the above data for a pipeline project. For an LNG facility, a greater level of detail may be required because the project may have a greater impact on a more limited area.

Population statistics are available from the Bureau of the Census. Labor statistics are available from the Bureau of the Census, the U.S. Department of Labor, Bureau of Labor Statistics, or the Department of Employment for each affected state. All employment data provided should be for the most recent year of record. Additional data including demographic and environmental indicators are available from the EPA. Detailed information on housing, transportation networks, and public services is generally available from county or regional planning offices, or the local municipalities and should also be based on the most current available information.

TABLE 4.5.1-1

Existing Socioeconomic Conditions in the Project Area

State/County	Population 2012[a]	Population Density (per square mile) 2012[a]	Per Capita Income 2012[a]	Civilian Labor Force 2012[b]	Unemployment Rate 2012[b]	Top Two Major Industries 2013[c]
State						
County A						
County B						
County C						

[a] U.S. Census Bureau, 2014a
[b] [State] Workforce Commission, 2013
[c] City-Data, 2013

TABLE 4.5.1-2

Housing Characteristics in the Project Area

State/Parish	Housing Units[a]	Vacant Housing Units[a]	Vacant Housing Units for Rent[a]	For Seasonal, Recreational, or Occasional Use[a]	Rental Vacancy Rate (percent)[a]	Number of Hotels and Motels[b]
State						
County A						
County B						
County C						

[a] U.S. Census Bureau, 2014b
[b] Yellowbook, 2013 (number of "Hotels and Motels" as advertised on www.yellowbook.com). Some of these hotels and motels may be located in adjacent parishes.

TABLE 4.5.1-3

Public Services in the Project Area

Parish, State	Number of Public Schools[a]	Number of Sheriff's Departments[b]	Number of Police Departments[b]	Number of Fire and Rescue Departments[c]	Number of Hospitals/Beds[d]
County, ST					
County, ST					
County, ST					

[a] Public Schools K12, 2014
[b] USA Cops, 2013
[c] USA Fire & Rescue, 2013
[d] [State] Hospital Inform, 2013

TABLE 4.5.1-4

Demographic Statistics for Counties Crossed by the Project Facilities

State/ County	Total Population	White (percent)	African American (percent)	Native American and Alaskan Native (percent)	Asian (percent)	Native Hawaiian and Pacific Islander (percent)	Other Race (percent)	Hispanic or Latino Origin (percent)	Total Minority [a] (percent)
State									
County									
County									
County									
State									
County									
County									
County									
State									
County									
County									
County									

Sources: U.S. Census Bureau, 201X, 201X

[a] "Minority" refers to people who reported their ethnicity and race as something other than non-Hispanic White.

TABLE 4.5.1-5

Economic Statistics for Counties Crossed by the Project Facilities

State/County	Median Household Income (2009 to 2013)	Persons Below Poverty (2009 to 2013) (percent)
State		
County		
County		
County		
State		
County		
County		
County		
State		
County		
County		

Source: 2009–2013 American Community Survey 5-Year Estimates

4.5.2 Impacts of Project Construction and Operation

Address the socioeconomic impact of construction and operation of the proposed project. This analysis should include the following:

- Population – Estimate the total number of construction workers who would temporarily or permanently relocate to the municipality or county area, and the duration of their stay. Also estimate the total number of construction

workers residing within the project area and the number of construction workers that would commute daily to the construction site from places outside of the project area.

- Employment – Estimate the effect of construction and operation on unemployment rates for the region, including on-site workforce requirements and payroll.

- Housing – Assess the effect of construction worker immigration on the availability of housing. Most construction workers prefer temporary housing; therefore, in areas that support seasonal tourism and where construction is scheduled for the peak season, construction workers may displace tourists. This may be a concern for motel and campground operators who are dependent on repeat business and may be reluctant to provide housing for construction workers because seasonal trade could potentially be turned away and lost. If there is a potential for a housing shortage, identify mitigation measures. These may include the provision of temporary camp sites or busing from more distant areas where temporary lodging is available.

- Displacement of residences or businesses – Identify the number of residences or businesses that would be removed by construction and operation of the facility. The discussion should include procedures for acquisition of properties and payments that would be made to affected landowners for relocation assistance and for loss of the property, as well as the status of negotiations.

- Infrastructure – Assess the effect of immigration on municipal services, such as police, fire protection, medical facilities, and schools. If projected immigration would potentially burden existing municipal services, identify proposed plans to alleviate this impact. These plans may include providing funds for hiring additional policemen, fire fighters, or medical personnel during the period of construction. For schools, determine if influx of construction workers' school-age children would significantly alter teacher-pupil ratios. Provide an assessment of the incremental costs to the local community versus the incremental increase in revenues that would result from the construction of the project.

- Construction payroll and material purchases – Estimate the dollar value of construction payroll and material purchases that would affect the local economy. Discussion should include related payroll, sales taxes, and other local revenue.

- Tax revenues – Estimate the dollar value of ad valorem and other tax revenues to be paid to each municipality affected by operation of the facility. Also discuss additional government expenditures, such as school operating costs, public safety, and public utilities.

- Transportation – Determine the effect of the movement of construction equipment, materials, and workers on the local road network. This may require preparation of estimates of construction-related traffic trips to and from the work site, frequency of the trips over the construction period, and times of peak traffic volumes. Mitigation could include construction of new roads, repair of roads to pre-construction conditions, or avoidance of existing peak traffic periods. For larger projects, a Traffic Management Plan may be warranted, including how the applicant would maintain an acceptable DOT Level of Service of the local/regional transportation network during peak hours.

  If applicable (e.g., for projects involving LNG import/export facilities), Resource Report 5 should also address marine transportation. This should include information about existing marine traffic in shipping channels and other waterways to be used by project-related vessels, estimated marine traffic required for construction and operation of the project (including types of vessels and frequency), impacts of project-related marine traffic, and proposed mitigation as appropriate.

  Provide impacts and mitigation measures to minimize those impacts on transportation from project operations (e.g., adjacent to aboveground facilities with gated entrances and along the waterway for LNG and support vessels).

- Economic impacts due to loss of production in agricultural/pasture land or timberland – Determine the economic effect of construction and operation of the proposed facilities on land resources. Identify acreage that would be temporarily and permanently removed from production during construction and operation of the facilities. Discuss the effect on the local or regional economy and compensation to be paid for loss of production for the life of the facility or until land regains former production.

- Economic impacts on commercial fishing – For LNG facilities or other projects involving offshore disturbance, determine the economic effect of construction and operation on commercial fishery resources. Identify the type of fishery resources affected, describe the type and duration of impacts, and discuss the effect on the local or regional economy and compensation to be paid for loss of income.

- Environmental Justice (Executive Order 12898) – Address the environmental effects, including human health, social, and economic effects, of the project on minority and low-income communities or Native American programs. Identify any non-English speaking groups that would be affected by the project. Describe the efforts to identify and communicate with these groups and individuals and the measures used to avoid and minimize project impacts.

- Other issues as warranted – Issues to be addressed based on project-specific circumstances or public or agency comments may include, but not necessarily be limited to, potential impacts on property values and/or insurance rates, training of emergency response personnel, and economic impacts due to effects on local tourism.

4.6 RESOURCE REPORT 6 – GEOLOGICAL RESOURCES

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Identify any sensitive paleontological resource areas crossed by the proposed facilities. (Usually only if raised in scoping or if the project affects federal lands.)	B
☐ Briefly summarize the physiography and bedrock geology of the project.	D
☐ If proposed pipeline crosses active drilling areas, describe plan for coordinating with drillers to ensure early identification of other companies' planned new wells, gathering lines, and aboveground facilities.	D
☐ If the application is for underground storage facilities:	D
☐ Describe monitoring of potential effects of the operation of adjacent storage or production facilities on the proposed facility, and vice versa;	D
☐ Describe measures taken to locate and determine the condition of old wells within the field and buffer zone and how the applicant would reduce risk from failure of known and undiscovered wells; and	D
☐ Identify and discuss safety and environmental safeguards required by state and federal drilling regulations.	D
[a] B Agency Consultation D Applicant	

Resource Report 6 is required for applications involving LNG facilities and all other applications except those involving only facilities within the boundaries of existing aboveground facilities, such as a compressor, meter, or regulator station. It must describe geological resources and hazards in the project area that might be directly or indirectly affected by the proposed action or that could place the proposed facilities at risk, the potential effects of those hazards on the facility, and the methods proposed to reduce the effects or risks. For natural gas storage projects that involve commercially sensitive cavern designs, the sensitive design information may be filed separately as "Privileged and Confidential." However, the applicant should also file a "Public" version of Resource Report 6 to allow FERC staff to accurately describe geologic conditions, potential project impacts, and proposed mitigation in the NEPA document.

4.6.1 Geologic Setting

Describe the physiographic provinces and sub-provinces and the topography of the project area, including any distinguishing landforms, relative relief with ranges in feet, and elevations relative to mean sea level identified from USGS quadrangle maps. If the application includes many pipeline segments in a wide variety of geologic settings, a table may be useful in presenting these data. The text should then describe the surficial geology and bedrock geology that would be within the area affected by the project (e.g., by trench excavation, foundation work, storage field development, or HDD). This summary should include an identification of the milepost locations where the bedrock is likely to be near (less than 5 feet below) the surface.

If a storage field is proposed, describe the bedrock stratigraphy of the area, including the depth and thickness of the storage formation as well as the overlying cap rock. The discussion should also include well/lithologic logs and address the design of the wells, including borehole diameters, and the number, length, and type of well casings to be used. Address the ability of the cap rock to contain the storage gas at full operating pressures, prevent the fracturing of bedrock/subformations, and prevent the migration of gas out of the storage formation. If salt solution mining is proposed to create the storage caverns, provide information regarding the size and dimension of the caverns, cap rock integrity, water appropriation, brine handling, and disposal plans.

4.6.2 Blasting

List any applicable federal, state, and local blasting regulations, including the responsible agency, and necessary permits. State and local fire marshals can usually provide information and guidelines regarding blasting regulations.

Identify by facility and milepost all locations where blasting may be required using sources such as surficial geologic maps, Soil Survey Geographic Database (SSURGO) data or NRCS soil surveys, and field surveys. Discuss the peak particle velocities expected and analyze potential impacts on all wells, including water, oil and gas, observation, and monitoring wells, as well as springs, wetlands, slopes, structures, and adjacent pipelines. Include a blasting plan that describes the mitigative measures that would be used to monitor and control adverse impacts, including the handling of explosives and measures to minimize the magnitude of the charges, vibrations, and flyrock. Also discuss measures that address safety concerns. Specifically describe the procedures for pre- and post-blast inspections of structures and wells. Include specifications for vibration monitoring, and well yield and water quality testing that would be done before, during, or after blasting. Identify measures that would be taken to rectify any damage caused by blasting such as replacing or repairing damaged water supplies or structures.

4.6.3 Mineral Resources

Describe mineral resources currently exploited or potentially exploitable in the project area. Information that may be used to identify surface and subsurface mines or oil and gas fields on or within about 0.25 mile of the construction right-of-way includes aerial photographs, USGS topographic maps, mineral resource maps and listings, and other published information, field surveys, and consultation with the gas company, property owners, and state and local agencies. Prepare a table that identifies by milepost all active, inactive, and planned mining operations crossed by (or adjacent to) the pipeline or directly affected by associated facilities. These should be listed in a table similar to table 4.6.3-1. Specify the sources used to identify these areas. If any active surface mines or land that is leased for future surface mining would be crossed, include the name,

address, and phone number of the owner/operator and describe any negotiations that have been or will be undertaken to secure the pipeline right-of-way through the mines. Describe the buffer zone between current and future mine areas and the proposed construction area/pipeline. Identify any landowner or operator concerns about the proposed facilities and the proposed measures to address these concerns and state whether a route alternative will be required. Also address the potential for the project to hinder mine reclamation or expansion efforts.

TABLE 4.6.3-1

Mineral Resources in the Vicinity of the Pipelines

Facility	Approximate Milepost	County, State	Mineral Resource	Distance/Direction from Construction Work Area (feet)
Mainline				
Loop A				
Loop B				

Specify methods to prevent project-induced contamination from surface mines or from mine tailings along the right-of-way. If runoff from the mine tailings is a potential hazard, include a description of the hazard and specific methods that would be used to control the problem.

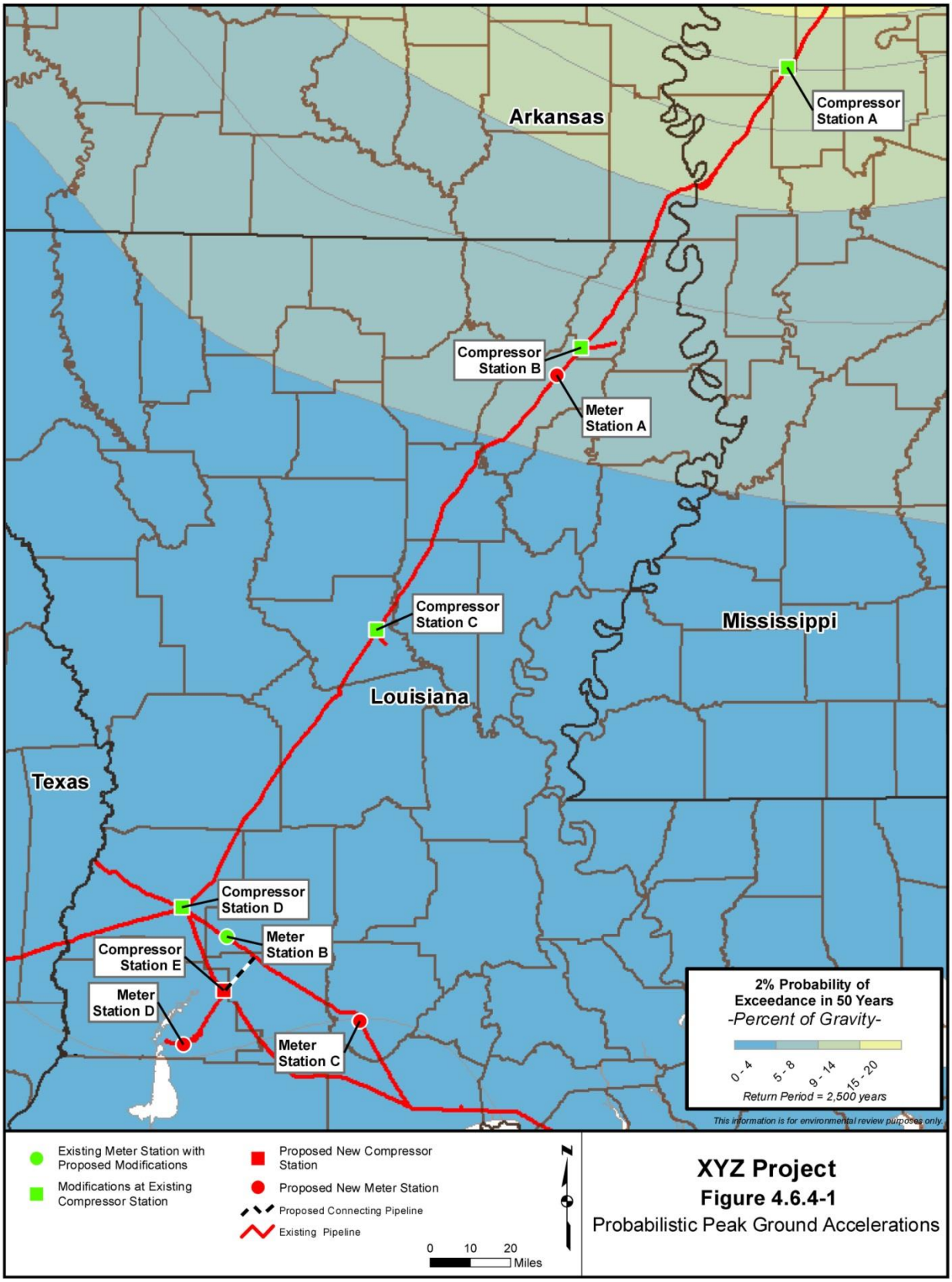
4.6.4 Geologic and Other Natural Hazards

Potential geologic hazards include earthquakes; active faults; growth faults; areas susceptible to soil liquefaction; areas susceptible to landsliding or slumping; ground subsidence due to karst terrain, fluid extraction (water or hydrocarbons), earthquakes, and underground mining. Other natural hazards include volcanism, extreme winds and flooding (including scour effects) associated with flashfloods, hurricanes, storm surge, tsunami, or sea level rise due to climate change. Using sources such as bedrock, surficial, and structural geologic maps and contacts with the USGS, state geologic surveys, and local sources; Lidar analysis; other published information; comprehensive plans; aerial photographs; or field surveys, identify by milepost and describe the geologic hazards and concerns that exist or have the potential to develop in or near the project area. Provide topographic maps showing locations of the various geologic hazards with respect to the proposed pipeline or aboveground structures. Include the criteria and sources of information used to identify these areas, and the impact that the geologic hazard could

have on the construction and operation of the facility. Describe how the project would be sited or designed to avoid or minimize the effects from the hazards identified. Identify areas that are recommended for slope remediation prior to pipeline installation. Include all geotechnical investigations and any past experience with slope instability in the project area. Describe in detail any monitoring that would be conducted before, during, and after construction of the pipeline and associated facilities, including any proposed slope stability monitoring and any use of slope retention devices such as rock bolts, retaining walls, or nets.

Discuss the seismic risk across the project area and identify the site seismicity areas for potential soil liquefaction, and potential areas for surficial fault rupture for all pipeline and aboveground facilities. Consult state and USGS seismicity maps for these data (see example shown on figure 4.6.4-1). Identify past and recent seismic events, and characterize the potential ground shaking from future earthquakes using the USGS seismic hazard mapping model or other models that allow for the calculation of peak ground acceleration (PGA) for various return periods, including 10 percent (top) and 2 percent (bottom) probabilities of exceedance in 50 years, and for specific locations for soft rock site conditions.[13] For LNG facilities, also provide for the same return periods the PGA and spectral accelerations values for 0.2 and 1.0 second periods for site soil conditions based on the site-specific hazard study performed for the site. If structures and pipelines would cross faults, identify the locations of the faults on site plans and perform a subsurface investigation to characterize the age of the fault movement. Consult Volume II of this manual for additional guidance related to LNG facilities.

[13] Examples of soft rock include sand, silt, clay, typically soft alluvial sediments, or dredge fill. Hard rock includes well lithified bedrock, sandstone, shale, or igneous or metamorphic rocks such as basalt, granite, or schist.


Arkansas
Compressor Station A
Compressor Station B
Meter Station A
Compressor Station C
Mississippi
Louisiana
Texas
Compressor Station D
Meter Station B
Compressor Station E
Meter Station D
Meter Station C
2% Probability of Exceedance in 50 Years
-Percent of Gravity-
0 - 4
5 - 8
9 - 14
15 - 20
Return Period = 2,500 years
This information is for environmental review purposes only.
Existing Meter Station with Proposed Modifications
Modifications at Existing Compressor Station
Proposed New Compressor Station
Proposed New Meter Station
Proposed Connecting Pipeline
Existing Pipeline
0 10 20
Miles
N
XYZ Project
Figure 4.6.4-1
Probabilistic Peak Ground Accelerations

4.6.4.1 Landslides

Identify by milepost areas susceptible to slope failures including any areas along an existing pipeline system where landslides have previously occurred. Site-specific information should be obtained from state or county geologic publications, USGS topographic maps, Lidar analysis, and field reconnaissance. A site-specific investigation may prove necessary to identify hazard areas that are susceptible to slope instability. For aboveground facilities, describe the slope conditions surrounding each facility and identify any nearby, upslope springs or seeps bordering the facility. Include maps showing the locations of landslide susceptibility and provide copies of any specific studies conducted to identify these areas. Rank the relative hazard of each area in terms of its potential to damage the pipeline or aboveground facilities and identify proposed measures to monitor conditions and/or minimize risks, including use of non-native backfill, slope and trench breakers, groundwater interceptor drains, and other measures to stabilize the slopes or divert water away from the right-of-way. For slopes greater than 35 percent, identify the location, length, and angle of the slope, and the expected strike and dip of the bedrock with respect to the slope face. Describe the methods that would be used to backfill and restore these areas, the material to be used as backfill, and any special measures that would be employed to stabilize these slopes prior to revegetation.

4.6.4.2 Karst

In areas where karst terrain is present, and ground subsidence is a potential hazard, provide a table showing the locations and types of karst terrain present by milepost or facility. Identify the sources used to determine the locations of karst terrain. If areas of high potential for karst are crossed, submit a report that includes the results of any desktop assessments, lineament/fracture trace and Lidar analysis, field reconnaissance, and site surveys including results of geophysical investigations that were conducted. Also describe the catchment basins that contribute to major springs in karst areas, rank the relative risk of karst along the pipeline route, and describe measures that would be used to mitigate karst risks.

4.6.4.3 Flooding and Scour

Evaluate the potential for flash flooding or scouring that could expose the pipeline or affect aboveground facilities. Identify where this may occur and describe measures to protect the facilities from flood or scour damage. If the potential for deep scouring exists, provide a study that models the possible effects and identifies mitigation to counter these effects. In coastal areas, discuss the potential for storm surge impacts associated with hurricanes and other high energy storms and identify measures such as increase depth of burial, armoring, protective berms, etc., that would be employed to protect the pipeline and aboveground facilities from these effects. For aboveground facilities, identify existing site elevations and whether the facilities would be in a 100-year and 500-year Federal Emergency Management Agency (FEMA) floodplain. Also,

provide elevations for still water and with wind and wave effects of the 100- and 500-year return period floods for the site if the facilities would be within these areas. Indicate the planned elevations following construction, evaluate the effect of the facility in reducing flood storage (if located within a flood plain), and discuss proposed measures to reduce potential storm surge or flooding impacts. Additionally, assess the proposed design in the context of climate change and anticipated sea level rise. Specifically, describe the predicted rise in sea levels at the site, evaluate the associated risk to the facility, and discuss the measures that have been incorporated into the design to mitigate for higher sea levels. In addition, for LNG facilities and any aboveground facilities that could be affected by a tsunami, provide the estimated inundation elevation levels for the Design Tsunami that controls the site.

4.6.5 LNG Facilities in Seismic Risk Areas

If the application involves an LNG facility, the applicant will need to prepare a site-specific seismic hazard report on earthquake hazards along with engineering. See Volume II of this guidance manual for additional information.

4.6.6 Paleontology

If the project is located in an area known to contain sensitive paleontological resources (either based on published information or field surveys, or identified by stakeholder comments), or if requested by applicable land managing agencies, applicants should address these issues and conduct appropriate paleontological studies, where appropriate. Paleontology should also be addressed if the project crosses federal lands or lands managed by other land-managing agencies that require paleontological studies as stipulations of easement agreements. Summarize the results of any desktop reviews, field investigations, and agency consultations related to paleontological resources and provide references for any paleontological resources identified. Describe proposed measures to avoid or minimize impacts, and provide an unanticipated discovery plan, developed in coordination with the appropriate agency, for paleontological resources that would be implemented in the event of a paleontological discovery during construction.

4.6.7 Geotechnical Investigations

If the project involves one or more HDDs, storage facilities, or compressor stations with significant geologic hazards, provide additional details regarding the geological conditions at the compressor station, LNG facility, storage field, or along the drill path. Consult Volume II of this manual for additional guidance related to LNG facilities. Provide copies of geotechnical investigations that have been conducted and summarize the results of these studies. If future geotechnical investigations are planned, identify the types of studies planned and indicate when they will be completed and provided to the Commission. Provide any proposed ground improvement and foundation type including details of deep foundations if used (proposed pile type and their depth).

For each HDD, describe any subsurface conditions that were identified as a result of the geotechnical investigations that may increase the risk of drill complications (e.g., unplanned inadvertent returns, drill hole collapse, contamination), and describe the measures that would be implemented to minimize these risks. Describe the criteria for identifying a drill failure, discuss how the drill hole would be abandoned and plugged in the event of such a failure, and identify applicable state regulations or requirements. For salt dome storage projects, describe pre- and post-construction geologic conditions within the salt dome and the proposed method for mining and disposing of the salt. If brine disposal would include reinjection of the brine, describe the geologic conditions of the layers that would receive the brine and the separation of these layers from aquifers. Also describe how aquifers would be isolated from the brine and protected from brine migration and include studies conducted to support these conclusions.

4.7 RESOURCE REPORT 7 – SOILS

INFORMATION RECOMMENDED OR OFTEN MISSING		
INFORMATION		DATA SOURCES [a]
☐	If the applicant generally proposes to adopt the FERC staff's Plan except at certain locations, identify on a site-specific basis locations where alternative measures are proposed, and describe the alternative measures that will ensure an equal or greater level of protection.	D
☐	Identify invasive species and/or noxious weeds that occur in the area and measure to prevent the introduction and/or spread of these species.	D, W
☐	Provide documentation of consultation with the NRCS or other applicable agencies regarding seed mixes, erosion control, and invasive species/noxious weeds.	D, W, CC
[a]	D Applicant W Natural Resources Conservation Service CC Soil authorities other than Natural Resources Conservation Service	

Resource Report 7 is required for all applications except those not involving soil disturbance. It must describe the soils that would be affected by the proposed project, the effect on those soils, and measures proposed to minimize or avoid impact. The report should identify the resources used to assess the impact of construction on soils. It should summarize findings in tabular and text form. The report should also clearly identify and discuss any proposed alternatives to our recommended Plan.

4.7.1 Pipeline

Identify the soils that would be affected by the pipeline installation and operations using SSURGO data or NRCS county soil surveys. Appropriate land management or other soil management agencies may also have information. If published soil surveys are unavailable, substitute the best available soils data. Generally, unpublished soils information can be obtained by providing the county NRCS office with maps of the facilities (consult with state offices of the NRCS to determine the names and phone numbers of the appropriate NRCS districts in the project area). Other sources of information include state and county soil maps and other environmental reports in the same general area.

Include a table that lists the physical and interpretive characteristics of each map unit including the map unit symbol and unit name, component name and percentage of unit, percent slope, surface texture, drainage class, permeability, coarse fragment content and depth to bedrock, taxonomic classification, parent material, landform(s), and any other relevant attributes. See table 4.7.1-1 for an example of how this information can be presented.

TABLE 4.7.1-1

Selected Physical and Interpretive Characteristics of the Soil Map Units Within the Project Area

County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture [a]	Drainage Class [b]	Permea-bility [c]	Taxonomic Classification	Parent Material	Landforms
				Low	High						
County A											
2015	Williams-Bowbells loams, 3 to 6 percent slopes	Williams	xx%	x	y	L	W	M	Fine-loamy, mixed, superactive, frigid Typic Argiustolls	Fine-loamy till	Rises/Till Plains
		Bowbells	xx%	x	y	L	MW	M	Fine-loamy, mixed, superactive, frigid Pachic Argiustolls	Fine-loamy till	Rises/Till Plains
2032	Williams-Zahl loams, 6 to 9 percent slopes	Williams	xx%	x	y	L	W	M	Fine-loamy, mixed, superactive, frigid Typic Argiustolls	Fine-loamy till	Knolls/Till Plains
County B											

[a] Surface textures include: silty clay (SIC), clay loam (CL), silty clay loam (SICL), silt loam (SIL), loam (L), fine sandy loam (FSL), sandy loam (SL), gravelly sandy loam (GR-SL), loamy fine sand (LFS), and extremely gravelly loamy coarse sand (GRX-LCOS).

[b] Drainage classes include: very poorly (VP), poorly (P), somewhat poorly (SP), moderately well (MW), well (W), somewhat excessively (SE), and excessively (E) drained.

[c] Permeability rates include: very rapid (VR), rapid (R), moderately rapid (MR), moderate (M), moderately slow (MS), and slow (S).

For offshore pipelines, describe by segment and milepost the physical and chemical characteristics of the sediments that would be disturbed. Specify the data sources used including any vibracoring or other field sampling that was conducted.

4.7.2 Aboveground Facilities

Use photo-based detailed soil unit maps published by SSURGO or other sources to identify and describe the soils at each aboveground facility site. At a minimum, provide this information for sites greater than 5 acres as required by section 380.12(i)(2); however, FERC staff prefer that the information be provided for sites greater than 0.5 acre to assist us in conducting our environmental review. Include the following:

- List the soil series within the property and the percentage of the property composed of each series.
- List the percentage of each series that could be permanently disturbed.
- Describe the characteristic of each soil series.
- Indicate which are classified as prime or unique farmland by the NRCS.

It may be helpful to provide a plot plan showing the area of each soil unit within the boundaries of the site.

4.7.3 Construction/Operation Impacts

Pipelines

Identify and list in tabular format by segment, the mileposts and crossing lengths of each soil unit that would be crossed (see table 4.7.3-1). For each unit on the table, indicate if it is prime or unique farmland, or farmland of statewide importance. Also identify for each soil unit if it is or has:

- highly erodible soils due to water and/or wind;
- prone to soil compaction and damage to soil structure;
- poor revegetation potential;
- potential for the introduction of stones or rock into the topsoil; and
- prone to other types of impacts (if so specify each impact).

Describe the impact on soils and identify soil hazards.

TABLE 4.7.3-1

Soil Characteristics by Milepost Segment for Each Soil Map Unit Along the Proposed Pipeline Route

Milepost		Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland [a] (Y/N)	Hydric Soils [a] (Y/N)	Compaction Prone [b] (Y/N)	Highly Erodible		Revegetation Concerns [e] (Y/N)	Stony/ Rocky [f] (Y/N)	Shallow to Bedrock [g] (Y/N)
Begin	End								Water [c] (Y/N)	Wind [d] (Y/N)			
County A													
County B													

[a] As designated by the Natural Resource Conservation Service.

[b] Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes.

[c] Includes land in capability subclasses 4E through 8E and soils with an average slope greater than or equal to 9 percent.

[d] Includes soils with Wind Erodibility Group classification of one or two.

[e] Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained and soils with an average slope greater than or equal to 9 percent.

[f] Includes soils that have either: 1) a very gravelly, extremely gravelly, cobbley, stony, bouldery, flaggy, or channery modifier to the textural class, or 2) have >5 percent (weight basis) of rock fragments larger than 3 inches in any layer within the profile.

[g] Includes soils that have bedrock within 60 inches of the soil surface. Paralithic refers to "soft" bedrock that will not likely require blasting during construction. Lithic refers to "hard" bedrock that may require blasting or other special construction techniques during installation of the proposed pipeline segments.

Note: Y = Yes; N = No

Some factors that should be considered in determining where there is a severe hazard of erosion include: the capability classification of the soil; slope; runoff factor; permeability; soil texture; and erodibility. The analysis of soil erosion potential should also take into account the proposed season of construction.

The potential for soil compaction is affected by several factors. Some factors that should be considered in determining the areas that are most prone to compaction include the capability classification of the soil; soil hydrology; soil texture; soil drainage; season of construction; flooding frequency and duration; permeability; and the presence and duration of a seasonal high water table.

Rock can be introduced into the topsoil during various construction activities, especially blasting and trenching. Some factors that should be considered in determining where the introduction of rock into the topsoil is likely to be a problem include the capability classification of the soil; depth to bedrock relative to trench depth; the need for blasting versus ripping of bedrock; and the percent of coarse fragments in the soil within trench depth.

Poor revegetation can result from numerous causes. Some factors that should be considered in determining where there is a potential for poor revegetation include capability classification of the soil; topsoil quality; available water capacity; salinity; acidity; and the potential for the project to affect existing soil drainage (including drainage systems).

The acres of each impact should be presented by facility and county in a summary table. Table 4.7.3-2 is an example of how this information can be presented.

Aboveground Facilities

Discuss any soil attributes that may be pertinent to impacts including erodibility, compaction potential, poor revegetation potential, or rock. Quantify the acres of each soil impact with the temporary and permanent footprint of the facility. Indicate which soils on the site are classified as prime farmland, unique farmland, and/or soils of statewide importance, specify if these soils are currently being used for agricultural purposes, and specify the acreage of prime farmland, unique farmland, and/or soils of statewide importance that would be temporarily and permanently disturbed on each site by construction and operation of the facility. Any soils within the fence line of the site should be considered precluded from future agricultural use and therefore permanently disturbed.

TABLE 4.7.3-2

Acres of Soil Characteristics Affected by the Proposed Pipeline [a,b,c]

Facility/County	Total Acres in County	Prime Farmland [d]	Hydric Soils [d]	Compaction Prone [e]	Highly Erodible		Revegetation Concerns [h]	Stony/ Rocky [i]	Shallow to Bedrock [j]
					Water [f]	Wind [g]			
Mainline									
County A									
County B									
Loop A									
County C									
County D									
Total									

[a] The area affected includes the permanent pipeline right-of-way, temporary pipeline right-of-way, and additional temporary workspace. The soils data in the table does not include areas of open water.

[b] The numbers in this table have been rounded for presentation purposes.

[c] The values in each row do not add up to the total acreage for each county because soils may occur in more than one characteristic class or may not occur in any class listed in the table.

[d] As designated by the Natural Resources Conservation Service. Prime farmland does not include those soils that are considered prime if artificial drainage is implemented due to the lack of drain tile use in the project area.

[e] Includes soils in somewhat poor to very poor drainage classes with surface textures of sandy clay loam and finer.

[f] Land in capability subclasses 4E through 8E and soils with an average slope greater than or equal to 9 percent.

[g] Soils with a wind erodibility group (WEG) classification of 1 or 2. Only a single map unit with WEG 2 designation is crossed by the route.

[h] Soils with a surface texture of sandy loam or coarser and are moderately well to excessively drained and soils with an average slope greater than or equal to 9 percent.

[i] This group includes soils with a cobbley, stony, bouldery, shaly, very gravelly, or extremely gravelly modifier to the textural class of the surface layer, have a surface layer that contains greater than 5 percent by weight stones larger than 3 inches, and/or contains a layer in the subsoil meeting one of the preceding criteria.

[j] Soils identified as containing bedrock at a depth of 5 feet or less from the surface, all of which is paralithic and rippable with standard construction equipment.

4.7.4 Consultations

Describe consultations with the local soil conservation authorities and recommendations for seed mixes; seeding dates; application rates for fertilizer and lime; erosion controls; and noxious weed controls.

Include copies of Erosion and Sedimentation Control Plans, Agricultural Impact Mitigation Agreements, and other plans required or recommended by government land management agencies. Also specify special restoration and seeding requirements of government land management agencies.

4.7.5 Mitigation

Provide a copy of the erosion and sediment control and revegetation plan that would be used to construct and operate the facilities. Include a statement that the applicant proposes to adopt the measures contained in our Plan or specify each measure of the Plan that is not recommended or is unnecessary for the project and indicate the alternative measure(s) that would be implemented for each. For any alternative measures proposed, discuss how they would provide an equal or better level of protection to the soil.

Describe the proposed measures to reduce impact on soils. Include a discussion of proposed temporary and permanent erosion and sediment controls such as trench breakers, slope breakers, use of silt fence and straw mulch, etc.; topsoil segregation methods (ditch and spoil side, full right-of-way, or ditch only); measures to avoid compaction such as avoiding working when the soils are excessively wet; measures to restore compacted or rutted soils, particularly in cropland and residential areas; measures to prevent or minimize the introduction of excess rock and/or remove excess rock from soils; measures to improve soil fertility or structure; and measures for the identification, marking, and repair of damaged agricultural irrigation systems and drain tiles. For those projects that would affect highly wind erodible soils, include measures to reduce wind erosion during construction and restoration and to prevent the loss of soil from spoil piles and prevent the mixing of topsoil and subsoil while stored in piles. Also identify measures to control and minimize the spread of invasive species, noxious weeds, and soil pests (or cross-reference to the appropriate section of Resource Report 3 if invasive species or noxious weeds are discussed in that resource report).

If there is a potential for encountering contaminated soils (see section 4.2.2.1 for further discussion about the characterization of contaminated sediments), discuss the procedures that would be followed to identify, handle, temporarily store, and properly dispose of these soils, including dewatering, any additional onsite characterization that would be performed, and precautions for minimizing the exposure of workers and the public. Include any plans developed in consultation with other agencies for handling, treatment, and/or proper disposal of contaminated soils. If contaminated soils are addressed in Resource Report 8, provide the appropriate cross reference.

4.8 RESOURCE REPORT 8 – LAND USE, RECREATION AND AESTHETICS

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Identify all buildings within 50 feet of the construction right-of-way or extra work areas.	A
☐ Describe the management and use of all public lands that would be crossed.	B
☐ Provide a list of landowners by milepost or tract number that corresponds to information on alignment sheets.	I
☐ Provide a site-specific construction plan for residences within 25 feet of construction or as requested by Federal Energy Regulatory Commission staff.	D

[a] A Aerial Photographs; B Agency Consultation; D Applicant; I County/Municipal Agencies

Resource Report 8 is required for all applications except for those proposals involving only facilities that are of comparable use at existing compressor, meter, and regulator stations. This resource report addresses use of all land that would be affected by construction and operation of the project. The report should characterize and quantify affected land; identify affected public lands and designated recreation or other special use areas; summarize consultations with federal, state, and applicable land management agencies; and discuss special construction techniques or other forms of mitigation that would be used to reduce impact during construction and operation of the facilities. In addition, the report should discuss potential visual impacts of constructing and operating the project, including the pipeline corridor and aboveground facilities, on designated scenic rivers, areas, or roads; recreation areas and public lands; and residential areas.

4.8.1 Land Use

For all land affected by construction and operation of the proposed facilities, identify the characteristics of the land based on predominant land use or vegetative cover type as applicable. Quantify impacts on each land use type for each proposed facility. If digital land cover data sources (e.g., the Gap Analysis Projects or the National Land Cover Database) are used to identify land use types, verify these data based on aerial photographs or field reconnaissance. If the land use is characterized by vegetative cover type, coordinate the classification of land use types with wetland impacts presented in Resource Report 2 and vegetation impacts described in Resource Report 3 to ensure consistency. Explain the reason for any differences. Include land affected by the pipeline right-of-way, the aboveground facilities (e.g., LNG facilities, compressor stations, meter stations, pig launchers/receivers, storage wells, or other related facilities), ATWS, staging areas, and pipe or contractor yards. Clearly identify construction impacts and operational impacts. Land use categories may vary depending on the specific project area and should be defined as appropriate.

Typical categories include:

- Agricultural Land – Cultivated or rotated cropland, orchards, vineyards, or hay fields;

- Forest/Woodland – Tracts of upland or wetland forest or woodland that would be removed for the construction right-of-way or ATWS/staging areas (if the project area includes managed tree plantations (e.g. pine plantations), identify them as a separate land use category);

- Rangeland – Non-forested lands used primarily for grazing;

- Open Land – Non-forested lands and scrub-shrub wetlands used for open space or pasture;

- Residential Land – Residential yards, residential subdivisions, and planned new residential developments;

- Industrial/Commercial Land – Electric power or gas utility stations, manufacturing or industrial plants, landfills, mines, quarries, commercial or retail facilities, and roads;

- Open Water – Water crossings greater than 100 feet; and

- Other – Miscellaneous special use areas (e.g., land associated with schools, parks, places of worship, cemeteries, sports facilities, campgrounds, golf courses, ballfields).

4.8.1.1 Pipeline Facilities

Construction and Permanent Rights-of-Way

Identify by milepost the existing land use types crossed by each pipeline segment (i.e. measure the length of each land use category crossed by the pipeline construction right-of-way). Provide a summary table showing the results of the tabulations by pipeline segment, county, and state. Clearly define each land use category as it applies to the project under consideration. Ensure that the sum of the land use crossings for each pipeline segment equals the total length of that pipeline segment. See table 4.8.1-1 for an example of a summary presentation of this information.

TABLE 4.8.1-1

Land Uses Crossed by the Pipelines

Facility/ County, State	Agricultural [a]		Open Land [b]		Forest [c]		Developed [d]		Open Water [e]		Total	
	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)
Mainline												
County A, ST												
County B, ST												
County C, ST												
Subtotal												
Loop A												
County E, ST												
County F, ST												
Subtotal												
Loop B												
County G, ST												
County H, ST												
Subtotal												
TOTAL												

[a] Active cropland.
[b] Herbaceous upland, emergent and scrub-shrub wetland, golf course.
[c] Upland and wetland forest.
[d] Commercial/industrial and residential land.
[e] Water crossings greater than 100 feet wide.

All pipelines and rights-of-way should also be shown on the USGS topographic maps, aerial photographs, or alignment sheets submitted with the application (see section 4.1.1.3 of this manual). Identify by milepost the area of direct effect of each proposed facility and operational site on special land uses. Also identify any public lands or special use areas located within 0.25 mile of any proposed facility.

Identify and describe locations where the temporary construction right-of-way or new permanent pipeline right-of-way would overlap existing utility or transportation corridor rights-of-way. For each of these situations, identify the type of facilities within the existing corridor, and describe the existing right-of-way width, the width of the overlap by the relevant portions of the proposed project, and the approximate number of acres within the overlapped area. Provide a cross reference to the corresponding right-of-way cross section drawing(s) in Resource Report 1.

Quantify the acreage of land affected by construction and operation of the pipeline by land use category using the proposed widths of the construction and permanent rights-of-way for each pipeline segment. The widths used to calculate the acreages should be consistent with the right-of-way configuration(s) presented in the right-of-way cross-section diagram(s). Explain any deviations.

Where the construction right-of-way would be wider than 75 feet, provide justification for the proposed width (e.g., topsoil segregation, steep side slope). Similarly if the permanent right-of-way would be wider than 50 feet for operation of a new pipeline or more than 25 feet for operation of a pipeline loop, provide justification for the wider widths.

Table 4.8.1-2 is an example of a summary presentation of acreage affected by construction and operation of project facilities. Be sure to explain in footnotes to the table or in the text accompanying the table how calculations were made. For example, a segment of a loop may depart from the existing right-of-way and require additional permanent right-of-way. The additional acreage affected by the construction and permanent rights-of-way must be included in the total land requirements section of Resource Report 1. Construction impacts should include all areas of disturbance, including contractor yards, access roads, ATWS, and the operational (permanent) right-of-way. Ensure that any land required for cathodic protection systems is also identified and included in the table.

TABLE 4.8.1-2

Land Uses Affected by Construction and Operation of the Project (in acres) [a,b]

	Agricultural		Open Land		Forest		Pine Plantation		Developed		Open Water		Total	
Facility/County, State	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.
Pipeline Right-of-Way [c]														
County A, ST														
County B, ST														
County C, ST														
County D, ST														
Subtotal														
Additional Temporary Workspaces														
County A, ST														
County B, ST														
County C, ST														
County D, ST														
Subtotal														
Staging Areas														
Staging Area 1														
Staging Areas 2														
Staging Area 3														
Subtotal														
Other Work Areas														
Temporary Access Roads														
Permanent Access Roads														
Subtotal														
Aboveground Facilities														
Compressor Station														
Meter Station														
Block Valve [d]														
Subtotal														
PROJECT TOTAL														

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends in all cases.

[b] Construction and operational impacts are based on a xx-foot-wide construction right-of-way and a xx-foot-wide permanent right-of-way, respectively.

[c] Construction impacts include all impacts during construction, including those within the proposed permanent right-of-way.

[d] The block valve will be constructed within the xx-foot-wide construction right-of-way and operated within the xx-foot-wide permanent easement. No additional land will be required for construction or operation of these facilities.

The text should further describe the land affected and identify the mitigation measures that would be used to reduce impacts from pipeline construction and operation, including but not limited to implementation of our Plan and Procedures (if applicable). The bullets below provide examples of additional information and mitigation measures typically included for each land use category. Adapt as appropriate for project-specific conditions.

- Agricultural Land – Identify typical crops (e.g., corn, wheat, rice) and specialty crops (e.g., orchards, vineyards, hop fields, rice/crawfish fields). Identify specialty crops as well as organic farms and land subject to special techniques such as no-till farming by milepost and by length of crossing. Mitigation of impacts on agricultural land or hay fields may include segregating topsoil or replacing drainage tiles or other structures. Describe the expected typical depth of topsoil segregation through agricultural lands and associated comments from any agencies consulted regarding construction and mitigation in agricultural land. Mitigation for specialty crops may include avoiding them by a route deviation, placing pipe along the edge of orchards and vineyards, reducing the width of the construction right-of-way, or replacing orchard trees or vines. State whether the applicant would compensate landowners for crop loss due to construction activities and/or for reduced yields following construction if applicable.

- Forest/Woodland – Identify by milepost and length of crossing all old growth forest, pine plantations, and forest used for timber, maple sugar, Christmas trees, or other forest production. Mitigation may include avoiding these areas by a route deviation, reducing the width of the construction right-of-way, or replanting. State whether the applicant would compensate landowners for silviculture crop loss if applicable.

- Rangeland – Identify typical use of rangeland including the location by milepost of any sensitive lands (e.g., remnant prairie) or public land used for grazing allotments. Mitigation may include segregating topsoil in arid lands, maintaining fencing or natural barriers along the construction right-of-way during construction, repairing and replacing water supply lines and other structures, or fencing of the right-of-way until revegetation is complete (grazing deferment).

- Open Land – Describe the affected open land (e.g., pasture, open space, herbaceous wetlands) and mitigation measures the applicant would implement for each type of open space land use. In accordance with FERC's Plan, mitigation in managed pastures should include topsoil segregation. See section 4.8.3.1 regarding conservation lands.

- Residential Land – Identify residential yards, residential subdivisions, and planned new residential developments. See section 4.8.2 for discussion of residences and residential land.

- Industrial/Commercial Land – Identify typical use of the industrial or commercial land. Identify by milepost all commercial, industrial, or retail buildings that are within 50 feet of the construction right-of-way. Mitigation for industrial or commercial areas may include limiting the hours of construction or providing alternate access. Mitigation during construction across roads may include timing to avoid hours of peak use, providing alternate access, or boring the road. Mitigation for impacts on other industrial land such as landfills, mines, or quarries should be discussed in Resource Report 6.

- Open Water – Waterbody crossings and associated mitigation should be discussed in detail in Resource Report 2 (see section 4.4.2.2 of this manual). Summarize briefly here, and cross reference to the appropriate sections of Resource Report 2. For offshore facilities, see additional discussion in section 4.8.3.5.

- Other – Identify special use areas by milepost (e.g., land associated with schools, parks, places of worship, cemeteries, sports facilities, race tracks, campgrounds, golf courses, ballfields). See section 4.8.3 for discussion of designated special use areas. Cross reference section 4.8.3 and summarize issues relevant to pipeline facilities here.

Existing Right-of-Way

For all new pipeline right-of-way that would at least partially coincide with or be adjacent to existing utility rights-of-way (e.g., pipeline, power line, road), identify these locations by milepost, county, state, and type of right-of-way. Indicate whether these rights-of-way are held in easements or owned in fee. Also provide the width of the existing right-of-way, if available, how much of that existing right-of-way would be used for construction and new permanent rights-of-way, and the position of the existing right-of-way in relation to the proposed pipeline right-of-way (e.g., east or west side). This information can be summarized as shown in table 4.8.1-3. In addition, provide either in the table or in text the status of negotiations to use the existing utility rights-of-way.

TABLE 4.8.1-3

Existing Rights-of-Way Adjacent to the Pipelines

Milepost Begin	Milepost End	County, State	Type of Right-of-Way	Position related to proposed pipeline	Width of Existing Right-of-Way (feet)	Width used for Construction Right-of-Way (feet)	Width Used for Permanent Right-of-Way (feet)
Mainline							
Loop A							

For looping pipeline, identify by beginning and ending milepost each location where the loop would leave the existing right-of-way. Also identify by beginning and ending milepost any locations where the loop would be more or less than 25 feet from the existing pipeline and, for each of these locations, provide an explanation for increasing or decreasing the separation. See table 4.8.1-4 for an example of a summary presentation of this information.

TABLE 4.8.1-4

Locations Where Loop Would Be More or Less than 25 Feet from the Existing Pipeline

County, State	Mileposts	Total Length (feet)	Maximum Distance between Existing Pipeline and Loop (feet)	Explanation
Loop A				
County A, ST				
County B, ST				
Loop B				
County C, ST				
County D, ST				

Additional Temporary Workspaces (ATWS) and Staging Areas

Identify by milepost and size all other ATWS or staging areas required in addition to the construction right-of-way. These may include ATWS or staging areas at road, railroad, waterbody, or wetland crossings, in areas of steep slope or where blasting is required, or at the beginning and end of a pipeline segment for contractor mobilization/demobilization. Identify the land use category for each ATWS or staging area. Typically, ATWS and staging areas are only affected during construction; however, if any of these areas would be retained for project operations, clearly identify those areas in the text, explain how they would be used during project operations, and include the

appropriate acreage in the operational impacts. Show all ATWS or staging areas on the alignment sheets and aerial photographs submitted with the application.

Calculate the acreage for the portions of these areas that would be affected in addition to the typical construction right-of-way (i.e., do not double count impacts). For example, a road crossing may require a total work area of 200 feet by 200 feet on each side of the road. If the typical construction right-of-way is 75 feet wide, the ATWS would be 125 feet by 200 feet (0.6 acre on each side of the road or a total of 1.2 acres for the crossing). Table 4.8.1-5 shows an example of how these data may be summarized. The total acreage required for ATWS or staging areas for each pipeline segment must be included in the total land requirements section of Resource Report 1.

TABLE 4.8.1-5

Additional Temporary Workspaces or Staging Areas

Milepost	County, State	Reason Needed	Number of ATWS and Dimensions (feet)	Area (acres)	Existing Land Use
Mainline					
Subtotal					
Loop A					
Subtotal					
TOTAL					

Access Roads

Identify all temporary access roads that would be used to obtain access to the right-of-way during construction and all permanent access roads that would be retained for project operation. Include farm lanes, private drives, logging roads, jeep trails, or other roads; indicate their current condition (e.g., graveled, paved, dirt); and state whether they would need to be modified or improved. Do not include existing interstate, state, county, or local roads unless they would need to be modified or improved for project use. Also include new roads that would be created to obtain access to the right-of-way. Identify the location of each of these roads on USGS topographic maps, alignment sheets, and aerial photographs. If not visible on alignment sheets due to the scale and distance, provide separate topographic maps that show the extent of the access roads from where they connect with the right-of-way to their intersection with an interstate, state, county, or

local road. Specify the land use crossed by new access roads or affected by the widening of existing roads.

Identify the length and width of new access roads and the width of existing access roads after any proposed modifications. Describe the types of modifications to be made at existing roads (e.g., widening, grading). State whether the new access roads or modifications would be left after construction is complete and, if not, how the area would be restored. Table 4.8.1-6 is an example of how access road information can be presented.

TABLE 4.8.1-6

Access Roads

Milepost or Facility	Access Road Name	County, ST	Type	Width x Length (feet)	Proposed Modification	Temporary Requirements (acres)	Permanent Requirements (acres)
Temporary Access Roads							
Permanent Access Roads							

Pipe and Contractor Yards

Identify the location, size, and land use of all known pipe and contractor yards and show each yard on USGS topographic maps, alignment sheets, or aerial photographs. Include the distance and direction to the nearest pipeline milepost and the county and state in which each yard is located. Describe the extent of ground disturbance that would take place. Be sure to include total acreage requirements for all pipe and contractor yards in the land requirements section of Resource Report 1.

Estimate yard requirements if pipe and contractor yards have not yet been determined at the time of the application filing. For example, a project consisting of three loops in three locations could be estimated to require three pipe/contractor yards of approximately 5 acres each. Provide this estimated information as part of the initial filing and update it once the location and size of each yard has been determined. Also complete the appropriate biological and culture resource surveys on these areas once they are known and provide the results of those surveys.

4.8.1.2 Aboveground Facilities

Clearly show the location of each new or modified aboveground facility (e.g., LNG facility, compressor station, pig launcher/receiver, block valve, meter station, storage well) on USGS topographic maps, alignment sheets, and aerial photographs. Include mileposts for all facilities along the right-of-way.

For all facilities, except those such as block valves or pig launchers/receivers that would be placed within the permanent pipeline right-of-way, specify the amount of land required and whether the applicant presently owns the land. If the applicant plans to acquire the land, state whether the landowner is agreeable to the sale or lease of the property. Identify all of the aboveground facilities that would be entirely within the permanent right-of-way. If large parcels of land would be associated with a facility, identify the total size of the parcel and what use (e.g., agriculture, open space,) would be made of land not directly or indirectly affected by construction and operation of the facility. For each facility, identify the acreage of each land use type (e.g., agriculture, open land, forest, industrial) that would be affected by facility construction and operation. For a compressor station site, identify how much land surrounding the site would be held as a buffer, and what the land use would be for the buffer following construction.

See table 4.8.1-2 above for an example of how land use affected by aboveground facilities can be presented. Alternatively, this information could be provided in a separate but similar table. Additionally, be sure to include the total acreage of land affected for each aboveground facility in the land requirements section of Resource Report 1.

4.8.1.3 Facility Abandonment/Replacement

Describe the approximate age of pipeline proposed to be abandoned, and, identify by milepost the segments that would be abandoned in place and the segments that would be removed and why the particular method was chosen. Also describe any segments that would be abandoned by sale (i.e., being sold to another entity for use either as a continued natural gas pipeline, for transport of other materials, or for salvage by another party). Describe in Resource Report 1 any nonjurisdictional activities or facilities associated with abandonment by sale.

Identify by milepost the locations that would be disturbed to remove, cut, or cap the pipe. Also, discuss the feasibility of removing segments of the abandoned pipeline at waterbodies, wetlands, and residential areas. In residential areas, consult with the landowners to determine whether they prefer removal or abandonment in place. Explain whether the right-of-way easement would revert to the landowner or continue to be maintained by the applicant.

For pipelines that would be removed and replaced, specify if the replacement pipeline would be placed in the same trench as the abandoned pipeline. If not, explain why and describe the sequence of removal and replacement activities.

For aboveground facilities (e.g., block valves, compressors, buildings, tanks), describe how the facilities and other structures on the site would be abandoned or removed and how the disturbed areas would be restored to previous land use. If there are hazardous materials at the site, discuss how these would be handled and disposed of.

For all facilities that would be abandoned or replaced, quantify the amount and type of land affected. Describe the type of pipeline coating on the pipeline and fixtures being abandoned and state whether it contains asbestos. If the coating does contain asbestos, describe the procedures to remove and dispose of the coating, procedures to ensure worker health and safety, and how abandonment activities would comply with the Toxic Substances Control Act (TSCA). Also see section 4.12 of this manual regarding Resource Report 12, which addresses requirements related to potential PCB contamination.

4.8.2 Residential Areas

4.8.2.1 Planned Residential and Commercial Areas

Consult with county and local planning agencies to identify all planned residential or commercial/business developments and subdivisions that would be crossed by or within 0.25 mile of the construction work area(s). Planned development means any development that is included in a master plan or is on file with the local planning board or the county. For each planned residential or commercial/business development, provide the status of permitting (i.e., whether approved or under review by the local municipality), the timeframe for development and start of construction, and proposed coordination with the developer or other appropriate parties to avoid impact on plotted land parcels. Mitigation measures may include avoiding planned development by a route deviation, placing the pipeline along property lines, or purchasing lot(s).

4.8.2.2 Existing Residences and Buildings

Identify by milepost each residence or building that would be within 50 feet of the edge of the construction right-of-way, ATWS, or staging area(s) (i.e., the construction work area). Provide the distance in feet between the residence and the construction work area and the distance in feet between the residence and the pipeline centerline. Describe proposed measures to minimize construction impacts in residential areas, including:

- how and when landowners would be notified of construction activities;

- how access and traffic flow would be maintained during construction activities, particularly for emergency vehicles;

- how the hazard of open trenches would be minimized when construction activities are not in progress;

- how noise impacts on the residents would be minimized (e.g., limiting speeds and hours of construction); and

- how fugitive dust from construction activities would be minimized (this can be a brief summary, with a cross reference to the appropriate section of Resource Report 9).

In addition, adopt the mitigation measures below, or discuss why they are not adopted, for all residences within 50 feet of the construction work area:

- Do not remove mature trees and landscaping from within the edge of the construction work area unless necessary for the safe operation of construction equipment or as specified in landowner agreements.

- Restore all lawn areas and landscaping within the construction work area immediately after cleanup operations, or as specified in landowner agreements, consistent with the requirements of the Plan.

- Install safety fence along the edge of the construction work area adjacent to the residence for a distance of 100 feet on either side of the residence to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area.

- Maintain fencing, at a minimum, throughout active construction in the area.

- Maintain a minimum of 25 feet between the residence and the construction work area for a distance of 100 feet on either side of the residence (i.e., reduce the construction work area as necessary to maintain the minimum distance).

If a minimum of 25 feet cannot be maintained between a residence and the construction work area, or if a residence is within the construction work area, include a site-specific plan. In some cases, FERC staff may request additional site-specific residential construction plans for residences farther from the construction area. Each site-specific plan should describe the construction techniques that would be used (e.g., reduced pipeline separation, centerline adjustment, use of stove-pipe or drag-section techniques, working over existing pipelines, pipeline crossover, bore) and include a

dimensional site plan showing, at a minimum, the location and distance of the residence in relation to:

- the new pipeline and, where appropriate, the existing pipelines or other utilities;
- the boundaries of the construction work areas;
- the edge of the new permanent right-of-way; and
- other nearby residences, structures, roads, wetlands, waterbodies, or residential features (e.g., specimen trees, gardens, decks, pools, swing sets, fences, driveways).

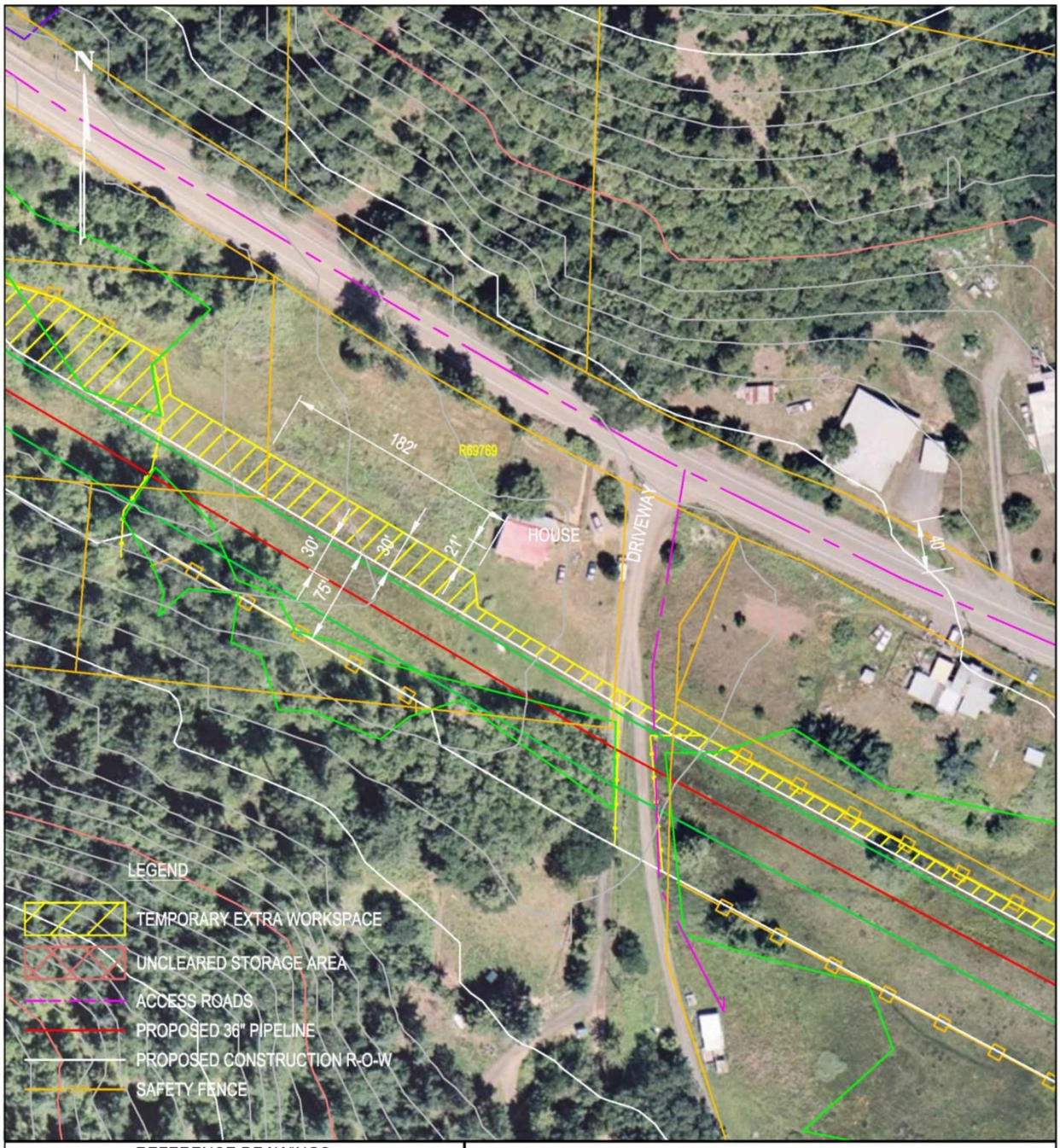
If the pipeline centerline would be within 25 feet of a residence, explain how the applicant would ensure that the trench is not excavated until the pipe is ready for installation and that the trench is backfilled immediately after pipe installation. If the construction work area is within 10 feet of a residence, provide evidence of landowner concurrence unless the construction work area is part of the existing maintained right-of-way.

Table 4.8.2-1 is an example of a listing of residences within 50 feet of the construction work area and identified mitigation techniques. Figure 4.8.2-1 is an example of a site-specific plan. If the proposed mitigation for residences within 50 feet of the construction work area would not include the measures listed above, then identify alternate mitigation that would provide an equal level of protection from construction disturbance.

TABLE 4.8.2-1

Residences Within 50 Feet of Construction Work Area and Proposed Mitigation

Milepost	County, State	Distance from Construction Work Area (feet)	Distance from Pipeline Centerline (feet)	Proposed Mitigation
Mainline				
Loop A				



REFERENCE DRAWINGS	
DRAWING NO.	TITLE

XYZ Project
Figure 4.8.2-1
Site-specific Residential Plan

REVISIONS						
NO.	DATE		DESCRIPTION	W.O. NO.	CHK.	APP.
A	MAY 2013		PRELIMINARY			

DRAWN BY:	DATE: MAY 2013	ISSUED FOR BID:	SCALE: 1" = 100'
CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
APPROVED BY:	DATE:	DRAWING NUMBER: 3430.33-X-0014	SHEET 1 OF 1

4.8.3 Public Land, Recreation, and Other Designated Areas

4.8.3.1 Public or Conservation Land

Identify by beginning and ending mileposts and length of crossing all land administered by federal, state, county, or local agencies, or private conservation agencies. These may include national or state parks and forests, Indian reservations, wilderness areas, wildlife management areas, nature preserves, national trails, registered natural landmarks, flood control land, levee crossings, etc. For each area affected, identify the primary uses, peak use periods, and any seasonal restrictions.

For public lands, including national forests, state forests, and other lands owned or managed by state or federal agencies, summarize the status of applicable special-use permits or right-of-way grants and describe proposed mitigation measures, or those that have been identified by the land management agency, to resolve specific agency concerns. Address mitigation for public land that may include avoiding especially sensitive areas by route deviations, reducing construction and permanent right-of-way requirements, selectively removing trees, replanting trees or shrubs within the temporary construction right-of-way, timing construction to occur during low use or low impact periods, or using special restoration practices. In forested areas or areas where off-road vehicle traffic is a concern, address whether off-road vehicle controls would be installed and maintained.

If levee crossings are proposed, identify the locations of these crossings and describe the proposed construction methods and mitigation measures. Identify the agencies or entities from which permits or authorizations would be required for levee crossings (e.g., levee districts, levee boards, COE, or others as applicable).

For any conservation lands crossed, such as FWS conservation easements or lands enrolled in the Conservation Reserve Program, Wetland Reserve Program, Wetland Reserve Easements, or other Agricultural Conservation Easement Program (ACEP) programs, consult with the appropriate federal and state agencies and the landowner to determine whether construction would affect the program status of the land or if special construction or revegetation techniques should be used, and to identify applicable permits or agreements required to construct the project facilities across these lands (e.g., compatible use permits, subordination agreements). Provide copies of all relevant correspondence, and include in the permit table provided in Resource Report 1 the permits and authorizations required for crossing conservation easements.

4.8.3.2 Natural, Recreational, or Scenic Areas

Identify by beginning and ending mileposts and length of crossing all natural, recreational, or scenic areas, and all registered natural landmarks crossed by the project. Identify any areas crossed by or within 0.25 mile of the proposed pipeline or aboveground facility sites that are included in or designated for study for inclusion in the National Wild and Scenic Rivers System, the National Trails System, or wilderness areas designated under the Wilderness Act. Consult with the National Park Service or other applicable federal agency and provide copies of relevant correspondence. Also identify land of local historical or cultural significance (e.g., religious sites, historic districts) and cross reference as appropriate to Resource Report 4.

4.8.3.3 Agency and Landowner Consultation

Identify public, recreation, or other designated special use areas during map and field review and through consultations with federal, state, county, and local agencies.

Consulting agencies early is essential to accurately identify use, concerns, and potential impact on these lands from pipeline or aboveground facility construction. Also contact landowners of campgrounds, golf courses, race tracks, and other recreational areas to identify constraints that may be associated with construction across these areas.

Table 4.8.3-1 is a checklist of typical agency/landowner contacts applicants may consult with to identify potential constraints associated with pipeline construction across public or special use areas. Because governmental structure varies from state to state, the checklist provides a general list of jurisdictional entities but does not represent land management in every state.

Record agency and landowner communications by letter and/or telephone/conference memoranda and include documentation with the application. Include a list of each agency and department contacted, the name and title of the person contacted, the telephone number, and the date on which the contact was made. Use agency and landowner contacts to determine or confirm the exact location of land directly affected by construction of the facilities, as well as any special concerns or constraints that may be associated with construction.

Summaries of meetings with agencies and open houses held with landowners are also useful to assist FERC staff in conducting our review.

TABLE 4.8.3-1

Agency/Landowner Contacts

Jurisdiction	Agency/Landowner	Land Affected
Federal	U.S. Army Corps of Engineers	-Flood control and flood storage land
	U.S. Environmental Protection Agency	-Hazardous waste sites
	U.S. Department of the Interior	-National Wildlife Refuges
	U.S. Fish and Wildlife Service	-Designated critical habitat -Conservation easements
	Bureau of Land Management	-Public land -National monuments -National conservation areas -Wilderness and wilderness study areas -Area of Critical Environmental Concern -Research natural areas -National recreation areas -Other management units/areas identified in an applicable Resource Management Plan
	Bureau of Indian Affairs	-Indian Reservation lands
	National Park Service	-National parks -National Wild and Scenic Rivers (designated and proposed) -National Trail system (including Appalachian Trail) -National Natural landmarks -National monuments -National preserves and reserves -National lakeshores and seashores -National historic sites -National recreation areas -Wilderness and wilderness study areas
	U.S. Department of Agriculture, Natural Resources Conservation Service	-Conservation Reserve Program lands -Agricultural Conservation Easement Program lands -Wetland Reserve Program lands -Wetland Reserve Easements
	U.S. Forest Service	-National forests -National recreation areas -National monuments -Wilderness and wilderness study areas -National scenic areas -National scenic research areas -National management emphasis areas -Other management units/areas identified in an applicable Land and Resource Management Plan
	U.S. Department of Commerce, National Marine Fisheries Service	-Essential Fish Habitat -Designated critical habitat
State	Department of Environmental Management /Division of Natural Resources, or equivalent	-State forests and parks -Coastal Zone Management compliance -Designated recreation areas/trails -Scenic roads -State wild and scenic rivers -Designated open land
	Game and Fish Commissions	-Game management areas

TABLE 4.8.3-1 (cont'd)

Agency/Landowner Contacts

Jurisdiction	Agency/Landowner	Land Affected
County/Town	Planning Commissions	-Proposed residential/commercial developments -Open space/natural areas -Locally significant roads, scenic areas, or rivers -Schools, parks, ballfields, trails
	Levee Commission	-Flood control levees and structures
Other	Landowners	-Campgrounds -Landfills -Golf courses -Race tracks -Airfields

4.8.3.4 Impact and Mitigation

List each identified public, recreation, or other designated special use area by milepost, crossing length, and acreage affected. See table 4.8.3-2 for an example of a summary presentation. Also provide maps depicting these areas in relation to the project. Describe each area and exactly what portion of that area would be directly affected by construction. For example, if the proposed facilities would cross a state forest, identify the agency that administers the forest, the total acreage of land encompassed, and the predominant use of the land (e.g., wildlife management, wilderness, timber, recreation). Then, identify the specific resource area within the state forest that construction would affect (for example, the area adjacent to existing right-of-way within a wildlife management area). In some cases, FERC staff and/or the administering agencies may require site-specific construction plans for construction within or near public, recreational, or special use areas.

TABLE 4.8.3-2

Public Land and Designated Recreation Areas, Scenic Areas, or Other Special Use Areas Crossed by Construction Right-of-Way

Facility/Mileposts	County, State	Name	Crossing Length	Acreage Affected by Construction
Mainline				
Loop A				

Crossings of scenic rivers and national trails should be avoided if practicable. Where crossings are proposed, the applicant should consult early with the National Park Service or other appropriate agency and provide associated documentation. Address avoidance, minimization, and/or mitigation developed in coordination with the

appropriate agency, which may include special construction techniques (e.g., boring, HDD), screen plantings, installing off-road vehicle barriers, timing construction to minimize impacts on users, and maintaining access throughout the construction period. As appropriate, identify plans for notifying the public, posting signage, identifying portage routes, etc.

Also address mitigation measures for other designated areas such as campgrounds, golf courses, race tracks, etc. Such measures may include construction during the off season or completing activities within the area as expeditiously as possible. Avoid construction through landfills and hazardous waste sites. Where construction would occur within or immediately adjacent to a landfill or hazardous waste site, provide documentation that construction would not occur within contaminated areas or contaminated groundwater plumes.

For offshore facilities, identify shipping channels, shellfish beds, or other specific uses that may be affected by construction and operation of the facilities. Consult with the Bureau of Ocean Energy Management, Regulation and Enforcement; the Coast Guard, and NOAA Fisheries. Address mitigation that is proposed to minimize or reduce impacts.

4.8.4 Contaminated or Hazardous Waste Sites

Identify and describe lands crossed or within 0.25 mile of project facilities that are known contaminated areas or are used for landfills, hazardous waste sites, quarries, mines, or other special use areas. Describe any discussions with landowners and agencies to identify special construction techniques and mitigation measures to be implemented in these areas. To the extent that some of these areas are discussed in more detail in Resource Reports 2, 6, 7, or 12, cross reference to the appropriate sections of those resource reports.

4.8.5 Coastal Zone Management Areas

Identify all facilities that would be within designated coastal zone management areas. Provide a consistency determination or evidence that a request for a consistency determination has been filed with the state's coastal zone management program. This evidence is required at the time of application. If the state wants the applicant to defer the filing of the request until a later date, provide correspondence between the applicant and the state to that effect and a state contact with whom FERC staff can consult. The coastal zone consistency determination process requires adequate lead time and, in our experience, can be confusing for applicants. Therefore, we advise early consultation with FERC staff and the applicable state agency.

4.8.6 Visual Resources

The extent of the discussion on visual resources depends on the proximity of the project facilities to visually sensitive areas and residential areas. Visually sensitive areas,

which may include scenic roads, rivers, and trails, may be designated at the federal, state, or local level and should be identified during agency consultations. Visual classification systems have been developed at the federal level by the Bureau of Land Management and U.S. Forest Service and at some state levels to rank the scenic quality of various landscapes. Use these systems where appropriate to quantify the potential visual impact of pipeline or aboveground facility construction on a given scenic area. Visual impacts on areas such as historic districts, traditional cultural properties, and places listed on, or eligible for listing on, the NRHP should be addressed in Resource Report 4.

For all designated or sensitive scenic areas, describe mitigation proposed to reduce visual impact. Mitigation for pipeline construction may include avoiding areas of high visibility with route deviations, clearing the right-of-way in forested areas in a feathered pattern (i.e., not in a straight line), and planting shrubs and small trees within the right-of-way. Mitigation for aboveground facilities, such as compressor stations, may include siting the facility to avoid proximity to visually sensitive areas, painting the facility with colors that would harmonize with the landscape, building facades consistent with agricultural buildings in the area, or doing effective landscape restoration, including screening the facility with shrubs and trees. Part (e) of section 380.15 (siting and maintenance requirements) provides additional information regarding avoidance and minimization of impacts on visually sensitive resources. In considering visual impacts for LNG facilities, also identify impacts associated with LNG vessels transiting to and from the facility, as well as flares and lighting. While mitigation of visual impacts from LNG vessels may not be possible, identify the impacts on surrounding recreational or residential areas to allow for a complete environmental review.

4.8.7 Applications for Rights-of-Way and Other Land Use

Document that applications for rights-of-way or other proposed land use have been or will soon be filed with federal land-managing agencies with jurisdiction over land that would be affected by the project. File these related applications by the time of filing an application with FERC. If the other applications have not been filed, the FERC application must identify the timeframe in which the related applications will be made to the appropriate agencies. Failure to file the related applications shortly after filing with FERC could result in rejection of the application.

4.9 RESOURCE REPORT 9 – AIR AND NOISE QUALITY

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
Air Quality Information (see further discussion below)	
☐ Include climate information as part of the air quality information provided for the project area.	D, EE
☐ Identify potentially applicable federal and state air quality regulations.	J, EE
☐ Provide construction emissions (criteria pollutants, hazardous air pollutants, greenhouse gases) for proposed pipelines and aboveground facilities	D, R
☐ Provide copies of state and federal applications for air permits.	D
☐ Provide operational and fugitive emissions (criteria pollutants, hazardous air pollutants, greenhouse gases) for pipelines and aboveground facilities.	D, R
☐ Provide air quality modeling for entire compressor stations.	D
☐ Identify temporary and permanent emissions sources that may have cumulative air quality effects in addition to those resulting from the project.	D
Noise and Vibration (see further discussion below)	
☐ Describe the existing noise environment and ambient noise surveys for compressor stations, liquefied natural gas facilities, meter and regulation facilities, and drilling locations.	D, U
☐ Identify any state or local noise regulations applicable to construction and operation of the project	D, EE
☐ Indicate whether construction activities would occur over 24-hour periods.	D
☐ Discuss construction noise impacts and quantify construction noise impacts from drilling, pile driving, dredging, etc.	D, R
☐ Quantify operational noise from aboveground facilities, including blowdowns	D, R
☐ Describe the potential for the operation of the proposed facilities to result in an increase in perceptible vibration and how this would be prevented.	D, R
☐ Identify temporary and permanent noise sources that may have cumulative noise effects in addition to those resulting from the project.	D, R

[a] D Applicant; J U.S. Environmental Protection Agency; R Manufacturer's Data; U Noise Survey; EE State Air Quality Agency

Resource Report 9 is required by regulation for applications involving compressor facilities at new or existing stations, and for all new LNG facilities. However, we recommend that applicants file this resource report for all projects in order to allow FERC staff to conduct a thorough environmental review under NEPA, including assessment of air, noise, and vibration impacts from construction activities (e.g., air emissions from construction equipment exhaust, fugitive dust emissions, general conformity applicability, noise and vibration from construction equipment, HDD/drilling operations), operational fugitive gas emissions, and operational air and noise impacts for project facilities. Omission of this information may affect the timely advancement of the applicant's desired schedule.

Wherever possible, this report should quantify the impacts of the project on the existing air and noise environment and describe any proposed measures to mitigate those impacts. The resource report should present short-term (acute) and long-term (chronic)

impacts of operation of any new facilities (compressor stations, LNG facilities, storage facilities, meter stations, etc.), as well as additions or modifications to existing facilities.

The applicant should demonstrate that pollutant emissions from proposed emission-generating units meet all applicable federal Clean Air Act provisions and permit requirements (New Source Performance Standards, PSD, National Emission Standards for Hazardous Air Pollutants, and Title V), and show compliance with the National Ambient Air Quality Standards (NAAQS), state implementation plans (SIP), General Conformity, and/or state standards and permits as applicable.

Impacts on the noise environment can result from both construction and operation of natural gas pipeline facilities and LNG facilities. Two measures to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} is the L_{eq} plus 10 decibels on the A-weighted scale (dBA) added to account for people's greater sensitivity to nighttime sound levels (between the hours of 10 p.m. and 7 a.m.). The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise.

In 1974, the EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA determined that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity noise interference. The Commission's regulations require that a new compressor station not exceed this level at receptors known as NSAs. An L_{dn} of 55 dBA is equivalent to a continuous noise level of 48.6 dBA. For comparison, normal speech at a distance of 3 feet averages 60 to 70 dBA L_{eq}. Also, the Commission, under 380.12(k)(v)(B), requires that operation of compressor stations not result in any perceptible increase in vibration.

Examples of NSAs include residences, schools and day-care facilities, hospitals, long-term care facilities, places of worship, libraries, parks, and wilderness areas and recreational areas valued specifically for their solitude and tranquility. In general, applicants should demonstrate that operation of the proposed facilities meet an L_{dn} of 55 dBA at the nearest NSAs.

In addition to operational noise requirements, quantify the noise impacts from moderate- to long-term construction operations such as well drilling, HDD, dredging, pile driving, etc.

For existing compressor stations and LNG facilities, identify the docket number in which the Commission initially authorized the facilities, as well as all subsequent modifications.

4.9.1 Air Quality

4.9.1.1 Existing Air Quality

Provide a general description of climate conditions in the project area, with representative climate data including average low and high temperatures during various seasons, average precipitation and type, wind conditions and directions, and the air quality control region(s).

Describe the existing air quality in the vicinity of the project, including attainment/nonattainment/maintenance status, by designated area (county, air quality control district, etc.) for all criteria pollutants,[14] and identify any federal Class I areas within 100 kilometers. Provide the background levels of nitrogen dioxide (NO_2) and other criteria pollutants. Identify monitoring stations from which information was obtained and identify the criteria pollutant(s) each station measures, the owner/controller, station number, location, and land use in the area (rural, suburban, urban). Provide any other relevant information to justify the use of the monitoring station.

4.9.1.2 Regulatory Requirements

Identify and describe federal, state, and local air quality regulations and air quality permits that would apply or be required for construction activities and the equipment to be installed at the proposed project facilities. Explain why the proposed project facilities would or would not be subject to each regulation. Include a discussion of the Greenhouse Gas (GHG) Reporting Rule, and how the applicant would comply with this rule if applicable. Provide copies of any federal or state air quality permit application, and the final permit when it is available.

Demonstrate that Class I areas within 100 kilometers would not be adversely affected by compressor stations or LNG facilities subject to PSD permitting. If the project would be subject to PSD review or if the applicant has received or anticipates comments (e.g., from the public or land managing agencies) regarding impacts on Class I areas, we recommend that applicants use the Federal Land Manager's Air Quality

[14] Criteria pollutants are: carbon monoxide (CO), oxides of nitrogen (NO_2 and NO_x), sulfur dioxide (SO_2), respirable and fine particulate matter (particulate matter with an aerodynamic diameter less than or equal 10 microns [PM_{10}] and less than or equal to 2.5 microns [$PM_{2.5}$]), and airborne lead (Pb).

Related Values Work Group (FLAG) Phase I Report – Revised (2010). Include any copies of correspondence with the federal land manager regarding air quality impacts from the facilities.

Provide a comparison of project-related direct and indirect emissions with General Conformity (40 CFR 93.153) applicability thresholds if the project would be within a nonattainment or maintenance area for the NAAQS. Include all construction emissions and those operational emissions not covered under a major or minor New Source Review Permit. Emissions considered should include construction equipment, marine deliveries, vehicle emissions on paved and unpaved roads, fugitive dust, commuter emissions, pipeline fugitives (volatile organic compounds [VOC]), etc. If the project would exceed the General Conformity applicability thresholds, provide construction emission estimates using the latest EPA approved model. The applicant should indicate how it would demonstrate conformance with the applicable SIPs in accordance with 40 CFR 93.158. The documentation should address each regulatory criterion listed in Part 93.158, provide a detailed explanation as to whether the project would meet each requirement, and for each criterion being satisfied, provide supporting information on how the project would comply. Also include any correspondence with the state or EPA Regional Office.

4.9.1.3 Air Quality Impacts

We require a complete understanding of all the emissions from the project to properly assess the impacts on local and regional air quality.

Construction Impacts and Mitigation

Provide estimated emissions of criteria pollutants, VOCs, total hazardous air pollutants (HAP), and GHG[15] in tons per year resulting from the construction of the proposed project. This includes pipelines (greater than 5 miles in length or any length in nonattainment/maintenance areas), compressor stations, LNG facilities, and other aboveground facilities. Include emissions from activities such as site grading, excavation, trenching, pile-driving, HDD operations, filling, demolition, pipe removal, drilling activities, delivery vehicles, delivery barge emissions, dredging, fugitive dust, clean/pigging activities, open burning, and tailpipe emissions from construction equipment and worker commuting. Identify the emissions by calendar year based on the construction schedule. Include supporting calculations, emission factors, fuel consumption rates, vehicle power ratings, utilization rates, and hours of operation. Provide detailed construction emissions calculations in an appendix to Resource

[15] GHG emissions should also include changes in carbon storage due to land use changes as described in the CEQ's *Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts* issued on December 18, 2014, or most current version.

Report 9. Include a summary table in the text portion of the resource report similar to table 4.9.1-1, adapted as appropriate to the project. Provide a separate table(s) identifying emissions for each nonattainment area.

TABLE 4.9.1-1

Construction Emissions (Year 1–Year 2)
(tons per year)

Construction Activity	NO_X	SO_2	CO	PM_{10}	$PM_{2.5}$	VOC	CO_2e	Total HAPs
Pipeline Construction								
Commuter transit								
On-road vehicles								
Off-road equipment								
Open burning								
Fugitive dust								
Subtotal								
Compressor Station Construction								
Commuter transit								
On-road vehicles								
Off-road equipment								
Open burning								
Fugitive dust								
Subtotal								
Project Total								

Notes:

CO = carbon monoxide
CO_2e = carbon dioxide equivalent
HAP = hazardous air pollutant
NO_X = nitrogen oxides
$PM_{2.5}$ = fine particulate matter with an aerodynamic diameter less than or equal 2.5 microns
PM_{10} = fine particulate matter with an aerodynamic diameter less than or equal 10 microns
SO_2 = sulfur dioxide
VOC = volatile organic compound

Describe proposed mitigation measures to minimize construction emissions. Examples of measures to minimize emissions from construction equipment include the use of low-sulfur diesel fuel, limiting equipment idling, using newer fleets, maintaining equipment, and complying with EPA mobile source emissions performance standards, etc. If open burning would be used to dispose of brush, slash, or other materials generated from construction activities, identify applicable state or local regulations and describe how compliance would be achieved.

Identify procedures that would be used to mitigate fugitive dust emissions, including measures to reduce emissions of particulate matter with an aerodynamic diameter less than or equal 10 microns and less than or equal to 2.5 microns. For larger projects, or projects located in particulate matter nonattainment or maintenance areas, provide a fugitive dust control plan. Identify the mitigative measures that the applicant commits to implementing, for example, spraying water on disturbed areas; stabilizing unpaved access roads with non-toxic soil stabilizers or weighting agents; limiting vehicle speeds; covering, seeding, or treating spoil piles with dust suppressant if they will remain

inactive for extended periods of time or are subject to windy conditions; and using rock access pads to prevent vehicle tires from tracking soil onto paved roads. Be specific when describing these measures (e.g., identify the speed limit, size/location of gravel pads, and other details).

Calculations for construction emissions should be undertaken using the following EPA modeling and data resources in order of precision: (1) Motor Vehicle Emission Simulator (MOVES), (2) NONROAD model, and (3) AP-42, Compilation of Air Pollutant Emission Factors. Guidance for using each of these is available on the EPA website.

If the project would involve the abandonment and removal of any facilities, discuss the potential for asbestos to be encountered, and how it would be handled, managed, and disposed of to prevent adverse air quality impacts. If this is discussed in the contaminated and hazardous waste section of Resource Report 8 (see section 4.8.3.3 of this manual), provide the appropriate cross reference.

Operation Impacts and Mitigation

The goal of this section is to ensure that all operation emissions of criteria pollutants (except lead), speciated HAPs, and GHG are quantified, and concentrations of criteria pollutants are identified and compared to the NAAQS.

Aboveground Facilities

Describe all emission-generating equipment to be installed at new or modified compressor stations, LNG facilities, storage facilities, meter stations, or other emission-generating facilities. Indicate the make, model number, fuel type, fuel consumption rate, load factor, hours of operation, and emission factors (for criteria pollutants, HAPS, and GHG) for each equipment source at the facility.

Indicate the emissions of criteria pollutants (except lead), HAPs, and GHG from each source in tons per year and grams per second for maximum operating conditions. Sources may include heaters, boilers, turbines, generators, reciprocating engines, dehydrators, relief valves, flares, oxidizers, submerged combustion vaporizers, firewater pumps, tank emissions, other fugitive emissions, and unloading/loading emissions. Provide the above-referenced information for mobile operational emissions, including marine vessel equipment and propulsion. Marine vessel emissions should be provided within state designated waters. In addition, ensure that the fugitive gas emissions from each compressor station, LNG facility, or storage facility are quantified in tons per year as methane and as GHGs in carbon dioxide equivalents (CO_2e). Provide detailed information in an appendix, and summarize this information as shown in table 4.9.1-2 or a similar table as appropriate for the project. Speciated HAPs should be a separate table.

TABLE 4.9.1-2

Operational Emissions Summary (tons per year)

Facility	NO_X	SO_2	CO	PM_{10}	$PM_{2.5}$	VOC	Total HAPs	CO_2e
Compressor Station 1								
Compressor Station 2								
Meter Station 1 (with heaters)								
Meter Station 2 (no heaters)								
Pipeline (including valves)								

Notes:

CO = carbon monoxide
CO_2e = carbon dioxide equivalent
HAP = hazardous air pollutant
NO_X = nitrogen oxides
$PM_{2.5}$ = fine particulate matter with an aerodynamic diameter less than or equal 2.5 microns
PM_{10} = fine particulate matter with an aerodynamic diameter less than or equal 10 microns
SO_2 = sulfur dioxide
VOC = volatile organic compound

Indicate whether any blowdown facilities would be installed. If so, describe the expected types (e.g., individual unit, full station, capped) and frequency of blowdowns, estimate the average number of yearly releases by type, and the amount of gas released per event type quantified in tons as methane and as GHGs in CO_2e.

GHG emissions should be given as carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), and combined as CO_2e. The Global Warming Potential to be used should be the most recent value used by the EPA for its GHG Reporting rule.

Emission Factors should be based on either: (1) manufacturer data, (2) current EPA AP-42, or (3) peer reviewed studies for the equipment.

For new compressor stations or storage facilities, provide an air quality analysis demonstrating that emissions of criteria pollutants would not result in exceedance of the NAAQS or applicable state standards. Include all input parameters (emission rate, stack height, stack temperature, exit velocity, etc.) and justify the bases for any assumptions. For any facility requiring refined modeling (using AERMOD or EPA-approved alternative), provide the modeling protocol, the specific model number, a narrative describing and justifying the modeling basis for all inputs (meteorological data, source information, building information, terrain data), and all input and output files.

If the project involves modification of an existing compressor station (e.g., adding or replacing compressor units), the air quality analysis should demonstrate that the incremental increase in emissions of criteria pollutants does not result in local exceedance of the NAAQS or applicable state standards. The modeling report should:

- identify existing emission rates of criteria pollutants from the station;

- identify proposed emission rates of criteria pollutants from the station following the modification; and

- provide modeling output data showing maximum impacts outside the fenceline (the EPA-defined ambient air boundary), and at sensitive receptors in the area (schools, hospitals, nursing homes, etc.).

For any mitigation measures or air pollution control equipment, provide data to justify control efficiency.

For projects involving the construction of new compressor stations that would include gas-fired turbines, discuss the feasibility of using electric-motor-driven compressors. As part of this discussion, identify the power required and the number of electric motors that would be required. Compare the size of the electric transmission line necessary under the current proposal with what would be required for the electric motors. If preferred, this information may be included in Resource Report 10 and cross referenced as appropriate.

For proposed LNG facilities, provide an AERMOD or alternative EPA-approved air quality modeling analysis for criteria pollutants from the LNG facility. The analysis should:

- ensure that all emissions from the facility are reflected in the air quality model inputs;

- include mobile ship emissions (LNG carrier, tugs, escort vessels) for the air quality model for the moored safety zone. This should have three scenarios:

    - transiting through the moored safety zone;
    - hoteling within the moored safety zone; and
    - unloading/loading within the moored safety zone;

- provide the modeling protocol, a narrative describing and justifying the modeling basis, all inputs (meteorological data, terrain data); and

- provide the detailed graphical input/output files showing impacts on ambient air quality from the facility.

In addition to providing the results of the air quality analyses (typically provided as appendices to Resource Report 9 due to the length), summarize the results of the air quality analyses in tables within the text. Table 4.9.1-3 is an example of how this information could be presented.

TABLE 4.9.1-3

Compressor Station ABC AERSCREEN Modeling Results

Pollutant	Averaging Period	Maximum Combined Model Concentration (µg/m^3)	Ambient Background (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)
CO	1-Hour				
	8-Hour				
NO_2	1-Hour				
	Annual				
$PM_{2.5}$	24-Hour				
	Annual				
PM_{10}	24-Hour				
SO_2	1-Hour				

Notes:

µg/m^3 = microgram per cubic meter
CO = carbon monoxide
NO_2 = nitrogen dioxide
$PM_{2.5}$ = fine particulate matter with an aerodynamic diameter less than or equal 2.5 microns
PM_{10} = fine particulate matter with an aerodynamic diameter less than or equal 10 microns
SO_2 = sulfur dioxide

Pipeline Facilities Operational Emissions

Provide operational methane, GHGs in CO_2e, VOC and HAP emission estimates associated with fugitive gas releases from the pipeline, valves, meter stations, regulation facilities, and pig launcher/receivers along the pipeline, quantified in tons per year. Include supporting calculations, and describe all assumptions.

4.9.2 Noise Quality and Vibration

4.9.2.1 Existing Noise Levels

Identify on the plot plans (scale 1:3,600 or greater) provided in Resource Report 1 or in separate graphics provided with this resource report (preferably USGS topographic maps or aerial photos at a scale that clearly depicts the relevant features) the locations of existing and proposed compressor stations (including compressor buildings, cooling fans, blowdown stacks), LNG facilities, station/facility fencing, property lines, and any NSAs (including residences, schools, hospitals, day care, places of worship, camping facilities, etc.) within a mile of proposed new or modified compressor stations and LNG facilities. NSAs should be provided in all directions. Plot plans should clearly depict the distances from the facilities to NSAs and measurement positions.

Provide similar plot plans for proposed meter stations identifying NSAs within 0.5 mile. The plot plans should identify the distance between the noise-generating facilities and the NSAs. Describe in the text or tables the land use as well as each type of NSA and the distance and direction from the compressor station, LNG facility, or meter station. These aerial images and topographic maps should identify all existing homes and should be no more than 1 year old, depicting the land use in the surrounding area.

For new compressor stations or LNG facilities, conduct an ambient sound survey for the NSAs and provide a copy of the report describing the methodology and results. Provide the existing daytime noise equivalent (L_d) and nighttime noise equivalent (L_n) ambient noise level, and day-night sound level (L_{dn}) for each NSA, and as appropriate, denote NSAs and noise measurement locations on maps.

Calculate the existing L_{dn} from sound level measurements. If the project involves modifications at an existing facility, conduct a noise survey of the site property line and nearby NSAs when the facility is operating at full load. Provide the results of the noise survey of the existing facilities as L_{eq} (day, 7 a.m. to 10 p.m.), L_{eq} (night, 10 p.m. to 7 a.m.), and L_{dn}, where L_{eq} is the steady sound with the same total (equivalent) energy as the time-varying sound averaged over a specified period.

L_{dn} is calculated using the formula:

$$L_{dn} = 10\log_{10}((15/24)10^{Ld/10} + (9/24)10^{(Ln+10)/10})$$

Describe conditions during noise surveys, including:

- date and time of day for each measurement;
- the physical and ambient environment;
- state of vegetative cover;
- duration of measurements (periodic, 24-hour, etc.);
- weather conditions;
- wind speed and direction;
- engine load; and
- other sources of noise present during noise measurement at each location.

During periodic sound level measurement, avoid times when unusual or extraneous noise that is not typical of station operation, such as noise from pets, lawnmowers, insects, or nearby construction activity, is occurring. If wind, rain, or other intermittent conditions elevate the background noise levels, by more than 10 decibels, the survey should be postponed until conditions improve (American National Standards Institute A1.12-1995). The survey report should provide information on the existing noise-generating equipment, including types, year of installation, etc.

4.9.2.2 Regulatory Requirements

Identify any state or local noise regulations or ordinances and describe how they would or would not be applicable to the project. Also identify whether the applicant commits to complying with any applicable state or local noise regulation or ordinance.

4.9.2.3 Noise Impacts

Construction Noise Impacts and Mitigation

Describe noise impacts from construction activities as discussed below.

Provide a general description of noise sources for pipeline and/or aboveground facility construction and indicate whether construction would occur during nighttime hours (10 pm to 7 am).

HDD, Direct Pipe Installation, and Storage Wells

For each HDD/direct pipe installation entry or exit location or well drilling site, identify NSAs within 0.5 mile, estimate the number of days of drilling required for each location, and state whether drilling would be conducted 24-hours per day or for some period during nighttime hours. Provide a topographic map or aerial photograph showing the distance and direction of the nearest NSAs to the drill entry and exist sites. Based on ambient sound surveys and acoustical analysis, provide the existing L_{dn} at the NSAs within 0.5 mile, the estimated noise impacts at the NSAs during drilling activities, and the estimated increase in background noise. Describe noise mitigation that would be implemented during drilling operations to reduce noise impacts at the NSAs to a level below 55 dBA L_{dn} and 48.6 L_{eq} or no more than 10 dBA over background if ambient levels are above 55 dBA L_{dn}. Also, for short duration drills (under 1 week), describe any alternate measures, such as temporary relocation or compensation, proposed to minimize noise impacts on area residents. If noise mitigation measures are recommended by a noise consultant retained to assist the applicant with the acoustical analysis, be sure to state clearly and affirmatively which of the recommended measures would be implemented.

Pile Driving and Dredging

Evaluate and quantify air and underwater (if applicable) noise impacts from pile driving operations at NSAs located within 1 mile in L_{peak} (peak of sound pressure wave with no time weighting) or L_{max} (highest sound measured by the sound level meter over a given period of time). Identify if these operations would occur over 24 hours, how many pile driving units would be operating at one time, the type and number of piles, installation method, equipment, and the length of time pile driving would occur. Provide supporting documents, calculations and list all assumptions used to estimate the noise impacts.

Evaluate and quantify air and underwater noise impacts from dredging operations at all NSAs within 0.5 mile. Identify the dredge type, whether these operations would be occurring over 24 hours, how long the dredging would occur and how many dredge units

would be operating simultaneously. Provide supporting documents, calculations and list all assumptions used to estimate the noise impacts.

If the underwater noise analyses for pile driving and/or dredging are provided in Resource Report 2, provide the appropriate cross references.

Blasting

If blasting would be required, provide a plan, or include methods in the proposed blasting plan prepared in accordance with section III.F.4 of our Plan, to mitigate noise and vibration impacts on NSAs during blasting operations. If blasting near water, include the underwater noise impact.

Operational Noise Impacts and Mitigation

Provide an acoustical analysis for each compressor station, LNG facility, and meter station proposed to be constructed (i.e., new) or modified for the principal noise sources associated with the operation of the facility. Identify impacts on NSAs within 1 mile of new compressor stations and LNG facilities and within 0.5 mile of meter stations.

Noise sources should include all predominant noise producing equipment at the facility including engines, turbines, electric motors, compressors, boilers, gas coolers, oil coolers, vent fans, liquefaction equipment, vaporization equipment, flares, pumps, ship noise, intake and exhaust noise, and all appurtenant equipment. Identify and quantify mitigation measures, including specific noise control equipment and propagate the resultant A-weighted noise (L_{eq} and L_{dn}) at the nearest NSAs. The data should represent the maximum load/noise of the proposed equipment and identify the equipment manufacturer and model for all major noise sources. The noise data should be presented in 1/3 octave bands for each source.

Provide a description and specifications of proposed noise control measures such as intake and exhaust silencers, and/or building and pipe insulation that would be installed at the existing or proposed compressor station, LNG facility, or meter station to reduce noise to below 55 dBA $L_{dn.}$ Describe the construction of the proposed compressor building and acoustical insulation specifications/insertion loss for the building walls and ceiling. Include a narrative discussing data sources and basis for any calculations or noise models used to generate the noise estimates. The noise data should be presented in 1/3 octave bands for each noise mitigation source.

Summarize the noise impacts on NSAs from the compressor stations, LNG facilities, and meter stations in tables in the text portion of the resource report. Table 4.9.2-1 is an example of how this information may be presented for a new compressor station.

TABLE 4.9.2-1

Noise Quality Analysis for the ABC Compressor Station

NSAs	Distance and Direction of NSA to Site Center	Ambient Sound Level (L_{dn})	Estimated Sound Level (L_{dn}) of the Station at Full Load	L_{dn} of Station Noise plus Ambient Noise	Potential Noise Increase
NSA 1					
NSA 2					
NSA 3					

The noise impact from the equipment should be based on far-field sound data provided by the manufacturer, or on sound level measurements of similar equipment in service elsewhere.

Include step-by-step supporting calculations or identify the computer program used to model the noise levels, the input and raw output data and all assumptions made when running the model, far-field sound level data for maximum facility operation, and the source of the data. If specific noise control equipment has not been chosen, include a schedule for submitting the data prior to certification.

If the noise generated by an existing compressor station or LNG facility affects any nearby residences with an L_{dn} greater than 55 dBA, identify the year of installation (or latest modification) for all equipment, docket numbers associated with the installation or last modification to the equipment, and identify any mitigation measures, including specific noise control equipment, that the applicant would implement to reduce the noise level(s) from the unit(s) to 55 dBA L_{dn} at the nearby NSAs. At a minimum, demonstrate that noise levels would not increase above current levels after installation of the new project equipment.

Blowdown Noise

Indicate whether blowdown facilities would be installed at the proposed new or modified compressor station(s), LNG facilities, or other facilities. If so, describe the expected types (e.g., individual unit, full station, capped) and frequency of blowdowns, estimate the average number of yearly releases by type, and whether the blowdown vent(s) would be installed with a silencer. Estimate the noise impact at the NSAs within 1 mile of the blowdown vent(s).

Vibration

Describe how the applicant would ensure that operation of the proposed facilities would not result in an increase in perceptible vibration at NSAs. If any residences are located within 25 feet of the project facilities, provide a site-specific noise/vibration mitigation plan.

4.10 RESOURCE REPORT 10 – ALTERNATIVES

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Ensure that project objectives that serve as the basis for evaluating alternatives are consistent with the purpose and need discussion in Resource Report 1.	D
☐ Identify and evaluate alternatives identified by stakeholders.	D
☐ Clearly identify and compare the corresponding segments of route alternatives and route variations to the segments of the proposed route that they would replace if adopted.	D
[a] D Applicant	

Resource Report 10 is required for all applications. It must describe alternatives that were considered during the identification and design of the project and compare the environmental impacts of such alternatives to those of the proposed project. Resource Report 10 should describe the systematic procedure used to arrive at the proposed project, starting with the broadest feasible range of alternatives and narrowing the alternatives to a specific action on a specific site or right-of-way. The description of this procedure should include the decision criteria used, the information weighed, and an explanation of the conclusion at each decision point. The decision criteria must show how environmental benefits and costs, even if not quantifiable, were weighed against economic benefits and costs, and technological and procedural constraints. The alternatives analysis should be based on, and consistent with, the purpose and need statement provided in Resource Report 1. A clearly articulated purpose and need statement facilitates the preparation of Resource Report 10 and the applicant's ability to demonstrate why an alternative may or may not function as a suitable replacement for the proposed project.

At a minimum, Resource Report 10 should address the no-action alternative. The alternative analysis beyond the no-action alternative should be driven by the extent and type of resource impacts and by public or agency comments. Depending on the project, it may also be appropriate for the alternatives analysis to address system alternatives, route alternatives, and aboveground facility site alternatives. Further, in some cases, it may be appropriate to address alternatives to other aspects of the project, such as alternative construction technologies, dock locations or configurations for LNG facilities, power and water sources for LNG or compressor facilities, or process alternatives to specialized technologies such as natural gas liquefaction. Such additional analysis may be warranted based on agency or public input, or identified through discussions with FERC staff.

4.10.1 General Guidance

- Resource Report 10 should provide a brief summary of project modifications that were adopted prior to filing the application to minimize environmental impact or respond to a stakeholder issue, especially those

suggested during pre-filing that were incorporated into the proposed route at the time of filing. There is no need to itemize modifications that were adopted for engineering reasons.

- For each of the applicable alternative types discussed below, provide environmental comparison tables that include all of the resource data that is pertinent and useful for comparing the alternatives at the specific location. For instance, the project area may include unique features, such as karst features, prime farmland, sensitive species habitat, old growth forest, special crops, conservation easements, waterbodies, wetlands, residential developments, etc., that should be included in the comparison tables.

- Data sources used to compare the impacts of an alternative to the impacts of the corresponding portion(s) of the proposal must be consistent, based on either field data for both or desktop data (e.g., aerial interpretation, NWI maps, USGS topographic maps) for both, in order to allow for an objective comparison. In practice, this will usually mean generating desktop data for the segments of the proposed alignment that are subject to an alternatives review. However, alternatives selected for more detailed study may require field data. Staff may also request landowner address lists for alternative routes that are under more detailed study.

4.10.2 No-Action Alternative

Address the consequences of not constructing the project. In addition to avoiding the impacts directly associated with the construction of the project (e.g., disturbance of wetlands, air quality impacts, clearing of vegetation) the no-action alternative discussion should identify other potential outcomes. For example, if the proposed project were not constructed, describe the alternatives to meet the project objectives and the likely environmental effects and costs of pursuing these options.

4.10.3 System Alternatives

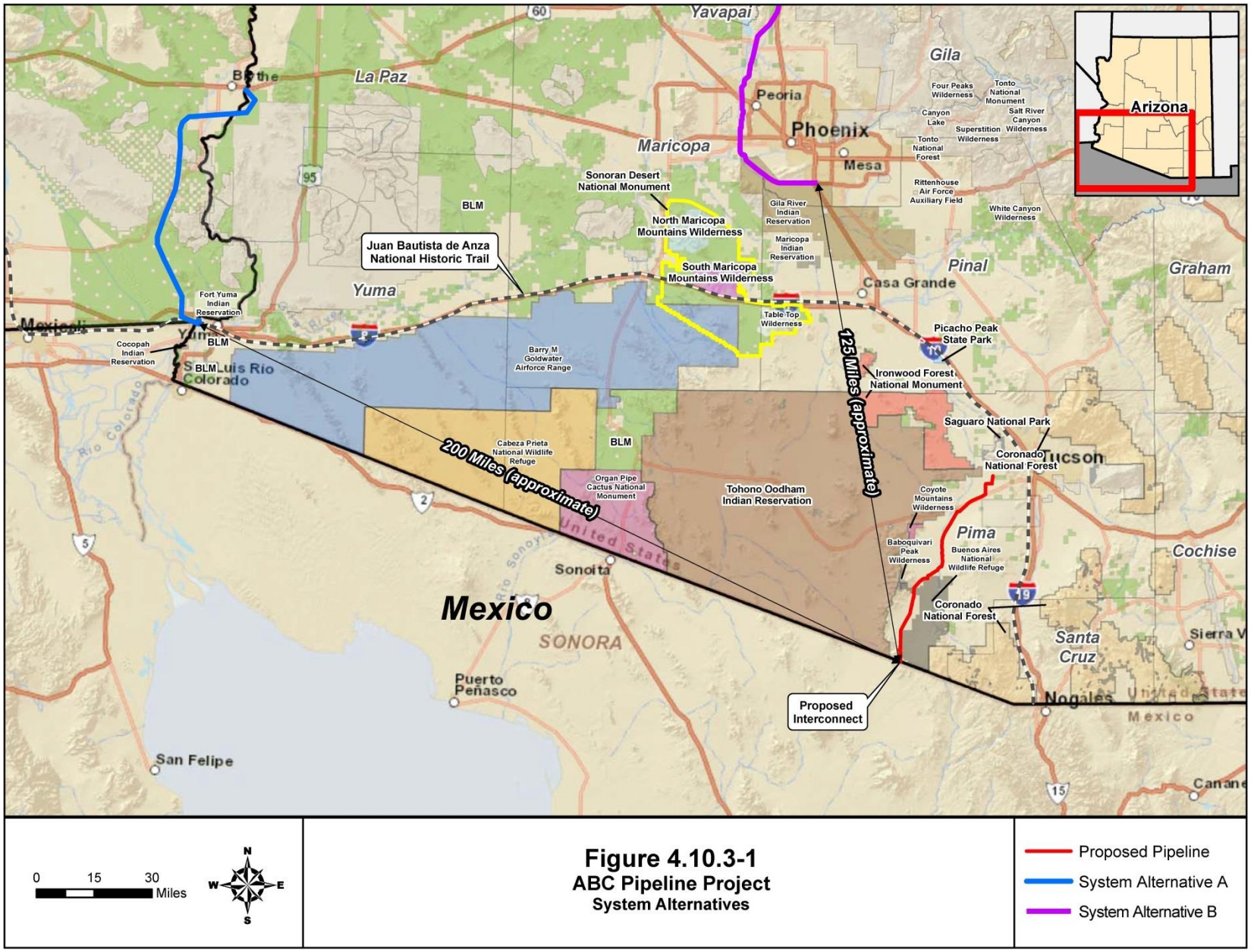
System alternatives are those that would meet the objectives of the project, but would use a different (and often existing) natural gas facility/pipeline system or a different configuration of facilities that would obviate the need to construct all or part of the project. If modifications or additions to the existing facilities/systems would be required to meet the project objectives, the environmental impact of these modifications should be quantified for comparison with those of the proposed project. The modifications could include construction of additional compression facilities, either at new or existing compressor stations, construction of additional pipeline loops, or construction of new segments of pipeline to interconnect existing pipeline systems.

System alternatives should include alternative configurations the applicant considered to its own system and system alternatives involving one or more other companies' facilities. Examples of the former could include alternative pipe diameters or compression scenarios that may reduce pipeline or compression requirements while meeting the requirements of the project, or alternative placement of pipeline loop or compressor stations that may avoid sensitive resource areas (e.g., upstream or downstream of the loop location). Examples of alternatives using other companies' facilities should include an examination of the current capacities of existing systems and an assessment of these systems' ability to individually or in combination meet the objectives of the proposed project. If the existing systems are inadequate, the analysis should examine the potential for any recently proposed facilities by these other companies (individually or in combination) to meet the objectives of the project, and, if these are also inadequate, the new facilities that one or more of the companies would likely need to construct to achieve the objectives of the proposed project.

The description of each system alternative should include a map identifying the location of existing pipeline systems (pipelines and compressor stations) that could be used, and any new pipeline and/or new or additional compression facilities that would be required. The map used should be of a scale that also provides coverage of the corresponding segment of the project. Figure 4.10.3-1 shows a typical map of a proposed project and two pipeline system alternatives.

The analysis of system alternatives should include a comparative table that presents the characteristics and environmental factors of the system alternative(s) and the corresponding segment of the proposed project. Table 4.10.3-1 is an example of a comparison of the characteristics and environmental factors of system alternatives.

The text should describe the environmental factors affected and should present a comparative analysis of the characteristics of the system alternative(s) and the corresponding segment of the project. It should also include a clear statement of the advantages of the project, including economic, environmental, technical, and scheduling advantages that led to the rejection of each system alternative.


Yavapai
Gila
La Paz
Blythe
Peoria
Phoenix
Maricopa
Mesa
Arizona
Four Peaks Wilderness
Tonto National Monument
Canyon Lake
Salt River Canyon Wilderness
Superstition Wilderness
Tonto National Forest
Rittenhouse Air Force Auxiliary Field
White Canyon Wilderness
Sonoran Desert National Monument
BLM
North Maricopa Mountains Wilderness
Gila River Indian Reservation
Maricopa Indian Reservation
Juan Bautista de Anza National Historic Trail
South Maricopa Mountains Wilderness
Pinal
Graham
Casa Grande
Yuma
Fort Yuma Indian Reservation
Table Top Wilderness
Picacho Peak State Park
Cocopah Indian Reservation
Barry M Goldwater Airforce Range
Ironwood Forest National Monument
San Luis Rio Colorado
125 Miles (approximate)
Saguaro National Park
Cabeza Prieta National Wildlife Refuge
200 Miles (approximate)
Coronado National Forest
Tucson
Organ Pipe Cactus National Monument
Tohono Oodham Indian Reservation
Coyote Mountains Wilderness
Pima
Baboquivari Peak Wilderness
Buenos Aires National Wildlife Refuge
Cochise
Sonoita
Mexico
SONORA
Coronado National Forest
Santa Cruz
Sierra V
Puerto Peñasco
Proposed Interconnect
Nogales
San Felipe
0 15 30 Miles
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S
Figure 4.10.3-1
ABC Pipeline Project
System Alternatives
Proposed Pipeline
System Alternative A
System Alternative B

TABLE 4.10.3-1

Comparison of System Alternatives

Characteristics or Resources	Unit	Proposed Project	Lateral System Alternative	Mainline System Alternative
Pipeline and Compression Facilities				
Total length	(mi)			
New pipeline	(mi)			
Loop pipeline				
36-inch-diameter pipe	(mi)			
30-inch-diameter pipe	(mi)			
Total compressor stations				
Upgraded	(no.)			
New	(no.)			
Total compression	(hp)			
Upgraded				
New	(hp)			
Environmental Factors				
Construction right-of-way [a]	(ac)			
Permanent right-of-way [b]	(ac)			
Length adjacent to existing right-of-way or corridor	(percent)			
Total wetlands crossed [c]	(mi)			
Forested wetlands	(mi)			
Scrub-Shrub wetlands	(mi)			
Wetland complexes crossed	(no.)			
Total perennial waterbodies crossed	(no.)			
Major river crossings (>100 feet)	(no.)			
Natural and scenic rivers	(no.)			
Endangered or threatened species habitat	(no.)			
Known cultural resources	(no. or miles)			
Federal land crossed	(mi)			
State land crossed	(mi)			
Other recreation/designated land use areas	(no.)			
Length of crossing	(mi)			
Existing residences within 50 feet of construction work area	(no.)			

[a] Based on a xx-foot-wide construction right-of-way.

[b] Based on a xx-foot-wide right-of-way for the proposed project; a xx-foot-wide right-of-way for the Lateral System Alternative; and a xx-foot-wide right-of-way for the Mainline System Alternative.

[c] All wetland information is based on National Wetlands Inventory mapping.

Descriptions of alternative pipe diameters and compression scenarios or alternative placement of pipeline loop should also clearly identify and compare the alternative(s) considered and the corresponding segment of the project. Maps and tables similar to those described above may be used as necessary to illustrate or summarize the comparative information. Again, include clear statements regarding the advantages of the proposed action and those of the alternative(s), providing the reader the opportunity to balance these factors.

4.10.4 Route Alternatives

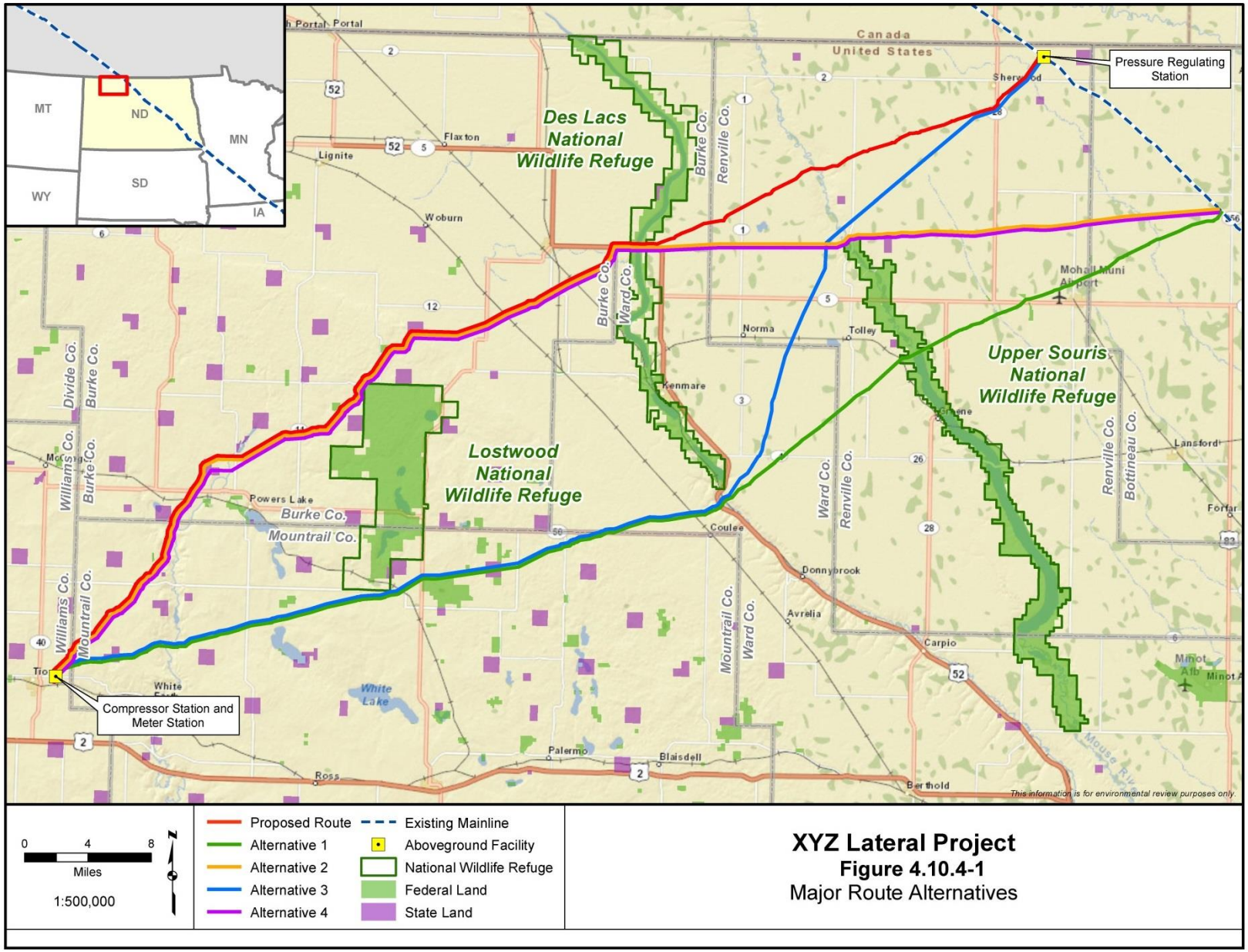
Route alternatives include pipeline alignments that differ from those of the proposed project. The discussion of these alternatives should address routes that were considered, but rejected, during the selection of the applicant's proposed route because of environmental, economic, or technical reasons. The discussion should address alternative routes that were determined to be viable means of accomplishing the same objectives as the proposed route.

In general, each discussion of an alternative should begin with a statement explaining why an alternative was considered (e.g., landowner or resource agency concerns, constructability, avoidance of an impact, shortening the route) and the criteria used to evaluate it. If the alternative was not adopted, specifically state the reason it was dismissed from further consideration. If a viable alternative is identified prior to or during the environmental review process, FERC staff may request a landowner mailing list for that alternative.

Route alternatives may include "major route alternatives" or "route variations or deviations." Major route alternatives deviate from the proposed route for an extended distance (e.g., for several miles) or are several miles away from the proposed route. Major route alternatives typically are geographically different routes and are primarily considered for new pipeline projects. They may also be considered for expansion loops where substantial development has occurred and precludes constructing adjacent to an existing pipeline. Route variations or deviations often include realignments that are identified to avoid or resolve localized resource issues (e.g., cultural resource sites, wetlands, residential areas, or to accommodate landowner requests). While route variations may be a number of miles in length, they are more typically short and relatively close to the proposed route. Route variations are typically considered for both new and looping pipeline projects.

4.10.4.1 Major Route Alternatives

Major route alternatives should be addressed in sufficient detail to justify the decision to eliminate them from detailed consideration. Present the location of each major route alternative on a map of a scale that covers both the alternative route and the corresponding route segment of the proposed route (see figure 4.10.4-1 for an example).


MT
ND
MN
SD
WY
IA
Canada
United States
Pressure Regulating Station
Compressor Station and Meter Station
Des Lacs National Wildlife Refuge
Lostwood National Wildlife Refuge
Upper Souris National Wildlife Refuge
Flaxton
Lignite
Woburn
Powers Lake
Norma
Tolley
Kenmare
Coulee
Donnybrook
Avrelia
Carpio
Palermo
Blaisdell
Ross
Berthold
Lansford
Mohall Muni Airport
Minot Alb
White Lake
Burke Co.
Divide Co.
Williams Co.
Mountrail Co.
Ward Co.
Renville Co.
Bottineau Co.
This information is for environmental review purposes only
0 4 8
Miles
1:500,000
Proposed Route
Alternative 1
Alternative 2
Alternative 3
Alternative 4
Existing Mainline
Aboveground Facility
National Wildlife Refuge
Federal Land
State Land
XYZ Lateral Project
Figure 4.10.4-1
Major Route Alternatives

The text should generally describe the location of the major route alternative, including the mileposts (of the proposed route) at which the major route alternative deviates from and rejoins the proposed route, and the environmental characteristics of the major route alternative and the corresponding segment of the proposed route. The environmental characteristics should include as many of the relevant factors listed on table 4.10.4-1 as can reasonably be calculated or obtained from published sources, such as USGS or NWI maps, or consultations with federal, state, or county agencies. If a factor is not relevant to the proposed route and any of the route alternatives (e.g., if none of the routes cross federal land), the level of detail in the table (e.g., specific types of federal land) can be reduced. As noted above, the data sources used to determine the potential resources along the alternative and corresponding segment of the proposed route should be the same to allow for objective comparisons.

If multiple route alternatives are being considered for a particular segment of the proposed route, the analysis should present all of the alternatives considered in this area based on a common beginning and ending point, and should compare the alternatives to the corresponding segment of the proposed route in one table. Generally, agency contacts for data collection concerning alternatives can be limited to those necessary to identify regional resources (e.g., endangered and threatened species habitat, location of historic districts or documented cultural resource sites, public lands).

Discuss the characteristics of each major route alternative relative to the characteristics of the corresponding segment of the proposed route. Also compare the technical and economic characteristics of the major route alternative with those of the proposed route.

Finally, provide clear statements regarding the relative advantages and disadvantages of the proposed route and the alternative(s), including the reasoning behind the route selection.

4.10.4.2 Route Variations or Deviations

Typically, route variations or deviations are the result of more detailed field review. Route variations may also be identified during landowner discussions (usually localized) or as a result of agency or public input. They should be identified prior to filing of the application, if at all possible, or as early as practicable. However, the need for route variations might arise at any time during the review process, from the initial filing up to construction, as localized resource issues are identified.

TABLE 4.10.4-1

Environmental Factors That May Be Considered for Analysis of Route Alternatives/Variations

Environmental Factor	Unit [a]	Proposed Route	Route Alternative/Variation
Total Length	(mi)		
Type of right-of-way:			
New right-of-way	(mi)		
Adjacent to existing pipeline right-of-way (e.g., loop)	(mi)		
Adjacent to other existing rights-of-way/corridors (e.g., powerline, road)	(mi)		
Right-of-way requirements:			
Construction right-of-way	(ac)		
Permanent right-of-way	(ac)		
Wetlands:			
Forested wetlands	(mi)		
Scrub-shrub wetlands	(mi)		
Total wetland impacts	(acres)		
Wetland complexes	(no.)		
Waterbodies:			
Total perennial waterbodies crossed	(no.)		
Major river crossings (>100 feet)	(no.)		
Designated natural and scenic rivers	(no.)		
Significant fisheries	(no.)		
Ponds/lakes	(no.)		
Federally listed endangered or threatened species:			
Habitat	(mi)		
Species or critical habitat	(no.)		
Cultural resources:			
National Historic Landmarks	(no.)		
National Register of Historic Places-listed properties	(no.)		
Unlisted/potentially eligible properties	(no.)		
Land use:			
Forest	(mi)		
Agricultural	(mi)		
Open (e.g., recreation, historic districts)	(mi)		
Residential	(mi)		
Commercial/Industrial	(mi)		
Other (e.g., recreation, historic districts, conservation lands)	(mi)		
Residences and other structures:			
Within 50 feet of construction work area[16]	(no.)		
Federal land:			
National Forests	(mi)		
National Parks	(mi)		
Bureau of Land Management	(mi)		
Indian reservations	(mi)		
Other (e.g., wilderness areas, parks, flood storage control land)	(mi)		

16 In some cases, the distance considered should be expanded to accurately reflect the conditions. For example, an alternative may contain no residences within 50 feet, but may have a dense residential development that is 65 feet from the construction right-of-way. Under this scenario, it is more informative to expand the area considered.

TABLE 4.10.4-1 (cont'd)

Environmental Factors That May Be Considered for Analysis of Route Alternatives/Variations

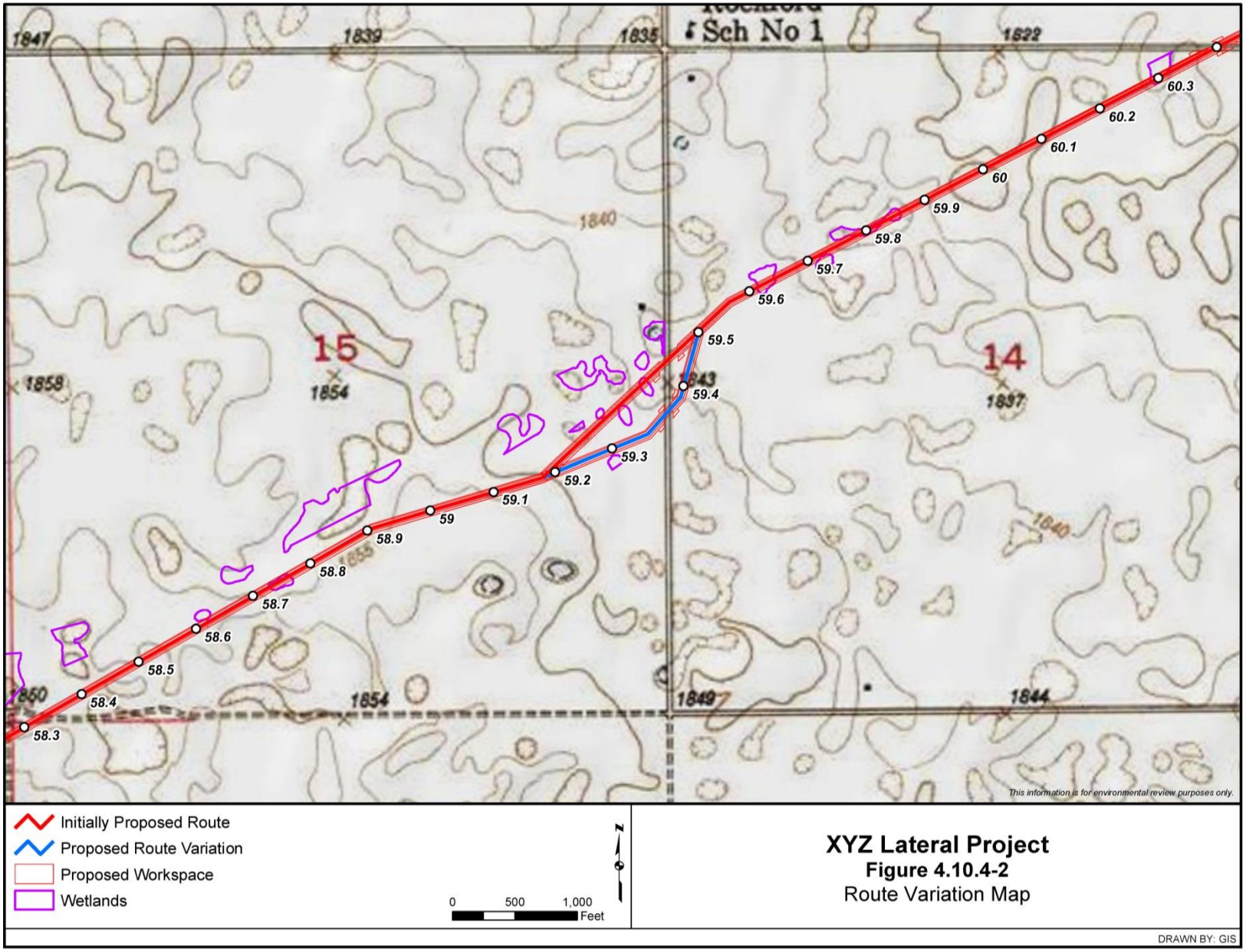
Environmental Factor	Unit [a]	Proposed Route	Route Alternative/Variation
State land:			
State forest/parks	(mi)		
Wildlife management areas	(mi)		
Other (e.g., parks, open space)	(mi)		
Trails:			
National Trails (e.g., Appalachian Trail)	(no.)		
Other (e.g., snowmobile, hiking, biking)	(no.)		
Recreation or other designated land use areas:			
Ballfields, campgrounds, landfills, quarries, etc.	(mi)		
Paleontological resource sites	(no.)		

[a] Unit of length may be miles or feet depending on the length of the alternative considered.

For example, on a looping project, the application may be filed showing a proposed route that deviates from the existing pipeline right-of-way to avoid a residence. In this case, the application would include a comparison of the proposed route that avoids the residence and a route variation that follows the existing pipeline right-of-way. Alternatively, the application may be filed showing a proposed route that follows the existing pipeline right-of-way, but further field review identifies a new residence within the construction work area. To avoid the residence, a route variation is identified that would not significantly affect other environmental resources and is considered superior to the original proposed route. In this case, the route variation should be filed as the revised proposed route and should be compared with the original route.

Because route variations are considered to resolve localized resource issues (e.g., wetlands, residence, cultural resource sites), they are normally much shorter than major route alternatives and should be carried to a greater level of detailed analysis. This may include more contact with governmental agencies and private entities, more field review, more detailed map analysis, and a comparison of the pertinent environmental factors listed in table 4.10.4-1.

Each route variation should be presented on at least 7.5-minute-series USGS topographic maps or alignment sheets that include both the route variation and the corresponding segment of the proposed route (see figure 4.10.4-2). The text should include a description of the resource issue, a comparison of the environmental characteristics of the route variation and the proposed route, and a clear statement of the overall advantages of the proposed route. As with system and major route alternatives, the data sources used to determine the potential resources along the variation and corresponding segment of the route should be the same to allow for objective comparisons. If multiple route variations are being considered for a particular segment of the route, the analysis should present all of the variations considered in this area based on a common beginning and ending point, and should compare the variations to the corresponding segment of the proposed route in one table.


Sch No 1
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58.8
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59.1
59.2
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59.4
59.5
59.6
59.7
59.8
59.9
60
60.1
60.2
60.3
This information is for environmental review purposes only.
Initially Proposed Route
Proposed Route Variation
Proposed Workspace
Wetlands
0
500
1,000
Feet
N
XYZ Lateral Project
Figure 4.10.4-2
Route Variation Map
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4.10.5 Alternative Sites

Alternative sites should generally be considered and discussed for all new major aboveground facilities, particularly LNG facilities and compressor stations. The consideration of alternative sites is especially necessary if specific problems or issues are identified with a new site, such as loss of over 5 acres of prime farmland soils, land use incompatibility, location within designated flood storage land, proximity to NSAs, contaminated soils, inability to reach an agreement with the landowner to acquire the property, or presence of wetlands, critical habitat, endangered or threatened species, or NRHP-eligible cultural resources.

The factors considered for evaluating aboveground facility sites are different from those considered for pipeline routes because each site is a fixed location rather than a linear corridor and because, unlike a pipeline, an aboveground facility is visible during operations and, in most cases, generates noise, air emissions, and visual impacts. The evaluation of alternative sites should consider:

- **Footprint** – The site size needs to be adequate for constructing and operating the facilities. Larger sites can provide the opportunity to set the facility back from surrounding properties.

- **Site Use** –Vacant land is preferred because pre-existing development on a site may present an unreasonable obstacle to securing control.

- **Availability** – Although section 7(h) of the NGA grants a Certificate holder the right of eminent domain, it is preferable that the site be available (such as by purchase, lease, or restrictive easement).

- **Access Road and Lateral Pipeline Length** – The location of the site relative to existing roads and the associated mainline pipeline is important because the location will determine the length of the permanent access road and whether a pipeline lateral is required.

- **Engineering Constraints** – The general location of a compressor station is determined in large part by hydraulic modeling of the natural gas flow in the pipeline. A compressor station must be sited within a milepost range determined by the gas flow modeling in order to sustain the pressure needed to deliver the gas.

- **Environmental** – Environmental impacts on resources that may include, but are not limited to, noise receptors, prime farmland, wetlands and water resources, vegetation, critical habitat, threatened and endangered species, cultural resources, visual resources, geologic hazards, and surrounding land use should be considered.

Describe the procedure used to identify the applicant's proposed site. Identify and discuss the decision criteria and weighting used at each decision point and clearly state the basis for each decision. Summarize, as appropriate, the results of hydraulic flow modeling and indicate the ideal milepost range for siting the facility. Provide maps of the locations of the proposed and most viable alternative sites. The analysis and comparison of environmental characteristics of the alternative sites should include a discussion of the following factors:

- new stations versus additional compression at existing station(s);
- area (acres) required;
- land use (e.g., agriculture, pasture, forest, industrial);
- land availability;
- visual impact (including lighting);
- designated land uses (e.g., flood storage);
- amount of prime farmland soils;
- presence of wetlands;
- presence of critical habitat or federally endangered or threatened species;
- presence of NRHP-eligible sites;
- zoning (e.g., industrial, residential, agriculture);
- miles of pipeline required to reach the site;
- length of access road required and name and type of public road from which access to the site would be obtained;
- number of NSAs within 1 mile of the site;
- location of nearby NSAs and distance from the site;
- feasibility/existence of natural screening of the site;
- air quality considerations;
- noise considerations;
- access to electric power and/or additional facilities required;
- technical considerations; and
- economic considerations.

As with alternative routes, discuss technical and economic characteristics of the alternative sites and compare them with the proposed site. Include a table of these factors based on common data sources that compares each proposed site and all of the alternatives that were considered for that site, and provide a clear statement of why each alternative site was are considered less preferable or rejected.

4.11 RESOURCE REPORT 11 – RELIABILITY AND SAFETY

INFORMATION RECOMMENDED OR OFTEN MISSING	
INFORMATION	DATA SOURCES [a]
☐ Identify by milepost and in table form, all U.S. Department of Transportation Class Locations, High Consequence Areas, or areas of concern (as defined in Title 49 Code of Federal Regulations Part 192.903) for the proposed route, alternate routes, and compressor stations and explain the basis for high consequence area identification.	D, LL
☐ Provide a list of mainline valves and for each one indicate whether the applicant proposes to use automatic, remote, or manually operated valves. Provide a justification for the use of each type.	D
☐ Discuss the outcome of the applicant's consultations with local fire departments and emergency response agencies relative to whether additional equipment, training, and support are needed in the project area.	D
☐ Provide an analysis or identify/justify mitigation measures the applicant would implement to address electrical arcing or alternating current/direct current interference anywhere a pipeline or compressor station is located adjacent to a high voltage electric transmission line.	D
[a] D Applicant LL U.S. Department of Transportation	

4.11.1 LNG Facilities

Resource Report 11 is required for construction of new LNG facilities or the recommissioning of existing LNG facilities. **See Volume II of this guidance manual for a detailed discussion of information required to be filed in Resource Report 11 for projects involving new or recommissioned LNG facilities.**

4.11.2 Pipeline Facilities

For pipeline projects, characterize the existing environment and applicable safety regulations that would be complied with to minimize potential hazards, and provide a table identifying all class locations[17] by milepost along the route.

4.11.2.1 Pipeline Safety Regulations

Discuss how the project would comply with (or exceed) the DOT Minimum Federal Safety Standards specified in 49 CFR 192 that require each pipeline operator to:

- develop an emergency plan with local fire departments and other agencies to identify personnel to be contacted, equipment to be mobilized, and procedures to be followed to respond to a hazardous condition caused by the pipeline;

[17] Class locations are described in 49 CFR 192 based on population density in the vicinity of the pipeline. These regulations specify more rigorous safety requirements for populated areas.

- establish and maintain liaison with the appropriate fire, police, and public officials to coordinate mutual assistance during emergencies; and

- establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation to recognize a natural gas pipeline emergency and report it to appropriate public officials and the company.

4.11.2.2 Class Locations

Identify by milepost each class location crossed by the pipeline, and explain the approach for addressing potential future changes in class location (i.e., as a result of future development). Additionally, identify high consequence areas[18] or DOT areas of concern. Discuss procedures for aerial surveillance flights, on-ground leak detection surveys, internal pipeline inspection with pigging equipment, and cathodic protection, and, if appropriate, discuss programs to monitor and certify reservoir pressure and storage wells. For projects in which a pipeline or compressor station would be located adjacent to a high voltage electric transmission line, Resource Report 11 should explain the potential hazard of this collocation (i.e. electrical arcing, interference with cathodic protection, blowdown release ignition), provide any analyses performed to address this issue (including the separation distance of the project facility and high voltage electric transmission line), and any mitigation measures needed to protect the pipeline or prevent an incident.

[18] High consequence areas are defined in 49 CFR 192.911, and include: Class 3 and 4 locations; any area in Class 1 or 2 locations where the potential impact radius is greater than 660 feet and there are 20 or more buildings intended for human occupancy within this circle; any area in Class 1 or 2 locations where the potential impact radius includes an identified site. Alternatively, high consequence areas include a potential impact circle that contains 20 or more buildings, or an identified site.

4.12 RESOURCE REPORT 12 – PCB CONTAMINATION

Resource Report 12 is required for applications involving the replacement, abandonment by removal, or abandonment in place of facilities. Resource Report 12 must contain a statement that the proposed activities would comply with an "Approval to Remove Natural Gas Pipeline Contaminated with PCBs and Dispose of PCBs" permit from the EPA or with the requirements of the TSCA. If the PCB contamination status is undetermined, the applicant should file a sampling plan that specifies the sampling location and medium (pipeline liquids, soil, etc.). If the applicant has received an EPA disposal permit, identify the date of the EPA approval and the permit expiration date. If the applicant has confirmed the presence of PCBs in the pipeline liquids but has not received an EPA disposal permit, consult with the FERC Project Manager.

For compressor station modifications, determine whether the compressor station site has been listed on the EPA's Comprehensive Environmental Response, Compensation, and Liability Information System because of soils contaminated with PCBs or is otherwise known to have soils contaminated with PCBs. If the site contains PCB-contaminated soils, describe remediation efforts completed to date or the plans and schedule for future remediation work. Provide copies of correspondence documenting investigations, work plan approvals, submittal of closure reports, and the EPA determinations.

For pipelines that have been exposed to PCB contamination at levels below the 50 parts per million threshold, describe briefly how abandonment and/or replacement activities would comply with the TSCA either in a brief, voluntary Resource Report 12 or in Resource Report 1.

4.13 RESOURCE REPORT 13 – ADDITIONAL INFORMATION RELATED TO LNG PLANTS

Resource Report 13 is required for construction of new LNG facilities, or the recommissioning of existing LNG facilities. **See Volume II of this guidance manual for a detailed discussion of information required to be filed in Resource Report 13.**

5.0 PREPARATION OF APPLICANT-PREPARED DRAFT ENVIRONMENTAL ASSESSMENTS FOR NATURAL GAS ACT SECTION 7 APPLICATIONS

Applicants using the Commission's pre-filing process may prepare their own ("applicant-prepared") draft EA if approved to do so by FERC staff. This option must be discussed with the Director of OEP during the initial pre-filing meeting, and the applicant must indicate its intent to prepare a draft EA in the pre-filing request letter. Using this approach, the applicant must submit an applicant-prepared draft EA concurrently with the Environmental Report as part of the application.

If well-prepared and supported by resource reports that are complete, accurate, and fully in compliance with the regulatory requirements, an applicant-prepared draft EA can accelerate staff's review and finalization of the EA, resulting in time and cost savings. FERC staff will analyze and verify the data in the resource reports to ensure that they support the draft EA, make appropriate adjustments and revisions, and develop recommendations as necessary to prepare an EA for the Commission's use. This option must involve close coordination with FERC staff during the pre-filing process to establish a realistic schedule and maximize the likelihood that the draft EA will meet FERC staff's needs. The applicant must submit sections of the applicant-prepared draft EA during the pre-filing period so that staff may review and provide comments on them.

The Commission has issued a document entitled, *Guidance for Applicant-prepared Draft Environmental Assessments for Certain Proposed Natural Gas Projects* that is available from the OEP on the Commission's website. This document provides additional detail about the applicant-prepared draft EA process and content.

6.0 PREPARATION OF THIRD-PARTY ENVIRONMENTAL DOCUMENTS FOR NATURAL GAS ACT SECTION 7 APPLICATIONS

The Commission's voluntary third-party contracting program enables applicants seeking authority to construct and operate natural gas facilities to fund a third-party contractor to assist FERC staff in reviewing the environmental aspects of an application and preparing the environmental documents required by NEPA.[19] In the context of the Commission's program, "third-party contracting" involves the use of an independent contractor to assist staff in its environmental analyses and review of a proposal. Under this voluntary program, the independent contractor is:

- selected by and works solely under the direct supervision and control of FERC staff;
- responsible for conducting environmental analyses and preparing documentation, including EAs and EISs; and
- paid by the project applicant(s).

Third-party contracting provides both OEP and project applicants with additional flexibility in satisfying the Commission's NEPA responsibilities. As with the applicant-prepared draft EA process, the applicant should contact FERC staff early in the process to discuss the applicability of the program to the specific project.

The *Handbook for Using Third-party Contractors to Prepare Environmental Documents* is available from the OEP or on the Commission's website. This document provides further description of the third-party contracting program, as well as detailed information about the third-party contractor selection process and solicitation of prospective contractor proposals, including samples of the Request for Proposals.

[19] The Commission announced the beginning of a voluntary third-party contracting program in February 1994. See News Release issued February 9, 1994. Subsequent announcements were published in the Commerce Business Daily (March 25, 1994) and the *Federal Register* (April 20, 1994).

7.0 PREPARATION OF OTHER NATURAL GAS ACT AND NATURAL GAS POLICY ACT FILINGS

This section describes the environmental requirements for filings submitted under subpart F of part 157 (blanket certificates) of the NGA, subpart A of part 284 (transportation services under the NGPA), and section 2.55 of the NGA (auxiliary installations and replacement of deteriorated or obsolete facilities). The information provided in this section is current as of the time this manual is being prepared. However, project sponsors should refer directly to the regulations to ensure they comply with the most current requirements.

Because the environmental requirements of section 157.206(b) are common to filings under the first two of these regulations, section 7.1 summarizes the requirements of section 157.206(b). The remaining sections identify the recommended environmental reporting requirements for projects filed under each of the above-listed regulations.

7.1 STANDARD ENVIRONMENTAL CONDITIONS UNDER BLANKET CERTIFICATES – SECTION 157.206(b)

The standard conditions of section 157.206(b) apply to all projects under the blanket program of subpart F or the NGPA blanket of part 284 that involve ground disturbance or changes to operational air or noise emissions. Section 157.206(b) provides that the company will adopt the requirements set forth in section 380.15, "and shall issue the relevant portions thereof to construction personnel, with instructions to use them." In addition, it states that all activities will be consistent with all applicable law and the provisions of the following statutes and regulations or compliance plans developed to implement them:

- Clean Water Act, as amended, including the National Pollutant Discharge Elimination System Program;
- Clean Air Act, as amended, and air quality regulations and state implementation plans;
- National Historic Preservation Act of 1966 (NHPA);
- Archeological and Historic Preservation Act of 1974;
- Coastal Zone Management Act of 1972 (CZMA), as amended;
- Endangered Species Act of 1973 (ESA), as amended;

- Executive Order 11988 (May 24, 1977) requiring federal agencies to evaluate the potential effects of any actions it may take on a floodplain;
- Executive Order 11990 (May 24, 1977) requiring an evaluation of the potential effects of construction on wetlands;
- Wild and Scenic Rivers Act;
- National Wilderness Act;
- National Parks and Recreation Act of 1978; and
- Magnuson-Stevens Fishery Conservation and Management Act.

In order to be deemed in compliance with these statutes, the certificate holder (project sponsor) must:

- comply with the procedures in appendix I of subpart F, involving consultation with the FWS and/or NOAA Fisheries (as appropriate). The project may go forward only if the FWS and/or NOAA Fisheries determine, pursuant to informal consultation, that:
    - there are no listed or proposed species or their critical habitat in the project area; or
    - there are listed or proposed species or their critical habitat in the project area, but the project, with appropriate mitigation measures to be implemented by the certificate holder, is *not likely to adversely affect* a listed or proposed species or its habitat; or
    - there is no need for further consultation;
- comply with the procedures in appendix II of subpart F, involving review of the NRHP and consultation with the SHPO and/or the THPO (as appropriate), and this consultation results in the agency(ies) agreeing with the certificate holder that:
    - no surveys are required, and no listed properties[20] occur in the area of the project's potential environmental impact; or

[20] For purposes of this section, a "listed property" includes any district, site, building, structure, or object that is listed either on the NRHP, or (2) in the Federal Register as a property determined to be eligible for inclusion on the national Register. *See* 18 CFR 157, Subpt. F, App. II(a) (2014).

- surveys are required and that as a result of the surveys, no listed properties occur in the area of the project's potential environmental impact; or

- there are listed properties in the area of the project's potential environmental impact, but the project will have no effect on these listed properties;[21,22]

- obtain from the appropriate state agency responsible for administering the state's coastal zone management plan (CZMP), if applicable, a determination that the project will comply with the state's CZMP unless the state agency waives its right of review;

- adhere to Commission staff's current Plan and Procedures, or obtain from the Commission (based on staff's recommendations) approval to use project-specific alternative measures to the Plan and Procedures;

- ensure that the project, including any project-specific alternative measures to FERC staff's Plan and Procedures, will not have a significant adverse impact on a sensitive environmental resource or area (see table 7.1-1 for the list of sensitive environmental resources and areas);

- ensure that the noise attributable to any new or modified compressor station does not exceed an L_{dn} of 55 dBA at any pre-existing NSA (such as schools, hospitals, or residences) when operating at full load; and

- ensure that no increase in noise at NSAs results from additions or modifications to existing compressor stations that already exceed an L_{dn} of 55 dBA at any pre-existing NSAs when operating at full load; and

- conduct any HDDs or drilling of wells that will occur between 10 p.m. and 7 a.m. with a goal of keeping the perceived noise at any pre-existing NSA at or below an L_n of 55dBA.

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21 Projects that the SHPO and/or THPO (as appropriate) determine could have any impact on listed properties, even if the impact is minor (i.e., deemed to have "no adverse effect"), would not qualify to be constructed under the blanket certificate.

22 In order for a project to qualify under our blanket certificate regulations, a project must have "no effect" on historic properties, however, we acknowledge that the Advisory Council on Historic Preservation's revised regulations at 36 CFR 800 utilize the phrase "no historic properties affected."

If a project fails to meet all of the above conditions, then it may not proceed under subpart F or the appropriate portions of part 284. If it is to proceed, the project sponsor must file an application for a certificate under the NGA.

TABLE 7.1-1

Sensitive Environmental Areas

- The habitats of species which have been identified as endangered or threatened under the Endangered Species Act and Essential Fish Habitat as identified under the Magnuson-Stevens Fishery Conservation and Management Act
- National or State Forests or Parks
- Properties listed on, or eligible for inclusion in, the National Register of Historic Places, or the National Register of Historic Landmarks
- Floodplains and wetlands
- Designated or proposed wilderness areas, national or state wild and scenic rivers, wildlife refuges and management areas and sanctuaries
- Prime agricultural lands, designated by the Department of Agriculture
- Sites which are subject to use by American Indians and other Native Americans for religious purposes

A project may not proceed under subpart F or the appropriate portions of part 284 if the activity is located within 0.5 mile (projects authorized under section 157.208) or 2.0 miles (projects authorized under section 157.215) of a nuclear power plant that is either operating or under construction, or for which a construction permit has been filed with the Nuclear Regulatory Commission.

7.2 BLANKET CERTIFICATE – SUBPART F OF PART 157 (NATURAL GAS ACT)

Project sponsors may use the NGA blanket certificate program to acquire, construct, develop, install, modify, replace, operate, or abandon natural gas facilities as described under the following sections:

- section 157.208: construction, acquisition, operation, replacement, and miscellaneous rearrangement of facilities;
- section 157.209: temporary compression facilities;
- section 157.210: mainline natural gas facilities;
- section 157.211: delivery points;
- section 157.212: synthetic and vaporized LNG facilities;
- section 157.213: underground storage field facilities;
- section 157.214: increase in storage capacity;
- section 157.215: underground storage testing and development; or
- section 157.216: abandonment.

Project sponsors may also use the blanket certificate program to make changes in rate structures (section 157.217) and customer names (section 157.218).

The blanket certificate program requires that all projects must be completed in compliance with section 157.206(b).

Minor projects under section 157.208(a), temporary compression under section 157.209(a), installation of delivery points under section 157.211(a)(1), underground storage facilities under section 157.213(a), underground storage testing and development under section 157.215, abandonment under section 157.216(a), all changes in rate schedules under section 157.217, and all changes in customer name under section 157.218 may be done automatically under the appropriate requirements and cost limits of those sections.

Major projects under section 157.208(b), mainline natural gas facilities under section 157.210, installation of delivery points under section 157.211(a)(2), synthetic and revaporized LNG facilities under section 157.212; underground storage facilities under section 157.213(b), increase in storage capacity under section 157.214, and abandonment under section 157.216(b) must authorized under the prior notice provisions of those sections.

Table I under section 157.208(d) specifies project cost limits for automatic authorization and prior notice provisions for applicable blanket projects, with the exception of projects under section 157.215. Table II under section 157.215(a) specifies cost limitations for projects under section 157.215. **Note that cost limits are subject to change each year; therefore, project sponsors should check the regulations for current cost limits.**

The following sections describe only the required environmental information for the annual reports or the prior notice filings. In most cases, there are significant additional data requirements for those filings. Sections 157.214 (increase in storage capacity), 157.217 (changes in rate schedules), and 157.218 (changes in customer name) do not involve any construction and are therefore not covered by the environmental regulations; however, annual reporting may still be required.

7.2.1 Annual Reporting

On or before May 1 of each year, the certificate holder must file an annual report (as specified by section 157.207) on all activities completed under the blanket certificate during the previous calendar year. The only exceptions are projects under section 157.214, which must be reported semi-annually, and projects under section 157.216(b), for which there are no annual reporting requirements.

For projects constructed under sections 157.208(a), 157.209, and 157.215, the annual report must provide:

- a description of the facilities including (as appropriate) the length, size of pipelines, compression including horsepower, size, type, and number of compressor units;

- the specific purpose, location, and beginning and completion dates for the construction or installation of the facilities, and the in-service date; and

- a description of the contacts made, reports produced, and results of consultations completed to comply with the ESA, NHPA, and CZMA before construction.[23] This should include the date and name of the agency that "cleared" the project. Actual documentation is not required, although it is helpful to include the "clearance" from the agency.

Although not explicitly required in the regulations, we encourage certificate holders to provide, in addition to the items listed above, a map showing the location of the facility in sufficient detail to allow staff to visit the site if necessary.

For section 157.208(a) projects, the annual report should also include documentation, including photographs, that the restoration of disturbed areas is progressing appropriately, and a discussion of problems or unusual construction issues, including those identified by affected landowners, and corrective actions taken or planned to address these problems and issues.

Projects conducted under sections 157.208(b), 157.210, 157.212, and 157.213(b) must be included in the annual report. However, because environmental information was provided in the notice filed prior to construction and environmental inspector reports were provided during construction, only limited environmental information (e.g., noise survey results for compressor stations) is required in the annual report.

Increases in storage capacity under section 157.214 are reported semi-annually, while changes in rate schedules and customer name under sections 157.217 and 157.218 are reported annually. These sections do not include environmental requirements.

7.2.2 Advance Notifications to the Federal Energy Regulatory Commission

Prior notice projects require the certificate holder to file a request that includes a form of notice and other information described in section 157.205(b) with the Secretary

[23] While THPOs must be consulted, as appropriate, there is no requirement for tribal consultations for blanket certificate projects generally.

of the Commission before beginning any activities. Within 10 calendar days of receiving this information, the Secretary will either publish a notice of the request in the Federal Register, or notify the certificate holder that it rejects the request. The notice in the Federal Register will specify a deadline for filing protests or interventions to the request. This deadline will be 60 days after issuance of the Secretary's notice and no construction can occur until after the 60 days has elapsed. During this period any party (including Commission staff) may file a protest. If no protests are filed, the activity may begin on the day after the 60-day period expires. If there is a protest, the activity may not go forward under the blanket regulations unless the protest is dismissed[24] by the Director of OEP or withdrawn by the protestor.[25] If the application is protested and not withdrawn within the 60-day deadline, there is a 30-day period in which an applicant can seek to remedy a protest. The protest may be withdrawn anytime during this 30-day period. If all protests are withdrawn, the activity may proceed on the day after the withdrawal of the last protest.

7.2.3 Prior Notice Filings Under Sections 157.208(b) and 157.210

Projects that require prior notice under section 157.208(b) are those that cost more than the limitations set forth in column 1 but less than the amount specified in column 2 of table I in section 157.208(d). In addition, all mainline facilities (including compression and looping projects) pursuant to section 157.210 require prior notice. For these projects, a concise analysis of the relevant issues outlined in part 380.12 is required in addition to a general description of the activity that is to take place. For projects to be completed under this section, the certificate holder must include the following environmental information for each project:

- a description of the facilities, including the length and diameter, wall thickness and maximum allowable operating pressure of the pipeline; for compressors, the size, type and number of compressor units, horsepower required, horsepower existing and proposed, volume of fuel gas, suction and discharge pressure and compression ratios; metering facilities, taps, valves, etc.;

- the specific purpose of the facilities and relationship to other existing and planned facilities;

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[24] The Director of OEP may dismiss a protest within 10 days of its filing date if the Director determines it does not raise substantive issue and fails to provide any specific detailed reason or rationale for the objection.

[25] If a protest is not withdrawn or dismissed, the activity proposed by the certificate holder will be treated as an application for section 7 (NGA) authorization.

- a general location map (showing the facilities in relation to existing facilities);

- USGS 7.5-minute-series topographic maps or maps of equivalent detail (showing the location of each facility) and any sensitive environmental area within 0.25 mile of construction;

- the anticipated start and end dates of construction;

- a concise environmental report describing the existing environmental conditions and resources, the anticipated impacts as a result of construction of the facilities, and mitigation measures proposed to reduce or avoid impact on the quality of the human environment, including impact on sensitive environmental areas;

- an analysis describing how the project will comply with the requirements of section 157.206(b), including for compression facilities, the Clean Air Act and the applicable SIPs developed under the Clean Air Act, and the L_{dn} of 55 dBA at any NSA;

- a statement (as applicable) describing how drilling for wells or horizontal directional drilling would be designed to meet the goal of limiting the noise of these activities at NSAs to an L_{dn} of 55 dBA, or what mitigation would be offered to landowners;

- copies of correspondence or documentation of consultation with the FWS, SHPO, and appropriate state coastal zone management agency as described in "Standard Environmental Conditions" in section 7.1 above; and

- copies of all agreements received to comply with the ESA, the NHPA, and the CZMA.

7.2.4 Prior Notice Filings Under Sections 157.211(a)(2) and 157.216(b)

Although the regulations do not specifically require the filing of environmental information for construction or abandonment of facilities under these sections (other than abandonments involving earth disturbance, in which case USGS maps are required), the standard environmental conditions of section 157.206(b) apply to these projects. However, the following environmental information will assist us in our review:

- a description of the facilities/activity and its purpose;

- the anticipated start and end dates of activity;

- the county and state where the activity will take place;
- a general location map of where the activity will take place (copies of pipeline system maps are acceptable provided that enough detail is included to allow us to locate the facilities in the field);
- USGS 7.5-minute-series topographic maps or maps of equivalent detail (showing the location of each facility) and any sensitive environmental area within 0.25 mile of construction;
- a statement that the project will comply with the requirements of section 157.206(b) before construction;
- a concise analysis discussing the relevant issues outlined in part 380.12; and
- copies of correspondence or documentation of consultation (e.g., telephone conversations or meetings) with the:
    - FWS and NOAA Fisheries (see appendix I of subpart F, referenced at section 157.206(b)(3)(i));
    - SHPO and THPO (see appendix II of subpart F, referenced at section 157.206(b)(3)(ii)); and
    - the appropriate agency that administers the state's CZMP, if applicable, including the consistency determination.

7.2.5 Prior Notice Filings Under Sections 157.213(b) and 157.214

Underground storage facilities are authorized under prior notice procedures only if their certified physical parameters remain unchanged and the facilities' compliance with environmental provisions do not change. Increases in storage capacity are authorized under prior notice only if they can be accomplished without the construction of additional facilities. Such activities must be supportable by geological data and operating experience. While there are no specific environmental filing requirements for this type of prior notice, the environmental staff will assist the engineering staff in its review.

7.2.6 Landowner Notification

With five exceptions, landowner notification is required prior to any construction under the subpart F blanket program.[26] The definition of "landowners" who must be notified is found in section 157.6(d)(2). The specific requirements for the contents of the landowner notice are in section 157.203(d) and are described in section 2.0 of this manual.

For automatically authorized projects, landowners must be notified at least 45 days prior to commencing construction or at the time the company initiates easement negotiations, whichever is earlier. A landowner may waive the 45-day prior notice requirements in writing as long as the notice has been provided.

For projects for which the Commission must receive advance notification (i.e., prior notice projects) the landowners must be notified within at least three (3) business days following the date that a docket number is assigned to the application by the Commission or at the time the company initiates easement negotiations, whichever is earlier.

7.3 NATURAL GAS POLICY ACT SECTION 311 PROJECTS – SUBPART A OF PART 284

This section covers projects requiring construction or abandonment by removal to provide transportation under the NGPA. All activities must comply with the requirements of section 157.206(b). All projects must be reported either in an Annual Report or a 30-day Advance Notification.

7.3.1 Annual Report

An Annual Report of all activities completed during the previous calendar year must be filed by May 1 for projects that do not exceed the cost limit specified in column I

[26] No landowner notification is required: (1) for replacements that would have been done under section 2.55 of the Commission regulations but for the fact that the replacement facilities do not have the same capacity and as long as they meet the location requirements of section 2.55(b)(1)(ii) and do not cause any ground disturbance; (2) for any replacement done for safety, DOT compliance, or unplanned environmental or maintenance reasons requiring immediate action by the certificate holder; (3) for abandonments that involve only the sale or transfer of facilities, and where the easement will continue to be used for the transportation of natural gas; (4) if there is only one landowner and that landowner has requested the service or facilities; and (5) for activities that do not involve ground disturbance or changes to operational air and/or noise emissions.

of table I of section 157.208(d). These projects may be constructed automatically without advance notification. The annual report must include the following environmental information as specified in section 284.11(c):

- a description of the facilities that were constructed or abandoned including pipeline size and length, compressor horsepower, capacity, and cost of construction;
- current USGS 7.5-minute-series topographic maps showing the location of each facility;
- evidence of compliance with each provision of section 157.206(b), including copies of agency concurrence documenting compliance with the ESA, NHPA, and CZMA (see section 7.1 above); and
- a description of the procedures to be used for erosion control, revegetation and maintenance, and stream and wetland crossings (this plan must be consistent with our recommended Plan and Procedures).

7.3.2 Advance Notifications

For projects that exceed the cost limit specified in column 1 of table I in section 157.208(d), the company must notify the Commission at least 30 days before beginning construction of that project. For these projects, file the same environmental information identified in section 7.3.1 above. These projects are not included in the Annual Report.

7.4 AUXILIARY INSTALLATIONS AND REPLACEMENT PROJECTS – SECTION 2.55 (NATURAL GAS ACT)

This section covers auxiliary installations, replacements, and abandonments under section 2.55(a) and replacements under section 2.55(b) of the Commission's regulations. Certificate holders must make a good faith effort to notify landowners at least 5 days in advance of commencing a section 2.55(a) or section 2.55(b) activity. In this case, a "landowner" is defined as any owner whose property will be directly affected (i.e., used) and subject to ground-disturbing activities. The requirement for landowner notification shall not apply where immediate action is necessary to respond to an emergency to comply with DOT safety requirements, where the notification requirement has been waived by the landowner, for crossing properties if there is no ground disturbance, or in situations where all ground disturbance would occur inside the fence line of an existing site of aboveground facilities operated by the certificate holder.

Activities associated with the construction, replacement, or abandonment of section 2.55 facilities must conform to the conditions of the case-specific or part 157 blanket certificate authorization of the affected transmission facilities, including all required mitigation measures, such as erosion control or revegetation protocols, that applied when the facilities were constructed. All section 2.55 installations and replacements, including all workspace associated with cathodic protection installations, must be installed within the same permanent right-of-way or compressor station or other aboveground facility site as the affected transmission facility, and all section 2.55(a) and 2.55(b) construction activities must be confined to areas used to construct the existing certificated facilities. If the location and width of the temporary and permanent rights-of-way and associated workspaces used to construct the original facility are not known, construction should be limited to no more than a 75-foot-wide right-of-way for pipeline greater than 12 inches in diameter and a maximum 50-foot-wide right-of-way for pipeline 12 inches in diameter and smaller. Additional guidance for determining the acceptable construction area, including ATWS, may be found in appendix A to part 2 of the section 2.55 regulations.

With the exception of aboveground replacements that do not involve compression facilities or the use of earthmoving equipment, an Annual Report must be filed by May 1 for all section 2.55(b) replacement projects completed during the previous calendar year that cost less than the limit specified in column 1 of table I of section 157.208(d) or that require immediate replacement to comply with DOT safety regulations. If a project exceeds the cost limitation, an Advance Notification must be filed at least 30 days before beginning construction.

For both the Annual Report and Advance Notification, the following information will assist us in our review of each project:

- a description of the facilities, including the pipeline length and diameter, capacity and cost, compressor horsepower, metering facilities, taps, valves, etc.;
- a brief description of impacts including acreage affected and impacts on any sensitive environmental resources;
- the specific reason for replacement of the facilities;
- for 30-day advance notifications, a general location map (showing the facilities in relation to existing facilities);
- a current USGS 7.5-minute-series topographic map (showing the location of each facility);
- the actual (or anticipated) start and end dates of construction;

- a description of the procedures to be used for erosion control, revegetation and maintenance, and stream and wetland crossings (consistent with the procedures approved when the original facility was certificated, or in its absence, a plan that meets the baseline standards of our Plan and Procedures); and

- photographic documentation of the restored work area (annual report only).

ATTACHMENT 1

MINIMUM AND FULL FILING REQUIREMENTS FOR ENVIRONMENTAL REPORTS

KEY TO DATA SOURCES

A	Aerial Photographs
B	Agency Consultation
C	Agricultural Extension Agents
D	Applicant
E	State or county groundwater databases (e.g., Board of Health, Department of Natural Resource water divisions)
F	U.S. Army Corps of Engineers
G	Community Noise, U.S. Environmental Protection Agency 1971
H	Comprehensive Plans, County or Land Management Agencies
I	County/Municipal Agencies
J	U.S. Environmental Protection Agency
K	Erosion Control and Drainage Plan Handbooks, State and County
L	Field Surveys
M	Fishery Biologist, State or Regional
N	U.S. Fish and Wildlife Service
O	National Wetlands Inventory Maps
P	Geological Survey Personnel, Federal, State, and Local
Q	Landowners
R	Manufacturer's Data
S	Mineral Resource Maps, Federal and State
T	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
U	Noise Surveys
V	National Park Service
W	Natural Resources Conservation Service
X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
Y	Upland Erosion Control, Revegetation, and Maintenance Plan
Z	Wetland and Waterbody Construction and Mitigation Procedures
AA	Resource Reports 2, 3, and 4
BB	Resource Report 8
CC	Soil Authorities, Other than Natural Resources Conservation Service
DD	State Agencies
EE	State Air Quality Agency
FF	State Drinking Water Division
GG	State Water Quality Division
HH	State Wetland Maps
II	Surficial Geologic and Bedrock Geologic Maps
JJ	U.S. Department of Labor
KK	U.S. Bureau of the Census
LL	U.S. Department of Transportation
MM	U.S. Geological Survey Topographic Maps

ENVIRONMENTAL REPORTS FOR NATURAL GAS ACT APPLICATION MINIMUM FILING REQUIREMENTS

(TITLE 18 CODE OF FEDERAL REGULATIONS SECTION 380 APPENDIX A)

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 1 – General Project Description	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Provide a detailed description and location map of the project facilities – Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (c)(1)	D
☐ 2. Describe any non-jurisdictional facilities that would be built in association with the project – 18 CFR § 380.12 (c)(2)	D
☐ 3. Provide current original U.S. Geological Survey 7.5-minute-series topographic maps with mileposts showing the project facilities – 18 CFR § 380.12 (c)(3)	D
☐ 4. Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the project facilities – 18 CFR § 380.12 (c)(3)	D
☐ 5. Provide plot/site plans of compressor stations showing the locations of the nearest noise sensitive areas within 1 mile – 18 CFR § 380.12 (c)(3,4)	D
☐ 6. Describe construction and restoration methods – 18 CFR § 380.12 (c)(6)	D
☐ 7. Identify the permits required for construction across surface waters – 18 CFR § 380.12 (c)(9)	D
☐ 8. Provide the names and address of all affected landowners and certify that all affected landowners will be notified as required in § 157.6(d) – 18 CFR § 380.12 (c)(10)	D
[a] D Applicant	

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 2 – Water Use and Quality	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Identify all perennial surface waterbodies crossed by the proposed project and their water quality classification – Title 18 Code of Federal Regulations (CFR) part (§) 380.12(d)(1)	L, GG, LL
☐ 2. Identify all waterbody crossings that may have contaminated waters or sediments – 18 CFR § 380.12(d)(1)	GG
☐ 3. Identify watershed areas, designated surface water protection areas, and sensitive waterbodies crossed by the proposed project – 18 CFR § 380.12(d)(1)	GG, GG
☐ 4. Provide a table (based on National Wetlands Inventory [NWI] maps if delineations have not been done) identifying all wetlands, by milepost and length, crossed by the proposed project (including abandoned pipeline), and the total acreage and acreage of each wetland type that would be affected by construction – 18 CFR § 380.12(d)(1,4)	A, D, L, O, HH
☐ 5. Discuss construction and restoration methods proposed for crossing wetlands, and compare them to staff's Wetland and Waterbody Construction and Mitigation Procedures – 18 CFR § 380.12(d)(2)	D, Z
☐ 6. Describe the proposed waterbody construction, impact mitigation, and restoration methods to be used to cross surface waters and compare to the staff's Wetland and Waterbody Construction and Mitigation Procedures – 18 CFR § 380.12(d)(2)	D, Z
☐ 7. Provide original NWI maps or the appropriate state wetland maps, if NWI maps are not available, that show all proposed facilities and include milepost locations for proposed pipeline routes – 18 CFR § 380.12(d)(4)	D, O, HH
☐ 8. Identify all U.S. Environmental Protection Agency – or state-designated aquifers crossed – 18 CFR § 380.12(d)(9)	E, J, FF, GG

[a]

A	Aerial Photographs	O	National Wetlands Inventory Maps
D	Applicant	Z	Wetland and Waterbody Construction and Mitigation Procedures
E	State or county groundwater databases (e.g., Board of Health, Department of Natural Resource water divisions)	FF	State Drinking Water Division
		GG	State Water Quality Division
J	U.S. Environmental Protection Agency	HH	State Wetland Maps
L	Field Surveys	LL	U.S. Department of Transportation

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 3 – Fish, Wildlife, and Vegetation	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Classify the fishery type of each surface waterbody that would be crossed, including fisheries of special concern – Title 18 Code of Federal Regulations (CFR) part (§) 380.12(e)(1)	M
☐ 2. Describe terrestrial and wetland wildlife and habitats that would be affected by the project – 18 CFR § 380.12(e)(2)	L, DD
☐ 3. Describe the major vegetative cover types that would be crossed and provide the acreage of each vegetative cover type that would be affected by construction – 18 CFR § 380.12(e)(3)	A, L
☐ 4. Describe the effects of construction and operation procedures on the fishery resources and proposed mitigation measures – 18 CFR § 380.12(e)(4)	D, M
☐ 5. Evaluate the potential for short-term, long-term, and permanent impact on the wildlife resources and state-listed endangered or threatened species caused by construction and operation of the project and proposed mitigation measures – 18 CFR § 380.12(e)(4)	D, DD
☐ 6. Identify all federally listed or proposed endangered or threatened species that potentially occur in the vicinity of the project and discuss the results of the consultations with other agencies. Include survey reports as specified in 18 CFR § 380.12(e)(5)	L, N, T, DD
☐ 7. Identify all federally listed essential fish habitat that potentially occurs in the vicinity of the project and the results of abbreviated consultations with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and any resulting essential fish habitat assessment – 18 CFR § 380.12(e)(6)	N, M, T
☐ 8. Describe any significant biological resources that would be affected. Describe impact and any mitigation proposed to avoid or minimize that impact – 18 CFR § 380.12(e)(4,7)	A, D, L, N, T, DD

[a]

A	Aerial Photographs	T	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
D	Applicant		
L	Field Surveys		
M	Fishery Biologist, State or Regional	DD	State Agencies
N	U.S. Fish and Wildlife Service		

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 4 – Cultural Resources	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Initial cultural resources consultation and documentation, and documentation of consultation with Native Americans – Title 18 Code of Federal Regulations (CFR) part (§) 380.12(f)(1)(i) & (2)	D
☐ 2. Overview/Survey Report(s) – 18 CFR § 380.12(f)(1)(ii) & (2)	D
[a] D Applicant	

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 5 – Socioeconomics	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. For major aboveground facilities and major pipeline projects that require an environmental impact statement, describe existing socioeconomic conditions within the project area – Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (g)(1)	I, JJ, KK
☐ 2. For major aboveground facilities, quantify impact on employment, housing, local government services, local tax revenues, transportation, and other relevant factors within the project area – 18 CFR § 380.12 (g)(2-6)	D, I

[a] D Applicant; I County/Municipal Agencies; JJ U.S. Department of Labor; KK U.S. Bureau of the Census

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 6 – Geological Resources	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Identify the location (by milepost) of mineral resources and any planned or active surface mines crossed by the proposed facilities – Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (h)(1 & 2)	A, L, S, LL
☐ 2. Identify any geologic hazards to the proposed facilities – 18 CFR § 380.12 (h)(2)	H, L, P, X, II, LL
☐ 3. Discuss the need for and locations where blasting may be necessary in order to construct the proposed facilities – 18 CFR § 380.12 (h)(3)	L, X, II
☐ 4. For liquefied natural gas (LNG) projects in seismic areas, the materials required by "Data Requirements for the Seismic Review of LNG Facilities," National Bureau of Standards Information Report 84-2833 – 18 CFR § 380.12 (h)(5)	D
☐ 5. For underground storage facilities, how drilling activity by others within or adjacent to the facilities would be monitored, and how old wells would be located and monitored within the facility boundaries – 18 CFR § 380.12 (h)(6)	D

[a]

A	Aerial Photographs	S	Mineral Resource Maps, Federal and State
D	Applicant	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
H	Comprehensive Plans, County or Land Management Agencies	II	Surficial Geologic and Bedrock Geologic Maps
L	Field Surveys	LL	U.S. Department of Transportation
P	Geological Survey Personnel, Federal, State, and Local		

Environmental Reports for Natural Gas Act Application
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Resource Report 7 – Soils	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Identify, describe, and group by milepost the soils affected by the proposed pipeline and aboveground facilities – Title 18 Code of Federal Regulations (CFR) part (§) 380.12(I)(1)	L, W, X, CC
☐ 2. For aboveground facilities that would occupy sites over 5 acres, determine the acreage of prime farmland soils that would be affected by construction and operation – 18 CFR § 380.12(I)(2)	C, H, L, W, X, CC
☐ 3. Describe by milepost potential impacts on soils – 18 CFR § 380.12(I)(3,4)	C, K, W, Y, CC
☐ 4. Identify proposed mitigation to minimize impact on soils and compare with the staff's Upland Erosion Control, Revegetation, and Maintenance Plan – 18 CFR § 380.12(I)(5)	C, D, H, K, W, Y, CC

[a]

C	Agricultural Extension Agents	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
D	Applicant	Y	Upland Erosion Control, Revegetation, and Maintenance Plan
H	Comprehensive Plans, County or Land Management Agencies	CC	Soil Authorities, Other than Natural Resources Conservation Service
K	Erosion Control and Drainage Plan Handbooks, State and County		
L	Field Surveys		
W	Natural Resources Conservation Service		

Environmental Reports for Natural Gas Act Application
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(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 8 – Land Use, Recreation, and Aesthetics	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Classify and quantify land use affected by: Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (j) (1) a. Pipeline construction and permanent rights-of-way; b. Extra work/staging areas; c. Access roads; d. Pipe and contractor yards; and e. Aboveground facilities.	A, L, X
☐ 2. Identify by milepost all locations where the pipeline right-of-way would at least partially coincide with existing right-of-way, where it would be adjacent to existing rights-of-way, and where it would be outside of existing right-of-way – 18 CFR § 380.12 (j) (1)	A, D, L, LL
☐ 3. Provide detailed typical construction right-of-way cross section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent right-of-way and temporary construction right-of-way – 18 CFR – § 380.12 (j) (1)	D
☐ 4. Summarize the total acreage of land affected by construction and operation of the project – 18 CFR § 380.12 (j) (1)	D
☐ 5. Identify by milepost all planned residential or commercial/business development and the timeframe for construction – 19 CFR § 380.12 (j) (4)	I
☐ 6. Identify by milepost special land uses (e.g., maple sugar stands, specialty crops, natural areas, national and state forests, conservation land, etc.) – 18 CFR § 380.12 (j) (4)	A, B, O, I, L, DD
☐ 7. Identify by beginning milepost and length of crossing all land administered by federal, state, or local agencies, or private conservation organizations – 18 CFR § 380.12 (j) (4)	B, I, DD, LL
☐ 8. Identify by milepost all natural, recreational, or scenic areas, and all registered natural landmarks crossed by the project – 18 CFR § 380.12 (j) (4 & 6)	V, B, I, DD, LL
☐ 9. Identify all facilities that would be within designated coastal zone management areas – 18 CFR § 380.12 (j) (4))	DD
☐ 10. Identify by milepost all residences that would be within 50 feet of the construction right-of-way or extra work area – 18 CFR § 380.12 (j) (5)	I, L
☐ 11. Identify all designated or proposed candidate National or State Wild and Scenic Rivers crossed by the project – 18 CFR – § 380.12 (j) (6)	B
☐ 12. Describe any measures to visually screen aboveground facilities, such as compressor stations – 18 CFR § 380.12 (j) (11)	D
☐ 13. Demonstrate that applications for rights-of-way or other proposed land use have been or soon will be filed with federal land-managing agencies with jurisdiction over land that would be affected by the project – 18 CFR § 380.12 (j) (12)	D

[a]

A	Aerial Photographs	V	National Park Service
B	Agency Consultation	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
D	Applicant		
I	County/Municipal Agencies		
L	Field Surveys	DD	State Agencies
O	National Wetlands Inventory Maps	LL	U.S. Department of Transportation

Environmental Reports for Natural Gas Act Application
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(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 9 – Air and Noise Quality	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Describe existing air quality in the vicinity of the project – Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (k) (1).	EE
☐ 2. Quantify the existing noise levels (day-night sound level (L_{dn}) and other applicable noise parameters) at noise sensitive areas and at other areas covered by relevant state and local noise ordinances – 18 CFR § 380.12 (k) (2)	R
☐ 3. Quantify existing and proposed emissions of compressor equipment, plus construction emissions, including nitrogen oxides (NO_x) and carbon monoxide (CO), and the basis for these calculations. Summarize anticipated air quality impacts for the project – 18 CFR § 380.12 (k) (3)	R
☐ 4. Describe the existing compressor units at each station where new, additional, or modified compression units are proposed, including the manufacturer, model number, and horsepower of the compressor units. For proposed, new, additional, or modified compressor units, include horsepower, type, and energy source – 18 CFR § 380.12 (k) (4)	D, R
☐ 5. Identify any nearby noise-sensitive area by distance and direction from the proposed compressor unit building/enclosure – 18 CFR § 380.12 (k) (4)	G, U, EE
☐ 6. Identify any applicable state or local noise regulations – 18 CFR § 380.12 (k) (4).	EE
☐ 7. Calculate the noise impact at noise-sensitive areas of the proposed compressor unit modifications or additions, specifying how the impact was calculated, including manufacturer's data and proposed noise control equipment – 18 CFR § 380.12 (k) (4)	R

[a]
D Applicant
G Community Noise, U.S. Environmental Protection Agency 1971
R Manufacturer's Data
U Noise Surveys
EE State Air Quality Agency

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 10 – Alternatives	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Address the "no action" alternative – Title 18 Code of Federal Regulations (CFR) part (§) 380.12(1)(1)	D
☐ 2. For large projects, address the effect of energy conservation or energy alternatives to the project – 18 CFR § 380.12(1)(1)	D
☐ 3. Identify system alternatives considered during the identification of the project and provide the rationale for rejecting each alternative – 18 CFR § 380.12(1)(1)	D
☐ 4. Identify major and minor route alternatives considered to avoid impact on sensitive environmental areas (e.g., wetlands, parks, or residences) and provide sufficient comparative data to justify the selection of the proposed route – 18 CFR § 380.12(1)(2)(ii)	A, B, L, LL
☐ 5. Identify alternative sites considered for the location of major new aboveground facilities and provide sufficient comparative data to justify the selection of the proposed site – 18 CFR § 380.12(1)(2)(ii)	A, I, L, W, X, LL

[a]

A	Aerial Photographs	W	Natural Resources Conservation Service
B	Agency Consultation	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
D	Applicant		
I	County/Municipal Agencies		
L	Field Surveys	LL	U.S. Department of Transportation

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 11 – Reliability and Safety	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Describe how the project facilities would be designed, constructed, operated, and maintained to minimize potential hazard to the public from the failure of project components as a result of accidents or natural catastrophes – Title 18 Code of Federal Regulations part 380.12 (m).	D
[a] D Applicant	

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 12 – Polychlorinated Biphenyl (PCB) Contamination	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. For projects involving the replacement or abandonment of facilities determined to have polychlorinated biphenyls (PCBs), provide a statement that activities would comply with an approved U.S. Environmental Protection Agency disposal permit or with the requirements of the Toxic Substances Control Act – Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (n)(1)	J
☐ 2. For compressor station modification on sites that have been determined to have soils contaminated with PCBs, describe the status of remediation efforts completed to date – 18 CFR § 380.12 (n)(2)	J
[a] J U.S. Environmental Protection Agency	

Environmental Reports for Natural Gas Act Application
Minimum Filing Requirements
(Title 18 Code of Federal Regulations Section 380 Appendix A)

Resource Report 13 – Additional Information Related to Liquefied Natural Gas (LNG) Plants	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ 1. Provide all the listed detailed engineering materials – Title 18 Code of Federal Regulations (CFR) Part 380.12(o))	D
[a] D Applicant	

ENVIRONMENTAL REPORTS FOR NATURAL GAS ACT APPLICATION FULL FILING REQUIREMENTS

(TITLE 18 CODE OF FEDERAL REGULATIONS SECTION 380.12)

Title 18 Code of Federal Regulations Section 380.12
Environmental Reports for Natural Gas Act Application
Full Filing Requirements

380.12 (c) Resource Report 1 – General Project Description	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications. It will describe facilities associated with the project, special construction and operation procedures, construction timetables, future plans for related construction, compliance with regulations and codes, and permits that must be obtained. Resource Report 1 must:	
☐ (1) Describe and provide location maps of all jurisdictional facilities, including all aboveground facilities associated with the project (such as: meter stations, pig launchers/receivers, valves), to be constructed, modified, abandoned, replaced, or removed, including related construction and operational support activities and areas such as maintenance bases, staging areas, communications towers, power lines, and new access roads (roads to be built or modified). As relevant, the report must describe the length and diameter of the pipeline, the types of aboveground facilities that would be installed, and associated land requirements. It must also identify other companies that must construct jurisdictional facilities related to the project, where the facilities would be located, and where they are in the Commission's approval process.	D
☐ (2) Identify and describe all nonjurisdictional facilities, including auxiliary facilities, that will be built in association with the project, including facilities to be built by other companies. (i) Provide the following information: - (A) A brief description of each facility, including as appropriate: Ownership, land requirements, gas consumption, megawatt size, construction status, and an update of the latest status of federal, state, and local permits/approvals; - (B) The length and diameter of any interconnecting pipeline; - (C) Current 1:24,000/1:25,000 scale topographic maps showing the location of the facilities; - (D) Correspondence with the appropriate State Historic Preservation Officer (SHPO) or duly authorized Tribal Historic Preservation Officer (THPO) for tribal lands regarding whether properties eligible for listing on the National Register of Historic Places (NRHP) would be affected; - (E) Correspondence with the U.S. Fish and Wildlife Service (and National Marine Fisheries Service, if appropriate) regarding potential impacts of the proposed facility on federally listed threatened and endangered species; and - (F) For facilities within a designated coastal zone management area, a consistency determination or evidence that the owner has requested a consistency determination from the state's coastal zone management program. (ii) Address each of the following factors and indicate which ones, if any, appear to indicate the need for the Commission to do an environmental review of project-related nonjurisdictional facilities. - (A) Whether or not the regulated activity comprises "merely a link" in a corridor type project (e.g., a transportation or utility transmission project). - (B) Whether there are aspects of the nonjurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity. - (C) The extent to which the entire project will be within the Commission's jurisdiction. - (D) The extent of cumulative federal control and responsibility.	D
☐ (3) Provide the following maps and photos: - (i) Current, original United States Geological Survey (USGS) 7.5-minute series topographic maps or maps of equivalent detail, covering at least a 0.5-mile-wide corridor centered on the pipeline, with integer mileposts identified, showing the location of rights-of-way, new access roads, other linear construction areas, compressor stations, and pipe	D

Environmental Reports for Natural Gas Act Application
Full Filing Requirements
(Title 18 Code of Federal Regulations Section 380.12)

380.12 (c) Resource Report 1 – General Project Description	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
storage areas. Show nonlinear construction areas on maps at a scale of 1:3,600 or larger keyed graphically and by milepost to the right-of-way maps. - (ii) Original aerial images or photographs or photo-based alignment sheets based on these sources, not more than 1 year old (unless older ones accurately depict current land use and development) and with a scale of 1:6,000 or larger, showing the proposed pipeline route and location of major aboveground facilities, covering at least a 0.5 mile-wide corridor, and including mileposts. Older images/photographs/alignment sheets should be modified to show any residences not depicted in the original. Alternative formats (e.g., blue-line prints of acceptable resolution) need prior approval by the environmental staff of the Office of Energy Projects. - (iii) In addition to the copy required under §157.6(a)(2) of this chapter, applicant should send two additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects.	
☐ (4) When new or additional compression is proposed, include large scale (1:3,600 or greater) plot plans of each compressor station. The plot plan should reference a readily identifiable point(s) on the USGS maps required in paragraph (c)(3) of this section. The maps and plot plans must identify the location of the nearest noise-sensitive areas (schools, hospitals, or residences) within 1 mile of the compressor station, existing and proposed compressor and auxiliary buildings, access roads, and the limits of areas that would be permanently disturbed.	D
☐ (5)(i) Identify facilities to be abandoned, and state how they would be abandoned, how the site would be restored, who would own the site or right-of-way after abandonment, and who would be responsible for any facilities abandoned in place. - (ii) When the right-of-way or the easement would be abandoned, identify whether landowners were given the opportunity to request that the facilities on their property, including foundations and below ground components, be removed. Identify any landowners whose preferences the company does not intend to honor, and the reasons therefore.	D
☐ (6) Describe and identify by milepost, proposed construction and restoration methods to be used in areas of rugged topography, residential areas, active croplands, sites where the pipeline would be located parallel to and under roads, and sites where explosives are likely to be used.	D
☐ (7) Unless provided in response to Resource Report 5, describe estimated workforce requirements, including the number of pipeline construction spreads, average workforce requirements for each construction spread and meter or compressor station, estimated duration of construction from initial clearing to final restoration, and number of personnel to be hired to operate the proposed project.	D
☐ (8) Describe reasonably foreseeable plans for future expansion of facilities, including additional land requirements and the compatibility of those plans with the current proposal.	D
☐ (9) Describe all authorizations required to complete the proposed action and the status of applications for such authorizations. Identify environmental mitigation requirements specified in any permit or proposed in any permit application to the extent not specified elsewhere in this section.	D
☐ (10) Provide the names and mailing addresses of all affected landowners specified in §157.6(d) and certify that all affected landowners will be notified as required in §157.6(d).	D
[a] D Applicant	

Environmental Reports for Natural Gas Act Application
Full Filing Requirements
(Title 18 Code of Federal Regulations Section 380.12)

380.12 (d) – Resource Report 2 – Water Use and Quality	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications, except those which involve only facilities within the areas of an existing compressor, meter, or regulator station that were disturbed by construction of the existing facilities, no wetlands or waterbodies are on the site and there would not be a significant increase in water use. The report must describe water quality and provide data sufficient to determine the expected impact of the project and the effectiveness of mitigative, enhancement, or protective measures. Resource Report 2 must:	
☐ (1) Identify and describe by milepost perennial waterbodies and municipal water supply or watershed areas, specially designated surface water protection areas and sensitive waterbodies, and wetlands that would be crossed. For each waterbody crossing, identify the approximate width, state water quality classifications, any known potential pollutants present in the water or sediments, and any potable water intake sources within 3 miles downstream.	L, GG, LL
☐ (2) Compare proposed mitigation measures with the staff's current "*Wetland and Waterbody Construction and Mitigation Procedures*," which are available from the Commission Internet home page or the Commission staff, describe what proposed alternative mitigation would provide equivalent or greater protection to the environment, and provide a description of site- specific construction techniques that would be used at each major waterbody crossing.	D, Z
☐ (3) Describe typical staging area requirements at waterbody and wetland crossings. Also, identify and describe waterbodies and wetlands where staging areas are likely to be more extensive.	D
☐ (4) Include National Wetlands Inventory (NWI) maps. If NWI maps are not available, provide the appropriate state wetland maps. Identify for each crossing, the milepost, the wetland classification specified by the U.S. Fish and Wildlife Service, and the length of the crossing. Include two copies of the NWI maps (or the substitutes, if NWI maps are not available) clearly showing the proposed route and mileposts directed to the environmental staff. Describe by milepost, wetland crossings as determined by field delineations using the current federal methodology.	D, O, HH
☐ (5) Identify aquifers within excavation depth in the project area, including the depth of the aquifer, current and projected use, water quality and average yield, and known or suspected contamination problems.	E, J, FF, GG
☐ (6) Describe specific locations, the quantity required, and the method and rate of withdrawal and discharge of hydrostatic test water. Describe suspended or dissolved material likely to be present in the water as a result of contact with the pipeline, particularly if an existing pipeline is being retested. Describe chemical or physical treatment of the pipeline or hydrostatic test water. Discuss waste products generated and disposal methods.	D
☐ (7) If underground storage of natural gas is proposed: - (i) Identify how water produced from the storage field will be disposed of, and - (ii) For salt caverns, identify the source locations, the quantity required, and the method and rate of withdrawal of water for creating salt cavern(s), as well as the means of disposal of brine resulting from cavern leaching.	D
☐ (8) Discuss proposed mitigation measures to reduce the potential for adverse impacts to surface water, wetlands, or groundwater quality to the extent they are not described in response to paragraph (d)(2) of this section. Discuss the potential for blasting to affect water wells, springs, and wetlands, and measures to be taken to detect and remedy such effects.	D
☐ (9) Identify the location of known public and private groundwater supply wells or springs within 150 feet of proposed construction areas. Identify locations of U.S. Environmental Protection Agency or state-designated sole-source aquifers and wellhead protection areas crossed by the proposed pipeline facilities.	E, J, FF, GG

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380.12 (d) – Resource Report 2 – Water Use and Quality				
FULL FILING REQUIREMENTS				
[a]	D	Applicant	Z	Wetland and Waterbody Construction and Mitigation Procedures
	E	State or county groundwater databases (e.g., Board of Health, Department of Natural Resource water divisions)	FF	State Drinking Water Division
			GG	State Water Quality Division
	J	U.S. Environmental Protection Agency	HH	State Wetland Maps
	L	Field Surveys	LL	U.S. Department of Transportation
	O	National Wetlands Inventory Maps		

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380.12 (e) – Resource Report 3 – Fish, Wildlife, and Vegetation	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications, except those involving only facilities within the improved area of an existing compressor, meter, or regulator station. It must describe aquatic life, wildlife, and vegetation in the vicinity of the proposed project; expected impacts on these resources including potential effects on biodiversity; and proposed mitigation, enhancement, or protection measures. Resource Report 3 must:	
☐ (1) Describe commercial and recreational warmwater, coldwater, and saltwater fisheries in the affected area and associated significant habitats such as spawning or rearing areas and estuaries.	M
☐ (2) Describe terrestrial habitats, including wetlands, typical wildlife habitats, and rare, unique, or otherwise significant habitats that might be affected by the proposed action. Describe typical species that have commercial, recreational, or aesthetic value.	L, DD
☐ (3) Describe and provide the acreage of vegetation cover types that would be affected, including unique ecosystems or communities such as remnant prairie or old-growth forest, or significant individual plants, such as old-growth specimen trees.	A, L
☐ (4) Describe the impact of construction and operation on aquatic and terrestrial species and their habitats, including the possibility of a major alteration to ecosystems or biodiversity, and any potential impact on state-listed endangered or threatened species. Describe the impact of maintenance, clearing and treatment of the project area on fish, wildlife, and vegetation. Surveys may be required to determine specific areas of significant habitats or communities of species of special concern to state or local agencies.	D, M
☐ (5) Identify all federally listed or proposed endangered or threatened species and critical habitat that potentially occur in the vicinity of the project. Discuss the results of the consultation requirements listed in §380.13(b) at least through §380.13(b)(5)(i) and include any written correspondence that resulted from the consultation. The initial application must include the results of any required surveys unless seasonal considerations make this impractical. If species surveys are impractical, there must be field surveys to determine the presence of suitable habitat unless the entire project area is suitable habitat.	L, N, T, DD
☐ (6) Identify all federally listed essential fish habitat (EFH) that potentially occurs in the vicinity of the project. Provide information on all EFH, as identified by the pertinent federal fishery management plans, that may be adversely affected by the project and the results of abbreviated consultations with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and any resulting EFH assessments.	N, M, T
☐ (7) Describe site-specific mitigation measures to minimize impacts on fisheries, wildlife, and vegetation.	D, DD
☐ (8) Include copies of correspondence not provided pursuant to paragraph (e)(5) of this section, containing recommendations from appropriate federal and state fish and wildlife agencies to avoid or limit impact on wildlife, fisheries, and vegetation, and the applicant's response to the recommendations.	N, M, T, DD

[a]
A Aerial Photographs
D Applicant
L Field Surveys
M Fishery Biologist, State or Regional
N U.S. Fish and Wildlife Service
T National Oceanic and Atmospheric Administration, National Marine Fisheries Service
DD State Agencies

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380.12 (f) – Resource Report 4 – Cultural Resources	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications. In preparing this report, the applicant must follow the principles in §380.14 of this part. Guidance on the content and the format for the documentation listed below, as well as professional qualifications of preparers, is detailed in '' Office of Energy Projects' (OEP) Guidelines for Reporting on Cultural Resources Investigations,'' which is available from the Commission Internet home page or from the Commission staff.	
☐ (1) Resource Report 4 must contain: - (i) Documentation of the applicant's initial cultural resources consultation, including consultations with Native Americans and other interested persons (if appropriate); - (ii) Overview and Survey Reports, as appropriate; - (iii) Evaluation Report, as appropriate; - (iv) Treatment Plan, as appropriate; and - (v) Written comments from State Historic Preservation Officer(s) (SHPO), Tribal Historic Preservation Officers (THPO), as appropriate, and applicable land-managing agencies on the reports in paragraphs (f)(1)(i)-(iv) of this section.	D
☐ (2) *Initial filing requirements.* The initial application must include the documentation of initial cultural resource consultation, the Overview and Survey Reports, if required, and written comments from SHPOs, THPOs and land-managing agencies, if available. The initial cultural resources consultations should establish the need for surveys. If surveys are deemed necessary by the consultation with the SHPO/THPO, the survey report must be filed with the application. - (i) If the comments of the SHPOs, THPOs, or land-management agencies are not available at the time the application is filed, they may be filed separately, but they must be filed before a final certificate is issued. - (ii) If landowners deny access to private property and certain areas are not surveyed, the unsurveyed area must be identified by mileposts, and supplemental surveys or evaluations shall be conducted after access is granted. In such circumstances, reports, and treatment plans, if necessary, for those inaccessible lands may be filed after a certificate is issued.	D
☐ (3) The Evaluation Report and Treatment Plan, if required, for the entire project must be filed before a final certificate is issued. - (i) The Evaluation Report may be combined in a single synthetic report with the Overview and Survey Reports if the SHPOs, THPOs, and land-management agencies allow and if it is available at the time the application is filed. - (ii) In preparing the Treatment Plan, the applicant must consult with the Commission staff, the SHPO, and any applicable THPO and land-management agencies. - (iii) Authorization to implement the Treatment Plan will occur only after the final certificate is issued.	D
☐ (4) Applicant must request privileged treatment for all material filed with the Commission containing location, character, and ownership information about cultural resources in accordance with §388.112 of this chapter. The cover and relevant pages or portions of the report should be clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION—DO NOT RELEASE."	D
☐ (5) Except as specified in a final Commission order, or by the Director of the Office of Energy Projects, construction may not begin until all cultural resource reports and plans have been approved.	D
[a] D Applicant	

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380.12 (g) – Resource Report 5 – Socioeconomics	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required only for applications involving significant aboveground facilities, including, among others, conditioning or liquefied natural gas (LNG) plants. It must identify and quantify the impacts of constructing and operating the proposed project on factors affecting towns and counties in the vicinity of the project. Resource Report 5 must:	
☐ (1) Describe the socioeconomic impact area.	D, I, JJ, KK
☐ (2) Evaluate the impact of any substantial immigration of people on governmental facilities and services and plans to reduce the impact on the local infrastructure.	D
☐ (3) Describe on-site manpower requirements and payroll during construction and operation, including the number of construction personnel who currently reside within the impact area, would commute daily to the site from outside the impact area, or would relocate temporarily within the impact area.	D
☐ (4) Determine whether existing housing within the impact area is sufficient to meet the needs of the additional population.	I
☐ (5) Describe the number and types of residences and businesses that would be displaced by the project, procedures to be used to acquire these properties, and types and amounts of relocation assistance payments.	D, I
☐ (6) Conduct a fiscal impact analysis evaluating incremental local government expenditures in relation to incremental local government revenues that would result from construction of the project. Incremental expenditures include, but are not limited to, school operating costs, road maintenance and repair, public safety, and public utility costs.	D, I, JJ
[a] D Applicant; I County/Municipal Agencies; JJ U.S. Department of Labor; KK U.S. Bureau of the Census	

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380.12 (h) – Resource Report 6 – Geological resources	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for applications involving liquefied natural gas (LNG) facilities and all other applications, except those involving only facilities within the boundaries of existing aboveground facilities, such as a compressor, meter, or regulator station. It must describe geological resources and hazards in the project area that might be directly or indirectly affected by the proposed action or that could place the proposed facilities at risk, the potential effects of those hazards on the facility, and methods proposed to reduce the effects or risks. Resource Report 6 must:	
☐ (1) Describe, by milepost, mineral resources that are currently or potentially exploitable;	A, L, S, LL
☐ (2) Describe, by milepost, existing and potential geological hazards and areas of nonroutine geotechnical concern, such as high seismicity areas, active faults, and areas susceptible to soil liquefaction; planned, active, and abandoned mines; karst terrain; and areas of potential ground failure, such as subsidence, slumping, and landsliding. Discuss the hazards posed to the facility from each one.	H, L, P, X, II, LL
☐ (3) Describe how the project would be located or designed to avoid or minimize adverse effects to the resources or risk to itself, including geotechnical investigations and monitoring that would be conducted before, during, and after construction. Discuss also the potential for blasting to affect structures, and the measures to be taken to remedy such effects.	D
☐ (4) Specify methods to be used to prevent project-induced contamination from surface mines or from mine tailings along the right-of-way and whether the project would hinder mine reclamation or expansion efforts.	D
☐ (5) If the application involves an LNG facility located in zones 2, 3, or 4 of the Uniform Building Code's Seismic Risk Map, or where there is potential for surface faulting or liquefaction, prepare a report on earthquake hazards and engineering in conformance with "*Data Requirements for the Seismic Review of LNG Facilities*," National Bureau of Standards Information Report 84-2833. This document may be obtained from the Commission staff.	D
☐ (6) If the application is for underground storage facilities: - (i) Describe how the applicant would control and monitor the drilling activity of others within the field and buffer zone; - (ii) Describe how the applicant would monitor potential effects of the operation of adjacent storage or production facilities on the proposed facility, and vice versa; - (iii) Describe measures taken to locate and determine the condition of old wells within the field and buffer zone and how the applicant would reduce risk from failure of known and undiscovered wells; and - (iv) Identify and discuss safety and environmental safeguards required by state and federal drilling regulations.	B, D

[a]

A	Aerial Photographs	S	Mineral Resource Maps, Federal and State
B	Agency Consultation	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
D	Applicant		
H	Comprehensive Plans, County or Land Management Agencies	II	Surficial Geologic and Bedrock Geologic Maps
L	Field Surveys		
P	Geological Survey Personnel, Federal, State, and Local	LL	U.S. Department of Transportation

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380.12 (i) – Resource Report 7 – Soils	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications except those not involving soil disturbance. It must describe the soils that would be affected by the proposed project, the effect on those soils, and measures proposed to minimize or avoid impact. Resource Report 7 must:	
☐ (1) List, by milepost, the soil associations that would be crossed and describe the erosion potential, fertility, and drainage characteristics of each association.	L, W, X, CC
☐ (2) If an aboveground facility site is greater than 5 acres: - (i) List the soil series within the property and the percentage of the property comprised of each series; - (ii) List the percentage of each series which would be permanently disturbed; - (iii) Describe the characteristics of each soil series; and - (iv) Indicate which are classified as prime or unique farmland by the U.S. Department of Agriculture, Natural Resources Conservation Service.	C, H, L, W, X, CC
☐ (3) Identify, by milepost, potential impact from: Soil erosion due to water, wind, or loss of vegetation; soil compaction and damage to soil structure resulting from movement of construction vehicles; wet soils and soils with poor drainage that are especially prone to structural damage; damage to drainage tile systems due to movement of construction vehicles and trenching activities; and interference with the operation of agricultural equipment due to the probability of large stones or blasted rock occurring on or near the surface as a result of construction.	C, K, W, Y, CC
☐ (4) Identify, by milepost, cropland and residential areas where loss of soil fertility due to trenching and backfilling could occur.	C, D, H, K, W, Y, CC
☐ (5) Describe proposed mitigation measures to reduce the potential for adverse impact to soils or agricultural productivity. Compare proposed mitigation measures with the staff's current "*Upland Erosion Control, Revegetation, and Maintenance Plan,*" which is available from the Commission Internet home page or from the Commission staff, and explain how proposed mitigation measures provide equivalent or greater protections to the environment.	C, D, H, K, W, Y, CC

[a]
- C — Agricultural Extension Agents
- D — Applicant
- H — Comprehensive Plans, County or Land Management Agencies
- K — Erosion Control and Drainage Plan Handbooks, State and County
- L — Field Surveys
- W — Natural Resources Conservation Service
- X — Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
- Y — Upland Erosion Control, Revegetation, and Maintenance Plan
- CC — Soil Authorities, Other than Natural Resources Conservation Service

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380.12 (j) – Resource Report 8 – Land Use, Recreation and Aesthetics	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications except those involving only facilities which are of comparable use at existing compressor, meter, and regulator stations. It must describe the existing uses of land on, and (where specified) within 0.25 mile of, the proposed project and changes to those land uses that would occur if the project is approved. The report shall discuss proposed mitigation measures, including protection and enhancement of existing land use. Resource Report 8 must:	
☐ (1) Describe the width and acreage requirements of all construction and permanent rights-of-way and the acreage required for each proposed plant and operational site, including injection or withdrawal wells. - (i) List, by milepost, locations where the proposed right-of-way would be adjacent to existing rights-of-way of any kind. - (ii) Identify, preferably by diagrams, existing rights-of-way that would be used for a portion of the construction or operational right-of-way, the overlap and how much additional width would be required. - (iii) Identify the total amount of land to be purchased or leased for each aboveground facility, the amount of land that would be disturbed for construction and operation of the facility, and the use of the remaining land not required for project operation. - (iv) Identify the size of typical staging areas and expanded work areas, such as those at railroad, road, and waterbody crossings, and the size and location of all pipe storage yards and access roads.	A, D, L, X, LL
☐ (2) Identify, by milepost, the existing use of lands crossed by the proposed pipeline, or on or adjacent to each proposed plant and operational site.	A, D, L, X
☐ (3) Describe planned development on land crossed or within 0.25 mile of proposed facilities, the time frame (if available) for such development, and proposed coordination to minimize impacts on land use. Planned development means development which is included in a master plan or is on file with the local planning board or the county.	I
☐ (4) Identify, by milepost and length of crossing, the area of direct effect of each proposed facility and operational site on sugar maple stands, orchards and nurseries, landfills, operating mines, hazardous waste sites, state wild and scenic rivers, state or local designated trails, nature preserves, game management areas, remnant prairie, old-growth forest, national or state forests, parks, golf courses, designated natural, recreational or scenic areas, or registered natural landmarks, Native American religious sites and traditional cultural properties to the extent they are known to the public at large, and reservations, lands identified under the Special Area Management Plan of the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, and lands owned or controlled by federal or state agencies or private preservation groups. Also identify if any of those areas are located within 0.25 mile of any proposed facility.	A, B, I, L, O, DD, LL
☐ (5) Identify, by milepost, all residences and buildings within 50 feet of the proposed pipeline construction right-of-way and the distance of the residence or building from the right-of-way. Provide survey drawings or alignment sheets to illustrate the location of the facilities in relation to the buildings.	A, D, I, L
☐ (6) Describe any areas crossed by or within 0.25 mile of the proposed pipeline or plant and operational sites which are included in, or are designated for study for inclusion in: The National Wild and Scenic Rivers System (Title 16 United States Code [U.S.C.] part 1271); The National Trails System (16 U.S.C. 1241); or a wilderness area designated under the Wilderness Act (16 U.S.C. 1132).	B

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380.12 (j) – Resource Report 8 – Land Use, Recreation and Aesthetics	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ (7) For facilities within a designated coastal zone management area, provide a consistency determination or evidence that the applicant has requested a consistency determination from the state's coastal zone management program.	DD
☐ (8) Describe the impact the project will have on present uses of the affected area as identified above, including commercial uses, mineral resources, recreational areas, public health and safety, and the aesthetic value of the land and its features. Describe any temporary or permanent restrictions on land use resulting from the project.	D
☐ (9) Describe mitigation measures intended for all special use areas identified under paragraphs (j)(2) through (6) of this section.	D
☐ (10) Describe proposed typical mitigation measures for each residence that is within 50 feet of the edge of the pipeline construction right-of-way, as well as any proposed residence-specific mitigation. Describe how residential property, including for example, fences, driveways, stone walls, sidewalks, water supply, and septic systems, would be restored. Describe compensation plans for temporary and permanent rights-of-way and the eminent domain process for the affected areas.	D
☐ (11) Describe measures proposed to mitigate the aesthetic impact of the facilities especially for aboveground facilities such as compressor or meter stations.	D
☐ (12) Demonstrate that applications for rights-of-way or other proposed land use have been or soon will be filed with federal land-management agencies with jurisdiction over land that would be affected by the project.	D

[a]

A	Aerial Photographs	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
B	Agency Consultation		
D	Applicant		
I	County/Municipal Agencies	DD	State Agencies
L	Field Surveys	LL	U.S. Department of Transportation
O	National Wetlands Inventory Maps		

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380.12 (k) – Resource Report 9 – Air and Noise Quality	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for applications involving compressor facilities at new or existing stations, and for all new liquefied natural gas (LNG) facilities. It must identify the effects of the project on the existing air quality and noise environment and describe proposed measures to mitigate the effects. Resource Report 9 must:	
☐ (1) Describe the existing air quality, including background levels of nitrogen dioxide and other criteria pollutants which may be emitted above U.S. Environmental Protection Agency-identified significance levels.	EE
☐ (2) Quantitatively describe existing noise levels at noise-sensitive areas, such as schools, hospitals, or residences and include any areas covered by relevant state or local noise ordinances. - (i) Report existing noise levels as the L_{eq} (day), L_{eq} (night), and L_{dn} and include the basis for the data or estimates. - (ii) For existing compressor stations, include the results of a sound level survey at the site property line and nearby noise-sensitive areas while the compressors are operated at full load. - (iii) For proposed new compressor station sites, measure or estimate the existing ambient sound environment based on current land uses and activities. - (iv) Include a plot plan that identifies the locations and duration of noise measurements, the time of day, weather conditions, wind speed and direction, engine load, and other noise sources present during each measurement.	R
☐ (3) Estimate the impact of the project on air quality, including how existing regulatory standards would be met. - (i) Provide the emission rate of nitrogen oxides from existing and proposed facilities, expressed in pounds per hour and tons per year for maximum operating conditions, include supporting calculations, emission factors, fuel consumption rates, and annual hours of operation. - (ii) For major sources of air emissions (as defined by the Environmental Protection Agency), provide copies of applications for permits to construct (and operate, if applicable) or for applicability determinations under regulations for the prevention of significant air quality deterioration and subsequent determinations.	R
☐ (4) Provide a quantitative estimate of the impact of the project on noise levels at noise-sensitive areas, such as schools, hospitals, or residences. - (i) Include step-by-step supporting calculations or identify the computer program used to model the noise levels, the input and raw output data and all assumptions made when running the model, far-field sound level data for maximum facility operation, and the source of the data. - (ii) Include sound pressure levels for unmuffled engine inlets and exhausts, engine casings, and cooling equipment; dynamic insertion loss for all mufflers; sound transmission loss for all compressor building components, including walls, roof, doors, windows and ventilation openings; sound attenuation from the station to nearby noise-sensitive areas; the manufacturer's name, the model number, the performance rating; and a description of each noise source and noise control component to be employed at the proposed compressor station. For proposed compressors the initial filing must include at least the proposed horsepower, type of compression, and energy source for the compressor. - (iii) Far-field sound level data measured from similar units in service elsewhere, when available, may be substituted for manufacturer's far-field sound level data. - (iv) If specific noise control equipment has not been chosen, include a schedule for	D, G, R, U, EE

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380.12 (k) – Resource Report 9 – Air and Noise Quality	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
submitting the data prior to certification. - (v) The estimate must demonstrate that the project will comply with applicable noise regulations and show how the facility will meet the following requirements: a. (A) The noise attributable to any new compressor station, compression added to an existing station, or any modification, upgrade or update of an existing station, must not exceed a day-night sound level (L_{dn}) of 55 decibels on the A-weighted scale at any pre-existing noise-sensitive area (such as schools, hospitals, or residences). b. (B) New compressor stations or modifications of existing stations shall not result in a perceptible increase in vibration at any noise-sensitive area.	
☐ (5) Describe measures and manufacturer's specifications for equipment proposed to mitigate impact to air and noise quality, including emission control systems, installation of filters, mufflers, or insulation of piping and buildings, and orientation of equipment away from noise-sensitive areas.	D, R

[a]

D	Applicant	R	Manufacturer's Data
G	Community Noise, U.S. Environmental Protection Agency 1971	U	Noise Surveys
		EE	State Air Quality Agency

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380.12 (l) – Resource Report 10 – Alternatives	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for all applications. It must describe alternatives to the project and compare the environmental impacts of such alternatives to those of the proposal. The discussion must demonstrate how environmental benefits and costs were weighed against economic benefits and costs, and technological and procedural constraints. The potential for each alternative to meet project deadlines and the environmental consequences of each alternative shall be discussed. Resource Report 10 must:	
☐ (1) Discuss the "no action" alternative and the potential for accomplishing the proposed objectives through the use of other systems and/or energy conservation. Provide an analysis of the relative environmental benefits and costs for each alternative.	D
☐ (2) Describe alternative routes or locations considered for each facility during the initial screening for the project. - (i) For alternative routes considered in the initial screening for the project but eliminated, describe the environmental characteristics of each route or site, and the reasons for rejecting it. Identify the location of such alternatives on maps of sufficient scale to depict their location and relationship to the proposed action, and the relationship of the pipeline to existing rights-of-way. - (ii) For alternative routes or locations considered for more in-depth consideration, describe the environmental characteristics of each route or site and the reasons for rejecting it. Provide comparative tables showing the differences in environmental characteristics for the alternative and proposed action. The location of any alternatives in this paragraph shall be provided on maps equivalent to those required in paragraph (c)(2) of this section.	A, B, D, I, L, W, X, LL

[a]

A	Aerial Photographs	W	Natural Resources Conservation Service
B	Agency Consultation	X	Natural Resources Conservation Service Soil Surveys or Soil Survey Geographic Database (SSURGO)
D	Applicant		
I	County/Municipal Agencies		
L	Field Surveys	LL	U.S. Department of Transportation

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380.12 (m) – Resource Report 11 – Reliability and Safety	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for applications involving new or recommissioned liquefied natural gas (LNG) facilities. Information previously filed with the Commission need not be refiled if the applicant verifies its continued validity. This report shall address the potential hazard to the public from failure of facility components resulting from accidents or natural catastrophes, how these events would affect reliability, and what procedures and design features have been used to reduce potential hazards. Resource Report 11 must:	
☐ (1) Describe measures proposed to protect the public from failure of the proposed facilities (including coordination with local agencies).	D
☐ (2) Discuss hazards, the environmental impact, and service interruptions which could reasonably ensue from failure of the proposed facilities.	D
☐ (3) Discuss design and operational measures to avoid or reduce risk.	D
☐ (4) Discuss contingency plans for maintaining service or reducing downtime.	D
☐ (5) Describe measures used to exclude the public from hazardous areas. Discuss measures used to minimize problems arising from malfunctions and accidents (with estimates of probability of occurrence) and identify standard procedures for protecting services and public safety during maintenance and breakdowns.	D
[a] D Applicant	

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380.12 (n) – Resource Report 12 – Polychlorinated Biphenyl (PCB) Contamination	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for applications involving the replacement, abandonment by removal, or abandonment in place of pipeline facilities determined to have polychlorinated biphenyls (PCBs) in excess of 50 parts per million in pipeline liquids. Resource Report 12 must:	
☐ (1) Provide a statement that activities would comply with an approved EPA disposal permit, with the dates of issuance and expiration specified, or with the requirements of the Toxic Substances Control Act.	J
☐ (2) For compressor station modifications on sites that have been determined to have soils contaminated with PCBs, describe the status of remediation efforts completed to date	J
[a] J U.S. Environmental Protection Agency	

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380.12 (o) – Resource Report 13 – Engineering and Design Material	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
This report is required for construction of new liquefied natural gas (LNG) facilities, or the recommissioning of existing LNG facilities. If the recommissioned facility is existing and is not being replaced, relocated, or significantly altered, resubmittal of information already on file with the Commission is unnecessary. Resource Report 13 must:	
☐ (1) Provide a detailed plot plan showing the location of all major components to be installed, including compression, pretreatment, liquefaction, storage, transfer piping, vaporization, truck loading/unloading, vent stacks, pumps, and auxiliary or appurtenant service facilities.	D
☐ (2) Provide a detailed layout of the fire protection system showing the location of fire water pumps, piping, hydrants, hose reels, dry chemical systems, high expansion foam systems, and auxiliary or appurtenant service facilities.	D
☐ (3) Provide a layout of the hazard detection system showing the location of combustible-gas detectors, fire detectors, heat detectors, smoke or combustion product detectors, and low temperature detectors. Identify those detectors that activate automatic shutdowns and the equipment that would shut down. Include all safety provisions incorporated in the plant design, including automatic and manually activated emergency shutdown systems.	D
☐ (4) Provide a detailed layout of the spill containment system showing the location of impoundments, sumps, subdikes, channels, and water removal systems.	D
☐ (5) Provide manufacturer's specifications, drawings, and literature on the fail-safe shut-off valve for each loading area at a marine terminal (if applicable).	D
☐ (6) Provide a detailed layout of the fuel gas system showing all taps with process components.	D
☐ (7) Provide copies of company, engineering firm, or consultant studies of a conceptual nature that show the engineering planning or design approach to the construction of new facilities or plants.	D
☐ (8) Provide engineering information on major process components related to the first six items above, which include (as applicable) function, capacity, type, manufacturer, drive system (horsepower, voltage), operating pressure, and temperature.	D
☐ (9) Provide manuals and construction drawings for LNG storage tank(s).	D
☐ (10) Provide up-to-date piping and instrumentation diagrams. Include a description of the instrumentation and control philosophy, type of instrumentation (pneumatic, electronic), use of computer technology, and control room display and operation. Also, provide an overall schematic diagram of the entire process flow system, including maps, materials, and energy balances.	D
☐ (11) Provide engineering information on the plant's electrical power generation system, distribution system, emergency power system, uninterruptible power system, and battery backup system.	D
☐ (12) Identify all codes and standards under which the plant (and marine terminal, if applicable) will be designed, and any special considerations or safety provisions that were applied to the design of plant components.	D

Environmental Reports for Natural Gas Act Application
Full Filing Requirements
(Title 18 Code of Federal Regulations Section 380.12)

380.12 (o) – Resource Report 13 – Engineering and Design Material	
FULL FILING REQUIREMENTS	
INFORMATION	DATA SOURCES [a]
☐ (13) Provide a list of all permits or approvals from local, state, federal, or Native American groups or Indian agencies required prior to and during construction of the plant, and the status of each, including the date filed, the date issued, and any known obstacles to approval. Include a description of data records required for submission to such agencies and transcripts of any public hearings by such agencies. Also provide copies of any correspondence relating to the actions by all, or any, of these agencies regarding all required approvals.	D
☐ (14) Identify how each applicable requirement will comply with Title 49 Code of Federal Regulations (CFR) part 193 and the National Fire Protection Association 59A LNG Standards. For new facilities, the siting requirements of 49 CFR part 193, subpart B, must be given special attention. If applicable, vapor dispersion calculations from LNG spills over water should also be presented to ensure compliance with the U.S. Coast Guard's LNG regulations in 33 CFR part 127.	D
☐ (15) Provide seismic information specified in "Data Requirements for the Seismic Review of LNG Facilities" (National Bureau of Standards Information Report 84-2833, available from Federal Energy Regulatory Commission staff) for facilities that would be located in zone 2, 3, or 4 of the Uniform Building Code Seismic Map of the United States.	D
[a] D Applicant	

ATTACHMENT 2

CUMULATIVE IMPACTS EXAMPLE TABLES

TABLE 1

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Soils	Soil impacts are generally short term, as soil conditions revert to preconstruction conditions soon after construction, once vegetation has covered the disturbed areas. Impacts could overlap between projects if soils are affected again or revegetation does not occur before another project is constructed. Impacts on soils are generally limited to the areas directly affected during construction up to a few hundred feet off of the right-of-way.	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes
	Included in Cumulative Impacts Analysis?	Yes – discussed further		No, distance prevents cumulative impacts on soils		No, distance prevents cumulative impacts on soils		No, distance prevents cumulative impacts on soils	
Geology	Geologic impacts can be longer term where the pipeline or aboveground facility affects the geology of the project area. This impact is limited to the areas disturbed by the construction.	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on geology		No, distance prevents cumulative impacts on geology		No, distance prevents cumulative impacts on geology	
Groundwater	Groundwater impacts are short term during construction and may occur for up to a few months following construction until soils stabilize with vegetation. This impact is typically limited to the areas disturbed by the construction up to a few hundred feet from the right-of-way.	Yes	No	No, over xx miles away	No	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on groundwater		No, distance prevents cumulative impacts on groundwater		No, distance prevents cumulative impacts on groundwater	

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Waterbodies	Waterbody (surface water) impacts are generally short term, limited to the period of construction and possibly continuing until revegetation is established on the adjacent right-of-way preventing erosion and subsequent turbidity. This is typically within a year of construction. Temperature increase can occur if waterbody banks are cleared. The impact on waterbodies generally occurs at the crossing location and some distance downstream (turbidity, temperature). The right-of-way width and stream crossings that occur in fields and previously cleared areas limit the impact the project has on water temperature.	Yes	Yes	The same watersheds could have been affected by both projects, but the majority of impacts were not concurrent and located at a distance that would allow for settling of turbidity, preventing cumulative impacts.	No	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, extent and timing of impacts prevent cumulative impacts on waterbodies		No, distance prevents cumulative impacts on waterbodies		No, distance prevents cumulative impacts on waterbodies	
Wetlands	Wetland impacts are generally short term in relation to function, but permanent where fill occurs or where forested wetlands are maintained as emergent/scrub-shrub and scrub-shrub wetlands are maintained as emergent wetlands following construction. This impact is typically limited to the areas disturbed by a project.	Yes	Yes	No, within the same county, but the distance prevents the impact on wetlands from being cumulative because they were restored and the wetlands function within different watersheds.	No	No, over xx miles away	Yes	No, over xx miles away	`No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, extent and timing of impacts prevent cumulative impacts on wetlands		No, distance prevents cumulative impacts on wetlands		No, distance prevents cumulative impacts on wetlands	

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Vegetation	Vegetation impacts range from short term to long term, depending on the vegetation type present before construction. The impact on vegetation is limited to the areas disturbed by construction, although edge effects can extend inward to intact forests a few hundred feet.	Yes	Yes	No, over xx miles away	No	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on vegetation		No, distance prevents cumulative impacts on vegetation		No, distance prevents cumulative impacts on vegetation	
Wildlife	Wildlife impacts are generally short term in non-forested areas, as the right-of-way returns to similar available habitat following construction and revegetation. Impacts on wildlife that use forested habitat may be long term or permanent due to fragmentation and the longer recovery time for this vegetation type. Impacts on wildlife typically extend a distance perpendicular from the disturbed areas but the disturbance depends on each individual species' tolerance and habitat needs.	Yes	Yes	No, over xx miles away	No	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on wildlife		No, distance prevents cumulative impacts on wildlife		No, distance prevents cumulative impacts on wildlife	
Threatened and Endangered Species	Impacts assessments for threatened and endangered species generally focus on species that could potentially be in the project area, and the potential that the proposed action would have an adverse effect on the species. The area of potential effect and, therefore, the area in which the potential for cumulative impacts is greatest, may be the same for all	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	No

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
	species in the project area or may vary from one species to the next and should be determined through consultations with the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration's National Marine Fisheries Service, as well as state and other agencies where appropriate.								
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on threatened and endangered species		No, distance prevents cumulative impacts on threatened and endangered species		No, distance prevents cumulative impacts on threatened and endangered species	
Socio-economics	Socioeconomic impacts are generally limited to the timeframe of construction, as the impact from increased people in the project area (including traffic) and use of services diminishes once construction is complete. Longer-term impacts may result from increased payments of taxes on the pipeline or aboveground facilities. Socioeconomic impacts can occur at a greater distance from the project, as workers stay in areas with available housing. This impact distance can vary greatly, but we consider the county level for this resource.	Yes	Yes	Yes	No, but if tax payments were required, this could result in a cumulative beneficial impact.	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		Yes, discussed further		No, distance prevents cumulative impacts on socioeconomics		No, distance prevents cumulative impacts on socioeconomics	

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Land Use/Visual Impacts	Land use impacts can be permanent due to the conversation of lands for aboveground facilities, or temporary in the case of the pipeline right-of-way and other construction work areas. Generally, the current land use can continue once a pipeline is constructed although certain restrictions may be placed on the easement (e.g., construction of structures). Overall, impacts on land use tend to be localized and limited to the municipality crossed by the facilities or, in the case of federal or state lands, the management unit directly affected. Impacts on recreational and special use areas can extend beyond the immediate area in the case of noise, dust, and traffic. The region of influence for these areas should coincide with the geographic extent used for noise, air quality, and traffic. Impacts on visual resources can also extend beyond the immediate construction area into the broader viewshed depending on the facility.	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on land use		No, distance prevents cumulative impacts on land use		No, distance prevents cumulative impacts on land use	

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Cultural Resources	Impacts on buried archaeological sites are localized, and can range from short term to permanent in duration. Impacts on aboveground resources could extend further depending on the visual setting and the importance of the visual setting to the resource. They are generally accounted for on a state-by-state basis.	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on cultural resources		No, distance prevents cumulative impacts on cultural resources		No, distance prevents cumulative impacts on cultural resources	
Noise	Noise impacts are generally limited to the timeframe of construction for pipelines. Noise impacts occur during both construction and operation for aboveground facilities. Noise attenuates quickly in air as the distance from the source increases but may extend further in aquatic environments. Noise during construction of terrestrial facilities usually is limited to the area within a few hundred feet of the construction activity and cumulative impact analysis typically focus on areas such as horizontal directional drill sites or aboveground facility sites where activities will be concentrated in one area for weeks or months. Cumulative impacts associated with operation of aboveground facilities often extend up to a mile from the facility.	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on noise		No, distance prevents cumulative impacts on noise		No, distance prevents cumulative impacts on noise	

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Air Quality	Air impacts are generally limited to the timeframe of construction for pipelines and to both construction and operation for aboveground facilities. Air impacts associated with operation of liquefied natural gas facilities and compressor stations are permanent (i.e., for the life of the project). The extent of impacts, including cumulative, depends in part on whether an area is meeting (attainment) or not meeting (nonattainment) the federal National Ambient Air Quality Standards. For nonattainment areas, cumulative impacts associated with operation of aboveground facilities can extend to the air quality control region. For attainment areas, the cumulative impacts often extend up to several miles from the facility.	Yes	Yes	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		Yes, discussed further		No, distance prevents cumulative impacts on air quality		No, distance prevents cumulative impacts on air quality	
Safety	Safety-related impacts include the potential for pipeline system incidents and generally focus on the area that could be impacted by a release of natural gas at either an aboveground facility or along the pipeline or an ignition of the released gas. This area is sometimes referred to as the potential impact radius.	Yes	Yes	No, over xx miles away	Yes	No, over xx miles away	Yes	No, over xx miles away	No
	Included in Cumulative Impacts Analysis?	Yes, discussed further		No, distance prevents cumulative impacts on safety		No, distance prevents cumulative impacts on safety		No, distance prevents cumulative impacts on safety	

TABLE 1 (cont'd)

Past, Present, and Reasonably Foreseeable Projects and Resources Considered in the Cumulative Impacts Analysis for the ABC Project

Resource	Temporal and Geographic Impact Limits for Cumulative Impact Analysis	Project 1		Project 2		Project 3		Project 4	
		Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project	Shared Geographic Area with Proposed Project	Shared Temporal Boundary with Proposed Project
Greenhouse Gases and Climate Change	Greenhouse gases are a global effect. Currently there is no methodology or policy guidance to determine how an individual project's incremental contribution to greenhouse gases GHG would translate into physical effects on the global environment. The cumulative impact assessment should address the contribution of the proposed project emissions as a percentage of total estimated greenhouse gas emissions worldwide. Emissions resulting from the proposed project, in combination with past and future emissions from other project sources, would increase the atmospheric concentration of greenhouse gases and contribute incrementally to climate change. However, it cannot be determined whether or not the project's contribution to cumulative impacts on climate change would be significant.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	Included in Cumulative Impacts Analysis?	Discussed qualitatively, but there is no methodology to determine cumulative impacts on global climate change.							

TABLE 2

Past, Present, and Reasonably Foreseeable Activities and Projects Considered in the Cumulative Impact Analysis for the ABC Project [a]

Activity/Project/ Project Proponent	Location	Distance from Project (miles)	Description	Timeframe	Resources Cumulatively Affected [b]
INDUSTRIAL DEVELOPMENTS					
XYZ Project XYZ Company	[Insert county, state]	xx	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	[Insert resource code(s) or "None anticipated"]
COMMERCIAL DEVELOPMENTS					
XYZ Project XYZ Company	[Insert county, state]	xx	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	[Insert resource code(s) or "None anticipated"]
RESIDENTIAL DEVELOPMENTS					
XYZ Project XYZ Company	[Insert county, state]	xx	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	[Insert resource code(s) or "None anticipated"]
OTHER DEVELOPMENTS					
XYZ Project XYZ Company	[Insert county, state]	xx	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	[Insert resource code(s) or "None anticipated"]

[a] This table lists those projects that are most likely to contribute to cumulative impacts within the vicinity of the proposed ABC Project; it is not intended to provide an all-inclusive listing of projects in the region.

[b]
A – Air
AR – Aquatic Resources
GS – Geology and Soils
GW – Groundwater
LS – Listed Species
LU – Land Use
N – Noise
R – Recreation
RT – Road Traffic
S – Socioeconomics
SW – Surface Water
VW – Vegetation and Wildlife
VT – Vessel Traffic
W – Wetlands

TABLE 3

Past, Present, and Reasonably Foreseeable Projects and Associated Resource Impacts Considered in the Cumulative Impacts Analysis for the ABC Project [a]

Project/Project Proponent	Project Description	Estimated Timeframe	Geology	Soils	Ground-water	Surface Water	Wet-lands	Veg	Wildlife	Listed Species	Socio	Land use	Recrea-tion	Visual	Cultural	Air	Noise
INDUSTRIAL DEVELOPMENTS																	
XYZ Project XYZ Company	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	–	–	+	+ [#] crossings	–	+ [#] ac forest	+	+ NLEB	+	+	+	–	+	+	–
COMMERCIAL DEVELOPMENTS																	
XYZ Project XYZ Company	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	–	–	+	–	–	–	–	–	+	+	–	–	–	+ [#] tpy NO_x	–
RESIDENTIAL DEVELOPMENTS																	
XYZ Project XYZ Company	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	–	–	+	–	–	–	–	–	+	+	–	–	–	+	–
OTHER DEVELOPMENTS																	
XYZ Project XYZ Company	[Insert brief project description, overall project footprint, and location relative to proposed project]	Construction = [Year] Operation = [Year]	+	+ [#] ac	X	+	X [#] ac PEM [#] ac PFO	X	+	+	X	X	+	X	+	+	+

[a] Only resources affected by the ABC Project are included in this analysis.

Key:

– Cumulative impacts precluded because outside defined geographic sphere of influence.

X The defined geographic sphere of influence for this resource would overlap for the listed project/activity and the ABC Project. However, because the listed project/activity would not affect this resource, cumulative impacts on the resource would not occur and were not considered further.

+ Project-related impacts are included in the cumulative impacts analysis provided herein. Quantitative impact information is provided in the table if available. Where quantitative information is not available, the discussion is based on a qualitative analysis.

Acronyms:

NLEB = Northern long-eared bat

PEM = Palustrine emergent

PFO = Palustrine forested

tpy = tons per year