IMPROVING IMPLEMENTATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

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Acronyms used in Text

ACHP – Advisory Council on Historic Preservation

ACOE – Army Corp of Engineers

AGA – American Gas Association

BA – Biological Assessment

BLM – Bureau of Land Management

BMP – Best Management Practice

BO – Biological Opinion

BTU – British Thermal Units

CEQ – Council on Environmental Quality

CEQA – California Environmental Quality Act

DOD – Department of Defense

DOE – Department of Energy

EA – Environmental Assessment

ER – Environmental Report

EIS – Environmental Impact Statement

EPRI – Electric Power Research Institute

ESA – Endangered Species Act

FERC – Federal Energy Regulatory Commission

FHWA – Federal Highway Administration

FONSI – Finding of Non-Significant Impact

GIS – Geographic information Systems

GTI – Gas Technology Institute

INGAA – Interstate Natural Gas Association of America

ISO – International Standards Organization

MOA – Memorandum of Agreement

NEPA – National Environmental Policy Act

NHPA – National Historic Preservation Act

ROW – Right of Way

SHPO – State Historic Preservation Office

SO_2 – Sulfur Dioxide

THPO – Tribal Historic Preservation Offices

USFS – U.S. Forest Service

USFWS – United States Fish and Wildlife Service

The Natural Gas Act authorizes the construction and operation of interstate natural gas pipelines, with regulatory oversight by the Federal Energy Regulatory Commission (FERC). Since these activities are performed under the authority of the Federal government, National Environmental Policy Act (NEPA) reviews are required.

Previous INGAA Foundation reports have forecast that the interstate natural gas pipeline industry will require more than $34 billion in infrastructure development through 2010 to satisfy the nation's demand for clean and dependable natural gas. This translates into approximately 2,000 miles of interstate natural gas transmission pipelines and associated facilities each year to reach a projected 30 trillion cubic foot natural gas market. Estimates are that up to 30 percent of the costs of these projects are environmentally related, and thus subject to NEPA regulations. Data requests, time delays and conflicting agency decisions contribute to the inefficient expenditure of resources and capital. Minor improvements in the NEPA process can result in significant cost savings to consumers.

This report presents the results of a study for The INGAA Foundation, Inc. by URS on NEPA implementation for interstate natural gas pipeline projects. The objective of the study is to improve the NEPA compliance process by increasing its efficiency and effectiveness. This would result in improved project implementation while providing adequate environmental protection. The specific objectives are to:

- Evaluate the legal and regulatory background of the NEPA compliance process as it relates to the natural gas pipeline industry;
- Evaluate the current NEPA compliance processes and requirements to determine their effectiveness and adequacy; and
- Develop recommendations concerning how to make the current NEPA compliance process more efficient and effective.

A variety of techniques were used to achieve these objectives, including a review of NEPA and other related major regulatory requirements, completion of two internal URS workshops involving technical and regulatory specialists and outside legal counsel, review of relevant major studies within the gas pipeline industry and completion of an extensive computer-based, key word literature search. The literature search provided substantial information, including detailed reviews of NEPA effectiveness and improvement, particularly by the Council on Environmental Quality (CEQ) and various researchers.

The study identified five major issues that exist with respect to the effectiveness of NEPA, including:

- Inadequate integration of NEPA compliance with NHPA and ESA compliance, and other Federal, State and local permitting;
- Inappropriate, overlapping and inconsistent Federal, State and local permitting and mitigation requirements;
- Inadequate interagency communication, coordination and decision-making;
- Delayed and inefficient completion of the NEPA compliance process; and
- Submittal of applications for inadequately planned and designed projects by pipeline companies.

For each issue, we present an overview and description, recommendations and steps to implement each recommendation. The results are summarized in the following table:

SUMMARY OF IDENTIFIED ISSUES AND RECOMMENDATIONS

Issue	Recommendations
1. Inadequate Integration of NEPA Compliance with NHPA and ESA, and Other Federal, State and Local Permitting Processes	a. Develop Improved Memoranda of Agreement (MOA) that Effectively Address: (1) Identify and Agree on Agency Jurisdiction by Cooperating Agencies (2) Use NEPA Documentation as Central Basis of Agency Decisions (3) Utilize NEPA Scoping Process as Input into Agency Decisions (4) Integrate Environmental Data Needs and Impact Assessment Methodologies (5) Identify and Agree on Review and Decision Timing of Reviews and Decisions (6) Develop a Conflict Resolution Process b. Improve the Individual NHPA, Section 106 Compliance Process c. Improve the Individual ESA, Section 7 Compliance Process
2. Inappropriate, Overlapping, Inconsistent and Inflexible Federal, State and Local Permitting and Mitigation Requirements	a. Improve Consistency and Effectiveness of Agency Completion of Reviews of Permitting and Mitigation Requirements b. Develop Improved MOAs to Minimize Overlapping and Inconsistent Federal State and Local Agency Permitting c. Utilize Updated Technical and Field Experience Data in NEPA Analysis d. Utilize Performance-Based and Industry Recommended Practices to Mitigate Effects e. Allow Broader Use of Construction and Post-Construction Inspection and Monitoring to Permit Flexibility in Mitigation Implementation
3. Inadequate Assessment of Environmental Impacts of Substituting Natural Gas for Other Fuels	a. Improve NEPA and Related Technical Analyses b. Consider Indirect Positive Air Quality Impacts in the Development of Pipeline Project Permitting and Mitigation Requirements c. Encourage Pipeline Project Applicants to Provide Information on Natural Gas Use by Facilities d. Develop Additional Data and Materials on Positive Air Quality Impacts e. Develop Workshops and Meetings with Regulatory Agency Personnel to Exchange Information and Increase Communication on Positive Air Quality Impacts
4. Inadequate Inter-Agency Communication, Coordination	a. Applicants should strongly consider collaborating with Stakeholders in the Pre-filing process

SUMMARY OF IDENTIFIED ISSUES AND RECOMMENDATIONS

Issue	Recommendations
and Decision-Making	b. Develop Improved General Operating and Project-Specific MOAs to Improve Coordination and Communication c. Applicants Should Conduct Pre-application Scoping Meetings and On-going Status Meetings with Agencies
5. Delayed and Inefficient Completion of NEPA Compliance Process	a. FERC Should Develop a Short Environmental Checklist/Assessment Instead of the Complete ER for Determination of Level of NEPA Compliance b. FERC Should Revise the ER Format to Make it More Consistent with a NEPA Document Format. c. FERC Should Prepare More EAs Instead of EISs
6. Submittal of Applications for Inadequately Planned and Designed Projects by Pipeline Companies	a. Pipeline Companies Complete Additional Project Planning and Engineering/Design in the Following Areas: (1) Applicants Should Improve the Routing Process to Avoid Sensitive Environmental Areas (2) Applicants Should Proactively Develop Feasible Alternative Routes (3) Applicants Should Develop Complete Project Descriptions Early in the Process and Identify Future Routing Changes as Routing Alternatives (4) Applicants Should Develop Alternative Construction Techniques to Achieve Acceptable Environmental Performance in Sensitive Areas (5) Applicants Should Improve Preparation of Project Permitting Requirements Analyses and Plans. (6) Applicants Should Propose Appropriate Mitigation Measures in the NEPA Document with Adequate Technical Support.

This report presents the results of a study for The INGAA Foundation, Inc. by URS on National Environmental Policy Act (NEPA) implementation for interstate natural gas pipeline projects. The industry and other groups believe that NEPA implementation by the Federal Energy Regulatory Commission (FERC) and other Federal agencies can be improved to make the process more efficient and effective. The objective of this study is to propose improvements to the NEPA compliance process that will increase its efficiency and effectiveness, resulting in improved project implementation while providing adequate environmental protection. The specific objectives of the study are:

- Evaluate the legal and regulatory background of the NEPA compliance process as it relates to the natural gas pipeline industry;
- Evaluate existing NEPA compliance processes and requirements to determine their effectiveness and adequacy; and
- Develop recommendations concerning how NEPA could be improved to become more efficient and effective.

The NEPA Implementation Study Report is organized in the following sections:

- Section One – Executive Summary
- Section Two – Introduction
- Section Three – Methods
- Section Four – Results and Discussion
- Section Five – Summary and Conclusions
- Section Six – References Cited.

The INGAA Foundation provided direction on the scope of the study. The study was completed in coordination with two additional Foundation studies, including the study of coordinating Federal agency review during the environmental approval process by Entrix, Inc. (INGAA, 1999) and an analysis of new regulations for compliance with the National Historic Preservation Act (NHPA), Section 106 completed by R. Christopher Goodwin and Associates, Inc. (INGAA, 2000).

Data and input for the study were collected by completing the following steps:

1. A review of NEPA, including the law, regulations and implementing procedures of various agencies.
2. A review of other related, major regulatory requirements, including FERC Certification requirements, Endangered Species Act (ESA) compliance requirements of the U.S. Fish and Wildlife Service (USFWS) and other agencies, and NHPA Section 106 requirements of the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Offices (SHPOs).
3. Completion of two workshops by the URS Project Team, including the Project Manager, key technical and regulatory specialists and outside legal counsel with a specialty in NEPA and related compliance (Chris Garrett, Latham and Watkins).
4. Review of recent work completed by GTI, including major studies in the areas of right-of-way (ROW) environmental Best Management Practices (BMPs), wetlands revegetation and other areas.
5. Completion of a computer-based, key word literature search. Key words included in the search included National Environmental Policy Act, NEPA, enhancement, improvement, communication, coordination, problems, efficiency, effectiveness, integration, Federal agencies, State agencies, local agencies and problems.

4.1 LEGAL AND REGULATORY BACKGROUND OF NEPA

NEPA is a key element of the Federal regulatory program. The purpose of NEPA is to establish a national environmental policy, and NEPA requires Federal agencies to:

- Act as an environmental trustee for future generations;
- Assure heartfelt, productive and aesthetically and culturally pleasing surroundings;
- Attain the widest possible range of beneficial uses of the environment without degradation or risk to health and safety;
- Achieve a balance between population and resource use; and
- Enhance the quality of renewable resources and encourage recycling of depletable resources.

The Council on Environmental Quality (CEQ) was created by the Act and was given the responsibility of providing structure and substance to the general and broad mandates of the Act. The CEQ was established to develop and recommend national environmental policies, and to promote improvement of environmental quality.

The CEQ has developed general guidelines and regulations, and required each Federal agency to adopt specific guidelines or implement procedures consistent with the overall responsibilities of the agency. CEQ regulations emphasize the goal of developing better decisions, not just NEPA documents (1500.1). The CEQ regulations include three basic themes (Freeman et al., 1992):

- Early and continuous communication with the public and agencies;
- Early consideration of significant environmental consequences; and
- Consideration of all reasonable alternatives.

Federal agencies must balance the need for the action with the impacts of the action and the costs of mitigation. Agencies are required to assess the significance of environmental impacts and consider reasonable alternatives to avoid, minimize or mitigate adverse impacts. A variety of criteria can be used to assess impact significance. A proposed alternative is generally considered reasonable unless it is not physically possible or makes an unwarranted assumption. The reasonableness of an alternative also can be evaluated on the basis of the level of technology required to implement the alternative. If the required technology is unavailable then the alternative may be considered unreasonable.

NEPA does not include any provisions for State implementation because it is directed at the actions of Federal agencies. However, there are three indirect ties between NEPA and other Federal, State and local environmental authorities (Freeman et al., 1992). First, CEQ directs Federal agencies to consult with other agency personnel who have first-hand knowledge or jurisdiction over significant environmental concerns (1501.1(b)). Second, NEPA encourages cooperation between Federal, State and local agencies concerning NEPA and similar State and local requirements (NEPA 101(a)). Third, agency NEPA regulations require that NEPA documents list the required Federal, State and local permits and approvals for the proposed action.

NEPA requires that responsible Federal officials plan for meeting requirements established by other Federal, State and local authorities. It is the intent of NEPA that compliance with all of these requirements be integrated in order to:

- "Insure appropriate consideration of NEPA policies and planning and to eliminate delay (1501.1(a));
- Identify at an early stage the significant environmental issues (1501.1(d));
- Insure that planning and decisions reflect environmental values, to avoid delays, … and to head off potential conflicts (1501.2)."

CEQ regulations also include the following specific direction on these points:

- Integrate NEPA requirements with other environmental reviews and consultation requirements (1500.4(k), 1500.5(g), 1502.25);
- Integrate the NEPA process with other planning at the earliest possible time (1501.2);
- Eliminate duplication with State and local procedures (1506.2)
- Integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency proactively so that all procedures run concurrently rather than consecutively (1500.1(c)); and
- Reduce duplication between NEPA and State, local and other Federal procedures (1500.4(n), 1506.2, 1506.3).

The regulations also require (1502.25) integration of EIS's with the environmental impact analyses and related surveys and studies required by the Fish and Wildlife Coordination Act, NHPA and ESA.

4.2 EVALUATION OF CURRENT NEPA COMPLIANCE PROCESS

4.2.1 CEQ Evaluation

One of the responsibilities of the CEQ is to complete an annual review of the state of NEPA compliance and to recommend ways to improve NEPA compliance. The CEQ recently completed a major study of the effectiveness of NEPA (CEQ, 1997) after 25 years of implementation. This study concluded that five elements of the NEPA process are critical to its effective and efficient implementation, including:

- Strategic planning—the extent to which agencies integrate NEPA's goals into their internal planning processes at an early stage.
- Public information and input—the extent to which an agency provides information to and takes into account the views of the surrounding community and other interested members of the public during its planning and decision-making process.
- Interagency coordination—how well and how easily agencies share information and integrate planning responsibilities with other agencies.

- Interdisciplinary, place-based approach to decision-making that focuses the knowledge and values from a variety of sources on a specific place.
- Science-based and flexible management approaches once projects are approved.

Some of these areas are particularly relevant to the issues being addressed in this study, including public information and input, interagency coordination and flexible management approach. With respect to public information and input, the CEQ study concluded that Environmental Assessments (EAs) are a promising tool for maintaining public involvement while streamlining the process. Now, EAs increasingly include sufficient mitigation measures to reduce adverse effects to below significant levels. However, the preparation of an EA instead of an EIS is the most common source of conflict and litigation under NEPA. This study suggests the use of increased levels of scoping and public participation in EA preparation as a possible mechanism to reduce legal challenges.

With respect to interagency coordination, the study concluded that agencies use NEPA as a key integrating tool to consolidate and coordinate compliance with all applicable Federal, State and local environmental regulatory requirements. CEQ regulations specifically require integrating the various required analyses under different environmental laws in a single combined analysis. The specific tools for achieving this integration were considered to be as follows:

- Using scoping and tiering to prevent duplication of analyses;
- Concurrent preparation of environmental studies under NEPA and other laws;
- Combining documents under NEPA and other laws; and
- Combining public participation under NEPA and other laws.

NEPA provides a unique opportunity to streamline review and permitting efforts. However, many agencies have failed to use NEPA appropriately by becoming involved early in the process and continuing to be actively involved during the process. The study concluded that agencies often have different, and sometimes conflicting, timetables, requirements and public participation processes.

With respect to flexible management approaches, once projects are approved, the study concluded that agencies should monitor to confirm impact conclusions, ensure that mitigation measures are effective and adapt projects to account for unintended consequences. Study participants supported the use of monitoring and adaptive management to address the uncertainties of environmental impact prediction. Project permitting can be expedited by accepting more uncertainty in NEPA analyses and documents and using more flexible management approaches during project implementation. The study described this new approach

reflect the need to monitor the accuracy of predictions and allow sufficient flexibility for mid-course (i.e., mid-project) corrections.

The results of a major 1991 CEQ workshop, *NEPA Integration: Effective, Efficient Environmental Compliance in 1990s* (CEQ, 1991) provide the following guidance with respect to a key issue in NEPA compliance-agency coordination and cooperation:

1. There is need for greater cooperation in the NEPA process within and among agencies at all levels of government. The barriers to effective, efficient cooperation are largely attitudinal. Considerable time and money are wasted arguing about the propriety of a particular agency position instead of trying to reach a reasonable accommodation, including a constructive compromise.
2. Outside assistance often is needed, but not always pursued, to resolve differences among and between agencies. Alternative means of securing such assistance might include:
   - Consultation with CEQ;
   - Compacts to facilitate integration of agency responsibilities;
   - Standardized procedures or model memoranda of agreement;
   - An administrative framework or matrix that would allow two or more agencies to share decision-making responsibilities; and
   - Alternative dispute resolution measures.
3. Frequent personnel and organizational changes within the bureaucracy require that the CEQ listing of agency contacts and areas of expertise be periodically updated to assist policy, program and project sponsors in identifying other agencies whose cooperation may be required in the early planning stages.
4. A single, reliable set of environmental indicators, comparable to economic indicators used to communicate economic trends in cost of living, national product and other areas, is needed and should be developed and made available to all agencies as quickly as possible. This measure will help to build consistency into environmental analyses under NEPA and other environmental laws. Such indicators also are essential to enable officials to assess with some degree of confidence the effectiveness of ongoing environmental policies and programs.
5. Cooperating agencies are generally reluctant to commit funds to studies in which they have been asked to participate, especially in the very early stages of development.

The 1991 CEQ workshop also identified the following as action items for Federal agencies concerning NEPA implementation:

1. All agencies of the Federal government should conduct a thorough ongoing review of, and periodically re-examine, existing authorizations, policies and procedures to assure that NEPA is being implemented and administered to fullest advantage, not only in terms of achieving the act's objectives, but also for purposes of satisfying other important requirements of the NEPA process, such as reducing paperwork and administrative delay.
2. Federal agencies must look beyond the EIS component of NEPA in fashioning effective, efficient environmental management programs. In addition to fully implementing the mandates of NEPA, including section 102(2)(B), Federal agencies should boldly exercise their discretion, responding imaginatively and resourcefully to the present-day planning and management challenges of integrating environmental and non-environmental policies. All provisions of NEPA and its special process as well as other coordinative management techniques, including the use of memoranda of agreement for policy and program implementation, should be creatively exploited.

3. Federal agency officials should consult with CEQ, not just when crises are imminent or in the context of formal agency proceedings, but early and informally in any program effort where questions concerning approaches to environmental quality issues are presented. CEQ is empowered to assist Federal agencies and departments in appraising the effectiveness of existing and proposed facilities, programs, policies and activities and in coordinating efforts within the Federal family to protect and improve environmental quality. However, individual departments and agencies must actively seek the assistance of CEQ, which lacks the resources to monitor all Federal government programs and activities.

4.2.2 Other Studies on NEPA Implementation

The literature review identified a number of other papers that addressed improving the efficiency and efficacy of NEPA. In addition to the CEQ analysis, there are three notable recent Federal efforts involving improving NEPA efficiency:

1. The Federal Highway Administration (FHWA) has developed an Environmental Streamlining National Action Plan and Status Report (FHWA 2000), which has numerous recommended actions, some of which are applicable to other types of activities. This plan is currently in draft form, and FHWA is developing numerous related documents and efforts which are described on their website. Current practice for FHWA is four to six years to prepare an average EIS, and 18 months to prepare an EA.
2. The Green River Advisory Committee was convened by Interior Secretary Babbitt, and was comprised of environmental, oil and gas industry, private landowner, State and local government and Federal agency representatives. The Committee was formed to address perceived conflicts between natural gas development and protection of environmental values in southwest Wyoming and northeast Colorado. Their objective was to streamline the NEPA process by achieving 50 percent reductions in time and paperwork. Their recommendations were presented in Green River Advisory Committee (1996).
3. The House of Representatives (Committee on Resources, 1998), held hearings on NEPA in 1998, which included testimony by industry representatives. The most useful suggestions were provided by Randy Allen, Rivergas Corporation; Rocky Mountain Oil and Gas Association; American Petroleum Institute and Dan Chu, Wyoming Wildlife Federation.

The other papers reviewed were mostly presented in professional meetings or publications. Most of them were written from the point of view of the Federal agency or environmental consultant, with industry viewpoints rarely addressed. Many appear to be written for Department of Energy (DOE) or Department of Defense (DOD) facility compliance, and include recommendations that are not applicable to linear projects involving multiple agencies. Many include practical recommendations that are helpful to NEPA document preparers or agency managers, but of limited value to pipeline companies. Documents reviewed include Blaug (1993); Thompson (1982); Reed et al. (1991); Koo (1984); Lee and Russell (1999); Jenson (1998); Salk et al. (1999); Hansen and Wolff (1998); Federal Highway Administration (2000); Ensminger and McLean (1993); Conley and Odegard (1992); Herson and Bass (1998); Canter and Clark (1997); Wilkinson (1998); Smillie and Swartz (1997); Eccleston (1998); CEQ (1991); McCormick, Taylor and Associates (1995); and Bell (1998).

Collectively, these papers make the following recommendations:

Interagency Coordination

- Integrate the NEPA process with other environmental compliance and review processes; establish timely, and where feasible, concurrent project reviews;
- Ensure early, sustained and continuous involvement of Federal and State resource agencies;
- Negotiate formal agreements among Federal and State partners;
- Develop timeframes for individual project review;
- Use Section 404, Section 106 and Section 7 consultations and coordination to identify project measures that will reduce impacts;
- Establish an integrated review and permitting process that identifies key decision points and potential conflicts as soon as possible;
- Create dispute resolution processes to provide mechanisms to address unresolved issues; outside assistance may be needed to resolve differences among and between agencies;
- Provide oversight to ensure accountability of local agency staff;
- EPA should be involved earlier than review of Draft EISs;
- Proponents should provide "aggressive support" for interagency coordination through frequent meetings and communications; and
- Agencies should reduce institutional barriers to cumulative impact analyses.

Management/Planning

- Incorporate NEPA into early project planning, when decisions are being made;
- Accelerate the decision time for determining the appropriate level of NEPA documentation (EIS/EA/CATX);
- Use more tiering and policy/program level EISs in NEPA documentation; group small projects in one NEPA document;
- Facilitate communication among proponents, stakeholders, and NEPA document preparers;
- Use a NEPA facilitator to increase government agency personnel involvement and NEPA team building, instead of delegating most of the work to a third-party consultant;
- Improve definition of purpose and need, define alternatives based on purpose and need, eliminate inappropriate or nonviable alternatives;
- Minimize environmental impacts, use area-wide mitigations, keep projects on schedule through the use of conflict avoidance and resolution processes;
- Improve coordination among proponents, agencies and third-party contractors; and
- Improve proponent applications, applicants submit conceptual project plans with standard operating procedures and preferred mitigation to help resolve issues early, diffuse controversy, reduce environmental impacts, and minimize appeals.

Scoping/Public Involvement

- Conduct early and thorough internal scoping; plan the work as early as possible to reduce delay and paperwork;
- Use public scoping processes that are participatory rather than confrontational; and
- Agencies should be more willing to dismiss frivolous or ideological public comments that are not focused on project-specific issues.

Baseline Data

- Maintain an up-to-date compendium of environmental baseline information, identify and use existing information to reduce documentation and enhance confidence in the environmental analysis; and
- Improve quality of agency field data, consolidate agency databases, develop reliable and complete biological databases; implement preventative monitoring and mitigation.

Impact Analysis

- Increase monitoring to provide a baseline for more accurate impact assessment in the future (not learning enough from large numbers of EISs prepared); use adaptive management techniques and ISO 14000;
- Measure continuous improvement through best practices and evaluation techniques such as performance standards;
- Develop guidelines or standards;
- Focus on significant issues (those affecting decision); screen out peripheral matters and previously resolved issues; level of analysis should be consistent with the weight of impacts; and
- Improve consistency of cumulative impact assessment.

Document Preparation

- Prepare annotated outlines that serve as a road map for EA or EIS preparation;
- Decrease the length and complexity of highly technical portions of NEPA documents;
- Work diligently to prepare better organized, shorter, more readable NEPA documents; create effective, inviting documents that will be easy for decision makers and the public to use;
- Focus assessments to address issues of concern, facilitate clarity of thought, and hone presentation of information;
- Adhere to page limitations;
- Prepare decision paper for the non-technical public;
- Limit documents to include only information useful to the decision makers and the public; and
- Use appendices, technical reports and incorporation by reference to limit size of NEPA documents.

Agency Management of NEPA

- Increase and improve NEPA training for agency personnel;
- Increase agency budgets to free up personnel for NEPA compliance;
- Install NEPA coordinators in agencies to coordinate NEPA compliance efforts;
- Allocate resources to allow adequate staffing;
- Increase internal agency support for NEPA compliance; and
- Agencies begin NEPA process in early project planning.

Mitigation/Monitoring

- Establish controls and agreements to ensure compliance with the conditions upon which approvals are based;
- Increase oversight and monitoring of mitigation implementation, complete audits of implementation; and
- Increase use of mitigation MOUs.

CEQ Guidance/Agency Regulations

- Provide more guidance on scoping and public involvement;
- CEQ update regulations to reflect the current agency use of EAs and mitigated FONSIs;
- CEQ should provide time limit guidance for private actions subject to Federal approvals;
- Institute Federal agency accountability in the NEPA process;
- Increase use of categorical exclusions;
- Provide guidance on definition of significance;
- CEQ should require greater consistency in agency regulations;
- CEQ should provide minimum monitoring and reporting requirements for EISs and EA/FONSI actions; and
- CEQ/agencies develop good practice guides for mitigation planning and implementation.

Most of these recommendations focus on improving NEPA practices, although some cover improvement of NEPA regulations and guidance. Some obviously either are not applicable to interstate natural gas pipeline projects, or are beyond the ability and authority of pipeline companies.

4.2.3 Interstate Natural Gas Pipeline Industry Evaluation

Our experience indicates that the interstate natural gas pipeline industry, including pipeline companies, construction contractors, environmental consultants and other groups, and some regulatory and resource management agency staff, believe that NEPA and related Federal, State and local environmental regulatory requirements could be implemented more effectively, resulting in improved project implementation while still avoiding significant environmental

impacts and meeting regulatory requirements. More specifically, we suggest that the major deficiencies exist with respect to implementation of NEPA are as follows:

- Inadequate integration of NEPA compliance with NHPA and ESA compliance, and other Federal, State and local permitting;
- Inappropriate, overlapping and inconsistent Federal, State and local permitting, and mitigation requirements;
- Inadequate inter-agency communication, coordination and decision-making;
- Delayed and inefficient completion of the NEPA compliance process; and
- Submittal of applications for inadequately planned and designed projects by pipeline companies.

4.3 RECOMMENDATIONS FOR IMPROVEMENT OF CURRENT NEPA COMPLIANCE PROCESS

We have developed several recommendations for addressing each of the five key issues identified in Section 4.2.3. The recommendations presented here by URS build on certain of the recommendations that have been made in the past by CEQ and other recommendations included in the substantial technical literature reviewed as part of this study, as influenced by our experience, our assessment of the experience of the interstate natural gas pipeline industry and regulatory agencies, and the specific characteristics of natural gas pipeline projects.

4.3.1 Issue 1 –Inadequate Integration of NEPA Compliance with NHPA and ESA Compliance, and Other Federal, State and Local Permitting

4.3.1.1 Introduction

It is clearly the intent of NEPA and CEQ regulations that NEPA should be the central point of integration and coordination of required Federal, State and local compliance and permitting, and that duplication of State and local procedures should be eliminated or reduced, and that all Federal, State and local procedures be completed concurrently. The other major Federal compliance and permitting areas include the NHPA and ESA compliance, U.S. Army Corps of Engineers (USACOE) Section 404 permitting and NEPA compliance by all involved Federal agencies, including the FERC, Bureau of Land Management (BLM), U.S. Forest Service (USFS), U.S. Department of Defense (DOD) and other agencies. Figure 2 presents a flow chart showing a summary of the relationships among the major Federal requirements. Typical State permitting requirements include those related to wetlands, river and stream crossings, hydrostatic test water intake and discharge, compressor station air discharges, erosion and sediment control, vegetation and wildlife, endangered species, land use, cultural resources and other areas. Typical local permitting is related to wetlands, land use, soils, erosion and sediment control, road crossings and other areas.

However, there is clearly a need to increase the early integration of NEPA compliance with NHPA and ESA compliance, and other Federal, State and local permitting. On many pipeline projects, the various Federal, State and local compliance efforts are completed too separately or

independently, resulting in inconsistent conclusions and requirements, schedule delays, cost increases and inefficiency. With respect to NHPA and ESA compliance, the typical problem is that the major conclusions and decisions made in these two processes are not available at the appropriate time in the NEPA compliance process and that these conclusions may be inconsistent with the conclusions of NEPA assessment. For example, the assessments leading to compliance with the NHPA and ESA may lead to a requirement to use a particular proposed or alternative pipeline route while the NEPA compliance assessment, if not integrated with NHPA and ESA compliance, could lead to a different agency conclusion regarding preferred pipeline routing. Similar potential problems exist with respect to other Federal, State and local compliance efforts.

4.3.1.2 Recommendations

We have developed recommendations in three categories to address the issue, increasing the early integration of NEPA compliance with other permitting, including Memoranda of Agreement (MOAs), the NHPA, Section 106 compliance process and the ESA, Section 7 compliance process. With respect to MOAs, we suggest that development of improved MOAs or other similar agreement documents could significantly improve the integration of NEPA, NHPA, ESA and other Federal, State and local compliance efforts. More specifically, we suggest that MOAs or other agreement documents could be significantly improved in the following areas:

- Cooperating agency identification;
- Agreement on agency jurisdiction;
- Identification of agency decisions to be made using NEPA documents;
- Scoping;
- Environmental data needs;
- Environmental impact assessment methodologies;
- Timing of reviews and decisions; and
- Conflict resolution.

Such MOAs could include general operating MOAs or project-specific MOAs. General operating MOAs would be signed by two or more agencies to address how certain elements of their respective compliance responsibilities will be completed over the long term on specific projects. These types of agreements have been signed in the past, generally between two agencies, with some success. We believe that this approach could be used more broadly in the future to address a variety of issues identified in this report. General operating MOAs probably would focus on issues such as agency jurisdiction and conflict resolution and possibly the timing of reviews and decisions. General operating MOAs also could form a "shell or umbrella agreement" under which more detailed project-specific agreements could be developed. Project-specific MOAs probably would focus on issues such as scoping, cooperating agency identification, identification of agency decisions to be made using the NEPA document, environmental data needs, impact assessment methodologies, timing of reviews and decisions and conflict resolution. It would be most effective to use a combination of general operating MOAs and project-specific MOAs.

Memoranda of Agreement

Identify and Agree on Agency Jurisdiction by Cooperating Agencies

The initial step in improved MOA development is to ensure that all Federal, State and local agencies with jurisdiction and permitting responsibilities are identified and made part of the NEPA compliance process. This step should include using a more proactive and direct approach to ensure that all appropriate agencies are made a part of the MOA process. We also recommend that in the case of overlapping agency jurisdiction, which is quite common and potentially problematic, agreements should be developed to facilitate the process of effectively making decisions on permitting and mitigation responsibilities. One option includes one agency taking primary or lead responsibility but obtaining input from other agencies with overlapping jurisdiction. Recommended lead and supporting agencies for some key resource areas and related regulatory areas are listed below in Table 1.

Table 1

RECOMMENDED LEAD AND SUPPORTING AGENCY RESPONSIBILITIES FOR KEY RESOURCE/REGULATORY AREAS

Resource/ Regulatory Area	Agency or Other Group Responsibility	
	Lead	**Support**
Soils	Natural Resource Conservation Service (NRCS) (private lands), BLM and USFS (Federal lands, as appropriate)	State and local agencies, FERC
Water Resources (Stream and River Crossings)	ACOE (overall), State agencies (State and private lands), BLM and USFS (Federal lands, as appropriate)	FERC, local agencies
Biological Resources		
– Endangered Species	Federal – USFWS	--
	State – State agencies	--
– Wetlands	ACOE (overall), State agencies (State and private lands), BLM and USFS (Federal lands, as appropriate)	FERC, local agencies
– Other Resources	State agencies (State and private lands), BLM and USFS (Federal lands, as appropriate)	FERC, USFWS
Agriculture	Landowner	State and local agencies, FERC, NRCS

A second, less desirable, option would include not having one agency take lead responsibility, but facilitating the process of obtaining input from the jurisdictional agencies and making the required decisions. To be effective, this option would include improved communication, coordination, decision-making and conflict resolution procedures as part of the process.

Use NEPA Documentation as Central Basis of Agency Decisions

It also would be helpful to specifically identify in the MOA the agency decisions that will be made using the NEPA compliance document and to explicitly agree in the MOA that the NEPA document will be used as the central basis for all significant decision-making by the involved agencies. We believe that this early action would help ensure that all issues of importance to the involved agencies are identified and addressed in the NEPA document, that the NEPA document includes all of the information and analyses required by each agency to make its decisions and that NEPA is used as the central basis for agency decision-making, as intended.

Utilize NEPA Scoping Process as Input into Agency Decisions

In the area of scoping, the critical issue is ensuring that all involved agencies use the NEPA scoping process as an opportunity to provide early input on their jurisdiction, responsibilities, policies, procedures, issues of concern, requirements for review and analysis, and mitigation requirements. Such early actions by NEPA lead agencies and project proponents will ensure that this includes oral and written input in scoping meetings, other project meetings, correspondence and telephone communication. All input should be eventually provided in written form. Lead agencies should consider using standardized forms to collect all required information. A recommended agency scoping input form is shown in Table 2. Aggressive follow-up should be completed with agencies that do not respond to initial requests for scoping input and meeting participation.

Table 2

RECOMMENDED AGENCY SCOPING INPUT FORM

Agency:
Lead Agency Representative (Name, Title, Telephone, Fax, Email, Address):
Project:
Required Permit(s) or Approvals:
Key Issues of Concern:
Applicable Regulatory Requirements and Standards:
Required or Recommended Technical Analyses:
Required, Recommended or Potential Mitigation Measures:
Agreement to Use NEPA Document for Decision-Making (Yes/No):
Signature of Designated Agency Representative:

Integrate Environmental Data Needs and Impact Assessment Methodologies

Two additional areas should be specifically addressed during scoping, including agency environmental data needs and suggested or required environmental impact assessment methodologies. Specific agency requirements or suggestions in these areas must be identified during scoping to satisfy all NEPA technical requirements. In addition, a comprehensive environmental database should be developed to meet all agency requirements at one time and to ensure that the project schedule is achieved.

Identify and Agree on Review and Decision Timing

An additional critical element to address in MOAs or other project agreements is the timing of agency and proponent reviews and decisions. MOAs should specifically identify and agree to the timing of all required agency and proponent input, reviews and decisions, including starting points, durations and ending points. This would assist in the development of compliance and review processes and schedules that provide the required information at the required times and the allocation of agency and proponent attention and resources at the required times to make the necessary decisions.

Develop a Conflict Resolution Process

Finally, MOAs should specifically identify the process by which potential disputes or significant differences of opinion among agencies, proponents and other possible groups are to be resolved. Potential dispute resolution procedures could include the use of outside facilitators, agency management review boards and other similar actions. We suggest that this type of approach will save time and achieve better project results.

Improve the Individual NHPA, Section 106 Compliance Process

In the area of NHPA, Section 106 compliance as an individual process, we support the recommendations made by Goodwin and Associates (2000) in the report, *"Analysis of Regulations for Compliance with Section 106 of the National Historic Preservation Act of 1966, as Amended."* Goodwin's suggestions that are relevant to this study include:

- Industry should encourage FERC to:
  - Recognize NEPA as an alternative process in meeting NHPA requirements;
  - Develop standard protocols for identifying and qualifying consulting parties to the process;
  - Develop standard protocols for authorizing the applicant to initiate and proceed with the Section 106 process; and
  - Consider negotiation of a Programmatic Agreement among the Tribal Historic Preservation Offices (THPOs), Advisory Council, and FERC to empower authorized applicants to consult with THPOs in the process.

We also recommend completing the following actions:

- Industry should work closely with FERC and other involved groups during the implementation phase of the revised requirements to ensure that their interests are represented;

- Industry and FERC should work closely with the Advisory Council to establish standard methods for treatment of recurring situations;
- Industry should work closely with FERC and the Advisory Council to develop more flexible responses for post-review discovery situations; and
- Industry should take full advantage of opportunities to direct and control the compliance process, such as early consultation with SHPOs and THPOs. FERC should be requested by industry to authorize this applicant participation.

Improve the Individual ESA, Section 7 Compliance Process

In the area of ESA, Section 7 compliance as an individual process, we have the following recommendations:

- Project proponents should optimize the new requirement included in FERC Order 603 (Section 380.13) to act as FERC's non-Federal representative for ESA compliance. This process includes the proponent completing informal consultation with USFWS, including all required scoping, discussion and negotiation, and preparing the Biological Assessment (BA). This new requirement allows the proponent to direct the process and expedite permitting.
- Agencies and proponents should ensure that an early BA prepared by the NEPA Lead Agency or proponent covers the proposed action and alternatives. This will ensure that the final selected alternative for the project has adequate ESA compliance, and that schedule delays do not occur as a result of having insufficient biological survey results and assessment for the agency-approved pipeline route, compressor station site or other project facility.
- Consider using the actual NEPA document as the BA. This would reduce the time and effort needed to prepare a separate BA document, even though some technical appendices may be needed to support conclusions presented in the NEPA document.
- Ensure that an early BA is available at the time of the Draft EIS. This allows adequate time for agency, particularly USFWS, review of the BA and preparation of the USFWS Biological Opinion (BO) in time for inclusion in the Final EIS and agency decision documents.
- Ensure that biological field surveys are completed at the appropriate time in the project schedule. We strongly recommend that project proponents complete all required biological field surveys at a time that allows the results to be included in the Certificate application Environmental Report. This would allow the previous recommendations to be completed.

Applicants can expedite the NEPA, ESA and NHPA compliance processes by maximizing their direct participation in these processes. More specifically, whenever field or other data collection or analysis can be completed by the applicant, we strongly suggest that the applicant complete this work to avoid problems related to lack of personnel, budget and other resources that regulatory agencies often have. Specific areas where applicants can complete field and other data collection and analysis include endangered species, wetlands, vegetation, wildlife, aquatic resources, archaeological resources and land use. FERC requires that applicants collect this information but other agencies that may be cooperating NEPA agencies often have assumed responsibility for this work, although they typically use third-party contractors to complete the work.

Other participation by applicants in these processes should include scoping, development of assessment approaches and methods, providing substantial input to development of the purpose and need and project description sections, project progress meetings, review of preliminary draft document materials, and discussion of preliminary impact conclusions and development of mitigation measures.

4.3.1.3 Implementation Steps

With respect to the development of improved MOAs, we recommend that INGAA review the model Interagency Agreement recently developed by Entrix (INGAA, 1999) to determine if INGAA wants to make any modifications of the model agreement to incorporate the suggestions made in Section 4.3.1.2. We suggest that the model agreement could be improved by adding language to cover the following areas addressed in our recommendations:

- Cooperating agency identification;
- Agreement on agency jurisdiction and responsibility; and
- Identification of agency decisions to be made using the NEPA document.

We recommend that INGAA work closely with the relevant agencies and industry to develop and sign general operating MOAs or similar agreements. INGAA also should encourage pipeline companies to develop good project-specific MOAs.

With respect to improving the individual NHPA and ESA compliance processes, we recommend that project proponents work to ensure that the recommended actions identified in this report are completed on their individual projects, as appropriate. This would involve project proponents working closely with the involved agencies to ensure that these issues are addressed and these actions taken, as appropriate.

4.3.2 Issue 2 - Inappropriate, Overlapping, Inconsistent and Inflexible Federal, State and Local Permitting and Mitigation Requirements

4.3.2.1 Introduction

In addition to insufficient integration of NEPA and other Federal, State and local permitting and decision-making, we also suggest that some specific inappropriate, overlapping, inconsistent and inflexible permitting and mitigation requirements exist at the Federal, State and local levels.

We have separated this issue from Issue 1 even though they are clearly related. Issue 2 covers specific project-related permitting and mitigation requirements while Issue 1 covers the broader topic of integrated NEPA compliance. In our experience, the key resource and regulatory areas with these types of requirements are as follows:

- River and stream crossings/surface water quality standards;
- Erosion and sediment control;
- Wetlands; and
- Other biological resources.

Again, it is clearly the intent of NEPA to integrate NEPA requirements with other Federal, State and local reviews and requirements, and CEQ regulations on NEPA compliance require the elimination of duplication with State and local procedures.

4.3.2.2 Recommendations

We have developed a set of recommendations to address this issue, including recommendations in the following categories:

- Agency reviews of permitting and mitigation requirements to improve consistency and effectiveness;
- Development of improved MOAs to reduce overlap and inconsistency;
- Completion of improved NEPA and related technical analyses to better define impacts and required mitigation;
- Broader use of industry and agency Best Management Practices (BMPs) and performance-based measures to select mitigation; and
- Broader use of construction and post-construction inspection and monitoring to allow flexibility in mitigation implementation.

Improve Consistency and Effectiveness of Agency Reviews of Permitting and Mitigation Requirements

An example of an inconsistent requirement that could be addressed using this approach is that FERC currently uses the 1989 wetlands manual while ACOE and other agencies use the 1987 manual. In order to maximize inter-agency consistency and stay current with advances in environmental, pipeline design and pipeline construction technologies, we recommend that Federal, State and local agencies complete annual or bi-annual reviews of their requirements and guidelines, evaluate potentially required changes and implement appropriate changes. This effort could also be helpful in reducing overlaps of different agency requirements, especially if agencies completed such reviews in a coordinated way involving discussion and group decision-making. Suggestions also could be solicited from non-agency groups such as GTI, INGAA, pipeline companies, individual experts, construction contractors, pipeline design engineering firms and environmental consultants.

Develop Improved MOAs to Minimize Overlapping and Inconsistent Federal, State and Local Agency Permitting

In Section 4.3.1, we recommended that the MOA development process could be improved in several ways to address inadequate integration of NEPA, NHPA and ESA compliance, and other Federal, State and local permitting. We also suggest that MOA development could be improved to address the issue of overlapping and inconsistent Federal, State and local agency permitting and mitigation requirements. This approach could include the use of both general operating MOAs and project-specific MOAs. As noted in Section 4.3.1, general operating MOAs probably would focus on agency jurisdiction and conflict resolution. Project-specific MOAs would cover a broader set of topics.

We suggest that if general operating MOAs or project-specific MOAs were used to reduce overlap of agency jurisdiction using a division of resource area responsibilities similar to that presented in Table 1, along with implementing other recommendations made in this report, there would be significant reduction of overlapping and inconsistent requirements.

Utilize Updated Technical and Field Experience Data in NEPA Analysis

We believe that the quality and accuracy of NEPA compliance documents and related technical analyses could be significantly improved by using the available technical and scientific literature and the results of construction and post-construction monitoring programs completed for previous interstate natural gas pipeline projects. We believe that many recent NEPA compliance documents prepared for projects largely repeat the same assessment without using information that is currently available from the sources listed above. In the case of monitoring program reports, the magnitude and quality of the available information is increasing substantially every year. This information is valuable because it provides accurate information on actual, on-the-ground impacts that result from pipeline project implementation. This monitoring information also provides substantial, practical data on the effectiveness of many types of pre-construction, construction, post-construction and operational mitigation measures required by agencies or otherwise used by pipeline companies or construction contractors. There is no substitute for this type of information on the actual impacts of pipeline project implementation.

The available technical and scientific literature includes significant and directly relevant information developed by GTI, Electric Power Research Institute (EPRI), American Gas Association (AGA), Southern Gas Association (SGA), INGAA and other groups and researchers that could make NEPA analyses much more focused on the real issues of concern and more accurate with respect to impact conclusions, and allow them to present more effective and practical mitigation measures. We suggest that the technical resource areas where these suggestions are most relevant include erosion and sediment control, river and stream crossings, habitat fragmentation, revegetation, wetland crossings and revegetation, and other biological resources.

Utilize Performance-Based and Industry Recommended Practices to Mitigate Effects

Mitigation technology in several resource areas, including erosion and sediment control, river and stream crossings, wetland crossings and revegetation, is rapidly evolving and many new techniques are being developed that are cost-effective, flexible and feasible in one or more environmental settings. These new technologies and applications are being developed by researchers, product vendors, pipeline companies, groups such as GTI and INGAA, regulatory and resource management agencies, environmental consultants, pipeline design engineering firms and other groups.

We believe that there is an emerging trend toward combining these new technologies into individual or categories of Best Management Practices (BMPs) that represent the state of the art in mitigation of impacts in selected environmental resource areas. BMPs have been developed for many different types of activities and impacts related to the pre-construction, construction, post-construction, operation and abandonment phases of pipeline projects.

At the same time, the natural gas pipeline industry has expressed an interest in establishing appropriate performance-based standards for mitigation that involve the development of

appropriate impact level standards to be met for their projects in selected environmental resource areas, such as erosion and sediment discharge from disturbed areas and as a result of river or stream crossings, and revegetation of disturbed areas. This approach also could be used in a variety of other resource and regulatory areas.

We suggest that the concepts of BMPs and performance-based standards for impact mitigation could be combined to form an approach to mitigation of pipeline impacts that would be effective in mitigating impacts, allowing more flexibility for pipeline companies, construction contractors and other groups, and reducing project costs and schedules.

Allow Broader Use of Construction and Post-Construction Inspection and Monitoring to Permit Flexibility in Mitigation Implementation

In Section 4.2.1, we described the results of a major study of NEPA effectiveness completed by CEQ (CEQ, 1997). In this study, CEQ concluded that project permitting can be expedited by accepting more uncertainty in NEPA analyses and using monitoring to ensure that mitigation is effective and adapting projects to account for unintended consequences. We suggest that this approach is a good one and could be extended to allow more flexibility in the selection and implementation of environmental mitigation measures for natural gas pipeline projects.

Based on FERC and other agency requirements, there is substantial pre-construction, construction and post-construction environmental inspection and monitoring on interstate natural gas pipeline projects. We believe that this inspection and monitoring has resulted in increased levels of effective mitigation measure implementation and compliance with FERC Certificate conditions and other permit requirements. We also believe that this high level of required inspection and monitoring could be used more broadly to make real-time, in-the-field decisions regarding the specific implementation of proposed or required mitigation, to make required changes in proposed or required mitigation and possibly to implement different mitigation entirely on the basis of specific, actual conditions encountered in the field during construction. These types of in-the-field changes during construction would be facilitated by the availability of a suite of candidate BMPs of the type previously discussed for specific types of impacts.

We believe that recent changes to third-party monitoring by the FERC included in Order 609, including establishing Level 1, 2, and 3 variances, are a positive step and that the recommendations included in this report are a logical extension of these improvements in the FERC environmental monitoring requirements. We also believe that this recommended approach is consistent with the requirements of adaptive management and ISO 14001. Adaptive management involves the continuous modification of management practices to achieve both project objectives and environmental protection (CEQ, 1997). It moves iteratively toward these goals in the face of uncertainty by including feedback loops, including use of monitoring results, to change future implementation methods. The International Standards Organization (ISO) released the standard ISO 14001 in 1996, which provides specifications for an Environmental Management System (EMS). ISO 14001 is based on the concept of total quality management, emphasizes continual improvement, and also has strong feedback loops for monitoring and improvement (Wilkinson, 1998). The comparative stages of project implementation for ISO 14001, NEPA, and NEPA adaptive management are provided in Table 3. For use of either technique to be effective, the results of inspection and monitoring must be documented in reports that are made available to industry and agency decision-makers.

Table 3

COMPARISON OF MANAGEMENT SYSTEMS FRAMEWORK: ISO 14001 AND NEPA

ISO 14001	NEPA	NEPA Adaptive Management
Policy	Establish purpose and need for action	Predict
Planning	Develop proposed action and alternatives	
	Conduct interdisciplinary impact assessment	
	Plan mitigation measures	Mitigate
Implementation	Implement decision	Implement
Checking and Corrective Action	Mitigation and monitoring	Monitor
Continuous Improvement		Adapt

Source: Wilkinson (1998).

4.3.2.3 Implementation Steps

To implement the recommendations made in this report, we suggest that INGAA complete the following:

- Make formal recommendations to selected Federal and State agencies that they complete coordinated reviews of their requirements and guidelines to improve consistency and effectiveness. Key Federal agencies include FERC, ACOE, Advisory Council on Historic Preservation (ACHP), USFWS, EPA, BLM and USFS.
- Compile and publish information on significant inconsistencies in permitting and mitigation requirements.
- Review the draft Interagency Agreement developed for INGAA by Entrix and make potential modifications to address issues identified in this report. Make formal recommendations to selected Federal and State agencies that they develop and use general operating and project-specific MOAs. Key Federal agencies are the same as those listed above.
- Make formal recommendations to selected Federal agencies to improve NEPA and related technical analyses. Key Federal agencies are the same as those listed above.
- Actively encourage and support the development of industry and agency BMPs for impact mitigation. Actively encourage and support the development of performance-based mitigation standards. In addition, make formal recommendations to selected Federal and State agencies to use performance-based measures to select mitigation. Actively encourage and support agency and industry workshops to present, discuss and develop BMPs.

- Make formal recommendations to selected Federal and State agencies to more broadly use construction and post-construction inspection and monitoring to support flexibility in mitigation implementation.
- Encourage development and distribution of monitoring reports to evaluate the effectiveness of BMPs and other mitigation. Develop a clearinghouse or distribution system for these reports so that they are easily available for active use.

4.3.3 Issue 3 –Inadequate Assessment of the Environmental Impacts of Substituting Natural Gas for Other Fuels

4.3.3.1 Introduction

NEPA clearly requires that the indirect and cumulative impacts of projects be evaluated in addition to direct and project-specific impacts. One of the major consequences of constructing new natural gas pipelines is to facilitate the substitution of natural gas for other fuels, primarily including coal and fuel oil, used in existing and new electrical generation and other types of facilities. The combustion of natural gas as compared to these solid and liquid fossil fuels results in substantially lower combustion-related air emissions, including SO_2, particulates, and hazardous air pollutants, including heavy metals, as measured on a consistent unit basis (e.g., emissions per BTU of energy produced).

Direct conversion of gas to heat in industrial or residential use in place of electrical energy also represents conservation of our non-renewable resources. Direct use of the heat energy avoids the significant energy losses experienced with converting the heat energy into electrical form and then back to provide heat. For example, the overall efficiency of electrical energy from coal combustion is only approximately 30 percent. Increasing the efficiency of our energy use is a good way to reduce carbon dioxide and other greenhouse gas emissions.

GTI (1998) completed a life cycle assessment of the production and use of natural gas compared to other fuels and showed that centralized natural gas-fired power plants are significantly better than coal-fired plants in terms of global warming and acidification potential.

INGAA (1999) concluded that the demand for natural gas in the U.S. by 2010 could be as high as 30 Tcf, depending on the rate of economic growth and the rate of nuclear and coal-fueled power plant retirement. The power generation and industrial market sectors were identified as the key sectors supporting the potential growth. The INGAA study also concluded that an average of approximately 2,000 to –2,100 miles of new natural gas transmission pipeline would be needed to support this potential level of natural gas demand. Substantial additional storage capacity also would be required.

However, in our experience, at least in the past, most NEPA documents prepared by FERC and other agencies do not adequately address this positive, beneficial impact of fuel conversion resulting from additional natural gas pipeline construction to meet market demand. Further, we suggest that, in the past, FERC has not adequately considered this type of impact when making Certificate application decisions. However, in the recent past, we believe that both FERC and some pipeline companies have started to address this issue in a meaningful way. We believe that this issue should receive significant additional emphasis in environmental reviews and Certificate application decisions. More specifically, we suggest that when making decisions on

Certificate applications, FERC and other agencies should balance the adverse impacts of project construction with the beneficial impacts of fuel conversion that may result from pipeline project implementation and the resulting increased availability of natural gas.

4.3.3.2 Recommendations

We have the following recommendations to address this issue:

- Completion of improved NEPA and related technical analyses;
- Regulatory agency consideration of indirect positive air quality impacts in the development of pipeline project permitting and mitigation requirements;
- Encouragement of pipeline project applicants to provide information on natural gas use by facilities;
- Development of additional data and materials to support pipeline project Certificate applications; and
- Completion of workshops and meetings with regulatory agency personnel to exchange information and increase communication.

Improve NEPA and Related Technical Analyses

We recommend that NEPA and related technical analyses could be improved to more effectively address the issue of indirect air quality impacts of pipeline project implementation resulting from potential fuel conversion at power plants and industrial facilities. This type of conversion would typically be from coal and fuel oil to natural gas. Potential new facilities also could use natural gas instead of these other fuels.

This type of improved assessment generally would involve comparing the current air quality impacts of confirmed or potential existing facilities that use coal, fuel oil or other fuels with the air quality impacts that would result from use of natural gas in those facilities. Proposed facilities could be evaluated in the same way. In addition, local or regional analyses and studies may be available to provide a more general indication of these comparative impacts.

The result of this type of assessment would show that, on an equivalent basis, the combustion of natural gas as compared to coal and fuel oil would result in lower air emissions and impacts.

Consider Indirect Positive Air Quality Impacts in the Development of Pipeline Project Permitting and Mitigation Requirements

We suggest that it is appropriate for regulatory agencies to consider the indirect positive air quality impacts of potential fuel conversion in the development of pipeline project permitting and mitigation requirements. This type of approach would be based on considering the net environmental impacts of project implementation and not only the direct impacts of pipeline project construction, operation and abandonment.

Encourage Pipeline Project Applicants to Provide Information on Natural Gas Use by Facilities

To successfully implement the previous two recommendations, it would be important for pipeline companies to provide appropriate information that they have to regulatory agencies on the fuel-consuming facilities that may substitute natural gas for other fuels currently being used or that will use natural gas in the future in the case of new facilities. This type of information would include facility name, type, location, current fuel type and usage rate, proposed fuel type and usage rate, and other similar information. In our experience, pipeline companies would need to work closely with shippers and gas users to develop this information.

Develop Additional Data and Materials on Positive Air Quality Impacts to Support Pipeline Project Certificate Applications

We believe that it would be helpful if INGAA, GTI or other similar groups completed additional technical analyses of the environmental impacts, particularly air quality, of this type of fuel conversion to provide improved support for project permitting. It also would be helpful to have standard information packages available to pipeline companies for use on specific proposed projects. Additional technical analyses could include local or regional analyses of the air emissions reductions and impacts that would result from various levels of conversion to natural gas from other, more polluting fuels. Standard information packages could include summaries of available research and guidance concerning the completion of project-specific technical analyses.

Develop Workshops and Meetings With Regulatory Agency Personnel to Exchange Information and Increase Communication on Positive Air Quality Impacts

We suggest that it would be beneficial for INGAA or other similar groups to hold a series of workshops and/or meetings with FERC and other appropriate regulatory agency personnel to discuss the issue of the assessment of environmental impacts of substituting natural gas for other fuels. Relevant data and information could be presented and discussed. In addition, general approaches and specific technical techniques for completing improved NEPA assessments of this issue could be discussed.

4.3.3.3 Implementation Steps

We suggest that INGAA complete the following steps to implement these recommendations:

- Make formal recommendations to FERC and other agencies to implement these recommendations for improved NEPA and related technical analyses.
- Make formal recommendations to FERC and other agencies to consider indirect positive air quality impacts in the development of pipeline project permitting and mitigation requirements. Applicants should complete similar actions with regard to specific projects during NEPA scoping and in providing comments on Draft NEPA compliance documents.
- Formally encourage applicants to provide information on natural gas use by facilities.
- Develop or support the development by other groups such as GRI of additional data and materials to support pipeline project Certificate applications.

- Complete or support the completion of workshops and meetings with appropriate regulatory agency personnel to exchange information and increase communication on this issue.

4.3.4 Issue 4 –Inadequate Inter-Agency Communication, Coordination and Decision-Making

4.3.4.1 Introduction

In our literature review, and in our experience and that of natural gas pipeline companies, inadequate inter-agency communication, coordination and decision-making are major causes of inefficient and ineffective NEPA compliance. Conley and Odegard (1992) correctly note that long-distance linear projects, including major pipeline projects, have a high level of NEPA complexity because of the relatively large number of jurisdictional agencies.

4.3.4.2 Recommendations

Many of the component problems involved in this issue have been previously addressed and therefore are not addressed again in this section. However, one of the major mechanisms for addressing the first two issues also is relevant for this issue, including MOA improvement. In this section, we make additional suggestions for MOA improvement that are directly related to the issue of inadequate inter-agency communication, coordination and decision-making.

The recommendations are:

- Applicants should strongly consider collaborating with stakeholders during the pre-filing process;
- Develop improved general operating and project-specific MOAs; and
- Applicants should conduct planned, thorough and coordinated pre-application scoping meetings and on-going status meetings with agencies.

Applicants Should Strongly Consider Collaborating with Stakeholders in the Pre-filing Process

Particularly on significant projects applicants should use a collaborative process involving the company, FERC, other involved Federal, State and local agencies, and landowners to achieve project compliance and permitting. The collaborative process is intended to be completed prior to Certificate application filing. The intent of the process is to identify as many of the controversial issues as possible. Ideally it would be beneficial if the collaborative process permits the parties to eliminate submittal of the Environmental Report and proceed directly to applicant preparation of the draft NEPA document.

Use of a collaborative process tailored to the specific facts of the proposed project could be an effective way to solve many problems related to inadequate interagency communication, coordination and decision-making. However, the needs for agency communication and coordination remain the same in this instance, but the applicant has the opportunity and responsibility for driving the process.

We have the following suggestions for applicants who choose to use a collaborative process:

- Develop a complete list of involved Federal, State and local agencies;
- Develop a preliminary project description to support initial contacts with these agencies;
- Work closely with the agencies to define areas of jurisdiction and minimize overlaps of jurisdiction;
- Strongly consider the use of project-specific MOAs or other agreements as discussed in this report to address all relevant issues;
- Consider combined agency scoping meetings using an outside facilitator and formal consensus-building and decision-making techniques;
- Use a modified collaborative process to collect input to complete pipeline routing, other facility design, development of construction plans, and development of operations plans (see Section 4.3.6 for a further discussion of this suggestion); and
- Consider developing and implementing an expanded project public information and participation program designed to identify interested parties; describe the company and project; identify public issues and concerns; collect input on project routing, design, construction and operation; and answer questions. Considering developing a project website as part of this effort.

Develop Improved General Operating and Project-Specific MOAs to Improve Coordination and Communication

We earlier described an approach based on the use of enhanced MOAs to better integrate NEPA, ESA and NHPA compliance, and other permitting, and to minimize overlapping and inconsistent permitting and mitigation requirements. We also recommend developing and using enhanced MOAs or other agreements to improve inter-agency communication, coordination and decision-making. We recommend that the previously described types of improved MOAs should include the following components to address this issue:

- General operating MOAs among two or more agencies to facilitate project reviews and decisions to address the following issues:
  - General areas of jurisdiction and responsibility;
  - General review processes;
  - General communication and coordination protocols;
  - General decision-making processes; and
  - General conflict resolution protocols.
- Project-specific MOAs (tiered-off general operating MOAs, as appropriate) to address the following issues:
  - Involved agencies and their project-specific areas of jurisdiction and responsibility;
  - Responsible agency individuals;
  - Specific review and decision processes;

- Specific review and decision schedules;
- Specific communication and coordination protocols;
- Specific conflict resolution and problem-resolution protocols
- Agency budget and staff resource allocation plans or requirements; and
- Applicant funding plans, if appropriate.

Applicants Should Conduct Pre-Application Scoping Meetings and On-Going Status Meetings with Agencies

Much of the agency review and decision process is out of the control of the applicant. However, there are early actions that applicants should take to influence the process as much as possible. Initially, the applicant should complete at least one pre-application scoping meeting with all of the major Federal, State and local regulatory and resource management agencies involved in the project. The objectives of pre-application scoping meetings are:

- Description of the applicant and project;
- Identification of key agency and applicant personnel;
- Initiation of communication and coordination;
- Development of communication and coordination procedures;
- Identification of agency and applicant concerns and issues;
- Identification of agency data and information needs;
- Identification of agency permitting and mitigation requirements;
- Discussion of project schedule;
- Identification of potentially required alternatives; and
- Potential inter-agency MOA development.

In addition to scoping meetings, regular project progress meetings involving the applicant and agencies must be held to:

- Measure progress;
- Discuss analyses and conclusions;
- Anticipate, identify and solve problems;
- Discuss and agree on mitigation;
- Discuss potential modification of project location, design, construction and operation.

Applicants also should provide aggressive support to agencies to ensure that questions are answered, work is completed and schedules are achieved.

4.3.4.3 Implementation Steps

We suggest that INGAA complete the following steps to implement these recommendations:

- Encourage interstate natural gas pipeline companies to use a pre-filing collaborative process for significant projects, including following our specific recommendations on how to improve the process.
- Implement recommendations made in other sections with regard to MOA development and use, and include suggestions made in this section responding to specific problems with inter-agency communication, coordination and decision-making.

4.3.5 Issue 5 –Delayed and Inefficient Completion of the NEPA Compliance Process

4.3.5.1 Introduction

Until issuance of Order 608 and FERC's recognition of the benefits of a pre-filing collaborative process, the FERC Certification and NEPA compliance process required a significantly longer and less efficient process than is necessary to comply with NEPA. For a major project 7(c) filing, the process has included preparation of the Environmental Report (ER) (Resource Reports 1-12 or 13), evaluation of the ER by FERC, development of the decision by FERC concerning the appropriate level of NEPA compliance (EA or EIS), and then completion of the NEPA document. As discussed in the previous section, the option to use a pre-filing collaborative process avoids this lengthy and, we suggest, inefficient process. However, this improvement must be compared with the extensive upfront effort of the pre-filing collaborative effort. Because of this, not all applicants may choose to use a collaborative process and, thus, we have developed some recommendations to shorten the "normal" process and make it more efficient.

4.3.5.2 Recommendations

We have developed three recommendations to shorten and make more efficient the NEPA compliance process for applicants who do not use a pre-filing collaborative process (two recommendations) and for applicants who do use the process (one recommendation). These recommendations are:

- FERC require applicants to prepare a short environmental checklist/assessment instead of the complete ER;
- FERC revise the ER format to make it more consistent with a NEPA document format; and
- FERC prepare more EAs instead of EISs.

FERC Should Develop a Short Environmental Checklist/Assessment Instead of Complete ER for Determination of Level of NEPA Compliance

Much of the information and analysis presented in the ER is similar to that included in the NEPA document. Further, we suggest that less information than is currently required in the ER is needed for FERC and potential cooperating NEPA agencies to decide on the appropriate level of NEPA compliance (EA or EIS), given the substantial existing knowledge about pipeline impacts.

The Environmental Checklist/Assessment would provide adequate information for FERC and other agencies to review and understand the project, adequately estimate project impacts and potentially required mitigation, identify potential problem areas and issues, develop data requests for the applicant, decide on the appropriate level of NEPA compliance, and initiate NEPA compliance. The Environmental Checklist/Assessment would be a form or structured report organized as presented in Table 4. This approach is successfully used in California as part of the California Environmental Quality Act (CEQA) compliance process through use of the Environmental Checklist/Initial Study. This checklist is a short, form-based assessment used by CEQA lead agencies to decide whether to prepare a Negative Declaration (ND) or Environmental Impact Report (EIR). NDs are prepared for actions with no or only minor impacts and EIRs are prepared for projects with potentially significant impacts. A copy of the CEQA Environmental Checklist form is included in Appendix A.

Table 4

RECOMMENDED FERC ENVIRONMENTAL CHECKLIST/ASSESSMENT FORM

Company:
Project Name:
Project Need and Purpose:
Project Description (proposed action and alternatives) (location, facilities, design, construction, operation, abandonment): (appropriate text, tables and figures) – maximum 10 pages
Summary of Affected Environment, Environmental Consequences and Applicant-Proposed Mitigation Measures (in each Resource Category included in the ER guidelines): (appropriate text, tables and figures) – maximum 10 pages

FERC Should Revise the ER Format to Make More Consistent with NEPA Document Format

Where complete ERs continue to be submitted, we suggested that the required ER format be modified to be similar to the standard EIS or EA format, as appropriate for the specific project. We believe that this can be easily accomplished given the high similarity of the technical content of the two types of documents. We also suggest that this action would greatly facilitate preparation of the NEPA document by FERC.

FERC Should Prepare More EAs Instead of EISs

As noted previously, preparation of EAs instead of EISs by lead Federal agencies is the source of more legal challenges than any other action. Thus, this suggested approach would be undertaken with considerable evaluation. However, we do suggest that, for some relatively low impact and less controversial projects, preparation of EAs, especially with good project design, public and agency scoping, preparation of Draft and Final documents, public and agency review of Draft EAs, sufficient evaluation of alternatives, particularly route alternatives and adequate mitigation,

would be compliant with NEPA and reduce the time periods for NEPA compliance for these projects.

4.3.5.3 Implementation Steps

We recommend completion of the following steps to implement these recommendations:

- Make a formal recommendation to FERC to revise their requirements to substitute a short environmental checklist/assessment for the currently required ER (when the collaborative process is not used).
- Make a formal recommendation to FERC to revise their current ER format requirements to make the format more consistent with NEPA compliance document (EA or EIS) outlines (if the previous recommendation is not implemented).
- Encourage FERC to prepare more EAs instead of EISs for selected projects that have characteristics noted in this report.

4.3.6 Issue 6 – Submittal of Applications for Inadequately Planned and Designed Projects by Pipeline Companies

4.3.6.1 Introduction

Our experience suggests that the NEPA compliance process and related Federal, State and local project permitting could be substantially more efficient if pipeline companies completed better preliminary project planning and engineering/design prior to the preparation and submittal of permit applications to regulatory agencies.

4.3.6.2 Recommendations

We suggest that additional preliminary planning and engineering/design in the following areas would be particularly effective:

- Pipeline routing to avoid sensitive environmental and other areas to the maximum practicable extent where significant permitting and mitigation requirements may be imposed;
- Applicant development of feasible alternative routes when permitting issues, constraints or problems may exist for the proposed route;
- Applicant development of complete project descriptions early in the process and minimizing subsequent changes;
- Applicant development of appropriate construction techniques to cross sensitive areas, particularly rivers and streams, wetlands, residential areas, and other sensitive areas;
- Applicant preparation of project permitting requirements analyses and plans; and
- Applicant development of appropriate mitigation measures with adequate technical support.

Applicants Should Improve Routing Process to Avoid Sensitive Environmental Areas

We strongly believe that many issues, requirements and problems associated with NEPA compliance and other permitting of natural gas pipeline projects and associated permitting schedules and completing better pipeline routing could significantly reduce costs. In our experience, improved pipeline routing could avoid some sensitive resources and locations, reduce associated permitting requirements and time, reduce mitigation requirements, and still meet project cost requirements.

The electric power industry has a long history of completing detailed electric transmission line routing studies to select proposed and alternative routes. Most of these studies have been based on mapping of routing constraints and opportunities in a wide corridor located between the origin and termination points of the transmission line, developing alternative routes designed to avoid or minimize crossings of constraints or higher impact areas and maximize following of routing opportunities, selecting a proposed route that best achieves project goals while minimizing impacts, and possibly also identifying alternative routes. An example of typical transmission line routing opportunity and constraints map developed using this approach is included in Figure 1. This detailed approach has been used in this industry because electric transmission line projects have been fairly controversial, primarily because of their presence above ground.

Various Geographic Information Systems (GISs) have been used to complete many of these assessments, including Arc/Info, Arc/View and others. This approach is based on the use of digitized map data and can be used to complete a variety of detailed impact analyses and comparisons of alternative routes. Arc/Info also can be used to calculate the least impact route and also can take into account project costs and other considerations in addition to environmental impacts. Weighting also can be used to establish priority levels for various types of resources, impacts or other factors. A copy of a paper describing the use of this approach is included in Appendix B.

We believe that this approach is very cost-effective and could be used widely and successfully in the interstate natural gas pipeline industry to facilitate the NEPA process and other Federal, State and local permitting, reduce impacts and mitigation requirements, reduce project costs and shorten project schedules.

Applicants Should Proactively Develop Feasible Alternative Routes

We recommend that applicants take a strong role in the development of alternative pipeline routes in cases where there may be significant permitting issues, constraints or problems associated with their proposed route, or when they are unable to make a decision on route preference because of insufficient information being available. Alternative routes identified by applicants should be feasible from their point of view and applicants should be prepared to use any alternative routes that they identify. Applicants must be proactive in identifying alternative routes to minimize the possibility of having agencies identify or permit alternatives that are unacceptable to the applicant.

Applicants Should Develop Complete Project Descriptions Early in Process and Identify Future Changes as Alternatives

In our experience and in the experience of many regulatory agencies, one of the most significant problems in NEPA compliance and other project permitting is not having sufficient project description information available early in the NEPA compliance and permitting process, and having project descriptions change significantly during the process. Both issues can delay the project schedule. Applicants must adequately define projects early in the process, including describing need and purpose; overall project layout; locations and major characteristics of all proposed and alternative facilities, construction procedures, project schedule, project workforce requirements, operational procedures and abandonment plans. If all information is not available, the possible plans should be described as alternatives.

Applicants Should Develop Alternative Construction Techniques to Achieve Environmental Performance in Sensitive Areas

FERC and other Federal, State and local agencies involved in pipeline permitting are clearly emphasizing evaluation of proposed construction procedures for crossings of rivers and streams, wetlands, residential areas and other sensitive areas. Related issues include construction right-of-way, locations and sizes of temporary use areas, soil segregation requirements and procedures, and other constructed related issues. Our experience suggests that pipeline companies, construction contractors, regulatory agency personnel, environmental consultants and others have substantial knowledge and experience with these issues, and also have strong preferences that significantly differ in some cases. Pipeline companies must carefully consider their proposed construction technique alternatives in these types of areas, select a proposed technique, and then develop technical support for their proposals to use in discussions with agencies. We also suggest that companies have alternative construction plans available to use if proposed techniques are not approved by agencies.

We also recommend that applicants use the river and stream crossing evaluation model (Crossings™) recently developed by Golder Associates for GTI as a tool to evaluate the potential effects of open cut (trenched) crossings of rivers and streams prior to making construction decisions.

Applicants Should Improve Preparation of Project Permitting Requirements Analyses and Plans

One of the most effective tools for facilitating project planning and permitting is completion of a permitting requirements analysis and plan for a proposed natural gas pipeline project. This type of report presents a listing, description and analysis of each Federal, State and local permit, review or approval required for project implementation. Project construction, operation and abandonment are covered. Required permits are evaluated by agency. For each required permit, the following information is provided:

- Agency;
- Permit/approval name;
- Action/facility requiring permit/approval;

- Information/analysis requirements for permit application;
- Application form information;
- Permit fees or costs;
- Scheduling requirements;
- Contact individuals (name, position, telephone number, email address, mailing address); and
- Potential problems/issues.

This information is provided in text and tabular form.

In addition to the assessment of permitting requirements, these documents are most effective when they include a recommended permitting strategy and plan. This element should include a description of each potential issue, constraint or problem that may exist for the project, along with a strategy and plan for successfully addressing the issue. The strategy and plan should identify the overall actions that need to be taken to address the issue, the responsible individual or group, and specific implementation steps that must be completed.

The permitting strategy and plan also should include a detailed permitting cost estimate and permitting schedule. The cost estimate should include pipeline company, consultant, agency and permit (as appropriate) costs for each permit and in total. The schedule should include starting points, durations and ending points of key activities for each permit. Key activities should include scoping, permit application preparation, agency completeness review, agency review and decision, and other tasks, as appropriate.

Applicants Should Propose Appropriate Mitigation Measures in the NEPA Document

The NEPA compliance process and other Federal, State and local project permitting can be substantially facilitated by applicant's proposing adequate mitigation for all anticipated major project impacts. This results in the impact assessment and mitigation discussions proceeding more efficiently. If possible, mitigation should be included as part of the proposed action. In NEPA compliance, this is especially effective because no additional mitigation must be considered if the proposed mitigation is deemed adequate. If necessary, alternative mitigation measures should be proposed. Mitigation measures can be discussed with agencies prior to the submittal of permit applications or during the review process. It is most effective to propose and agree on mitigation as early as possible in the permitting process. Adequate technical support should be provided for all mitigation, especially if it varies from stated agency requirements. BMPs should be used, where possible, to facilitate agency review and approval.

4.3.6.3 Implementation Steps

We recommend that INGAA sponsor one or more workshops involving appropriate pipeline company staff on the topic of using GIS technology to assist in improved pipeline routing and permitting in order to implement the first recommendation on this issue.

This report presents the results of a study completed for The INGAA Foundation, Inc. by URS on implementing NEPA for interstate natural gas pipeline projects. The objective of the study is to improve the NEPA compliance process by increasing its efficiency and effectiveness, resulting in improved project implementation while providing adequate environmental protection. The specific objectives of the study were to:

- Evaluate the legal and regulatory background of the NEPA compliance process as it relates to the natural gas pipeline industry;
- Evaluate the current NEPA compliance processes and requirements to determine their effectiveness and adequacy; and
- Develop recommendations concerning how the current NEPA compliance process could be improved to make it more efficient and effective.

Several techniques were used to achieve these objectives, including a review of NEPA and other related major regulatory requirements, completion of two internal URS workshops involving technical and regulatory specialists and outside legal counsel, review of relevant major studies within the gas pipeline industry and completion of an extensive computer-based, key word literature search. The literature search provided substantial information, including detailed reviews of NEPA effectiveness and improvement, particularly by CEQ and various researchers.

The study identified five major issues that exist with respect to the effectiveness of NEPA, including the following:

- Inadequate integration of NEPA compliance with NHPA and ESA compliance, and other Federal, State and local permitting;
- Inappropriate, overlapping and inconsistent Federal, State and local permitting and mitigation requirements;
- Inadequate interagency communication, coordination and decision-making;
- Delayed and inefficient completion of the NEPA compliance process; and
- Submittal of applications for inadequately planned and designed projects by pipeline companies.

For each issue, we presented an overview and description, recommendations and steps to implement each recommendation. The following table presents a summary of the identified issues and recommendations.

SUMMARY OF IDENTIFIED ISSUES AND RECOMMENDATIONS

Issue	Recommendations
1. Inadequate Integration of NEPA Compliance with NHPA and ESA Compliance, and Other Federal, State and Local Permitting	a. Develop Improved Memoranda of Agreement that Effectively Address: (1) Identify and Agree on Agency Jurisdiction by Cooperating Agencies (2) Use NEPA Documentation as Central Basis of Agency Decisions (3) Utilize NEPA Scoping Process as INPUT into Agency Decisions (4) Integrate Environmental Data Needs and Impact Assessment Methodologies (5) Identify and Agree on Review and Decision Timing of Reviews and Decisions (6) Develop a Conflict Resolution Process b. Improve the Individual NHPA, Section 106 Compliance Process c. Improve the Individual ESA, Section 7 Compliance Process
2. Inappropriate, Overlapping, Inconsistent and Inflexible Federal, State and Local Permitting and Mitigation Requirements	a. Improve Consistency and Effectiveness of Agency Completion of Reviews of Permitting and Mitigation Requirements b. Develop Improved MOAs to Minimize Overlapping and Inconsistent Federal State and Local Agency Permitting c. Utilize Updated Technical and Field Experience Data in NEPA Analysis d. Utilize Performance-Based and Industry Recommended Practices to Mitigate. e. Allow Broader Use of Construction and Post-construction Inspection and Monitoring to Permit Flexibility in Mitigation Implementation.
3. Inadequate Assessment of Environmental Impacts of Substituting Natural Gas for Other Fuels	a. Improve NEPA and Related Technical Analyses b. Consider Indirect Positive Air Quality Impacts in the Development of Pipeline Project Permitting and Mitigation Requirements. c. Encourage of Pipeline Project Applicants to Provide Information on Natural Gas Use by Facilities. d. Develop Additional Data and Materials on Positive Air Quality Impacts e. Develop Workshops and Meetings with Regulatory Agency Personnel to Exchange Information and Increase Communication Positive Air Quality Impacts
4. Inadequate Inter-Agency Communication, Coordination and Decision-Making	a. Applicants Should Strongly Consider collaborating with stakeholders in the Pre-filing Process. b. Develop Improved General Operating and Project-Specific MOAs to Improve Coordination and Communications c. Applicants Should Conduct Pre-application Scoping Meetings and On-going Status Meetings with Agencies

SUMMARY OF IDENTIFIED ISSUES AND RECOMMENDATIONS

Issue	Recommendations
5. Delayed and Inefficient Completion of NEPA Compliance Process	a. FERC Should Develop a Short Environmental Checklist/Assessment Instead of the Complete ER for Determination of Level of NEPA Compliance b. FERC Should Revise the ER Format to Make it More Consistent with a NEPA Document Format. c. FERC Should Prepare More EAs Instead of EISs.
6. Submittal of Applications for Inadequately Planned and Designed Projects by Pipeline Companies	a. Pipeline Companies Complete Additional Project Planning and Engineering/Design in the Following Areas: (1) Applicants Should Improve the Routing Process to Avoid Sensitive Environmental Areas (2) Applicants Should Proactively Develop Feasible Alternative Routes (3) Applicants Should Develop Complete Project Descriptions Early in the Process and Identify Future Routing Changes as Routing Alternatives (4) Applicants Should Develop Alternative Construction Techniques to Achieve Acceptable Environmental Performance in Sensitive Areas (5) Applicants Should Improve Preparation of Project Permitting Requirements, Analyses and Plans (6) Applicants Should Propose Development of Appropriate Mitigation Measures in the NEPA Document with Adequate Technical Support.

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Appendix A
CEQA Environmental Checklist Form

Appendix B
GIS Papers