DISCLAIMER:

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

**SEMI-ANNUAL TECHNICAL PROGRESS REPORT
FRAMEWORK ON AN ON-LINE REGULATIONS EXPERT PERMIT SERVER
DOE AWARD # DE-FG22-96BC14948**

(Reporting period September 25, 1996 through March 24, 1997)

Report Issued March 24, 1997

Submitted by:

Ms. Christine Hansen, Executive Director
Interstate Oil & Gas Compact Commission (IOGCC)
900 Northeast 23rd Street
P.O. Box 53127
Oklahoma City, Oklahoma 73152-3127
Phone: (405)525-3556
Fax: (405)525-3592

Table of Contents

Introduction	1
Abstract	1
Executive Summary	2
Project Components	2
Project Tasks	3
Results and Discussions	3
Conclusion	5
Table 1	6
Table 2	7

Semi-Annual Technical Report Framework of an On-line Permit Server

Introduction

The Interstate Oil and Gas Compact Commission and its member states have become increasingly concerned about environmental compliance costs for the petroleum exploration and production industry with estimated costs for 1990 at about \$2 billion. Over the last decade, these costs have increased at a rate of 3 to 5% per year. At a time when regulatory and environmental needs and costs are increasing, major oil companies are restructuring and reducing staffs. This places an increased burden on the remaining personnel charged with fulfilling regulatory compliance duties. As major oil producers have begun to concentrate on their more profitable overseas properties, they have created a greater role for the approximately 8000 independent oil and gas producers in the U.S. with many being small independent producers with limited staff. With small staffs, the independents lack the infrastructure to address an increasingly important aspect of production operations: compliance with environmental regulations. Depending on the level of industry activity, the oil and gas industry could incur an additional \$16 to \$24 billion in increased environmental compliance expenditures by the end of the 1990's. At current oil prices, the abandonment of remaining resources in known oil reservoirs could be accelerated by approximately ten years, and up to 30% of currently producing resources could be immediately abandoned because of increased regulations. Transferring new and innovative technologies to the industry can help defer reservoir abandonments, improve regulatory compliance, lower the costs of compliance, reduce risk, and help assure the development of new domestic resources.

Abstract

This one-year project involves the Interstate Oil and Gas Compact Commission (IOGCC) and the oil and gas industry in a cooperative effort to use computer/communications technology as a means of providing information from state agencies in a more effective and simplified manner while allowing the oil and gas producers access to an on-line expert system that will facilitate their compliance with state regulations. A major effort in the project is the development of a framework for an on-line regulatory compliance and permit server system. Other aspects of the project include providing feedback to state regulatory agencies with recommendations suggesting where procedures or regulations could be simplified or streamlined, identifying overlapping regulations, and surveying the needs of the IOGCC states in the area of emerging issues where sharing of regulatory procedures among the states might be helpful. The theme throughout the project is the development of information systems that are transparent and easy to use and that provide timely and effective access to information and technology.

This report summarizes progress achieved in the first six months of the project.

Executive Summary

A key focus of the project is to develop the framework for an on-line expert system whereby oil and gas producers can use personal computers to find desired regulatory information in a simple and quick manner. The expert system is a hypertext Web-site on the Internet that was developed for rules and regulations pertaining to exploration and production activities in the petroleum industry. With a growing need for an understanding of regulations, the hypertext system is being designed to present the information desired by producers in an interactive and intuitive manner. The expert system is being developed from a producer's standpoint so that users are guided to the specific regulations applicable to their specific area of interest. Using a point-and-click system, guidance is provided on completion of the proper forms, reports, and notifications required to comply with applicable regulations. The example system will encompass a hypertext tutorial including necessary permit forms that will allow electronic filing in the future. There are also links between the system and the regulatory databases which will facilitate automatic updating if and when regulations change.

The example framework will illustrate the technological effectiveness and cost-savings achievable by an Internet-based system that the regulatory agencies in the IOGCC member states can consider implementing. Close coordination is provided between industry, state, and appropriate federal agencies and groups, and a project workgroup has been established. The framework is compatible with work being done on federal regulations, and a link is provided to DOE's new environmental compliance assistance system.

The objective of this project is to demonstrate the applicability of Internet communications technology as a means of providing information from state agencies in a more effective and simplified manner, while allowing oil and gas producers access to an on-line expert system that will assist them in complying with state regulations.

Project Components

The project involves: (1) developing the framework for an on-line regulatory permit server for oil and gas operations, (2) providing feedback to state regulatory agencies with recommendations suggesting where procedures or regulations could be simplified or streamlined, (3) identifying overlapping regulations, and (4) surveying the needs of the IOGCC states in the area of emerging issues where sharing of regulatory procedures among the states might be helpful.

Project Tasks

To accomplish the project objectives, the following tasks were identified.

<u>Task</u>	<u>Activity</u>
1.	Develop Framework for Regulatory Permit Server
2.	Give Feedback to States on Simplifying Rules & Regulations
3.	Identify Overlapping Regulations
4.	Survey States for Emerging Issues & Concerns

Subtasks in Task 1 include: (1.1) install a Web server for the project, (1.2) survey the regulations databases of the IOGCC member states, (1.3) determine producer needs for the expert system/permit server, (1.4) implement a prototype regulations server for oil and gas operations and provide access to the server by a regional group of producers, (1.5) present producer needs for the system and demonstrate the framework to IOGCC member states, and (1.6) using input from IOGCC state organizations and the industry group, complete the design of the framework for the expert system/permit server.

Results and Discussion

During the first six months of the project, all primary and lower-tier subcontracts were executed, and work began in each of the task areas. The following discussion addresses the results obtained to date.

Web Server

A Web-server was designed that provides access to the framework for the permit server. The framework is a hypertext document on the World Wide Web that oil and gas producers and others can access with personal computers.

Producer Needs

Producer needs for a regulatory permit server were solicited from regional oil and gas operators and from several key trade associations. Many of the producers expressed the need for "one-stop shopping" where all of the relevant information is available. Presently, many producers are either unaware that information is available, or the desired information is located in several different places. Over the past three years, the petroleum industry has witnessed an explosion of information and data

available on the Internet, and accessing this extensive and disparate information can be very difficult. Thus, the producers expressed the need to find the desired information in a simple and quick manner.

To address the needs of the potential users, the expert system is being developed from a producer's standpoint whereby users are guided to the specific regulations applicable to their specific area of interest. Using a point-and-click system, guidance is provided on completion of the proper forms, reports, and notifications required to comply with applicable regulations.

The system will include a hypertext tutorial including necessary permit forms that can allow electronic filing in the future. There are also links between the system and the regulatory databases which will facilitate automatic updating if and when regulations change.

Demonstration of Concept

The permit server concept was demonstrated at the Fall Quarterly Meeting of the IOGCC, and the initial design framework for the permit server was presented to the IOGCC Council of Regulatory Officials at the IOGCC Annual Meeting in December, 1996. Additionally, the concept was discussed during a presentation at the API/IOGCC E&P Environmental Forum in November, 1996 at Austin, TX. The permit server has been demonstrated to several area oil and gas producers, and the preliminary framework design was presented to the Strategic Technologies Council (STC) in March, 1997 during their annual business meeting in Washington, DC. An outline of the initial framework is attached to this report (see Table 1). Members of the STC group will be evaluating the framework design and will be providing feedback regarding suggestions improvements from a user viewpoint.

On-line Server Workgroup

An on-line server workgroup was appointed by Ms. Christine Hansen; members are Ted Streit, Chairman of the Workgroup and Chairman of the IOGCC Natural Resources Committee, William Guerard, Chairman of IOGCC Environmental Affairs Committee, William Daugherty, President of Daugherty Petroleum and Alternate IOGCC State Official from Kentucky, James Daniels, General Manager of Murfin Drilling Co. and Alternate IOGCC State Official from Kansas, and Troy Vickers, Amoco. The DOE representative on the workgroup is Rhonda Lindsey of the Bartlesville Project Office, and the IOGCC staff representative is Vicki Sensat. Members of the workgroup and several observers held their first meeting during the IOGCC annual meeting in December, 1996. DeLaine Perkins of the IOGCC discussed the background and overview of the project, Rhonda Lindsey gave DOE's perspective, and Dave Martin with Strategic Technology Resources provided a status and expectations of the project. The role of the work group was outlined, and several of the observers provided input regarding the project and related activities. At the IOGCC Spring Quarterly Meeting, the chairman of the workgroup met with key members of the project to review progress. The next meeting of the workgroup will be held at the IOGCC Midyear Meeting in Oklahoma City in June, 1996.

Survey of State Agencies

In December 1996, a questionnaire was distributed to the attendees of the meeting of the IOGCC Council of Regulatory Officials on December 8, 1996. This survey documents the status and future plans of states' efforts in providing electronic access to regulatory information, forms, and procedures.

Twenty-one IOGCC member states and five associate states responded to the questionnaire. Many of the agencies have a home page on the Internet, and links to those agencies are included in the framework design. Suggested components of a state link are listed in the attached Table 2. Fourteen of the IOGCC member states presently have rules and regulations in some electronic format, and three other states have plans to do so within a year. Dynamic links to these electronic documents are being included in the framework design.

Fourteen states have plans for electronic filing in the future, and twelve states plan to implement an electronic approval system.

Conclusion

Based on the results of our questionnaire, the IOGCC member states are considering increased use of electronic media for access to regulatory information and for approval of procedures in the future:

Two-thirds of the IOGCC member states have rules and regulations in electronic format, and 80% of the states plan to do so by the end of the year.

Two-thirds of the IOGCC member states have plans for electronic filing in the future, and more than half have plans for an electronic approval system for permitting processes.

A preliminary design framework for an on-line expert system/permit server has been developed and is available as a Web document on the Internet. Currently, the system is being reviewed by a regional group of oil and gas producers, and their input will be used to modify the existing framework. The modified framework will be reviewed at the IOGCC Midyear Meeting in June 1996.

Table 1. Framework of an On-line Regulations Expert System/Permit Server

- Link to State Agency(ies)
- Rules, Regulations, & Guidelines
 - Drilling Operations
 - Production Operations
 - Abandonment Procedures
 - Leaks, Spills, & Releases
 - Water Quality & Discharge
 - Air Quality & Emissions
 - Pipeline Operations
 - Other Permitting Procedures
- Links to State Rules & Regulations
- Link to DOE's Environmental Compliance Assistance System
- WWW Environmental Resources
 - State
 - Federal

Table 2. Suggested Components of State Link

- Description of State Agency(ies)
- Overview of State Regulatory Programs
- Delegation of Authority
- Agency Function Chart
- Agency Directory
 - Mailing Address
 - Telephone and Fax Numbers
 - E-mail Addresses
- Map of Districts (Optional)
- Links to Rules & Regulations
- Available Manuals & Documents
- Related Information