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TECHNICAL PROGRESS REPORT

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ABSTRACT

The Petroleum Technology Transfer Council (PTTC) continued pursuing its mission of assisting U.S. independent oil and gas producers make timely, informed technology decisions by providing access to information during Fiscal Year 2002 (FY02). Functioning as a cohesive national organization, PTTC has active grassroots programs through its ten Regional Lead Organizations (RLOs) and three satellite offices that efficiently extend the program reach. They bring research and academia to the table via their association with geological surveys and engineering departments. The regional directors interact with independent oil and gas producers through technology workshops, resource centers, websites, newsletters, various technical publications and other outreach efforts. These are guided by regional Producer Advisory Groups (PAGs), who are area operators and service companies working with the regional networks. The role of the national Headquarters (HQ) staff includes planning and managing the PTTC program, conducting nation wide technology transfer activities, and implementing a comprehensive communications effort.

The organization effectively combines federal funding through the Department of Energy's (DOE) Office of Fossil Energy with state and industry funding to achieve important goals for all of these sectors. This integrated funding base is combined with industry volunteers guiding PTTC's activities and the dedication of national and regional staff to achieve notable results. PTTC is increasingly recognized as a critical resource for information and access to technologies, especially for smaller companies without direct contact with R&D efforts. The DOE participation is managed through the National Energy Technology Laboratory (NETL), which deploys a national natural gas program via the Strategic Center for Natural Gas (SCNG) and a national oil program through the National Petroleum Technology Office (NTPO).

This technical progress report summarizes PTTC's accomplishments during FY02. Activities were maintained at recent record levels. Strategic planning from multiple sources within the framework of the organization gives PTTC the vision to have even more impact in the future. The Houston Headquarters (HQ) location has strived to serve PTTC well in better connecting with producers and the service sector. PTTC's reputation for unbiased bottom line information stimulates cooperative ventures with other organizations. Efforts to build the contact database, exhibit at more trade shows and a new E-mail Technology Alert service are expanding PTTC's audience. All considered, the PTTC network has proven to be an effective way to reach domestic producers locally, regionally and nationally.

National-Level Program

PTTC's Board of Directors met three times during FY02 to review goals and objectives. The first Board meeting of the year was held jointly with the RLO Directors. Clark Southmayd, Oneok Resources Co., Tulsa, Oklahoma, and James Bruning, Bruning Resources LLC, Fort Smith, Arkansas, were reelected as Chairman and Vice Chairman, respectively. Bernie Miller, new PAG Chairman for the Appalachian Region also joined the Board, and Rodney Reynolds was reelected as the RLO representative. Chairman Clark Southmayd initiated three new committees: 1) Bylaws Committee, 2) Audit Committee, and 3) Compensation Committee. The organization owes a great deal of appreciation to each and every member who gives his or her time and expertise to make PTTC a growing success in achieving the program mission.

PTTC's outreach and connections grew significantly during FY02, through networking facilitated by its Houston HQ location and a focus on 1) expanding the mailing list and exhibit schedule and 2) new services, such as the Technology Alert via broadcast E-mail. Director Don Duttlinger facilitated strategic thinking by the Board, RLO Directors and HQ staff as PTTC began planning to meet industry's and DOE's needs in an everchanging energy business climate. Kathy Chapman, Director of Business Affairs, remained in the Washington area fulfilling her duties on contractual and financial issues. Lance Cole, National Project Manager, continued to serve PTTC on a contract basis from Sand Springs, Oklahoma. HQ and other support staff ably supported all programs to consolidate and communicate regional results to national audiences.

PTTC's national organization continues its oversight responsibility for the regional programs. As in past years, the annual planning/budgeting process involved the PAGs, HQ staff, and the Board. Regional activities continued at the record levels of recent years. The RLOs continue to make new connections with independent producers and strive to make a positive difference within industry.

PTTC continued its case study-oriented publication, the *Petroleum Technology Digest*, begun in September 1999. The *Digest* is a joint effort of PTTC and Gulf Publishing. PTTC works with industry identifying and compiling the case studies. Gulf Publishing publishes the *Digest* quarterly and currently distributes it within *World Oil* to more than 38,000 readers worldwide. PTTC distributes reprints through its network. Three issues containing 10 case studies were developed during FY02—March 2002, May 2002 and September 2002. Since inception, PTTC has delivered 45 case studies through the *Digest*. Feedback is overwhelmingly positive. Producers have noted that they learned about and applied technologies new to their operations. Several technology providers have indicated that exposure through the *Digest* brought them new customers, from new service areas. Beginning in 2003 case studies will be published monthly, giving PTTC more frequent exposure and helping Gulf Publishing better schedule their issues. Ideas for fresh case studies continue to emerge from a growing number of sources as word spreads, which is an invaluable contribution.

PTTC posts summaries of regional workshops on its website as Solutions From the Field. This allows those not attending the workshop to gain from the insights presented. PTTC is reviewing additional methods to reach those unable to attend in person, including video recording and web conferencing. Eleven summaries were posted during FY02, bringing the total, not counting pre-1997 workshops, to 81 summaries.

In cooperation with DOE, PTTC completed the eight-workshop Traveling Workshop Series featuring R&D results from DOE's Technology Development with Independents and Stripper Gas Well programs. Although attendance was not as high as desired, other benefits were reaped. Through the series the Stripper Well Consortium and Strategic Center for Natural Gas became better known. Involved DOE staff also had opportunity to gain insights from industry. PTTC participated in meetings of the Stripper Well Consortium, and several regions incorporated R&D findings from selected projects in regional workshops.

The regions supported major events organized by professional societies, co-sponsoring major workshops or technology events in Alaska, Colorado, Louisiana, Mississippi, Oklahoma, and Texas. National cooperating groups included the Society of Petroleum Engineers (SPE) American Association of Petroleum Geologists (AAPG) and the Society of Exploration Geophysicists (SEG). Efforts also often involved regional geological and engineering societies which leverage PTTC meetings efficiently.

PTTC began exploring a "lunch and learn" concept, holding one such event in Arkansas, as another venue for delivering technology information to industry. This venue, if expanded, will facilitate further technology transfer to outlying producing areas and offers the potential for increasing technical and financial support from the vendor/service sector.

PTTC continued its multi-faceted national communications program. Circulation of its quarterly newsletter, *PTTC Network News*, grew to about 9,600 individuals. Nearly three-fourths of recipients are from the exploration and production (E&P) sector. Just over 60% of the industry sector is independent producers. A service providing Technology Alerts via broadcast E-mail began in April 2002. Circulation quickly grew from 3,500 to about 8,150 by yearend FY02. Monthly Tech Connections columns for the *American Oil and Gas Reporter* and occasional Technology at Work columns for *World Oil* provide additional venues for transferring technology and building name awareness. PTTC is witnessing increased participation due to these publications which adds strength to the program.

By yearend FY02, usage of the national website, **www.pttc.org**, had increased to 12,000 user sessions per month with page views stabilizing around 45,000 per month. PTTC monitors website rankings to continually improve its website. The website provides timely calendar information, an archive for technology insights and information, national links, in addition to serving as a gateway to the regional and satellite websites. PTTC

expanded its intranet, PTTC Net, providing more historical reports, Board meeting agendas and information, and adding a staff calendar. The Board, RLO and HQ staff have access to PTTC Net via individual user name and password. Ideas are developed rapidly by having up to date information for those providing direction and implementing the program.

Regional-Level Program

In FY02, PTTC's regions held a total of 147 workshops drawing 6,243 individuals. Results for number of workshops and total attendance were essentially the same as experienced during FY01. Attendance averaged 42 individuals per workshop with 83% of attendees coming from the E&P industry. Of the industry attendees, about two thirds are repeat attenders, that is, they have previously attended a PTTC workshop in that region. FY03 plans project about the same level of workshop activity as during FY02.

The regional resource centers continued to function as a focal point or hub for contact with industry. The products and services available through these centers include: (1) access to information and data resources, (2) expert response to contacts and inquiries, (3) demonstration and training for E&P software, (4) information products, (5) special purpose databases, and (6) other outreach efforts. Total industry contacts in FY02 exceeded 18,000, representing more than seven per day per regional resource center, a 14% increase from FY01 levels. Six regions reported more than 1,000 contacts during the year. A large percentage of inquiries is for basic oil and gas data or calendar/event information illustrating that people are relying on information from the established infrastructure and track record of PTTC. As certain bills are up for debate, many questions are raised to assist decision makers regarding industry background and trends. Additional calls are true technical inquiries requiring professional expertise to respond, which all offices reply to promptly.

Software training courses are offered within the regions. Combined, the regions conducted 30 software training courses, drawing more than 400 people. Through its partnership with the AAPG, Colorado School of Mines and private donors, the Rocky Mountain Region is able to offer the most extensive software training among the regions. The South Midcontinent Region, through its partnership with Oklahoma University's Geo Information Systems, offers training on accessing Oklahoma's online database and mapping. The Eastern Gulf, Midwest, North Midcontinent, and Texas regions offer a limited degree of software training. Through Texas Independent Produces and Royalty Owners Association internet outreach, the Texas Region realizes income from website advertising and hosting.

Where appropriate, regions develop information products that provide a service to industry and, in some cases, generate moderate revenues. In the Central Gulf Region, staff updated the popular Louisiana Desktop Well Reference (LDWR) CD-ROM at industry's insistence; even though similar data is now available online from the state agency. The Midwest Region and the Illinois State Geological Survey are developing base and custom mapping products. Working with other organizations in New Mexico, the Southwest Region developed a New Mexico Well Location CD now being offered to industry.

Data access is an on-going industry priority, so all regions work to facilitate access to existing databases, exemplified by the Southwest Region's work improving access to New Mexico production data and the North Midcontinent Region's support of the Digital Petroleum Atlas. Under special circumstances requiring Board approval, PTTC's regions can and are developing special purpose databases, within funding constraints. A geological-oriented website developed in the Jackson satellite of the Eastern Gulf Region by the Mississippi Office of Geology continues to expand. The Midwest Region continues to develop its core and waterflood database, while the Michigan satellite is continually expanding its digital offerings. In the Appalachian Region, staff has developed interactive databases of horizontal, coalbed methane and Trenton-Black River activity. The Rocky Mountain Region continues to experiment with its Data Exchange, searching for an approach that will stimulate increased industry usage.

Various outreach programs also emanate from the resource centers. The Central Gulf, Midwest, North Midcontinent and Southwest regions make targeted visits to producers. The West Coast Trouble Shooters

program relies on industry volunteers to interact with industry. At the University of Southern California, PTTC partially supports the California Oil Mentoring Entrepreneurial Training (COMET) program. The bulk of the funding is supplied by industry contributions. This is an education initiative that encourages student internships with independent petroleum companies. During FY02 two students from the Rocky Mountain Region were also able to participate in COMET. IPAA has expressed interest to bring more national participation to the program by sponsoring more students from around the country. Under a separate DOE contract, PUMPers from the West Coast and South Midcontinent regions are interacting with industry to identify primary constraints inhibiting oil production and find proven solutions. Staff in several regions is involved through their parent organizations and other projects relevant to PTTC's mission. A separate report is devoted to this program.

Regional websites focus on calendar/event information, workshop summaries and presentations, case studies, technical reports of R&D project results, access to databases, and useful links to other sites. Regional website traffic varies considerably, but three regions (Texas, North Midcontinent, and Southwest) experience higher traffic volumes. Use of a common website statistics program among the RLOs has improved consistency in reporting website statistics.

Seven of 10 regions have a printed regional newsletter. The Appalachian Region relies solely on a lengthy online newsletter, while the Central Gulf and West Coast regions rely on contributions to their respective producer association's communications. Of the printed newsletters, four are quarterly and three are semi-annual (Midwest, North Midcontinent and Southwest). Combined circulation is about 21,000. Most newsletters are new efforts started under PTTC, but some continue the newsletter tradition of the RLO organization. Typically, newsletters are also posted on the website. Some regions also develop special electronic newsletters for their websites.

66% of industry attendees at regional events are repeat attendees, that is, individuals that have previously attended an event in that region. This percentage reveals customer satisfaction—attendees are coming back—while still indicating that a new audience is being drawn. 39% of producers who attend regional workshops respond "Yes" on feedback forms when asked if they are applying technologies based on knowledge gained through PTTC, confirming that producers are taking action with the information they receive. With nine years of operational experience as an organization, PTTC is actively looking into additional avenues to measure results of the program to compliment success stories and statistics tracked since inception. PTTC recognizes that it is one important step in a multi-step process of business decisions that producers take to keep marginal wells productive and on-line, as well as stabilize the mature basin production of the nations energy sources.

Examples of actions that industry has taken, at least partially from information received through PTTC, have been documented for each region. In two regions, data showing impact on permitting activity and an independent's coalbed methane production were prepared. PTTC has provided additional data to the University of Tulsa to aid them in their effort, on DOE's behalf, to measure PTTC's impact. There are examples of how the national communications program, most notably the *Petroleum Technology Digest*, is helping both the vendor/service sector and producers. Subjective commentary illustrates different pivotal roles being assumed by different PTTC regions. Collectively, results indicate that PTTC is having a significant overall impact. This is only accomplished with significant efforts of the partnership between federal, state and industry sources working together and communicating needs and accessments.

I. EXECUTIVE SUMMARY

In the early 1990s, industry and government energy experts recognized the urgent need for improved technology transfer processes for the U.S. upstream petroleum industry. As a result, domestic oil and natural gas producers established the Petroleum Technology Transfer Council (PTTC) in 1993 as a national not-for-profit organization. Well recognized as a growing organization, PTTC is demonstrating greater efficiency as it maintains record activity levels with decreasing funds. Industry increasingly recognizes its value and is participating on more levels.

PTTC's current direction is driven by strategic planning conducted in preparation for contract discussions with DOE. During FY02 the Board, Regional Lead Organizations (RLOs) and Headquarters (HQ) staff developed a "white paper" with supporting data. This strategic thinking outlined PTTC's perceptions of industry's needs during the next five to 10 years and how PTTC would meet those, as well as the Department of Energy's (DOE's) needs. This vision will enable PTTC to continue to achieve its mission, which is:

PTTC benefits the nation by assisting U.S. independent oil and natural gas producers make timely, informed technology decisions.

PTTC is a unique example of how an organization can utilize federal, state, and industry funding to achieve important goals for all of these sectors. This integrated funding base, combined with the guidance of industry volunteers and the dedication of its national and regional staff, is achieving notable results as evidenced by the organizational milestones presented in **Appendix A**. PTTC is increasingly recognized as a critical resource for information and access to technology—especially for smaller companies.

In FY02, regional activity remained at the record levels attained during recent years (**Table 1**). Statistically, there was essentially no change in the number of workshops and overall attendance. The percentage of workshop attendees from industry held steady at more than 80%. Contact activity increased 14%, now averaging more than 7contacts per day per region. Planned activity level for FY03 remains at recent record levels.

Table 1—Measures of PTTC's Regional Activities

	Workshops		Attendance		From E&P Industry		Outreach Contacts	
Time Period	**Annual**	**Cumulative**	**Annual**	**Cumulative**	**Attendance**	**%**	**Annual**	**Cumulative**
FY95	18	18	1,117	1,117				
FY96	46	64	3,801	4,918		83		
FY97	62	126	3,176	8,094		85	5,482	5,482
FY98	100	226	4,429	12,523	3,235	73	10,241	15,723
FY99	128	354	5,948	18,471	4,935	83	10,555	26,278
FY00	148	502	6,020	24,491	4,923	82	12,980	39,258
FY01	147	649	6,338	30,829	5,227	82	16,051	55,309
FY02	**147**	**796**	**6,243**	**37,072**	**5,177**	**83**	**18,377**	**73,686**
Averaging 42 attendees per workshop					**Averaging 7+ contacts per day/region**			

Federal funds partially supporting PTTC's operation come through a multi-year grant (through April 2003) awarded by DOE's Office of Fossil Energy under the National Petroleum Technology Office (NPTO) oil program and the Strategic Center for Natural Gas (SCNG) within the National Energy Technology Laboratory (NETL). This report covers PTTC's technical progress during FY02, and illustrates PTTC's increasing impact on the domestic E&P industry.

Although a national organization, PTTC is regionally focused. Therefore, this report is divided into two parts, sections II and III:

- **Section II** addresses PTTC's progress at the national level. It is organized according to the task definitions within PTTC's current statement of work under the DOE grant.

- **Section III** reports progress at the regional level and, for the most part, aggregates information for the 10 regions so that common trends and results can be identified. This section is organized according to the core technology transfer functions that guide the RLOs.

Appendix A presents national organizational milestones. **Appendix B** presents detailed information, by region, of FY02 regional accomplishments. **Remaining appendices**, which include Board and RLO Director rosters among others, provide background information.

II. RESULTS AND CONCLUSIONS AT THE NATIONAL LEVEL

The Petroleum Technology Transfer Council (PTTC) functions as a cohesive national organization that implements industry's directives through both its national and regional programs. The role of the national Headquarters (HQ) includes planning and managing all aspects of the PTTC program, conducting nation-wide technology transfer activities and implementing a comprehensive communications effort.

A. Planning and Managing the PTTC Program

There are many aspects of planning and managing the overall program. The financial aspects are documented in a separate Financial Report to DOE, which is submitted quarterly. This Technical Progress Report will focus on several other key areas – those involving human resources, strategic planning, and oversight of the regional programs.

1. Human Resources

Responsibilities in human resources require that there are experienced and knowledgeable staff members and contractors available to fulfill the requirements of PTTC's commitment with DOE and to perform the valuable technology transfer activities. It also involves working with industry to ensure that PTTC's Board and regional Producer Advisory Groups (PAGs) are filled with active volunteers.

a. *Headquarters Staff*

The HQ staff, which continued to work as a team in FY02 to accomplish many goals, includes:

—Don Duttlinger, Executive Director, continues to provide overall leadership to HQ staff and interacts with the RLOs in executing the Board's direction. Under his leadership, PTTC's connections with industry have been strengthened through personal networking in the oil and natural gas community, a focus on expanding the database for national communications, new communications initiatives, and an expanded exhibit schedule. Through strategic and contract planning exercises, he works to clarify PTTC value and position the organization for future growth.

—Lance Cole, National Project Manager, Sand Springs, Oklahoma, continues to serve under contract overseeing all of the RLO activities for compliance with PAG direction and national policies, and coordinating inter-regional efforts. He also ensures fulfillment of required reporting and deliverables for HQ, supports national communications efforts, serves as technical adviser, and assists in strategic planning and other special projects as needed. Cole connects regional ideas with national input, key to the organizations ability to adapt to a transforming business climate.

—Kathy Chapman, Director of Business Affairs, who works remotely from the Washington area, has been with PTTC from its beginning. She is responsible for all contractual matters with DOE, the Regional Lead Organizations (RLOs), and other contractors. Being located in the Washington area, she also serves as PTTC's liaison to DOE Headquarters and other groups located there. In addition, she manages the financial and accounting systems and coordinates with Duttlinger and Cole on strategic issues.

—Norma Gutierrez, Office Manager, continues to provide records management, meeting planning, and exhibiting support services, plus she serves as executive assistant to Mr. Duttlinger. She provides a critical communications link between HQ and the Board, RLOs and industry.

—Karina Fay, Administrator, works to provide information management services supporting HQ, especially in the database realm supporting mass communications. She is also increasingly becoming involved in website development, as well as assisting Ms. Gutierrez in records management.

—Kristi Lovendahl, Tulsa, Oklahoma, serves PTTC on a contract basis providing: (1) desktop publishing services for the national newsletter, *PTTC Network News*, (2) website maintenance and design services, and (3) support of other special publications-oriented projects. Outsourcing of these vital services has proven very cost effective for PTTC and Lovendahl brings strategic expertise to the organization..

For selected technology-oriented tasks, such as the *Petroleum Technology Digest*, workshop summaries, and *PTTC Network News*, HQ has retained consultants on an as-needed basis to perform specific tasks. Being of a technical nature, their efforts are mostly coordinated by Mr. Cole.

b. ***Board of Directors***

Twenty-one industry volunteers serve on PTTC's Board of Directors. They include independent oil and gas producers representing the ten regions, in addition to the Chairman, Vice Chairman and Immediate Past Chairman. Other Board members include representatives from national industry organizations, majors and service companies, and professional societies. Clark Southmayd, Jr., Oneok Resources Co., Tulsa, Oklahoma, and James Bruning, Bruning Resources, LLC, Fort Smith, Arkansas, were reelected as Chairman and Vice Chairman respectively during the March 2002 Board Meeting. PAG leadership changed in the Appalachian Region with Bernie Miller, Bretagne Corp., Lexington, KY replacing Kevin Smith. Rodney Reynolds, Director of the North Midcontinent Region, continued as the RLO representative. A Nominating Committee, composed of five members including the Chairman, Immediate Past Chairman, two PAG Chairmans, and the Independent Petroleum Association of America (IPAA) representative, coordinates nominations for leadership and committee changes.

During FY02, PTTC's Board met three times: (1) on October 25, 2001 in Houston, Texas, in conjunction with a meeting of the Independent Petroleum Association of America (IPAA); (2) on March 4-5, 2002 in Washington, D.C., as a joint meeting of the Board and RLOs and for visits to Capitol Hill; and (3) on July 15, 2002 in Norman, Oklahoma. Switching the Capitol Hill visits to March versus previous tradition of July visits increased their impact. Using authority given by the bylaws, Chairman Clark Southmayd initiated three new committees: 1) Bylaws Committee chaired by Don Solonas, 2) Audit Committee chaired by Brian Sims, and 3) Compensation Committee chaired by Jim Bruning. The Bylaws Committee was tasked with recommending changes to the Board before the fall 2002 Board meeting. The Audit Committee provides an extra safeguard for financial accountability. The Compensation Committee was tasked with reporting recommendations to the Board at its July 2002 meeting. Meeting agendas addressed required Board decisions and votes plus other topics of interest. Representatives from DOE are invited to each meeting to update Board members on their office's activities and provide their perspective and feedback about PTTC's services and activities.

c. ***Management & Budget Committee***

PTTC's Management & Budget (M&B) Committee, led by Vice Chairman Jim Bruning, provides guidance to the HQ staff between Board meetings. The group meets monthly via conference calls and three times in person per year with the Executive Director and other key staff. Typically, future leadership comes from those within the M&B Committee. Working closely with the HQ staff, the M&B committee leads Board discussion on current issues and offers recommendations on voting issues.

d. ***Producer Advisory Groups***

Each region has a group of voluntary industry representatives serving as a local advisory group for the program. These PAGs work very closely with their corresponding RLO Director and are responsible for guiding the regional program. Their participation is especially critical during the annual planning process, as the PAGs must approve the region's annual plan before submittal to PTTC. Their efforts are guided by PAG Guidelines approved in FY97 by the Board. PAG rosters are reviewed annually to verify contact information, determine who has been active and that all wish to continue serving, to check on the term expiration dates of PAG officers, and to ensure that the group is representative of the local independent producing industry. The HQ staff works with any PAG Chairmans needing assistance

in facilitating this process, especially in the case of PAGs that seek additional members and/or more active involvement by existing members.

2. Oversight of Regional Programs

HQ has oversight responsibility for the regions, an important aspect being the annual planning and budgeting process. RLO commitment, generally far above minimum levels, allowed regional activity to remain at record levels—more than 6,200 workshop participants from 147 workshops. Plans for FY03, approved during an October 2002 Board meeting, forecast continued high activity levels.

The Regional Directors met twice during FY02, in the joint Board and RLO meeting in Washington in March 2002 and again in Nevada on Aug. 8-9 for 1) annual planning and budgeting issues and 2) strategic planning for the next five to 10 years. Occasional conference calls are conducted to address special issues. Serving as the primary HQ contact with the RLOs, Mr. Cole works with RLO Directors and staff regarding implementation of the annual plans, potential technology transfer opportunities, and regional input for national communications. Mr. Cole occasionally interacts with PAG Chairmans about regional concerns. During FY02, he participated, either in person or via conference call, in PAG meetings of four of 10 regions. Cole or Duttlinger also attended workshops or events in nine of ten regions.

From the start, PTTC has striven to capture and report data that demonstrate its impact on the US upstream oil and gas industry. Most data are activity-oriented statistics (# of workshops, attendance, resource center contacts, website usage, etc.). Over the years the quality of these statistics have improved as reporting methods have been clarified and new monitoring tools, such as the WebTrends software, employed. Since FY00, PTTC has been capturing and reporting a new measure of customer satisfaction—the % of industry attendees at a workshop who are repeat attenders. Of 144 workshops in FY02 where repeat attendance was reported, it averaged 66%, reflecting that individuals see value and are coming back. Repeat attenders are defined as those individuals who have previously attended a workshop in the region since PTTC's beginning. On the flip side, it is encouraging that, after nine years, about one-third of workshop attendees are new to PTTC activities.

Some examples of producers taking action and realizing production/profit increases are available at both the regional and national levels. However, the data are too limited to make general extrapolations about reserves or production added. And PTTC well recognizes that it is just one voice that industry listens to when making technology decisions.

One standardized question on the feedback form used at workshops asks respondents for a "Yes/No" answer to the question: *Have you used any new technologies based on knowledge gained through PTTC?* With data now available from 328 workshops, 39%, well more than a third of respondents, say "Yes." About half of those who respond "Yes" provide cryptic detail of the technology applied, but none provide sufficient detail for metrics without extensive follow-up. PTTC or the University of Tulsa, working on DOE's behalf evaluating PTTC's impact, has followed-up with some of those respondents and been able to quantitatively define benefits, but the sampling is insufficient for overall quantitative metrics.

In January 2002 PTTC developed information for the University of Tulsa, supporting their analysis of PTTC's impact. This information included: 1) activity statistics, 2) contacts for follow-up regarding individuals that had applied technology, 3) regional and individual success stories, 4) a national milestones chart, and 5) an analysis of website usage.

B. Conducting National Technology Transfer Activities

Although most of PTTC's technology transfer activities occur in the regions, the HQ staff also has significant responsibility in this area. There are many mechanisms for this function, through: (1) technology alerts and field results in *PTTC Network News*, (2) responding to inquiries received through the national

office, (3) surveying producers needs on a national level, (4) developing case study-oriented products, such as the *Petroleum Technology Digest*, (5) capturing the highlights of regional workshops in summaries posted on PTTC's website, (6) providing technical support for IPAA meetings, and (7) coordinating PTTC activities with DOE's oil and gas R&D programs and those of other national organizations.

1. Newsletter Articles and Alerts

Technology information is received from multiple sources for *PTTC Network News*. Staff proactively searches trade journals, professional society literature, association newsletters, and the internet looking for technology advances perceived to be of interest to independent producers. Significant developments within the PTTC system or DOE's R&D program are also presented. Beginning in 2000, PTTC has also been including state-of-the-art summaries on high interest topics. These summaries are developed by Karl Lang with Hart's/IRI Fuels Information Services. For the regional section, recent issues have included the bottom line and problem addressed of workshop summaries posted during the quarter. Key insights from case studies published in the *Petroleum Technology Digest* are also included.

2. Answering National Inquiries

On average, the HQ office receives around 30 inquiries per week. HQ staff responds directly to about two-thirds of the inquiries. When not able to quickly find an answer, these are forwarded to the appropriate RLO staff when (1) the inquiry is specific to a given region or (2) specialized expertise is known to exist within the regional resource centers. Many of the inquiries come from small technology developers. If the technology is supported by field data and perceived to be of interest to independent producers, HQ staff develops an alert or article to be published in *PTTC Network News* or encourages a case study for *Petroleum Technology Digest*. In many cases, PTTC staff makes referrals to other individuals or organizations that offer potential for further developing and/or commercializing the technology.

3. Problem Identification/Needs Assessment

PTTC last assessed technology needs on a national basis through a survey in August 1999. Since it has now been three years plus, PTTC is considering a needs assessment effort during FY03. The regions perform ongoing needs assessment through feedback from workshop participants, contacts, PAG input, participation in local trade meetings, and other sources. Through contacts at trade shows, HQ also obtains input on needs trends.

4. Petroleum Technology Digest

The *Petroleum Technology Digest*, begun in the fall of 1999, is a joint effort of PTTC and Gulf Publishing. PTTC solicits and compiles the case studies, and Gulf Publishing prints the *Digest* and distributes it. Case studies, which are authored by both producers and the appropriate technology providers, are brief—just 1,200 words or less, but they are written in the bottom-line format that producers desire. Through 2000, the *Digest* was distributed as a supplement to *World Oil* to their producer readership in North America. Beginning in 2001, quarterly *Digests* are being incorporated within *World Oil* and distributed worldwide to more than 38,000 readers.

Through the end of FY02, PTTC had published 45 case studies in the *Digest*. Industry response has been highly favorable and there are several anecdotes that producers are taking action—from early *Digests* through the most current. For producers, the case studies represent an opportunity to learn about technologies that may not be widely used in their area. For technology providers, the exposure provides access to geographical areas of the US where they may not have a marketing presence. Case studies published during FY02 include:

- *September 2002*—Reliable field compression provided by 5.7-L engine; New foam fracturing technology unlocks lower porosity reserves; Automatic soapstick launcher increases gas production; Satellite-based alarm system saves compressor operators time and money

- *June 2002*—Large-volume, gel-polymer treatments successful in Kansas's Arbuckle; Rod-pump controllers profitable in East Texas operations property; Holistic producing-well improvement reduces failures/servicing costs
- *March 2002*—Hand-held computer system reduces costs and increases data value; Unique chemical removes paraffin damage, stimulates production; innovative steam flood application successful in reviving shut-in Midway-Sunset (California) heavy oil property

Beginning in 2003, format is again switching—to a case study each issue. Monthly coverage will provide PTTC more exposure and it gives Gulf Publishing more flexibility in arranging content for its issues. To ensure PTTC meets its commitments for case studies, consultants have been retained to solicit and help PTTC work with industry to develop additional case studies.

5. Solutions From the Field

As early as 1997, PTTC began summarizing content of its regional workshops so that a larger audience could have access. Since August 1999, PTTC has been posting workshop summaries with key technology insights and speaker contact information on the national website as *Solutions From the Field*. Eleven summaries were posted online during FY02, and not counting pre-1997 summaries, a total of 81 summaries are now posted online. Website statistics indicate that a **couple hundred people each month** view these summaries, equating to several more workshops considering the average attendance at regional workshops. Highlights from summaries posted during a quarter are also presented in *PTTC Network News*.

6. Technical Support for IPAA Meetings

From inception, PTTC has striven to work cooperatively with IPAA to add a technology element to their meetings. In 1997 and 1998 Emerging Technologies Energy Conferences (ETECs) were held surrounding their annual meetings. ETEC, which was a full-day session, was suspended during 1999 and there are no plans to revive that concept. From 1999 through 2001, PTTC periodically provided speakers for IPAA technology-oriented sessions. During their fall 2002 annual meeting, IPAA indicated that they wanted to actively work with PTTC in areas of common interest to industry. Discussion was made on developing a condensed one-hr version of a workshop for their meetings. The PTTC National Board welcomed Steve Layton, a producer who serves as the IPAA Crude Oil Committee Chariman, as IPAA Board representative.

7. Coordinating with DOE and Other Groups

Where appropriate, PTTC incorporates R&D findings from DOE-funded projects into regional workshops. Activities during FY02 that included some DOE-funded results were:

- Eastern Gulf Region—workshop on7/14/02 highlighting "Reservoir Characterization and Modeling—North Blowhorn Creek, Vocation Field, Appleton Field, and Womack Hill Field."
- North Midcontinent Region—workshop on 8/19/02 highlighting "GEMINI Online Software" at KIOGA meeting in Wichita, KS.
- West Coast Region—workshop on 2/21/02 highlighting "Waste Injection in Oilfield Operations, Technology and Case Studies" in Valencia, CA
- West Coast Region—workshop on 7/17/02 highlighting "California Offshore/Monterey" in Ventura, CA (highlighted some Class project work)
- West Coast Region—workshop on 9/12/02 highlighting "Methods of Reservoir Characterization with Application to Heavy Oil Sands, The Coalinga Oil Field and Related Environments"

HQ staff attended the Stripper Well Consortium's annual meeting in Hershey, Pennsylvania in December 2001. On HQ's behalf, Rodney Reynolds participated in the project selection meeting in Ohio in March 2002. Front-page coverage of the 14 projects selected for funding was provided in *PTTC*

Network News, and the regions continue to encourage producers and technology developers to look at the benefits to be realized from joining the Consortium.

PTTC made special efforts to acquaint independents with opportunities within DOE's Technology Development with Independents program through ongoing coverage in *PTTC Network News*. During FY02, PTTC provided information about DOE's electronic procurement system (IIPS) to help independents overcome the hurdle of electronic proposal submission. Through its Tech Alert E-mail service, PTTC solicited industry feedback about strengths/weaknesses of the Independents program. This feedback influenced changes that DOE made to the program to make it more attractive to independents. PTTC is receiving a growing number of inquiries from industry participants interested in partnering with DOE for the first time. Discussion and planning is in progress on developing an efficient procedure to steer these companies to the right contacts for action. PTTC resources presently are limited to assist in this critical need area.

R&D results from several projects within DOE's Technology Development with Independents program and Stripper Gas Well program came to fruition during mid-2001. Late in FY01, PTTC coordinated with the regions and DOE staff within the Strategic Center for Natural Gas (SCNG) and National Petroleum Technology Office (NPTO) to hold a series of eight workshops, listed below. Agendas, tailored to regional interests, featured results from DOE's Stripper Gas Well (SCNG) and Technology Development with Independents (NPTO) programs. Information was also provided about DOE's overall R&D program and future funding opportunities. DOE provided supplemental funding to PTTC for this effort, recognizing the extra resource commitment.

- Eastern and Central Gulf Regions, Jackson, MS (10/30/01)
- Midwest Region, Evansville, IN (11/01/01)
- Texas and Southwest Regions, Midland, TX (11/06/01)
- Rocky Mountain Region, Denver, CO (11/27/01)
- North Midcontinent Region, Wichita, KS (11/29/01)
- Appalachian Region, Washington, PA (12/08/01)
- Texas and Central Gulf Regions, Tyler, TX (2/06/02)
- Midwest Region, Lansing, MI (2/19/02)

Industry attendance averaged 21, which is lower than PTTC's historical experience despite a more extensive than normal promotional effort. PTTC learned that promotional methods from region to region varied and improvements can be implemented to more successfully reach targeted audiences in a short time period. In addition to this, a plausible explanation for low attendance is that the focus on "DOE projects," admittedly across a broad spectrum, did not stimulate interest as much as typical PTTC workshops that maintain a narrow topical focus. Attendance at some of the early workshops may have been affected by the compressed time schedule. To get additional exposure, PTTC also summarized results in a state-of-the-art summary within *PTTC Network News* (and on the website). The effort reaped side benefits. Participating DOE staff developed insights and connections valuable for future program planning. Industry interest in DOE programs was strengthened and producers became more familiar with the Strategic Center for Natural Gas, a new entity for them. The workshop series prompted another DOE project performer to contact PTTC about their technology (subsurface cuttings injection), which led directly to a workshop in California.

PTTC supports DOE's Natural Gas and Oil Technology Partnership (NGOTP) program, striving to periodically include news from selected projects in *PTTC Network News*. HQ staff attends annual review panel meetings to stay abreast of project developments. In earlier years, PTTC actively recruited review panel members. Key is to ensure strong industry participation and feedback on program results as well as development and PTTC welcomes a role in promoting NGOTP.

PTTC actively coordinates with the major professional societies on a national and regional basis. Cooperative opportunities are growing and successfully leverage key resources at the regional level. Example efforts during the year included:

- Eastern Gulf Region—co-sponsored the spring 2002 meeting of the Mississippi Geological Society, Recent Activity and Trends in the Mississippi-Alabama Oil Patch, May 2002 in Jackson, MS (attendance=240)
- North & South Midcontinent Regions—Independents' Day at the SPE/DOE Improved Oil Recovery Symposium, April 2002 in Tulsa, OK (attendance=58)
- Rocky Mountain Region—Rocky Mountain Association of Geologists meeting, Structural Traps and Fractured Reservoirs of the Rocky Mountain Region, Oct 2001 in Denver, CO (attendance=300)
- Rocky Mountain Region—Rocky Mountain Association of Geologists meeting, Coalbed Methane Symposium, June 2002 in Denver, CO (attendance=390)
- Rocky Mountain Region—four short courses at AAPG's Rocky Mountain section meeting, Sep 2002 in Laramie, WY (total attendance=62)
- Rocky Mountain Region—AAPG provides support funding for the software training center. During FY02 seventeen software workshops were held.
- South Midcontinent Region—four half-day play workshops with Tulsa and Oklahoma City Geological societies, plus three full-day coalbed methane workshops, Oklahoma (total attendance=156
- West Coast Region—natural gas hydrates short course at AAPG/SPE Western Regional meeting, May 2002 in Anchorage, AK (attendance=43)

HQ staff also coordinates with other national organizations, including the Drilling Engineering Association, Interstate Oil and Gas Compact Commission, Gas Technology Institute, and technology Consortia (such as the University of Tulsa Separation Technology Consortium). Where topics are perceived to be of direct interest to PTTC's audience, PTTC may interact with private conference development firms, giving them suggestions regarding relevant topics and speakers and, upon invitation, even speaking.

8. Networking with Large Independents and The Service Sector

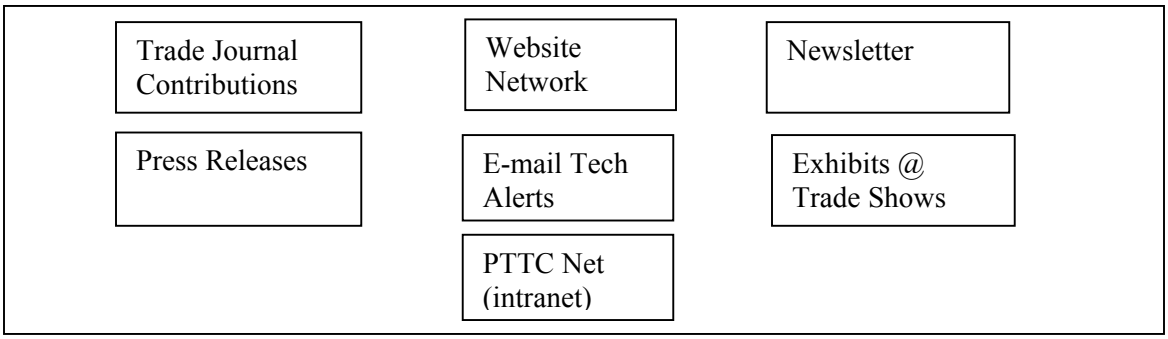
Since moving to Houston, one of Executive Director Don Duttlinger's focuses has been to increase PTTC's connections with large independents and the service company sector. This involves determining who are the company contacts involved in technical and corporate directive issues, then meeting with them to discuss their needs, acquaint them with PTTC and its accomplishments, and explore where there might be a match. PTTC's ultimate objective is to determine what adaptations are required to deliver value to these companies, and as value is being delivered, how these companies could provide industry financial support and take full advantage of the established outreach network**.**

PTTC is exploring a "lunch and learn" concept to garner additional vendor/service sector financial support and provide yet another service to producers. Working with the sponsorship of Weatherford and the Arkansas Oil and Gas Commission (AOGCC) , PTTC assisted in planning a lunch and learn session on underbalanced drilling technology in Fort Smith, Arkansas during September 2002. AOGCC promoted the session and provided facilities. Weatherford provided expert speakers and lunch, and PTTC HQ staff helped coordinate the overall event. Further similar sessions are planned as PTTC explores yet another service it can provide by reaching additional pockets of industry participants. Key to note is learning and idea exchange is a two way street and the industry benefits by the access gained to experienced people in remote areas where participants are less able to attend regional events.

C. Implementing a Comprehensive Communications Program

An effective national communications program is essential for increasing name awareness and impact. There are several facets to PTTC's national communications program, as shown in **Figure 1**.

Figure 1—PTTC's Multi-Faceted Communications Program



1. Booth/Display

PTTC increased its exhibit activity, staffing its display booth at seven events during FY02:

- SPE Annual Meeting, New Orleans, LA (Oct 01)
- NAPE Exhibition, Houston, TX (Jan 02)
- AAPG Annual Meeting, Houston, TX (Mar 02)
- SPE/ICoTA Coiled Tubing Conference, Dallas, TX (Apr 02)
- SPE/DOE IOR Symposium, Tulsa, OK (Apr 02)
- Wells and Rigs of the Future, Drilling Engineering Association, Houston, TX (May 02)
- AAPG APPEX Prospect Show, Houston, TX (Aug 02)

2. Newsletter

PTTC's 16-page national newsletter, *PTTC Network News*, has been published quarterly since 1995. It incorporates feature articles, R&D and technology alerts, field results, and information from DOE's oil and natural gas programs as well as other technology providers. Features added during FY00—state-of-the-art summaries developed by Karl Lang with Hart's and an environmental page—were continued during FY02. Newsletter distribution grew to about 9,600 by yearend FY02, with nearly three fourths of those from the E&P sector. Distribution within the E&P sector is shown within **Figure 2**. Note that just over 60% of the industry segment is independents. The three leading states for recipients, in descending order, are Texas, Louisiana, and California. Projected growth for FY03 is estimated at 15,000 when completion of database merging project will all regions and satellites.

3. Technology Alert (Broadcast E-mail Service)

In April 2002 PTTC began an approximate twice per month broadcast E-mail service to provide highlights from DOE, PTTC and industry and calendar information about upcoming PTTC events. Past alerts are archived on the website, plus those sent during a quarter are listed in *PTTC Network News*. Those currently on the distribution list are urged to forward to others who may be interested. People can subscribe through the website or by contacting PTTC. In the six months since starting, the audience has grown from around 3,500 to about 8,150 by yearend FY02. Importantly, very few individuals 'unsubscribe.' This is quickly becoming an important national technology transfer tool, allowing quick reminders of current events planned.

4. Press Releases

HQ develops national press releases to convey information of a national or inter-regional scope. In earlier years, PTTC placed a higher priority on press releases, releasing six or more per year. As PTTC has matured, PTTC is focusing more on expanding its newsletter distribution and trade show schedule, columns, case studies and articles to promote name recognition. No press releases were made during FY02.

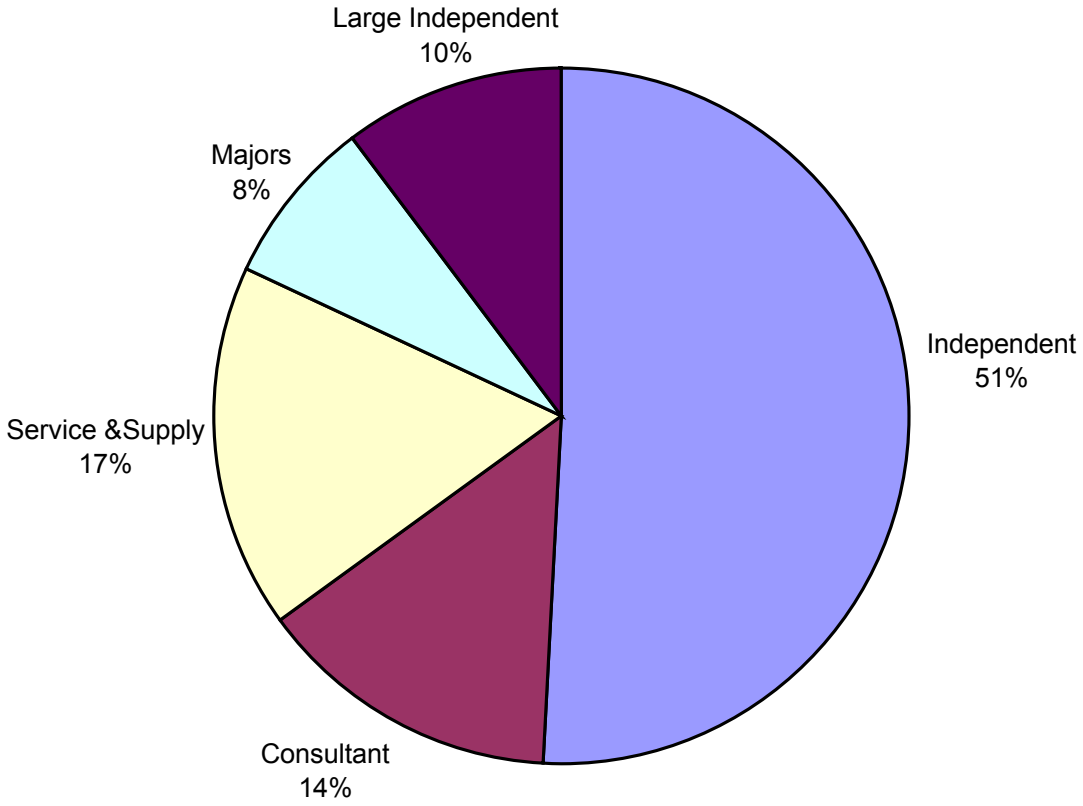


Figure 2—Breakdown of Industry Distribution for PTTC Network News

5. Contributions to Trade Publications

PTTC strives to leverage its outreach through the primary trade publications for independents—*Hart's E&P*, *World Oil*, and *American Oil & Gas Reporter*. As part of its arrangement with Gulf Publishing for the *Petroleum Technology Digest*, PTTC also contributes periodically to *World Oil's* "Technology at Work" section. In the past, PTTC has coordinated technical articles from the regions for *American Oil & Gas Reporter* and began a monthly column, "Tech Connections," for them in 2001. Response from industry indicates that the monthly column has been particularly effective in building name recognition.

Tech Connections column (except where noted), for *American Oil and Gas Reporter*

October 2001	Research Focuses On Economical Means to Purify Brine
November 2001	Polylined Tubing Is Cost Effective Option To Reduce Downhole Failures
December 2001	Advances Improve Hydraulic Fracturing (article by Lance Cole)
December 2001	PTTC Delivers Gas-Related Information to U.S. Operators

January 2002	Presidential Paper (by Chairman Clark Southmayd)
January 2002	Successful CO_2 Floods Require Project Management, Experience, Teamwork
February 2002	PTTC Web Site Provides Companies Way To Share Data
March 2002	Proven Technologies 'Find' More Oil In Old Fields In The Illinois Basin
April 2002	Maintaining Injectivity, Economic Evaluation Remain Important Concepts
May 2002	Arbuckle Successes May Have Application In Other Areas
June 2002	Symposium Provides Guideposts For Applying IOR Techniques
July 2002	Technologies Help Enhance Production From Gas Wells, Storage
August 2002	New Technologies Recover More Oil From California Monterey
September 2002	Gas Week In Rockies Features Ideas, Technology That's Adding Reserves

Technology at Work, for *World Oil*

February 2002	Recent Advances In Cased-Hole Logging, Sidetracking Mills And CO_2 Pumping
May 2002	Waste Injection In Oilfield Operations

6. Website

Launched in 1995, PTTC's national website (www.pttc.org) provides key content of national interest and links the network of 10 regional websites. It contains organizational information, a calendar of PTTC events, technical summaries, publications, press releases, selected links with descriptions of producer associations, and more. By serving as the gateway to the regional websites where extensive data, case studies and other technical information is contained, the website provides a valuable service to independents. It also provides a venue for special announcements, promotion of new products, and posting surveys. PTTC continued to place workshop summaries (*Solutions From the Field*), newsletters, links to *Digest* case studies, E-mail alerts and other technical articles on the website. There was also a strong focus on maintaining a current PTTC calendar with links to detailed information on the regional websites. This year PTTC also began including national events of other groups.

In spring and summer 2001, PTTC enhanced its entire website network—national, 10 regions and satellite sites—to improve the content, user-friendliness and aesthetics. Much greater consistency was achieved without sacrificing regional flexibility. Routine updating and maintenance remain a challenge, especially for the regions where webmaster resources are often limited Since 1998 PTTC (and the regions) have been using WebTrends™ software to monitor website usage. Three indicators are used as the key criteria for measuring website traffic. Trends for the national website, recognizing that usage does fluctuate broadly, are:

- User sessions per month—steady growth through the years, rising to 12,000 by yearend.
- Page views per month—stabilizing to around 45,000 per month by yearend FY02.
- Average session length fluctuates widely.

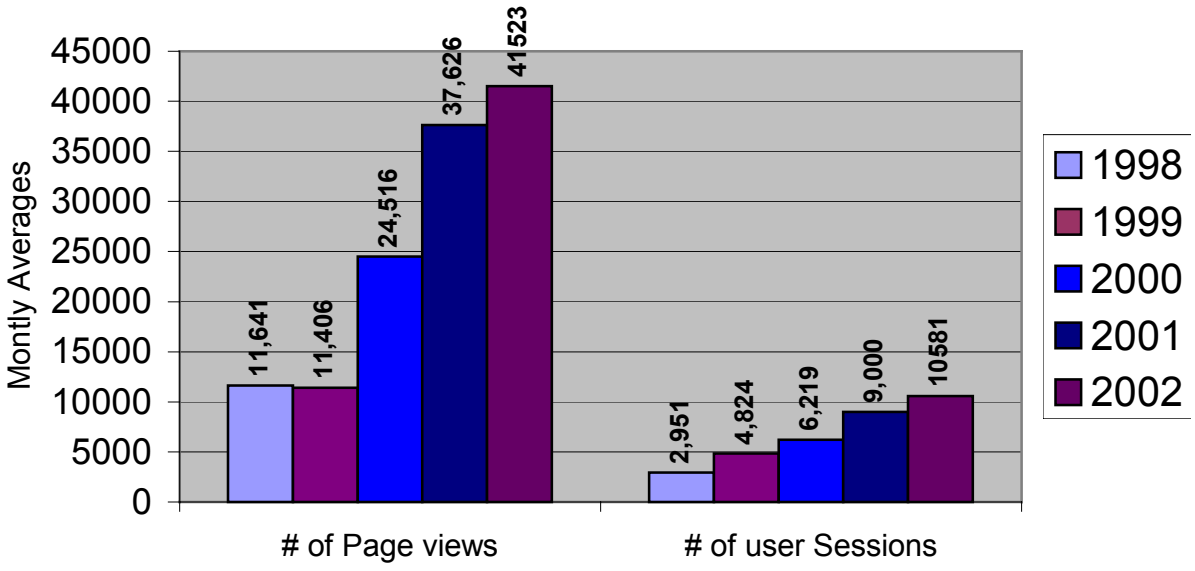


Figure 3—PTTC National Website Usage

Link popularity is how external links on the Web point to your own Website. For example, if one has 205 Web pages on other Web site domains pointing to your domain, then your popularity is 205. PTTC has gathered information about link popularity from several organizations and companies, in order to compare it to PTTC. Link popularity will vary on each search engine because each engine has a different set of pages in its index. **Table 2** lists results using four different search engines to be able to see how link popularity can vary dramatically from one engine to another.

Alexa rankings are also reported. Alexa ranking shows each site's specific Traffic position, represented by a number, where the smaller the number the better. PTTC is ranked 61859, which is better than some of the professional societies and service companies listed in the table.

Table 2—Web Impact Link Popularity

Site	Alexa Ranking	Alexa Links	Altavista Links	AllThe Web Links	MSN Links
www.pttc.org	61859	197	998	6346	748
www.netl.doe.gov	4486	324	1676	9043	1118
www.energyconnect.com	100147	210	1272	7694	1026
www.npto.doe.gov	4486	182	534	4838	431
www.ipaa.org	280716	264	793	800	613
www.aapg.org	160302	705	5367	20069	2755
www.spe.org	36487	691	2851	27605	3395
www.seg.org	149217	565	2128	16182	2254
www.gri.org	367508	698	1795	18562	1940
www.anadarko.com	234164	236	535	5076	604
www.oneok.com	876956	108	442	300	270

www.bjservices.com	454640	122	577	3966	253
www.bakerhughes.com	67739	525	1148	20466	1727
www.halliburton.com	44652	1,083	4381	24432	4174
www.weatherford.com	106013	212	624	601	503

Alexa (www.alexa.com) -- Alexa is continually crawling all publicly available web sites to create a series of snapshots of the Web. They use the data they collect to create features and services that are integrated parts of the Alexa service:

- Site Data: Provides information, news, and statistics about web sites
- Archive of the Web: Serves pages that are no longer available, virtually eliminating dead links
- Related Links: Sites that are similar to the one you are currently reviewing.

They are currently gathering in excess of 250 gigabytes of information per day. Their crawling does not interfere with a server's normal activity

Altavista (www.altavista.com/) -- Alta Vista is a fast, powerful search engine with enough bells and whistles to do an extremely complex search, but first you have to master all its options. It is one of the oldest crawler-based search engines on the web. It has a large index of web pages and a wide range of power searching commands. It also offers news search, shopping search and multimedia search. AltaVista opened in December 1995. It was owned by Digital, then run by Compaq (which purchased Digital in 1998), then spun off into a separate company, which is now controlled by CMGI.

AllTheWeb (www.alltheweb.com) -- AllTheWeb is the public search engine and technology showcase for Fast Search & Transfer, ASA (FAST). Here customers, partners, analysts, and the public can access some of the latest search technologies available on the Internet today. At AlltheWeb the scalability, relevance, and ease of use of our search offerings are on display and available for testing.

AlltheWeb is the technology demo and Research & Design sandbox for testing new search features. It has grown into the largest, freshest, and most comprehensive search engine and earned industry acclaim from SearchEngineWatch, Information Intelligence ONLINE and more. AlltheWeb indexes over 2.1 billion web pages, 118 million multimedia files, 132 million FTP files, two million MP3s, 15 million PDF files and supports 49 languages, making it one of the largest search engines available to search enthusiasts. AlltheWeb provides the freshest information because it updates its index every 7 to 11 days and indexes up to 800 news stories per minute from 3,000 news sources.

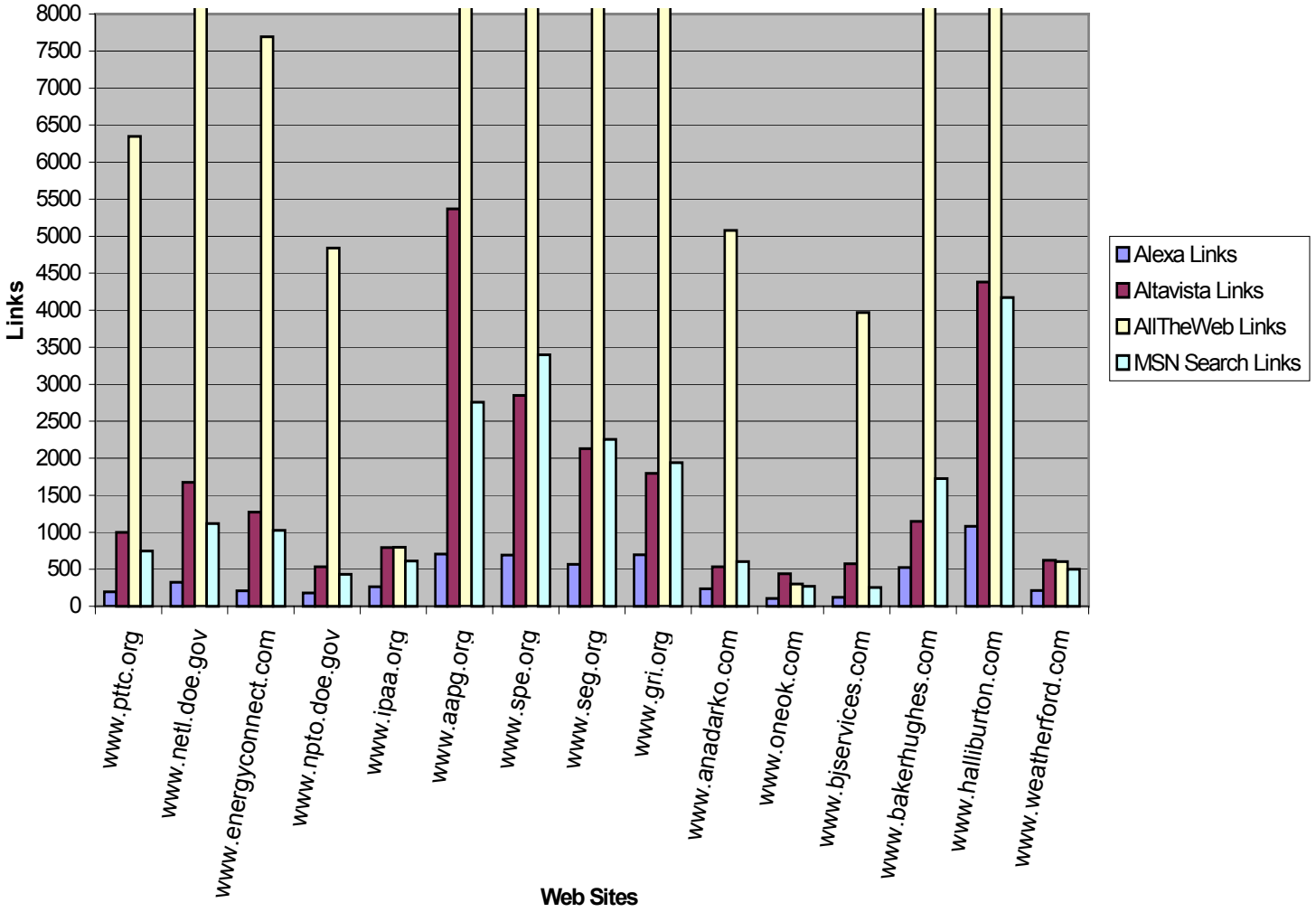


Figure 4—Website Link Popularity

7. Board and RLO Communications--PTTC Net

In conjunction with the upgrading of the overall website network, PTTC enhanced its intranet site, PTTC Net, making it available for both Board members and RLO staff by user name and password. It provides Board members with ready access to roster and contact information, quarterly and annual reports, meeting information, and policies and guidelines—an important filing function for busy Board members. For RLO staff, it serves administrative functions, such as deliverables, reporting forms, notification forms for calendar changes, etc. When staff changes occur, this represents a ready reference point to familiarize them with the internal workings of PTTC.

III. RESULTS AND CONCLUSIONS AT THE REGIONAL LEVEL

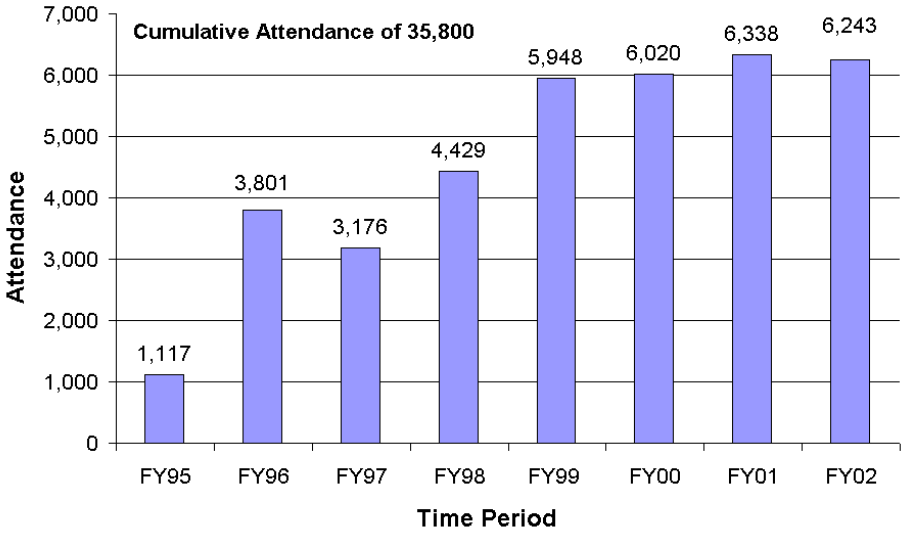
PTTC's ten regions are the primary delivery mechanism for technology transfer. It is in the regions where PTTC connects most directly with independents—through workshops, resource centers, websites, newsletters, personal contacts, and other information sources.

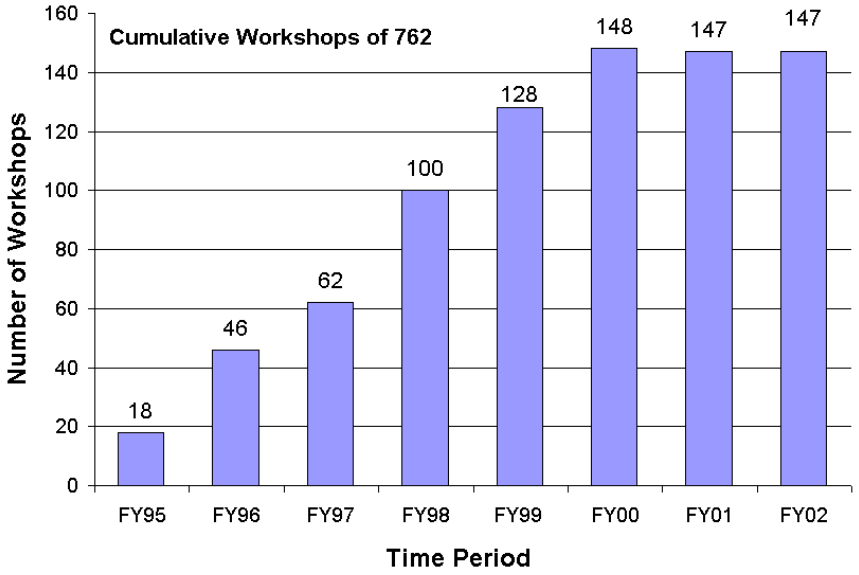
Table 3 documents annual activity by region, which are visually depicted in **Figure 5**. Strict regional comparisons are discouraged because differences among regions are influenced by a variety of factors, including: (1) differing guidance from regional Producer Advisory Groups (PAGs), (2) single versus multi-state regions, (3) differing industry demographics, and (4) differing RLO Director philosophies. Notwithstanding, it is apparent that activity levels in some regions are significantly higher than in others. From a pure activity standpoint, the Rocky Mountain and South Midcontinent regions are extremely active. Eight of 10 regions conduct seven or more workshops per year. Contact levels vary widely among the regions, reflecting different activity levels and the difficulty in consistent reporting of contact statistics.

Table 3—FY02 Regional Activity

Region	Workshops					Contacts	Website User Sessions	Newsletter
	# of WS's	Total Attend.	Avg. Attend.	% from Industry	% Repeat Attend.		1st Qtr / 4th Qtr	
Appalachian	9	403	45	82	71	2,254	2,687 /4,163	Online newsletter
Central Gulf (coop w EG & TX)	5	172	34	83	46	985	3,080 /4,083	Info/columns In Assoc. NL
Eastern Gulf	7	441	63	76	61	768	1,574 /2,594	650 (Qtrly)
Midwest	9	284	32	75	77	3,340	4,749 /5,335	3,000 (Semi)
N. Midcontinent	9	617	69	79	55	2,844	24,832 / 21,398	4,875 (Semi)
Rocky Mountain	28	1,384	49	90	75	2,267	4,298 /4,654	2,068 (Qtrly)
S. Midcontinent	55	1,758	32	84	52	2,246	1,996 / 2,595	5,542 (Qtrly)
Southwest (plus 3 coop x TX)	2	72	36	90	25	683	12,247 / 14,827	3,400 (Semi) + online
Texas	10	349	35	93	30	2,705 + TIPRO	6,203 /4,778 + TIPRO	1,000 (Qtrly) + Assoc.
West Coast	13	763	59	75	86	285	1,758 /2,863	Info. In CIPA weekly
All Regions	**147**	**6,243**	**42**	**83**	**66 (calc.) 61 (avg)**	**18,377**	63,424/67,290 (8 of 10 incr.)	

Website usage varies significantly among the regions, reflecting: (1) size of the industry audience, (2) regional emphasis on the website, and (3) website content, particularly O&G data. Usage in eight of 10 regions increased during FY02.





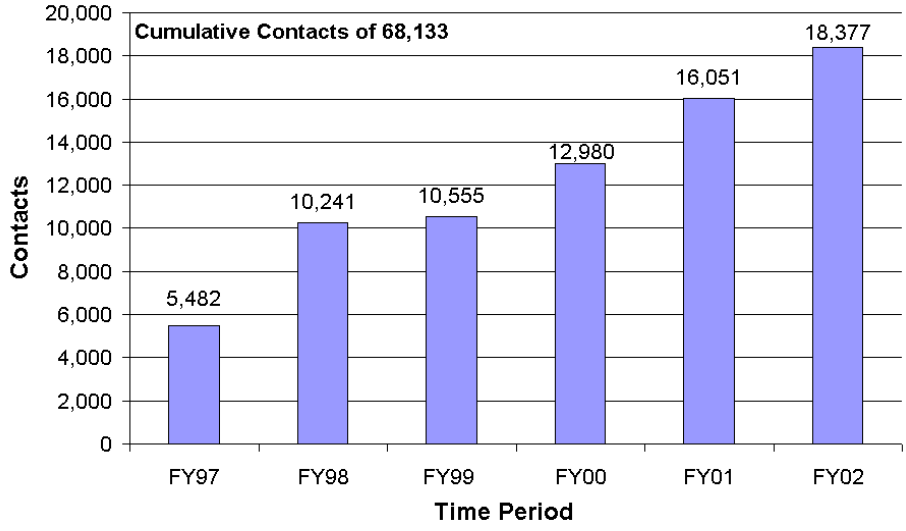


Figure 5—Regional Outreach Statistics

Table 4 illustrates the most current activity levels (4th Qtr FY02) and compares overall activity with FY01 levels. Activity levels remained at record levels, as they have since FY99.

Table 4—4th Quarter FY02 Activities Overall Comparison with FY01 Activity Level

Region	Workshops			Industry Contacts	Website (mo. avg.)		Newsletter Function
	No.	Attend.	From E&P Industry (%)		User Session	Page Views	
Appalachian	1	52	41 (79%)	793	4,163	4,915	Online newsletter—June 2002
Central Gulf	1	69	55 (80%)	518	4,083	8,161	LIOGA newsletter—July & September 2002, circ. 923
Eastern Gulf	1	29	21 (72%)	211	2,594	6,027	Quarterly newsletter – Septemher 2002, circ. 650
Midwest	1	27	21 (78%)	929	5,335	14,852	Semi-annual newsletter—Not this qtr; circ. 3000
N. Midcontinent	4	389	323 (83%)	779	21,398	72,680	Semiannual newsletter – July 2002; circ. 4,875
Rocky Mountain	7	107	102 (95%)	751	4,654	17,868	Quarterly newsletter – (8/02) circ. 2068 (95% industry; 6% electronic)
S. Midcontinent	11	304	282 (93%)	588	2,595	NA	Qtrly newsletter (June & Oct) supplemented w mailings; circ. about 5000
Southwest	0	0		204	14,827	60,863	Semi-annual PRRC, July 2002, circ. 3400, monthly on-line (743 for qtr)
Texas	3	45	45 (100%)	715 (1,658 TIPRO)	4,778 (122,603 outreach)	9,157 (303,919 outreach)	Newsletter-July 2002, circ. 1000; PBPA, TIPRO, ETGS, Midland paper
West Coast	5	250	168 (67%)	65	2,863	9,247	Announcements in CIPA weekly
All Regions 4th Qtr FY02	**34**	**1,272**	**1,058(83%)**	**5,553**	**67,290**	**203,770**	
All Regions					**FY02 versus FY01**		
FY02	**147**	**6,243**	**5,177 (83%)**	**18,377**	**-- no change in # of workshops**		
					-- 1 % decrease in attendance		
FY01	**147**	**6,338**	**5,227 (82%)**	**16,051**	**-- 14 % increase in contacts**		
					FY02 = 147 workshops vs. 147 in FY01		

While recognizing that there are different tools and approaches to satisfy different needs throughout the country, each of PTTC's regions performs the following core technology transfer functions as a minimum level of effort. These include:

- *Technology workshops*—quarterly or more often (average exceeded monthly during FY02)
- *Problem identification*—now relying primarily on feedback from workshop attendees and contacts
- *Resource centers*—mostly virtual, responding to inquiries and developing products
- *Internet*—basic calendar and technical information, emphasis varies by region
- *Newsletter*—regional newsletter or regular columns/announcements in association newsletters

A. Technology Workshops

Attendance of 6,243 was down 1% from FY01, which is statistically insignificant. Activity level equaled FY01 activity at 147 workshops with attendance averaging 42 per workshop. The regions draw a high percentage of attendees from industry with values ranging from 75% to 93%. Of 144 workshops in FY02 where repeat attendance was reported, it averaged 66% (61% overall calculated), ranging from 30 to 86%. Repeat attendance reflects customer satisfaction in that producers are coming back, yet it indicates that PTTC continues to reach more individuals. Repeat attendance is measured as the % of industry attendees that had previously attended a workshop in that region.

B. Problem Identification

Primary sources for industry input regarding the topics of interest in the region are: (1) feedback from workshop participants, (2) trends apparent from inquiries and informal contacts at the resource center, and (3) insights from the PAG. Occasionally, the regions have used surveys. Several regions, including Central Gulf, Midwest, North Midcontinent and Southwest, proactively visit producers to learn their needs. The West Coast Trouble Shooters program provides a unique opportunity to learn what industry's needs are. As the Permian Basin Mentor, Bob Kiker gains key insights on the needs of independents there and across Texas. RLO staff maintains close ties with producer associations in most regions.

During FY02 the Gas Technology Institute and New Mexico Tech conducted focus group meetings in Texas, Colorado, Oklahoma and West Virginia to determine R&D needs for unconventional gas. Under their parent organization's auspices, the Appalachian and South Midcontinent regions provided support, and RLO staff in other regions interacted with staff from New Mexico Tech as they planned the effort.

The Trenton-Black River Play in the Appalachian Region is one of the most active gas plays in the domestic U.S. Late in FY02, the Appalachian Region hosted a "Trenton stakeholders" meeting to identify R&D needs for this emerging play. Staff from regional geological surveys outlined a potential R&D plan, then listened and incorporated additional industry thoughts. Thoughts were later incorporated into an R&D proposal to DOE.

C. Resource Centers

Resource center operations are the hub from which PTTC generates most of its regional products and services, including: (1) access to information/data, (2) response to inquiries, (3) upstream software demo/training, (4) information products, (5) special purpose databases, and (6) other outreach efforts. Among the regions, three regions could be said to have satellite centers (Midwest with its Michigan outreach through Bill Harrison, Eastern Gulf with its website/outreach with the Mississippi Office of Geology in Jackson, and Texas with its Mentor in the Permian Basin).

1. Access to Information/Data

All resource centers provide access to basic information, data resources and libraries. Information resources are also available through the parent RLO organizations.

2. Response to Inquiries

Industry contacts now exceed seven per region per day. Contact level varies widely among the regions reflecting differences in the regional audiences, differing activity levels among the regions, and differing outreach philosophies among the RLOs. By far the largest percentage of contacts is for calendar/event information, followed by basic oil and gas data/statistics. It is estimated that 10-20% of the inquiries are true technical inquiries that require some research to develop an appropriate response. For these, the time required varies from a couple hours to a couple days. Beyond that level, referrals are made to appropriate consultants. Many of the responses involve connections to other individuals or organizations.

3. Upstream Software Demo/Training

Nearly all regions conduct workshops dealing with various aspects of Internet/data access resources. All resource centers have donated technical software available for demonstration to interested parties. Only the Rocky Mountain Region maintains an extensive software training schedule, holding 17 software workshops during FY02. There, additional financial support from AAPG, private donors and the Colorado School of Mines makes the software training center viable. Over time, there has been discussion of similar centers in the Appalachian and South Midcontinent regions, but these have not developed to date. Five of the remaining nine regions conducted at least some software training. Through the University of Oklahoma's Geo Information Systems group, the South Midcontinent Region offered six data access and mapping workshops. The Eastern Gulf and North Midcontinent regions typically conduct a couple per year. In Illinois, the Midwest Region has located a good computer lab in Mt. Vernon and plans to increase its software training. The Texas Region has offered software training in Midland and in Farmers Branch, but is struggling to draw sufficient attendance to justify the effort.

4. Information Products

Selected regions have developed information products to meet industry needs and generate some funds. Among the regions, the Central Gulf Region has been the most successful at product development, most notably the Louisiana Desktop Well Reference (LDWR) CD-ROM of well/lease data. Its success spurred the state agency to make the data available through the Internet. The Region had not planned to update the LDWR, but industry insisted so it was updated and CD-ROMs are provided upon request. The Midwest Region and the Illinois State Geological Survey are developing base and custom mapping products. Longer-term, the core and waterflood databases that the Midwest Region has been compiling may represent a revenue-generating product. Working with other organizations in New Mexico, the Southwest Region developed a New Mexico Well Location CD product now being offered to industry.

5. Special Purpose Databases

Data access has always been high priority for independent operators. Most regions work hard to provide electronic data access through regional websites. The North Midcontinent and Southwest regions have a particularly strong digital data emphasis, and a Mississippi data site developed with partial support from the Eastern Gulf Region now makes a large amount of digital data available to industry. Beyond the previously mentioned LDWR CD in Louisiana, the Central Gulf Region has developed a Louisiana seismic permit database, which has been placed online. The Midwest Region continues to expand its Illinois Basin core and waterflood database, and the Michigan outreach center places a strong focus on making Michigan data online. In the Appalachian Region, staff has developed databases for horizontal, coalbed methane and Trenton-Black River activity that are available online in a GIS environment. In summer 2001, the Rocky Mountain Region debuted a Data Exchange Network through its website. Purpose is to facilitate the capture and sharing of data "languishing in file rooms and basements." Usage has not grown as anticipated. Staff are exploring working with geological surveys to make portions of their core listings available there to draw increased traffic.

6. Other Outreach Efforts

Beyond responding to inquiries, selected regions implement special outreach programs. It has been noted that the Central Gulf, Midwest, North Midcontinent and Southwest regions make targeted visits to producers throughout their region. In the West Coast, the Trouble Shooters program provides personalized assistance to interested operators. Also in the West Coast, the COMET program, a student education program partially supported with PTTC funds, encourages student internships with independents. All regions were offered the opportunity to participate this year, but since there was short notice, only the Rocky Mountain Region was able to participate. Two students from the Denver area participated, interning with companies in the metro area. Although under a separate contract, RLO and PUMPer outreach in California, Oklahoma and Arkansas from PTTC's PUMP project is providing yet another point of contact for operators.

North Midcontinent staff support the Kansas CO_2 initiative, working closely with the Tertiary Oil Recovery Project at the University of Kansas and Kinder Morgan. The Central Gulf Region continues to provide modest support for LSU's Downhole Water Sink Consortium. South Midcontinent staff work closely with Oklahoma's Marginal Well Commission supporting their Trade Fairs. Bob Kiker, the Permian Basin Mentor, has been instrumental in helping the Texas Region connect with producer associations across Texas and he is extremely well networked with professional societies and other technical groups in Midland, Texas. Martha Cather, Coordinator for the Southwest Region, working on GTI/New Mexico Tech's behalf, played a lead role in their project to identify R&D needs for unconventional gas.

All RLO Directors are active in professional societies appropriate for their discipline, several at the national/international level. Several RLOs have PTTC exhibits at appropriate regional, and sometimes national, meetings. Often, the exhibits are joint booths with their parent organization.

D. Internet

The regional websites are an evolutionary product continually undergoing refinement and expansion. Traffic levels vary significantly by region, depending upon regional emphasis, data/content and demographics of the regional audience. Overall, current traffic is about 67,000 user sessions per quarter. Eight of 10 regions recorded an increase comparing 4th to 1st Qtr FY02 usage. There are occasional problems with the WebTrends™ software, but data still demonstrate steady growth. When RLO staff look at web traffic detail, they are able to determine what users view, which influences decisions about where to allocate future website effort.

Although varying significantly, it is consistent that traffic increases when content (primarily data) of interest is added. Three regions draw significantly higher traffic—North Midcontinent, Southwest, and Texas. A strong digital data emphasis is the common denominator for the North Midcontinent and Southwest regions, while Texas statistics reflect the large audience in Texas. It is significant that several of the other regions, which have smaller audiences, still draw traffic over 4,000 user sessions per month.

E. Newsletters

Despite the digital revolution, PTTC recognizes that a good portion of its audience still relies on printed material, so a newsletter function is still considered a core technology transfer function that each region must fulfill, through either a regional newsletter or regular columns/announcements in association newsletters. Seven of 10 regions have a printed newsletter, most of which are also placed online. The Appalachian Region relies solely on a lengthy online newsletter. The Central Gulf and West Coast regions rely on announcements in association communications. Of the printed newsletters, four are quarterly and three are semi-annual (Midwest, North Midcontinent and Southwest). Combined distribution of the regional newsletters is about 21,000. Several regions promote or advertise regional events in operator association or society newsletters. Funding realities dictate that PTTC tightly control newsletter expenses. Regions periodically review and pare down their mailing lists and distribution via E-mail is encouraged, although few in industry yet choose this option.

F. Regional Success Anecdotes

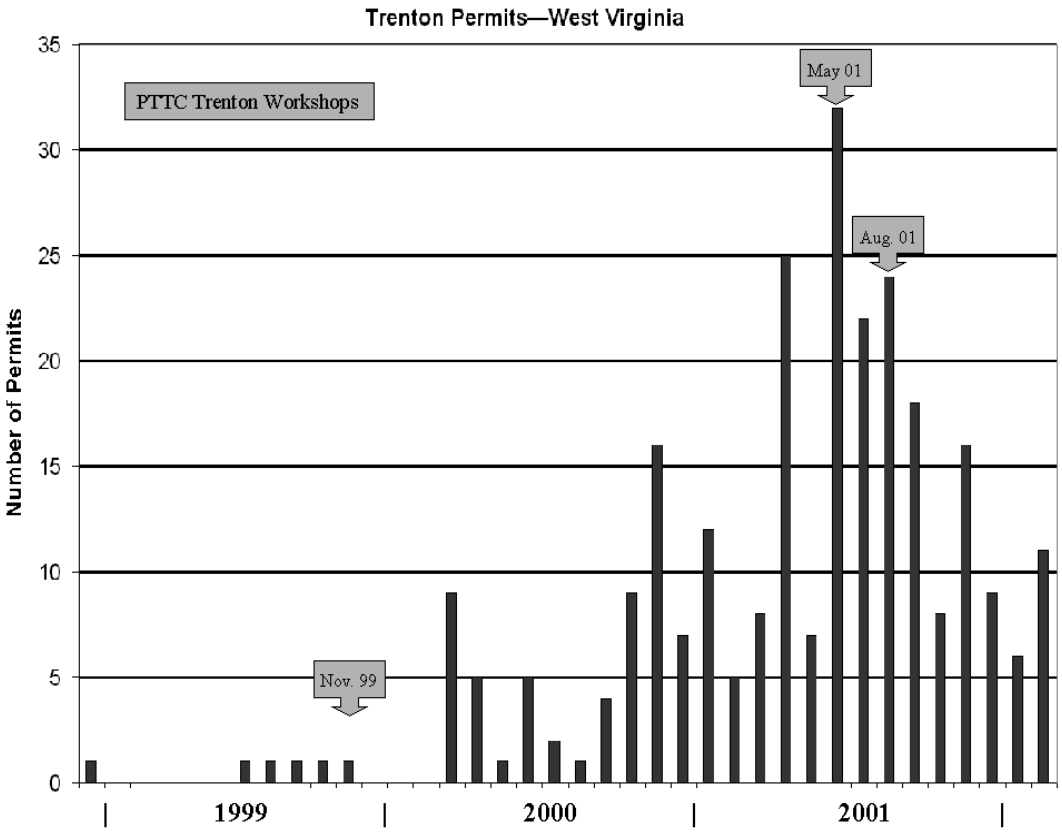
The most direct measure of regional success is the percent of respondents who answer "Yes" to the question: *Have you used technology you learned about through PTTC?* Overall, 39% of respondents say "Yes" without about half providing at least cryptic details. Without extensive follow-up, comments are sufficient to quantitatively estimate impact. Percentages by region range from 17 to 45, but most are in the 37 to 45% range.

PTTC has documented success anecdotes, included as **Table 5 and Figure 6**, of industry taking action with information they received at least partially through PTTC. Similar anecdotes have been documented in earlier years. Although finding it difficult to develop the methodology to quantitatively document impact, PTTC has confidence that industry is taking action and reaping economic benefits far outweighing the invested Federal funds.

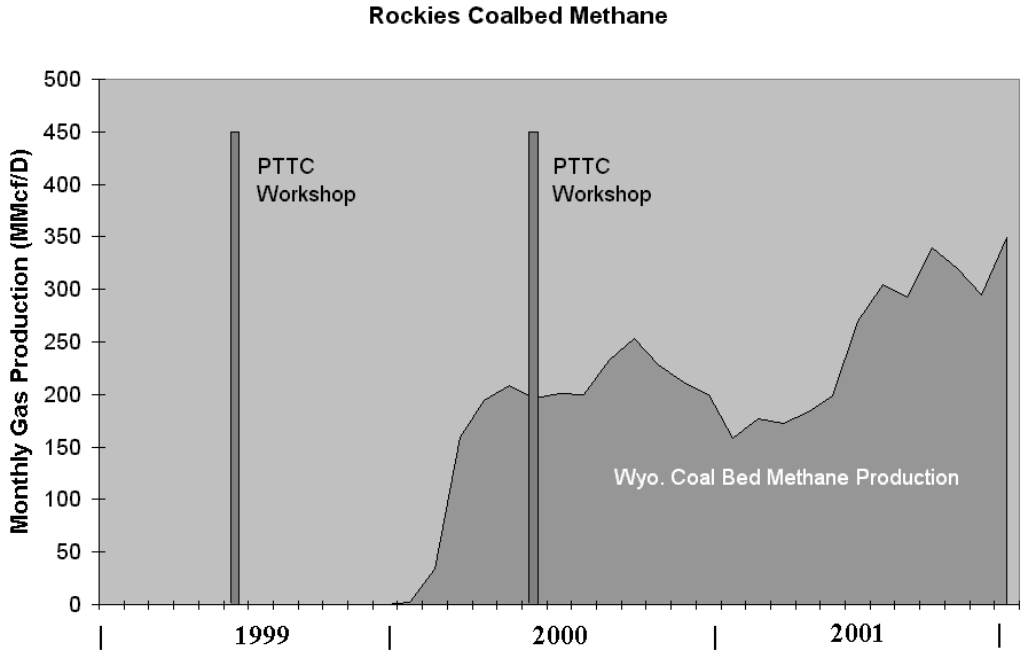
Table 5—Application Anecdotes of Industry Applying Technology

PTTC Region (Subject area/benefit)	Bottom Line Description
Appalachian (Play-Based)	The Trenton-Black River play in the Appalachian Region is one of the hottest plays in the country. Early on, PTTC's Appalachian Region decided to become a knowledge leader. The region has delivered three workshops presenting geological and engineering information, and, in West Virginia, one can see increased permitting activity (**see Figure 6**) following workshops. A Tennessee operator has also shared how insights and confidence gained through PTTC has led them to embark upon a 10-well deepening program in Tennessee. In 2002, additional workshops are scheduled for Ohio and Kentucky, which widens geographical coverage. A Trenton stakeholders meeting in late FY02 helped identify R&D needs supporting play development.
Central Gulf (Power Cost Savings)	Three regional workshops (October 1998, March 1999 and May 2000) have focused on power cost issues, including on-lease power generation. In the Cotton Valley Field in Webster Parish, one operator purchased microturbine units which paid out in 22 months versus projected 28-32 months. Two other operators in the area used this data to negotiate more favorable rates. Collectively, lease operating savings were estimated to be $215,000 for 175,000 barrels of oil. This equates to savings of about $1.20 per barrel of oil produced, or $0.37 per barrel of total fluid produced.
Eastern Gulf (Horizontal Drilling)	Through attending Maurer Technology's "Optimized Horizontal Drilling" workshop in Mississippi, TMR Exploration (TMR) of Bossier City, Louisiana recognized the potential that horizontal drilling might have in their mature Livingston Field Wilcox production. TMR authorized a study at Louisiana State University (LSU). Results included two alternative drilling scenarios—one involving two lateral wells to produce 1.85 MMBO and the second with five wells to produce 2.2 MMBO. CO2 flooding, which would provide additional incremental reserves, was also evaluated. TMR plans to drill the first scenario (1.85 MMBO) and recently attended the two-day horizontal drilling workshop in New Orleans.
Midwest (Behind-Pipe Reserves)	Barger Engineering (Barger) in Indiana learned the ratio method (log analysis technique) to determine water saturation during a PTTC workshop. Barger uses the method daily to determine whether behind-pipe zones contain oil. Recompletions were planned in two wells, until the ratio method indicated they would be unsuccessful. Barger saved $20,000 by not recompleting the two wells. Had Barger known of the technique earlier, they could have saved $40,000 on earlier unsuccessful jobs.
North Midcontinent (R&D Funding)	For small independent producers in Kansas, PTTC has been a primary resource to learn about new technologies, and opportunities through DOE to get funding to reduce the risk of applying unfamiliar technologies. Through multiple workshops, newsletters and staff outreach, independents have learned of and successfully competed for DOE awards, which include: a *Class Revisit*, *PUMP I*, and *four Technology Development with Independents* projects in Kansas. These projects are encouraging other independents to apply newer technologies.
Rocky Mountain (Software/Environmental) (Coalbed methane)	*Software/environmental*. A Denver-based environmental consultant employs sophisticated visualization software they learned about through PTTC to model pollution plumes. Hours are saved in the plume modeling effort and visualization enhances credibility of the results. The consultant reports that plume models were vital in at least five cases involving suits against petroleum companies. All cases were decided in favor of the companies with savings ranging from $20,000 to $1,000,000. *Coalbed Methane.* Like several PTTC regions, the Rocky Mountain Region works cooperatively with other organizations to keep coalbed methane information flowing to industry. **Figure 6** illustrates how one regional independent increased coalbed methane activity, at least partially due to PTTC activity.

PTTC Region (Subject area/benefit)	Bottom Line Description
South Midcontinent (Play-Based)	In early 2002, Continental Resources wanted to drill a gas well in Blaine County to develop Springer reserves. Continental had rights to the deeper Springer, while another operator had rights to the overlying Morrow. Other operators protested Continental's well and spacing relief application because they considered the zone that Continental was targeting to be a Morrow zone. Using information about how to distinguish Morrow and Springer zones gained from the Springer play workshop, Continental prevailed before the Oklahoma Corporation Commission and won their case. Such a well could produce one BCF or more of natural gas.
Southwest (Corrosion Work Groups)	Through one-on-one and small group interactions, regional staff learned of industry's strong interest in corrosion and water topics. To meet the need and tailor technology transfer, corrosion work groups were formed within the New Mexico Institute of Technology for both the northwestern (San Juan Basin) and southeastern portions of New Mexico. The Petroleum Recovery Research Center at New Mexico Tech developed a successful proposal for DOE's PUMP program addressing water quality issues. Problem identification spurred R&D activity that focuses directly on regional problems.
Texas (Vapor Recovery)	Mini-workshops, developed by Bob Kiker, Permian Basin PUMPer, described new options for vapor recovery. One speaker described Vapor Jet technology, which is appropriate for low volume applications. Hybon Corporation, a large well-known company that offers vapor recovery equipment and services, also participated in the workshop. Becoming aware of Vapor Jet technology through the workshop, HyBon purchased the Vapor Jet patent and is now marketing it. Four companies—ChevronTexaco, Flying J, Amerada Hess and Marathon—have purchased systems, together recovering nearly 150 mcfd.
West Coast (Behind-Pipe Reserves)	Through a PTTC workshop in late 2001, Pacific Operators Offshore Inc. (POOI) learned about Schlumberger's through-casing resistivity logging tool for determining water saturation behind pipe. In the offshore California Carpinteria Field, wells produce from as many as 10 different zones, so it is critical to know saturations. Within three months after the workshop, POOI had applied Schlumberger's CHFR tool in one well. Based on log results, POOI squeezed off selected intervals and returned the well to production, producing 80 bopd and greatly reduced water production. This also increases government revenues in the form of royalties collected.
National (*Petroleum Technology Digest*)	Working with Gulf Publishing and industry authors, national staff develops field case studies that are published in *World Oil* as the *Petroleum Technology Digest*. Case studies are now being published quarterly and distributed worldwide to *World Oil's* more than 30,000 readers. Several technology providers have noted direct benefits. For example, J Integral Engineering, the vendor involved in a Sep 2001 case study about using solid propellant stimulation technologies, has noted that they have performed about 20 additional well treatments. Additionally, a wireline company in West Texas contacted them about fielding their technology, so marketing costs to enter a new area were avoided. Case studies of proven successful technologies continue to draw high interest both in web access and published hard copies



"PTTC's Appalachian Region has taken the lead in being a source of information for rapidly evolving Trenton-Black River activity and drilling permits increased following workshops (note the increase after May 2001 workshop)."



"Staff from a Rocky Mountain independent attended two PTTC workshops on Wyoming coalbed methane. PTTC co-sponsored two major coalbed methane conferences, attended by nearly 1000 people, that influenced activity."
Brief comments by region regarding activity and impact follow.

Figure 6—Examples of Impact on Industry Activity

Appalachian—The region is recognized as the technology transfer center for information about the high interest Trenton-Black River play. GIS-oriented databases for horizontal, coalbed methane and Trenton-Black River activity are becoming a valuable industry resource.

Central Gulf—Historically, the region is known for its data products, a prime example being the Louisiana Desktop Well Reference CD. Minor financial support leverages results of LSU's Downhole Water Sink (DWS) Consortium. To serve its audience, the region frequently cooperates with the Eastern Gulf and Texas regions.

Eastern Gulf—The geological community relies heavily on regional workshops, including the region's cooperation this year with the Mississippi Geological Society's spring symposium. The region also works with the Mississippi State Board of Registered Professional Geologists enables geologists to earn required CEU credits. Extensive Mississippi geological information now online would not be there without PTTC support.

Midwest—The Michigan satellite effectively serves industry through workshops and online data. Even though most of the regional audience comes from small producers, follow-up indicates that many are taking action with the information they receive. For example, follow-up with those attending Maurer's horizontal drilling workshops in Michigan discovered six operators who were taking action. RLO staff works with industry to document technology applications in the *Petroleum Technology Digest*.

North Midcontinent—Success is measured by operator's willingness to share information about high interest topics, which include coalbed methane operations, gel polymer applications using larger treatments, small scale 3-D seismic surveys for locating small Arbuckle highs, and Arbuckle stimulation using solid propellant technology. Through website support and the Kansas Geological Survey, the region continues to make vast amounts of basic O&G data available online. Workshops often draw attendees from several states.

Rocky Mountain—The region maintains both a highly active technology workshop, often through co-sponsoring, and software training schedule. 28 workshops were held, drawing nearly 1,400 attendees, which represents 22% of PTTC's total attendance. Software training covers desktop applications, GeoPlus PETRA, GeoGraphix, Seismic MicroTechnology products, DigiRule, Rockware and others. With industry support, the region successfully coordinated participation by two students in COMET 2002 upon very short notice.

South Midcontinent—The region leverages efforts of Oklahoma's Marginal Well Commission (MWC)and OU's Geo Information Systems (GIS) to hold more workshops than any region, 55 during FY02. Regional attendance of nearly 1,800 attendees represented 28% of PTTC's total attendance. In cooperation with the Oklahoma Geological Survey, the region delivers workshops on geological plays, coalbed methane and other topics. OU GIS focuses on data access and mapping, while MWC focuses on practical operations topics.

Southwest—Indicators of success are: (1) the abundant O&G data placed online, evidenced by the New Mexico Well Location CD this year, (2) the region's ability to develop, through its parent organization, work efforts and proposals based on problems defined by operators, and (3) timely special topics, such as the past Lewis Shale workshop and the planned Mesa Verde workshop.

Texas—The region continued to leverage Mentor Bob Kiker's effort in the wellbore management arena, participating in workshops in Amarillo, Tyler and, with the Southwest Region, in Artesia. Support continues for the CEED CO_2 conference, a major event in the Permian Basin. Staff continue to experiment with software training, and now that the RLO operates a core facility in Houston, plans additional Gulf Coast outreach.

West Coast—The region has proven highly effective in obtaining funding from other sources, and efforts in progress should realize even more funding early in FY03. With California's power situation, funding is often related to technical work that will reduce power consumption. The RLO effectively incorporates DOE R&D results and personnel in workshop agendas. Through cooperative activities, Alaska receives some support.

G. Planning and Managing Each Regional Program

PAGs provide key input and direction for regional programs. Within the constraints of maintaining the core technology transfer functions, considerable flexibility is allowed the PAGs/RLOs to accomplish the regional program. PAGs provide guidance on strategic redirections, if needed, to better serve the regional audience and they approve the general topics for most of the workshops planned during the coming year. They, along with the RLO Directors, determine relative emphasis of different elements of the PTTC program. HQ staff interacts extensively with both the PAGs and the RLO Directors during the annual planning process. During the year, HQ interactions are primarily with the RLO Directors. It is HQ responsibility to see that regional activity during the year remains within the loosely defined boundaries of the annual plan. Regional PAGs typically meet three times per year with some occurring via conference call. One of those meetings occurs in the August time frame when the PAGs guide and approve the region's annual plan and budget. PAG approval is subject to Board confirmation.

Staffing approaches vary by region. RLO Director roles vary from a managerial role to intimate involvement in day-to-day details. Some regions spread the PTTC workload among several staff part-time, while others accomplish the work with only a few dedicated people. Both approaches have proven effective. Regional responsibilities include having to submit to HQ on a timely basis the required reports, invoices, workshop notebooks, and other information and deliverables. Financial management requires discipline, and with inevitable interruptions in the flow of DOE funds, flexibility. RLOs must maintain some reserve, and to maintain the activity levels of recent years, may be required to make contributions beyond contractual requirements. The resolution of cash flow and related issues is truly an ongoing cooperative effort between the RLOs, HQ, and DOE.

PTTC's National Organizational Milestones

1993

- November—PTTC incorporated as national, not-for-profit organization
- November—Founding Board of Directors meets (New Orleans, LA). Jim Russell voted Chairman, Gene Ames, Jr. as Vice Chairman, and Deborah Rowell as Executive Director
- December—Initial meetings of Producer Advisory Groups (PAGs)

1994

- January—Phase I funding from DOE/BDM begins.
- January—All ten PAGs formed, Chairman and Vice Chairman elected in each region
- February—First meeting of Permanent Board of Directors (Washington, DC). Same officers elected as by Founding Board.
- March—Headquarters staff make visits to potential Regional Lead Organizations (RLOs)
- March—Board adopts bylaws, elects Nominating Committee and members of Management and Budget (M&B) Committee. First M&B meeting held. (Dallas, TX)
- April—First meeting of RLO Directors (Tulsa, OK)
- May—First PTTC technical session at IPAA meeting (San Francisco, CA).
- May—Office space obtained for national PTTC Headquarters (HQ) – Separate from IPAA
- June—HQ staff hired
- July—HQ establishes accounting system and database separate from IPAA
- August—PTTC participates for first time in DOE oil program contractors review
- September—PTTC submits 5-year Master Plan to DOE as main Phase I deliverable
- September—PTTC's first national exhibit at conference - SPE annual meeting
- October—Tax-exempt status approved by IRS.
- November—Board conducts first (annual) strategic planning session (Phoenix, AZ)
- November—Phase II funding from DOE/BDM begins

1995

- January—First annual audit of HQ financial systems
- February— First joint meeting of PTTC Board and RLO Directors (Norman, OK). Election of officers (Chris Hall voted Chairman and Bob Nance as Vice Chairman)
- March—Contract signed with first RLO (North Midcontinent)
- March—First issue of "PTTC Network News" published as national quarterly newsletter
- April—PTTC participates for first time in DOE natural gas contractors review
- May—PTTC Board meeting includes discussions with IPAA leaders about lack of industry support for DOE oil and gas technology programs
- June—National website went online
- July—One year funding begins from Gas Research Institute for HQ activities
- July—PTTC Chairman Chris Hall leads Washington meeting with DOE officials to confirm industry support for oil and gas technology programs
- August—RLO staff meet to discuss coordinating PTTC websites (Albuquerque, NM)
- December—HQ ended consulting contract with ICF Resources for technical assistance related to establishing new organization.

1996

- January—PTTC presents preliminary problem identification results to DOE meeting with National Petroleum Council R&D Task Force members (Washington, DC)
- March—Election of officers (Bob Nance voted Chairman and Leo Schrider as Vice Chairman) (Tuscaloosa, AL)
- March—Problem Identification Report published based on series of workshops
- April—Executive Director begins monthly conference calls with M&B Committee
- May—PTTC Chairman Bob Nance added as member of IPAA Program Committee
- June—Board meets in Washington and issues first long-run strategic plan. Conducts first group visits to Capitol Hill.
- July—Contract signed with tenth/final RLO (West Coast)
- July—RLO Directors and HQ staff meet with DOE officials in Morgantown, WV
- October—HQ expands technical coverage in "PTTC Network News" (from 8 to 16 pages)
- November—Board ratifies updated bylaws. Adds 3 representatives from professional societies
- November—DOE announces that its new outreach areas will be same as PTTC's 10 regions
- December—Final regional resource center opened (West Coast)
- December—PTTC wins Honorable Mention award in contest for Organizational Excellence by American Society of Association Executives (ASAE)
- December—RLO Directors meet with DOE Outreach Team Leaders (Washington, DC)

1997

- January—PTTC signs cooperative agreement with AAPG to conduct joint workshops
- February—RLO staff meet to coordinate training on E&P software donated by industry (Golden, CO)
- April—PTTC Chairman Bob Nance gives presentation on industry needs at meeting of President's Committee of Advisors on Science and Technology (Dallas)
- May—PTTC releases "Best of PTTC Workshops" report
- May—PTTC wins R&D award from National Energy Resources Organization
- July—Board adopts new policies and procedures for HQ and regions
- August—RLO Directors meet and ask HQ staff to convey their concerns to the M&B Committee about new policies and procedures (Dallas, TX)
- September—PTTC hosts tour of Los Alamos National Lab for IPAA Governors
- November—Board adopts "Producer Advisory Group Guidelines"
- November—First national conference- ETEC '97 with IPAA and Cambridge Energy Research Associates (Houston, TX)
- December—PTTC national website named by ASAE as one of the nation's Top 10 Information Clearinghouse websites

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1998

- January—HQ establishes RLO-NET to improve communication with RLOs via Internet
- February—First marketing brainstorming session with Board/RLO/HQ representatives (Golden, CO)
- May—DOE awards new grant to PTTC extending to April 2003 (replaces BDM contract)
- July—Board adopts new Business Plan with marketing focus
- August—RLO Directors and HQ staff visit Sandia National Labs
- September—HQ releases new logo and updated image for stationery, publications, etc.
- October—PTTC's first webcast of a workshop (West Coast)
- November—PTTC holds second national conference ETEC '98 with IPAA (New Orleans)
- November—HQ releases "E&P Software Sampler" on CD-ROM

- December—Board launches Industry Crisis Action Plan, ratifies new mission statement and adopts "Guidelines for Professional and Ethical Conduct"

1999

- January—PTTC signs agreement with *World Oil* to publish case study digest
- February—PTTC begins extending RLO subcontracts to April 2003
- March—Board adopts "Conflict of Interest Policy" and elects officers (Leo Schrider elected as Chairman and Clark Southmayd as Vice Chairman)
- June—PTTC Chairman Leo Schrider speaks at first DOE Oil & Gas Conference (Dallas, TX)
- July—Board meets in Washington, DC. Votes to add one RLO representative to Board
- August—HQ releases "Solutions from the Field" report and starts adding workshop summaries to website.
- September—Inaugural issue of "Petroleum Technology Digest" released as supplement of *World Oil*
- November—Deborah Rowell, PTTC's founding Executive Director, announces her intent to resign in June.
- December—Executive Search Committee, chaired by Bob Nance, begins search for new Executive Director.

2000

- January—PTTC signs agreement with Hart Publications to provide a state-of-the-art technology summary in each issue of *PTTC Network News*.
- February—PTTC Chairman Leo Schrider and HQ staff meet with DOE in Washington to discuss funding.
- March—PTTC Board and RLO Directors meet jointly in Kansas City
- April—West Coast region holds first PTTC event in Alaska.
- May—Second issue of semi-annual publication, "Petroleum Technology Digest" released with *World Oil*
- June—Don Duttlinger selected as next PTTC Executive Director (effective July 1, 2000)
- November—Board approves strategic relocation of PTTC HQ to Houston after 7 years in Washington
- December – Move of HQ Office to Houston completed within weeks

2001

- January—PTTC begins monthly column "Tech Connections" with *The American Oil & Gas Reporter*
- February—Begin implementing website enhancements focused on consistency and user friendliness.
- March—Clark Southmayd of Oneok Resources Company is elected new Chairman and Jim Bruning named Vice Chairman of PTTC National Board during meeting in Washington
- Summer/Fall—PTTC co-sponsors Maurer Technology's "Optimized Horizontal Drilling" workshop series
- October—DOE and PTTC begin an eight-workshop Traveling Workshop series with DOE.
- December – Move of HQ Office to Houston completed within weeks.

2002

- January—DOE white paper documenting impact and outlining long-term vision completed.
- February—lessons learned from DOE/PTTC Traveling Workshop documented.
- March—Time frame of joint Board/RLO meeting changed to increase impact of Hill visits
- April—PTTC initiates Technology Alert service via broadcast E-mail
- July—HQ expands mailing list and increases exhibit schedule

APPENDIX B

SUMMARY OF PTTC REGIONAL ACTIVITY
(4th QUARTER—FY02)

Region	Workshops			Industry Contacts	Website (mo. avg.)		Newsletter Function
	No.	Attend.	From E&P Industry (%)		User Session	Page Views	
Appalachian	1	52	41 (79%)	793	4,163	4,915	Online newsletter—June 2002
Central Gulf	1	69	55 (80%)	518	4,083	8,161	LIOGA newsletter—July & September 2002, circ. 923
Eastern Gulf	1	29	21 (72%)	211	2,594	6,027	Quarterly newsletter – Septemher 2002, circ. 650
Midwest	1	27	21 (78%)	929	5,335	14,852	Semi-annual newsletter—Not this qtr; circ. 3000
N. Midcontinent	4	389	323 (83%)	779	21,398	72,680	Semiannual newsletter – July 2002; circ. 4,875
Rocky Mountain	7	107	102 (95%)	751	4,654	17,868	Quarterly newsletter – (8/02) circ. 2068 (95% industry; 6% electronic)
S. Midcontinent	11	304	282 (93%)	588	2,595	NA	Qtrly newsletter (June & Oct) supplemented w mailings; circ. about 5000
Southwest	0	0		204	14,827	60,863	Semi-annual PRRC, July 2002, circ. 3400, monthly on-line (743 for qtr)
Texas	3	45	45 (100%)	715 (1,658 TIPRO)	4,778 (122,603 outreach)	9,157 (303,919 outreach)	Newsletter-July 2002, circ. 1000; PBPA, TIPRO, ETGS, Midland paper
West Coast	5	250	168 (67%)	65	2,863	9,247	Announcements in CIPA weekly
All Regions 4th Qtr FY02	**34**	**1,272**	**1,058(83%)**	**5,553**	**67,290**	**203,770**	
All Regions FY02	**147**	**6,243**	**5,177 (83%)**	**18,377**	**FY02 versus FY01**		
FY01	**147**	**6,338**	**5,227 (82%)**	**16,051**	**-- no change in # of workshops**		
					-- 1 % decrease in attendance		
					-- 14 % increase in contacts		
					FY02 = 147 workshops vs. 147 in FY01		

Repeat Attendance at Workshops: Of 144 workshops during FY02 where repeat attendance was reported, the calculated average was 66%. (Measured as % of industry attendees that had previously attended a workshop in that region).

PTTC Appalachian Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (8 events)			**490**	**435(89%)**	
Case Study of An U. Devonian SS Oil Reservoir	Morgantown, WV	10/23/01	18	11 (61%)	27%
Optimized Horizontal Well Technology, Part A (Maurer Technology Inc.)	Delaware, OH	11/01/01	18	16 (89%)	88%
Field-Oriented Research Projects (DOE)	Washington, PA	11/08/01	15	8 (53%)	63%
Optimized Horizontal Well Technology, Part B (Maurer Technology Inc.)	Washington, PA	12/14/01	15	14 (93%)	86%
Operational Aspects of the Trenton-Black River Play (Ohio Geological Survey)	Canton, OH	4/25/02	176	161 (92%)	65%
Integrating GPS and GIS for the Petroleum Industry (Kentucky Geological Survey)	Lexington, KY	5/16/02	17	12 (71%)	75%
Gas Storage: Case Studies and New Potential	Morgantown, WV	5/29/02	33	25 (76%)	84%
Outcrop Analogs for Trenton-Black River Fractured Dolomite Reservoirs: A Field and Core workshop	Lexington, KY	6/4/02	59	42 (71%)	76%
Trenton Stakeholders	Morgantown, WV	9/25/02	52	41 (79%)	90%
Total FY02 Attendance (9 events)			**403**	**330 (82%)**	
Fractured Reservoirs	Washington, PA	12/3/02			

Application: 36% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 27 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website Usage (mo average)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**4**	**66**	**49 (74%)**	**230**	**2,687**	**8,203**	**Only online newsletter**
2nd Qtr	**0**	**0**		**471**	**2,759**	**5,535**	
3rd Qtr	**4**	**285**	**240 (84%)**	**760**	**3,158**	**8,659**	
4th Qtr	**1**	**52**	**41 (79%)**	**793**	**4,163**	**4,915**	
Total FY02	**9**	**403**	**330 (82%)**	**2,254**	**3,192**	**6,828**	
	19% decrease in total workshop attendance vs. FY01						
	Average workshop attendance = 45						

Regional Website: Website traffic grew modestly through the year, although the average monthly page views fluctuated (with an apparent anomaly during 4th Qtr). Session lengths average 12 to 13 minutes. Popular sections include: AAPG Eastern Section, newsletters, Trenton-Black River play, research performed by independents, and the summary of fracture stimulation techniques. Statistics for usage of the interactive databases (see resource center) are not yet able to be captured.

Workshops/Events: Early in FY02, the region struggled drawing the audience, so overall attendance decreased 19% for the year. Emphases during FY02 included: 1) Maurer's Horizontal Well technology workshop in Ohio and Pennsylvania, 2) three events oriented towards the Trenton-Black River play, and 3) DOE's Traveling Workshop for independents in Pennsylvania. Late in the year, the region hosted a Trenton Stakeholders workshop. With several expensive exploratory failures in the Trenton-Black River, operator interest was waning. The Stakeholders meeting evolved to convince operators it was time to learn more about the play rather than just pull out. Those attending prior Trenton workshops (more than 400) were invited. Staff presented an

R&D plan describing the types of multi-disciplinary research that could be performed. Operators added other thoughts. End result is a very focused technology needs analysis for the Trenton-Black River. Staff, in their organization's and not PTTC's role, also assisted GTI/New Mexico Tech in conducting an unconventional gas R&D needs workshop in Morgantown, WV during August. Their role in that effort was to identify and invite stakeholders, meeting logistics, and act as a facilitator during the meeting.

Resource Center: Having not received measurable 'in person' traffic for years, physical space for the resource center has been returned to WVU. Major data efforts were interactive databases for horizontal well, coalbed methane, and Trenton-Black River activity that are accessible in a GIS environment through the website.

Outreach/Contacts/Newsletter: Reported contacts increased about three-fold this year, reflecting 1) significant proactive outreach to stimulate attendance at regional workshops, 2) continued high interest in Trenton-Black River activity, and 3) effort finding speakers for other groups. Regional outreach relies heavily upon interacting with industry at producer association and professional society meetings across the multi-state region. Participation varies from attending to network to giving a PTTC promotional talk to staffing a PTTC booth. Director Doug Patchen often works with these groups to find speakers for events they are organizing. His national involvement in AAPG also bears fruit for PTTC networking. Staff develops an extensive online newsletter, three this year, that are one of the most frequently accessed sections of the website.

Problem Identification: The region relies on attendee feedback, PAG input and outreach to develop topics for regional workshops. Beyond this ongoing problem identification process, there were two problem identification events in the region this year.

In the Trenton-Black River Stakeholders meeting, participants listened to a two-hour summary of proposed research, and still were able to come up with an informative list of additional efforts. The first suggestion was to look at reservoir seals and pore pressures to identify the zone where drillers pass from normal pressure to overpressure. Along with this, it was suggested to evaluate all pressure data and over-pressured areas, and look for basin-centered traps versus updip water. Another suggestion was to conduct a hydrodynamic study of the Cambrian to better understand fluid movement, using drill stem test and pressure data. Another suggestion was to map structure on shallower formations or the top of the Ordovician, to better image the fields. This approach has proved useful in some areas. While structure mapping was being discussed, a suggestion was made to add remote sensing, lineament mapping and field-truthing studies. Another person suggested examining microfractures using an approach developed by Ron Nelson, formerly of Amoco Research. One person suggested an evaluation of logging suites to see what works best for reservoir characterization in these fractured, often dolomitized carbonates. Another person followed with an observation that Marathon and Schlumberger had found deep resistivity logs useful in the Ellenburger play in West Texas. Finally, participants identified the need to collect all historic and current data in one digital database.

For the GTI/New Mexico Tech needs analysis effort, prioritized overall needs are: more reservoir characterization studies; the need for more gas desorption data from coal beds; the need to extend well life; better characterization of natural fractures and coal cleat systems; more play-based studies and workshops; a broader core drilling and core evaluation program; and evaluating multi-lateral wells and reducing drilling costs. Needs within specific areas (Devonian shales, tight formations and coalbed methane) were considered when prioritizing the overall need.

Follow-up: Staff developed data showing Trenton-Black River permitting activity, highlighting the increase in activity that followed PTTC workshops.

Case Studies: The Upper Devonian sandstone workshop held early in the year itself represented an extended case study regarding how to characterize reservoirs. In the Trenton operational workshop, operators shared extensively about their experiences. Although not an official PTTC activity, the PUMP workshop developed by WVU featured some case studies.

PTTC Central Gulf Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (7 events , plus 1 w Eastern Gulf)			**213**	**189 (89%)**	
Field-Oriented Research Projects for Independents (DOE, Eastern Gulf Region)	Jackson, MS	10/30/01	Reported by Eastern Gulf Region		
Louisiana Energy and the Environment	Baton Rouge, LA	11/14/01	34	32 (94%)	0%
Essentials of Subsurface Mapping	Lafayette, LA	1/23/02	35	24 (69%)	51%
Field-Oriented Research Projects for Independents (DOE, Texas Region)	Tyler, TX	2/06/02	Reported by Texas Region		
Optimized Horizontal Well Technology, Parts A&B (Maurer Technology Inc., Eastern Gulf Region)	New Orleans, LA	3/19-20/02	12	12 (100%)	50%
Reservoir Characterization Technology	Shreveport, LA	4/30/02	22	19 (86%)	50%
Application of Louisiana's SONRIS Database (Louisiana DNR's Oil & Gas Database) Lafayette, Shreveport and Houston early in FY03	Baton Rouge, LA	9/5/02	69	55 (80%)	28%
Total FY02 Attendance (5 events , plus coop. w Eastern Gulf & Texas)			**172**	**142 (83%)**	
Louisiana DNR's SONRIS Database "New Features"	Lafayette, LA	10/10/02			
	Shreveport, LA	10/17/02			
	Houston, TX	11/14/02			
Asphaltene, Paraffin and Scale	Lafayette, LA	1/16/03			

Application: 17% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 13 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**1**	**34**	**32 (94%)**	**147**	**3,080**	**11,237**	**No newsletter – only LIOGA announcements**
2nd Qtr	**2**	**47**	**36 (77%)**	**197**	**3,044**	**7,313**	
3rd Qtr	**1**	**22**	**19 (86%)**	**123**	**3,330**	**7,098**	
4th Qtr	**1**	**69**	**55 (80%)**	**518**	**4,083**	**8,161**	
Total FY02	**5**	**172**	**142 (83%)**	**985**	**3,384**	**8,452**	
	19% decrease in total workshop attendance vs. FY01						
	Average workshop attendance = 34						

Regional Website: In terms of user sessions, usage remained steady during the year with the increase during the 4th Qtr related to the popular SONRIS workshop series (see workshops/events). Page views were affected by a redesign of the website. Effort focuses primarily on routine maintenance and updating, although a software program developed by John McMullan with LSU Petroleum Engineering that calculates physical properties of petroleum fluids was added to the website.

Workshops/Events: With the exception of the SONRIS workshop, the region struggled to draw audiences during FY02, exhibiting a 19% decrease in overall attendance. The region worked cooperatively with the Central Gulf and Texas regions for the DOE Traveling Workshop. A two-day version of Maurer's horizontal drilling workshop was also held in New Orleans. The reservoir characterization workshop focused on acquainting independents with the leading edge technologies now available. In the latter portion of the year, a significant amount of effort was spent coordinating with Louisiana Department of Natural Resources (DNR) concerning content and logistics/scheduling for the SONRIS workshops series. This series focuses on new features of the SONRIS online O&G database.

Resource Center: In earlier years, staff developed the Louisiana Desktop Well Reference CD-ROM to provide operators with basic well/production data they wanted. Data is now available through SONRIS, so emphasis is

now directed toward advising Louisiana DNR on potential improvements and on helping industry learn how to use their system. When difficult information requests are received, Barbara Kavanaugh's skills as an information specialist are extremely valuable. In several instances, she has assisted HQ.

Outreach/Contacts/Newsletter: Except for the anomalous jump in activity during the 4th Qtr, contact activity was consistent with prior year's levels. For the newsletter function, the region makes regular contributions to the LIOGA newsletter, which is distributed to about 1,000 people. Coordinator Don Goddard makes proactive visits to producers across the state. Director Bob Baumann and Goddard also seize all speaking opportunities. Exhibiting at the Gulf Coast Prospect Expo is another important outreach. Recently, Goddard has also been assisting HQ in staffing PTTC's booth at NAPE/APPEX prospect-oriented events. Through the Downhole Water Sink Consortium, Andrew Wojtanowicz interacts with oil companies operating across the world as well as active domestic independents.

Problem Identification: Industry needs and directions for future activities are determined through PAG input, interaction with workshop attendees, resource center contacts and LIOGA networking. Goddard's support of PTTC's booth at NAPE/APPEX also generates ideas and contacts.

Follow-up: Staff developed success stories demonstrating producers taking action to reduce power costs, study reservoirs, plan horizontal wells, and better manage produced water. Through support of LSU's Downhole Water Sink Consortium, staff is aware of multiple producers applying that technology in several parts of the world. Inquiries and applications have also occurred domestically.

Case Studies: LSU's study for TMR Exploration of development potential in the Livingston Field (Wilcox) indicated that bypassed oil is accessible through horizontal drilling. CO_2 flooding was found to offer additional potential. Attendance at PTTC workshops sparked TMR's interest in the study, and current plans are to implement horizontal drilling. TMR has expressed their willingness to share field results when appropriate.

PTTC Eastern Gulf Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (9 events, plus 1 w Central Gulf)			**415**	**265 (64 %)**	
Field-Oriented Research Projects (DOE, C. Gulf)	Jackson, MS	10/30/01	28	19 (67%)	14%
Open-Hole Log Interpretation (Mississippi State Board of Registered Professional Geologists)	Jackson, MS	11/28/01	51	33 (65%)	61%
Software Demonstration on Cross-Section Generation Using MJ Systems Raster Log Images and Digirule's CrossLog Suite	Raymond, MS	2/25/02	10	8 (80%)	75%
Optimized Horizontal Well Technology, Part A&B (Maurer Technology Inc., Central Gulf Region)	New Orleans, LA	3/19-20/02	Reported by Central Gulf		
SMT Kingdom Suite 2D/3D Pak Interpretation	Raymond, MS	4/15/02	12	8 (67%)	75%
Recent Activity and Trends in the Mississippi-Alabama Oil Patch (Mississippi Geol. Society)	Jackson, MS	5/16/02	240	226 (94%)	38%
Geohydrology Applications to Petroleum and Environmental Geology and Engineering (MS State Board of Registered Professional Geologists)	Jackson, MS	5/22/02	68	18 (26%)	33%
Reservoir Characterization and Modeling—North Blowhorn Creek, Vocation Field, Appleton Field, and Womack Hill Field (DOE-related projects)	Jackson, MS	8/14/02	29	21 (72%)	86%
Total FY02 Attendance (7 events, plus 1 w Central Gulf)			**441**	**333 (76%)**	
E&P Technical Issues (US O&G Assoc.)	Jackson, MS	10/30/02			
Seismic Stratigraphic Interpretation, Lower Cretaceous Strata, NE Gulf of Mexico	Jackson, MS	11/20/02			
SMT Kingdom Suite	Raymond, MS	1/TBD/03			

Application: 30% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 18 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**2**	**82**	**52 (63%)**	**168**	**1,574**	**10,001**	**Newsletter = September, circ. 650**
2nd Qtr	**1**	**10**	**8 (80%)**	**199**	**1,812**	**10,372**	
3rd Qtr	**3**	**320**	**252 (79%)**	**190**	**1,913**	**10,051**	
4th Qtr	**1**	**29**	**21 (72%)**	**211**	**2,594**	**6,027**	
Total FY02	**7**	**441**	**333 (76%)**	**768**	**1,973**	**9,113**	
	6% increase in total workshop attendance vs. FY01						
	Average workshop attendance = 63 (influenced by large MGS conference; average = 34 excluding that event)						

Regional Website: Although varying, usage is staying stable in the 1,800 to 2,500 user sessions per month range. Beyond normal updating, regional technical studies and case studies are frequently placed online. The region also supports a data-oriented site at the Mississippi Office of Geology. Typical usage per quarter is above 2,500 well folders, more than 3,000 searches and a couple thousand images downloaded .

Workshops/Events: Overall attendance increased a modest 6% during FY02. Staff has coordinated with the Mississippi State Board of Registered Professional Geologists to deliver workshops that help registered geologists meet CEU requirements. Although not a major focus of the program, the region does provide some software training each year. During FY02 software training focused on MJ Systems and Digirule products for cross section generation and Seismic MicroTechnology 3D seismic software. The region also hosted the DOE Traveling workshop and supported Maurer's horizontal drilling workshop held in New Orleans.

Resource Center: PTTC support funding has been instrumental to development of the geological-oriented website at the Mississippi Office of Geology. Success bringing digital geological data to industry is spawning discussions for other efforts in Mississippi.

Outreach/Contacts/Newsletter: Contact activity, which is in the two to three contacts per day range, increased modestly during FY02. Director Ernie Mancini is extremely well networked within the region's strong geological community and within AAPG across the world. This networking led to the region co-sponsoring the Mississippi Geological Society's spring symposium, a major regional technology event. The two-page regional newsletter is used like clockwork on a quarterly basis. Beyond announcements, it attempts to summarize technology insights presented during recent workshops or in reports relevant to the region.

Problem Identification: Industry needs and directions for future activities are determined through PAG input, interaction with workshop attendees, resource center contacts and networking. Standard practice at the end of each workshop is to spend a few minutes interacting with producers about things they want to learn more about.

Follow-up: Efforts, beginning with a 1997 workshop on 'Computers and Geology' and continuing with the geological-oriented website developed by the Mississippi Office of Geology with PTTC support funding have changed the way independents do business. Requests now frequently come via E-mail rather than phone, and increasing numbers register for workshops online. In the technology realm, play-based workshops are known to have influenced industry. Speakers from a 'Smackover Reef' workshop have met with operators in Texas and Mississippi to review specific projects. Data from the 'Norphlet' workshop has been used for onshore exploration. Exploration objectives have been targeted in Lower Cretaceous carbonates (James Limestone) based on information presented at that related workshop. Tuscaloosa Marine Shale objectives were planned in Mississippi from that workshop. The shale workshop, which was initiated by an independent, has been one of the region's best attended. Wells have been drilled and production developed because of, at least partially, these workshops.

Case Studies: The August workshop featured case studies of North Blowhorn Creek, Vocation, Appleton and Womack Hill fields. Each of these field study efforts received some DOE funding support. The studies involved detailed geological characterization and recommendations concerning further development potential. HQ has developed a summary of presented material that is posted under Solutions From the Field on the national website.

PTTC Midwest Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) Industry	
Total FY01 Attendance (7 events)			**254**	**207 (81%)**	
Video Seminar on Deltaic Environments	Mt. Vernon, IL	10/22/01	11	9 (82%)	100%
Video Seminar on Deltaic Environments	Grayville, IL	10/23/01	20	17 (85%)	94%
Field-Oriented R&D Projects Independents (DOE)	Evansville, IN	11/01/01	20	8 (40%)	50%
Benoist Sandstone Play-Based Workshop	Mt. Vernon, IL	11/16/01	39	31 (79%)	90%
Keys to Optimized Horizontal Drilling, Part B (Maurer Technology Inc.)	Lansing, MI	12/10/01	66	48 (73%)	43%
Keys to Optimized Horizontal Drilling, Part B (Maurer Technology Inc.)	Grayville, IL	12/12/01	19	16 (84%)	94%
Field-Oriented R&D Projects Independents (DOE)	Lansing, MI	2/19/02	49	38 (77%)	59%
Applied Digital Subsurface Mapping	Mt. Carmel, IL	4/18-19/02	33	24 (73%)	88%
Desktop Applications for the Petr. Professional	Mt. Carmel, IL	8/14/02	27	21 (78%)	79%
Total FY02 Attendance (8 events)			**284**	**212 (75%)**	
Well Cuttings	Mt. Vernon, IL	11/20/02			
Well Cuttings	Kalamazoo, MI	11/22/02			
Desktop Applications for Petroleum Professional	Mt. Carmel, IL	2/TBD/03			
Michigan Basin Dundee Core Workshop	Kalamazoo, MI	2/TBD/03			

Application: 41% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 17 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**6**	**175**	**129 (74%)**	**645**	**4,749**	**9,857**	**Semiannual newsletter, circ. = 3000**
2nd Qtr	**1**	**49**	**38 (77%)**	**831**	**3,465**	**8,196**	
3rd Qtr	**1**	**33**	**24 (73%)**	**935**	**3,651**	**8,082**	
4th Qtr	**1**	**27**	**21 (78%)**	**929**	**5,335**	**14,852**	
Total FY02	**9**	**284**	**212 (75%)**	**3,340**	**4,300**	**10,247**	
	12% increase in total workshop attendance vs. FY01						
	Average workshop attendance = 32						

Regional Website: Website usage reflects only the primary Illinois Basin website since similar tracking software cannot be used on the Michigan satellite's server. Illinois usage was about the same as prior years. Spurred by the increasing amount of data put online, Michigan usage continued to increase. Systems developed during the Illinois Geological Survey's PUMP project are expected to significantly increase Illinois usage once that data is placed online.

Workshops/Events: Overall attendance increased a modest 12% during FY02. The region supported both DOE's Traveling Workshop and Maurer's horizontal drilling workshop, hosting them both in Illinois and Michigan. They also experimented for the first time with a video seminar on deltaic environments. Building from Illinois Geological Survey work, they delivered a workshop on the Benoist Sandstone, a major reservoir in the Illinois Basin. After much searching, staff found a great software training facility at Wabash Valley College in Mt. Carmel, Illinois. Response to a desktop applications workshop held there was highly favorable, about both the course and facility. Additional software training is planned during FY03. Consistent with PAG preferences, staff tries to schedule workshops during the winter months when field work is limited.

Resource Center: Illinois Basin staff continue to develop core and waterflood databases. Mapping products, which the region began developing a couple years ago, are becoming very popular. Various standard maps are offered, plus customized maps can be generated. While not individually qualifying as products, the numerous

databases that the Michigan satellite places online are certainly a resource center product. Leveraging all funding sources, Western Michigan University is attempting to expand its core/resource center facilities.

Outreach/Contacts/Newsletter: Contact activity has more than doubled this year, reflecting very active programs both in the Illinois Basin and in Michigan. Staff are very active in professional societies, evidenced by Director Dave Morse being the co-Chairman of AAPG's Eastern section meeting this year. Staff attend producer association meetings, occasionally staffing a booth while there. Illinois Basin staff visits targeted operators throughout the year. Newsletter, Tech Alert and email campaigns about DOE's Independents program are known to have stimulated several operators to consider proposals. Director Dave Morse attended a Coalbed Methane Seminar and planning meeting in Evansville late in FY02. The meeting was organized by three state geological surveys (Illinois Basin Consortium) to determine interest in coalbed methane research. Ideas were developed for a joint research proposal including industry participation to DOE. Circulation of the semi-annual newsletter is about 3,000. Demand for map products continues to grow, particularly as operators are learning to build and use digital data. This may be partly an outgrowth of software training workshops.

Problem Identification: Feedback from workshop participants and booth traffic support continuing software training and expanding data compilation and online dissemination efforts. Michigan operators have suggested many topics, including: underbalanced drilling, new pumping/production methods, new seismic techniques for reservoir characterization, coiled tubing drilling, and production problems and solutions in coalbed methane and Antrim Shale.

Follow-up: Linda Harrison with the Michigan satellite followed-up with attendees at the horizontal drilling workshops (Bob Knoll with Maurer Technology Inc.) and uncovered several examples of companies applying technologies. Cryptic summaries illustrating how producers are taking action follow:
>> *R&B Energy* – Learned how important it was to clean out lateral drains. After the workshop, they drilled the Bear 1-16D. They had a 2' foot vertical pay initially. They put out a diagonal and got 2 more lower pay zones. These were suggested by pressure tests. Mudlogs were recently received. The operator believes the well will produce 100 barrels/day.
>> *Newstar Energy USA, Inc*. – Newstar drilled a horizontal well in the Freeman-Redding field. It was making water which they couldn't handle, so they sold it to Lease Management (LM could do their own disposal wells). That well is now on production at 40 b/day. Newstar drilled the well after staff attending the workshop pointed out the advantages of horizontal drilling in Michigan. A paper has been prepared. Newstar is planning an additional horizontal well that they hope to have on production within 6 to 9 months. After hearing Bob Knoll, Newstar is using the team concept in planning, plus other parameters they learned from the workshop.
>> *TOC LLC* – The individual attending the one-day workshop benefited greatly, so he and a company vice president attended Knoll's week-long commercial workshop. TOC is now planning to put in a horizontal well in spring (when they get the lease worked out--state game preserve).
>> *Schmude Oil* – Staff attending the workshop learned the technique of putting laterals out from the mother hole. Schmude has not used the procedure yet, but plans are in place to do it as soon as the chance arises. Key principals have been actively drilling laterals, and they have been more successful than predicted.
>> *On Site Engineering* – Staff attending the workshop learned about "casing the curve" at the workshop and has used that technique successfully.
>> *Cowen Oil & Gas* – Although Cowen hasn't drilled any horizontals since then, they have permitted and planned some using the team concept approach. Cowen believes that will help with later operations.

Case Studies: Staff learned that John Basnett, an independent geologist in Illinois, developed a new exploration concept based on thoughts learned from a regional Aux Vases workshop he attended. Headington Oil subsequently partnered with Basnett, drilled the discovery well and as of early 2002, had drilled 27 new development wells. Goal is to get Headington to share experience in the *Petroleum Technology Digest*. Case studies delivered in the Benoist Sandstone workshop were highlighted in PTTC's Tech Connections column in the *American Oil and Gas Reporter*.

PTTC North Midcontinent Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (8 events)			**403**	**328 (81 %)**	
Optimized Horizontal Well Technology, Part B (Maurer Technology Inc.)	Wichita, KS	10/30/01	28	20 (71%)	82%
Field-Oriented Research Projects By Independents (DOE)	Wichita, KS	11/29/01	52	36 (69%)	58%
Petroleum Technology Fair	Wichita, KS	3/27/02	95	71 (75%)	56%
Independents' Day at the SPE/DOE IOR Symposium (DOE, SPE, South Midcontinent	Tulsa, OK	4/16/02	Reported by South Midcontinent		
Improving Oil Recovery Using Integrated Evaluation Techniques	Wichita, KS	4/23/02	38	23 (61%)	74%
Log Analysis in Kansas Using Excel Spreadsheets	Lawrence, KS	5/23/02	15	12 (80%)	73%
Coalbed Methane Production in the Midcontinent	Wichita, KS	8/07/02	146	122 (84%)	32%
Coalbed Methane in Eastern Kansas (KIOGA)	Wichita, KS	8/19/02	115	92 (80%)	40%
GEMINI Online Software/Data (KIOGA)	Wichita, KS	8/19/02	55	45 (82%)	38%
Technology Transfer for Independents (EKOGA)	Chanute, KS	9/20/02	73	64 (88%)	44%
Total FY02 Attendance (9 events)			**617**	**485 (79%)**	
Crash Course in Log Analysis: An EXCEL Spreadsheet Workshop (KS Geol. Survey)	Lawrence, KS	10/17/02			
Practical Log Analysis Guide to O&G Fields of KS	Lawrence, KS	10/18/02			

Application: 40% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 16 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**2**	**80**	**56 (70%)**	**679**	**24,832**	**82,992**	**Semiannual newsletter, circ =-4875**
2nd Qtr	**1**	**95**	**71 (75%)**	**698**	**31,036**	**114,615**	
3rd Qtr	**2**	**53**	**35 (66%)**	**688**	**96,089**	**313,498**	
4th Qtr	**4**	**389**	**323 (83%)**	**779**	**21,398**	**72,680**	
Total FY02	**9**	**617**	**485 (79%)**	**2,844**	**43,339**	**145,946**	
	53% increase in total workshop attendance vs. FY01						
	Average workshop attendance = 69						

Regional Website: Usage on a year-to-year basis continues to steadily increase as the Kansas Geological Survey continues to make more digital data available. Statistics by quarter do exhibit apparent anomalies, some of which are attributed to recently updating the WebTrends software. Session time is in the 11 to 15 minute range. Major content additions during the year included: 1) a poster presentation about 'Field Development and Renewed Reservoir Characterization for CO_2 Flooding of the Hall-Gurney Field, Central Kansas,' 2) a web page allowing users to search and chart/display DST data, and 3) proration gas pressure data. Prototype mapping capability has also been added to the oil and gas field pages.

Workshops/Events: Overall attendance increased 53% during FY02. The region participated in the DOE Traveling Workshop series and Maurer's horizontal drilling workshop. It also developed an event unique to PTTC, a Petroleum Technology Fair. Beyond expected technical presentations, the Fair also provided an exhibit area for vendors to feature their products/services. Staff supported the South Midcontinent Region and HQ in conducting Independents' Day at the SPE/DOE Improved Oil Recovery Symposium in Tulsa, Oklahoma. Workshops during the 4th Qtr focused on coalbed methane, with the Wichita workshop drawing 146 attendees, representing nine states and Canada. The August 7 workshop was complemented with exhibits from 10

organizations, seven of whom paid $100 for the privilege. Mini-workshops were held in conjunction with KIOGA and EKOGA meetings. One featured the DOE-supported GEMINI online software project being conducted by the Kansas Geological Survey. When fully developed, GEMINI will allow compilation and viewing of LAS digital well logs, interactive annotation of these logs with reservoir intervals and tops, log analysis for effective pay, construction of cross sections to establish correlations, and calculations of volumetric oil-in-place.

Resource Center: Dwayne McCune, working on behalf of the Tertiary Oil Recovery Project (TORP) at KU, developed a coalbed methane manual focusing on geological and operational aspects of coalbed methane development. Although not individually products, the numerous databases developed by the Kansas Geological Survey for the website are major contributions benefiting independents.

Outreach/Contacts/Newsletter: Contacts remain at high levels, averaging about 10 per working day. Staff resources to respond can often be strained. Staff attends and is frequently involved in activities of Kansas's major producer organizations, KIOGA and EKOGA. As time and resources permit, staff attends technical events outside the region (SPE annual meeting, coalbed methane conference in Denver for example) to learn about new technologies and make new contacts. Representing HQ, Director Rodney Reynolds attended the spring Stripper Well Consortium meeting and will chair a session at their fall 2002 tech transfer meeting in Oklahoma City. The regional newsletter, recently reduced from quarterly to semi-annual to reduce cost, is distributed broadly to nearly 5,000 people in multiple states.

Problem Identification: The region relies on feedback from workshop participants and the PAG to determine current areas of high regional interest.

Follow-up: Although follow-up with individual workshop participants is limited, staff generally hears about applications of new technologies in Kansas and follows-up with involved producers and vendors/service companies, often identifying case studies (see below). This informal ear-to-the ground process works well.

Case Studies: Staff worked with Citation Oil and TIORCO to document higher volume gel polymer treatments in Arbuckle producers for the *Petroleum Technology Digest*. These case studies and GasGun™ (solid propellant stimulation treatments) were also shared during the Independents' Day workshop. Supplemental funding for FY03 will enable the region to develop case studies focusing, at PAG direction, on successful technology applications in mature Arbuckle reservoirs in Kansas. These technologies include application of 3-D seismic, larger volume gelled polymer treatments in producing wells, and stimulation using solid propellants. Staff continues to support KU's TORP group in its efforts to create a database of gelled polymer treatments in Kansas. This database should provide insights about key questions, including: candidate selection, treatment sizing and modeling. In effect, TORP and PTTC are leveraging each other's funding. Rodney Reynolds has also been supporting (on a personal consulting basis) the South Midcontinent Region in developing a manual about "Produced Water And Issues Associated With It." This manual, which is being developed as part of PTTC's DOE PUMP project, is capturing practical field insights. Content will be the basis for PUMPer outreach in Oklahoma/Arkansas and a series of workshops planned by the South Midcontinent Region. Recognizing that many of the insights are universally applicable, PTTC will facilitate transfer across the country. Success of this product is leading PTTC to consider similar manuals on a few other topics that PTTC has provided broad coverage of throughout the years.

PTTC Rocky Mountain Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (27 events)			**1,081**	**938 (87 %)**	
Structural Traps and Fractured Reservoirs of the Rocky Mountain Region (RMAG)	Denver, CO	10/01/01	300	250 (83%)	90%
GeoPlus PETRA Basic Training (AAPG)	Golden, CO	10/4-5/01	17	16 (94%)	88%
Introduction to Monte Carlo Simulation	Golden, CO	11/02/01	20	16 (80%)	50%
Field-Oriented R&D Projects By Independents (DOE)	Denver, CO	11/27/01	9	8 (89%)	78%
Inexpensive, Rapid Cross-Section Generation MJ Systems' Raster Log Images and DigiRule's CrossLog	Golden, CO	11/30/01	15	15 (100%)	94%
Desktop Applications for Petroleum Prof., Day 1	Golden, CO	1/18/02	19	16 (84%)	79%
Desktop Applications for Petroleum Prof., Day 2	Golden, CO	1/25/02	19	16 (84%)	79%
Kingdom 2D/3Dpak (Data Loading)	Golden, CO	2/6/02	19	13 (68%)	63%
Kingdom 2D/3Dpak (Interpretation)	Golden, CO	2/7/02	18	13 (72%)	72%
Kingdom 2D/3Dpak (EarthPak)	Golden, CO	2/8/02	10	7 (70%)	50%
GeoPlus PETRA Basic Training	Golden, CO	2/12&15/02	19	16 (84%)	84%
Subsurface Fluid Pressures and Their Relation to O&G Generation, Migration, & Accumulation	Durango, CO	4/12/02	24	19 (79%)	60%
Optimized Horizontal Drilling, Part B (Maurer Tech)	Denver, CO	4/23/02	22	20 (91%)	91%
Rocky Mountain Energy Technology Conf. (IPAMS)	Denver, CO	4/24-25/02	300	280 (93%)	90%
RockWorks 2002 Software Training	Golden, CO	5/21/02	19	17 (90%)	90%
RockWorks Visual Seismic Software Training	Golden, CO	5/22/02	10	10 (100%)	90%
GeoGraphix GESX Basic Training	Golden, CO	6/12/02	19	19 (100%)	95%
Simulation Users Group	Golden, CO	6/12/02	5	4 (80%)	40%
Seismic Stratigraphic Modeling (DigiRule Synthetic)	Golden, CO	6/14/02	4	4 (100%)	75%
Coalbed Methane Symposium (RMAG)	Denver, CO	6/19/02	390	360 (92%)	90%
GeoPlus PETRA Basic Training	Golden, CO	6/20-21/02	19	19 (100%)	90%
GeoPlus Petra Basic Training (Stone Energy)	Golden, CO	7/18-19/02	18	18 (100%)	83%
Desktop Applications—Spreadsheet & Database	Laramie, WY (AAPG RMS Meeting, RMAG, AAPG DPA)	9/7/02	11	11 (100%)	64%
Desktop Applications—PowerPoint & Graphics		9/8/02	11	11 (100%)	91%
Interpreting Sedimentary Environments Using Borehole Images, Cores and Outcrop Studies		9/8/02	8	7 (88%)	63%
Low Permeability Gas Sands		9/11/02	32	29 (91%)	82%
Simulation Users Group (3M CBM Simulator)	Golden, CO	9/17/02	20	19 (95%)	50%
Hydraulic Fracturing Design & Eval (GOHFER)	Golden, CO	9/20/02	7	7 (100%)	29%
Total FY02 Attendance (28 events)			**1,384**	**1,240 (90%)**	
Innovative Gas Exploration Concepts (RMAG)	Denver, CO	10/01/02			
Structural Traps and Fractured Reservoirs (SPE Billings, Montana Geological Society)	Billings, MT	10/18/02			
GeoPlus PETRA Basic Training	Golden, CO	11/7-8/02			
Exploitation of Hydrocarbon Reservoirs Using Intelligent Computing Software	Golden, CO	11/15/02			
Simulation Users Group	Golden, CO	11/19/02			
SMT Kingdom Suite	Golden, CO	1/22-24/03			

Application: 40% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 77 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	5	361	305 (84%)	386	4,298	20,712	Quarterly Newsletter; August, circ = 2068
2nd Qtr	6	104	81 (78%)	588	4,470	21,233	
3rd Qtr	10	812	752 (93%)	542	3,665	17,102	
4th Qtr	7	107	102 (95%)	751	4,654	17,868	
Total FY02	28	1,384	1240 (90%)	2,267	4,272	19,229	
	28% increase in total workshop attendance vs. FY01						
	Average workshop attendance = 49 (Large co-sponsored events offset software training limitations of 20 or less per workshop)						

Regional Website: Usage increased more than two-fold during FY02. The PTTC Data Exchange, a major enhancement, was operational early in the year. It provides a venue for users, in a GIS environment, to locate and exchange offered data. Goal is to capture data being lost. An early offering in the Exchange was mudlogs scanned by the Wyoming Geological Association. Registered users have continued to rise, but actual usage has been low. Jeff Robison now assists Michael Ewing (now in grad school) with the website.

Workshops/Events: Overall attendance increased 28% during FY02. Facility-limited attendance at software training workshops is offset by large audiences at major regional technology events. Seventeen software training workshops were delivered. Major regional events that the region co-sponsored included: 1) Structural Traps and Fractured Reservoirs (RMAG), 2) Rocky Mountain Energy Technology Conference (IPAMS), and 3) the annual Coalbed Methane Symposium (RMAG). The region supported AAPG's Western Regional meeting by co-sponsoring four short courses. It also developed several topic-oriented workshops. With less funding this year, all but the AAPG short courses were held in the Denver area. FY03 plans include workshops in more states. In a new initiative, the region has organized a simulation users group that meets monthly. This industry-driven group is striving to demonstrate the use of low cost modeling programs and create public datasets.

Resource Center: Staff continued developing the Data Exchange, exploring options to stimulate usage. One option that is being explored is to post core listings—a trial effort with the Texas RLO is planned and others have been contacted. The new simulation users group draws industry to the resource center on a regular basis. Only through combining the resources of AAPG, the Colorado School of Mines, private donors and PTTC is the region able to maintain such an active software training center. Pete Varney, instructor for the desktop applications workshop, has conducted some workshops for other regions.

Outreach/Contacts/Newsletter: Contact activity decreased a modest 10% this year, a statistically insignificant change. Staff exhibits at selected events (RMAG Prospect Fair and Technofest, Colorado AIPG legislative reception). Director Sandra Mark's presentation about computer technology and the petroleum professional also creates speaking opportunities before professional societies and producer associations. Working quickly and with industry financial support, the region identified two Denver-area students able to participate in the West Coast Region's COMET (student education and entrepreneurial training program) during the summer. Students interned with companies in the Denver area. The region hopes to expand this effort next year.

Problem Identification: Industry needs and directions for future activities are determined through attendee feedback, PAG input and resource center contacts.

Follow-up: Regional and HQ staff identified an environmental consultant who had employed software to increase their business and help reduce their clients liability in legal proceedings. PAG Chairman Brook Phifer developed data demonstrating how an independent's coalbed methane production had increased, at least partially through participation in regional coalbed methane events.

Case Studies: Presentations by Sandra Mark and Ira Pasternak about 'Internet Resources for Data and Research' were posted online, as were Ralph Specht's (JIREH Exploration & Consulting) abstract and presentation about coalbed methane in North Dakota from the Horizontal Drilling Conference in Bismarck.

PTTC South Midcontinent Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Ind	
Total FY01 Attendance (51 events + MWC Trade Fair)			**1,762**	**1,549 (88%)**	
Field Operations-Pumpers Cost Controls (MWC)	Tulsa, OK	10/04/01	14	12 (86%)	50%
Coalbed Methane Field Trip (OGS)	Poteau, OK	10/09/01	18	11 (61%)	94%
Coalbed Methane Workshop (OGS)	Poteau, OK	10/10/01	85	69 (81%)	74%
Coalbed Methane Field Trip (OGS)	Poteau, OK	10/11/01	38	27 (71%)	95%
NRIS Web/Mapping Workshop (GIS)	Tulsa, OK	10/11/01	11	11 (100%)	0%
NRIS Web/Mapping Workshop (GIS)	Tulsa, OK	10/12/01	11	11 (100%)	0%
Plugging: The Last Resort (MWC)	Pawhuska, OK	10/19/01	10	4 (40%)	90%
Cleveland & Peru Play Workshop (OGS)	Tulsa, OK	10/24/01	13	9 (69%)	85%
Plugging: The Last Resort (MWC)	Oklahoma City, OK	10/26/01	14	10 (71%)	50%
Plugging: The Last Resort (MWC)	Tulsa, OK	11/02/01	3	3 (100%)	66%
Springer Field Trip	Ardmore, OK	11/08/01	23	16 (70%)	91%
Advanced Arc View Mapping Software (GIS)	Tulsa, OK	11/09/01	9	9 (100%)	0%
Soil Remediation (MWC)	Pawhuska, OK	11/14/01	15	13 (87%)	71%
Soil Remediation (MWC)	Oklahoma City, OK	11/16/01	24	22 (92%)	46%
Garber Ground Water Aquifer Field Trip (OGS)	Norman, OK	11/17/01	72	28 (39%)	13%
Soil Remediation (MWC)	Tulsa, OK	11/30/01	12	11 (92%)	58%
Soil Remediation (MWC)	Ardmore, OK	12/14/01	9	8 (89%	30%
Joint Operating Agreements (MWC)	Oklahoma City, OK	01/17/02	52	52 (100%)	30%
Joint Operating Agreements (MWC)	Tulsa, OK	01/23/02	53	52 (98%)	30%
Reducing Power Costs In Old Fields (MWC)	Duncan, OK	02/26/02	13	12 (92%)	15%
Reducing Power Costs In Old Fields (MWC)	Oklahoma City, OK	02/27/02	24	24 (100%)	54%
Reducing Power Costs In Old Fields (MWC)	Tulsa, OK	02/28/02	19	17 (89%)	16%
Oil & Gas Management From Beginning (MWC)	Bartlesville, OK	3/05/02	60	60 (100%)	12%
Production Equipment Operations (MWC)	Duncan, OK	03/07/02	17	17 (100%)	42%
Production Equipment Operations (MWC)	Oklahoma City, OK	03/14/02	46	46 (100%)	50%
Production Equipment Operations (MWC)	Tulsa, OK	03/21/02	21	20 (95%)	43%
Remediation of Salt-Impacted Soils (MWC)	Drumright, OK	3/21/02	43	30 (70%)	42%
Coalbed Methane 2002 Update Workshop (OGS)	Oklahoma City, OK	03/27/02	117	110 (94%)	64%
Production Equipment Operations (MWC)	Woodward, OK	03/28/02	14	14 (100%)	34%
Garber Ground Water Aquifer Field Trip (OGS)	Norman, OK	03/30/02	38	12 (32%)	0%
Asphaltenes & Paraffin Problems (MWC)	Duncan, OK	4/09/02	10	10 (100%)	50%
Asphaltenes & Paraffin Problems (MWC)	Oklahoma City, OK	4/10/02	15	15 (100%)	47%
Independents Day SPE/DOE IOR Symposium	Tulsa, OK	4/16/02	58	50 (86%)	66%
Bartlesville Play (Oklahoma City Geol. Society)	Oklahoma City, OK	4/23/02	13	8 (62%)	92%
Bartlesville Play (Tulsa Geological Society)	Tulsa, OK	4/25/02	21	16 (76%)	85%
Legal & Regulatory Issues (MWC)	Oklahoma City, OK	5/09/02	27	27 (100%)	48%
Finding & Producing Cherokee Reservoirs (OGS)	Norman, OK	5/14-15/02	173	141 (82%)	82%
Legal & Regulatory Issues (MWC)	Woodward, OK	5/16/02	11	11 (100%)	19%
Legal & Regulatory Issues (MWC)	Tulsa, OK	5/21/02	27	27 (100%)	49%
Naturally Fractured Reservoirs (OU PE & GE)	Oklahoma City, OK	6/3-4/02	94	64 (68%)	54%
Mapping O&G Data w ArcView (OU GIS)	Oklahoma City, OK	6/7/02	7	7 (100%)	75%
Red Fork Play (Oklahoma City Geol. Society)	Oklahoma City, OK	6/19/02	19	15 (79%)	74%
Red Fork Play (Tulsa Geological Society)	Tulsa, OK	6/20/02	14	10 (71%)	93%
Practical Rsvr Characterization for Indep. (OGS)	Norman, OK	6/24-25/02	67	48 (72%)	67%
Plunger Lift Operations (MWC)	Duncan, OK	8/05/02	17	17 (100%)	71%
Plunger Lift Operations (MWC)	Oklahoma City, OK	8/06/02	61	61 (100%)	90%
Plunger Lift Operations (MWC)	Tulsa, OK	8/07/02	33	33 (100%)	82%
Mapping O&G Data w ArcView (OU GIS)	Oklahoma City, OK	8/15/02	11	11 (100%)	9%
Intro to Petra and Advanced Arcview (OU GIS)	Oklahoma City, OK	8/16/02	12	12 (100%)	8%
OCC/OTC Forms (MWC)	Duncan, OK	9/04/02	8	8 (100%)	37%
OCC/OTC Forms (MWC)	Oklahoma City, OK	9/12/02	53	53 (100%)	34%
Identification-Correlation of Coalbeds (TGS,OGS)	Tulsa, OK	9/18/02	29	23 (79%)	93%
Identification-Correlation of Coalbeds (TGS,OGS)	Tulsa, OK	9/19/02	30	24 (80%)	63%
OCC/OTC Forms (MWC)	Tulsa, OK	9/19/02	20	20 (100%)	80%

Identification-Correlation Coalbeds (OGS, OCGS)	Oklahoma City, OK	9/24/02	30	20 (67%)	87%
Total FY02 Attendance (55 + MWC Trade Fair)			**1,758**	**1,472 (84%)**	
Oil & Gas Measurement Problems (MWC)	Duncan, OK	10/03/02			
Oklahoma Coalbed Methane, 2002 Update	Norman, OK	10/10/02			
Oil & Gas Measurement Problems (MWC)	Oklahoma City, OK	10/10/02			
Oil & Gas Measurement Problems (MWC)	Tulsa, OK	10/17/02			
Oil & Gas Measurement Problems (MWC)	Woodward, OK	10/29/02			
Hunton Formation Field Trip (OGS, OCGS)	Ada, OK	11/06/02			
SPCC Plans (MWC)	Ardmore, OK	11/13/02			
SPCC Plans (MWC)	Woodward, OK	11/18/02			
SPCC Plans (MWC)	Tulsa, OK	11/19/02			
SPCC Plans (MWC)	Oklahoma City, OK	11/20/02			
Gas Compressor Applications & Inst. (MWC)	Elk City, OK	1/09/03			
Gas Compressor Applications & Inst. (MWC)	Oklahoma City, OK	1/16/03			
Gas Compressor Applications & Inst. (MWC)	Tulsa, OK	1/23/03			
Gas Compressor Applications & Inst. (MWC)	Ada, OK	1/30/03			

Application: 45% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 102 workshops)

FY02 Statistics

	Workshops			**Industry Contacts**	**Website (mo. Avg)**		**Newsletter**
	#	**Attend**	**Industry No. (%)**		**User Sessions**	**Page Views**	
1st Qtr	**17**	**381**	**275 (72%)**	**615**	**1,996**		**Newsletter = 5542; plus one or two mailings each quarter**
2nd Qtr	**13**	**517**	**466 (90%)**	**517**	**2,642**		
3rd Qtr	**14**	**556**	**449 (81%)**	**526**			
4th Qtr	**11**	**304**	**282 (93%)**	**588**	**2,595**		
Total FY02	**55**	**1,758**	**1472 (84%)**	**2,246**	**2,411**		
	FY02 attendance virtually identical to FY01						
	Average workshop attendance = 32						

Regional Website: Statistics reflect traffic to regional website located on OU server. Usage is about the same as prior years. Usage of the Marginal Well Commission's website (not part of PTTC but a related mission) averages more than 30,000 user sessions per month. Statistics for the privatized NRIS database are not reported.

Workshops/Events: Overall attendance was virtually identical to FY01. The region continues effective leveraging through the Marginal Well Commission (30), OU Geo Information Systems (6), Tulsa and Oklahoma City Geological Societies (7), plus other cooperative events with OU and Independents' Day at SPE/DOE IOR Symposium. OGS developed and delivered 10 separate topical workshops, including a major coalbed methane workshop and related correlation workshops.

Resource Center: OU and OGS provide significant data resources for producers, which will be expanded tremendously as the new core facility becomes operational.

Outreach/Contacts/Newsletter: Contacts decreased a modest 10%. Most contacts are related to workshop activity. Additional industry contacts are being made by PUMPers in Oklahoma and Arkansas as part of the PUMP project. Circulation for the four-page quarterly newsletter and additional mailings is above 5,000.

Problem Identification: Topics for future workshops are based on feedback from workshop participants and PAG input. Results from a constraints survey conducted during the PUMP project provided additional input.

Follow-up: Ongoing efforts.

Case Studies: Insights from many PTTC workshops across the country are being captured in a "Produced Water" manual being developed by Rodney Reynolds (on a consulting basis) for the PUMP project.

PTTC Southwest Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (5 events, plus several w Texas)			**282**	**202 (72 %)**	
Field-Oriented R&D Projects By Independents (DOE, Texas Region)	Midland, TX	11/06/01	Attendance reported by Texas Region		
2001 CO_2 Conf. (CEED, Texas Region, others)	Midland, TX	12/5-6/01	Attendance Reported by Texas Region		
Optimized Horizontal Drilling, Part B (Maurer Technology Inc., Texas Region)	Midland, TX	12/18/01	Attendance Reported by Texas Region		
Wellbore Management (Texas Region)	Artesia, NM	2/13/02	33	29 (87%)	25%
Corrosion Management	Farmington, NM	6/25/02	39	36 (92%)	
Total FY02 Attendance (2 events, plus three w Texas)					
Produced Water Management	Farmington, NM	12/4-5/02			
2002 CEED CO2 Conference (Texas, CEED, SPE & others)	Midland, TX	12/10-11/02			
Well Location CD/GO-TECH	Artesia, NM	1/14/03			

Application: 37% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 6 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**3 coop events with Texas**			**153**	**12,247**	**45,806**	**Semiannual newsletter, July, circ = 3,400; plus online 743**
2nd Qtr	**1**	**33**	**29 (87%)**	**141**	**5,413**	**54,985**	
3rd Qtr	**1**	**39**	**36 (92%)**	**185**	**12,700**	**59,634**	
4th Qtr	**0**	**0**	**0**	**204**	**14,827**	**60,863**	
Total FY02	**2**	**72**	**65 (90%)**	**683**	**11,297**	**68,619**	
	12% increase in total (counting events w Texas) workshop attendance vs. FY01						
	Average workshop attendance = 36 (63 including coop. events w Texas)						

Regional Website: Usage measured by the number of user sessions remained consistent with historical trends. Page views are stabilizing in the 50,000 to 60,000 per month range. Staff provided the calendar routine to HQ for its use within PTTC Net. Most content additions are related to data access.

Workshops/Events: Counting attendance at the Texas/Southwest cooperative workshops, overall attendance increased modestly during FY02. The increase in joint events confirms that both regions are recognizing that cooperative efforts best serve producers in the Permian Basin/southeast New Mexico area. The region participated in the DOE Traveling Workshop series and Maurer's horizontal drilling workshop. It also hosted the wellbore management workshop developed by Bob Kiker of the Texas Permian Basin. Building on ongoing work within PRCC, it also developed a workshop on corrosion management.

Resource Center: The New Mexico Well Location Data CD-ROM, developed by several groups with some PTTC support, contains data for about 110,000 wells (and costs only $40).

Outreach/Contacts/Newsletter: Overall contact activity increased slightly versus FY01. Staff continues their tradition of proactively visiting producers in both southeast New Mexico and the San Juan Basin. Coordinator Martha Cather, acting in her PRCC role, played a major role in organizing focus group meetings (Colorado, New Mexico, Oklahoma, and Appalachia) for the GTI/New Mexico Tech analysis of R&D needs for unconventional gas. The semi-annual PRRC newsletter with a PTTC section is circulated to about 3,400.

Problem Identification: Although not a PTTC effort, R&D needs for unconventional gas identified during the GTI/New Mexico tech project will represent valuable input for several PTTC regions as they plan topics during

future years. The region relies on feedback from workshop participants and the PAG to determine current areas of high regional interest. R&D focus areas at New Mexico Tech also influence where outreach and special projects are conducted.

Follow-up: Ongoing efforts

Case Studies: Case studies are typically part of each workshop. Staff has followed several leads for case studies for PTTC's *Petroleum Technology Digest*, but none have materialized yet.

PTTC Texas Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (6 events, plus several w Southwest, C Gulf)			**450**	**434 (96 %)**	
DigiRule's Cross-Section Software (Midland Coll.)	Midland, TX	10/03/01	5	5 (100%)	60%
Field-Oriented R&D Projects By Independents (DOE, Southwest Region)	Midland, TX	11/06/01	16	14 (88%)	36%
DigiRule's Cross-Section Software	Farmers Branch, TX	11/15/01	6	6 (100%)	0%
2001 CO_2 Conf. (CEED, Texas Region, others)	Midland, TX	12/5-6/01	195	176 (90%)	80%
Opti. Horizontal Drilling, Part B (Maurer , SW)	Midland, TX	12/18/01	33	33 (100%)	20%
DOE Field-Oriented R&D Projects (Central Gulf)	Tyler, TX	2/6/02	24	21 (88%)	29%
Wellbore Management (Southwest Region)	Artesia, NM	2/13/02		Reported by Southwest Region	
Wellbore Management (PPROA)	Amarillo, TX	5/7/02	25	25 (100%)	20%
Wellbore Management	Tyler, TX	9/17/02	26	26 (100%)	0%
New Resources from Old Fields: Revitalizing Gas Exploration and Production in the GOM Shelf	Houston, TX	9/26/02	17	17 (100%)	0%
Seismic Stragraphic Log Modeling Utilizing DigiRule's Synthetic Suite™ Software	Dallas, TX	9/26/02	2	2 (100%)	50%
Total FY02 Attendance (10 events, plus one coop w Southwest			**349**	**325 (93%)**	
DigiRule Cross Section Generation	Austin, TX	10/29/02			
Coalbed Methane Potential in Texas, Louisiana and Mexico (GCAGS)	Austin, TX	10/30/02			
Louisiana DNR's SONRIS Database (C Gulf)	Houston, TX	11/14/02			
2002 CEED CO2 Conference (Southwest, CEED, SPE & others)	Midland, TX	12/10-11/02			

Application: 23% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 11 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**5**	**255**	**234 (92%)**	**829**	**6,203**	**11,430**	**Qtrly newsletter , July, circ = 1000; plus announcement assoc. newsletters**
2nd Qtr	**1**	**24**	**21 (88%)**	**544**	**6,468**	**11,818**	
3rd Qtr	**1**	**25**	**25 (100%)**	**617**	**4,700**	**10,243**	
4th Qtr	**3**	**45**	**45 (100%)**	**715**	**4,778**	**9,157**	
Total FY02	**10**	**349**	**325 (93%)**	**2,705**	**5,537**	**10,662**	
	22% decrease in total workshop attendance vs. FY01						
	Average workshop attendance = 35						

Regional Website: Usage of the PTTC website has been decreasing slightly. The region also records traffic to technology-related portions of TIPRO's Energy Connections site, reported as expanded outreach. Usage there continues to grow each year. Permian Basin information is also provided on a website at CEED.

Workshops/Events: Overall attendance decreased 22% compared to FY01. The region is experimenting with software training, but is finding it difficult to draw sufficient attendance to justify the effort. Attendance at some technology workshops was also lower than prior years. The CEED CO_2 conference remains a mainstay of the regional program. The region participated in the DOE Traveling Workshop Series and Maurer's horizontal drilling series. The popular wellbore management was held at several locations, including in Artesia, New Mexico for the Southwest Region. For the first time, a geological-oriented workshop was held at BEG's recently acquired core facility in Houston.

Resource Center: Through BEG extensive data and information resources are available for those willing to come to Austin. As in many regions, the resource center functions virtually as staff reach out across Texas.

Outreach/Contacts/Newsletter: Contact activity increased about 15% compared to FY01, averaging about 10 per working day. A significant number of internet-related contacts are also made by TIPRO. Mentor Bob Kiker is well-networked in the Permian Basin area through association and SPE contacts. As time goes on, staff are also developing cooperative relationships with regional groups, like the Tyler Geological Society. Staff exhibit at major events, such as TIPRO and Alliance meetings and the Permian Basin Oil Show. Kiker now has regular space in the *Midland Reporter Telegram* (circ. 25,000), plus the region gets periodic space for workshop announcements in association newsletters. Staff publishes a quarterly newsletter, *Producer News*, that has circulation of about 1,100.

Problem Identification: The region relies on feedback from workshop participants, PAG input, resource center contacts and "targets of opportunity" to develop activities each year. Kiker's operations-oriented insight balances that of the geologically-oriented RLO.

Follow-up: vapor recovery. Supporting the TU metrics effort, Kiker contacted companies/individuals that had been involved in earlier vapor recovery workshops. Vapor Jet technology, which is appropriate for low volume applications, was featured in those workshops. Hybon Corporation, a large well-known company that offers vapor recovery equipment and services, participated in the workshop. Becoming aware of Vapor Jet technology through the workshop, HyBon purchased the Vapor Jet patent and is now marketing it. Four companies—ChevronTexaco, Flying J, Amerada Hess and Marathon—have purchased systems, together recovering nearly 150 mcfd.

Case Studies: On a consulting basis, Bob Kiker and Steve Melzer are assisting HQ in nurturing and helping industry develop case studies for the *Petroleum Technology Digest*.

PTTC West Coast Region

Topic (main cosponsors in parentheses)	Location	Date	Attendance		Repeat Attend.
			Total	# (%) from Industry	
Total FY01 Attendance (19 events)			**988**	**680 (69 %)**	
Water Management – From Production to Disposal	Santa Clarita, CA	10/18/01	55	36 (65%)	78%
Economic Evaluation of Oil and Gas Producing Properties	Santa Clarita, CA	11/20/01	76	61 (80%)	89%
Reservoir Life Extension –Anniversary Forum	Los Angeles, CA	12/07/01	72	55 (76%)	85%
3-D Seismic For California Oil Fields	Valencia, CA	1/17/02	85	73 (86%)	92%
Waste Injection in Oilfield Operations – Technology and Case Studies	Valencia, CA	2/21/02	83	70 (85%)	94%
Diagnosis & Design of Sucker Rod Pump Systems	Los Angeles, CA	3/18/02	37	29 (78%)	97%
Enhanced Gas Production From California Fields	Valencia, CA	4/18/02	62	49 (79%)	94%
Natural Gas Hydrates (short course at AAPG/SPE Pacific Regional Conference)	Anchorage, AK	5/23/02	43	32 (75%)	NA
COMET 2002	Los Angeles, CA	6/23-28/02	19	Not applicable	
California Offshore/Monterey Database (workshop)	Ventura, CA	7/17/02	93	69 (74%)	86%
California Offshore/Monterey Database (field trip)	Ventura, CA	7/18/02	50	30 (60%)	80%
Underbalanced Drilling/New Completion Methods	Valencia, CA	8/22/02	36	25 (69%)	88%
Methods of Reservoir Characterization with Application to Heavy Oil Sands: The Coalinga Oil Field & Related Sedimentary Environments	Bakersfield, CA	9/12/02	35	17 (49%)	76%
Troubleshooter's Forum	Valencia, CA	9/19/02	36	27 (75%	78%
Total FY02 Attendance (13 events)			**763**	**573(75%)**	
Stripper Well Technologies	Valencia, CA	10/17/02			
New Well Logging Methods	Valencia, CA	11/21/02			
Legal, Environmental Taxation Issues	Los Angeles, CA	12/06/02			
Water Reduction Through Polymer Treatments	Valencia, CA	1/23/03			

Application: 42% of producers answering the question on the workshop feedback form: Have you used any new technologies gained through PTTC events? respond "Yes." (Based on data from 42 workshops)

FY02 Statistics

	Workshops			Industry Contacts	Website (mo. Avg)		Newsletter
	#	Attend	Industry No. (%)		User Sessions	Page Views	
1st Qtr	**3**	**203**	**152 (75%)**	**109**	**1,758**	**7,321**	**No newsletter – only CIPA announcements**
2nd Qtr	**3**	**205**	**172 (84%)**	**52**	**2,361**	**6,827**	
3rd Qtr	**2**	**105**	**81 (77%)**	**59**	**2,516**	**6,510**	
4th Qtr	**5**	**250**	**168 (67%)**	**65**	**2,863**	**9,247**	
Total FY02	**13**	**763**	**573 (75%)**	**285**	**2,374**	**7,476**	
	23% decrease in total workshop attendance vs. FY01						
	Average workshop attendance = 59						

Regional Website: Usage in terms of user sessions more than doubled during FY02. Page views are also climbing, albeit slowly. Usage is moderate by some regions' standards, but one must recognize that California has far fewer operators (less than 600) compared to thousands in several regions. Beyond promotional efforts, most content additions relate to making speaker presentations from workshops available online.

Workshops/Events: For budgetary reasons, the region has moved from scheduling workshops in both the Los Angeles and Bakersfield areas, to holding workshops once in a central area such as Valencia. Although the number of workshops dropped from 19 to 13, overall attendance decreased a modest 23% indicating that not many stopped coming with the one-location philosophy. Topics covered a broad scope from exploration through drilling through field development to basic operations. Unique among the regions, PAG members often serve as moderators during workshops. The region co-sponsored several short courses at the AAPG/SPE Western

Regional meeting in Anchorage. Staff is very effective at working presentations/results from DOE-funded R&D into regional activities (waste injection, California offshore, heavy oil reservoir characterization). Annual events include the Anniversary Forum in early December in Los Angeles and the Trouble Shooters Forum in Bakersfield late in the year.

Resource Center: For the PUMP contract, staff worked to analyze production characteristics and clarify how much high water production affected oil production. Data products have not been a strong emphasis for the region.

Outreach/Contacts/Newsletter: With clarification of 'contact reporting' guidelines, reported contacts decreased significantly during the year. Beyond the expected networking to develop workshop content, Director Iraj Ershaghi networks extensively with various California agencies to nurture state funding. Due to that effort, the region received some funding for tech transfer about power saving technology (see follow-up), plus sizeable funding from CEC for the PUMP project is anticipated early in FY03. Although a different project, PUMPers Mayer, Crosby and Starzer are gathering field insights through their field visits and personal contacts. Ershaghi was lead author on a paper that will be presented during October 2002 at the International Petroleum Environmental Conference in Albuquerque, New Mexico. The paper shows how California independents are navigating their way through a difficult regulatory environment in exemplary fashion. The region does not have a newsletter, instead relying on announcements in CIPA's weekly E-mail alert.

Problem Identification: Unique among the regions, the PAG has a 'program subcommittee' that works actively with Ershaghi to determine topics for the year. They are so involved that they often influence the subtopics as well. Feedback from workshop participants and resource center contacts provide critical data for the subcommittee's consideration.

Follow-up: In prior years, PTTC had worked with EPRI-PEAC to study electric power consumption issues. Partly as a result of that study, CEC is now making $1.3 million of state money available to California Producers through Global Energy Partners for installation of pump-off controllers, variable frequency drives, or other power-saving measures. PTTC will be the technology transfer agent for the effort, receiving some funding support from Global Energy Partners.

Case Studies: Three workshops (waste injection, California offshore, Coalinga heavy oil characterization), which all received some DOE funding support, included significant amounts of case study information. On occasion, workshop speakers have authored case studies for the *Petroleum Technology Digest*.

APPENDIX C

PTTC Regional Lead Organizations

Appalachian
Dr. Douglas Patchen
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Eastern Gulf
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Midwest
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Petroleum Geologist
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North Midcontinent
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Rocky Mountain
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Research Assistant Professor
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South Midcontinent
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Southwest
Dr. Robert Lee
Director
Petroleum Recovery Research Center
New Mexico Institute of Mining and Technology
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Socorro, NM 87801

Texas
Dr. Scott Tinker
Director
Bureau of Economic Geology
The University of Texas at Austin
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Austin, TX 78713-8924

West Coast
Dr. Iraj Ershaghi
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APPENDIX D

Petroleum Technology Transfer Council
Board of Directors

OFFICERS:			
Chairman	Wm. Clark Southmayd, Jr.	Oneok Resources Co.	Tulsa, OK
Vice Chairman	James E. Bruning	Bruning Resources LLC	Fort Smith, AR
Immed. Past Chairman	Leo A. Schrider	Belden & Blake Corporation	North Canton, OH
Exec. Director & Sec/Treas (non-voting)	Don Duttlinger	PTTC	Houston, TX

(Note: Officers serve 1-yr. terms that extend through the next annual meeting of the Board)

DIRECTORS REPRESENTING:			
REGIONS:			
Appalachian	Bernie Miller	Bretagne Corp.	Lexington, KY
Central Gulf	Don Solanas	Arrowhead Exploration	Baton Rouge, LA
Eastern Gulf	Brian Sims	Independent	Madison, MS
Midwest	Craig Howard	Howard Energy Corp.	Mount Carmel, IL
Rocky Mountain	Brook Phifer	NiCo Oil & Gas, LLC	Littleton, CO
Southwest	David Boneau	Yates Petroleum Corp.	Artesia, NM
North Midcontinent	James Daniels	Murfin Drilling Co., Inc.	Wichita, KS
South Midcontinent	A.M. Mac Alloway	Tony Oil Company	Tulsa, Ok
Texas	Gene Ames III	Ames Energy Corp.	San Antonio, TX
West Coast	Mark Kapelke	Tidelands Production Co.	Long Beach, CA
Regional Lead Orgs. (non-voting)	Rodney Reynolds	Kansas University	Lawrence, KS
ORGANIZATIONS:			
Indep. Petrol. Assoc. Of America	Barry Russell	IPAA	Washington, DC
Interstate Oil & Gas Compact Comm.	John T. King	MI Public Service Comm.	Lansing, MI
American Assoc. of Pet. Geologists	Chuck Noll	Copano Energy	Houston, TX
Society of Explor. Geophysicists	Glenn Breed	The Information Store	Houston, TX
Society of Petroleum Engineers	Michael Gatens, III	MGV Energy, Inc.	Calgary, Canada
Gas Technology Institute	Kent Perry	GTI	Houston, TX
INDUSTRY SECTORS:			
Service Cos.	Jay Haskell	Schlumberger Oil Field Srvcs.	Caracas, Venezuela.
Major E&P Cos.	Greg Reep	Texaco Upstream Technology	Houston, TX

Alternate Directors

Representing:			
Appalachian	David Wozniak	Belden & Blake Corp.	North Canton, OH
Central Gulf	Joe Jacobs	Gas Masters of America, Inc.	Monroe, LA
Eastern Gulf	Robert Schneeflock	Paramount Petroleum Co.	Jackson, MS
Midwest	Bryan J. Dicus	Elysium Oil Company.	Crossville, IL
Rocky Mountain	George Fancher	Fancher Oil Co.	Denver, CO
Southwest	John Corbett	Northstar Oil & Gas	Farmington, NM
North Midcontinent	Nick Powell	Colt Energy, Inc.	Fairway, KS
South Midcontinent	George Fulco	Devon Energy	Oklahoma City, OK
Texas	Craig Clark	Apache Corporation.	Houston, TX
West Coast	James C. Hall	Drilling and Production	Torrance, CA
Regional Lead Orgs.	Douglas Patchen	West Virginia University	Morgantown, WV
IOGCC	Tom Richmond	Montana Board of Oil & Gas	Billings, MT
SEG	Robert Graebner	The Information Store	Houston, TX
SPE	Joe Franz	Schlumberger	Pittsburgh, PA
GTI	Terry Keane	Gas Technology Institute	Chicago, IL
Service Cos.	Mo Cordes	Schlumberger	Sugarland, X
Major E&P Cos.	Larry Risley	Texaco, Inc.	Houston, TX

Management & Budget (M&B) Committee

Position:		
M&B Committee Chairman, and Board Vice Chairman	James Bruning	Forth Smith, AR
Current Board Chairman	Wm. Clark Southmayd, Jr.	Tulsa, OK
Immediate Past Board Chairman	Leo A. Schrider	North Canton, OH
M&B Committee Member	Brian Sims	Madison, MS
M&B Committee Member	Brook Phifer	Littleton, CO
Executive Director (ex-officio, non-voting)	Don Duttlinger	Houston, TX

Nominating Committee

Position:		
Current Board Chairman	Wm. Clark Southmayd, Jr.	Tulsa, OK
Immediate Past Board Chairman	Leo A. Schrider	North Canton, OH
IPAA Representative	Barry Russell	Washington, DC
PAG Chairman	Dave Boneau	Artesia, NM
PAG Chairman	Don Solanas	Baton Rouge, LA

Notes from the by-laws:

- The terms served by Alternate Directors are the same as for the Directors they represent.
- Officers do not have Alternates. Officers may succeed themselves.
- Members of the Nominating Committee and the Management & Budget Committee who are Officers have terms on these committees that are linked to their terms as Officers. Other committee members have terms that are concurrent with their Board membership.

APPENDIX E

Petroleum Technology Transfer Council

Guide for Professional and Ethical Conduct

The Petroleum Technology Transfer Council (PTTC) is a national not-for-profit organization that is tax-exempt under Section 501(c)(3) of the IRS code. PTTC is not a membership organization, although there are volunteer members of the Board of Directors, its committees, and the Producer Advisory Groups. This Guide for Professional and Ethical Conduct applies to all members of those groups, as well as the national and regional PTTC staff and contractors. These dedicated professionals recognize their responsibility to PTTC and those it serves in carrying out the organization's mission:

"PTTC benefits the nation by helping U.S. independent oil and gas producers make timely, informed technology decisions."

PTTC, embodied by its representatives and staff, recognizes its responsibility to pursue its mission while maintaining the high standards of professional and ethical conduct summarized below.

- **Ethical Behavior**: PTTC will be guided in all of its affairs by high standards of business ethics and professional conduct, striving to maintain honesty, integrity, fairness, impartiality, and trust. PTTC will strive to avoid making false, misleading, or unwarranted statements or representations.
- **Service, Quality, Professionalism**: Every PTTC action and activity will be performed in a manner that fosters the organization's mission. PTTC will professionally deliver products and services of the highest possible quality.
- **Confidentiality**: When those being served by PTTC require secrecy, PTTC will treat as confidential any knowledge of proprietary data or information as directed by those providing such data or information.
- **Referrals, Self-Interest**: For those it serves, PTTC will provide unbiased referrals to the best solution providers for their problems. PTTC will deny any use of its structure or program for individual or organizational self-interest. Any potential conflict of interest that might influence (or appear to influence) the judgment, fairness, and quality of PTTC's performance in any way will be disclosed immediately.
- **Copyrights, Cooperation**: PTTC will honor the copyrights and other intellectual property rights of speakers, authors, and other sources of published information. PTTC will appropriately recognize the work done by others, avoid plagiarism, and avoid accepting credit due to others.
- **Opportunity**: PTTC will make every effort to ensure that its structure and programs are carried out without bias due to race, religion, gender, age, national origin, or handicap.
- **Public Welfare**: PTTC will hold paramount the safety, health, and welfare of the public in all of its programs and activities, and act in accordance with all applicable laws.

Note: Statement adopted by the PTTC Board of Directors on December 6, 1998

APPENDIX F

Petroleum Technology Transfer Council

Conflict of Interest Policy Statement

The Petroleum Technology Transfer Council (PTTC) strives to carry out all of its activities in accordance with the "Guidelines for Professional and Ethical Conduct," as adopted by the Board of Directors on December 6, 1998. To further clarify PTTC's position on issues related to conflict of interest and confidentiality, the Board hereby adopts this "Conflict of Interest Policy Statement."

Need for Policy
Most individuals involved with PTTC have multiple interests and affiliations and many hold various positions of responsibility within the industry and community. In matters related to the mission of PTTC, Board members and alternates (which includes elected officers) are expected to uphold the interests of the Council and its obligations to the public trust.

This policy applies only to conflicts of interest in personal or business interests; it does not apply to political, philosophical, or professional differences of opinion. It recognizes that both real and apparent conflicts of interest sometimes occur in the course of conducting PTTC affairs. As a not-for-profit educational organization that is tax-exempt, it is important for PTTC to avoid even the appearance of a conflict of interest.

Conflict of Interest Policy
PTTC adopts this policy to serve as an official process through which any potential conflict of interest problems can be rendered harmless to all concerned. The policy requires that the following steps are taken:

A. All Board members and alternates shall disclose any real or apparent conflicts of interest in connection with PTTC's activities that they discover, or that have been brought to their attention. In this event, a written description of the situation shall be provided to the Executive Director who will take appropriate steps as needed, under the guidance of the Management and Budget Committee.

B. Any Board members and alternates making such a disclosure is prohibited from being involved in PTTC affairs that are specifically related to such conflicts, including making motions, voting, executing agreements, or taking any other similar action.

C. The official meeting minutes shall reflect that such disclosure was made, and that the Board member or alternate was absent from any discussion and vote on the matter in question.

D. A copy of this conflict of interest policy shall appear in the orientation materials for new directors and shall be included in all official reference materials for the Council.

Note: Statement adopted by PTTC Board of Directors on March 30, 1999

Statement of Identity

The Petroleum Technology Transfer Council (PTTC) enables independent operators to make timely, informed exploration and production (E&P) decisions through practical, targeted information and connections to technology solutions. As a regionally focused national non-profit organization, PTTC has an 8-year record of growth in meeting the technology needs of US independent oil and gas producers. PTTC's primary customers are independent producers, who drill 85 percent of all US wells. As a group, they produce 60 percent of US natural gas and 40 percent of crude oil.

Independents face technology decisions every day, such as whether to address an opportunity or problem with technology, what solution to use, whether it is cost-effective and how to use it. The PTTC program helps producers make these decisions through its three core services. First, it helps identify and clarify producers' problems and makes them aware of technology opportunities. Second, it educates producers about technology solution options. Third, it connects producers to these solution sources. Thus, by providing problem identification, education, and connections, PTTC achieves its mission:

"To strengthen the U.S. independent
oil and natural gas industry
for the benefit of consumers and the nation
by helping producers make
timely, informed technology decisions."

Through its 10 Regional Resource Centers, PTTC offers expert assistance, information resources, and referrals. Services also include demonstrations of E&P software solutions, and technology workshops held around the country on a variety of topics. In addition, PTTC's newsletters, websites, case studies and reports cover a range of information and databases.

All PTTC products and services – nationally and regionally – can be grouped into program lines: (1) exploration (2) drilling & completion, (3) development & reservoir, (4) operations & production, and (5) environmental.

PTTC is more than just an information clearinghouse. It supports producer technical decision processes – from early awareness of problems and opportunities to the point that the customer selects the right solution provider.

In addition to independent producers, PTTC focuses on two other market segments. The first group, technology solution providers, include service companies/vendors, the US Department of Energy, national labs, consultants, the Gas Research Institute, academia, professional societies, industry R&D organizations, etc. The other group is PTTC's supporters/funders.

PTTC delivers value to all the market segments it serves. Solution providers benefit when PTTC educates producers about technologies. Producers benefit when PTTC helps solution providers understand the needs of independent producers. Both groups benefit when technologies solve problems, leverage opportunities, and strengthen the industry.

The nation and energy consumers benefit when US petroleum supplies are made more reliable and secure by industry's improved access to E&P technology. , PTTC is the independent petroleum industry's

"Bridge to Solutions"

PTTC is primarily funded by the U.S. Department of Energy's Office of Fossil Energy through its National Energy Technology Laboratory.

APPENDIX H

Petroleum Technology Transfer Council

PTTC's Goal Categories

PTTC has chosen five categories of goals to direct its actions. Each is captured in a single word, which makes them more memorable; and each has several vision statements describing what success will be like.

1. **AWARENESS**
   - PTTC is aware of its customers' problems and understands the context/underlying issues.
   - Independent producers are aware of PTTC and its services at their local level, as well as nationally.
   - Independents understand their technology needs, focusing beyond the symptoms of their problem.
   - Independents are aware of the range of solutions available and of the benefits/risks of each.
   - Technology solution providers are aware of PTTC and that it can help them reach independents.
   - Solution providers understand the problems of independent producers, and their value as a market.
2. **CONNECTIONS**
   - Independent producers rely on PTTC for connections to a range of technology solution options.
   - Solution providers rely on PTTC for contacts with independent producers and access to that market.
   - Independents learn how to successfully apply technologies as a result of PTTC referrals.
   - Independents credit PTTC for their success in finding the right sources for technologies/information.
   - Technology solution providers credit PTTC for improving their access to independents.
3. **PERFORMANCE**
   - Producers make inquiries to PTTC as a result of its workshops, newsletters, websites, etc.
   - Independent producers contact PTTC more than once for help, and request new products/services.
   - Case studies about U.S. field-tested technologies are offered to PTTC for industry dissemination.
   - Independents publicly commend PTTC's products/services and refer other producers to the RLOs.
   - Technology solution providers offer financial support for PTTC events and other functions.
   - Other groups want to conduct jointly-sponsored events or activities with PTTC.
4. **CREDIBILITY**
   - PTTC is perceived by independents as the best choice for access to practical, real-world solutions.
   - PTTC is recognized by technology solution providers as the best pathway to reach independents.
   - The Board, PAGs, and committees have active participation and effective volunteer leaders.
   - The Dept. of Energy values PTTC's unique abilities to strengthen the domestic oil and gas industry.
   - PTTC has high name recognition in the industry and a positive image in outside markets.
5. **FINANCES**
   - PTTC has achieved financial strength, which engenders confidence about the organization's future.
   - PTTC activities are not limited by the number of customers that it can serve
   - PTTC has the required cash flow and financial reserves to explore new outreach projects.
   - RLOs receive sufficient funds on a timely basis so that regional programs remain effective.
   - PTTC can charge enough for services and products to make them generally self supporting.

Note: Quantifiable objectives are being developed that will measure PTTC's progress toward achieving its goals.

APPENDIX I

Petroleum Technology Transfer Council

PTTC Program Lines

Since PTTC was formed in 1993, its programs have mainly focused on transferring individual technologies. Although very effective, it has been difficult to identify gaps, overlaps, or conflicts in various technologies across regions and topics. As part of the new business model, PTTC has selected five program lines that encompass the services and products being delivered to its customers. They were chosen to be general enough to survive for the long term, yet provide flexibility by topic and region:

PTTC Program Lines:

- **Exploration**
- **Drilling and Completion**
- **Development and Reservoir**
- **Operations and Production**
- **Environmental**

The transition from individual technology focus to program lines will be initiated during FY2000. Working together, the HQ and RLO staff will start finding ways to accomplish the following steps:

- Organize current products and services by program line.
- Identify and prioritize gaps in needed products and services, according to regional and other factors.
- Take action to close high-priority gaps by assembling the required resources (contacts with solution providers, workshop speakers, etc.) to provide comprehensive services/products in each program line.
- Develop quality assurance criteria to guide performance of each service and product.

The concept is that resources (information, reports, network of experts, etc.) would not necessarily be required in every region, but somewhere within the national PTTC organization. Each program line will include not only services, but also products. PTTC is beginning to build up more marketable products as it captures the results of regional workshops and other activities.
Several benefits are expected from the establishment of program lines:

- Having memorable names for program lines makes it easier for customers to find PTTC's services.
- It should be easier to measure effectiveness, completeness, and quality of products and services.
- HQ can better monitor PTTC's national and regional program, enabling efficiencies through streamlining and better sharing across regions.
- PTTC programs can be marketed more effectively to specific market segments.
- The system should enhance inter-regional technology transfer activities and reduce duplication of programs that can be more efficiently packaged as a generic product/service.
- Program lines should help emphasize PTTC's marketing message.
- It demonstrates PTTC's commitment to serve independent oil and gas producers with solution options that span across the total E&P technology spectrum.