



SEMI ANNUAL TECHNICAL PROGRESS REPORT

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WITHIN THE NATIONAL ENERGY TECHNOLOGY LABORATORY**

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PREPARED BY:

**PETROLEUM TECHNOLOGY TRANSFER COUNCIL
16010 BARKERS POINT LANE SUITE 220
HOUSTON TEXAS 77079**

PHONE: 281-921-1720 FAX: 281-921-1723

E-MAIL: hq@pttc.org



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ABSTRACT

The Petroleum Technology Transfer Council (PTTC) continued pursuing its mission of helping U.S. independent oil and gas producers make timely, informed technology decisions during Fiscal Year 2000 (FY00). Functioning as a cohesive national organization, PTTC has active grassroots programs through its ten Regional Lead Organizations (RLOs) who bring research and academia to the table via their association with geological surveys and engineering departments. The regional directors connect 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 Lead Organizations. 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, state, and industry funding to achieve important goals for all of these sectors. This integrated funding base, combined with industry volunteers guiding PTTC's activities and the dedication of national and regional staff, are achieving notable results. PTTC is increasingly recognized as a critical resource for information and access to technologies, especially for smaller companies.

This technical progress report summarizes PTTC's accomplishments during FY00, which lays the groundwork for further growth in the future. At a time of many industry changes and market movements, the organization has built a reputation and expectation to address industry needs of getting information distributed quickly which can impact the bottom line immediately.

National-Level Program

PTTC's Board of Directors met three times during FY00 to review goals and objectives. As has been done in the past, one of the Board meetings was held as a joint meeting with the RLO Directors, who are on the front line with oil and gas operators on a day to day basis. This allowed for good communication across the United States and assisted in identifying opportunities as they emerged. Leo Schrider with Belden & Blake Corporation remained as Chair throughout the year and Clark Southmayd with Oneok Resources Corp. remained as Vice Chair. The organization benefited immensely by the diverse and technically sound Board whose inputs throughout the year guided the organization.

After performing her role and accomplishing many PTTC goals, founding Executive Director Deborah Rowell resigned her position on November 4, 1999, with an effective date of June 30, 2000. This time allowance gave the Board sufficient time to perform a thorough search for an experienced and enthusiastic replacement. Donald F. Duttlinger began serving as Executive Director on July 1, 2000, after a brief transitional overlap with Ms. Rowell.

With many years of industry experience on the operations and service side, Mr. Duttlinger brought a fresh perspective as he acquainted himself with prior PTTC activities and successes and then looked forward to future directions. He quickly established relationships with: (1) appropriate DOE contacts, (2) PTTC's Board of Directors (July), and (3) RLO Directors (August). Realizing the value to industry of the services provided by PTTC and sensing the commitment of all involved, Mr. Duttlinger is now focusing his attention on expanding awareness of PTTC's impact and increasing interaction with key industry companies/leaders.

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 well above minimum levels during FY00. PTTC's RLOs continue to make new connections with independent producers and still 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 compiling the case studies. Gulf Publishing publishes the *Digest* and distributes via its *World Oil* magazine. Two issues were developed during FY00—May 2000 and September 2000. Both were distributed to *World Oil's* North American producer readers, an audience of over 10,000 readers. PTTC distributed additional copies through its network. The *Petroleum Technology Digest* continues to be received quite favorably by producers. In the coming year, case studies will be published directly in *World Oil* and distributed to its worldwide readership. Four case studies per quarter are planned for FY01. PTTC plans to distribute the *Digest* through its established network channels including exhibitions throughout the year. The present agreement with Gulf Publishing gives PTTC quarterly columns in *World Oil*.

PTTC published *Solutions From the Field*, a compendium of technical ideas, solutions and contact information from 14 regional workshops, during August 1999. This report updated the *Best of PTTC Workshops* publication developed during 1997. The revised format allowed more technology insights to be summarized, and considering that 148 workshops were conducted during FY00, capturing technology insights from these workshops becomes ever more important. Since August 1999, at least two summaries per month have been added to the national PTTC website. Not counting pre-1998 summaries, 52 summaries are now posted online. Website statistics indicate that about 250 people each month view these summaries, equating to an additional five workshops per month considering average regional attendance. Hardcopy editions containing recent posted summaries can be developed for special events.

Circulation of the quarterly newsletter, *PTTC Network News*, grew to more than 7,200 individuals—with nearly three-fourths from the exploration and production (E&P) sector. Two-thirds of the E&P sector is independent producers. In a new effort, concise state-of-the-art summaries developed by Karl Lang with Hart's were incorporated within *PTTC Network News* and an expanded version posted on the national website. The national website experiences about 8,000 user sessions per month with session length fluctuating in the 10 to 15 minutes per session range. It provides timely calendar information, an archive for technology insights, national links, and serves as a gateway to the 10 regional websites. Press releases provide timely alerts to industry about key PTTC events or developments. PTTC plans to improve site functionality in FY01 so that the national site and ten regional sites tie closely together for cross regional transfer of technologies, a strength of the organization.

During FY00, PTTC supported technology transfer from DOE R&D projects in the areas of: (1) downhole oil/water and gas/water separation, (2) CO₂ flooding work in Kansas, (3) fractured reservoir and infill drilling concepts in northwest New Mexico, and (4) Technology Development with Independents, incorporating project results/program information in the West Coast Trouble Shooter Forum. Additionally, PTTC coordinates frequently with the Natural Gas and Oil Technology Partnership (NGOTP) and the Rocky Mountain Oilfield Test Center (RMOTC). When opportunities arise, PTTC works cooperatively with other groups—professional societies, American Geological Institute (AGI), Drilling Engineering Association (DEA), Interstate Oil and Gas Compact Commission (IOGCC), and the Gas Technology Institute (formerly GRI) to name a few.

Regional-Level Program

In FY00, PTTC's regions held a total of 148 workshops drawing 6,020 individuals. Compared to the prior year, this represents a 16% increase in the number of workshops and a 1% increase in attendance. Average attendance decreased slightly to 41 individuals per workshop. 83% of attendees are from the E&P industry. FY01 plans project about the same level of activity as in FY00, recognizing that resource constraints preclude further increases in activity. Some regions are experimenting with new delivery mechanisms, such as online training, webcasting (real-time video/audio over the Internet) and video archiving on websites to reach more people.

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 FY00 averaged approximately five per day per regional resource center, a 23% increase from FY99 levels. Six regions reported more than 1,000 contacts during the year. By far the largest percentage of inquiries is for basic oil and gas data or calendar/event information. A small percentage of contacts, in the 10 to 20 percent range, are true technical inquiries requiring professional expertise to respond. In some instances, RLO staff members proactively contact industry, with some regions noting up to 20% of contacts as PTTC-initiated.

Both Internet and software training courses are offered within the regions. Combined, the regions conducted 25 software training courses, drawing nearly 300 people. Through its partnership with the American Association of Petroleum Geologists (AAPG), Colorado School of Mines and private donors, the Rocky Mountain Region is able to offer extensive software training. The Eastern Gulf Region has also been offering quarterly software training. Now that users are more familiar with the Internet, fewer Internet training courses are offered, but many workshops deal with how to access and use online data.

Where appropriate, regions develop information products that provide a service to industry and generate moderate revenues for PTTC. The Louisiana Desktop Well Reference (LDWR), a CD-ROM product containing production data in a GIS environment, has been most successful. The Central Gulf region reported nearly \$4,500 of product revenues during FY00. The state agency is now issuing a similar product so future updates of the LDWR are not anticipated. In the Midwest region, minor revenues, about \$1,500 during FY00, were realized from O&G map products.

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 came online during mid-year, the first significant digital effort of this sort in Mississippi. The Midwest Region continues to develop its core and waterflood database, while the Michigan outreach effort includes a log and horizontal well database. The Central Gulf Region developed a Louisiana seismic permit database that was placed online.

Various outreach programs also emanate from the resource centers. The Central Gulf, 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. This

is an education initiative that encourages student internships with independent petroleum companies. The North Midcontinent staff support the Kansas CO₂ initiative, and the South Midcontinent staff are involved with the Oklahoma Marginal Well Commission's Trade Fairs. Texas began a pilot "Mentor" program in the Permian Basin. The Central Gulf Region leverages efforts of LSU's downhole water sink consortium and distributed energy resources initiative. Many other examples of cooperative interaction and outreach also exist.

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 and HQ has improved consistency in reporting website statistics.

With Texas starting a regional newsletter early in FY01, eight of 10 regions now have a regional newsletter. Frequency varies from quarterly to bi-annual. Combined circulation approaches 20,000. Most 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 on a more frequent basis for their websites. Regions without newsletters rely on regular columns/announcements in association newsletters.

45% 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—customers are coming back—while still indicating that a new audience is being drawn. 36% percent 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. Anecdotal success stories also confirm impact at the regional level.

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 1994 as a national not-for-profit organization. Well recognized as a growing organization, PTTC is now working towards greater efficiency and quality in its activities, both of which are essential for delivering value to its audience and achieving results.

PTTC's current direction is driven by a business plan developed during 1998, which is continually being refined as it is implemented. This plan, which involved the Board, the Regional Lead Organizations (RLOs), and Headquarters (HQ) staff, helped PTTC to clarify its true role and to identify how its efforts add value for different sectors. As a result of the business plan effort, the mission was updated to more accurately reflect PTTC's proactive commitment to industry. The official mission statement is:

PTTC benefits the nation by helping 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. PTTC is increasingly recognized as a critical resource for information and access to technology—especially for smaller companies.

Table 1 – Growth in PTTC's Regional Activities					
	Workshops		From E&P Industry		Outreach
Time Period	# of workshops	Attendance	Attendance	%	# of E&P Industry Contacts
FY95	18	1,117			
FY96	46	3,801		83	
FY97	62	3,176		85	5,482
FY98	100	4,429	3,235	73	10,241
FY99	128	5,948	4,935	83	10,555
FY00	148	6,020	4,923	82	12,980
FY00 Average		41 attendees per workshop			5 contacts per day per region

In FY00, regional activity remained at the record levels attained during FY99. Workshop attendance increased just slightly, by 1%. But it did require a 16% increase in the number of workshops. Thus, average attendance dropped from 46 to 41 attendees per workshop. At least part of this drop is attributed to industry time pressures with the industry turnaround. The percentage of workshop attendees from industry held steady at more than 80%. Contact activity increased 23%, now averaging about 5 contacts per day per region. Planned activity level during FY01 is near that experienced during FY00.

Federal funds partially supporting PTTC's operation come through a multi-year grant (through April 2003) awarded by the U.S. Department of Energy's Office of Fossil Energy under the National Petroleum Technology Office and Strategic Center for Natural Gas within the Federal Energy Technology

Laboratory. This report covers PTTC's technical progress during FY00, 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 primary sections:

- Chapter 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.
- Chapter 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 Regional Lead Organizations (RLOs).

The following appendices contain useful information to support the text:

- Appendix A presents detailed information, by region, of FY00 regional accomplishments.
- Appendix B lists Regional Lead Organization Rosters and contact information.
- Appendix C lists FY00 Board of Director, Alternate Directors and Committee rosters.
- Appendix D is the "Guide for Professional and Ethical Conduct".
- Appendix E is the "Conflict of Interest Policy Statement".
- Appendix F is the "Statement of Identity" that resulted from strategic planning sessions.
- Appendix G lists "PTTC's Goal Categories" also resulting from strategic planning sessions.
- Appendix H describes the "Program Lines" that PTTC is in the process of implementing.

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 FY00 to accomplish many goals, includes:

—Deborah Rowell, CAE, Executive Director through June 2000, was responsible for many facets of PTTC, including strategic planning, reporting, staff oversight, and liaison with the Board, DOE, and other groups, as well as many other functions. In November 1999, Ms. Rowell, who was the founding Executive Director, announced her resignation, effective June 30, 2000. Early in 2000, a search committee led by immediate past chair Bob Nance diligently identified qualified candidates and interviewed finalists, presenting a recommendation to the Board for Donald F. Duttlinger to be the succeeding Executive Director. The Board confirmed the selection and Mr. Duttlinger assumed command on July 1, 2000 following a short transition period.

—Donald F. Duttlinger, Executive Director since July 2000, brings a fresh industry perspective to his leadership role. Mr. Duttlinger has spent most of the time during his first months meeting key individuals, such as DOE officials in all related offices of Fossil Energy, PTTC's Board of Directors, Regional Lead Organizations (RLOs), and industry representatives at various meetings around the country. His effort has focused on identifying the value within PTTC and increasing access to industry to demonstrate that value.

—Lance Cole, National Project Manager, Tulsa, Oklahoma, continued 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 ensured fulfillment of required reporting and deliverables for HQ, supported national communications efforts, served as technical adviser, and assisted in strategic planning and other special projects as needed. Mr. Cole's role was vital to the transition of the new executive director, as he provided a historical context and insights on PTTC's evolution.

—Kathy Chapman, Financial and Contracts Manager, who has been with PTTC from its beginning, is responsible for all contractual matters with DOE, the RLOs, and other contractors. In addition, she manages the financial and accounting systems, and was responsible for Y2K preparations in the HQ office, including updating PTTC's accounting software. She also serves as office and personnel manager.

—Dan Lawrence served as Webmaster/Project Assistant for his third year. His position included responsibility for maintaining the national website, and communicating with the regional webmasters, as well as assisting with monitoring regional deliverables and analyzing activity statistics and surveys. Mr. Lawrence accepted a position with a start-up e-commerce business in September 2000; he will continue to assist PTTC as needed until a replacement is secured.

—Anne Rosenberg (formerly Parker) was promoted to Communications Associate, assuming many of the responsibilities of the Communications Manager that was vacated by the departure of Jeff Lenard at the beginning of the year. In addition to providing administrative support for the office and planning all national meetings and events, Ms. Rosenberg was instrumental in production and layout of *PTTC Network News*, and issued press releases as necessary.

For selected technology-oriented tasks, such as *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 Chair and Vice Chair. Other Board members include representatives from national industry organizations, majors and service companies, and professional societies. Leo Schrider from Belden & Blake Corp. has been Chair since March 1999, and Clark Southmayd from Oneok Resources Corp. has been Vice Chair. With changing leadership in regional PAGs and changes in other industry groups, PTTC accepts and even encourages Board member changes that bring new perspectives. There will be several official Board member changes voted upon at the March 2001 Board meeting.

During FY00, PTTC's Board met three times: (1) on November 4, 1999 in Dallas Texas, in conjunction with a meeting of the Independent Petroleum Association of America (IPAA); (2) on March 27-28, 2000 in Kansas City, Missouri, as a joint meeting of the Board and RLOs; and (3) on July 16-18, 2000 in Washington, DC, which included a strategic planning session. Meeting agendas address required Board decisions/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.

The joint Board/RLO meeting in March in Kansas City helped unify key participants and provided opportunity to discuss PTTC's activities and future direction. At the July meeting in Washington, DC, Board members participated in a brainstorming session facilitated by Dr. Myron Gottlieb, former PTTC Board and Management & Budget Committee member. The session, which is detailed in this report, focused on measuring success. In addition, the Board members had the opportunity to visit with selected congressional representatives to explain the importance of PTTC, DOE's Office of Fossil Energy, and the domestic oil and gas industry.

c. Management & Budget Committee

PTTC's Management & Budget (M&B) Committee provides guidance to the HQ staff between Board meetings. The group meets approximately monthly with the Executive Director, and other key staff, either in person or by conference call. Also, in conjunction with each Board meeting, the M&B Committee meets jointly with the PAG Chairs.

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

2. Strategic Planning

Preceding the July 2000 Board meeting, the Board participated in a half-day brainstorming session regarding "Developing Measures of PTTC's Impact." As part of the process, the Board reconfirmed three key strategic elements—the mission statement, four market segments, and its overarching goals. The Board also reconfirmed that it values case studies and case histories of technology deployment as the most important measure of impact. Producers on the Board expressed that quantitative metrics were not required for them to assess PTTC's impact, but they could understand how the Department of Energy needed quantitative, or at least semi-quantitative, measures of impact.

The Board recommended that PTTC coordinate with DOE (Headquarters, National Petroleum Technology Office in Tulsa, and the Strategic Center for Natural Gas in Morgantown) to form a work team to evaluate existing metrics data and other metrics that could be developed considering the data available and resource constraints. The team's mission is to reach consensus on what metrics and level of effort are justified to define PTTC's impact. Team members representing the three segments of DOE, the RLOs and PTTC staff have been identified. Scheduling concerns have delayed team activity until early in 2001.

3. Oversight of Regional Programs

HQ has oversight responsibility for the regions, an important aspect being the annual planning/budgeting process. RLO commitment, generally far above minimum levels, allowed regional activity to remain at record levels—about 6,000 workshop participants from 148 workshops. Plans for FY01, approved during an October 2000 Board meeting, forecast continued high activity levels.

During FY00, the RLOs met three times: (1) on December 12, 1999 in New Orleans, Louisiana, (2) jointly with the Board on March 27-28 in Kansas City, Missouri, and (3) on August 11 in Pittsburgh, Pennsylvania. Serving as the primary HQ contact with the RLOs, Mr. Cole interacts frequently with PAG Chairs about regional concerns. He also works with RLO Directors and staff regarding implementation of the annual plans, potential technology transfer opportunities, and regional input for national communications. During FY00, he participated, either in person or via conference call, in PAG meetings of five of 10 regions. He also attended workshops or events in five of 10 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. During FY00 PTTC began capturing and reporting a new measure of customer satisfaction—the % of industry attendees at a workshop who are repeat attendees. Of 96 workshops in FY00 where repeat attendance was reported, it averaged 45%, 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.

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/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 workshop 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 112 workshops, 36%, or just over a third of respondents, respond "Yes." The Gas Technology Institute, formerly GRI, surveyed the readership of its *Gas Tips* magazine and found a similar percentage indicated that they were taking action with the information presented. This lends credibility to the one-third value. Unfortunately, few who respond "Yes" are providing details of what actions they have taken and many respondents do not identify themselves so follow-up can be made.

Regarding further metrics efforts, PTTC anticipates taking additional action when the recommendations of the metrics team become available during mid-year.

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*. About half of the material comes in response to solicitations that HQ sends quarterly to a group of technology providers who regularly contribute information. The newsletter staff members screen the submissions to decide which material will be of greatest interest to independent producers. Focus is generally on information/data products describing new commercially available technologies or promising R&D advances. Significant developments within the PTTC system or DOE's R&D program are also presented. For the regional section, recent issues have included the bottom line and problem addressed of workshop summaries posted during the quarter. This encourages readers to go to the website to view complete summaries.

2. Answering National Inquiries

On average, the HQ office receives 3 to 5 technical inquiries per week. 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. HQ staff responds directly to about two-thirds of the inquiries, often from small or regional vendors touting new products or technologies. 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

Having released the results of a technology needs survey in August 1999, PTTC did not conduct any needs assessment activities at the national level during FY00. Every two to three years, PTTC anticipates repeating a technology needs assessment to monitor changes and new directions. The regional offices perform ongoing needs assessment through feedback from workshop participants and inquiries, PAG input, participation in local trade meetings, and other sources.

4. *Petroleum Technology Digest*

Two issues of the *Petroleum Technology Digest* were distributed during FY00, delivering 13 field-oriented case studies to more than 10,000 producers in North America. The *Digest*, begun in the fall of 1999, is a joint effort of PTTC and Gulf Publishing. PTTC solicits and compiles the case studies. Gulf Publishing prints the *Digest* and, for these early issues, distributed it as a supplement to *World Oil's* producer readership in North America. PTTC also distributes a few thousand copies regionally and nationally. An additional 200-300 people each month view the case studies posted on *World Oil's* website.

Industry response has been highly favorable and there is evidence that producers are taking action. The first *Digest* (September 1999) contained a case study on a hydrocarbon encapsulation technology developed by Terra Environmental Products. Terra reported about 30 inquiries and several sales. The second *Digest* (May 2000) contained a gel polymer case study for a West Texas field. TIORCO, the involved vendor, reports that one inquiry has led to a detailed recommendation for gel polymers in another producer's field. The third *Digest* (September 2000) contained a case study on a company-operated, integrated E&P waste management facility in Colorado. This led to a West Coast producer requesting from PTTC the author's contact information so he could explore further.

When PTTC and Gulf Publishing began the *Digest*, both envisioned that advertising sales by Gulf Publishing would support the printing/distribution costs of the *Digest*. Unfortunately, few ads were sold for the initial two *Digests*. Consequently, the September 2000 *Digest* was printed directly within the *World Oil* magazine. It was still distributed only to producers in North America. Starting in 2001, PTTC and Gulf Publishing have agreed to publish four case studies each quarter within the regular *World Oil* magazine. Distribution will be to *World Oil's* entire readership, more than 30,000 individuals worldwide. Twice per year, PTTC will get reprints at cost for distribution through its channels.

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*. Not counting pre-1998 summaries, 52 summaries are now posted online, and summaries for additional workshops are in progress. Website statistics indicate that about 250 people each month view these summaries, equating to an additional five workshops per month considering the average attendance at regional workshops (less than 50). Highlights from summaries posted during a quarter are also presented in *PTTC Network News*. When needed for special events or trade shows, PTTC prints hardcopy editions.

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 was suspended during 1999 due to adverse conditions in industry and concerns that ETEC was making the annual meeting too long. During FY00 PTTC worked with IPAA's Crude Oil Policy Committee and provided speakers for their sessions. In May 2000 in San Francisco, Scott Hara of Tidelands described a novel steam completion technology. For the October 2000 meeting, Randy Foutch with Lariat Petroleum Inc. in Tulsa described how a

technology culture had been integral to Lariat's rapid growth. His presentation was subsequently posted on PTTC's national website. Bob Kiker, Texas's Permian Basin Mentor, also described how the Mentor effort was facilitating producer/vendor and vendor/vendor interaction.

7. Coordinating with DOE and Other Groups

Where appropriate, PTTC incorporates R&D findings from DOE projects into regional workshops. Cooperative efforts during FY00 include:

- A Midwest Region workshop on Downhole Oil/Water Separation in July 2000 in Michigan highlighted results of DOE-funded work performed by Argonne National Lab, Arthur Langhus Layne LLC and the Nebraska Oil and Gas Conservation Committee.
- DOE-funded work was also prominent in CO₂ flooding workshops held in the North Midcontinent Region.
- Coiled tubing workshops featuring the DOE-developed safety manual were scheduled in the Rocky Mountain Region, but subsequently canceled when pre-registration remained low.
- Southwest Region workshops in northwest New Mexico featured fractured reservoir/infill drilling work being funded by DOE.
- A Texas Region workshop on putting the Internet to work featured the online drilling permit system that received development funding from DOE.
- A West Coast Region Trouble Shooter workshop incorporated Jim Barnes, project manager for DOE's Technology Development with Independents program.
- The West Coast Region is participating with the Electric Power Research Institute (EPRI) in a study of methods to reduce power consumption in California oil fields. This project is a spin-off from DOE-funded work with the National Association of State Energy Officials (NASEO).

PTTC supports DOE's Natural Gas and Oil Technology Partnership (NGOTP) program, striving to include news from some project in each newsletter. PTTC staff also attends review panel meetings to stay abreast of R&D progress. Some of the review panel members were recruited with PTTC's assistance. To improve communication with the entire system of 700+ federal laboratories, Board member Chris Hall serves as an industry adviser to the Federal Lab Consortium.

When DOE issues solicitations appropriate for independents, PTTC's national/regional communications program alerts independents to the opportunities. Recognizing independents apprehension about the involved paperwork, RLO staff often provides personalized encouragement to help independents through the application process. Programs of particular relevance are the Technology Development with Independents Program, the Stripper Gas Well Program, and the Stripper Well R&D Consortium. PTTC is aware that several proposals, some of which won awards, occurred specifically because of its active role in alerting independents.

R&D results from DOE's Technology Development with Independents program and Stripper Gas Well program are anticipated by spring/summer of 2001. PTTC has already talked with Jim Barnes and Gary Covatch about potential cooperative workshops featuring project results. PTTC will also be an associate member in the stripper well R&D consortium so that work/progress can be reported back to the PTTC audience.

Where possible, PTTC coordinates with the major professional societies. Some regional workshops are co-sponsored with professional societies. Cooperative opportunities with SPE are pursued primarily at the regional level. Examples during FY00 include "Independents Day" at the SPE/DOE IOR Symposium in Tulsa (North and South Midcontinent regions) and "Independents Day" with Los Angeles Basin meeting (West Coast Region). The Rocky Mountain Region provided a computer, projector, and operator to support the SIPES annual meeting in Denver during July 2000.

AAPG provides significant funding support for the software training center in Golden, Colorado. In the past, PTTC has co-sponsored Internet training workshops conducted by AAPG in Texas.

HQ staff also coordinates with other national organizations, including the American Geological Institute, Drilling Engineering Association, Interstate Oil and Gas Compact Commission, Gas Technology Institute, and New York State Energy Research and Development Authority. Coordination involves staying abreast of their activities, significant reports or products, and occasionally attending their meetings. Coverage is often provided within *PTTC Network News*, the national newsletter.

C. Implementing a Comprehensive Communications Program

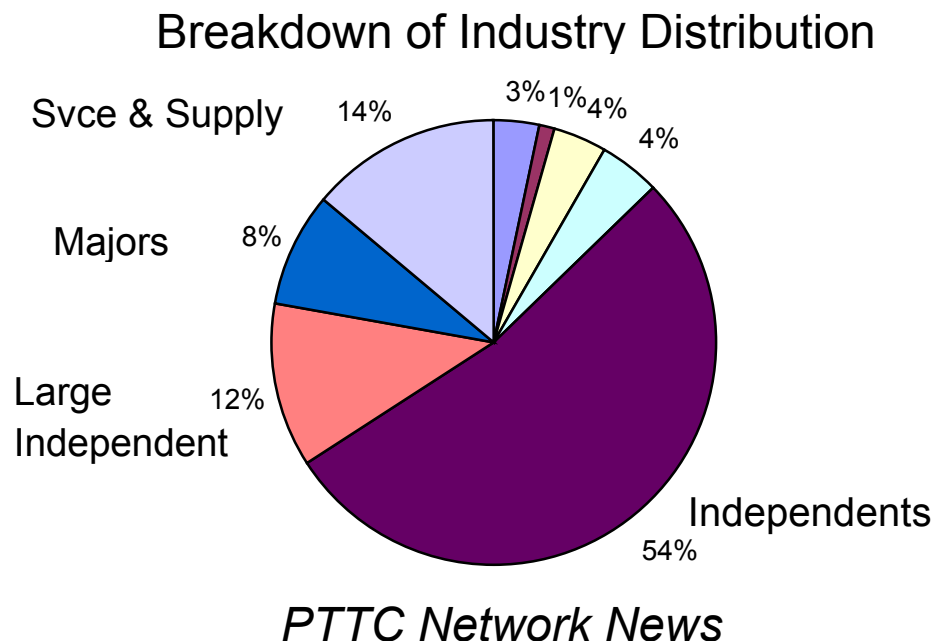
An effective national communications program is essential for increasing name awareness and impact. There are five components to PTTC's national communications program, including:

1. Booth/Display

PTTC staffed its display booth at five events during FY00: (1) SPE annual meeting in Houston in October 1999, (2) NAPE meeting in Houston in February 2000, (3) SPE/DOE IOR Symposium in Tulsa in April, (4) AAPG annual meeting in New Orleans in April 2000, and (5) the Coalbed Methane Conference in Denver in June 2000. Occasionally, PTTC will lend its booth/graphics to the regions for their use at regional events.

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 include state-of-the-art summaries developed by Karl Lang with Hart's, an environmental page, and a spotlight column that provides detail on other organizations. Newsletter distribution has grown to over 7,200 individuals—with nearly three fourths of those from the E&P sector. Distribution within the E&P sector is shown within the following pie chart. Note that nearly two-thirds of the industry segment is independents.



3. Press Releases

HQ develops national press releases to convey information of a national or inter-regional scope. There were six press releases during FY00, as indicated below:

- Petroleum Technology Transfer Council Ratifies Two New Board Members (11/9/99)
- Rowell to Step Down as PTTC's Founding Executive Director (1/5/00)
- Petroleum Technology Transfer Council Ratifies Two New Board Members (3/31/00)
- Second Issue of E&P Case Studies Released for Independents (5/19/00)
- Duttlinger Named as PTTC's Next Executive Director (6/12/00)
- DOE Presents Two Awards to PTTC's Outgoing Executive Director (7/19/00)

4. 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 periodic columns. In the past, PTTC has coordinated technical articles from the regions for *American Oil & Gas Reporter*, and, beginning in 2001, PTTC will have a regular monthly column there. Also beginning in 2001, PTTC is working with Hart's to encourage connections between producers and technology developers. Producers with vexing problems (those for which solutions are not broadly known) can post their problems on PTTC's website. Technology providers who believe they have solutions can respond and PTTC will forward responses to the producers. Further action will be up to the producers. Technology developers who are looking for field tests can post information on Hart's website regarding the conditions needed for a field test, including any special incentive offers. Interested producers can respond directly. All who participate will be encouraged to publicly share the results/information.

5. 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.

During FY00 PTTC continued to place (1) workshop summaries (*Solutions From the Field*) and (2) newsletter/technical articles on the website. Expanded versions of the state-of-the-art summaries presented in the newsletter were also posted on the website. Other activity was primarily normal maintenance/upgrading.

During 1999, PTTC (and the regions) began using WebTrendsTM software to monitor website usage. Three indicators were agreed upon as the key criteria for measuring website traffic. Trends for the new parameters, which do fluctuate widely month-by-month, are:

- Number of user sessions per month—growing from 6,000 at the start of the year to 8000+ by yearend FY00.
- No. of page views per month—growing from 12,000+ at the start of the year to 25,000+ by yearend FY00. People are now looking at more material when visiting the site.
- Average session length—fluctuates in the 10 to 15 minute range.

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 2 documents annual activity by region. 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 three regions (Central Gulf, Midwest, and Southwest) do not achieve the high activity levels of the other regions. Contact levels vary widely among the regions, reflecting different activity levels and the difficulty in consistent reporting of contact statistics.

Region	Workshops					Contacts	Website User Sessions	Newsletter
	# of WS's	Total Attend.	Avg. Attend.	% from Industry	% Repeat Attend.		1st Qtr / 4th Qtr	
Appalachian	11	478	43	87	35	382	871 / 1,293	Info/columns In Assoc. NL
C. Gulf	4	169	42	78	20	585	1,750 / 2,051	Info/columns In Assoc. NL
E. Gulf	11	379	34	80	61	637	1,178 / 2,213	750 (Qtrly)
Midwest	5	180	36	77	63	1,061	3,614 / 3,062	3000 (Semi)
N. Midcontinent	10	532	53	84	56	2,166	9,346 / 14,087	4762 (Qtrly)
Rocky Mountain	26	1,020	39	80	53	2,070	2,985 / 1,345	1716 (Qtrly)
S. Midcontinent	42	1,289	31	92	39	1,329	2,232 / 2,607	6091 (Qtrly)
Southwest	6	454	76	74	18	600	6,252 / 14,309	3200 (Semi) + online
Texas	17	802	47	85	9	1,631 + TIPRO	8,785 / 10,708 + TIPRO	300 (Qtrly) + Assoc.
West Coast	16	717	45	65	46	2,519	- / 412	Annual + Info in Assoc. NL
All Regions	148	6,020	41	82	45	12,980		

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. For the most part, within a region, usage increased steadily throughout FY00. PTTC's planned web group, whose mission is to improve consistency and expand capability of the regional websites, should stimulate additional website usage.

Table 3 illustrates the most current activity levels (4th Qtr FY00) and provides a comparison of FY00 activity with FY99 activity. Activity levels were slightly above FY99 levels, which themselves represented record activity for PTTC.

Table 3 -- 4th Quarter FY00 Activities Overall Comparison with FY99 Activity Level							
Region	Workshops			Industry Contacts	Website (mo. avg.)		Newsletter Function
	No.	Attend.	From E&P Industry (%)		User Session	Page Views	
Appalachian	4	172	145 (84%)	61	1,293	2,513	Periodic articles in IOGA newsletters — starting online newsletter
Central Gulf	1	41	39 (95%)	145	2,051	8,234	Workshop announcement in LIOGA newsletter— circ. 800
Eastern Gulf	2	72	60 (83%)	157	2,213	5,827	Quarterly Newsletter – (9/00) circ. 750 (95% from industry)
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S. Midcontinent	2	52	42 (81%)	315est	2,607	Not Avail.	Quarterly Newsletter – (9/00) circ. 6091 (98% industry)
Southwest	2	227	150 (66%)	158	14,309	124,972	Semi-annual PRRC newsletter (7/00) circ. 3200 (90% from industry), plus monthly on-line newsletter
Texas	0	0	0	323 (2,766 TIPRO)	10,708 (58,449 outreach)	14,469 (934,608 outreach)	Info/articles in trade assoc. newsletters (combined 6200) plus new quarterly (300 circ. & online)
West Coast	3	108	61 (56%)	412	410	1,909	None this quarter. Leverage through CIPA
All Regions 4th Qtr FY00	19	944	729 (77%)	2,877			
All Regions FY00	148	6,020	4,923 (82%)	12,980	FY00 versus FY99 --16% increase in # of workshops --1% increase in attendance --23% increase in contacts		
All Regions FY99	128	5,948	4,934 (83%)	10,555			

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 (averaged monthly during FY00)
- *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 6,020 represents a slight increase over FY99 levels. As expected, the regions draw a high percentage of attendees from industry with values ranging from 65% to 92%. To realize this attendance, more workshops were held, some 16% more. Of 96 workshops in FY00 where repeat attendance was reported, it averaged 45% ranging from 9 to 63%. The overall average of 45% reflects customer satisfaction (producers are coming back) while still indicating that a new audience is being reached. In some cases, it must be noted that percentages are based on limited data. 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, 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

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 organizations of the RLOs.
2. **Response to Inquiries**—Industry contacts now average five 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, but most regions do not place a strong emphasis on software demo/training. The Eastern Region conducts software training on an approximate quarterly basis. Only the Rocky Mountain Region maintains an extensive software training schedule. 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.

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, so the region will not provide updates. The product also drew inquiries from other states interested in similar products. The Midwest Region and the Illinois State Geological Survey are developing base and custom mapping products. Longer-term, the core and waterflood database that the Midwest Region has been compiling may represent a revenue-generating product.

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 emerged this year due to partial financial support from the Eastern Gulf Region. In some cases, the regions develop special purpose databases—for example, the previously referenced LDWR CD in Louisiana. Responding to strong industry interest, the Central Gulf Region recently developed another product, 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 has placed additional databases online.

6. **Other Outreach Efforts**—Beyond responding to inquiries, selected regions implement special outreach programs. It has been noted that the Central Gulf, 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. The recently instituted power cost reduction project with the Electric Power Research Institute will also provide focused contact with operators.

North Midcontinent staff support the Kansas CO₂ 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 and has leveraged work within the recently formed Distributed Energy Resources Initiative at LSU. South Midcontinent staff work closely with Oklahoma's Marginal Well Commission supporting their Trade Fairs, and with OU Geo Information Systems helping them promote access to the NRIS database via the Internet. Bob Kiker, the Permian Basin Mentor, has been instrumental in helping the Texas Region connect with producer associations across Texas.

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. 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 the Midwest Region, which has a sparse small independent audience, is still able to draw over 3,500 user sessions per month.

Recognizing the value of this web traffic, PTTC is taking steps to strengthen its web networks. HQ and appropriate webmaster staff from the regions will be working together as a team during the first half

of FY01 to improve the consistency and expand the content and capabilities of the network. Funding limitations make the regional webmaster effort a part-time effort. A key goal for the team will be to learn how to split up the effort for developing enhanced capabilities, and then share the end product with all regions.

E. Newsletters

Despite the digital revolution, PTTC recognizes that a 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. With Texas starting a regional newsletter early in FY01, eight of 10 regions now have regional newsletters. Combined distribution of the regional newsletters approaches 20,000. Frequency varies from bi-annual to quarterly. The West Coast Region, which previously published a quarterly newsletter, now only distributes an annual edition to a limited circulation. Announcements in CIPA's weekly bulletin have increased though. The Central Gulf Region gets regular coverage in *LIOGA News*. Although submitting regular articles, the Appalachian Region receives only occasional coverage in association newsletters. Most regions also post newsletters online and some, like the Southwest Region, have a special online newsletter. Appalachia is moving towards an online newsletter, still striving for an effective way of fulfilling the newsletter function.

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, 36% of respondents respond "Yes." Data from four regions are limited. Of the remaining six, the percentage that respond "Yes" ranges from 29 to 44%--a fairly narrow range which supports its credibility.

There are other anecdotes of success, but the quantity is limited by operator's wariness in sharing information and time limitations for personalized follow-up by RLO staff. Brief examples of success by region are summarized below:

Appalachian—Post workshop demand for workshop notebooks, plus participant feedback, has confirmed the success of recent workshops. Demand has been highest for the Trenton workshop notebook. Trenton drilling permits did increase following the workshop—a positive sign but PTTC recognizes that many other factors also influenced the Trenton activity level.

Central Gulf—Documented impact occurs mainly where PTTC funds support other efforts within LSU. Examples include the Downhole Water Sink Consortium, the Distributed Energy Resources Initiative, and waterflooding techniques in gas reservoirs. In the product realm, the Louisiana Desktop Well Reference CD-ROM did spur increased data access within the state agency.

Eastern Gulf—Three indicators illustrate impact of the Eastern Gulf program. First, within the geological community, word spreads quickly about findings presented in regional workshops. Second, as a follow-on to discussions during workshops, some operators have submitted successful R&D proposals to DOE, often partnering with the University of Alabama. Third, the extensive geological information now online through the Mississippi satellite would not be there without the funding assistance provided by PTTC.

Midwest—Only small amounts of PTTC funding have spawned significant outreach to Michigan operators. Due credit must be given to Bill Harrison's efforts there. Similarly, early seed funding for website development in Indiana and Kentucky bore fruit as both states are continuing website development without current PTTC funding.

North Midcontinent—Several operators have expressed interest in the RESTORE program, a well damage removal treatment offered by Baker Petrolite, after learning of it through PTTC workshops. Staff is working to develop case studies on treatments in Kansas and the Midcontinent. Operators do indicate that

they have case studies on other technologies and, if PTTC had the resources to assist them in documenting the results, they would be willing to share them. For selected topics, technical programs have been strong enough to draw attendees from multiple states.

Rocky Mountain—Success is confirmed by the groups who want to cooperate with the regional program. In one way or another, the regional program becomes involved in nearly every event of technical significance in the Denver area. The software training program continues strong with 19 software workshops offered during FY00, some for individual companies.

South Midcontinent—Beyond informal feedback from the regional audience, the most direct indicator of success is the continued willingness of the Oklahoma Geological Survey to expend funds far beyond minimum requirements. Cooperative efforts with Oklahoma's Marginal Well Commission and OU's Geo Information Systems also continue strong. Working together, the impact of all groups is being strengthened.

Southwest—Impact is best measured by the topics/issues the region has addressed and made significant progress on. RLO staff has been instrumental in making New Mexico production and well data available electronically. Useful software tools have been developed. Work groups have formed to address special topics, such as noise abatement in the San Juan Basin and corrosion/wellbore management.

Texas—There are several indicators that the regional program is increasing its impact. First, with the assistance of Mentor Bob Kiker, the RLO is connecting with the various producer associations across the state. Workshop topic selection is becoming more varied, drawing in a more diverse audience. There is direct evidence that the mudlogging mini-workshops in the Permian Basin have increased application of that technology, while a similar mini-workshop on vapor recovery led two vendors into a joint venture. Last but not least, at the several trade shows where PTTC exhibits, industry awareness and perception of the regional program is vastly improved.

West Coast—Some producers have taken action as a result of Trouble Shooter interactions. Operators, some outside the PAG, are actively involved in a Program Committee to determine topics for regional workshops. PAG members are frequently involved in regional workshops, as speakers or moderators. Industry worked hard to get support funding through the California Energy Commission. This above and beyond volunteer commitment demonstrates the importance of the West Coast program to them.

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/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 year, contributions beyond the required minimum. The resolution of cash flow and related issues is truly an ongoing cooperative effort between the RLOs, HQ, and DOE.

Table 1—SUMMARY OF PTTC REGIONAL ACTIVITY

4th Quarter FY00							
Region	Workshops			Industry Contacts	Website (mo. avg.)		Newsletter Function
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All Regions FY99	128	5,948	4,934 (83%)	10,555	--16% increase in # of workshops		
					--1% increase in attendance		
					--23% increase in contacts		

Repeat Attendance at Workshops: Of 96 workshops in FY00 where repeat attendance was reported, it averaged 45% (Measured as % of industry attendees that had previously attended a workshop in that region).

Producers Taking Action: 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 112 workshops—data not available for all workshops)

Table 2—Comparison of FY00 Regional Activity

Region	Workshops					Contacts	Website User Sessions	Newsletter
	# of WS's	Total Attend.	Avg. Attend.	% from Industry	% Repeat Attend.		1 st Qtr / 4 th Qtr	
Appalachian	11	478	43	87	35	382	871 / 1,293	Info/columns In Assoc. NL
C. Gulf	4	169	42	78	20	585	1,750 / 2,051	Info/columns In Assoc. NL
E. Gulf	11	379	34	80	61	637	1,178 / 2,213	750 (Qtrly)
Midwest	5	180	36	77	63	1,061	3,614 / 3,062	3000 (Semi)
N. Midcontinent	10	532	53	84	56	2,166	9,346 / 14,087	4762 (Qtrly)
Rocky Mountain	26	1,020	39	80	53	2,070	2,985 / 1,345	1716 (Qtrly)
S. Midcontinent	42	1,289	31	92	39	1,329	2,232 / 2,607	6091 (Qtrly)
Southwest	6	454	76	74	18	600	6,252 / 14,309	3200 (Semi) + online
Texas	17	802	47	85	9	1,631 + TIPRO	8,785 / 10,708 + TIPRO	300 (Qtrly) + Assoc.
West Coast	16	717	45	65	46	2,519	- / 412	Annual + Info in Assoc. NL
All Regions	148	6,020	41	82	45	12,980		

Level of Regional Activity:

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, (2) single vs. multi-state regions, (3) differing industry demographics, and (4) differing RLO Director philosophies.

PTTC Appalachian Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			371	287 (77%)
Using Ohio's Run Time O&G Database (w Ohio DNR)	Zanesville, OH	10/12/99	15	11 (73%)
Changing Face of Exploration in the Knox Play (w Ohio O&G Assn., Ohio Geol. Society, Ohio Geol. Survey)	Akron, OH	10/20/99	96	85 (89%)
Challenges of Drilling in Ordovician Trenton-Black River: Breathing New Life into Old Targets	Morgantown, WV	11/11/99	106	99 (93%)
DigiRule Software Workshop	Morgantown, WV	3/1/00	10	8 (80%)
Generating Products from Public Databases for the O&G Industry	Morgantown, WV	5/10/00	41	35 (85%)
Creating O&G Related Webpages	Lexington, KY	6/10/00	7	2 (29%)
Real Time Stimulation Solutions for Appalachian Basin	Morgantown, WV	6/14-15/00	31	29 (94%)
Upper Devonian Elk Sandstone Reservoir Characterization in the Appalachian Basin	Pittsburgh, PA	9/7/00	76	62 (82%)
Coalbed Methane Technology & Plays, Appalachian Basin	Beckley, WV	9/13/00	58	50 (86%)
PA-IRIS (Internet Retrieval Imaging System)	Morgantown, WV	9/19/00	14	12 (86%)
PA-IRIS (Internet Retrieval Imaging System)	Columbus, OH	9/29/00	24	21 (88%)
Total FY00 Attendance (11 events)			478	414 (87%)

Application: 32% 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 12 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	109	871	1,691	None	RLO Director covered 17 events in seven states and Canada during an active outreach program where he networked with industry, gave promotional talks, exhibited, etc.
2 nd Qtr	134	932	1,899	Online	
3 rd Qtr	78	1,121	2,034	Online	
4 th Qtr	61	1,293	2,513	Online	
Total FY00	382				

Regional Website: The number of user sessions and pages viewed grew steadily during the year. Typical session length is 10-11 min. Staff expanded the calendar of regional events to include trade group and professional society events and added links to professional societies. During the year, a newsletter section was added and articles periodically posted. Entire notebook for "Creating O&G Related Webpages" was placed on website. The moving of the website to a new server during August provides increased capabilities, several of which are needed to accomplish FY01 plans. Planned website enhancements for the coming year include: (1) a timely e-news feature (relying on an e-mail database that will be developed) and (2) interactive regional maps (for example, plotting location of new discoveries, areas of high drilling activity, coalbed methane projects, etc.)

Workshops/Events: Three play-oriented workshops (Knox, Ordovician Trenton-Black River, and Upper Devonian Elk Sandstone) and a coalbed methane workshop highlighted the regional workshop program. Four additional workshops were related to data access: Ohio's O&G Run Time Database, Generating Products from Public Databases, and two workshops for users of PA-IRIS, the Internet Retrieval

Information System developed by the Pennsylvania Geological Survey. Attendance at some workshops was adversely affected by scheduling factors (Saturday before a 3-day meeting, two-day workshops). Eight workshops are planned during FY01.

Resource Center: The resource center remains available for scheduled visitors, as well as serving as the location for software/hardware. It was only minimally staffed during FY00 and even less staffing is planned in the future. Just over 30 contacts per month are reported, with 13% of those initiated by PTTC. RLO staff actively responds to all inquiries. One such inquiry, which later led to a field visit, dealt with crude oil leaking into a coal mine.

Outreach/Contacts/Newsletter: Beyond the outreach that occurs during workshops, RLO Director Doug Patchen relies on interacting with industry at producer association and professional society events throughout this multi-state region. Participation varies from attending to network to giving a PTTC promotional talk to staffing a PTTC exhibit. In all, he covered 17 events in seven states and Canada, plus seized opportunities during AAPG leadership activities to promote PTTC. Other promotional opportunities occur when distinguished visitors (from Congress and internationally) come through West Virginia University. Despite several attempts, associations still run few articles developed by the region, so the region switched to the online newsletter concept. Several articles were developed and posted during the year.

Problem Identification: Two primary tools are used for problem identification, networking at regional events and feedback from workshop participants. Additional input comes from PAG members. The RLO also responds to opportunities that become available during the year.

Follow-up: Follow-up is conducted informally during breaks at workshops and at professional society/association meetings. Through the year, several individuals noted some aspect of applying information they received through PTTC but all declined to document details. There has been a post-workshop demand for notebooks for those individuals not able to attend workshops, indicating that word of mouth about quality of the content is spreading. Demand has been highest for copies of the Trenton workshop notebook. Trenton drilling permits increased following the Trenton workshop, a positive sign but many other factors also influence the Trenton activity level.

Case Studies: None were reported this year. Individuals most often cite competitive concerns when declining to document instances of technology applications/successes.

PTTC Central Gulf Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			319	292 (92%)
Property Evaluations & Acquisitions: A Short Course	Baton Rouge, LA	12/2-3/99	35	30 (86%)
Downhole Water Separation Technology	Baton Rouge, LA	3/2/00	43	22 (51%)
Distributed Energy Resources (DER) in the Oil Patch (w Texas Region)	Houston, TX	5/15/00	50	40 (80%)
Use and Misuse of Horizontal Wells (SPE)	New Orleans, LA	9/26/00	41	39 (95%)
Total FY00 Attendance (4 events)			169	131 (78%)

Application: 8% 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 3 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	128	1,750	4,453	LIOGA article	Region effectively leverages other LSU initiatives. It has been very successful in product sales. The new coordinator, Don Goddard, is bringing new energy to regional outreach.
2 nd Qtr	165	1,959	4,254	LIOGA article	
3 rd Qtr	147	1,443	6,761	LIOGA article	
4 th Qtr	145	2,051	8,234	LIOGA article	
Total FY00	585				

Regional Website: The number of user sessions remained stable during the year, but the # of pages viewed increased steadily reflecting that visitors are looking at more information while there. Session length averages 12-13 minutes. With the exception of adding the seismic permit database, website effort was primarily for routine maintenance/updating.

Workshops/Events: FY00 began with a “Property Acquisitions and Divestiture” workshop, primarily covering the technical aspects of property evaluation—an area where independents are typically very active. Second quarter activity focused on “Downhole Water Separation,” featuring among others the results of the Downhole Water Sink (DWS) Consortium at LSU. “Distributed Energy Resources (DER)” was the topic for a third quarter workshop. Ritchie Priddy of the DER Initiative at the Center for Energy Studies led this effort. Ritchie Priddy also made a presentation on DER during “Independents Day” at the SPE/DOE Improved Oil Recovery Symposium in Tulsa, OK (April 2000). In conjunction with SPE, engineering staff presented material on the “Use and Misuse of Horizontal Wells” during the fourth quarter (another presentation planned early in FY01). Six workshops are planned during FY01.

Resource Center: At PAG direction, the region developed a seismic permit database, placing it on the website in August. 2-D seismic donations were accepted at the resource center. Also during August, Don Goddard, an experienced petroleum geologist, filled the Coordinator position left vacant by Keith Long.

Outreach/Contacts/Newsletter: Of the reported contacts, which averaged over two/day, nearly 40% were PTTC-initiated, confirming a proactive outreach program. Contacts include those of the DWS Consortium. The region relies on regular announcements of regional activities in *LIOGA News* rather than a regional newsletter. The region exhibited at the AAPG annual meeting (April 2000, New Orleans) and Gulf Coast Prospect Expo (September 2000, Lafayette). Bob Baumann was one of several speakers in a

traveling program titled *Louisiana Oil & Gas and the New Millenium* sponsored by LIOGA, LMOGA and PTTC in Shreveport, Monroe, Alexandria, Lafayette, New Orleans and Baton Rouge during the second quarter. Some support for a professional development series for state regulatory personnel (13 persons) was provided (May 1-2). Leveraging efforts at the Center for Energy Studies in its outreach effort, additional presentations on DWS and DER were made throughout the year. Nearly \$4,500 of product sales was reported during FY00. An additional \$2,350 was received from sponsorships and a \$5,000 donation accepted.

Problem Identification: Industry needs and directions for future activities are determined through PAG input and interaction with workshop attendees/resource center contacts. As Don Goddard makes contacts to acquaint operators with him, additional insights are being gained.

Follow-up: LSU continues to work with Cody Energy and its contractor regarding water flood techniques in gas reservoirs. RMOTC has expressed interest in demonstrating DWS technology at RMOTC, or even joining with LSU in providing DWS technology to industry. Schlumberger requested a one-day tech transfer session on DWS technology, and PDVSA (Venezuela) has contracted for DWS evaluation for the La Victoria Field. Industry provides significant funding for the consortium. The DER workshop, which was held in Houston where much of the DER activity is occurring, led to further discussions with University Lands personnel in Texas about DER potential on Texas state lands.

Case Studies: Dr Wojtanowicz summarized results of five DWS field case studies (in Louisiana, East Texas, Canada, Bakersfield, CA and Indonesia). Field tests confirmed that oil production was increased, but magnitude of the increase has been limited by the technology being applied in marginal wells having a small productivity index even without water coning.

PTTC Eastern Gulf Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			322	208 (65%)
Digitizing Well Logs (Neuralog)	Tuscaloosa, AL	10/13/99	10	4 (40%)
Miocene Deposition & Petroleum Geology: Northern Gulf of Mexico	Jackson, MS	11/10/99	41	35 (85%)
Reservoir Description and Analysis	Jackson, MS	12/1/99	31	24 (77%)
Horizontal Drilling in Oil Shales	Jackson, MS	1/26/00	92	83 (90%)
2-D/3-D Data Loading (SMT Kingdom Suite)	Raymond, MS	2/23/00	27	20 (70%)
3-D Seismic Interpretation (SMT Kingdom Suite)	Raymond, MS	2/24/00	27	20 (70%)
Seals—Critical Element	Jackson, MS	3/29/00	34	28 (82%)
PETRA Geologic Software	Jackson, MS	4/11/00	10	7 (70%)
Unitization	Jackson, MS	5/24/00	35	23 (66%)
Modern Salt Tectonics	Jackson, MS	7/26/00	37	31 (84%)
Property Evaluation	Jackson, MS	9/26/00	35	29 (83%)
Total FY00 Attendance (11 events)			379	304 (80%)

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 6 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	152	1178	3467	Jan (660)	Region caters to a primarily geological-oriented audience. Most workshops are held in Jackson, MS. Website developed by Mississippi Office of Geology came online during April 2000.
2 nd Qtr	161	1411	4278	Mar (660)	
3 rd Qtr	167	1646	4059	July (660)	
4 th Qtr	157	2213	5827	Sep (750)	
Total FY00	637				

Regional Website: The # of user sessions and page views consistently increases. Session length averages 18-20 minutes. Practice is to place information from workshops online (Miocene Deposition and Petroleum Geology, Northern Gulf of Mexico; Integrated Geological, Geophysical and Computer Approach for Predicting Reef Lithofacies and Reservoirs; Upper Jurassic Smackover Formation, Appleton Field, Alabama; Horizontal Drilling in Oil Shales; Salt Anticline Play in the MISB; Sequence Stratigraphy and Petroleum Potential of Lower Cretaceous Strata in the MISB). Florida production data were also posted.

The geological-oriented website developed by the Mississippi Office of Geology with partial PTTC funding came online during April 2000. Primary data are in well folders and field folders. Geologic database is 28 gb (96,178 files). Production database is 97 mb (683,440 well records). Field maps are a primary product. Early monthly statistics reveal growing usage, and a large download of well information during August.

Usage of Mississippi Energy Website

Month	Well Folders -- # (Mbytes)	Field Folders -- # (mbytes)	Field Maps
June	703 (42 mbytes)	167 (6 mbytes)	198
July	1861 (63 mbytes)	516 (14 mbytes)	102
Aug	99162 (2442 mbytes)	975 (29 mbytes)	280
Sep	4266 (122 mbytes)	746 (20 mbytes)	354

Workshops/Events: Geological-oriented workshops conducted during the year include Miocene Deposition and Petroleum Geology, Northern Gulf of Mexico; Reservoir Description and Analysis; Horizontal Drilling Oil Shales; Seals; and Modern Salt Tectonics. Although catering to a primarily geological audience, material typically covers some engineering and operations topics. Other technical topics covered “Unitization” and “Property Evaluation.” Four software training workshops were held. Nine workshops are planned during FY01.

Resource Center: The region has the main resource center in Tuscaloosa and, through the Mississippi Office of Geology, maintains a satellite center in Jackson. Like most PTTC regions, the resource centers receive few personal visitors, instead relying on phone/email.

Outreach/Contacts/Newsletter: The region averages about 2.5 contacts/day, with 10-15% of the contacts coming from the Mississippi satellite. Circulation of the newsletter (2 pages plus workshop flyers) has grown to 750 with 95% being from industry. RLO Director Mancini is active nationally/internationally and these contacts are leveraged for PTTC purposes.

Problem Identification: The region relies on PAG input and feedback from workshop participants and contacts to determine appropriate topics for the upcoming year’s workshop program.

Follow-up: DOE funded (University of Alabama, partners) a project to work with independents on characterization and modeling of reef reservoirs in southwest Alabama. Project resulted from contacts established during workshops and University of Alabama actively pursuing opportunities with independents. The University of Alabama, partners and an independent are also working together in a DOE Class 2 project in a carbonate shoal reservoir in Womack Hill Field.

Case Studies: (see above additions to the website). The RLO is a key participant in an AAPG Carbonate Reservoir Symposium being held in El Paso, Texas early in FY01. Staff helped develop the technical program and assemble abstracts.

PTTC Midwest Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			190	171 (90%)
Surface Exploration for Oil and Gas in Mature Basins—Assumptions, Applications and Recent Advances	Lansing, MI	12/10/99	47	35 (74%)
Old (Pre-1958) Wireline Log Interpretation	Grayville, IL	1/14/00	50	44 (88%)
Reservoir Engineering School	Grayville, IL	2/9-11/00	11	9 (82%)
Cypress Sandstone Workshop	Mt. Vernon, IL	4/5/00	43	37 (86%)
Downhole Oil or Gas/Water Separators	Lansing, MI	7/14/00	29	13 (45%)
Total FY00 Attendance (5 events)			180	138 (77%)

Application: 55% 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 3 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	204	3,614	5,759		Region draws high website traffic for a mature, small independent area like the Illinois Basin. Region maintains an active Michigan satellite/outreach program. Richard Geier came onboard as Coordinator during April.
2 nd Qtr	234	4,044	9,714	February (2900)	
3 rd Qtr	298	3,592	9,034		
4 th Qtr	325	3,062	9,096	Aug (3000)	
Total FY00	1,061				

Regional Website: Website usage reflects only the primary website at the RLO since tracking software cannot be used on the Michigan satellite’s server. At the main site, the # of user sessions remains somewhat erratic but the number of page views continues to grow. Session length averages 15-20 minutes. Beginning early in the year, Michigan began placing databases (core, production data, etc.) online. Early usage increased as much as 30% per quarter. Although moderating somewhat, Michigan traffic continues to grow. Although updating/development of the main website lagged somewhat during the interim between Davis/Geier, all website pages have been recently checked/updated. Links were added to “new well permit pages” at other sites, reducing data entry time for the regional website. The regional newsletter is also available online.

Workshops/Events: Three workshops were held in the Illinois Basin and two in the Michigan Basin. Illinois Basin topics included old e-log interpretation, reservoir engineering and a Cypress Sandstone workshop. Continuing the regional trend of holding multi-day workshops during the winter months, Dr. James Smith presented the reservoir engineering workshop during February. In April, extensive work performed by the Illinois Geological Survey was featured in a Cypress Sandstone workshop. Michigan conducted an exploration-oriented workshop (surface exploration methods) and an engineering-oriented workshop on downhole water separation, both oil/water and gas/water. Bruce Langhus with Arthur, Langhus Layne LLC led the workshop, summarizing prior DOE work in downhole oil/water separation. An equipment supplier and Michigan regulatory person were also involved in the program. Seven workshops are planned during FY01.

Resource Center: Outreach contacts were at least partially responsible for major donations. In Illinois, CMI Inc. donated 170 ft of New Albany Shale to the Illinois State Geological Survey. In Michigan, cores

from eight wells in new fields were donated to the Michigan Basin Core Research Laboratory. In Illinois, staff continues to seek releases and process prior donations of core analysis data. Product sales during FY00, primarily for O&G maps, totaled nearly \$1,500.

Outreach/Contacts/Newsletter: Contacts averaged over four per day. The semi-annual newsletter is now distributed to 3,000 individuals with 95% being from industry. Both Illinois and Michigan staff actively participate in regional professional society and association meetings and respond to media requests. David Morse made presentations/presented papers at a coalbed methane forum (April), the Tri-State IOGA meeting (June), and a Route One association meeting (July). He also gave a media interview to the Evansville Tribune, which resulted from a HQ press report to them. The region staffed exhibits at the Illinois O&G Association meeting and the Kentucky O&G Association/IOGCC mid-year meeting and regularly exhibits at the Eastern Section AAPG annual meeting. Bill Harrison participated in the DOE Contractor's Review Meeting in Denver (June), discussing bypassed oil in the Vernon field. He also held a two-hour mini-workshop on technology developed from DOE projects, focused on map data and new software. Michigan media contacts include: (1) interview with the *Battle Creek Inquirer* about high gas prices, (2) radio interviews on WMU radio about improved oil recovery projects in Michigan, and (3) interview by WMU alumni magazine about petroleum recovery and the role of the Michigan Basin Core Research Lab/PTTC. Throughout the year, both Illinois and Michigan make one-on-one visits to targeted operators. PTTC will be actively involved in technology transfer from ongoing R&D projects funded by DOE's oil program (Chronos Development Corporation, Michigan Technological University, and Western Michigan University in Michigan; Plains Resources and Illinois Geological Survey in Illinois). Several informational packets about DOE's "Technology Development with Independents" program were forwarded to operators.

Problem Identification: The region relies on PAG input and feedback from workshop participants and contacts to guide topics/staff effort. Operators have been consistent in wanting "more online data." Michigan operators are also interested in techniques to efficiently analyze and use that data, plus they want to learn about new technologies that can reduce exploration and development costs. Participant feedback indicates a need for seismic interpretation and recent developments, a mapping software workshop, and more information on coalbed methane. Soon after the workshop on surface exploration methods, Bill Harrison contacted attendees. Although none had yet applied approaches covered in the workshop, most did indicate that they could apply them.

Follow-up: Although the region has discontinued its seed funding to Indiana and Kentucky for website development, they are continuing their commitment to post data on the Internet. In direct response to operator input, Michigan developed several online databases this year. Although not yet applying surface exploration techniques, attendees at the surface exploration methods workshop, when contacted soon after the workshop, indicated they could.

Case Studies: Although case studies are actively sought and some operators indicate that they have them, it is rare that they are willing to share their insights, citing competitive concerns

PTTC North Midcontinent Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			776	684 (88%)
Designing, Implementing and Monitoring Waterfloods	Wichita, KS	11/3/99	54	41 (76%)
CO ₂ Flooding in the Morrow Formation (w Shell CO ₂ Company)	Wichita, KS	11/17/99	34	27 (79%)
Advances in Well Stimulation (SPE-Wichita)	Wichita, KS	2/9/00	61	58 (95%)
Reservoir Characteristics of Morrow/Incised Valley Fill	Wichita, KS	2/16/00	44	29 (66%)
Core workshop—Morrow/Incised Valley Fill	Wichita, KS	2/17/00	32	19 (59%)
“Independents Day” @ SPE/DOE IOR Symposium (SPE & South Midcontinent Region)	Tulsa, OK	4/4/00	49	38 (78%)
Online Access and Mapping with Kansas Digital Petroleum Information (Kansas Geological Society)	Wichita, KS	5/25/00	30	29 (97%)
CO ₂ and Kansas–DOE Project Update (Kinder Morgan)	Wichita, KS	8/27/00	74	70 (95%)
Horizontal Drilling in Kansas-A Case Study (KIOGA)	Wichita, KS	8/28/00	103	87 (85%)
Artificial Lift Basics/Advances Including Methods of Reducing Electrical Consumption	Wichita, KS	9/12/00	51	47 (92%)
Total FY00 Attendance (10 events)			532	445 (84%)

Application: 29% 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)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	550	9,346	40,104	Oct (4700)	Region maintains a strong emphasis on providing digital data through the website. Strong engineering/operations emphasis in workshop program. Maintains an active outreach effort.
2 nd Qtr	626	12,099	59,032	Jan (4722)	
3 rd Qtr	488	13,370	55,486	Apr (4730)	
4 th Qtr	502	14,087	70,864	July (4762)	
Total FY00	2,166				

Regional Website: The # of user sessions and page views continue to steadily increase. Session time is in the 20-30 min. range. A large portion of the traffic is attributed to the large amount of digital data made available by the Kansas Geological Survey. Data are now available for more than 400,000 wells in Kansas. Oil and gas databases (logs, production data, etc.) receive strong usage. A new “annual production by county/state” from 1990-present was developed. Improvements in the search engines for the bibliography, LAS electric log, and monthly production databases were also made. Presentations from the “Morrow incised valley fill” and “horizontal drilling in Kansas” workshops have been placed online. KGS staff are developing online courses in petrophysics and 3-D seismic.

Workshops/Events: The region maintains an active primarily engineering-oriented workshop program. Basic engineering topics included waterflooding, well stimulation,” and artificial lift basics/reducing electric consumption.” To engender good will, SPE was allowed to keep all fees for the cooperative workshop on well stimulation. Two workshops were related to ongoing efforts by Kinder Morgan and others to test CO₂ flooding in Kansas. Two of the activities were integrated with KIOGA’s annual meeting in August. Geological workshops focused on Morrow incised valley fill reservoirs. For selected workshops, such as waterflooding and artificial lift, the RLO sells booth space for a nominal fee, benefiting both technology suppliers and producers. One workshop by the Kansas Geological Survey

dealt with online data access and mapping using the Kansas Digital Atlas. In conjunction with the South Midcontinent Region and SPE, the region co-sponsored the half-day "Independents Day" forum associated with the SPE/DOE IOR Symposium. It drew participants from nine states. The agenda included four field-oriented presentations (distributed energy resources, coalbed methane, well damage removal, alternative lift system). Seven workshops are planned during FY01.

Resource Center: Staff participates in advisory group meetings for TORP, as well as scheduled PAG meetings. In other roles, staff play an active R&D role in DOE-funded R&D projects in Kansas, enabling them to interface very effectively in technology transfer from these projects (the Class projects, the Kansas CO₂ Initiative, etc.). Prompted by PTTC interest in capturing results of coalbed methane workshops in several regions, TORP is developing a coalbed methane manual. TORP and PTTC staff continues coordination with Polymer Systems Inc. to develop a database on gelled polymer treatments in Kansas (application, pre- and post-test results).

Outreach/Contacts/Newsletter: The region averages more than eight contacts per day, one of the highest levels among the regions. Although primarily coming through phone or email, some targeted visits are made with operators throughout the year. Frequent interactions with KIOGA/EKOGA occur. Circulation of the quarterly newsletter is about 4,700 with 80% being from industry. Newsletters typically provide detailed information on a couple topics plus expected news and workshop announcements. Tim Carr co-chaired a horizontal drilling session at the SPE/DOE IOR Symposium. Dwayne McCune attended a Horizontal Drilling conference in Bismarck (May 7-9) and a Coalbed Methane Forum in Denver (June 20). Several discussions with operators on varied topics occurred. Along with TORP and the University of Kansas, staff provides planning support for a booth at the Energy Education Center in Great Bend, Kansas.

Problem Identification: Industry needs and directions for future activities are determined through PAG input and interaction with workshop participants/resource center contacts. This feedback typically results in appropriate workshops some months later.

Follow-up: Several operators have expressed interest in contacting Baker Petrolite regarding their RESTORE program (organic wellbore damage removal) after hearing discussions/seeing field examples presented in the "Well Stimulation" workshop and "Independents Day" at the SPE/DOE IOR forum. Staff is working to develop case studies on treatments in Kansas and the Midcontinent.

Case Studies: Operators continue to indicate they are willing to share case studies, but time limitations are a constraint. In Kansas the problem is not so much competitive concerns, but operators not having the time to document field results. Should funding for a Mentor position become available, helping producers document case studies will be one of the key functions of a Mentor(s).

PTTC Rocky Mountain Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			1524	(90% estimated)
PowerPoint Training for Petroleum Professionals	Golden, CO	10/21-22/99	16	N/A
Introduction to Unix	Golden, CO	10/23/99	6	N/A
NMR Logging-Petcom (AAPG)	Golden, CO	10/26-27/99	19	N/A
SeisX Basic Training-Paradigm (AAPG)	Golden, CO	11/18-19/99	6	N/A
Introduction to Unix	Golden, CO	12/4/99	5	N/A
Air Quality Permitting for Wyoming Producers	Casper, WY	1/13/00	77	76 (99%)
GeoPlus PETRA Basic Training (AAPG)	Golden, CO	1/19-20/00	16	13 (81%)
PowerPoint Training for Petroleum Professionals	Golden, CO	1/26-27/00	17	13 (77%)
Predictive Flow Modeling of Wells and Reservoirs Using Vertex 1000	Golden, CO	2/15/00	7	7 (100%)
GeoPlus PETRA Basic Training (AAPG)	Golden, CO	2/23-24/00	17	17 (100%)
Unix Training—1 st in a Series	Golden, CO	2/26/00	6	3 (50%)
GeoPlus PETRA Basic Training for Barrett Resources	Golden, CO	2/28 & 3/1	15	15 (100%)
Log Analysis for Improved Reservoir Understanding (Digital Formation)	Golden, CO	3/24/00	8	5 (63%)
Unix: Intermediate Skills	Golden, CO	4/8/00	6	3 (50%)
Prediction of Reservoir Quality and Seal Potential by Capillary Pressure Analysis	Golden, CO	4/25/00	24	10 (42%)
Subsurface Fluid Pressures and Their Relation to Oil and Gas Generation, Migration and Accumulation	Billings, MT	5/16/00	40	34 (85%)
GeoPlus PETRA Basic Training (AAPG)	Golden, CO	5/17-18/00	12	11 (92%)
Unix: Basic Shell Programming	Golden, CO	5/20/00	5	3 (60%)
2000 Conference on Hazardous Waste Research (Great Plains/Rocky Mountains Hazardous Substance Research Center)	Denver, CO	5/22-25/00	193	77 (40%)
>> Pre-conference tech transfer workshop		5/22/00	8	4 (50%)
>> Post-conference field trip, oil field waste disposal		5/25/00	12	7 (58%)
PowerPoint Training for Petroleum Prof. (AAPG)	Boulder, CO	5/30/00	7	3 (43%)
GeoPlus PETRA Training (for Amerada Hess, AAPG)	Williston, ND	5/31 6/1	6	6 (100%)
Seismic Micro-Technology—Kingdom Suite (AAPG)	Golden, CO	6/12-14/00	13	11 (85%)
Coalbed Methane Symposium (RMAG, GRI)	Denver, CO	6/20-21/00	464	430 (93%)
Desktop Applications (Microsoft Office) (AAPG)	Golden, CO	9/12/00	15	15 (100%)
Total FY00 Attendance (26 events)			1020	815 (80%)

Application: 33% 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 38 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	319	2,985	11,867	Nov (1200)	Region has by far the strongest software training program among the regions. Region participates cooperatively in most regional technical events.
2 nd Qtr	640	3,612	17,445	Feb (1393)	
3 rd Qtr	632	1,625	7,694	May (1418)	
4 th Qtr	479	1,345	4,992	Aug (1716)	
Total FY00	2,070				

Regional Website: Website traffic fluctuates widely, reflecting different levels of workshop activity during the year and, in some cases, suspected reporting problems. The # of user sessions ranges from 1,500-2,500 per month, while the # of page views ranges from 5,000-15,000. Content changes during the year included additional case studies, a more comprehensive environmental page, and a modified Internet Guide. Since people now know how to use/access the Internet, the Internet Guide is being adapted from a “how to use/access the Internet” to a “resource links” format. Online registration for events aids both participants and staff. Michael Ewing replaced Andrew Castillo as webmaster during August.

Workshops/Events: Twenty-six workshops drew 1,020 attendees with 80% of attendees being from industry. Nineteen of the 26 workshops were software-oriented, providing training on eight different software packages. Participation at software training can be space limited, affecting the overall average attendance. However, major cooperative efforts like the 2000 Conference on Hazardous Waste Research and the Coalbed Methane Symposium (w RMAG, GTI) serve to maintain average attendance, offsetting the lower numbers for software workshops. Workshop activity occurred in four states—Colorado, Montana, North Dakota and Wyoming. Twenty-four workshops are planned during FY01.

Resource Center:

Donation of PTTC proceeds from the subsurface fluid pressures workshop (Billings) to the Northern Rocky Mountain Data Center was greatly appreciated. PTTC’s prime responsibility for the Coalbed Methane Forum was promotion, for which PTTC received a small amount of revenue.

Outreach/Contacts/Newsletter: The region averages nearly eight contacts per day, over 20% of which are PTTC-initiated. Newsletter circulation, which is 95% from industry, grew from 1,200 to more than 1,700 during FY00. In addition to expected announcements of coming events, the newsletter features technology summaries of interest to regional operators. The newsletter has been an effective tool for increasing regional outreach. An occasional article/column is also published in professional society newsletters. Staff occasionally makes announcements/presentations at luncheon meetings of local professional societies as well as present technical papers. Booths were staffed at the Rocky Mountain Prospect Fair and Technofest, Colorado legislative reception, and Horizontal Well Symposium (North Dakota). The region supported the SIPES annual meeting by sponsoring a speaker and providing a computer/projector and operator for the technical presentations.

Problem Identification: Industry needs and directions for future activities are determined through PAG input and interaction with workshop attendees/resource center contacts. Since the region participates cooperatively in most major regional technology events, topical priorities are sometimes, and appropriately so, set by others in industry.

Follow-up: Follow-up is conducted informally during breaks at workshops and through resource center contacts. Occasional spontaneous emails from the regional audience attest to impact on the regional audience. Even with the large number of software workshops where repeat attendance would be expected to be minimal, the region averages 26% repeat attendance, reflecting customer satisfaction.

Case Studies: Three case studies were added to the website—(1) “Planting Crops on Land Spread with Tank Bottoms,” a R&D project funded by Energy Committee of the Williston Chamber of Commerce. PTTC assisted in analyzing data/preparing report. (2) “Oilfield Waste Disposal”—three case studies from PTTC co-sponsored field trip at the 2000 Conference on Hazardous Waste Research (Denver, May). (3) “Improved Reservoir Management/Characterization for Independent Operators in Mature Basins, A Case Study: South Slattery Field, Powder River Basin, Wyoming” (abstract of SPE paper 59299 by Sandra Mark/Lanny Schoeling of Kinder Morgan, presented at SPE/DOE IOR Recovery Symposium in Tulsa). Through Sandra Mark’s efforts, the Patina landfarming case study (Hazardous Waste Conference) appeared in the September 2000 issue of PTTC/*World Oil’s Petroleum Technology Digest*. The region has also worked with PTTC Headquarters to find appropriate coalbed methane case studies.

PTTC South Midcontinent Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			1008	(87%)
Beam Pump Optimiz. (w MWC)	Tulsa, OK	10/14/99	19	19 (100%)
Waterflooding: Geological Perspectives (w OGS)	Norman, OK	10/20/99	58	46 (79%)
Oil & Gas Management (w MWC)	Oklahoma City, OK	10/22/99	57	57 (100%)
Morrow Gas Play in the OK Anadarko Basin (OGS)	Norman, OK	11/10/99	127	113 (88%)
Beam Pump Optimiz. (w Marginal Well Commission)	Enid, OK	11/10/99	24	24 (100%)
Oil & Gas Management (w MWC)	Tulsa, OK	11/12/99	52	52 (100%)
Oil & Gas Management (w MWC)	Wilburton, OK	11/19/99	16	16 (100%)
Internet Access to NRIS Data (Geo Info Sys)	Tulsa, OK	11/19/99	18	18 (100%)
Coalbed Methane (w OGS, OIPA)	Norman, OK	12/1/99	191	178 (93%)
Skinner and Prue FDD Plays (w OGS/OCGS)	Oklahoma City, OK	12/6/99	20	14 (70%)
Prue & Skinner FDD (w OGS/Tulsa Geol. Soc.)	Tulsa, OK	12/8/99	16	11 (69%)
Internet Access to NRIS Data (Geo Info Sys)	Tulsa, OK	12/9/99	4	4 (100%)
Internet Access to NRIS Data (Geo Info Sys)	Tulsa, OK	12/10/99	7	7 (100%)
Internet Access to NRIS Data and Mapping with ArcView and ArcExplorer (Geo Info Sys)	Tulsa, OK	2/8/00	7	7 (100%)
Internet Access to Digital Orthophoto Quads (Geo Info Sys)	Tulsa, OK	2/9/00	4	4 (100%)
Gas Mediation Update & Selected Forms (MWC)	Oklahoma City, OK	2/15/00	9	9 (100%)
Gas Mediation Update & Selected Forms (MWC)	Watonga, OK	2/17/00	4	4 (100%)
Morrow Gas Play OK Anadarko Basin (OGS, TGS)	Tulsa, OK	2/23/00	33	29 (88%)
Morrow Gas Play OK Anadarko Basin (OGS, OCGS)	Oklahoma City, OK	2/24/00	55	51 (93%)
Gas Mediation Update & Selected Forms (MWC)	Duncan, OK	2/24/00	7	7 (100%)
Gas Mediation Update & Selected Forms (MWC)	Tulsa, OK	2/29/00	20	20 (100%)
Internet Access to NRIS Data and Mapping with ArcView and ArcExplorer (Geo Info Sys)	Tulsa, OK	3/2/00	9	9 (100%)
Internet Access to Digital Orthophoto Quads (Geo Info Sys)	Tulsa, OK	3/3/00	8	8 (100%)
Plugging: The Last Resort (MWC)	Enid, OK	3/3/00	7	7 (100%)
Plugging: The Last Resort (MWC)	Oklahoma City, OK	3/10/00	16	16 (100%)
Petroleum Systems of Sedimentary Basins in the Southern Midcontinent (OGS, DOE, KGS)	Oklahoma City, OK	3/28-29/00	128	124 (97%)
"Independents Day" Forum @ SPE/DOE IOR Symposium (SPE/PTTC w/ NMC Region)	Tulsa, OK	4/4/00		Reported by NMC
Electricity Efficiency and Restructuring (MWC)	Shawnee, OK	4/10/00	9	9 (100%)
Spill Prevention, Control, Countermeasure Plan (MWC)	Tulsa, OK	4/17/00	11	11 (100%)
Spill Prevention, Control, Countermeasure Plan (MWC)	Pawhuska, OK	4/18/00	18	18 (100%)
Electricity Efficiency and Restructuring (MWC)	Enid, OK	4/24/00	3	3 (100%)
NRIS/ArcExplorer/Arcview (Geo Info Sys)	Oklahoma City, OK	4/26/00	13	13 (100%)
NRIS/ArcExplorer/Arcview (Geo Info Sys)	Oklahoma City, OK	4/27/00	13	13 (100%)
2D/3D Seismic (OGS, OCGS)	Oklahoma City, OK	5/17/00	71	64 (90%)
Coal Bed Methane (OGS, TGS)	Tulsa, OK	5/24/00	105	87 (83%)
NRIS/ArcExplorer/Arcview (Geo Info Sys)	Oklahoma City, OK	5/24/00	15	15 (100%)
Internet Mapping Applications (Geo Info Sys)	Oklahoma City, OK	5/25/00	11	11 (100%)
Electricity Efficiency and Restructuring (MWC)	Pawhuska, OK	6/13/00	19	19 (100%)
NRIS/ArcExplorer/Arcview (Geo Info Sys)	Oklahoma City, OK	6/14/00	12	12 (100%)
Electricity, Efficiency and Restructuring (MWC)	Ardmore, OK	6/15/00	10	10 (100%)
Internet Mapping Applications (Geo Info Sys)	Oklahoma City, OK	6/15/00	11	10 (91%)
Hartshorne Play (OGS, OCGS)	Oklahoma City, OK	9/27/00	30	25 (83%)
Hartshorne Play (OGS, TGS)	Tulsa, OK	9/28/00	22	17 (77%)
Total FY00 Attendance (42 Events)			1289	1189 (92%)

Application: 44% 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 22 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	334	2,232		Nov (7988)	High workshop activity is possible by leveraging efforts through the Oklahoma Geological Survey, OU Geo Information Systems and Marginal Well Commission.
2 nd Qtr	365	2,119		Jan (7376) Feb (7561)	
3 rd Qtr	315	2,278		Apr (7936)	
4 th Qtr	315est	2,607		Sep (6091)	
Total FY00	1,329				

Regional Website: Usage statistics (not with WebTrends software) show traffic remaining steady. Online access to digital O&G data, a prominent function of some PTTC regional sites, is provided separately for Oklahoma through OU Geo Information System’s (OU GIS) NRIS website. Considering the high workshop activity, online registration is a key website feature. The Oklahoma Geological Survey (OGS) has provided oilbay.com, a regional information provider that has Oklahoma Corporation Commission information online, with a listing of all cores and samples and discussions about providing additional data have occurred.

Workshops/Events: The combined resources of OGS, OU GIS, Marginal Well Commission (MWC) and Oklahoma City and Tulsa Geological Societies delivered 42 workshops during FY00 covering technology, geology, operations/field topics for the small operator, and Internet/data access. Of these, 17 were cooperatively with the MWC, 12 with OU GIS, and eight with the Tulsa or Oklahoma City Geological Societies. Workshops with the geological societies are half-day versions of previously developed technology workshops. Technical content for all but the MWC and OU GIS workshops is primarily developed by OGS. OGS also develops professional publications for its major technology workshops. The region also worked cooperatively with the North Midcontinent Region to develop “Independents IOR” day at the SPE/DOE IOR Symposium in Tulsa. Forty-nine workshops are planned during FY01. Addition financial commitment from OGS makes this level of effort possible.

Resource Center: Roger Slatt, new director of the School of Geology and Geophysics at OU, is exploring development of a software training center similar to that established in the Rocky Mountain Region. If this effort materializes, the region may provide some support. Producers receive library support from OGS library and the Youngblood Geological Library located at OU—none of which receive support for library functions from PTTC funds.

Outreach/Contacts/Newsletter: The region averages more than 5 contacts per day, not including contacts made by MWC or OU GIS. A quarterly newsletter is distributed to more than 7,500 individuals. Newsletter content focuses on previews/summaries of workshops and upcoming workshop information. PTTC information is part of the OGS exhibit, which was taken to: (1) GIS day at the Capital (April), (2) AAPG annual meeting (April in New Orleans), and (3) MWC Trade Fair in Tulsa (May 12).

Problem Identification: Industry needs and directions for future activities are determined through PAG input and interaction with workshop attendees/resource center contacts. Close relationships with the MWC help target activities to the needs of smaller operators.

Follow-up: Follow-up is conducted informally during breaks at workshops and through resource center contacts. Consensus from feedback is that the region is an important resource for smaller operators.

Case Studies: Although case studies are actively sought and some operators indicate that they have them, it is rare that they are willing to share their insights, citing competitive concerns.

PTTC Southwest Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			522	426 (82%)
Combined CO ₂ Recovery Forum and Naturally Fractured Reservoir Forum (w PRRC)	Socorro, NM	10/28/99	48	26 (54%)
Compressor Noise Abatement (NMOGA,/PRRC)	Farmington, NM	10/29/99	110 estimated	100 (91%) estimated
CEED CO ₂ Conference (CEED, PTTC Texas, SPE, Shell CO ₂ , Mobil)	Midland, TX	12/7-8/99	Reported by Texas	
Technology Updates for the Permian Basin	Hobbs, NM	4/6/00	23	20 (87%)
MesaVerde Tight Gas Infill Drilling	Farmington, NM	5/11/00	46	40 (87%)
Cosponsor session @ Rocky Mountain AAPG mtg	Albuquerque, NM	9/17/00	152	118 (78%) estimated
Cosponsor Wettability Forum	Socorro, NM	9/26-28/00	75	32 (43%)
Total FY00 Attendance (6 events)			454	336 (74%)

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 one workshop)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	142	6252	59870	Dec (3400)	Region receives high website usage, much of it related to production data. Outreach and problem identification rely heavily on one-on-one or small group meetings with operators.
2 nd Qtr	150est	12021	54060	Online	
3 rd Qtr	150est	12555	138574	Online	
4 th Qtr	158	14309	124972	July (3200) + online	
Total FY00	600				

Regional Website: Website statistics reflect usage of both the PTTC website and the GO-TECH, the pre-PTTC website. Statistics reflect a steady growth in website traffic. Average session length is in the 10-15 minute range. Providing access to New Mexico production data is an important function with as much as 90% of the traffic being for production-related data. Search capabilities and the Excel module for plotting production data were upgraded. A well information database containing production data from 1970 and information on all wells, including dry holes, has been developed for all counties except Lee, Chaves, Eddy, San Juan and Arriba. Cumulative production data were updated in some databases. Download speed for the online newsletter was improved by making it available in smaller segments. The website experiences an overall update at least annually.

Workshops/Events: Geological, engineering and operational topics were covered during the six workshops (plus the CEED conference reported under the Texas region) conducted by the region. Locations were split evenly between northwest and southeast New Mexico. The fractured reservoir and infill drilling topics dealt primarily with realizing gas potential in northwest New Mexico, while the noise abatement workshop addressed an emerging problem there. The other workshops addressed problems/opportunities prevalent in southeast New Mexico. Several topics were covered in the Permian Basin technology updates workshop, including vapor recovery technology information coordinated through Bob Kiker, Texas’s Permian Basin Mentor. Six workshops are planned during FY01.

Resource Center: Being remote from producers, resource center activity consists primarily of responding to industry inquiries. When needed, industry has access to the information resources of the Petroleum Recovery Research Center and NM Bureau of Mines and Mineral Resources.

Outreach/Contacts/Newsletter: Contacts, which are suspected to be under-reported, average more than two per day. Staff proactively visits operators, nearly 20 during FY00, in their offices/locales. In many of these visits, staff assists in installing software for electronic filing and/or demo data access capabilities through the Internet. Staff was recognized by New Mexico's Oil Conservation Division (OCD) for their work in helping operators learn how to file information electronically. Staff also interacts with NM State Land Office and OCD staff. Discussions during these personalized visits provide very specific input for the problem identification process. Specific actions are typically taken for consensus needs. Example actions include: (1) installing a satellite in Roswell to speed Internet access and (2) forming study groups to address corrosion and wellbore management issues. Current circulation of the semi-annual PRRC newsletter is 3,200 with about 70% being from industry. PTTC has a section within it to convey technology information and alerts about upcoming events. An online newsletter, the *Southwest Regional Review* with Permian Basin and San Juan Basin segments, supplements the newsletter outreach.

Problem Identification: During visits early in the year, operators identified the following problems: (1) computer technology (high speed Internet access issues), (2) water disposal issues, and (3) noise abatement issues (Four Corners area). Later visits with producers in Artesia confirmed that water disposal and other environmental issues were concerns. Corrosion control, paraffin control and wellbore management were cited in visits to other producers. Study groups or workshop development efforts addressing these issues are in progress. Feedback from this year's infill drilling workshop is leading to further work on the Infill Drilling calculator spreadsheet and on the IPR curve analysis work.

Follow-up: Follow-up is conducted informally during visits, breaks at workshops, and during resource center contacts. Producers recognize PTTC's impact through its work in providing Internet data access and the action steps taken in response to personalized visits.

Case Studies: A case study building on a DOE-funded project for targeted infill drilling in naturally fractured reservoirs is being pursued with Dr. Larry Teufel, the NMT researcher. Burlington Resources and Kinder Morgan contributed a case study on CO₂-enhanced coalbed methane to PTTC/*World Oil's Petroleum Technology Digest*.

PTTC Texas Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance*			163	135 (83%) estimated
Oil & Gas on the Internet (w AAPG)	Farmers Branch, TX	10/2/99	Not reported	Not reported
3D Geophysics for Geologists (w East Texas Geological Society)	Tyler, TX	10/18-21/99	24	20 (83%) estimated
Developing a Model for Coal Bed Methane Exploration Fairways and Gas-In-Place Analysis in Texas (w S Texas Geological Society)	San Antonio, TX	11/10/99	72	65 (90%) estimated
CEED CO ₂ Conference (CEED, PTTC Southwest, SPE, Shell CO ₂ , Mobil)	Midland, TX	12/7-8/99	118	100 (85%) estimated
Reservoir Characterization Technologies for the New Millennium	Midland, TX	2/1/00	26	18 (69%)
Vapor Recovery Workshop	Midland, TX	2/17/00	16	10 (63%)
Coalbed Methane Workshop (Houston Geol. Society)	Houston, TX	3/9/00	46	37 (80%)
Mini-workshops & Virtual Reality (WeCTOGA, BEG)	Abilene, TX	4/4/00	14	12 (86%)
Mudlogging			8	8 (100%)
Vapor Recovery				
Mudlogging (part of Southwest workshop)	Hobbs, NM	4/6/00		Reported by SWest
Virtual Reality Demonstration (NTOGA, BEG)	Wichita Falls, TX	4/26/00		
Virtual Reality Demonstration (PPROA, BEG)	Amarillo, TX	5/2/00		
CO ₂ Workshop (PBPA Energy Appreciation Week)	Midland, TX	5/2/00	12	11 (92%)
Putting the Internet to Work (TIPRO & others)	Dallas, TX	5/11/00	210	190 (90%)
Distributed Energy Resources (w Central Gulf)	Houston, TX	5/15/00		Reported by C Gulf
ECAP and Electronic Info. Resources Seminar (RRC)	Midland, TX	5/16/00	96	94 (98%)
ECAP and Electronic Info. Resources Seminar (RRC)	Houston, TX	5/19/00	69	68 (99%)
ECAP and Electronic Info. Resources Seminar (RRC)	Pampa, TX	5/25/00	31	23 (74%)
ECAP and Electronic Info. Resources Seminar (RRC)	Corpus Christi, TX	5/25/00	16	13 (81%)
Minimizing Energy Costs (TEC)	Odessa, TX	6/9/00	24	6 (25%)
Minimizing Energy Costs (TEC)	Irving, TX	6/12/00	15	5 (33%)
Minimizing Energy Costs (TEC)	San Antonio, TX	6/13/00	5	5 (100%)
Total FY00 Attendance (17 events)			802	685 (85%)

Application: No data is available on the % of producers answering the question on the workshop feedback form "Have you used any new technologies gained through PTTC events?"

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	219	NA	NA	None	
2 nd Qtr (TIPRO)	539 (2,777)	8,785 (49,548)	10,681 (1,359,609)	Assoc. Newsletters	
3 rd Qtr (TIPRO)	550 (2,953)	10,916 (47,409)	12,983 (1,096,165)	Assoc. Newsletters	
4 th Qtr (TIPRO)	323 (2,766)	10,708 (58,449)	14,469 (934,608)	Assoc. Newsletters	
Total FY00	1,631				

Regional Website: Basic website traffic is analogous to that reported by other PTTC regions. Expanded outreach traffic reflects sections of website related to Texas Region's emphasis, conducted by TIPRO, on increasing independent producers knowledge and use of the Internet. Additionally, data/information of specific interest to Permian Basin operators is being provided on a website at CEED (directly linked to PTTC website). Unique sections of the basic website include "Best of PTTC" and "Best of DOE." There are also numerous links to PTTC's national website for calendar, technology summaries, and case studies. A unique feature, now made available across the PTTC system, is a "search the PTTC" system. TIPRO reports over \$19,000 of revenue from advertising and web hosting on the Energy Connection.

Workshops/Events: The regional workshop program was significantly expanded, from five events during FY99 to 17 during FY00. Several cooperative efforts were notable, including: (1) four workshops on ECAP and Electronic Information Resources with the Texas Railroad Commission, (2) three energy cost workshops with the Texas Electric Coop association, (3) mini-workshops and virtual reality demos at association meetings, (4) the 1999 CEED CO₂ conference, and (5) the Distributed Energy Resources workshop with the Central Gulf Region. In the Internet realm, TIPRO organized a major event, "Putting the Internet to Work," in Dallas during May and the region supported two Internet training workshops with AAPG. Bob Kiker developed the mini-workshops on vapor recovery and mudlogging. Topics for other technology workshops, typically co-sponsored with professional societies, included 3-D seismic, coalbed methane, and reservoir characterization. Nine workshops are planned during FY01.

Resource Center: Through the Texas Bureau of Economic Geology, extensive geological and library resources are available for those willing to come to Austin. For the most part though, the resource center functions virtually as staff reach out across Texas.

Outreach/Contacts/Newsletter: The region averages over six contacts per day, not counting the extensive Internet-related contacts made by TIPRO, which exceed 40 per day. Bob Kiker has been instrumental in helping RLO staff connect with producing associations, getting permission for regular announcements in their newsletters and, in some cases, for mini-workshops or demos at their meetings. Combined circulation of the association newsletters is about 6,000. The East Texas Geological Society is also emailing news to their membership. Early in FY01, the region will develop its own newsletter, which will be mailed to a limited audience and placed on the website. Exhibits were staffed at producer association meetings (TIPRO, WeCTOGA, PPROA), professional society conferences (SPE Oil & Gas Recovery Conference in Midland, 1999 Permian Basin Safety & Environmental Conference), and other regional events (Southwestern Petroleum Short Course in Lubbock, Oil and Gas Clearinghouse auction in Houston). Partially because of his being the PTTC Mentor for the Permian Basin, Bob Kiker is involved in many technical conference-planning activities. He has also helped a Texas A&M R&D group working on water desalinization connect with interested producers. Through his efforts, some other groups have invited PTTC to be part of R&D proposals to DOE.

Problem Identification: Industry needs and directions for future activities are determined primarily through interaction with workshop attendees, resource center contacts, and Bob Kiker's personal networks. The region also actively responds to targets of opportunities for co-sponsoring workshops.

Follow-up: Bob Kiker has monitored impact of the mini-workshops on mudlogging and vapor recovery. Twenty mudlogging units involving nine mudlogging companies are now in use in Texas, Utah, Michigan, New Mexico, and Ohio. Involved producers include Anadarko, Geonatural Resources, Apache, Abraxas, and Conoco. The vapor recovery workshop stimulated a joint venture between vendors to offer the vapor jet recovery system. At least some of the increased interest in Texas in distributed generation can be attributed to the cooperative workshop by the Central Gulf and Texas regions.

Case Studies: Through Bob Kiker's efforts, a case study on vapor recovery technology was published in the September 2000 issue of PTTC/*World Oil's Petroleum Technology Digest*. Another case study on beam gas compression will appear in the March 2001 *Petroleum Technology Digest*.

PTTC West Coast Region

FY00 Workshops/Events				
Topic (main cosponsors in parentheses)	Location	Date	Total Attendees	Attendees from Industry (%)
Total FY99 Attendance			752	482 (64%)
Power Cost Reduction (w CIPA)	Long Beach, CA	10/28/99	27	14 (52%)
Power Cost Reduction (w CIPA)	Bakersfield, Ca	10/29/99	37	26 (70%)
Sand Control for California Oilfield Operations	Long Beach, CA	11/18/99	28	18 (64%)
Sand Control for California Oilfield Operations	Bakersfield, CA	11/19/99	26	15 (58%)
Reservoir Management-Slope and Basin Fields	Los Angeles, CA	12/10/99	53	27 (51%)
Applied Well Testing and Borehole Stimulation	Bakersfield, CA	1/20/00	18	16 (89%)
Applied Well Testing and Borehole Stimulation	Long Beach, CA	1/21/00	30	24 (80%)
Troubleshooters Field Visits	Southern California	2/17/00	See outreach discussion	
Coalbed Methane Opportunities for Independents	Anchorage, AK			
>> Short course		3/1/00	60	36 (60%)
>> Field trip		3/2/00	50	32 (64%)
>> Workshop		3/3/00	86	50 (58%)
Mapping and Locating Bypassed Hydrocarbons	Long Beach, Ca	5/22/00	45	22 (49%)
Mapping and Locating Bypassed Hydrocarbons	Bakersfield, CA	5/23/00	39	33 (85%)
Troubleshooter Field Visits	Southern California	5/00	Five visits	
“Independents Day” @ SPE LA Basin Annual Meeting	Long Beach, CA	6/21/00	110	90 (82%)
COMET 2000	Los Angeles, CA	7/9-14/00		
Surface Operations—Instrumentation and Control	Bakersfield, CA	8/17/00	29	16 (55%)
Surface Operations—Instrumentation and Control	Long Beach, CA	8/18/00	35	18 (51%)
Troubleshooter’s Forum	Bakersfield, CA	9/22/00	44	27 (61%)
Total FY00 Attendance (16 events)			717	464 (65%)

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 21 workshops)

Other FY00 Activity Indicators					
Time Period	Contacts	Website Usage (mo. avg.)		Newsletter	General Outreach/Comments
		User Sessions	Page Views		
1 st Qtr	190	NA	NA	Anniversary (1100)	Active workshop program serves both Bakersfield and Los Angeles Basin areas, plus 1 st major workshop in Alaska. Trouble Shooters provide individualized outreach to producers.
2 nd Qtr	995	NA	NA	CIPA weekly	
3 rd Qtr	922	NA	NA	CIPA weekly	
4 th Qtr	412	410	1,909	CIPA weekly	
Total FY00	2,519				

Regional Website: The region switched to a server that will allow use of WebTrends software during the fourth quarter. Initial lower than expected usage indicates that a promotional campaign is required to alert producers to the change and acquaint them with the resources available through the site. In addition to extensive national/international information and technology links, the website provides an extensive archive of multi-media material (webcasts, slide presentations, etc.) from past workshops. Access is also provided to the updated California oil and gas database.

Workshops/Events: The region participated in 16 workshops. Major topics included: (1) Power Cost Reduction, (2) Sand Control, (3) Reservoir Management, (4) Applied Well Testing, (5) Locating Bypassed Hydrocarbons, (6) Surface Operations, and (7) Coalbed Methane (Alaska). For most topics, workshops were held in both the Bakersfield and Los Angeles Basin areas. The coalbed methane workshop in Alaska, developed cooperatively with groups in Alaska, was the region’s first major event

there. It included a short course, field trip and workshop. A follow-on coalbed methane workshop is planned during FY01. Staff coordinated with SPE to develop "Independents Day" at the LA Basin annual meeting. Special activities include the Trouble Shooters Forum and COMET. The Trouble Shooters Forum provides opportunity to report actions taken by producers to solve specific problems and acquaints producers with opportunities within DOE's Technology Development with Independents program. Thirteen workshops are planned during FY01.

Resource Center: Resource Center Activity consists of three primary activities—responding to inquiries, performing preliminary analyses for the Trouble Shooters program, and coordination of the Trouble Shooter visits. For the most part, the center functions as a virtual entity.

Outreach/Contacts/Newsletter: Contacts approach 10 per day, not including focused mailings to the regional audience. Frequency of the regional newsletter has been reduced from quarterly to an annual issue (for the December Anniversary Forum) distributed to about 1,100 individuals representing past workshop attendees. Additional promotional coverage is realized through periodic announcements in CIPA's Monday Morning Report. The Trouble Shooters Program is a major outreach program. Interested producers describe the problems for which they would like assistance. Without revealing the company name, the Trouble Shooters (whose qualifications/experience are reviewed and approved by the PAG) then indicate which problems they feel qualified for and have interest in working on. Producers are then allowed to choose from the Trouble Shooters who expressed interest. PTTC funds a few hours effort by the Trouble Shooters to work with the producers and identify appropriate solutions. Several Trouble Shooter field visits were made in southern California, recommendations developed, and findings shared in the annual Trouble Shooters Forum. PTTC also provides a limited degree of support for the COMET program. The COMET program provides on-campus training in petroleum geosciences to students and selected teachers. Students then complete a one-month internship working in industry. This year, 27 students and one science teacher completed the training.

Problem Identification: West Coast PAG has formed a program committee, including representatives from Aera Energy, Pacific Operators Offshore, Nuevo Energy, Patriot Resources, Krummrich Engineering, and Oxy. This group considers feedback from workshop participants and resource center contacts in determining which topics should be covered by workshops during the coming year. Based on collective input, five topics were selected to augment the already planned workshops on coalbed methane, Trouble Shooters Forum, and reservoir management.

Follow-up: Working with funding from the California Energy Commission (CEC) and Electric Power Research Institute, the region is implementing a program designed to assist independents in reducing electricity consumption and costs. Teams will visit up to 60 of California's fields and prepare recommendations for updating equipment and devising alternative approaches to reduce power consumption. As allowed, findings will be transferred through PTTC.

Case Studies: Two regional activities, the Trouble Shooters Forum and Anniversary Forum, have a strong case study emphasis. Case studies are also typically part of each workshop.