With the acquisition of substantially all of the operating assets of Halliburton's seismic businesses, an extensive reorganization is in progress. The combination of technology and expertise of these two well-established firms has broadened Western's business base and increased crews and experienced personnel.

The wide open spaces of the Permian Basin are the setting for renewed seismic exploration. Crews 738 and 787 put on their bandanas to tackle the desert-like environs and scalding-hot sands of the Llano Estacado.

While the Challenger crew performed the first 3-D survey in the icy Black Sea, Western crewmembers entered the foggy foothills of Transylvania to survey the fertile patchwork of Romania.

**President's Page:** Former HGS vibrators onsite in the Permian Basin.

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**Front Cover:** Scalding-hot gypsum dunes (foreground) and the semi-desert terrain of the Permian Basin provided a unique work environment for crews 738 and 787. Both crews were recently added as a result of the HGS acquisition and are working under the direction of the Midland office.

*(Photo courtesy of Willard Clay/Tony Stone Worldwide.)*

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Six months ago, an appeal was made to all employees to accept the challenge of a quick and smooth integration of Western and former Halliburton Geophysical Services (HGS) operations. With the exception of the normal delays associated with providing proper facilities, I am pleased to report that this transition has been completed.

Such a successful transition is a tribute to hard work on the part of all employees, and the effective manner in which the transition was completed will help to build a strong base upon which our company will continue to grow and prosper.
The requirement to support dual systems in numerous areas of field acquisition and data processing has created additional tasks for many operations groups. However, as we continue to work toward support of an overall enhanced operating system that encompasses acquisition, processing, financial reporting, and future development, this temporary inconvenience will disappear.

The speed and effectiveness with which integration of the two firms has been accomplished allows us to once again focus on quick turnaround of quality services. While we appreciate the support and patience of our clients over the last six-month period, Westerners must continue to demonstrate that consolidation of these pioneer companies will indeed result in benefits to our customers throughout the world.

My congratulations to all employees for your unselfish dedication that has contributed to this major achievement. Let's keep up the hard work and good communication as we resolve the remaining issues in the near future.

PRESIDENT, WESTERN GEOPHYSICAL
In 1969, Di Battista joined Western Ricerche (a subsidiary of Western Geophysical) in Italy as a data processing analyst. Following a brief overseas experience in Norway, he was transferred to Western's London office in 1980 with the task of developing the onshore seismic processing business. In 1982, Di Battista was promoted to manager of EAME Land Data Processing, and a few years later he assumed responsibility for marine processing.

Judy Adams has been appointed Houston processing center manager. She will be responsible for land and marine processing and computer support services in Houston and New Orleans. Adams began her 12-year career with Western in 1978 as a geophysical technician and, since then, has advanced through the ranks of analyst, supervisor, and manager.

John Gillooly, as Houston land data processing manager, will be responsible for all land processing activities. Gillooly joined Western in 1977 as a marine geophysical technician. Having progressed to junior analyst, analyst, and supervisor, he became data processing quality control supervisor in 1983. Gillooly was named Land Processing Department supervisor in 1987.

Walt Ritchie has been named general manager of Western Hemisphere data processing. During his more than 25 years with GSI/HGS, Ritchie held numerous technical and management positions. He served, most recently, as vice president of Worldwide Data Processing. Reporting to Ritchie are Judy Adams, John Gillooly, Dennis Gallagher, and Jeff Omvig.

Jeff Omvig has been named Denver processing center manager. Omvig joined Western in 1984 as a geophysical analyst in the Denver processing center. He has served in a variety of processing positions, including group leader, remote cen-
coordinate all marine processing operations in Houston. Having joined Western in 1980 as a geophysical technician, Gallagher became marine processing group leader in 1981 and assistant supervisor in 1990. He was named marine processing manager in Western’s Denver office in 1991.

**EAME Marine Operations**

*Ugo Picchiani,* recently named general manager of EAME marine operations, came to work for Western in 1957 as an assistant supervisor on a land crew. Since that time, his work with Western has taken him to many foreign lands where he served in both operations and processing posts. Picchiani has managed various areas of EAME-based marine operations from the London office. He was named manager of marine technology in 1993.

**Latin American Operations**

*Richard Degner* and Kirk Girouard have been named area managers for Western Geophysical operations in Latin America. Degner will manage seismic operations in the northern region (Mexico, Venezuela, Colombia, Ecuador, Central America, and the Caribbean); Girouard will manage operations in the southern region (Argentina, Brazil, Bolivia, Peru, and Paraguay). Both Degner and Girouard will continue to be based in Western’s Houston headquarters.

Degner, who joined Western Geophysical in 1984, has served in Latin America and Africa in a variety of supervisory capacities and as technical coordinator for Western Hemisphere operations. He was named U.S.-based manager of Europe/Africa/Middle East (EAME) operations in 1993.

**China Operations**

*Chuck Toles* has been appointed general manager of China operations. He is based in Houston after spending nearly three years as area manager for the Far East and Australia.

Toles began his career with Western in 1981 as a geophysical trainee. He quickly moved through the ranks of assistant party manager, party manager, and supervisor to become manager of South Texas crews in 1989. Toles transferred to Singapore as manager in 1991.
Legal Department

Tom Mirczak has been named senior attorney and is based in London. Prior to his appointment to this newly created post in Western's EAME headquarters, Mirczak was legal counsel for the former HGS France and Africa operations.

Mirczak's career began in 1979 when he went to work for the geophysical and scientific equipment division of Texas Instruments in Houston. In 1980, Mirczak was transferred to Geophysical Services, Inc. (GSI) in Bedford, England, where he served as legal advisor for Central and South America. He returned to Bedford in 1989 as legal advisor for the former HGS EAME operations, and transferred to London as counsel for France and Africa operations in 1993.

Western Hemisphere Marine Operations

William Rabson

William Rabson has been named manager of the recently consolidated Western Hemisphere marine, transition-zone, and ocean bottom-cable operations. Having joined Western in 1982 as a marine helper, Rabson became a geophysicist in 1984. He has supervised Western's bottom-cable marine operations since 1991.

Western Hemisphere Land Operations

Shawn Rice has been named manager of Alaska operations. Rice began work for Western in 1984 as a geophysical trainee on Party 734 in Montana. Besides managing both land and marine crews, he has served as a geophysicist, program development supervisor, and supervisor of Alaska marine operations.

Technology

Paul Morgan

Paul Morgan has been named vice president of product engineering and manufacturing. Since Morgan joined Digital Data Systems (the predecessor of Western's manufacturing group) as a design engineer in 1972, he has held various engineering positions, including chief engineer and manager of engineering development. Morgan was named vice president of Western Geophysical Exploration Products in 1991.

Gerry Gilbert

Gerry Gilbert has been named vice president of technology for Western Geophysical. He is based in Western's headquarters in Houston. Assuming new management posts within Western's technology department are Paul Morgan, Dr. Craig Beasley, and Rick Workman.

Gilbert's career with Western Geophysical began in 1991 as manager of Western's new ventures department in London. He became general manager of land operations in Europe, Africa, and the Middle East in 1992. Gilbert has an extensive background in foreign operations, having served as vice president of worldwide geophysical operations for Halliburton Geophysical Services and vice president of global marine seismic activities for Geophysical Service, Inc.

Danny Stegall

Danny Stegall has assumed responsibilities as vice president of Western Hemisphere marine, ocean bottom-cable, and transition-zone operations. Having joined Western in 1971, he has served in several management capacities, including marine manager for Latin America and West Africa operations, manager of EAME operations, and vice president of EAME marine operations.

Dr. Craig Beasley

Dr. Craig Beasley has been promoted to general manager of research and development. Beasley joined Western in 1981, and has served in various capacities in Western's computer science and
geophysical research and development departments, including manager of Western's Singapore research and development group in 1990 and manager of geophysical research in 1992.

Kathy Morel

*Kathy Morel* has been named manager of Western’s New Orleans Data Storage (NODS) facilities. Morel joined Western in 1983 as secretary for the southeastern U.S. operations group. She later advanced to office manager and has been directing NODS activities for the past 11 years.

Exploration Products Sales/Marketing

Don Stewart, formerly director of sales and marketing for Canadian Foremost, has over 15 years of experience in marketing all-terrain equipment within the seismic industry. He was named sales manager of Western Geophysical Exploration Products in 1992.

Dr. Rod Cotton

Dr. Rod Cotton began his 29-year career as an area geophysicist for Geophysical Service, Inc. (GSI) in Croydon, England, and later became area geophysicist in Singapore, eventually assuming responsibility for marine operations technical support. During his career with GSI, he made significant contributions to early 3-D seismic surveys and airgun array design. In 1992, Cotton became manager of training and product development for the former Halliburton Geophysical Services.

Tony Scales

Tony Scales has been appointed director of sales and marketing with additional responsibilities in product training. Jack Bull, Dr. Rod Cotton, and Don Stewart have also been appointed to key positions in product sales and marketing. Bull is manager of product marketing; Cotton is manager of training and development; and Stewart is manager of product sales.

Scales has over 20 years experience in the seismic industry. He began his career as a field seismologist and most recently has served as manager of product sales for the former Halliburton Geophysical Services.

Rick Workman

Rick Workman has been named general manager of applied geophysical research. Workman joined Western Geophysical in 1982 as an area geophysicist in Singapore, where he served as technical liaison with clients throughout the Asia-Pacific region and with other Western offices. Since his transfer to Houston in 1989, he has held positions as assistant manager and manager of Western Research and coordinator for geophysical research and development.

NODS – New Orleans

Rick Chandler has been promoted to supervisor of Western’s New Orleans Data Storage (NODS) facilities. Chandler joined Western in 1985 as a data entry clerk. In 1992, he advanced to the position of data coordinator.
crew and transferred to marine operations the same year. He became instrument supervisor in West Coast and Alaska operations in 1980. Since then, Brown has served as instrument supervisor for Western’s Gulf Coast and Alaska operations and for South America marine operations.

**Ron Hawkins**

Ron Hawkins has been appointed manager of the electronics manufacturing group. He joins Western Geophysical Exploration Products after spending 15 years with the former Halliburton Geophysical Services (HGS). Having served in various management capacities in the production and manufacturing of geophysical products, he was most recently HGS general plant manager.

**Jeff Howell**

Mike Bertness has been named HSE land operations manager. Bertness joined Western as a field HSE advisor in 1988. After several years in the field, he was appointed manager of HSE training and compliance where he conducted training courses and managed the overall training effort and federal compliance issues.

**Vicki Huebler** has been appointed manager of HSE training and compliance. Possessing 12 years of seismic industry experience, Huebler joined Western in January as part of the HGS acquisition.

**Steve Sohrensen**, joining us from HGS, is HSE supervisor for North America land operations. He is responsible for safety programs on 18 crews.
THE CHANGING FACE OF WESTERN

The first quarter of 1994 has brought many changes that have affected Litton Industries, Western Atlas, and Western Geophysical. Having put forth efforts and ingenuity, Westerners have and still are experiencing tremendous changes of far-reaching consequence.

The sense of awe that permeates every segment of Western Atlas from the corporate boardroom to employees working throughout the world bears witness to the rapid changes that have already come to pass in 1994 and those that wait in the wings of the future. Western Atlas Inc., as a new public company, is now poised for future growth and Western Geophysical has completed a buyout that will affect the entire geophysical industry.

Simple Division

WESTERN ATLAS GOES PUBLIC

In the summer of 1993, Litton Industries announced plans to spin off its commercial companies (which included its ownership in Western) as part of a new, publicly traded company. The spin-off, which was completed in March, resulted in a new public company called Western Atlas Inc.

Formed from Litton’s commercial businesses, Western Atlas Inc. is a $2 billion organization that is a global provider of oilfield information technology and industrial automation. Headquartered in Los Angeles, California, the company operates in over 50 countries. Total employee count is estimated at nearly 15,000 people. Combined production facilities are located in Canada, Germany, the Netherlands, the United Kingdom, and the U.S. with support and service centers in many other countries.

The primary business segment of Western Atlas Inc. is oilfield information services. Known as Western Atlas International, Inc., its divisions include Western Geophysical, Atlas Wireline Services, and Western Atlas Software. These divisions provide land/marine seismic, well logging, reservoir description, software development, and oilfield service equipment manufacturing. Customer base of this segment is comprised of private sector firms and government-owned oil companies worldwide.

The second business segment of Western Atlas Inc. is industrial automation systems, which includes integrated manufacturing systems for the automotive and off-road vehicle industries, automated data collection systems for manufacturing and distribution applications, and material handling/management systems. This segment is comprised of Intermech Corporation, Lamb’s Technicon-U.S., Assembly and Test, Automotive Systems, Technicon—Canada, Technicon—UK, and Unima divisions, VantageWare, Material Handling Systems, Landis, Landis Lund, Gardner, and CITCO. Clients are the global automotive and off-road vehicle industries, manufacturing, food and beverage, package handling and retail/distribution, as well as electronics and aerospace businesses.

As a result of the spinoff, Litton Industries is now made up only of defense-related businesses. Besides allowing Western Atlas a better focus on the distinctly different oilfield information and industrial automation markets, the separation offers the new company significant flexibility for future growth through internal investments and acquisitions.

Top Management Team

Elected officers of Western Atlas Inc. are Board of Directors Chairman and CEO Alton J. Brann (the former president and CEO of Litton Industries since 1990); Board of Directors Vice Chairman and Chief Financial Officer Joseph T. Casey (who formerly held the same position at Litton); Executive Vice President and Chief Operating Officer of Industrial Automation Systems John W. Paxton (a former Litton senior vice president); Executive Vice President and CEO of Oilfield Services John R. Russell (the former Litton senior vice president and president/CEO of Western Atlas International since 1991).

Brann joined Litton’s Guidance and Control Systems division in 1973. Moving through technical and management positions of increasing responsibility, Brann was named president of the division in 1983. In 1984 he was elected Litton corporate vice president and in 1986 was appointed group executive of Navigation, Guidance and Control Systems operations. The following year Brann was elected a corporate senior vice president, and in 1988 assumed responsibility for Litton’s Components and Industrial Products businesses.

Brann was elected president and chief operating officer of Litton in 1990. A month later, he was elected to the board of directors and its executive committee. He became the CEO of Litton in 1992. Brann holds a degree
in mathematics from the University of Massachusetts at Boston.

Joseph T Casey joined Litton as corporate controller in 1963. He was named vice president and chief financial officer in 1967, senior vice president for corporate financial affairs in 1969, and executive vice president in 1976. In 1981, he was elected to the Board of Directors and became vice chairman in 1988. Casey holds a B.S. degree from Fordham University.

John W Paxton had been president and CEO of the Intermec Corporation when that company was acquired by Litton in 1991. He continued as Intermec division president, and in 1992 assumed additional responsibility for Litton's Material Handling and Software Systems divisions. Since 1992, he had been a Litton senior vice president and head of its Industrial Automation Systems business.

John R. Russell joined Litton's Western Geophysical division in 1969, became controller the following year, and in 1973 was named division vice president of finance. From 1983 to 1987, Russell was a senior vice president of finance and administration for Litton Resources group. When Dresser Atlas*, a division of Dresser Industries, was combined with the Litton group in 1987, he assumed the position of chief financial officer. In 1990, Russell was appointed executive vice president and chief operating officer of Western Atlas International, and in 1991 became a Litton senior vice president and president and CEO of Western Atlas International. Russell holds a B.A. from the University of Oklahoma.

**Board of Directors**

In addition to Brann, Casey, Paxton, and Russell, outside directors serving on the Western Atlas Inc. board are Paul Bancroft, III., an independent venture capitalist and retired president/CEO of Bessemer Securities Corporation, William C. Edwards, venture capital investor and a partner of Bryan & Edwards, Clare W Gargalli, vice chairman of Diversified Search Companies and former chairman/CEO of Equibank; Orion L. Hoch, chairman emeritus of the board of Litton Industries, and Steven B. Sample, president of the University of Southern California.

**Slate of Officers**

A total of 17 corporate officers of Western Atlas Inc. have assumed their responsibilities. Joining Brann, Casey, Paxton, and Russell are Senior Vice President and General Counsel Norman L. Roberts, Senior Vice Presidents Orval F. Brannan and Damir S. Skerl of Western Atlas International (oilfield services), Vice President and Associate General Counsel Daniel S. Bishop; Vice President - Corporate Development George E. Boullianne; Senior Vice President and Group Executive – Manufacturing Systems William Bournias, Vice President and Associate General Counsel Francis L. Crowley, Jr., Vice President and Controller Charles A. Cusumano; Vice President and Treasurer Michael E. Keane, Vice President – Corporate Communications/Investor Relations and Civic Affairs Dirk koerber; Vice President and Secretary Virginia S. Young; Vice President Charles E. Wolfbauer from Lamb Technical, and Vice President Timothy A. Koogle from Intermec.

**Distribution of Western Atlas Shares Completed**

**WESTERN ATLAS STOCK LISTED ON NEW YORK AND PACIFIC STOCK EXCHANGES**

Distribution of shares of common stock of Western Atlas as a dividend to holders of Litton Common Stock was formally completed on March 17. Under the terms of the transaction, Litton shareholders of record at the close of business on March 14 received one share of Western Atlas Common Stock for each share of Litton stock owned.

As of March 17, Western Atlas shares are traded on the New York Stock Exchange and the Pacific Stock Exchanges under the symbol WAI. Western Atlas shares are part of the Oilwell Equipment & Services industry group within the S&P 500 Index. Shares of Litton, the defense/aerospace company, will continue to trade under the symbol LIT on the New York, Pacific, and other exchanges.

As a result of the recently completed distribution, Western Atlas had approximately 45.8 million shares outstanding and approximately 38,000 shareholders of record. The distribution agent is Chemical Bank.

**First Quarter Results**

“Our new fiscal year started with an improvement over the final two quarters of 1993,” says Chairman and CEO Alton J. Brann. “Both our oilfield services and industrial automation segments reported better results than during those periods. First quarter activity in our oilfield services segment recovered from the depressed level at the end of calendar year 1993. While low oil prices still limit the business opportunities in the global energy sector, our ability to provide the services that directly reduce oil companies’ finding costs enable us to achieve positive results even in an uncertain market environment.

“The geophysical operations we recently acquired from Halliburton are providing an additional basis for growth primarily in our seismic land activities,” says Brann.

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* Dresser Atlas was renamed Atlas Wireline Services after the purchase.
Former Western Geophysical President Booth Strange (left) wishes Charles Dick a happy retirement. Senior Secretary Judy Smith planned the festivities.

CHARLES DICK RETIRES AFTER 44 YEARS

Westerners gathered at the Houston headquarters on March 29 to wish Health/Safety/Environment (HSE) Manager Charles Dick well in his retirement. Numerous employees, friends, and retirees stopped in at the farewell celebration to chat with Charles about his 44-year career with Western.

That career started in 1949 when Charles, a graduate in electrical engineering from Yale University, knocked upon Western’s door. Charles joined the company as a “computer” working on Party 35 in Midland, Texas. What followed was over six years on the “doodlebug trail” in the southwest U.S. In 1956, the then-party chief took a leave of absence to continue his studies at Stanford University where he received an M.S. in 1957.

Charles was promoted to supervisor and worked first out of Oklahoma City and then Midland. He moved to Houston in 1967. When the classification of area manager was created in 1967, Charles became one of the first to be appointed to this new post, becoming operations manager for the mid-continent area and technical coordinator of seismic systems. Actively involved in Western’s first vibroseis operations, he was named vice president of vibroseis operations in 1972.

Following a stint in Denver in 1973, Charles moved to international operations as chief geophysicist in 1986. Since 1991, he has been based in Houston headquarters, overseeing Western’s worldwide HSE group.

The next assignment for Charles and wife Betsy will be Austin, Texas, where they plan to enjoy their retirement on water skis.

NORTH TO ALASKA 40 YEARS AGO

“North to Alaska” was Ollie Krein’s goal when he came to Western Geophysical 40 years ago. It was here in this icy land that Ollie received his gold watch in honor of his retirement in June. Friends and coworkers gathered to honor Ollie for these many years spent with Western.

It seems Ollie fell in love with Alaska while serving in the army and decided then that he wanted to return to the frosty land after he was discharged from the service. Five years after joining Western, this South Dakota man got his wish. In 1957, Western sent Ollie to Alaska for six months. He never came back, except for an 11-month stint in Traverse City, Michigan, and Galveston, Texas.

IAGC is an international trade association founded in 1971 with its headquarters in Houston and offices in London. Its membership comprises the service companies that perform the majority of petroleum exploration and production geophysics worldwide and the exploration departments of both major and independent oil companies.
Hired as a shooter’s helper in Mobridge, South Dakota, in 1954, Ollie’s career with Western has taken him from shooter’s helper to shooter to driller to mechanic to shop supervisor. Who would have dreamed that a six-month tour of Alaska would turn into decades? Not only has Ollie been at home in his favorite state, but he has spent the past 40 years calling Western home.

MARTINEZ TAKES BEST PAPER AWARD AT MEXICO CITY SYMPOSIUM

Senior Research Geophysicist Dr. Ruben Martinez received an award for the best technical paper at the Sixth Symposium of Geophysicists in Mexico City in April. His paper entitled “Comparison of Different Noise Attenuation Methods” was presented at the 1994 conference of the Mexican Association of Exploration Geophysicists. A total of 45 technical papers were given during the conference.

Ron Bakke received wishes for a happy retirement in June along with a gold watch.

BAKKE RETIRES AFTER 35 YEARS OF SERVICE

Reporter Shawn Rice

Honored at a retirement dinner in June, Ron Bakke spent his 35-year career earning the respect and admiration of many Westerners and clients alike. Ron began his career with Western in 1958 as a shooter on Party 34 in Montana. He transferred to Libya that same year and spent four years operating as a driller. In 1962, Ron made his first stop in Alaska and a short 18 months later, travelled overseas to Aden (now South Yemen) where he spent the next three years drilling “deep holes.”

Ron returned to the U.S in 1966 and drilled throughout the Rocky Mountains and Alaska until 1969 when he was sent to Egypt. Here, he was assigned the title of “tool pusher” on the big rig operations underway. When Ron reached Galveston in 1976, he had worked his way up to field supervisor, purchasing and expediting equipment for Western’s overseas operations. In 1978, he returned to Alaska as supervisor of land operations and became Alaska land operations manager in 1991.

Besides being presented with a gold watch by Chief Operating Officer Richard White, Ron received well wishes for many relaxing years ahead from his many friends and coworkers who attended the formal dinner.

WESTERN AWARDED PERMITS FOR FAROE ISLANDS SURVEYS

Western Geophysical has been awarded permits for seismic exploration, data processing, and data interpretation in all three sectors offshore the Faroe Islands. The permits cover approximately 190,000 square kilometers of the Faroese Continental Shelf. The two-phase, two-year acquisition program is scheduled to begin in the summer. The R/V Western Sea Star has been assigned to the project.

A total program consisting of approximately 12,000 kilometers of nonexclusive data will be acquired over the three sectors using a digital 6,000-meter cable (125 meter by 480 channels) and a large Sleeve-Gun array. Both gravity and magnetic data will also be recorded. A Vertical Seismic Profile (VSP) in the Lopra-1 well will also be performed during 1994.

Exploration interest offshore the Faroe Islands is currently high due to recent discoveries in areas offshore the United Kingdom. This survey will complement other Western Geophysical surveys, including 8,300 kilometers of reprocessed data that extend from the United Kingdom waters into the Faroese Continental Shelf.

Western will provide training to Faroese personnel during all phases of acquisition, processing, and interpretation.
Editor’s Note. Western’s Total Quality Management (TQM) efforts have undergone a number of changes since the program's inception in 1992. Terry Lehmann has been appointed director of Western’s quality program, our corporate vision and mission statements have been refined, and a TQM advisor network has been established to aid in communication.

Focus on Communication

TQM DIRECTOR/COORDINATORS NAMED

Total Quality Management relies heavily on the concept that people must communicate well in order for results to be meaningful. Such communication is vital to improving the processes that link suppliers and customers. To oversee this vital function, Terry Lehmann has been named director of Western Geophysical's worldwide quality program. In addition to supporting regional TQM efforts, Lehmann's responsibility is to act as a focal point for TQM information, communicating activities and improvements throughout the organization.

Lehmann has served as training coordinator for Western Geophysical's Exploration Products Group since January. Prior to joining Western, Lehmann's responsibilities at Halliburton Energy Services’ Houston Learning Center included coordination of both technical and human resource development training. Lehmann also served as manager of training for the former Halliburton Geophysical Services North American operations and as worldwide data processing training coordinator.

To aid in the communication of TQM activities throughout Western’s worldwide organization, a staff of coordinators has been assigned to assist in the flow of TQM information. Coordinators include: Pete Bibby in London for the Europe/Africa/Middle East region, Dave Cunningham in Houston for Exploration Products, Martin Duley in Perth for the Far East Region, and Bill Parker in Houston for Western Hemisphere operations.

These coordinators are also charged with the responsibility of setting up and conducting team member skills training classes, providing awareness training opportunities, facilitating and monitoring team activities, acting as liaison to the Quality Leadership Team in the region, and identifying possible trainers and facilitators. Please feel free to submit suggestions and/or improvement ideas to your coordinator.

IMPROVING QUALITY AS A WAY OF LIFE

Total Quality Management (TQM), as the name implies, affects all (the TOTAL) of what we do. It is not something that we can separate out of our normal jobs to work on for one hour per week. Improvement of processes, like learning, needs to be an ongoing, lifelong journey. When we stop pursuing greater things and become complacent, then we fail to have the competitive edge that is increasingly required in today’s marketplace.

Regardless of position, title or function, quality improvement is part of everyone's job. As scientists in the geophysical industry, we naturally look for better, more improved ways of doing our work. This daily personal analysis and improvement of the processes that we undertake are critical to our success. Problem-solving is already a part of our way of life.

TQM offers a defined methodology for problem-solving and process improvement. It is not magical, but it offers a procedure, structure, and discipline to carry out problem-solving with the customers' needs in mind. TQM focuses on the prevention method of ensuring quality, rather than the detection method, which analyzes the processes involved and attempts to remove any root causes of problems before they occur.

TQM is not designed to replace good management decisions, rather it is designed to aid in the process of making those decisions by providing a dedicated team, responsible for conducting an appropriate investigation, scientifically analyzing the information, and coming up with recommendations for improvement based on team consensus. Involvement and participation of those experts in the process are key to the success of the team.

Above all, TQM helps to internally solve issues that are directly related to our customers' needs. Understanding and meeting those needs are vitally important to continued success of the organization. As we improve various processes, we will provide greater opportunity to become more efficient or productive, allowing more emphasis to be placed on the geophysical aspects of client projects.

As we describe more about the TQM program and related team activities, please remember that the quality improvement program does not exist so that we can have weekly meetings to solve one specific problem. Continuous improvement and the TQM methodology are useful in every phase of our work. Through training and practice, we can focus on both internal and external customers' needs as a Western way of life.

— Terry Lehmann
MARINE DATA AVAILABLE FOR RUSSIAN FAR EAST

Western Geophysical is assisting the Northeast Petroleum Operating Agency (NEPO) and Dalmorneftegoфизика Trust (DNMG) in the tendering process of off shore acreage from west of Sakhalin Island around the Russian Far East coastline to the East Siberian Sea.

An extensive inventory of regional seismic data is immediately available for licensing to interested oil companies. A new 5,000-kilometer speculative program has also been proposed for the Yuzhni and portions of the Southern Shantar areas, located northwest of Sakhalin Island and adjacent to the Sakhalin 4 block.

Western Geophysical, on behalf of DMNG and NEPO, has the authority to license available seismic data and geological and geophysical reports to interested firms for use in evaluating prospective areas of the Russian Far East.

Regional geological/geophysical reports are available for the following areas, East-Siberian Sea, Chukchi Sea, Anadyr Basin Onshore, Khatyryka Basin on and off shore, Northern Okhotsk Subbasin, six basins in the Bering Sea and northeastern Okhotsk Sea, and Shantar.

These regional reports, designed to assist oil companies in choosing priority areas, and seismic data are available through Western Geophysical's Houston and London offices. Western, NEPO, and/or DMNG will provide information concerning any aspect of licensing existing seismic data and reports and/or acquiring new geophysical data.

Through industry presentations and public announcements, Western also continues to market existing geophysical and geological data on behalf of data owners in the former Soviet Union. In addition to the Moscow marketing and operations office in which every division of Western Atlas is represented, Western has also established a center in Atyrau, Kazakhstan, in conjunction with joint venture Western EMBA Geophysical.

Equipped with RISC-6000 580 processing capabilities, the center generates exclusive and speculative data.

Inquiries regarding availability of marine seismic data in the Russian Far East should be directed to Gary Bennett 713-963-2166 or fax 713-963-2580, in Houston, Andrew Bishop in Isleworth, UK at 44-815-603-160 or fax 44-817-589-019; or L.E. Bratos at 713-963-2588, in Houston.

NEW BRAZIL ADDRESS

On your next trip to Brazil, be sure to stop by Western's new center of operations in Rio de Janeiro.

Operations headquarters in Brazil will be moving only three blocks from its previous location, 440 Praia do Botafogo is the new address effective July 1.

EXPLORATION OFFSHORE VIETNAM

Reporter Bob Will

Currently operating offshore Vietnam, P-116 crewmembers aboard the Western Atlas are using a dual-source, triple 3,800-meter cable configuration to acquire the first of three major South China Sea 3-D surveys awarded to Western's Far East division. The current 680-square-kilometer survey, being conducted on behalf of a consortium, is the first survey conducted by Western in Vietnam since the U.S. trade embargo was lifted in February.

The survey features many of Western's latest acquisition and processing technologies, including the WG-24 recording system, Western's proprietary SARGAS™ Differential GPS as the prime navigation system, real-time network coordinate processing using TOTALNET™ onboard final navigation data processing using UNAVCHK™, real-time seismic data capture using SEISPORT™ and onboard low-fold 3-D seismic data processing using OMEGA™. Upcoming surveys will increase in size with the second survey to encompass from 680 to 900-square-kilometers, the third survey will be acquired using four 3,000-meter cables.

Due to extreme pressure on oil companies for rapid assessment and development of the fields in these areas, the demand for onboard prelimi-
nary 3-D seismic data processing continues to increase, as does the desired quality of data. Western's proprietary technology will be employed to keep pace with the demand for up to 20-fold 3-D processing with 3-D migration on the remaining surveys. Other planned onboard processing activities include front-end production processing and creation of the final (DMO) velocity volume, requiring implementation of the new ULTRANET® technology and newly developed enhancements to the SEISPORT system facilitating real-time capture of data from all deployed channels.

*ULTRANET® is a registered trademark of Computer Network Technologies.

**TELECONFERENCING**

Video teleconferencing capabilities have been installed and are now in use between Western's centers in Houston and London. The system is being used successfully by various programming and systems support groups and accounting departments and by upper management for high-level conferences.

Video teleconferencing equipment was acquired with the former Halliburton operations. The Information Management Planning TQM team had previously suggested that video teleconferencing capabilities could help Western to reduce travel costs and could increase productivity between parallel organizations, such as those in London and Houston headquarters.

**NEW ORLEANS DATA STORAGE EXPANDS**

**Reporter Kathy Morel**

On December 15 last year, Western expanded its data storage operations to a second facility in the New Orleans area. This new facility called “Riverbend” is about 15 miles west of Western’s Metairie warehouse location.

The dock-high, 36,000-square-foot warehouse is specially designed to accommodate magnetic tapes, films, well logs, maps, and a variety of seismic record formats. The recent addition of the Riverbend facility increases the storage capacity of the New Orleans Data Storage (NODS) to a new total of approximately 64,000 square feet.

Three employees have been added to the NODS staff to handle the increased workload generated by some 67,000 cubic feet of new incoming client data. This data will be cataloged in the computer and shelved for quick retrieval.

Surveillance, fire protection, and a climate-controlled environment are offered for the maximum archival life of these vital data.

A partial renovation of the Metairie facility to create a new film library is presently on the drawing board. The library, expected to be complete in the fall of this year, will enable quick access to an extremely large volume of films.

**SOFTWARE DOCUMENTATION TAKES FOUR AWARDS IN STC COMPETITION**

Members of the Western Atlas Software (WASW) Documentation and Training Development group received awards for excellence in technical communication in January. Contract Technical Writer Ryan Bernard, SigmaView Project Manager Lois Darmon, and Editorial Assistant Heather Racicot were presented with the Distinguished Technical Communication Award, the highest level award given by the Society for Technical Communication (STC). The STC promotes quality in technical communication through education, national and local newsletters, seminars, and the annual competition. The society has over 16,000 members and 140 chapters worldwide.

The WASW Documentation and Training Development group, supervised by Sara Stewart, is responsible for creating on-line help, printed documentation, and training material for WASW products. They have also designed a Documentation Style Guide that sets documentation standards used by other divisions of Western Atlas.

The GRIDGENR User’s Guide, by Ryan Bernard, also received the STC Excellence Award in the Software User Guide category. Training Developer Jeri Hartman was honored with the Merit Award for the GeoLink Training Manual in the Training Material category.

Western’s OASIS Reference Guide, authored by Ryan Bernard and Technical Writer Dianne Ramsey, placed higher than any other entry in its category, receiving the Excellence Award for Software Reference Guides.
GEO ’94 — FOCUS ON THE MIDDLE EAST

In April, Westerners made their way to the oasis of Bahrain for the first geoscience exhibition and conference to be held in the Arabian Gulf region. Presidents of three Western Atlas divisions (Western Geophysical, Atlas Wireline Services, and Core Laboratories) were on hand to meet with exploration and development leaders from Saudi Arabia, the United Arab Emirates, Oman, Yemen, Bahrain, Iran, Egypt, Kuwait, and Qatar, as well as the international companies engaged in exploration in the Middle East.

The Middle East continues to yield important oil and gas discoveries, with some of the largest fields now being studied using advanced geotechnology. Although the States of the Gulf Cooperation Council represent nearly three-quarters of the world’s known reserves, the region’s share of world production is currently only about 25 percent.

A fallow in the discovery of new reserves since 1980 has resulted in an urgent need to balance resources and production. Middle East petroleum executives are attempting to raise capacity and double their search for energy reserves.

Geo ’94, sponsored by the Bahrain National Oil Company, the American Association of Petroleum Geologists, and the Dhahran Geological Society with participation by the Society of Exploration Geophysicists and the Society for Exploration of the Emirates, was held in response to requests from these regional national oil company executives for an international geoscience forum.

The conference focused on leading-edge geoscience technology and meaningful studies pertinent to the Middle East experience through over 100 technical papers and 50 poster presentations in addition to field trips, short courses, and a major exhibition of exploration technology. Over 600 delegates attended the conference.

Participating in the technical sessions with papers were Western Reservoir Geophysicist Philippe Doyen, Research Geophysicist D.H. Psaila, and Research Geophysicist Fred Barr.

Poster sessions on quality assurance of spatial sampling, advances in relative amplitude, 3-D acquisition geometry, and residual statistics were presented by members of Western’s Research and Development group. A session on the application of seismic resolution in Abu Dhabi was co-authored by Western.

WESTERN ATLAS DELEGATES PURSUE TRADE IN RUSSIA

In April, Western Atlas Chairman and Chief Executive Officer Alton Brann visited Russia with 28 other members of a U.S. trade delegation led by Commerce Secretary Ronald Brown. The group, which also included the Chairman/President/CEO of Occidental Petroleum, is seeking to strengthen U.S.-Russian business ties for a variety of industries, reaffirming existing business relationships, and laying groundwork for new projects.

“Today, already 50 percent of our more than $2 billion in annual revenues comes from customers outside the U.S. We are clearly globally oriented, and emerging markets like China and Russia get our special attention,” said Brann. “For us, these countries are not new terrain.”

Both Western Geophysical and Atlas Wireline Services are already conducting seismic exploration and wireline activities for international oil companies operating in Russia and have signed joint venture agreements with Russian organizations and enterprises to support their energy activities and to market existing data.

Western maintains an office in Atyrau, Kazakhstan, as part of a joint venture with EMBA Geophysical. The office is equipped with a RISC 6000-580 processing center.
1994 SCHOLARSHIP WINNERS ANNOUNCED

Steven S. Michael, son of Western Atlas Software Training Coordinator Dr. Fouad Michael, has been awarded a Merit Scholarship through the Litton Merit/Special Scholarship program. Other Western Atlas winners include Neil Athavaley, son of Core Laboratories Research Scientist Kumud A. Athavaley; Kelly M. Bishop, daughter of Atlas Wireline Services Senior Engineer Michael D. Bishop; and Joseph M. LaPalme, son of Atlas Wireline Services Engineer Donald R. LaPalme.

These achievers, who will each receive four-year scholarships ranging from $2,000 to $3,500 annually, are among 25 recipients of the 1994 awards.

Steven Michael, a Taylor High School honor student, plans to attend CalTech University. Besides ranking in the top half of one percent of graduating seniors, Steven also received a scholarship from the Academic Decathlon for having placed first in the Texas state math competition. The Academic Decathlon also presented Steven with three gold medals in math, science, and economics and two silver medals in social studies, and language and literature.

The National Merit Scholarship Corporation bases its annual selection on students’ test scores, academic records, personal leadership, and significant extracurricular activities. Scholarship amounts vary according to individual financial needs and the costs of applicable colleges and universities.

“A comprehensive education is the most important endowment a society can bestow on its young people,” said Litton President and CEO John Leonis. “Education, personal initiative, and hard work will keep the U.S. economically strong and a leading competitor on the world stage.”

Employee Participation Increases 49 percent

WESTERN ATLAS IS MAKING A DIFFERENCE THROUGH THE UNITED WAY

In November last year, Western Atlas employees from the Houston area made a $138,785 investment in their community. With the company matching of $104,000, the total contribution from Western Atlas to the United Way of the Texas Gulf Coast was $242,785. This total showed an increase of $16,772 over last year, and employee participation increased from four to 53 percent.

A random drawing was held to determine grand prize winners from the many employees who contributed by payroll deduction. Western Geophysical Secretary Cindy DeKeyzer won a trip for two to New Orleans, Ron Abraham and Kevin Monceaux of Atlas Wireline Services each received a trip for two to anywhere in the U.S., and Corporate’s Sandra Frisco was the winner of a weekend at a local hotel.

Campaign leaders included Western Atlas Vice President Jack Michael as company liaison, former Core Laboratories President Joe Saltamachia as campaign chairperson, Western Atlas Software Desktop Publishing Specialist Peggy Henry as communications chairperson, and Atlas Wireline Services Facilities Administrator Frank Barbosa as campaign treasurer.

Coordinators Jesse Perez of Western Geophysical, Mike Norris of Atlas Wireline Services, Dennis Rohr of Core Laboratories, Amparo Fecto of Western Atlas Software, Scott McFarlane of Corporate, and Patricia Tidwell of Atlas Manufacturing, along with their many campaign helpers, deserve a hearty thanks for rallying coworkers and helping Western to make a difference the United Way.
Exploration Products Training – Class of ‘94

TRAINING & DEVELOPMENT GROUP COMPLETES EIGHT-MONTH CUSTOMIZED COURSE

April 4, 1994, began the last week of an eight-month training course presented by the Training and Development group of Western Geophysical Exploration Products for eight employees from the Saudi Aramco Oil Company. This is the third consecutive year that this training program has been offered, two previous programs were four months each in duration.

We are often asked what do we teach in eight months. The short answer is EVERY THING. More seriously, we instruct in all aspects of geophysics in which we, as the leading seismic contractor, excel.

The trainees commence their course in the Kingdom of Saudi Arabia, where much of our ground-level Saudi Arabian experience resides, they then take a side trip to Holland to the Sensor manufacturing plant. Next, it is on to the U.S. for the bulk of the course.

The trainees are, for the most part, recent graduates from within the Kingdom of Saudi Arabia and are experiencing their first overseas visit, while others hold graduate degrees from U.S. universities. Transport, accommodation, and financial aspects of the visits are coordinated by Mohammed Hassan of Aramco, who relieves Coordinator Marie Guzman to concentrate on other tasks.

The training course content begins with basic theory in geophysics, and while we all expect to be familiar with this portion, it is proper to ensure that we are all understanding on the same level. We extend the theory into 3-D technology, and delve deeper into imaging and resolution courtesy of Matt Brzostowski and Ruben Martinez. The practical aspects begin with acquisition. Malcolm Lansley covers land operations, while I reflect on the challenges of marine exploration. For the processing portion, we obtained a 3-D spec survey from Midland, Texas, for use in this recent course being taught by Carlos Barragan.

Over the three-year period during which this program has been operating, the course has undergone continuous development to focus more precisely on the needs of Saudi Aramco employees. There are now 24 graduates of this program in Saudi Arabia.

The Exploration Products Training and Development group attracts trainees from three sources — oil companies seeking specific programs and expertise, customers who have purchased Western Geophysical equipment/products, and Western employees who require training on land or marine field recording systems, in geophysics, and in survey planning. Personnel development courses that include presentation skills, team building, and leadership are also provided.

New courses under development include vibrator technology and project management. Because the personnel development program overlaps with some of the needs of the Total Quality Management program, there is mutual support between the two departments.

The broad trainee base Exploration Products requires a strong, stable training department, which in turn opens up the opportunity to provide college-level education in geophysical applications.

– Dr. Rod Cotton

Attending an eight-month training course presented by Western Geophysical Exploration Products were (front row, left to right) Riyadh Al-Saaid, Emad Al-Muzainy, Salem Al-Juhani, Mustapha Al-All, Mohammed Al-Ghamdi, Khaled Al-Mashouq, and Fouad Al-Khalifa of Saudi Aramco (not shown is Turki Al-Rawaili). Coordination of this customized training program was the joint effort of (back row, left to right) Director of Sales and Marketing Tony Scales, Products Training and Development Manager Dr. Rod Cotton, Mohammed Hassan, Ali H. Hijazi, and Director of Quality Terry Lehmann.
Western Atlas Tutors/Mentors

HELPING STUDENTS TO FEEL THE PRIDE OF ACHIEVEMENT

The shiny red apple on the desk of Western Atlas Corporate Communications Secretary Lisa Noyes brings a smile to her face daily as does the golden apple that Western Geophysical Shipping/Receiving Clerk Eric Scroggins wears on his lapel. Lisa and Eric received their awards as a thank you from students and the Houston Independent School District (HISD) for their outstanding service in the Business/School Partnership program and for volunteering time and materials to area schools.

Students and tutors alike share this feeling of pride in the successful partnership between Western Atlas and HISD schools. Feeling the pride of success is what the program is all about.

Program Coordinator Lisa Noyes and Shadowbriar Middle School received the Apple Award for the outstanding business/school partnership program (middle school category) in the district’s western region.

Eric Scroggins was honored for his extraordinary service as a parent volunteer at Charles Atherton Elementary School, where he helps with class projects and provides needed materials.

As part of the Business/School Partnership program, over 50 Western Atlas employees have made a difference in young lives during this first year of participation in the city-wide program. Employees donate four hours per month at three schools, assisting in the instruction of basic skills, providing career counseling and preparation, offering enrichment activities, and giving students who are at risk of dropping out of school much needed individual attention and encouragement.

By helping with studies and offering positive direction, Westerners are helping to instill an invaluable sense of pride and accomplishment in today’s youth — the pride that will bring success in school and in life.

Exploration Products Customer Services Team

JOINING FORCES TO OFFER PREMIER SERVICE

When the Exploration Products Houston Customer Services team was formed in March, we had our clients in mind. As a result of Western's acquisition of the former Halliburton Geophysical Services (HGS), the customer service departments of HGS and Western Geophysical Exploration Products have merged into one group.

The department is now comprised of Richard Gilley, Patty Koehler, Art Knowleses, Zonetta Lister, Jeff Owens, Jackie Simpson, Pat Wafer, Betty Jo Whitehead, Willie Williamson, and Bobby Wilson. We are excited about this unique opportunity to work together to satisfy Western customers.

The words “customer service” mean many different things to different people. Is customer service a department that you call if you have a complaint? Is it an order processing department?

The new Exploration Products Houston Customer Services team defines our role as the link between customers (both internal and external) and the Western Geophysical organization.

To accomplish this link, department representatives (each of whom has spent a number of years working directly with customers) attempt to communicate in a professional manner. Not only are we the voice of Western Geophysical to the customer, the customer service team is also the voice of the customer to Western Geophysical — a very important concept.

The concept of total quality management (TQM) requires that any organization be managed so that it succeeds in meeting the needs of its customers. Quality should extend throughout the organization and be defined by the customer.

It is the role of customer service to obtain feedback, to understand how our clients perceive the quality of Western's products and services.

The goal of customer service is to provide a higher level of service for all clients (both internal and external) by working with each design, manufacturing, fabrication, assembly, and testing area to help them meet specific client requirements. This increased support will result in improved client relations and important feedback.

To make our services readily available, the Western Geophysical Exploration Products Houston Customer Service team is located at 3600 Briarpark. Call us with questions or comments at (713) 964-6307, we will be happy to help you and/or take your suggestions into consideration.

– Jeff Owens
My name is Sarah Denham. I am 12 years old and I am in the sixth grade at HISD’s Lanier High School. During my visit, I learned a lot about my parents’ jobs and what people at Western do. First, my Dad showed me how to check and see if you have any E-mail. Then I went and saw my Mom’s office and met the people she works with in Documentation. Mr. Forel showed me a seismic section and showed me how to read it. Mrs. Ray showed me how to put a flowchart into a manual. Then I went with my Dad to a TQM meeting and learned how they solve problems.

After lunch, I learned about my Mom’s job. She showed me how to work her computer. I went downstairs and Mr. Gortemiller showed me the main computer room. I got to watch the tape robots work. After that, we saw the tape library and the workshop. Then I went back to my Dad’s office and had fun drawing on the wall.

I enjoyed my day at Western. Everything I saw was very interesting.

— Sarah Denham
Lanier Middle School
age 12

My name is Kelly White. I am a sixth grade student at Memorial Parkway Junior High School in Katy, Texas. I enjoy sports, jazz dance, and playing the flute. I visited Western Geophysical for “Take Your Daughter to Work Day.” My father is Richard White and he is a vice president.

I enjoyed visiting his office very much. My Dad took me on a complete tour of the building. I was able to see the computer room, tape library, data processing area, and a lot of offices. I even got to see the President’s office. I learned that Western’s building is twice the size I thought it was.

— Kelly White
Memorial Parkway Jr. High
age 12

I had people guess how many macaroni noodles were in the jar. That’s what I liked best.

— Aubrey Teague
Mayde Creek Elementary
age 7

What I liked about going to work with my mother was meeting the people she worked with. The people were really friendly and easy-going. I also liked learning what my mother does and goes through every day.

— Yuisa Morales
Clements High School
age 15

“Take Your Daughter To Work Day” was a lot of fun! I went to work with my mom, Carol Ross. I helped her make copies and learned how to work a fax machine. Then, a friend showed me around and told me all about what Western does. I interviewed some of the top women in the building who talked with me about what they do. I visited my step-

— Tracie Laymon,
and Mom
Carol Ross

dad’s building at the end of the day. I learned a lot and had a great time. Everyone was very friendly.

I thought it was really neat that most of the things I am learning in school are now used every day like Earth science, computer and algebra. I learned about the many different jobs I could get when I grow up. Thank you to all the people who took the time to talk to me and teach me something new.

— Tracie Laymon
Paul Revere Middle School
age 14

Western Profile 20 Summer 1994
Editor's Note. Most Westerners are familiar with our continuing HSE programs that are developed to instruct crewmembers and managers on safe operations in all environments. There is a need for reconnaissance missions to determine proper and safe attire for crewmembers and equipment to suit the environment.

The prior assessment of work conditions, suitable equipment, and proper clothing is a key factor in conducting successful seismic surveys in a safe and effective manner.

PREPLANNING OF SEISMIC WORK IN HOLLAND

Reporter Richard Llewellyn

On a second scouting trip to Holland to aid in preplanning the shallow-water work Western was to perform off of the Frisian Islands this year, London Marine Coordinator Larry Reitz, Safety Advisor Max von Arnswaldt, Field Service Technician Warwick Stanley, Marine Operations Supervisor Sjoerd Dejamear, a client representative, and I visited the prospect by small boat, touring various parts of the islands, investigating radio frequency conditions, and speaking with local authorities and organizations.

We experimented with various ideas on telesis buoy anchoring systems to see how well they held on the local seabed. Particular interest was taken in the weather patterns and the water depth profiles across the prospect area.

Each day, we split into small units and then got back together in the evening to discuss the findings of the day and check cross influences of those findings. One thing that we all discovered was that the Dutch people were all very helpful and hospitable.

The telesis buoy arrangement tested during the two scouting trips proved useful. Positions deployed in shallow surf zones and in deep channels with strong currents held exactly over night and were recovered swiftly without problems. The phone and anchor rig was designed by Coordinator Larry Rietz. The equipment was independently tested with sidescan sonar verification of positioning integrity.

We performed a detailed investigation of the suitability of all types of personal protective equipment that had been proposed for the seismic operation. Even in the summer, North Sea water temperatures are very low and could cause death by hypothermia in a very short time. Two types of water-tight "dry" worksuits and automatic inflation, gas-operated life jackets designed for wearing while working were thoroughly tested prior to recommendation for use by Western crewmembers.

Max von Arnswaldt (left) and Larry Reitz (center) discuss test sequence for buoy anchoring system with a client representative.

NIGERIA IS SITE OF MARINE SEISMIC TRAINING/audit

Reporter Richard Llewellyn

Western Regent Party 143 members underwent extensive training in marine seismic safety in January when London Marine Operations Supervisor John Siegfried, HSE Supervisor Richard Llewellyn, former HSE Training Supervisor Dick Bye, and a representative from the Nigerian Navy conducted a program onboard the vessel. Besides completing the course agenda, a followup internal audit was conducted.

Port Harcourt was the next stop, where an audit of both present and potential subcontractors was conducted with the help of Party 143 Manager Jim Brogan. The audit included a trip by fast boat to Bonny terminal, the site of Differential Global Positioning System reference and real-time monitor stations being used by the Regent crew.

HSE MANAGEMENT COURSE HELD FOR DESERT CREWS

Eleven crewmembers from six crews working in Oman and Abu Dhabi participated in a week-long HSE safety management course in May. The program, held in Abu Dhabi, included job safety analysis, accident investigation, and Dupont STOP Audit training.
CREWMEMBERS FOCUS ON LAND SEISMIC SAFETY

Reporter Vicki Huebler

Starting in April, the HSE Department conducted a Land Seismic course in London. For two weeks, employees were instructed in Safety Management, STOP Auditing, Accident Investigations, Environmental Awareness, Helicopter Safety, Small Boat handling, Fire Safety, and other HSE issues. Participants received “hands-on” experience in an organized environment to handle situations which may arise during seismic operations. These classes are offered in both London and Houston throughout the year.

Participants in the April class were: (back row, left to right) Terry Roome, Isidir Abdulkadir, Phil Williams, Dave Summers, Robin Wrigley, Craig Christensen, John Knox, Neal Silver, Bill Perkins, EAME Land Safety Manager Mark Caruso, and (front row, left to right) Norm Pedersen, Kirk Trujillo, Cyprian Ikweegbu, Ian Cook, Mike Gregory, Chris Twigg, and Okey Udeogu.

Environmental Conference

BUSINESSES STRIVE TO KEEP EARTH CLEAN

Recycling Coordinator Richard Rainwater, Corporate Communications Graphics Supervisor Soraya Brombacher, Accounting Supervisor Beth Favor, and Secretary Chris Taylor were on hand to help with the 1994 Business Environmental Expo held in Houston in April. Over 60 Houston area businesses participated in this third annual expo, conducting seminars and workshops and distributing information on how businesses can contribute to a healthy, clean environment.

Besides helping to organize the expo, Rainwater accepted an award for his continuing involvement in the council. Brombacher and Favor helped to register conference goers.

A Bronze Level participant in the Houston Corporate Recycling Council (HCRC), Western Atlas recently joined other businesses in the area in contributing to a scholarship fund to support qualified students in pursuing education in the environmental arena.

Beth Favor

Soraya Brombacher
EXPANDING TECHNOLOGIES AND EXPERTISE

With the acquisition of substantially all of the operating assets of Halliburton's geophysical product service line in early January, 1994, Western Geophysical began 1994 with an extensive reorganization that is still in progress. The purchase has resulted in the most comprehensive seismic service network in the global market. The combination of technology and expertise of these two well-established firms has broadened Western's customer and business base and has increased crews and experienced personnel to serve clients more efficiently.

"The transaction supports our strong opinion that 3-D seismic technology will continue to command growing importance in the worldwide search for, and development of, oil and gas reserves," said Alton Brann, president of Western Atlas Inc. The addition of selected and complementary geophysical acquisition technologies and systems, particularly land and transition-zone systems, strengthens Western's ability to deliver seismic services of the highest value and to provide the highest quality of customer service.

Under the terms of the contract, Western retained major services, products, land and marine crews, and employees of the former Halliburton Geophysical Services (HGS). Integration of these resources is aimed at fully leveraging the best of
both companies’ skills, procedures, and technologies. The integration is taking place at all levels throughout the company in personnel, technology, operations, and facilities.

**Talented and Experienced Personnel**

In keeping with Western’s founding philosophy of employing talented, resourceful personnel, members of the HGS staff are continuing to perform various functions on field crews, in processing/interpretation centers, as members of the R&D team, as well as engineers and staff members in seismic equipment manufacturing plants. Welcome additions to project teams, these bright people are contributing their expertise to Western’s continuing efforts to preserve and strengthen our tradition of customer service.

**Integrating Western and HGS Operations**

Already the world’s largest geophysical operation in terms of number of crews working, Western has strengthened acquisition operations in a number of countries where HGS had additional land crews (particularly the Eastern Hemisphere and Latin America). Land and bottom-cable operations are continuing in the Eastern Hemisphere, while field crews, along with bottom-cable operations in the Western Hemisphere, are being integrated. The catalog of worldwide spec data has grown with the addition of HGS data to the Western library.

To achieve a rapid and effective integration of data processing activities and systems, Western’s central computing resource in Houston was recently upgraded by 40 percent to an ES 9000-972 system, with new tape input/output and increased disk subsystem improvements. All processing personnel are now housed in one building; computing equipment has been physically consolidated into one location.

Global communication networks of both companies have been combined for remote access to processing systems. Western’s U.S. data processing operation, based in Denver, has undergone a 100 percent increase in computing capacity with an upgrade to an IBM 3090-600 system and additions to tape input/output and disk subsystem capacity. Remote centers in Dallas, Midland, Oklahoma City, and Bakersfield are linked to Denver for access to large scale computing.

The former HGS remote center in New Orleans has been connected to the Houston center to offer computing and support services, while data processing facilities in Midland are being consolidated to serve as a remote center linked to Denver.

With the QUEUE™ system currently serving as the primary data processing system, the Omega™/RISC system is the focus of Western’s future processing environment. Former HGS personnel are participating in a formal training program in the use of both the QUEUE and Omega systems.

**Leading-Edge Technology**

As a result of the combined efforts of the R&D and Applied Research groups and four manufacturing operations, Western...
Making their way across the high plains of the Llano Estacado and the Edwards Plateau, Crews 787 and 738 are exploring a famous underground sea — the Permian Basin. Crew 787 (recently added to Western’s ranks as a result of the acquisition of Halliburton Geophysical Services) is achieving high production on its first assignments for Western. Crew 738 (another recently acquired crew) is tackling scalding hot 100-foot-high sand dunes in one of the Basin’s many active fields.

TAMING THE WILD WEST

Photo at left: Party 787 Manager Ben Gonzalez (left) and Headlinesman Richard Harper inventory cable and boxes after a long day’s work in the Permian Basin. Under the direction of the Midland office, Crew 787 was recently added as a result of the HGS acquisition.
Party 787 vibrator operator heads for the prospect in Crane, Texas.
Upon first glance at this wide expanse of prairie with its prickly cactus, scrub brush, and occasional windmill, the Llano Estacado appears barren. It was here that cowboys made up songs about being lonely.

For the most part, flat prairie stretches as far as the eye can see to a golden horizon. It is easy to imagine this land, home to the Comanche Indians, as being part of the wild west of the 1800s.

With the exception of a few brave settlers heading toward some distant destination, the only activity across this wide swath of earth came from either a rattlesnake or a far-distant windmill turning in the unceasing wind.

After the year 1875, when the U.S. Army took this territory from the Indians, ranchers and farmers came and began to drill for water, a commodity that was unavailable on the prairie surface. It was commonplace for these waterwell drillers to find evidence of oil and gas, and by the early 1900s, drill rigs began to dot the land, pumping great wealth from what was later to be identified as a subterranean treasure chest — the Permian Basin.

Comprised of 76,610 square miles of Texas and 12,000 square miles of southeastern New Mexico (88,610 square miles in all), the Basin was a vast inland sea many hundreds of thousands of years ago. Through the ages, a limestone floor (then made of chemical layers of magnesium limestone, anhydrite, and salt) was successively deposited.

In succeeding ages, mud-laden streams emptied billions of tons of red clay and sand into the sea, completely filling it. Finally, the bottom of the sea buckled and warped and created mountain ridges of up to 3,000 feet, which in turn were covered during subsequent thousands of centuries by other strata. Today, the surface formations of desert-like West Texas blanket vast stores of hidden wealth hundreds of feet below.

The first commercial well was drilled in 1921 at 2,498 feet. It was not until 1928 that the use of geophysics began to be employed to explore the Basin. Prior to the discovery in the Hobbs field in the Basin that year, discoveries had been made as a result of random drilling or surface and subsurface mapping. The Hobbs discovery
was made after magnetometer and torsion balance surveys both showed the area to be anomalous. From that point on, geophysical methods, particularly the seismograph, were used as exploratory tools in this region.

A large flow of oil and gas that was produced following a deep test in the Big Lake field expanded prospects for the Basin to become a major producing area, and with the onset of World War II and the need for fuel urgent, more and deeper tests were drilled. Intrastate and interstate pipelines began to traverse the area. Midland/Odessa, headquarters for oil and gas development in the Permian Basin, became the largest inland petrochemical complex in the U.S. Western opened an office in Midland in 1949.

**Crew 787 — Taking Exploration to New Depths**

The Basin of today, with pump jacks spaced only yards apart, is quite an active region. With the Basin once again in an expansion mode, exploration is reaching to new depths through the use of 3-D seismic technology. The tremendous reduction in risk achieved through the use of 3-D surveys has brought both new and old investors back to the Basin.

Moving with the speed of the wind across the West Texas prairie, Party 787 crewmembers, Manager Ben Gonzalez, Assistant Party Manager Dale Kluck, and Geophysical Trainee Wayne Jones have been exploring the Permian Basin and other oil-bearing formations in the U.S mid-continent region for quite some time.

Retracing the Horseshoe Atoll and the Spraberry Trend formations that had proved so prolific with a minimum of exploration in the past, crewmembers are crisscrossing West Texas and New Mexico with 3-D lines. These intense surveys are being used to discover still untouched energy reserves that lie deep below the famous reefs of the Permian Basin. As they weave around the many pump jacks in these active fields, the crew is using new parameters to focus on deeper objectives.

One of four crews acquired from the former Halliburton Geophysical Services in the Midland-Odessa region, Western Party
Jake Scheets

J.D. Cox

West Texas Supervisor Rick Drake (seated) with Midland staff (left to right) Darcy Gray, John Vance, Shawna Slough, and Dara Slaven
787 under Field Supervisor Bob Nebel started up last September and began production in Monahans, Texas, in late December. This extremely efficient crew has a high level of expertise, including some members with international experience. In January, 1994, the 49-member crew moved from Monahans to Ulysses, Kansas, to perform a 3-D survey. Although they encountered extreme cold and threatening weather on this prospect, they persevered, sometimes working through the night in a concerted effort to achieve a high production goal.

The crew has since returned to the Permian Basin, completing surveys in the vicinity of Crane, Texas, and Roswell, New Mexico. The continual movement of this crew keeps permit agents Brenda Perez and Jim Alsup busy contacting the many field and ranch owners.

The survey crew, made up of Chief Surveyor Bruce Tyynela, surveyors Mike Marshall and Mike Nichols, along with operators Porfirio Galvan, Clyde Martinez, Rocky Walker, and Samuel Sandoval, is among the first to use the Global Positioning System (GPS) on prospects in the domestic U.S. The group, equipped with a base station and three roving units, managed to stay ahead of the recording crew through the use of thorough planning of day operations and accurate measurements.

Crew 787's six TR-3 vibrator units, now bearing the Western Geophysical emblem, are in the experienced hands of Vibrator Mechanic Ken Wood, vibrator operators Ubaldo Baeza, Simon Olague, Gilbert Hinostroza, Johnny Varela, Jesus Gonzalez, Aurelio Lopez, and Alvaro Baeza. Currently, the vibrators are fitted with large tires that allow them to operate in farming areas with minimal damage, and the crew is looking forward to the August delivery of five LRS-351 buggy mounted units.

The crew also has several small jug trucks, each with its own all terrain vehicle, used for fast movement of ground equipment. Efficient movement of the crew to record over 700 channels of data per grid swath requires manpower. Because the crew's objective is to keep the energy source moving in order to keep unit cost low, observers Gil Young and John Depp keep a close eye on the MDS-
18 recording system, while headlinesmen Kiko Lopez and Richard Harper, and drivers Pepe Rodriguez, Gilbert Sotelo, and Salvador Galindo, along with fourteen helpers, run the cable well ahead of the energy source.

Rattlesnake guards are not the only safety precaution taken by Crew 787 members. Crew awareness of potentially hazardous circumstances and safe methods of seismic operation is kept at a high level by Safety Advisor Ray Deleon.

**Crew 738 Tackles White-Hot Dunes in West Texas**

Operating out of Monahans, Texas, another former HGS crew, Party 738, is exploring a prospect covered with white-hot sand dunes. Following the trail of the covered wagons of the 1800s, Western vibrators wind over dunes sometimes over 100 feet high to record a 3-D survey. Managed by Supervisor Bob Nebel, the survey, that began in May encompasses portions of a state park and runs through the town of Monahans.

Party Manager Rick Scheetz and Assistant Party Manager Richard Page are coordinating movement of the 52-member crew in cooperation with an onsite client safety representative, an archaeologist, and a botanist. Taking extra precautions to preserve this borderline desert with its almost coastal vegetation is an important aspect of the survey program. In an effort to minimize disturbance in the state park, crewmembers must walk one or two miles rather than be driven to the vibrators. Cables are also being laid to avoid an airport that exists within the prospect area.

During their stay in this West Texas town, crewmembers have learned that Indian artifacts and ancient human remains have been found in these forbidding dunes. And, folklore has it that a wagon load of gold was deposited somewhere in these shifting sands by settlers who needed to lighten their load in order to continue to their destination. Crewmembers were surprised by the appearance of a few wild boar living in the dunes, and discovered that the animals had been abandoned after a freight train wreck some
years ago.

Having recently completed a project in Montana and North Dakota during the winter months where they worked in 10-foot snow drifts, Crew 738 is now contending with ground temperatures approaching 130 degrees Fahrenheit.

Working an average 15-hour day, the crew is using modified seismic techniques to explore among the large number of active wells that are spaced only 700 to 800 feet apart. The crew’s vibrator units, eight four-wheelers, and four marshbuggies (brought in from transition-zone crews) are winding their way across the dunes and into the town following a carefully flagged route.

Directed by Western Safety Advisor Daniel Rodriguez, Head Surveyor Michael Keller, surveyors Arthur Gonzales, Phil Smith, and Tommy Salas, and helpers are outfitted with hard hats, safety goggles, and steel-toed workboots in conformance with stringent client safety standards. These men, along with vibrator operators Ramiro Alcala, Sergio Hernandez, Victor Mendoza, Manuel Navarrete, Rafael Velasquez, and Gregorio Valeriano, mechanics Danny Moore and Jack Wagenman, and Headlinesman Raul Nagana and crew will perform their tasks in the treacherous heat until August, when the prospect is expected to be complete.

The only cool air to be found on this prospect is in the MDS-18 recording unit, where observers Larry Wilson and Leo Mangum use the color line monitor to accurately check critical shotpoints. Another place of refuge from the unrelenting heat is the crew staging area where Ramon Gandara and Concepcion Meraz repair cable boxes and geophones.

Here beneath the Llano Estacado and the Edwards Plateau, the great sea that brought life during ancient times has long since solidified, forming a natural treasure chest of oil and gas reserves. Though time has deposited desert like sand and windswept hills over the layers of ages, this tremendous petroleum reserve is still bringing life in the form of an active energy industry to the Permian Basin.
For Western crewmembers emerging from the foggy foothills of the Carpathian Mountains into Transylvania, their presence in this region evokes more than memories of the Count Dracula legend. Westerners are retracing the steps of early explorationists, renewing the search for petroleum reserves in Romania — birthplace of the world's oil industry.

Renewed Seismic Efforts

RETURN TO ROMANIA

Reporters Nick Battaglino, Kerry Doyle, and Daryl Robbins

Ron Watson

Right Photo: The Carpathian Mountains in Transylvania
An international statistic published 135 years ago reported 1,977 barrels of oil having been produced in Romania. At that time, Romania was the first and only country in the world to report significant oil production. Since then, Romanian technologists have remained active in the search for petroleum reserves. With seismic exploration renewed in the region, Crews 387, 388, 389, and 109 brought Western’s expertise to the birthplace of the world’s oil industry for the first time in the autumn of 1992.

Arriving crewmembers were met with the vivid patchwork of this fertile land and a historical tapestry dating back to the Roman Empire. Located in southeastern Europe, the 237,500-square-kilometer country of Romania offers the natural beauty of the Black Sea coast, the Danube Delta, the Carpathian Mountains, and Transylvania. Imprints left by history on this land filled with fresh green grasses, rolling hills, thickly forested mountains, and the winding Blue Danube River lend tangible evidence to the many civilizations that have called Romania home.

Although the Roman Empire lost its frontier province known as “Dacia” (now Romania) less than two centuries after conquest, the Romans left an everlasting imprint on this land. In spite of being conquered by the Ottomans and later being partially incorporated into the Austro-Hungarian Empire, the country that emerged as an independent state in 1877 has retained the Roman influence of 2,000 years ago, and its people still speak a Latin-based language.

Renewing the Search for Oil

Western’s operations began in the fall of 1992 with a vibroseis/dynamite crew and a heliportable crew arriving simultaneously in Transylvania and the Carpathian Mountains, respectively. A second crew was later added in Transylvania, and an offshore contract was awarded for the first 3-D seismic survey to be conducted in the Black Sea.

Western Geophysical land operations in Romania were directed by Resident Manager Kerry Doyle with the assistance of Field Supervisor Ray Thornton, while Administrator Arina Baltazar, Finance Manager John Arbuckle, Accountant Mirela Buse, Geophysicist Amulio Proca, Secretary Daniela Tanasescu, and drivers Mircea Pisaltu and Dan Ardelean met operational requirements and crew needs.
Above Photo: At 388 camp are (left to right) Dave Turner, Bob Ambrose, Tony Lambert, Dennis Taylor, and Lane Denzin.
Marine operations were directed by London Marine Operations Manager Larry Wagner and Western Challenger Party Manager Jim McMahon.

Crew 387 — The Carpathian Foothills

Party 387 was the first Western Geophysical crew to work in Romania, conducting a heliportable test program in 1992. The prospect was situated in the beautiful foothills of the Carpathian Mountains close to the town of Buzau, located two hours north of the capital city of Bucharest.

Under the leadership of Party Manager Nick Battaglino and Assistant Party Manager Joe Walsh, Crew 387 returned to the area in March, 1993, to begin a complete seismic survey. Prior to the completion of a basecamp, crewmembers lived and worked out of a local hotel.

Health/Safety/Environment (HSE) Advisor Dave Turner and Dr. Jorge Vargas initiated an intensive safety orientation program to train the local labor force in the use of modern seismic equipment. Joining the team as the survey progressed were Assistant Party Manager Daryl Robbins, Field Clerk Troy Holsing, and HSE Advisor Billy Akers.

Not only did Romania present new logistical and administrative requirements for Western, but the foothills and valleys filled with agricultural plots, orchards, and villages proved a challenge for Chief Surveyor Tony Collinson and surveyors Mark Taylor, Rick Suave, Graham Scott, and Dave Rogerson. In addition to quality control duties, seismologists Ben Collins and Steve Innes managed the crew’s gravity and magnetics survey operations.

The recording crew, led by chief observers James “Woody” Brunnun and Chris Broadhurst, used an A-Star 315B helicopter to move equipment to the line. Observers Kelly Dittus, Allan Mathewson, Blaine Gervais, and junior observers Danny Blais, Gordon Clarke, and Eric Halzynski were kept busy troubleshooting the line using all-terrain vehicles, as access by truck was nearly impossible.

Back at basecamp, it was the responsibility of Instrument Supervisor Dave Paliwada and Joe Atkins to keep recording equipment in top shape. Keeping the crew’s fleet of ground vehicles running were Chief Mechanic Laurie Womersley and mechanics George Graham and Kerry Steele.
Above Photo: High above the green patchwork of Transylvania is Dracula’s castle.
Exploring Transylvania

A totally truck-portable crew, Party 388 arrived in Romania late in 1992 with Party Manager John Stephens and Assistant Party Manager Gary Peterman first on the ground and the first to deal with the ever-present mud. True to the fabled setting of the legend of Count Dracula, Transylvania weather conditions shifted rapidly from freezing to thawing to freezing once again. Heavy fog, rain, and snow often made road conditions hazardous.

This large concession not only required Crew 388 to be joined by a second crew, Party 389, but it also called for employment of a variety of sources including vibroseis along with the use of deep drilling and mini-hole patterns. Because lines on this prospect crisscrossed through both areas of crew operation, close interaction between Crews 388 and 389 was essential to the survey’s success.

A second field office was set up in Transylvania’s largest city, Cluj-Napoca. Here, Supervisor Lane Denzin, Senior Accountant Steve Cadenhead, and Administrator Julia Sandor provided support for the crews.

Crew 389 started up near the city of Lacintoa under the watchful eye of Party Managers Paul van Loenen and Darrel Elliot and Assistant Party Manager Jim Brazel. Line coordinators Mike Murphy of Party 388 and Jack Battog of Party 389 oversaw permitting procedures and consulted with client representatives on source type requirements.

Surveying for Party 388 across the rolling hills and their patchwork of agricultural plots were chief surveyors Paul Drea and Gordon Crook along with surveyors Josh Snipes, Terry Yarborough, and Dave Andrews. Party 389 Chief Surveyor Earl Dahl found it necessary to operate out of a hotel “fly camp” located in the town of Tigru Mures. Surveyors Randal Bertrad, Bill Kerekes, and Rick Suave spent the winter months operating from this location.

Coordinating deep and mini-hole drilling operations was Supervisor Dennis Taylor, Party 388 Chief Driller John Knox, and Chief Driller Ron Watson of Party 389. Drillers Andy Newell and Hugo Santana stayed close behind the survey team while Gary Finnegan performed a dual role of drill pusher and junior observer.

The winter months in Romania brought field conditions
Above Photo: Dan Blais in Party 387 recorder staging area
that often prohibited the use of vibrators, however, when conditions allowed, vibrators manufactured by Western Geophysical Exploration Products were used. Chief Vibrator Technician Marty Rasmussen and Technician Charlie Fieldsen of Crew 388 and Chief Vibrator Technician Roy Crook and technicians Kevin Kremier and Ishfaq Malik of Crew 389 had responsibility for maintaining the AHV III vibrators.

The large Transylvania operation required an enormous fleet of ground transportation. Party 388 vehicles were inspected and maintained by Chief Mechanic Claus Mikkleson and Mechanic Tony Lambert. Recording operations on Crew 388 were handled by Chief Observer Mark “Tiny” Thompson and observers Pat Carbonel, Pat Hedges, and Ray Johnson.

At times Crew 389 operated from fly camps leaving the former basecamp in Lachinta to Chief Mechanic Bill O’Keefe and mechanics Geoff Routley and Kerry Steele. Equipment Supervisor Steve Hammond was on hand to help the crew when needed and to oversee the warehouse in the Romanian town of Apaheida. In the village of Mociu, instrument technicians Bob Ambrose and Ivan Mainland kept the boxes and cable shop in good repair.

Monitoring recording production for Crew 389 were chief observers Tyler Peters and Randy Harrison, Observer Craig Christensen, and junior observers Steven Townsend and Danny Blais.

Incoming data from the crews were processed daily on Western’s FACE™ system by Crew 388 QCs Ed Zimmer, Mike Osbourne, and Colin Popescu. Data from Crew 389 were processed by QCs Duane Champen and Mark Holland with the assistance of Seismologist Josip Illotic.

Safety considerations proved to be just as important for operations in this populated agricultural and forest terrain as they are in remote areas. Unremitting fog, rain, and snow presented challenges to both land crews. Health/Safety/Environment Advisor Darrel Smethurst and Doctor Kammel Houssam shared medical supervision and safety management tasks for Party 389. Advisors Dave Turner and Kirk Trujillo and Doctor Ramsey Nached of Party 388 spent alternate time between basecamp and the line instructing crewmembers in safe seismic operating procedures.
First 3-D Survey in the Black Sea

The year 1994 found the RV Western Challenger (Party 109) heading for the Black Sea to commence the first deep-water, 3-D seismic survey offshore Romania. Equipped with a WG-24 recording system, triple 3,200-meter cables, and two sleeve air-gun arrays, the Challenger explored a prospect of nearly 300 square kilometers. The crew was also to perform a second survey in the Black Sea to encompass 3,200-kilometers in two dimensions.

Party 109 Manager Jim McMahon, Resident Manager Kerry Doyle, and client representatives held presurvey discussions in Romania’s capital city of Bucharest in December, 1993. Following preliminary discussions that were geared towards ensuring that proper steps would be taken for a smooth operation, permits were obtained on January 6. Balancing and geometry checks were completed aboard the vessel and the Challenger started production on January 9.

Formidable weather conditions challenged Party 109 crewmembers to use their expertise and diligence to keep quality production ongoing under safe working conditions. Temperatures dropped so low in the night hours that ice formed on the upper deck of the vessel, requiring great care and much work to remove it. Not only were tail buoy receivers constantly under attack from ice forming around them like basketballs, but constant changes in wind direction, sometimes entire 360-degree shifts, were also encountered.

Having completed the 3-D survey of nearly 13,000 CDP kilometers, the Challenger crew made their first port call in Constanta in early March and, three days later, started production on a 2-D survey. Returning to the picturesque Black Sea coast, the Challenger left Romanian waters by the end of March to prepare for her next prospect also in the Black Sea.

Having entered the hazy, dense forests of the Carpathians and mysterious Transylvania and having set sail on the Black Sea, Western crews are once again exploring this land of legends. Once upon a time, explorationists put Romania on the map as the world’s first oil-producing country; the story of this rich Roman land and the quest for oil is still being written.
Seismic Discrimination of Lithology—A Monte-Carlo Approach (W92-143)
Seismic Monitoring of Production Processes (W91-272)
Sparse-Spike Inversion Predicts Lateral Variation of Porosity (W92-162)

TECHNICAL PAPERS

A Comprehensive Method for Evaluating the Design of Air Guns and Air-Gun Arrays (W84-500)
A Hybrid Refraction Algorithm (W90-350)
A Relationship Between Dynamic Range and Word Length in Digital Systems (W83-500)
A Simple Approximation to the P-Wave Reflection Coefficient and Its Implication in the Inversion of Amplitude Variation with Offset Data (W93-493)
A WKBJ Correction for Diving Wave Phase Shift Migration (W94-145)
Air-Gun Array Specs: A Tutorial (W89-263)
Air-Gun Signatures and the Minimum Phase Assumption (W91-318)
Air-Gun Source Instabilities (W87-501)
Amplitude and Anti-Aliasing Strategies for (x-t) DMO (W90-427)
Attenuation of Complex Water-Bottom Multiples by Wave-Equation-Based Suppression (W81-503)
Cascaded Frequency-Wavenumber (f-k) Migration (W89-286)
Cascaded Migrations: A Way of Improving the Accuracy of Finite-Difference Migration (W89-287)
Cascaded (f-k) Migration: Removing the Restrictions on Depth-Varying Velocity (W88-202)
Coherent Noise in Marine Seismic Data (W81-000)
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Depth Focusing Analysis Using a Wavefront-Curvature Criterion (W93-063)
Depth Migration of Imaged Time Sections (W77-000)
Desired Seismic Characteristics of an Air-Gun Source (W78-001)
Dynamic Corrections for P-SV Reflections—Transversely Isotropic Solids (W90-105)
Effectiveness of Wide Marine Seismic Source Arrays (W88-503)
Efficient Migration Through Complex Water-Bottom Topography (W93-593)
Enhancements to Prestack Frequency-Wavenumber (f-k) Migration (W91-700)
Experimental Investigation of Interference from Other Seismic Crews (W87-504)
Far-Field Signatures by Wavefield Extrapolation (W84-503)
Fundamentals of 3-D Migration (W91-203)
Imaging and Velocity Estimation with Depth-Focusing Analysis (W92-145)
Improving the Accuracy of 3-D Marine Surveys (W87-505)
In Quest of the Flank (W88-500)
Interpretive Evaluation of Migrated Data (W90-277)
Marine Vibrators and the Doppler Effect (W88-501)
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Porosity from Seismic Data. A Geostatistical Approach (W90-225)
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Source Performance Criteria for Robust Signature Deconvolution (W89-665)
Surface Multiple Attenuation and Subsalt Imaging (W93-265)
The Use of Refractor Elevation Models in Refraction Statics (W90-323)
Trace Inversion Using an Interactive Workstation (W92-373)
Using the Parabolic Radon Transform as a Moveout Filter (W90-266)
Velocity-Stack Processing (W90-415)
Zero-Velocity Layer Migration from Irregular Surfaces (W92-666)

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Phone _________________________ Fax __________

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ANNIVERSARIES

Western Atlas International President John Russell (center) congratulates Western Atlas Software President Dr. Emil J. Mateker, Jr., (left) and Atlas Wireline Services President Damir Skerl on 25 years of service.

Design Engineer Arlan Green (right) receives congratulations on 15 years of service from Ted Cruize, director of electrical engineering for Exploration Products.

Field Service Engineer Glen Barker (left) and Alvin Exploration Products Engineering Director Dick Farris (center) congratulate Senior Field Service Engineer Donald Sutcliffe on 30 years of service.

Accounting Manager Deborah Walker (right) congratulates Billing Supervisor Coma Gaar on 15 years of service.
Josh Barker (left), manager of Houston research building computer services, accepts congratulations on 25 years of service from Computer Operations Manager Don Clark.

Exploration Products Director of Electrical Engineering Ted Cruise (left) and Project Manager Loring Chien (right) congratulate Senior Software Engineer Nai-Ching Chang on 15 years of service.

Lead Playback Technician Sharon Phillips (left) celebrates 15 years of service with Playback/Drafting Supervisor Bill Machacek.
Western Hemisphere Data Processing Vice President Royce Sharp (left) receives congratulations on 25 years of service from Chief Operating Officer Richard White.

EAME Marine Field Supervisor John Siegfried (right) presents Western Regent Assistant Coordinator Mohsen Wahba with his 15-year service pin.

Systems Programmer Barry Dilgard (left) receives his 15-year service pin from Network Systems Supervisor Randy Woodruff.
Programming Supervisor Jeff Ramey (center) celebrates 20 years of service with Seismic Processing System Development Manager Andy Kushner (left) and Processing Software General Manager Gary Fair.

Field Service Engineer Cliff Wright (second from right) celebrates 20 years of service with (from left to right) Applied Geophysical Research General Manager Rick Workman, Vice President of Technology Gerry Gilbert, and Manager of Navigation Applied Technology Colin Wilson.

Party 711 Manager Tom Ainsworth (left) celebrates 20 years of service with Alaska Supervisor Bill Sands (center) and Chief Operating Officer Richard White.
Assembly Foreman Lourdes Pacacho (left) and Exploration Products QC Manager Dave Chow (right) present QC Inspector Wilma Preston with her 20-year anniversary pin.

Land Cable Technician Joyce Fletcher (right) of Exploration Products in Alvin celebrates 15 years of service with Alvin Land Cable Operations Manager Roy Devereux.

Research and Development General Manager Dr. Craig Beasley (left) presents Senior Scientist Dr. Wendell Wiggins with his 20-year service pin.

Party 704 Chief Surveyor Joe H. Perez (center) receives congratulations on 15 years of service from Field Supervisor Kevin Drake (left) and Party Manager Donald McLendon.
Houston Facilities Manager
John Bennett (right) presents
Western Research building
Receptionist Retta Moore
with her 15-year service pin.

Head Computer Operator
Tim Mahrer (left) receives his
20-year service pin from
Computer Operations Manager Don Clark.

Senior Vice President John
Laker (left) awards Executive
Secretary Janet Loveday her
15-year service pin.

Crew Support and Equipment
Group Manager Ken Barnum
(left) presents Radio Tech-
nician Thomas Mahoney with
his 15-year service pin.
Exploration Products
Electronics Manufacturing
Manager Martin Wilkshire
(right) congratulates Senior
Secretary Barbara Jolly on
20 years of service.

Documentation Specialist Eva
Randel (left) congratulates
Technical Assistant Beverly
Schneider on 20 years of
service.

Houston Facilities Manager
John Bennett (left) presents
Administrative Assistant
Teetsa Stavias with her
20-year service pin.

Houston Navigation Develop-
ment Manager Haynie
Stringer (left) awards Project
Engineer Mike Nguyen his
15-year anniversary pin.

Presenting Bookkeeper Hans
Jones (left) with his 25-year
service pin is former Houston
Land Processing Center
Manager Jeff Omvig.
RETIEMENTS

Carpenter Peter Newman retired on April 14, 1994, after working at Western's London office for 10 years. London Area Manager of Finance and Administration Dick Bergmark (right) and many colleagues gathered on the day of Newman's retirement to present him gifts and wish him luck.

Westerners Walk for March of Dimes

On Sunday, April 17, 45 Westerners did their part for healthier babies, as employees and family members joined in the March of Dimes national fundraising event, WalkAmerica. Starting at Mercer Stadium, the course wound 10 miles through Fort Bend County. March of Dimes works to improve the health of babies by preventing birth defects and infant mortality through research, education, and advocacy. Walk America, the nation's largest walking event, raised nearly $58 million last year. Western has participated in the fundraiser since 1988.
IN MEMORIAM

Phil Jenkins

On January 2, Western lost a valued employee, engineer, and friend. Phil Jenkins contributed in many ways to the success of Western marine crews through his creative nature, technical skill, and knowledge of marine data acquisition.

He joined Western in 1979 in the field service group based in Houston. Soon after, Phil transferred to Pelican Island where he joined a team charged with the responsibility of fielding a high-pressure air gun. Not only did he contribute a number of improvements to make the gun more reliable, but Phil conceived the solenoid valve that is still being used today in an adaptation of sleeve-gun sources.

Some specific attributes made Phil both a memorable and an excellent seismic engineer. While innovative, Phil was at the same time thorough, testing his ideas aboard Western ships until he was convinced that he had a workable solution to whatever problem.

Equipment designs for the Yo-Yo reel and its attachment to the streamer and AirLok system were conceived by Phil. He was recently granted a U.S. patent on the Double-Shuttle air gun.

Known by his coworkers as an individual of integrity, Phil was an enthusiastic member of the Exploration Products team. He was an avid pilot and possessed a well-developed sense of humor.

Phil is survived by his wife, Vicky, and daughters, Christy and Cathy.

Raymond Hughes

Retired Westerner Raymond “Jay” Hughes, died on December 24, 1993, in Woodward, Oklahoma. A Westerner for 21 years, Ray took a medical retirement due to heart problems, he was diagnosed with cancer only a few weeks prior to his death.

Remembered by crewmembers and clients alike, Ray came to work for Western Geophysical in 1970 as an observer on a Denver crew. That same year, he was stationed in Beeville, Texas, on Party 701. Ray managed another South Texas crew, Party 704, until 1979. Later, he was named manager of Crew 705 out of Woodward, Oklahoma, and continued to work out of Woodward until his retirement in 1990.

Ray is survived by his wife Ramona, daughters Sandy Hahn, Kathy Imhof, and Robin Dauphin, son Mark; and eight grandchildren. Field Supervisor Dalton Taylor served as a pallbearer at the funeral.

Profile joins those Westerners who knew and worked with Ray during his many years in South Texas and Oklahoma in remembering his contributions to Western and in expressing condolences to his family.
THEY SERVE

Service Anniversaries —
November, December,
January, February

42 Years
Gehring, Carl R.

38 Years
Bratos, Leslie E.

36 Years
Bakke, Ronald D

34 Years
*Hudson, Mark N

33 Years
Wales, C. Ernest

31 Years
Rocha, Gualdino D
Schwartzfischer, Alfred F.
Walker, Joseph F.

30 Years
Curtis, Jr., William C.
Delgado, Juan F.
*Edwards, Charles Allen
*Graham, Grover R.

29 Years
Connor, Michael J
Schmidt, William Clayton

28 Years
Humble, Mary Ann
Laker, John D
McKay, Donald B
*Skaaning, Jack C.

27 Years
Brown, Pamela W
Hancock, Guy John

26 Years
Lewis, William F.
Mason, Nigel S
Sanders, Joe I.
Siems, Lee E.

Byrne, John P
*Jones, Henry Curtis
King, Bernard Michael
Sadler, Terry J

25 Years
Barker, Josh W
Clark, Donald R.
Gross, Stanley
Howard, John R.
Marsi, Nadim A.
Mateker, Jr., Emil J
Nash, Harry E.
Skerl, Damir S.
Zaynouth, Shafik T

24 Years
Camacho, Mario
Galvan, Gilbert
Gilbert, Burlis R.
Johnston, Charles S
Kamp, Gerald W
*Machacek, William Joseph
Smith, Reardon
Vagt, Volker

23 Years
Bice, John Wilson
*Byrne, Michael
Crowell, Jarett Lee
*McCleary, John Arthur
Scott, Parker Wright
Wafer, Patricia A.

22 Years
Bernal, Jr., Faustino
*Broekhuizen, Anco
Curti, Leandro
Dwyer, Michael B
Fecto, Amparo
Garza, Jr., Margarito M.
*Hill, Patrick George C.
Martin, Federico D
McCutchan, Jack L.
Pen, Tom Y
Rowek, Otto H.
Severson, Kay
Simpson, Jacqueline
Tevendale, Walter
Thielvoldt, Dean Wayne
*Trotter, Thomas Hugh
Uherek, Catherine D
Vacek, Tiffie Ann
Wardell, Nigel G
*Woods, Martin

21 Years
Carroll, Roderick N
Cerquera, Agustin
Cunningham, David C.
Currier, Dwight V
Goldberg, Stanley S.
Gomez, Bernard
Olvera, Aidee
Parker, David G
Scheetz, Rickie A.
Truax, Richard
Valhonrat, Juan B
Wilson, Ronald J

18 Years
Alexander, Ricky
*Barrett, Leicester John
*Bereznak, Paul
*Caballero, Juvenal Coca
*Dinch, Erol
Forshaw Roy
Garrett, Christopher
Hargens, David D
*Klerner, Jeffrey Paul
Ness, Jr., Raymond R.
Pogue, Raymond D.
*Rabczuk, Enrique
Shoptman, Karina
Strange, Patrick H.
Sullivent, Robert C.
Williamson, Vernon

17 Years
Andreason, Walter T
*Bulo, Ramiro Juan
Carter, Steve L.
Cash, John T
Creel, Douglas G
Dodge III, Harland P
Gillooly Jr., John F.
*Grace, Steven
Guillory Don R.
Gwyn, David T
Hosey, Paul R.
Jones, Loretta M.
Jones, Paul David
Mann, Rameet

Bright, Gerald
Clulow, Bruce Stuart
Davis, Steven Howell
Frentz, Richard Joseph
Goertz, Robert A.
Humphreys, John
Kelly, Barbara M.
Lucas, Stephen
*Lund, Roderick D
Mangum, Jr., Leo Wayburn
McNew, Billy D.
Ost, Lyle H.
*Rainwater, Richard C.
Ralph, John G
Schleicher, Karl L.
Stevens, Linda K.
Sweatt, Mollie J
*Thierjung, John C.
*Wagner, Lawrence E.
Wilkerison, James Phillip
Williams, Steven R.

* signifies first term

WESTERN PROFILE 60  SUMMER 1994
12 Years

Armstrong, David
*Atkinson, John R.
Barker, Karrie A.
Bauer, Paul R.
Blankenship, David W
Cardenas, Dora E.
Clee, Kevin
*Dangle, David S
Donnelly, Paul Howard
Doudna, Lawrence D
Drechkahn, Frank J
*Dumsday, Michael W
Elliott, Scott L.
*Eovaldi, Ronald S
*Fitzpatrick, Dohn C.
Garbutt, Richard A.
Gaudet, Greg
Ghaly, Waghi Matta
Gregory, Michael
Gulunay Necati
Hamilton, Earl F.
Hansen, Erik Volund
Hendrickson, Kathryn L.
*Heron, Riley M.
*Hill, William D.
Hodo, Robert Lee
Johnson, Lee
Jordan, William E.
Keck, Donald W
*Khan, Sardar Ehtesham
Koonce, John H.
Landau, Paul L.
Lehmann, Terry
*Martinez, Frances
Mason, Peter C.
McFerrin, Glen Allen
*McMenamin, Hugh J
Meeking, Matthew Charles
Millis, Samuel F.
Mills, Scott A.
Morrison, David A.
Paliwoda, David L.
Parker, William W
Pink, Paul B.
Satterfield, Rick L.
Shaw Gregory C.
Skibbe, William P
*Skillman, William T
*Snyder, John C.
*Spencer, Daniel H.
Squibb, Tracey
*Szucs, Richard
*Tableman, Mark J
Tayler, Charles David
Thomas, Richard William
Thomas, Roy Anthony
Thomson, Jeffrey K.
*Thornton, Raymond H.
Trainer, Patrick J
Van Dyck, Janece I.
Vanmeter, Darrell F.
Virobik, Daniel Lee
Visser, Mark A.
*Williams, Sylvester
*Woody, Joseph S
Zerby, John Charles
Zysk, Romuald

11 Years

Amerine, Marvin K.
Bennett, Colin Michael
Brooks, William C.
Buffyham, Wayne Gordon
Congleton, Christopher
Dohse, Mark A.
Edwards, Margaret C.
Fleure, Thomas J
Fontenot, Lewis
Forsythe, Terry P
*Gibbons, Michael S
Goodman, Perry M.
Hallmark, Joe I.
*Lara, Ray
*Meyer, Thomas J
Mora, Mary H.
Morel, Kathryn L.
Mosier, Trina
Penn, Gerald L.
Prevette, Dennis F.
*Prozeller, John E.
Rhodes, Gisela
*Shaver, Shaun R.
Townes, Walter C.
Utech, Randal W
*Wright, Carey

9 Years

Albers, James
Allen, William Chapel
Benson, Christopher E.
Blake, William Donald
*Bole, Jr., James R.
*Bradley, Philip
Brock, John G
Bucceri, Jeffrey R.
Chow, Adam
Cole, Lynn David
Daleo III, Frank
*Daniels, Ross Kevin
*Diep, Tai Gia
*Ehrsam, Ronald Joe
Elazazy, Handy T
Elenga, Merle E.
Elizondo, Elia E.
*Fleming, Sharon L.
Fretwell, Edward R.
Giang, Tom
Guishan, Thomas M.
*Hedges, Patrick K.
*Hermecke, Steven E.
Hibghberger, Linda D.
*Hitchcock, Neill P
Hudson, Douglas M.
Ilagan, Maximio R.
Jackson, Alexander R.
Jones, Colin W
Hart, Douglas L.
Hemsell, Todd Rote
Hereford, Michael G
*Hill, Joseph N
*Holloway, Chris D
Houser, Kelly M.
Johnson, Colin
Jones, Kevin W
Kazmi, Syed M.
Malone, Melvin F.
*Millson, Vivian
Mobley Jr., Everett C.
Penrod, Eileen Knapn
Rennick, Brent Anthony
Rice, Shawn Lloyd
Savio, John B.
Selle, John M.
*Simpson, James
St. Louis, George J
Terrazas-Rojas, Lucio
Treviso, Arcadio L.
Ward, Kevin L.
Watkins, Richard
Whitby Jr., Thomas H.
Williams, Jr. Wilbur
Wilbur, Thomas L.

*Indicates some level of contribution or recognition.

Kleen, Vicke J
Le, A. Kim
Leith, Simon A.
Lyons, June E.
Mather, Tim H.
McCoy, Roger Allen
McKenzie, Michael E.
McWinch, Michael L.
Mitchell, Tamara J
Montgomery, Robert
Nguyen, Tung T
O'Beirn, Michael P
O'Toole, Patrick K.
Ortega, Donald R.
Ostrand, Matthew W
Perez, Jesse
Pham, Lan Bui
Pinto, Maria V
Quigley, John
Randel, Eva
Rimmer, William John
Roberts, Christopher E.
Roberts, Michael A.
Robinson, Theresa
Rodden, David K.
Sangster, Joseph
Saunders, Thomas N
Schneider, Curt
Scott, James H.
Simpson, June
Smith, Griffith C.
Smith, Kathy Ann
Snyder, Deborah A.
Sondagar, Ghanu
*Sparkman, Jr., Jackie W
Spragg, Nicholas R.
*Starr, Jr., Jack N
*Stowers, Michael Joseph
Swafford, Dave L.
Swerdlow, Richard S
Taccquard, Jr., William E.
Thomas, Steven A.
*Tseui, You-Hsin
*Vanovac, Vladimir
Villarreal, Joe Henry
Vogler, Raymond E.
Waterman, Robert M.
Wilbur, Thomas L.
*Williams, Mark L.
Wilson, Colin Allan
Wilson, Richard L.
Wonica, George M.
Wraie, Anthony
Yapuncich, George T
*Yarborough, Terry L.
Young, Anthony
Zapata, Silvia
Kennel, Kevin Shane
Kiang, Samuel P
Kirwin, Neil Francis
Kitts, Andrew P
* Koehler, Donald B
Love, Nathaniel P
MacDonald, Peter T
Magee, Robert L.
Mainland, Ivan W
Maulin, Forrest L.
McLaughlin, Bruce C.
* McSwain, Marc B.
Moore, Danny T
Ortega-Tamayo, Octavio
Pace, Christopher P
Peel, Jeremy David
Pere, Janusz
Price, Jerry K.
Paskacz, Eugene P
Raleigh, Stephen James
Redmond, Eamon
Seely, William R.
Shihauden, John Eric
* Smith, Kenneth J
Soliz III, Julian
Taylor, Denis Charles
Teague, Alan G
Tsoa, John Tsu Yung
* Vasey, Steven R.
Vristo, Edward S.
Vorheer, William P
Wakeling, Peter C.
Ybarra, Becky

Schafer, Bret Craig
Shamburger, William A.
Smith, Stewart
* Stattham, Andrew R.
Syers, Timothy R.
Taylor, Steven
* Vevers, Mark Godfrey
Williams, Scott
Woolley, David A.

Dyess, Earl W
Edgerton, Jack T
Eisenhower, Mary E.
Elkington, Gary J
Fiorentini, Martin
Freel, Richard
Gallardo Carrasco, Ruben
Gavahan, Kathleen A.
Gomez, Joern
Haddox, Michael L.
Hougham, James R.
Hyde, Jeremy Blake
* Jaeger, Rodney Joseph
Jeffels, Mark
Joffre, Juan C.
Johnson, Richard W
Johnston, Terry B
Langenback, Viktor Frank
Leathem, Mark Stephen
Lewis, Carter J
Logan, Roger M.
* Maglasang, Rey P
Mallard, John R.
Marsden, Paul
Mayo, Jeffrey D
McEwen, Norcen
* McGuinness, Ronan
Miller, Betty
Moline, Malcolm F.
* Munoz, Irma R.
Nash, Robert Terry
O'Brien, Allan D
Orlean, Jerzy
Oxshere, Cheryl Kinlaw
* Parker, Theresa B
Popelka, Mark J
Raack, Eric S.
Rainwater, Joseph M.
Reed, Maxine
Ricks, Eddie
Rodriguez, Martin P
Rowell, Charles M.
Schultz, Gehrig S.
Smith, Graham F.
Smith, Jason Lyle
Smith, Richard Dean
Smith, William Frederick
Snelling, James A.
Soliz, Jr., Jose M.
Strasser, Joel Z.
Sturm, Martin
Teague, James D
Thornton, Arthur
Turner, Barry J
Vance III, Benjamin F.
Venette, John Charles
Vickers, Paul
Wolstenholme, Christine

5 Years
Adam, Abdul
Aziz, Showk
Bartlett, Steven Scott
Bhamra, Mannohan
Bowen, Charles Allen
Breckling, Robert J.
Brogan, James Patrick
Brunlow, Dorothy B
Busch, Dean W
Cadenhead, Steve F.
Capello, Nestor O.
Carter, David
Chitwood, Don D
Clark, Vickie L.
Coil, Brian L.
Crisp, Mark A.
Davis, Linda J.
Dittmann, William L.
Dryton III, John C.
Elizondo, Roel E.
Evans, Evelyn Faith
Feinstein, Galina
Feld, Anthony
Ferguson, Scott D.
Galvan, Salvador
Gillett, Norman
Gonzales, Erasmo
Guerra, Albert
Guijar, Roland
Hammerton, Mark C.
Hawkins, Charlotte A.
Hines, William R.
Hung, Doan Chi
Jackson, Craig Paul
Jackson, Shane E.
Jandu, Manjeav
Jernigan, Jon
Johnson, Jr. Clifton A.
Jurea, Maria Guadalupe
Kukowski, David F.
Lasch, Ray G
Laycock, Neil A.
Lerbakken, Loren M.
Madden, Dora J
Mahler, Alidore Joseph
Mikkelsen, Claus V
Miller II, Giffith L.
Moffett, Lorette M.
O'Carroll, Declan
Paine, Stephen C.
Palinckx, Gregory S.
Penas, Martin

8 Years
Bassett, Julia
* Brazil, Jim Nelson
Ellena, Jeffrey J
* Enriquez, Hector Rafael
Eskridge, Benjamin L.
Esmail, Yasin
Field, Mostyn
Flentge, David M.
Harris, Jarvis W
Hill, Tony E.
Knerr, Everett L.
* Mohagheghi, Farzad
Mora, Walter V
Noyes, Linda Jane
Paton, James F.
Pfeffer, Penney
Record, Derk D.
Robinson, Charles L.
Robinson, Geoffrey
Sangren, Larry
* Saye, David B

6 Years
Abendroth, Kris Tina
* Anderson, Kevin L.
Arnold, Dennis S.
Barrow, Dorothy L.
Bartosh, Bruce K.
Boegele, Myra B
Boepple, Michael W
Belaftey Omeo, Luis A.
Bonser, Andrew
Byrum, Raymond
Castor, Roland D.
Domingo, Jr., Lawrence B
Doussau, Dennis A.
Phinney, Richard D.
Puga, Paul
Quicksall, Virgil Lynn
Ristau, Peter J
Rodriguez, Hernando S.
Russell, Robert A.
Scott, Jason G
Smith, J C.
Smithee, Larry L.
Stanley, Bryan A.
Swain, David Alan
Swain, John D
Swiader, Timothy M.
Tagovailoa, Tagiilima C.
Taylor, Terry L.
Terry, Marshall
Thomas, Jr., Willie R.
Thomas, Paul Joseph
Thompson, Michael W
Tullis, Andrew
Turner, Paul Robert
Van Loenen, Paul M.
Vaughn, Lois W
Weikart, Mark L.
West, Paul
Williams, Simon
Wise, Mark W
Wong, Richard V
Wood, Susan B
Young, John A. S

* Interrupted Service

If you have any questions regarding your service date, please call payroll at (713) 972-5803 to update your records.