PEMEX EXPLORACIÓN Y PRODUCCIÓN is the up-stream subsidiary of Petróleos Mexicanos. In relation to crude oil and natural gas, its responsibilities include exploration, production, transportation, storage and sale.

Pemex Exploración y Producción is organized geographically in four regions that, together, cover all Mexican territory and territorial waters. Regions typically have Integral and Regional Exploration Assets (special units that concentrate on essential exploration and production activities.) In the Northern Region there are four production Assets and four of exploration. In the Southern Region there are seven production Assets and three dedicated to exploration. In the Northeast Marine Region there are three production Assets and one dedicated to exploration. In the Southwest Marine Region there are just three Assets dedicated to production.

The physical infrastructure dedicated to field operations includes 185 offshore platforms, a storage capacity of 26.8 million barrels and one oil and gas pipeline network of upwards of 12,000 kilometers, 4,590 development wells and 309 production fields.

The initial task undertaken by the current management team of Pemex Exploración y Producción was to come to a total assessment of the condition of the company, with particular reference to those obstacles that limited its sustainable growth.
With the information obtained from this review, a new business plan was drawn up. The plan has three objectives:

- Aggressive growth in ways that meet international best practices standards
- Improve the company’s competitive performance to assure its long-term position
- Obtain recognition as a leader in the international arena.

The accomplishment of the goals of the plan entails the carrying out of steps that involve the entire company and that imply a significantly higher level of investment. The investment program is directed toward the following objectives:

- To reverse the pattern of incorporation of new reserves that is low compared to production
- To reverse the pattern of a decline in production of light crude oil and natural gas
- Lower production costs in mature fields
- To accelerate the production of non-associated natural gas
- To maintain the production level of heavy crude oil.

The implementation of these steps, coupled with the adoption of international best practices standards in the international oil industry in terms of process, productivity, environmental protection, and industrial safety has led to positive results: the Company has reached important milestones in diverse disciplines:

- Drilling and well completions
- Incorporation of new reserves
- Historical records in oil and gas production.

**Oil and gas production**

In 2002 crude oil output reached an historic record of 3.2 million barrels per day for the year. This level represents an increase of 1.6% over the level of 2001. On Sept. 9, 2002 a production record of 3.402 million barrels, was reached of Maya-grade output.

Crude oil production, by Region, took the following form: Northeast Marine (67.7%), Southern (15.7%), Southwest Marine (14.2%) and Northern (2.4%).

The production in the Cantarell Asset, in the Northeast Marine, accounted for 1.9 million barrels per day of heavy oil, nearly 60% of total production. Principal light oil fields were Caan, Abkatun and Chuc in the Southwest Marine. Finally, Samaria, Sitio Grande Asset was the principal provider of superlight crude oil.

Nationally, crude oil production, by grade, was in this proportion: heavy (68.2%), light (17.4%) and superlight (14.4%).

**Natural gas.** As for natural gas, average production was 4.4 billion cubic feet per day (measured at 200 Celsius and 1 kilogramme/centimeter²). This output was 1.9% less than that of 2001, a result that was caused by delays in the start of operations of facilities as well as by inclement weather, including the effects of hurricane Isidore.

By type and volume, output was as follows: associated gas was 3.1 billion cubic feet per day (70.5%) and non-associated gas was 1.3 billion cubic feet per day (29.5%)

Two-thirds of gas output was in the Northern and Southern regions, and the remaining third in the two offshore regions.
By Asset, Burgos, located in the Northern Region, achieved the largest output of gas at 1.0 billion cubic feet per day, a volume that represented nearly a quarter (22.8%) of the total. As a result of an intense program of well completions, infrastructure development and logistics, on Dec. 31, 2002 the Burgos Asset achieved a record of 1.038 billion cubic feet.

Oil and gas distribution

Oil. The country’s crude oil output is delivered to domestic and export markets. In 2002, 1.4 million barrels per day, an increase of 2.8% over 2001, were sent to processing facilities while 1.7 million barrels per day were shipped to international customers.

Volumes sent for processing were these:
- Refineries (1.2 million barrels per day), mostly light oil
- Chemical plants (145 thousand barrels per day)
- Processing agreement operations outside Mexico (130 thousand barrels per day).

As for exports, volumes delivered to the Company's trading unit, PMI Comercio Internacional, S.A. de C.V. were slightly lower (2.3%) in relation to the level of 2001.

By grade, crude oil exports were these: heavy (83.0%), superlight (14.3%) and light (2.7%). Relative to 2001, heavy crude exports increased their share of the total by 5.9%.

Natural gas. During 2002, Pemex Exploración y Producción delivered upwards of 4.4 billion cubic feet per day of natural gas, consisting of volumes of sour gas, dry gas and sweet gas directly from the fields. Of the total, nearly all (99.5%) was received by Pemex Gas. This volume, represented an increase of 2.1% in relation to that of 2001. For its part, Pemex Refinación took delivery of 22 million cubic feet per day.

Pemex Exploración y Producción itself consumed 443 million cubic feet per day in its operations, a volume similar to that observed in 2001.

As for natural gas flaring, an important achievement was reached with the reduction by nearly a quarter (23.4%). The average flared volume was 266 million cubic feet per day. The advance was in response to a larger compression capacity on the platforms and in the gas pipelines. The utilization index reached 94.0% in 2002, up from 92.3% observed in the previous year.

Investment

Allocations. The total amount of investments in 2002 was 7,443 million U.S. dollars. These funds were channeled principally in the following areas:
- Expansion of Cantarell oil production capacity
- Expansion of Burgos non-associated gas production capacity
- Strategic Gas Program (some 20 projects)
- Grijalva Delta development project.

Additionally, investment funds were directed toward strategic activities such as:
- Reserve additions
- Major well repairs
- Complementary infrastructure involving production facilities and pipelines
- Field development
- Transportation and distribution systems for gas and condensates.

Finally, a portion of the capital budget was invested in related activities:
- Infrastructure maintenance in fields, wells, platforms, equipment and facilities
- Industrial safety
- Environmental protection
- Interest payments on long-term infrastructure projects

Cantarell. The supergiant field, the eighth largest in the world in terms of reserves, is located in the most important production area in the country. The efficient exploitation of this field has repre-
sented a real challenge for Pemex Exploración y Producción. To increase its economic value, in recent years there have been large investments allowing for a higher level of production. With the completion of diverse infrastructure projects in Cantarell significant results have been seen:

- An increase of 10.6% in oil production (1.9 million barrels per day), compared to 2001
- A similar increase of 10.7% in natural gas production (reaching 688 million cubic feet per day), compared to the previous year
- An increase of oil production of 179 thousand barrels per day associated with the entering into operation of a production platform, Akal-B, in the second half of the year.
- A record for monthly production was achieved in October at 2.014 million barrels per day.
- A reduction of gas flaring with the entering into operation of a new sour gas compression platform in September 2001.

**Burgos.** The Burgos Basin Project is designed to develop the production potential of the basin and thereby to maximize its economic value. An increase in non-associated gas production is needed to respond to rising national demand, principally from the electric sector.

Investments in Burgos over the years have had positive results: whereas, in 2002 gas production was 1.0 billion cubic feet per day, in 1996 it was just 386 million cubic feet per day.

Mexico's northeastern region offers a high potential and excellent opportunity to continue increasing gas production by means of this strategic project as well as by others.

**Grijalva Delta.** This area is important for the high value in international markets of its superlight oils (38-51º API). A portion of the production from this area is used to enrich the mix of Mexican crude oil exports.

The objective of the project is to continue the exploitation of the following fields: Caparroso-Escuintle-Pijije, Escarbado, Luna-Palapa, Sen and Tizón. The goal is to optimize the recovery of the hydrocarbons by paying close attention to the operational status of well infrastructure, processing facilities and transportation systems.

The Grijalva project has been in operation since 1998 with cumulative production of 134 million barrels of oil and 474 billion cubic feet of gas.

**Strategic Gas Program.** The Strategic Gas Program responds to the dynamic growth in demand for natural gas. Results of investments in this program as of Dec. 31, 2002 included additions to reserves of 1.1 trillion cubic feet.

**Well completions.** In 2002, thanks to the larger availability of investment funds, there were 459 well
completions, of which 55 corresponded to exploratory wells and 404 to development wells. These completions reflected the discovery of 17 new commercial gas fields and one commercial oil field.

Prospects. An ambitious program of seismic data acquisition of unprecedented scope gave impressive results. The overall number of drilling prospects increased substantially as well as the number of those approved and funded for development.

Reserves
The long-term growth strategy of any oil company must take into account the size and quality of its reserves as the financial resources needed for their development. Pemex Exploración y Producción has therefore developed a robust and profitable portfolio of investments, one designed to maximize the economic rent for Mexico from its hydrocarbon resources. The portfolio includes development and production projects as well as others associated with environmental protection and industrial safety.

As of 2002, Mexico’s proved reserves were calculated in accordance with definitions issued by the U.S. Securities and Exchange Commission (SEC). As for the estimation of probable and possible reserves, the standards of the Society of Petroleum Engineers (SPE) and the World Petroleum Congress (WPC) continued in use.

As of Jan. 1, 2003, Mexico’s total hydrocarbon reserves rose to 50.0 billion barrels crude oil equivalent. This amount had the following distribution: Proved 20.1, Probable 17.0 and Possible 13.0. By type, total reserves had the following composition:
- Crude oil (72.5%)
- Dry gas (18.8%)
- Natural gas liquids (6.9%)
- Condensates (1.8%).

Regionally, reserves were distributed in this way:
- Northeast Marine Region (33.9%)
- Northern (41.6%)
- Southern (15.4%)
- Southwest Marine Region (9.1%).

By grade, crude oil reserves were in this form:
- Heavy (API < 27) 52.8%
- Light (27–38 API) 37.6%
- Superlight (API > 38) 9.6%.

Reserve additions. In 2002 reserve additions came to 612 million barrels crude oil equivalent. This amount by itself represented a replacement level of 40.6% of the 1.5 billion barrels crude oil equivalent produced during the year. These reserve additions were discovered in the basins known as Burgos, Tampico-Misantla and Southeast. Total additions (in million barrels crude oil equivalent) were classified in the following way: Proved 124.8, Probable 217.6 and Possible 269.3.

Compared to 2001, the total reserve additions in 2002 represented an increase of 183.5%.

R/P Ratio. The quotient obtained by reserves to annual production is a measurement, in years, of the remaining reserves. As of Jan. 1, 2003, the R/P Ratio, by category of reserve, was this: 33 for Total Reserves (3P), 25 for the sum of Proved and Probable (2P) and 13 for Proved (1P). For non-associated gas, the R/P ratios were 18 (3P), 11 (2P) and 8 (1P). The reserves of light and superlight oils, taken together, were 23 (3P), 19 (2P) and 14 (1P).

Safety and environmental protection
During 2002 Pemex Exploración y Producción continued with the implementation of a program designed to centralize monitoring and control of safety and environmental protection (known as SISPA, for its initials in Spanish) parameters. The implementation of the program reached a 90% level.

In this year Pemex Exploración y Producción achieved satisfactory results in relation to its Health, Safety and Environment goals:
- To lower environment impact of operations
- To improve safety standards for workers
- To improve safety for the local population.

The accident frequency and severity declined in 2002 by 9.5% and 19.4%, respectively, compared to those of 2001. During the year there were 1.14 accidents and 154 days lost measured per million man-hours. These favorable results were obtained despite the unfortunate occurrence of two accidents with fatalities.

In relation to the disposal of wastes, as a normal result of activities associated with drilling and well termination cuttings the formation and drilling mud accumulate as industrial waste. Thanks to multi-year contracts, Pemex Exploración y Producción has been able to maximize the safe disposal of these wastes, achieving in 2002 the elimination of slightly more than the total produced during the year.

In relation to the restoration of soil that was contaminated by accidental spills and leaks, during 2002 Pemex Exploración y Producción carried out the remediation of nearly 100 hectares, falling of the inventory of areas pending remediation by 15.5%.

During 2002 there were 113 environmental audits, and there were 16 certificates of Clean Industry. Thus, at the end of the year, Pemex Exploración y Producción had earned 170 Clean Industry Certificates for the same number of industrial facilities.