

2132401173

HD 9574 V4 L3366 1991 LAC

LIBRARY
USE ONLY

TXU

★
THE
NETTIE LEE BENSON
LATIN AMERICAN COLLECTION
of
The General Libraries
University of Texas
at Austin



LAGOVEN
FILIAL DE PDVSA



Lagoven Operational Highlights

1991



Lagoven, S.A.

Subsidiary of Petróleos de Venezuela, S.A.

Board of Directors

President

Julius Trinkunas

Vicepresident

Armando Segnini M.

Directors

Francisco G. Anzola

Gonzalo Castillo G.

Odoardo León-Ponte

Ramón Mantellini Q.

Gustavo Quintini A.

Lagoven Operational Highlights

1991

BENSON
LATIN AMERICAN COLLECTION
AUG 19 1994
UNIVERSITY OF TEXAS
AT AUSTIN

President's Message

Emerging events on the national and international scenes in 1991 posed important challenges which tested Lagoven's operational flexibility, response capability and professional capacity. Taking into account the firm's inherent characteristics, we were able once again to achieve excellent results, reaching and surpassing our goals with respect to reserves levels, production potential, refining, exports, national market sales and financial results. Crude reserves reached 28 billion barrels while natural gas rose to 35 trillion cubic feet. Production potential totaled 1,162,000 barrels per day and average daily production of crude reached 972,000 barrels per day, the highest level in 12 years and 113,000 barrels above 1990 totals.

In the area of exploration and geological studies, a total of 7,143 kilometers of conventional seismic lines were shot along with 1,742 square kilometers

of tridimensional seismic lines in the search for light and medium crude and an improved definition of current deposits, both in the Eastern and Western regions of the country.

In refining, we took advantage of market opportunities and processed an average of 475,000 barrels per day of crude, surpassing not only the totals reached in 1990 by eight percent, but also achieving the long single continuous run in the last 17 years.

As a result of planned marketing strategies, Lagoven's export sales increased to 515,000 barrels per day of crude and 284,000 barrels per day of products for a total of 799,000 barrels per day.

Our market profile broadened with the placement of important volumes of aviation fuel and distillates in Europe, the sale of residuals from the Bahamas to compete in the Florida market (USA) and the consolidation of asphalt sales in Canada.

We also signed long-term contracts to supply 60,000 barrels per day of heavy and extra-heavy

crudes. Lagoven sales on the internal market reached 89,300 barrels per day, for a total national market share of 27%.

In the search for new business which will allow us to take advantage of available resources and achieve greater benefits for the nation, we are evaluating in close cooperation with our parent company, strategic associations with the German firm Veba Oel in order to produce high quality synthetic crude from the extra-heavy petroleum found in the Orinoco Oil Belt in the area of Cerro Negro, south of the state of Monagas.

We are also moving ahead with projects involving gas and condensates production, including Christopher Columbus and Rio Caribe, which are of vital importance to the national industry's plans to seek out new income opportunities.

The year 1991 was also one of consolidating the implementation of a Total Quality managerial focus, applying it to the continuous improvement

of more than 300 corporate work process.

Lagoven also fulfilled its social responsibility with its constant efforts to promote national and regional development through Umbrella Agreements signed with technical and government agencies for aid and cooperative projects in the regions where the company operates.

These agreements currently cover areas such as farming and animal husbandry, urban development plans, regional planning and managerial support for municipal councils and governments in various states.

The company continues to provide support to educational institutions, especially universities, health, cultural, sporting research, adolescent and youth organizations. We also concluded community projects to improve the quality of life in our operational areas.

With respect to the dissemination of culture, the company established «Lagoven Notebooks» as a communications tool which promotes Venezuela

through all media, including. The emphasis of «Lagoven Notebook at Big Screen» in 1991 was the promotion of rising young Venezuelan stars who have triumphed in diverse fields of knowledge and talent.

A prime factor in the excellent operational year enjoyed in 1991 was the team of men and women who form the basis of our strength and enthusiasm.

We are convinced that no business strategy can be truly effective if it doesn't take into account the material and spiritual needs of our personnel. With this in mind, we are strengthening the mutual commitment between the corporation and its people, to assume the challenges of the coming century and to maintain Lagoven as a leading petroleum company on both the national and international levels.

J. Trinkunas

Julius Trinkunas

Lagoven continued its seismic readings at its Maturin East Project in Monagas state in an area with promising perspectives of hydrocarbon reserves.



Operational Results

Exploration

Lagoven's exploratory efforts in 1991 were conducted within a clear policy framework of selective incorporation of higher quality hydrocarbons to maintain long term production potential.

The exploratory program was responsible for the shooting of 6,900 kilometers of conventional seismic lines and 32 square kilometers of tridimensional seismic lines and continuing the task of seismic mapping in the Maturin-East area (the Eastern Swamp), which was 60% completed in its acquisition phase.

The company also advanced its exploratory drilling campaign in northern Monagas, adding 20 million barrels of light crude and 84 billion cubic feet of natural gas to its reserves with the successful incorporation of two wells, Boquerón-3X and Chaguaramal-2X. Lagoven also continued drilling Cotoperi-IX and Boquerón-9X, which will be completed in 1992. Aside from exploratory activities, the company also completed three projects in tridimensional seismic mapping totaling 1,710 square kilometers along with

243 kilometers of conventional seismic mapping of existing deposits in a program to optimize their output. The information gathered will help define the deposits north of the Paria Península as well as in the areas of Centro Lago and El Furrial.

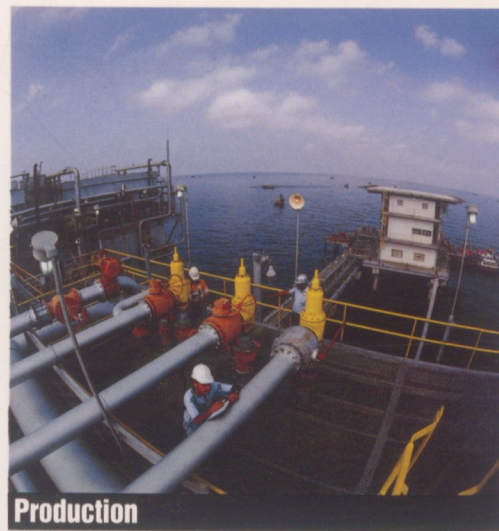
Production

In 1991, Lagoven registered its highest production totals in the last twelve years, pumping an average of 972,000 barrels per day (bpd) of crude, 133,000 bpd above the totals in 1990. Furthermore, the company also produced 34,000 bpd of natural gas liquids.

Gas production averaged 1.482 billion cubic feet per day, 37% of the national total.

Condensates and light and medium crude yields were maintained at optimum levels, accounting for 82% of the company's total production.

PRODUCTION POTENTIAL increased to 1,162,000 bpd of petroleum, a 48,000 bpd increase over 1990. The results of exploration and other activities throughout the year produced an increase in the company's PROVEN RESERVES OF PETROLEUM AND GAS of 32 million barrels of light crude and 92



Production

	1990	1991
Production Potential (000 bpd)	1,114	1,162
Average Production (000 bpd)	860	972
Gas Production (Million bpd)	1,403	1,487
Production of Gas Liquids (000 bpd)	33.3	33.7
Development Wells	140	252
Well Repair and Servicing	640	4,030



billion cubic feet of natural gas, bringing total corporate reserves to 28.213 billion barrels of crude and 34.961 trillion cubic feet of gas, respectively. In secondary recovery work, Lagoven started two water injection projects in Lake Maracaibo, incorporating approximately 55 million additional barrels of medium gravity crude to its volume of reserves. The company also began a third project, in the El Furrial field in Monagas, in order to guarantee a consistent production profile and recover 1.35 billion additional barrels of crude. The project, known as RESOR, advanced 98%, according to plan.

In order to optimize the consumption of gas used in artificial lifting, the company installed new equipment and structures to allow a savings of 7.3 million cubic feet of gas per day and a 17.2% increase in crude output from producing wells employing this method.

In the eastern region of the country, the company increased gas compression capacity by 237.2 million cubic feet per day to satisfy operational needs in the new developments located in northern Monagas. The three new gas compression plants installed at Jusepin, in the same state, have a com-



The Centro Lago 1 Gas Compression Plant: foreground, Abouhala Acram, operator; background, Marcelino Torrealba, operator, and Andrés Acosta, supervisor.

In the laboratory at EPM-1: Alix Guerrero, assistant supervisor; Lexaida Carvajal, technical; Daysi Dominguez, supervisor.

Control Room of the Principal Station at Morichal (EPM-1): Wilfredo Padrón, auxiliary supervisor, and Freddy Marin, operator.

Work advanced on the expansion of gas production installations at the INFRAGAS Project (Nueva Estructura de Gas) in the western region, with the project reaching 71% completion. Construction was also started on the plant for the ACOGAS (PROYECTO DE ACONDICIONAMIENTO DE GAS ORIENTE) in the western region. Once on stream in fourth quarter 1992, the plant will have a daily capacity to process 250 million cubic feet of gas and recover 8,000 barrels per day of natural gas liquids.

Development of the Orinoco Oil Belt

Lagoven constantly sought new ways to take full advantage of corporate resources and optimize the economic benefits for the nation. With this in mind the company, in cooperation with Petróleos de Venezuela, has advanced feasibility studies on strategic associations to exploit important heavy and extra-heavy crude reserves in the Belt. The effort includes a joint study by Lagoven and Veba Oel to employ the Veba Combi Cracking (VCC) process to produce high quality synthetic crude (with a gravity

above 39 degrees API) from extra-heavy crudes. Other company projects in the Belt include: the start-up of a new production area with the drilling of nine new wells grouped in the shape of an «L» (Macolla); the completion and inauguration of a heating station for the Temblador-Caripito pipeline. The station will increase pumping capacity from 60,000 bpd to 80,000 bpd of Pilón quality crude; and, the successful evaluation of subsurface pumps to increase the output of heavy and extra-heavy crude wells by up to 30%.

Orimulsión™

The company's efforts focused on the construction of the Morichal-2 Main Station (EPM-2). Once on stream in the second quarter of 1992, the station will have a processing capacity of 100,000 bpd of fuel, and help guarantee compliance with supply agreements signed by PDVSA subsidiary Bitúmenes del Orinoco (BITOR). A highlight of the project is the recovery of the distillation tower at the Caripito Refinery, constructed 53 years ago, and its reinstallation at the EPM-2 plant. The tower will be used to separate and re-

⁸ The Centro Lago 1 Gas Compression Plant: is part of the important gas Complex of Lagoven.



cover the solvent in the bitumen flow coming from the production blocks, thus initiating a new stage in the manufacture of Orimulsión™. Production and exports in 1991 from the Punta Cuchillo Embarkation Terminal totaled 6.9 million barrels of Orimulsión™, destined for clients in the United States, Great Britain, Japan and Canada.

Christopher Columbus Project

In 1991, Lagoven was assigned the task of exploiting the gas deposits it discovered in offshore areas north of the Paria Peninsula. The company will be responsible for the fields of Patao, Mejillones, Dragón and Los Testigos.

In compliance with the Preliminary Development Agreement signed with Shell, Exxon and Mitsubishi to exploit these reserves, Lagoven conducted studies in the area to yield a more precise reading of existing hydrocarbon reserves, evaluate environmental conditions and determine the marketing and financing status of the project.

Among the activities conducted were the mapping of 61,600 linear kilometers of tridimensional seismic lines, equivalent to an area of 1,200 square kilometers.

The company also began a thorough analysis of the environmental and socioeconomic features of the region where the infrastructure will be constructed. In June 1991, the national government submitted the general framework of the accord to Congress, which proceeded to name a special Bicameral Commission to study the proposal.

Refining

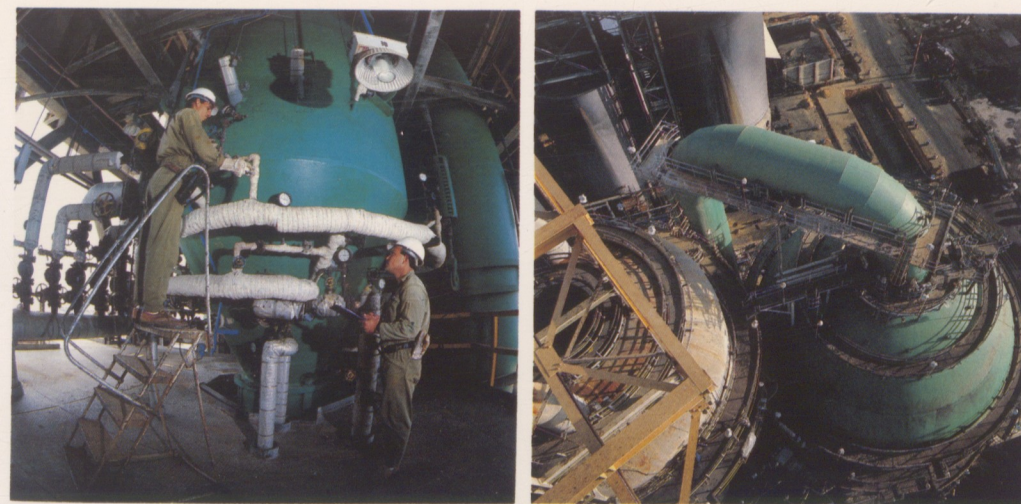
The Amuay Refinery registered its highest output levels in the last 17 years, helping meet in both quantity and quality the domestic market's demand for products while concurrently taking advantage of export opportunities. Amuay processed an average of 475,000 barrels per day of crude an 8% increase over output in 1990. The refining complex maintained an available distillation capacity of 614,000 bpd, 6% above the previous year's totals. Lagoven's production of refined products helped the company achieve an added value of three dollars per barrel processed. The production of 341,000 bpd of white products was the highest level in the refinery's history.

Production in 1991 also included: 122,000 bpd of

naphthas and gasolines, of which 48,000 bpd were placed on the local market; 33,000 bpd of turbojet fuel; 173,000 bpd distillates and gas oils; 1,700 bpd of base lubricants to meet local market demand; and 22,000 bpd of industrial and paving asphalts. The latter output helped Lagoven maintain its position as the principal supplier of asphalts for the East Coast area of the United States.

The refinery complex's expansion program will also increase the capacity of the CATALYTIC CRACKING UNIT by 23,000 bpd, to 108,000 bpd of vacuum gas oils as well as the production of olefins (for the alkylation unit), catalytic naphtha and distillates, all destined for national and export markets.

The inauguration in 1991 of the AMUAY-CARDON INTERACTION PROJECT was of strategic importance. This project connects the two refineries by pipeline, allowing them to exchange components for product mixes in order to increase the production of unleaded gasoline, turbojet fuel and diesel. One of the operational highlights of the year involved the Amuay Flexicoker, the world's largest, which operated for 572 continuous days—the longest continuous run at the plant



Operators Javier Castillo and Félix Fonseca at the Amuay Refinery's Catalytic Cracking Unit.

The Amuay Refinery's Flexicoker operated for 572 continuous days, the longest single run in the plant's history.

Refining

Thousands of Barrels per day	1990	1991
Liquefied Petroleum Gas	3	5
Naphthas - Gasolines	127	122
Kerosene	33	33
Distillates	136	174
High sulphur residual	100	102
Special Products	27	23
Others	5	6
Total	431	463
% Clean Products	70	72 ⁽¹⁾

⁽¹⁾ The highest percentage in the refinery's history.

Processing Average (mB/D bpd)

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
322	369	335	319	373	378	342	415	428	438	475

since it came on stream in 1982.

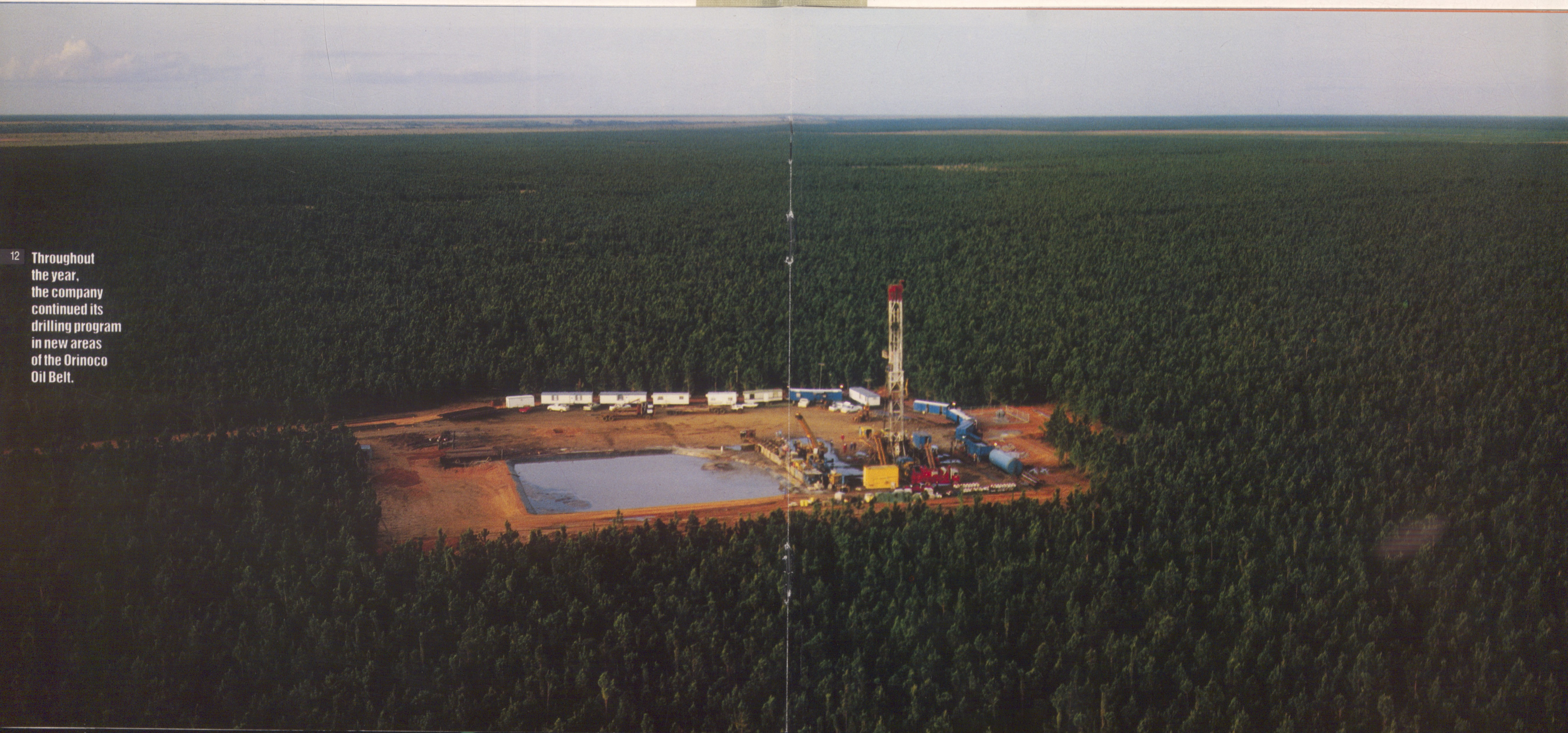
Other large-scale projects are also being pressed forward, including the launching of the DELAYED COKING PROJECT, which will reduce the production of high sulphur residuals by processing 34,000 bpd of brea to obtain light products and coke. Once on stream, the unit will provide benefits of approximately Bs. 7.5 billion per year.

The company also initiated the project to produce oxygenation components for high octane gasolines (MTBE and TAME). The operation is scheduled to come on stream in November 1992, producing 134,000 metric tons per year (mtpy) of MTBE and 119,000 mtpy of TAME.

Other endeavors under development include the SELECTIVE HYDROGENATION OF BUTADIENES, which will produce 3,000 bpd of octane enhancing additives to be used in gasolines destined for export. Project completion and start-up is scheduled for the third quarter of 1992.

Several environmental conservation measures and improvements at the Amuay Refinery are geared to help minimize solid wastes and atmospheric emissions. These include: Flexicoker Combustion,

12 Throughout the year, the company continued its drilling program in new areas of the Orinoco Oil Belt.



Flexigas Cleaning, and the Sulphur Plant, which together will require an effort of 415,000 man-hours in the engineering phase and 1.53 million man-hours in the construction phase.

In the field of technological assistance, the Refinery's specialists and technicians lent their expertise both to national private sector enterprise and government agencies, as well as to foreign entities. Included among the latter are the request from Petrojamaica for the reinstrumentation of Jamaica's Kingston Refinery. Technical assistance was also provided to: Citgo, in the United States, to conduct a metallurgical review of its distillation plants in order to process heavier crudes; Borco, in the Bahamas, in the inspection of steam boilers; and Ecopetrol, in Colombia, to help in the reconstruction of rotating equipment.

Commerce and Supply

Lagoven's international marketing efforts focused on diversification as a mechanism to maximize income.

Export sales during the year totaled 515,000 bpd of crude and 284,000 bpd of products, for an overall

Exports	1990	1991
Thousands of barrels per day		
Crudes:		
Light	77	50
Medium	153	188
Heavy	181	258
Reconstituted	12	19
Sub-total	423	515
Products:		
Gasolines - Naphthas	65	69
Distillates	108	138
Residuals/Others	83	77
Sub-total	256	284
Total Exports	679	799

total of 799,000 bpd, an increase of 120,000 bpd with respect to 1990.

Lagoven also emphasized its marketing strategy by signing new long-term heavy and extra heavy crude delivery contracts totaling 61,000 bpd, in order to guarantee an improved marketing profile.

In product marketing, the company took advantage of market opportunities to send shipments of turbo-jet fuel and distillates to Europe; initiated the sale of residual fuel from the Bahamas to markets in Florida; and consolidated asphalt sales in the Canadian market.

The company also advanced its program to expand the tanker fleet, increasing the capacity of its Morichal tanker and converting its Caripe tanker to transport Orimulsión™. During the year, the Lagoven-owned fleet averaged 258,052 bpd in crude and product deliveries, while leased units transported 257,899 bpd in crude and products to export markets.

National Marketing

Lagoven's sales on the national market averaged 91,199 bpd (excluding natural gas and petroleum



gas liquids), which represents 27% of total national consumption. Of this amount, 78,100 bpd corresponded to direct sales through the company's distribution network. Sales of fuel to ships and aircraft in international transit totaled 13,100 bpd, a result mainly of the sales at the Maiquetía International Airport.

Lagoven's six supply plants, located in the Capital area and in the western region of the country, handled an average volume of 80,000 bpd.

The company also completed construction of 10 service stations and remodeled 33 others in order to improve fuel distribution logistic and service to the consumer. The majority of these were setup as Express Service stations.

The company also inaugurated a new hydrants plant and network at the Maiquetía International Airport. The systems allows products to be transported by pipeline directly to the aircraft parking ramps, without having to use refueling trucks. Lagoven also completed the modernization of its Cantinas Plant. The modernization is part of the Project to Streamline the Tacagua System, which consists of the consolidation of two plants (Cantinas

National Market Sales	1990	1991
Liquids (000 barrels per day)		
Liquefied Petroleum Gas	1.9	0.9
Motor Gasolines	42.5	44.7
Aviation Fuels	3.9	3.9
Kerosene	1.8	1.3
Diesel/Gas Oil	13.1	14.7
Residual Fuels	6.5	3.9
Asphalts	5.1	4.7
Oils and Greases	1.2	1.5
Other Derivatives	1.7	2.5
Total	77.7	78.1
International Bunkers	12.2	13.0
Internal Consumption of Hydrocarbons (excludes natural gas)	89.9	91.1

Anirán Martínez, Fuel Services supervisor María Eugenia Rivero, chief of the Aviation Fuel Supply Services Project Maiquetía; Freddy Martínez, superintendent of Aviation Sales, and Miguel Fernández, Project Start-up coordinator and personnel involved with getting the «Maiquetía Aviation Fuels Services» system off the ground.

Boat maintenance at the Central Workshop in La Salina: Luis Gamboa (left), group productivity supervisor; Pablo Rojas (right), boat workshop supervisor.

and Catia La Mar), and the modernization and automation of all system installations.

Maintenance

The company continued to dedicate a large portion of its time to preventive and corrective maintenance measures as part of its on-going programs ensure the proper functioning of corporate installations.

Maintenance outlays during the year totaled approximately Bs. 17 billion, 33% of the operating budget, focusing mainly on efforts to cut down costs, avoid unforeseen interruptions, reduce emergencies and optimize operations.

Work in production areas was geared to the maintenance of installations, thus assuring consistent production levels. In refining, the principal measures concentrated on the recovery of processing plants, boilers, tanks and storage areas.

Materials

During 1991, Lagoven purchased a total of Bs. 54,556 billion in goods, of which Bs. 27,895 billion, 52% of the total, went to purchase materials on the national market. The company thus actively contri-

16 The Amuay Refinery in Falcón state reached its highest production levels in 17 years, processing 475,000 barrels per day of crude.



8
buted to national development by maximizing the acquisition of goods and services on the Venezuelan market. Together with Petróleos de Venezuela and its fellow subsidiaries, Lagoven also promoted a series of basic corporate programs to provide technological assistance to the industrial sector in the manufacture of materials of special interest to the National Petroleum, Petrochemical and Coal Industry. Especially noteworthy are the Manufacturing Assistance Program, which is geared to Total Quality, and the Technical Assistance Program, which seeks to improve Quality Control systems. Currently, the company has a registry of more than 3,000 suppliers with which Lagoven maintains good commercial relations to the benefit of national progress.

Industrial Safety

In the area of industrial prevention, the company achieved its most significant gains in the last three years and initiated new courses, workshops and group sessions open to both corporate personnel and employees of contractors. Industrial Safety indicators corresponding to the company's own

workforce show a 17% decrease in the Gross Frequency of accidents and a 10% decrease in Net Frequency, with respect to 1990. Furthermore, both the Severity and the Combined Gross Index registered were down 48% and 56%, respectively. Special emphasis was also placed on analysis and risk evaluation—employing the HAZOP technique—at all new Lagoven projects.

The company also continued its safety certification program for supervisors, seeking to reduce even further the risk of accidents to personnel working for Lagoven contractors.

Environmental Protection

The company emphasized environmental protection efforts in all its activities throughout the year. These included the launching of the Second Phase of the Environmental Information System, with which Lagoven will maintain an up-to-date data bank on environmental conditions at all areas under its responsibility. With the help of the Engineering Institute Foundation, Lagoven also began installing the Geographical Information System for environmental impact studies.

These environmental impact studies began in 1991, focusing on the Urdaneta Acid Crude, Acogas, Flexcoker Combustion and Delayed Coking projects. Work also advanced on an Environmental Impact Study of the area of influence of the Cristopher Columbus Project, as well as on the development of a basic environmental information system which is now 70% complete.

Informatics

Activities and projects in the Informatics area in 1991 focused on the requirements of a growing geographical diversity and operational complexity and the consequent greater demand for speed in communications, as well as on the access and exchange of information. With this in mind, Lagoven thus developed programs and new tools to support the company's dynamic transformation.

An important achievement in the area of new technologies involving Artificial Intelligence was the completion of the EXPERT SUPPORT SYSTEM FOR ARTIFICIAL GAS LIFTINGS (SEDILAG). This system is based on knowledge which allows the program to use practical experiences to make quick



Angel Diaz, of the Eastern Division's Environmental Protection group, and Leopoldo Pereira, of the National Parks Institute, supervise a reforestation project at Cerro Negro.

Luis Eduardo Quirós, supervisor of the data processing tape system which automatically feeds the central computer.

decisions concerning the diagnosis of wells using artificial lifting methods, in order to increase recovery benefits.

The company also completed the EXPERT PIPELINE INSPECTION SYSTEM, which will significantly reduce the task of pipeline inspection, concurrently improving the quality of diagnostics by providing inspectors with procedures backed up by the expert system, as well as offering direct access to information concerning API established norms. Another significant achievement in 1991 was the inauguration of the second phase of the ONGOING INSPECTION SYSTEM (SIEM) installed by several PDVSA operating subsidiaries. This system allows data and resource sharing among different inspectors, technical service users and mechanics, thereby diminishing the risk of faults produced by corrosion.

One of the most significant achievements in data processing was the installation of a new central computer at the Computer Center in Caracas. The system, catalogued as one of the most advanced in Latin America, replaces three units while doubling the Center's computing power. The company also

installed the second automated tape library which automates 80% of the work involved in tape storage and retrieval.

Human Resources

In accordance with Lagoven's principles, which hold that the quality of corporate results depends on the quality of its personnel, and their quality of life, the company adopted the concept of the employee as partner. Under this concept, Lagoven began redefining the process of personnel development as a function of the philosophy of Total Quality, thus responding to the new reality of its corporate environment and values.

The project is being coordinated by the company's management team. Its goals are to provide optimum conditions for the integral training and development of company personnel and to strengthen the organization to prepare it for the challenges of the future.

Lagoven also continues to improve its employee benefits programs. Last year, the company also created the Office of Attention to Retirees and the Office of Attention to Assigned Personnel. Both seek

to fill the need for direct, personalized attention. In response to increased operational activities, due to an expansion in operational levels, the effective labor force at year-end 1991 totaled 16,038 workers. In training and development, Lagoven registered a record one million man-hours of priority training. Preventive medicine, meanwhile, continued to be one of the most important medical assistance programs provided by the company to employees and their families.

Lagoven also provided support to «health club» programs in schools to heighten student awareness of the dangers of drug problems. Other activities involved support for programs in health laboratories, smoking control, stress management and cardiovascular diseases.

Lagoven inaugurated its «Maiquetia Aviation Fuels Services» system, at Maiquetia, placing it among the most modern aircraft refueling facilities in the world.



Total Quality

During 1991, Lagoven continued implementing its Total Quality philosophy, producing benefits in more than 300 corporate processes.

In order to measure the program's achievements, the company held the III Lagoven Seminar on Quality in October 1991 in the city of Maracaibo and was able to identify a sampling of 19 applications which have generated a total improvement in cash flow of Bs. 930 million.

Following are some of examples of continuous improvement programs either initiated or already under way in different operational areas and departments.

In the Western Division, the company was able to gain appreciable benefits in the SECONDARY RECOVERY PROCESS EMPLOYING WATER INJECTION. The implementation of a continuous improvement methodology resulted in a 10% increase in the volume water injected in 22 deposits subjected to the secondary recovery process. Additional benefits included a significant increase in the dependability factor of the units, successful

compliance with the test injection program and improved availability of equipment and spare parts.

The Eastern Division improved the EXTRACTION OF PILON CRUDE, which is the single important operational effort in the Division's Southern District. After evaluating the entire process, improvements were introduced in the maintenance of electrical equipment, the use of miniplants, steam injection and artificial liftings using gas. The efforts resulted in additional earnings of Bs. 32.3 million in 1991. Among the many outstanding accomplishments achieved by the Amuay Refinery is the application of the quality methodology in the DIESEL MANUFACTURING process. After conducting a thorough diagnosis, the company established new mixing procedures backed up by computerized support and daily control of inputs. The measures have minimized the number of diesel tanks which fail to meet specifications and generated savings of around Bs. 30 million per year.

Part of the work conducted by the National Marketing Department involved analyzing and improving maintenance procedures in service stations in



Falcón State, in order to optimize the service factor of the installed equipment. The information gathered led to new procedures giving priority to preventive maintenance over corrective maintenance until the former reached 91% of the total maintenance activities in the area. Consequently, in a survey of 10 state-owned stations, corrective maintenance costs dropped from Bs. 6.3 million in 1989 to just Bs. 1.3 million in 1990 and Bs. 50,000 in 1991. The experience gained is being applied to the rest of the company's operational districts.

The Human Resources Department took on the task of diminishing the time required to process old-age pensions at the Venezuelan Social Security Institute (IVSS) seeking to reduce the time lag between the date of retirement and the final granting of the IVSS pension.

Utilizing analyses and problem solving tools in the Total Quality concept, the company team and IVSS personnel were able to implement new administrative procedures and training programs which resulted in a 40% reduction in the time required to process pension requests.



Social Responsibility

Contributions

Lagoven's program of donations is one of the actions which best represents its social commitment with the nation and especially with the communities near operational areas. The program helps advance the development and consolidation of such diverse groups as education, culture, charities, science, health, sports and community organizations.

The company has also set aside funds and contributes employee time to programs which improve the quality of life of the surrounding communities near its operations, concentrating mainly on the construction of public roads and public services. Most of these were carried out in conjunction with other State agencies.

Cooperation Programs

Recognizing its ability to galvanize people behind its endeavors, the company acted as a catalyzing agent to coordinate and unite efforts by official agencies, universities and research institutes to promote regional agricultural and animal husbandry development.

Among the most important agreements signed in 1991 are those involving Caprine Production and the Cultivation of the Paraganá Papaya, in Falcón State; the Farm Development Program, Pepper Cultivation and Production and the Aguasay fruit project, all in the state of Monagas. Additional programs include the agricultural and animal husbandry development programs in southern Monagas and Anzoátegui state; the Coconut Production improvement program, in Delta Amacuro; and stocking Lake Maracaibo with fish.

Municipal Support

In Municipal and Community Development, Lagoven stressed efforts to strengthen local government, supporting administrative training programs for city managers, and the community at large in the states of Zulia, Falcón, Miranda, Monagas, Sucre, Nueva Esparta, Aragua, Carabobo, Bolívar, the Federal District, Delta Amacuro and the Territorio Federal Amazonas. This program is conducted through agreements with specialized institutions such as Fundacomún, Fudeco, and the Venezuelan School for Neighbors.

Valve replacement:
Mireya Cedeño
and Iván Rivera,
of the Petroleum
Engineering Organization.

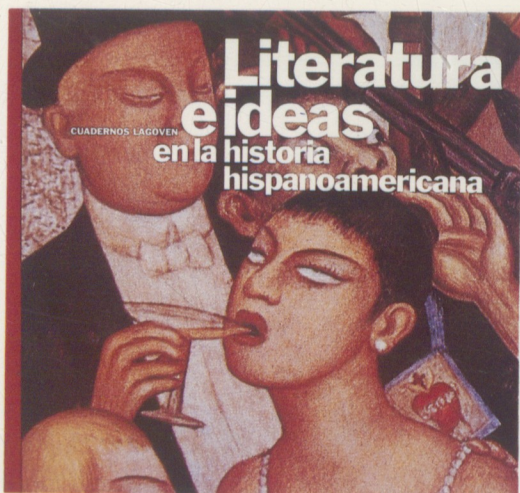
Among the agreements
which form
of the community
cooperation programs,
is the caprine
production project
in Falcón state.

Regional Urban Planning

Lagoven also supports regional urban planning programs and encourages the development of Ordinance Plans, mainly through a five-year agreement signed with the Ministry of Urban Development. The agreement provides the framework for joint efforts involving shared technical, financial and human resources to conduct those urban development programs leading to commonly sought objectives.

At the local level, the program gave financial and technical support to the municipalities of Guaremas-Guatire (Miranda State), Maturín (Monagas), Carúpano (Sucre), Punto Fijo-Los Taques (Falcón), and the Cabimas-Santa Rita hub (Zulia) to conduct a public referendum and consequent final approval of their respective local Urban Development Plans.

At the regional level, the program was instrumental in helping draw up the Ordinance Plan for the regions of the Anaco Area and Maturín-Caripito, as well as road network studies for the states of Monagas, Anzoátegui and Sucre. The results will help further action and investment in these areas.



Cultural Promotion

Lagoven has consistently supported a strong agenda of cultural activities as part of its efforts to promote the country, its institutions, the inhabitants of cities and towns in their daily work, as well as the endeavors of creative minds in the sciences and arts.

«Lagoven Notebooks», a program which Lagoven has supported for the last 14 consecutive years, has now been turned into a multi-media presentation, «Manos y Cerebro» is the first in a «Lagoven Notebooks» series produced for the big screen. The goal is to publicize the work of rising young Venezuelan artists, who can also serve as role models to encourage new generations to set their goals high. After just six months in theaters, the cinematic production was awarded the National Artist's Prize for Best Short Subject Documentary of the Year.

Editorial activity continued at an elevated production pace, with the series «Medio Milenio», a collection of 13 works (six produced in 1991) with which Lagoven helps commemorate the 500th Anniversary of the Discovery of America - The Encounter



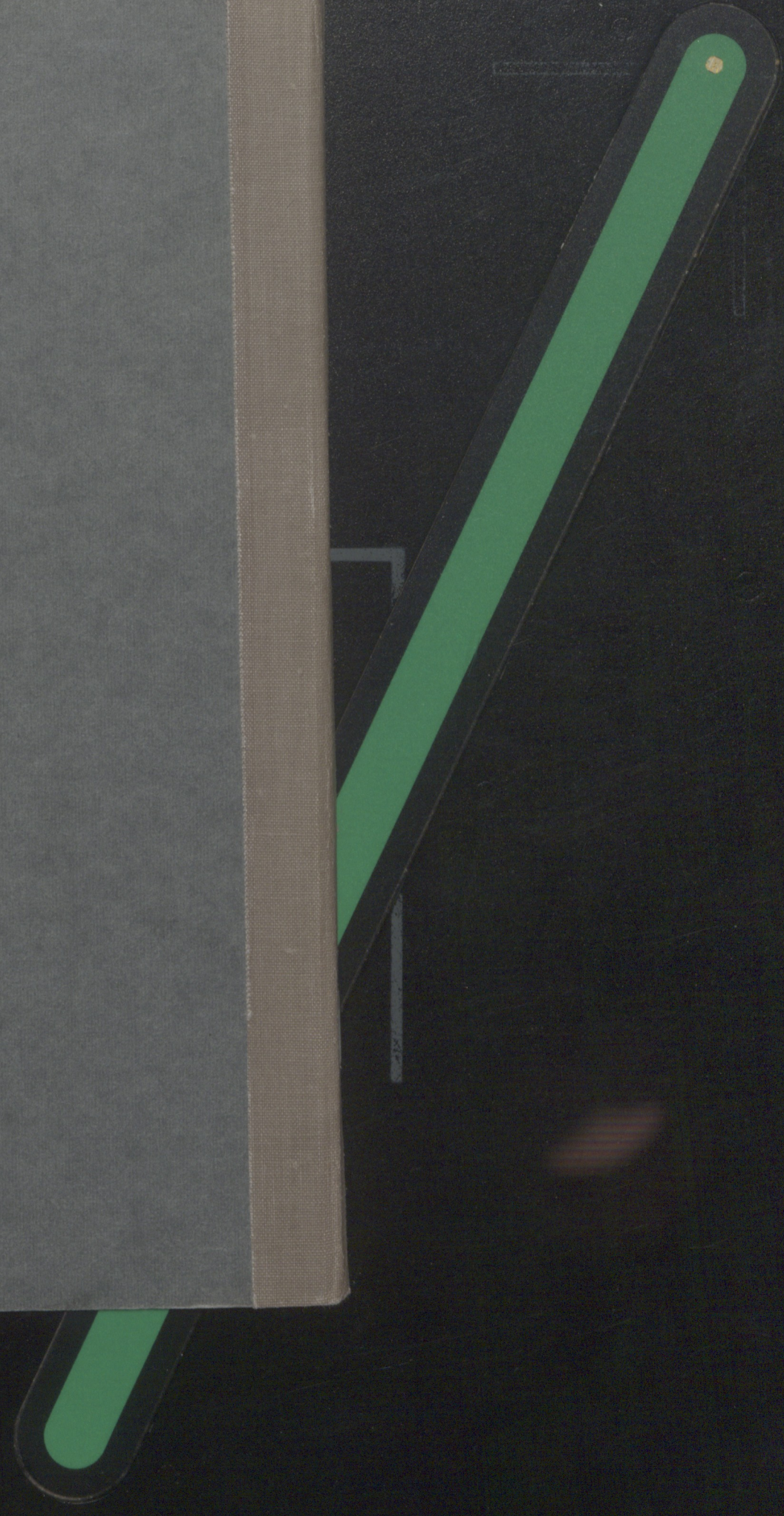
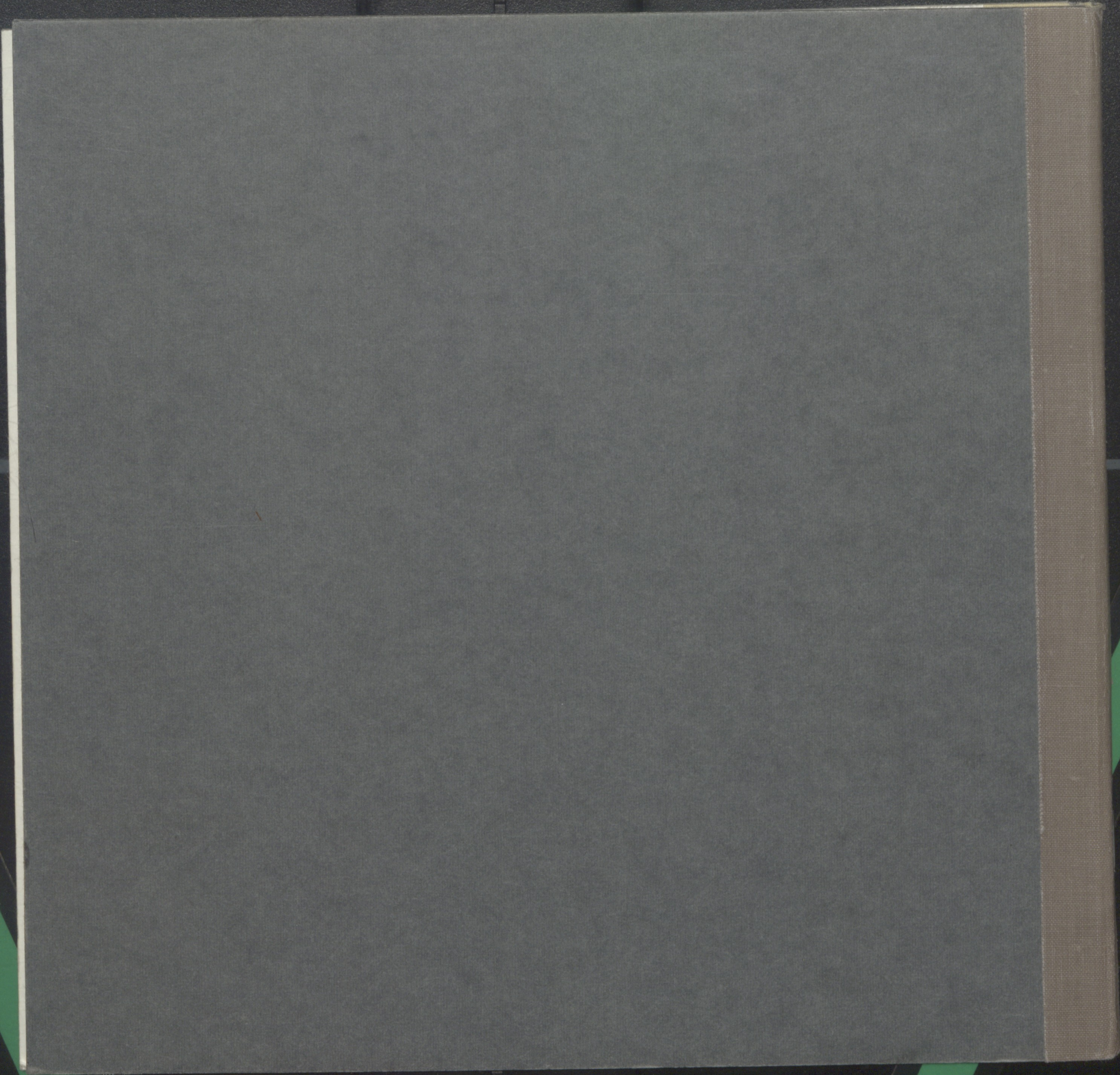
of Two Worlds. Lagoven's «Ecological Letter» celebrated its tenth anniversary of continuous publication, constantly encouraging public awareness of the need to conserve, defend and maintain the environment.

**Produced by
the Public Affairs Department,
Lagoven, S.A.,
subsidiary of
Petróleos de Venezuela S.A.**

Photographs: **Alfredo Allais**
Graphic Design: **Pedro Mancilla**
Phototypesetting: **Sarria s.r.l.**
Color selection: **Color Scan**
Printed by: **Pre-Press**
Legal Deposit: **Editorial Arte**
ISBN pp76-1469







HD
9574
V4
L3366
1991
LAC

LAGOVEN.

LAGOVEN OPERATIONAL HIGHLIGHTS