ECUADOR

THE OIL AND GAS INDUSTRY

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MARKET STUDY: THE OIL AND GAS INDUSTRY IN ECUADOR

I. SUMMARY:

Although Oil has been produced in Ecuador since 1917, from small fields around Santa Elena Bay on the Pacific coast about 250 kms north of the port of Guayaquil, it has only been produced in large quantities since the late 1960's and early 70'.

Following award of concessions to foreign oil companies, there was a series of discoveries in the Oriente basin of Ecuador's eastern Amazon jungles: at Lago Agrio in 1967 by Texaco Gulf and Aguarico, Sacha and Shushufindi in 1969 and Auca in 1971.

The construction of the Trans-Ecuadorian pipeline linking Oriente fields to the crude export terminal at Balao on the Pacific Coast was completed in August 1972, making Ecuador a sizeable oil exporter.

Exploration activity in Ecuador has fluctuated widely with government attitude toward foreign companies. In 1972 Ecuadorian Petroleum Exploration Company (CEPE), was formed as a result of new oil law that led all foreign oil companies except Texaco, Gulf, and City Investing Co. to withdraw from Ecuador. This policy coincided with the rapid increase in oil prices. CEPE in 1974 acquired 25% of Texaco-Gulf combine operating Oriente fields- concession dating to 1964- then Gulf's remaining 35.5% stake in 1977, giving it a 60.5% majority stake in the venture. In 1977, CEPE built the 55,000b/d Esmeraldas refinery to process Oriente crude. Then CEPE laid a pipeline to move gasoline and diesel from Esmeraldas to Quito, installed storage and distribution facilities in Quito and laid a products line to Ambato. In addition, CEPE installed a gas processing plant at Shushufind and a pipeline to move LPG gas to Quito. In 1989, CEPE was re-organized into PETROECUADOR with the intent to structure an integrated oil company rather than a government agency.

Falling oils prices in the 1980's and lagging production replacement forced government to pass new legislation in 1982 allowing foreign oil companies to undertake exploration under risk/service contracts. A 7th round of concession is expected to be announced during the second semester of 1993.

Ecuador joined the OPEC cartel in November 1973 and withdraw in November 1992. Petroleum reserves of Ecuador stand at 1.420 million bbl, meaning a 1.17 percent of total Latin American reserves. Crude productions currently is at 340.000 b/d or 4.17% of total Latin American production. Ecuador's internal consumption of its own production is approximately 40%. For 1993 PETROECUADOR projections are of 425.000 bpd, as oil will start to flow from the areas contracted out in the mid 80's with Occidental, Conoco (Maxus) and Elf.

PETROECUADOR'S budget for 1992 reached about U$ 660 million, and for 1993 U$ 700 million. The 1993 budget assumes production of 116 million bbl, at crude export price of $ 15bbl. Operational plans call for 2,100 line Km of seismic, six wildcats and 37 development fields.

The oil industry of Ecuador under the policies of the new government which took office in August, 1992, is expected to be opened up to private investors and some areas of the oil operation, e.g. distribution, transportation and future production will increasingly be shared to various degrees with private entities. Likewise more "exploration concessions" will be granted to private operators in most regions of the country.

II. CONCESSION TERMS:

The granting of concessions is a regulatory role placed in the Ministry of Energy and Mines through PETROECUADOR offices. Terms in the past round of concessions included: "Production Sharing Contracts", "Risk Contracts" or "Profit Sharing Contracts".

Historically, any oil company does not own petroleum rights nor does it lease them because Ecuadorian law stipulates that all hydrocarbon reserves found within the country's territory belong to the state and the state oil company shall explore and exploit such reserves, directly or through association and service contracts with other national or foreign companies.

Any oil company contracts to explore, produce and sell oil & gas for the government of Ecuador. An oil company negotiates for a concession area and commits to do a negotiated amount of exploratory work within an agreed time frame. If the company is successful in finding petroleum in commercial quantities, it has a fixed time to develop its discovery and recuperate its investment. In any event, if an oil company wishes to exploit a discovery, it submits a development and production plan to PETROECUADOR, which is subject to be approval or rejection. After that, the operating revenue is shared with PETROECUADOR as agreed in the concession negotiations. A contract expires after 20 years and the facilities revert to PETROECUADOR. In the past concessions contracts have been complicated by a variety of fees and bonuses which are subject to negotiation to a greater or lesser extent.

Nevertheless, given the recent experience that no new contracts have been negotiated in the last 5 years, and has become obvious that Ecuador will not be able to maintain its export capability without new investment in exploration, this administration is in the process of reviewing the terms of concessions, with the aim to make enough attractive to oil companies trying to conduct business in Ecuador.

III. THE STATE OIL COMPANY "PETROECUADOR":

In 1989, Congress, approved a law which reorganized CEPE, and renamed as PETROECUADOR, which now operates as a permanent holding company with three permanent subsidiaries: Petroproduccion, Petroindustrial, Petrocomercial which focus on: -exploration and production;-industrialization and refining; and -marketing and transportation; and one temporary subsidiary, Petroamazonas in 1989 PETROECUADOR took over operation of the main oil export pipeline, owned by Texaco since 1986, and the management of the Anglo refinery in Santa Elena. In 1992 full control of the oil field of the Cepe-Texaco consortium reverted to PETROECUADOR, as well the Repetrol refinery.

-Petroproduccion: Exploration and production are the responsibilities of this subsidiary and currently is in charge of all the area previously reverted by Texaco and other companies. This means that the bulk of the work is developing fields previously discovered or looking for new fields within already producing areas. However new policy set by the current PETROECUADOR administration mandates that Petroproduccion no longer will engage in exploration in new areas due to the heavy investment burden for the Government. Last December, Petroproduccion reached an output of 82,514 bpd, much of which comes from Libertador field, third largest in the nation after Shushufindi and Sacha. It is expected that in 1993, Petroproduccion will absorb Petroamazonas.

-Petrocomercial: Is responsible for marketing petroleum and its derivatives in international and domestic markets. Total crude and products storage capacity in the country is 1.7 millon bbl. Three single point mooring terminals at Balao can handle 100,000 dwl tankers. Crude and products exports are under the auspices of Flota Petrolera Ecuatoriana (FLOPEC). LPG shipments by Liquigas, Duragas, Congas and Autogas.

-Petroindustrial: Is responsible for the operation of 1300 Km. national pipeline system and refining of almost 90% of the total national refining. The refining capacity in Ecuador is concentrated in:

Esmeraldas 90,000 bpd
Santa Elena, Universal 10,000 bpd
Santa Elena, Barson 28,000 bpd
Santa Elena, Cautivo 10,000 bpd
Santa Elena, Repetrol 9,000 bpd
Shusufindi 10,000 bpd
Lago Agrio 1,000 bpd, included LPG & pentane from gas plant

During 1993, Petroindustrial plans are to expand the refinery at Esmeraldas to process planned increases of production and to process heavy gravity oils.

The most important link of the pipeline system is the 503 km. Transecuadorian pipeline that runs from the Amazon basin across the Andes to the Coast. This line has a 300,000 b/d capacity, moves Oriente oil to Esmeraldas for refinery or export. A 28 km Colombia's Trans-Andean line was built as an alternative export route after the March 1987 earthquake heavily damaged the existing pipeline. The Shusufindi-Quito 304 km line has a 7,300 bbl capacity and moves LPG from Oriente gas processing plant.

-Petroamazonas: This subsidiary was created to take over the operation of the CEPE-TEXACO field in the Amazon Basin. Today it is the most important subsidiary in terms of areas of exploration and production given the fact the is the sole proprietor of the rights of Shushudindi and Sacha fields.

Last July, Petroamazonas produced 231,000 bpd or 72% of total output, of these 102,493 correspond to Shushufindi, 65,375 to Sacha and the difference to other fourteen fields. Last june Petroamazonas initiated the development of three small new fields: Palanda, Pindo and Anaconda, which initially produced 3,000 bpd. In order to continue as the largest production subsidiary, it would be necessary for Petroamazonas to keep up investment in Shushufind, Sacha, while developing other small fields in the former Texaco block.

During 1991 Petroamazonas carried out a reservoir engineering study to evaluate Shushufindi's reserves recoverable with primary, secondary, and tertiary methods. This study conducted by "Scientific Software Corporation", reached a preliminary conclusion that Shushufind holds about 3.045 billion bbl of original oil in place, of which about 44% or 1,354 billion bbl, could be recovered by primary and secondary methods. Of those reserves, about 650 million bbl have been produced. The remaining reserves could sustain production of 100,000 b/d to 2003. Eventually, Shushufindi would require the injection of CO2, something in which PETROECUADOR has little experience. PETROECUADOR is planning to call a tender for the secondary recovery of Shushufindi. As in the case of Petroproduccion, the plans of this administration are to reduce investment in exploration of new areas and to share the cost of existing producing areas with the private sector.

IV. OPPORTUNITIES AND DEVELOPMENTS:

In 1991 and 1992 PETROECUADOR continued its program to complete a major expansion of its petroleum infrastructure. Some of the projects included:

-Expansion of the Tepre maritime terminal, near Balao, to allow export of fuel oil and more economic offloading of imported products.
-Construction of two product pipelines in the coastal region, starting from La Libertad to transport gasoline from the two refineries operating there. The first line, 170 km long, is serving Manabi province. The second line, 128 Km long, is serving the Guayaquil area.
-Expansion of the Shushufindi Quito LPG line to allow transport of additional output from the Shushufindi gas plant.
-The Esmeraldas-Santo Domingo pipeline is being replaced because the existing one is badly corroded. That makes a total of 573 Km of product pipelines in the coastal region the past 2 years.
-Petroindustrial completed expansion to 25MMcfd throughput capacity of the Shushufindi gas processing plant enabling it to boost LPG yield to 500 tons/day from 230 tons/day. Basic engineering for the plant expansion was prepared by "Bufete Industrial of Mexico" and construction was carried out by Colombia's Distral.

Although 1993 $ 700 million budget set capital spending in about $ 260 million, of which $160 million is for exploration, development and production, it is still is uncertain if that will occur, because of the trend to reduce the exploration role of PETROECUADOR. Nevertheless a budget of more than $140 million exist for the acquisition of drilling equipment, well completion tools, pumps, pumping units, software, and environmental services.

Likewise to handle added production, especially that of Maxus', the Lago-Agrio Balao Pipeline will be expanded to 360,000 bpd from the current 325,000 bpd. Plans also include further expansion of the line to 400,000 bbbl, once proposed development projects by other foreign operators come on stream. Work will include installation of an additional pumping units and new storage tanks at Balao.

Furthermore the second phase of gas lift in the Libertador Project north of Shushufindi, will complete a program to optimize gas use in the area and to boost crude production by about 4,000 bpd has not been scheduled yet. The First phase which recently got under way involves about 25 wells and is boosting crude production by about 3,500 bpd.

V. OIL COMPANIES OPERATING IN ECUADOR:

Maxus: Last year PETROECUADOR approved the planned development of heavy oil reserves in the Southeast Oriente by a group led by Maxus Energy Corp., Dallas, following 2 years of negotiation.

The project, originally proposed by Conoco Ecuador Ltd., entailed a $500 million project that would be Ecuador's first heavy oil development. Conoco subsequently pulled out of the project in 1991 citing better investment opportunities elsewhere. Since 1989, when its plan was submitted, Conoco expected to start carrying out the plan in 1990. By 1991 Conoco had started to develop other projects in Indonesia and Norway, reaching a stage where they became competitive for funds with Ecuador. Also American ecological organizations gave priority, over other oil development programs elsewhere in the world, to stopping Conoco from developing block 16, since part of the block falls into the Yasuni National Park. Conoco proposed drilling horizontal wells that limit environmental damage and to cross rivers in barges to avoid building a bridge at the Tiputini River that would invite settlements, but ecologists were not convinced. Maxus, who had a 10% share of the joint venture with rights to block 16, bought 20% of the Conoco share of 35%, so Maxus has now 35% and is the operator.

PETROECUADOR approved a development program covered under a 20 year exploration and production service contract with the Maxus group. In all, the combined Block 16 development is expected to now cost about $625 million. That breaks out as $135 million in 1992, $175 million in 1993, $120 million in 1994, and $29 million, per year during 1995-2002.

The Maxus group Block 16 program entails a slightly expanded version of the $550 million development plan originally put forth by Conoco, which entailed development of Amo, Daimi, Ginta, Iro and Bogui fields. The five fields contain reserves estimated at 200 million bbl and feature crude with gravities of 15.3-20.7 API. The new program calls for including development of a unitized Bogui-Capiron area owned 70-30 by PETROECUADOR and Maxus. Under a separate contract, Maxus will operate Petroecuador's Tivacuno field, east of Bogui Capiron on a per barrel of production arrangement. Tivacuno reserves are pegged at 8-16 million bbd with gravity of 19-22.

Project spending breaks out to about $580 million for the Maxus group fields and about $45 million for Tivacuno. Major outlays will go for constructing a 150 km road from the Shushufindi producing area south to Amo, Diami, Ginta, and Iro; laying a 14-16 in. pipeline to Shushufindi and Lago Agrio; drilling 112 wells in Maxu's fields and 8 in Tivacuno; installing gathering lines and production facilities; and providing environmental protection measures.

In a first 12 month phase, Maxus will construct a road and pipeline from Shushufindi to Bogui-Capiron and drill 16 wells in Bogui - Capiron and 8 in Tivacuno. Maxus will bring in a heliring to handle drilling while the road is being constructed. Bids have been tendered, and field work has already begun. These wells could be on stream as early as July 1993.

In the second phase, during mid 1993 through 1994-95, the road and pipeline would be extended from Bogui-Capiron to the Amo-Iro complex, where another 96 wells are planned. Of the total 112 wells planned for both phases, 56 will be horizontal, 35 directional, and 21 injection in Amo, Daimi, Ginta and Iro fields. Plans call for using a limited number of drill sites to slant or horizontally drill the wells.

Production will be through submersible pumps, taking advantage of the fields's existing high oil-water content despite the low crude gravity. Maxus plans to augment the natural water drive with reinjection of produced formation water. Maxus has dropped tentative plans to inject diesel as a dilutent into the crude mix. Conoco had proposed building a second pipeline to move Shushufindi crude south as a dilutent, but that was scrapped.

Crude will move via a 14-16 in. pipeline from Bogui-Capiron to Shushufindi, where about 40,000 b/d of 17 gravity crude will be blended with 29.5 gravity Shushufindi crude. Further transport will be through batching the blend with the typical 28.5 gravity Oriente crude via the Lago Agrio-Balao trunk line. There will be dedicated tankage at Balao to receive the 22 gravity blend.

Regarding Tivacuno development, Maxus has a 12 year contract to develop Tivacuno. It plans a 23 km road and 12 in. pipeline from Bogui-Capiron to Tivacuno. Plans call for drilling eight wells to develop the initially estimated 8 million bbl of reserves. Additional drilling would double that recoverable volume. Crude averages 19-25 gravities API. Maxus will be compensated on a per barrel basis for Tivacuno development costs.

PETROECUADOR also approved Maxus' continuation of strong environmental protection measures called for in the Conoco development proposal. Without that, the controversial plan probably would not have gone ahead. Strict environmental mitigation measures will apply to construction of roads and pipelines and call for drilling and spill containment at production facilities and stringent water discharge controls. All formation water produced will be reinjected. Population settlement along the road from the fields to the Napo River-especially feared by environmentalist and native groups- will be strictly controlled. Plans call for extensive reforestation along roads, pipeline routes and at drilling locations.

Occidental: Petroecuador in June 1992 approved the program submitted by Occidental Petroleum Corporation to develop its Block 15 discoveries. The company has drilled eight wells, of which six are exploratory and two step-outs. Total exploration costs to date are about $ 70 million.

Reserves are estimated at 157 million bbl. Project investment will be about $ 267 million to eventually produce 30,000 b/d with start-up by july 1993.

ORYX: continues to press exploration and development in its 100% owned Block 7 in the Oriente. Work currently focuses on Coca-Payamino, a unitized fields owned 35% by Oryx and 65% by operator Petroproduccion. It currently produces about 5,100 b/d from 100 wells. Plans call for drilling additional wells in 1993 to double output.

Recently Oryx drilled two horizontal wells in Coca-Payamino. Coca 8 flowed 5,4000 bpd from Cretacesous Holin. Overall, plans call for drilling about 40 more wells on Block 7. Petroproduccion is considering artificial lift for the field. Oryx's latest discovery on Block 7 is the Gacela field, a few kilometers south west of Payamino. Its 1 Gacela, drilled to 10,559 ft MD 9,445 ft TVD, flowed 1,000 b/d of 25 gravity crude from a 783 ft horizontal lateral in Hollin. Testing through a downhole jet pump increased production to more than 2,500 b/d. Oryx, 2 Gacela, a horizontal stepout, drilled to 11,729 MD 9,501 TVD, flowed 1,374 bpd of 25 gravity crude from a 2,079 ft horizontal lateral in upper Hollin. Oryx's four Block 7 horizontal wells are the first successful horizontal wells drilled in Ecuador. After initial problems with 1 Gacela, Oryx has modified drilling plans and reduced well costs to about $ 3 million/well. Oryx is reimbursed for exploration and development costs and receives a contractor service fee.

Arco: is isolated towards the southwest Oriente. Last April its Villano-2 on Block 10 in Pastaza flowed 2,5000 b/d of 21 gravity API. Still heavy but much less that of Maxus and Elf. The well was drilled to 11,8000 ft, and plans called for testing other horizons. Preliminary estimate of potential reserves 179 m bbl. Arco in combination with Mobile, bid and were allocated blocks 18 and 19. But PETROECUADOR has not been able to reach an understanding and contracts are still pending.

Elf was authorized in July ,1992 to start exploitation of its 18 gravity crude in Sunka-Wankle fields, block 14. Recoverable reserves are estimated at 25 m bbl. Production for this year is estimate at 2,7500 bpd and could peak at around 11,000 bpd in 1993/96. The company considers that the eastern part of the block, that surrounds Tivacuno, deserves a full exploration. Development of Tivacuno would make infrastructure development in the eastern part of the block considerable cheaper.

City: has a small block to the east of Shushufindi. During 1992 produced around 5,161 bpd, of which 27.5% belongs to PETROECUADOR on account of a shared field. Petroecuador sees City output boosting to a 7,767 b/p average in 1994 and gradually declining, although not falling to present levels until 2002.

Tripetrol: In April 1992 Petroecuador approved development by Tripetrol, a private Ecuadorian company, of its Pacoa structure on Block 1 on the Santa Elena peninsula. Reserves are pegged at 40 million bbl of 31-34 gravity crude. Project cost will be about $ 66 million, and production is slated to climb to 7,5000 bpd.

Braspetro: Operates block 17; it is a partner of Elf in block 14, but hitherto has had little success in finding commercial oil. In addition when local indians killed two mediators between Indians and oilmen regarding exploration activities, one fourth of the block was declared off limits to Braspetro; and the company voluntarily refrained from entering another area where Indian settlements were found. Operations were suspended on July 30, 1992. Braspetro request that the Government compensate the area that has been taken out of the block with another of similar size.

VI. HOW TO DO BUSINESS IN THE OIL AND GAS INDUSTRY:

A planned expansion in Ecuador's production capacity from 320,000 bpd to 450,000 bpd will create significant opportunities for Canadian investors and suppliers of capital and technology. Likewise, new exploration will require private capital investments and project financing on a large scale. Strategic association with local firms, would provide access to financial and technological resources that will help Ecuador to meet energy goals such as:

*production, upgrading and conversion of heavy crude;
*upgrading of refineries to process heavy crude;
*exploitation of natural gas for local and export markets;
*development of petrochemical and other related business projects

Once a potential investment opportunity has been identified, it will be necessary to initiate a dialogue and obtain more information concerning the investment opportunity. The Canadian Consulate in Quito can provide information on the PETROECUADOR officers to approach.

Firms interested in supplying equipment or services to PETROECUADOR requir a legal representative or local agent as well, should be registered with the appropriate subsidiary and with PETROECUADOR Huston's office. Normally only registered companies receive specification and invitations to BID. It is recommended that firms interested should establish contact with local firms for this process. The Canadian Consulate in Quito is able to assist firms in the selection process.

Patience and long term commitment to this market is a necessary element for success.

VII. TAX SYSTEM:

In general, any company doing business in Ecuador is subject to taxation of its transactions and activities, by means of income tax, value-added tax, consumption tax, and other applicable duties. Companies are also subject to taxation of the stock and securities which they may hold.

A company is considered to be resident in Ecuador, and therefore subject to taxation on its worldwide income, when the company has been established and is primarily based in Ecuador, its articles of incorporation being in conformity with the Ecuadorian laws regulating corporations. Foreign companies are taxed only on their income from Ecuadorian sources, or on stocks or assets that they may hold in the country. A company is considered to be non-resident when it has been incorporated in accordance with foreign statutes and its primarily based in a foreign country.

Companies who associate or combine to undertake joint ventures are taxed individually on any profits which they earn from the enterprise.

For companies contracted for Petroleum Exploration and Exploitation a rate of 44.4% is levied upon the the profits thus contracted, unless they choose to reinvest their profits in the same activity in Ecuador. In such case their net income will only be subject to the domestic income tax rated of 25% on the amount of their reinvestment, and need be reflected in the increase of their net assets in the country.

In addition to income taxes, petroleum companies must pay a tariff based on their average daily production for each operating month and the type of hydrocarbons exploited:

* No tax is levied on production of up to 30,000 barrels of oil or natural gas equivalent.

* A 3% rate is levied on production of more than 30,000 barrels, with an additional 1% tax levied upon every additional 10,000 barrels. The total additional tax assessed, however, may not exceed 30% of the total production.

Others taxes include a:

A tax assessed by the Superintendency of Companies of up to 1.000% of the real assets of those companies under its control. This tariff must be deposited in the Central Bank to the credit of the Superintendency of Companies by September 30 of every year.

Value-Added tax which is assessed at a flat rate of 10%. The taxable value of imported goods is compromised of the CIF value, any import tariffs, duties, and other increases in the base which are documented..

-Municipal Property tax. Ecuadorian municipalities asses a tariff on all buildings and properties located within their city limits which is based on the commercial land value as determined by city appraisal.

APPENDIX 1

FREQUENTLY ASKED QUESTIONS ABOUT INVESTING IN ECUADOR

The process of making any investment decision normally generates a number of questions. Presented here are answers to some of the common questions that investors have raised concerning opportunities and tax legislation in this nation.

***What risk of nationalization do investors face?**

A partial nationalization of Ecuador's petroleum industry occurred in 1973, when the Oil prices peaked $ 40 barrel and was under a military regime and most of the foreign operators, with the exception of Texaco, City and Gulf were forced to leave the country. The current business and political environment significantly reduces the possibility of this happening again. Development and increase of the current production capacity will require significant capital and technological investments.

*** How do I find the right person in PETROECUADOR to discuss specific opportunities or how to bid on particular projects?**

A listing of key PETROECUADOR officials you can find in Appendix II. As changes occur frequently, you are advised to check with the commercial section of the Canadian Consulate, Quito.

***Are there taxes other than those on income of production which could significantly reduce profits from Ecuadorian operations?**

While the income tax is the most significant tax, the impact of other taxes, such as value-added tax, tax on fixed assets, municipal and the employees, could impact the profitability of investments in Ecuador and should also be evaluated before making any investment decisions.

*** Are currency restrictions to the cash flows to or from foreign operations in Ecuador?**

There are no restriction on dividend remittances and capital repatriations. Foreign equity investments no longer require prior approval by the Ministry of Industry.

*** Can foreign investors own equity in companies in the Ecuadorian petroleum industry?**

There are no restriction on foreign investment in companies which participate as contractors and/or suppliers of goods and services to the Ecuadorian petroleum industry.

*** Do foreign oil companies have to use Ecuadorian goods and services in their operations?**

There are no specified local content requirements for companies operating in the country. Ecuador has recently revised its customs regulations to reduce restriction on many types of imports.

*** Is there any protection from misappropriation of proprietary technology brought into Ecuador?**

While there are only general provisions in the ecuadorian legal system relating to trade names, patents and intellectual property, legislation should be introduced before Ecuador's entrance to the GATT, scheduled for July, 1993.

***How does Ecuador's business infrastructure compare to other western countries?**

Although the country has a national network of highways, its seaports, airports and warehouse facilities are still underdeveloped. Currently there is legislation proposed to modernize and privatize ports, warehouse facilities and the telecommunications sector.

APPENDIX II

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Fax 300-968

Proinpetrol
Att: Arturo Jaramillo
Mariana de Jesus 185 y Pradera
Phone (593-2) 238-752
Fax 562-352

Tecnie
Att: Carlos Paz y Miño
Finlandia 490 y Suecia
Phone (593-2) 240-342
Fax 445-262

Serimpe
Att: Roberto Abedrabbo
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Edificio UNP Ofc 603
Phone (593-2) 248-106
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Sipetrol
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Phone (593-2) 445-707
Fax 445-708

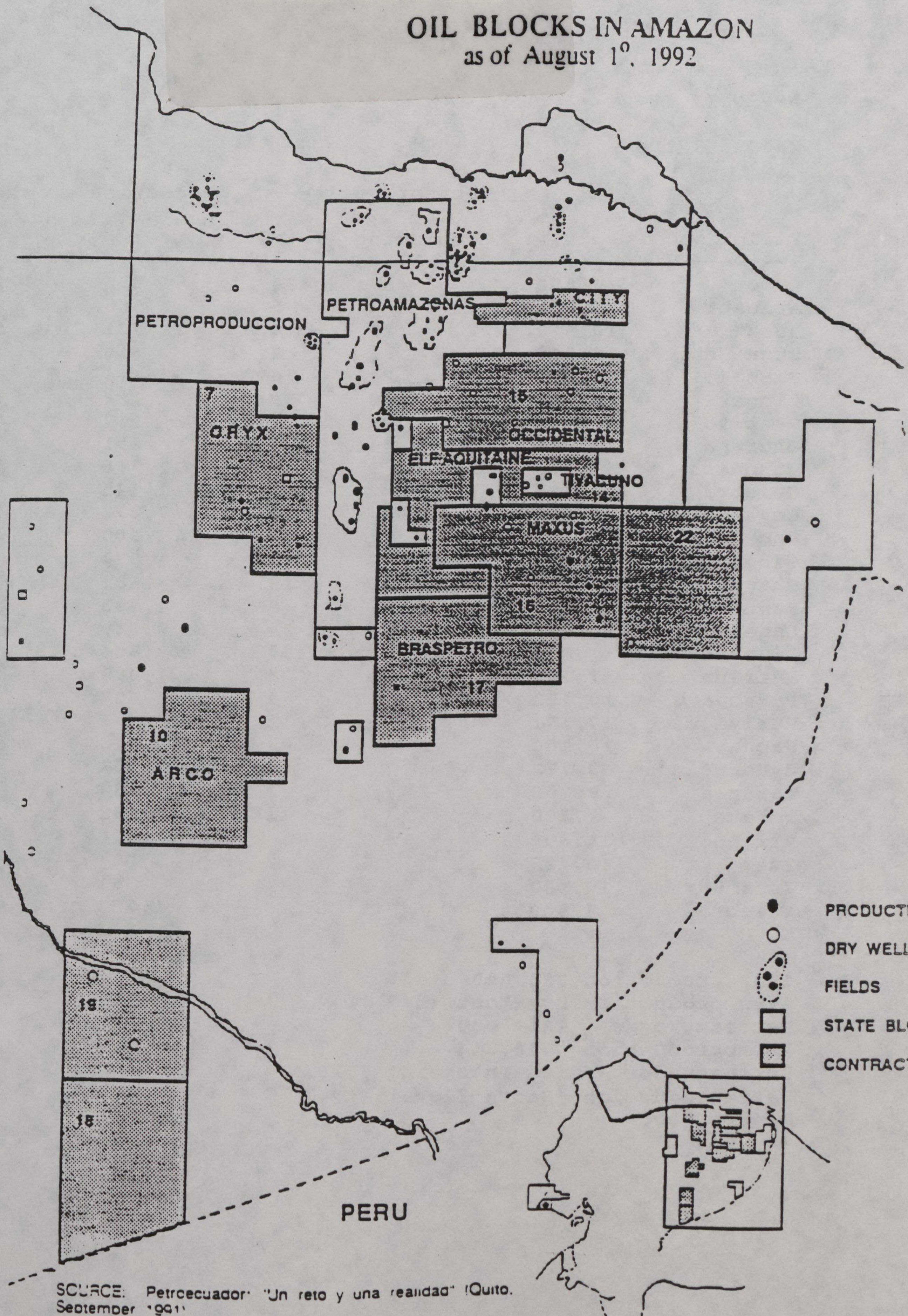
APPENDIX IV

MAJOR FIELDS

		--No. of wells---		production	*API
Field	Depth, ft	Producing	Total	b/d	gravity
Ancon	4,000	439	439	652	53.7
Atacapi	9,855	4	5	1,505	31,0
Auca	10,578	23	24	15,701	28.0
Auca Sur	10,300	2	2	614	25.6
Bermejo	5,000	21	26	5,475	32.5
Carpet	-	99	99	124	36.4
Cautivo	-	79	79	112	36.4
Charapa	10,000	1	4	291	29.5
Cononaco	11,233	9	11	12,785	33.3
Culebra	10,626	2	2	1,125	17.5
Cuyabeno	8,050	15	19	7,872	27.4
Gacela 1	10.559			1,000	25
Gacela 2	11.729			1,374	25
Guanta	10,290	10	10	7,883	31.0
Fanny	7,700	8	8	4,685	22.5
Lago Agrio	10,175	18	24	8,738	28.5
Libertador	N/A	44	50	37,306	29.7
Mariann	7,700	5	5	1,048	20.0
Parahuacu	10,173	3	5	1,607	30.0
Rumiyacu	10,191	-	1	-	21.0
Sacha	10,160	96	103	63,613	28.0
Shushufindi	9,772	52	60	100,953	30.0
Tarapoa	8,300	1	2	333	20.0
Telete	9,300	6	11	2,738	29.1
Villano	11.800			2,500	21
Yuca	10,423	6	7	2,681	28.0
Yuca Sur	10,000	1	1	351	14.5
Yulebra	8,800	3	3	1,753	21.4

1992 production 324.000 b/d
1992 production breakout (b/d)
Petroamazonas 231,000
Petroproduccion 82,514
Petroecuador - City Investing 7,767
Petroproduccion (Santa Elena) 943
Oryx 5,100

OIL BLOCKS IN AMAZON
as of August 1º, 1992



SOURCE: Petroecuador: "Un reto y una realidad" (Quito, September 1991)