

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 86 / 2

425 SCOMM11 : INTERIM COMM. ON TAXATION & REVENUE 1975-76

For production services, experience is your insurance.

Flopetrol.

Flopetrol is a major production testing company—600 trained people work out of thirty centers in sixty-four countries. Flopetrol crews are active—they see more and different jobs and get more experience in one year than some crews get in five.

Flopetrol sets high personnel standards—chief operators must have years of Flopetrol schooling, refresher courses and field experience; new operators are put through a sixteen-week course before joining a crew under a seasoned chief operator.

Flopetrol people stay—turnover is low resulting in constantly upgraded experience of the staff.

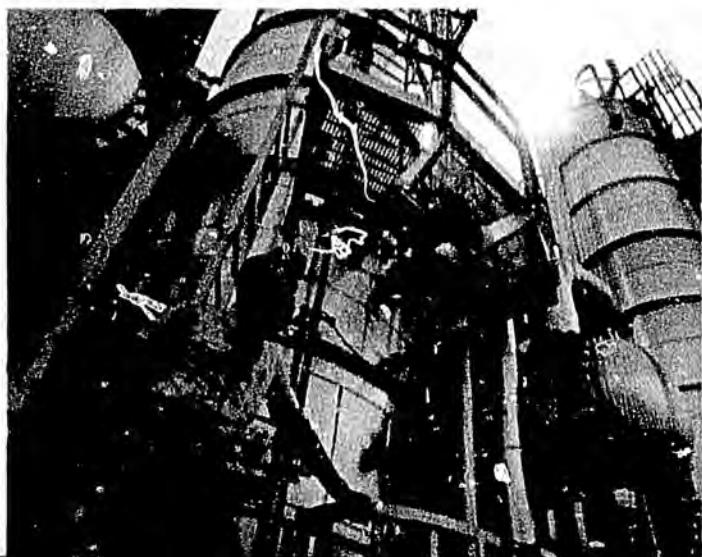
For you, this experience adds up to less rig time for production testing, better and more reliable data delivered during time allowed for production tests, and safer tests.



228 Rue Einstein 77530, Vaux le Penil, France
U. S. Representative, Johnston-Schlumberger, 1432 Americana Bldg.,
Houston, Texas 77002, Tel. 713-229-9154



The Fisher dc² computer: a month to install,



Celanese installed a Fisher digital control system to improve distillation column control and save energy. It did just that. Fast.

For starters, the system was delivered a week early. Since many of the usual software functions are built into standard dc² hardware, only application programming was needed. Celanese process engineer Dan Bennett programmed dc² in less than two weeks. The quick programming allowed time for thorough operator training before start-up.

Production pace required rapid start-up. Celanese had previously switched from pneumatic control to Fisher ac² analog control, bringing two distillation columns on line in only 12 hours. dc² supervisory control was then added in just one day.

AGD 529920



a day to start up, a year to pay off.

The Fisher control system gives the operators better control over their process and lets them run the computer, not vice-versa. The reflux rate has been reduced so that less process steam is needed. That alone saves two railroad cars of coal a month. And this saving pays for the system in one year.

As Bennett put it, "After you figure out how much you can save with digital control, each day without it is wasting money. We chose Fisher because it was the fastest to install and the simplest to operate. We didn't want to know all about computers or hire people who did. We just wanted another control tool to help improve our profits." If that's what you want, call (515) 754-3825 collect for the name of your Fisher representative.

Fisher Controls Company, Marshalltown, Iowa 50158.
Sales representation worldwide and manufacturing in
Argentina, Australia, Canada, France, Germany,
Japan, Mexico and United Kingdom.



If it flows through pipe, chances are it's controlled by Fisher.

AGO 529921



**Agha Jari
has
130°F heat,
100 mph
sandstorms**

and 14 Solar gas turbine pump sets.

Agha Jari lies in the Zagros foothills of Iran. 14 Solar gas turbine pump sets work there in temperatures that can soar to 130°F at midday and where blinding sandstorms are not unusual.

Agha Jari is where Solar gas turbines first were installed outside North America in 1966. Since then more than 1000 of our pump, compressor, and generator sets have been sold for use outside the United States. Of our total of over 40 million operating hours of experience, more than 7 million hours have been recorded in places around the world as rough on machinery as

the arid desert country of Iran.

So we build equipment that gives you maximum availability in all sorts of climates and extremes. Aboard offshore platforms in turbulent waters all over the world. Deep in the steaming jungles of Mexico. Or in frozen Arctic wastes.

Wherever you find them, Solar gas turbines are never far from our Power Support teams. In Iran, for example, Solar sets are kept in top condition by the full time service representatives from our Tehran office. In Beirut an additional 15 people support our

Middle East customers with maintenance, parts, and diagnostic services. And recently we opened another service office in Dubai.

This is all part of Solar's worldwide commitment to insure our customers the highest productivity from their Solar gas turbine packages at the lowest cost. No matter where they are.

For more facts about gas turbine dependability and contract maintenance programs anywhere in the world, write Solar Division of International Harvester, Dept. X-137, San Diego, California 92138, U.S.A.



Solar Gas Turbines

equipped and ready for the unexpected

AGO 529922

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Texas Petroleum Co., El Guamo	2,500				
	Orito (with Petrolera del Rio)	1,000				
	Total	172,100	48,500	2,000		
COSTA RICA	Refinadora Costarricense de Petróleo, Moín, Limón	11,000		1,500	3,500 HDT	500 V, 300 A
CUBA	Instituto Cubano del Petróleo:					
	Cabaiguán	4,900				
	Havana	75,000	14,570 FCC	8,100	12,600 HDS	22,140 V, 2,675 P, 6,000 A
	Santiago de Cuba	42,000		3,600	6,000 HDS	
	Total	121,970	14,570	11,700	18,600	
CYPRUS	Cyprus Petroleum Refinery Ltd., Larnaca	15,000		2,740	6,000 HDT	1,070 V, 500 A
DENMARK	A/S Dansk Shell, Fredericia	59,000		12,000	14,000 HDT 8,000 HDS	
	Dansk Esso A/S, Kalundborg	71,000		7,600	10,000 HDS	25,000 V, 9,000 A
	Gulf Oil Refining A/S, Skaelskor	90,000		17,100	50,600 HDS	14,950 V
	Total	220,000		36,700	82,600	
DOMINICAN REPUBLIC	Falconbridge Dominicana C por A, Bonao	15,500			7,000 HDS	
	Refinería Dominicana de Petróleo SA, Nigua	30,000		7,000	12,000 HDT	
	Total	45,500		7,000	19,000	
ECUADOR	Anglo-Ecuadorian Oilfields Ltd., La Libertad	30,400				
	Corporación Estatal Petrolera Ecuatoriana, La Libertad	5,000				
	Petróleos Gulf del Ecuador CA, La Libertad	8,000				
	Texaco Petroleum Co., Lago Agrio	950				
	Total	44,350				
EGYPT	Refineries:					
	El Amiriya	26,000				
	Mex	120,000				
	Tanta	14,600				
	Others	19,400				
	Total	180,000				
EL SALVADOR	Refinería Petrolera Acajulla SA, Acajulla	14,000		2,600	9,500 HDT	725 A
ETHIOPIA	Ethiopian Petroleum S.C., Assab	14,430		1,890	2,330 HDT	3,020 V, 697 A
FINLAND	Neste Oy, Naantali	56,000	11,000 TCC	6,800	7,700 HDT 7,400 HDS	15,000 V, 2,700 P, 5,900 A
	Porvoo	140,000	21,000 FCC	19,000	31,000 HDT 37,000 HDS 14,000 OHC	60,000 V, 7,500 P, 6,700 A
	Total	196,030	32,000	25,800	97,100	
FRANCE	Antar Petroles de l'Atlantique, Donges	143,000	11,200 TCC	28,700	43,000 HDS	6,800 V
	Valenciennes	62,000		13,000	12,600 HDS	
	Vern-sur-Seiche	26,000		7,400		
	Compagnie Française de Raffinage, Gonfreville l'Orcher	484,000	24,300 FCC	64,380	71,600 HDT 85,000 HDS	56,000 V, 2,800 P, 7,400 L, 20,250 A
	La Mede	212,000	27,400 FCC	41,000	820 HDT 53,000 HDS	40,500 V, 820 P, 16,200 A
	Mardyck, Dunkerque	125,000		22,000	37,000 HDT 17,300 HDS	
	Compagnie Rhenane de Raffinage, Reichstett-Vendenheim	75,000		13,000	24,000 HDT 16,000 HDS	
	Elf Union:					
	Raffinerie de l'île de France, Mornant	75,000		15,000	23,000 HDT 8,000 HDS	29,000 V
	Raffinerie du Vexin, Gargenville	136,000				
	Raffinerie ELF, Feyzin	178,000	19,000 FCC	9,200	9,200 HDT	39,600 V
	Raffinerie ELF, Union Industrielle des Petroles, Ambes	43,000	8,700 FCC	4,600	4,600 HDT	22,000 V, 450 P

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	ESAF, Ambes	60,000		8,000		30,000 V, 2,400 A
	Fos sur Mer	170,000	14,300 FCC	25,700	85,000 HDT 24,300 HDS	19,500 V, 2,000 A
	Port Jerome	150,000	12,000 FCC	27,000	46,500 HDT 35,000 HDS	42,000 V, 5,600 L, 6,000 A
	Mobil Oil Francaise, Frontignan	120,000	11,000 TCC	20,000	26,000 HDT 18,000 HDS	11,000 V, 1,000 A
	Notre Dame de Gravenchon	72,500		17,000	21,000 HDT 7,000 HDS	10,500 V, 4,000 L, 1,500 A
	Raffinerie de Strasbourg, Herrlisheim-Drusenheim	95,000		22,000	22,000 HDT 13,500 HDS	16,600 V, 6,000 A
	Shell Francaise, Berre l'Etang	285,000	17,000 FCC	24,000	70,000 HDT 13,000 HDS	
	Pauillac	90,000	24,000 FCC	15,000	32,000 HDT 13,000 HDS	
	Petit Couronne	200,000	21,000	16,000	31,000 HDT 14,000 HDS	
	Societe Francaise des Petroles, BP, Dunkirk	118,750		13,500		17,100 V, 4,200 L, 3,600 A
	Lavera	243,200		7,200	13,500 RHC 13,230 HDT 13,500 HDS	40,150 V, 2,740 A
	Vernon	73,150		11,250	18,000 HDT 10,800 HDS	5,850 V, 2,000 A
	Societe de la Raffinerie de Lorraine (CFR 51%, Esso 40%, Elf Union 9%), Hauconcourt	105,000		15,000	35,000 HDT 11,500 HDS	16,000 V, 9,100 A
	Total	3,341,600	189,900	439,930	991,450	

GABON

Societe Gabonaise de Raffinage, Port Gentil	17,000		2,000	4,000 HDT	
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GERMANY, WEST

Caltex Deutschland GmbH, Raunheim	90,000		3,500	8,600 DHC 6,500 HDT	28,000 V	
Deutsche BP AG, Dinslaken	203,300	11,150 FCC	12,600	9,000 HDS	21,600 V, 5,600 A	
Finkenwerder, Hamburg	103,900		7,650	8,550 HDS	46,450 V, 2,400 A	
Vohburg	104,500	10,800 FCC	16,200	25,200 HDT 13,300 HDS	21,600 V, 6,400 A	
Deutsche Marathon Petroleum GmbH, Burghausen, Bavaria	70,000			10,000 HDT	550 C	
Deutsche Shell AG, Godorf	165,000		24,000	68,000 HDT 49,000 HDS		
Harburg-Grasbrook	85,000	12,000	9,000	16,000 HDT 12,000 HDS		
Ingolstadt	55,000		8,000	17,000 HDT 17,000 HDS		
Monheim	7,000					
Deutsche Texaco AG, Heide	105,000	8,000 TCC	14,000	14,000 HDT 26,000 HDS	35,000 V, 300 P, 3,500 A	
Erdol Raffinerie Duisburg GmbH, Duisburg	37,800		7,300	7,300 HDT 4,200 HDS		
Erdolraffinerie Ingolstadt AG, Ingolstadt-Donau	130,000		29,500	42,000 HDT 6,500 HDS		
Erdol-Raffinerie Neustadt GmbH, Neustadt-Donau	144,000	11,700 FCC	17,700	26,500 HDT 21,000 HDS	24,000 V	
Erdoel-Raffinerie Speyer, Speyer	57,800					
Erdolwerke Frisia AG, Emden	47,500		9,500	15,600 HDS		
Esso AG, Hamburg	110,000	8,000 FCC	14,000	33,000 HDT 22,000 HDS	15,000 V, 2,300 L, 9,000 A	
Ingolstadt	100,000	15,000 FCC	13,500	31,500 HDT 34,000 HDS	26,000 V, 7,500 A	
Karlsruhe	180,000		30,000	54,000 HDT 58,000 HDS	45,000 V, 10,000 A	
Koln	115,000		9,000	10,000 HDT 12,000 HDS	17,000 V, 8,000 A	
Gelsenberg AG, Gelsenkirchen- Horst	144,000	11,900 TCC	30,700	16,300 HDT 31,400 HDS	16,100 V, 370 L	
Gewerkschaft Erdol-Raffinerie Deurag, Nerag, Misburg	54,000		8,000	7,000 HDS		
Mobil Oil AG, Bremen	30,000	7,500 TCC	5,500	5,500 HDT 6,000 HDS	7,000 V, 800 L, 1,200 A	
Woerth	75,000	12,000 FCC	14,000	28,000 HDT 19,000 HDS	23,000 V, 5,000 A	
Oberrheinische Mineralolwerke GmbH, Karlsruhe	128,000		20,500	20,500 HDT 18,100 HDS	21,000 V, 11,800 A	

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Occidental Oel GmbH, Bruns- buttel	7,500				6,700 A
	Essen	20,000				10,000 V, 7,500 A
	Oelwerke Julius Schindler GmbH, Hamburg	7,950				5,400 V, 5,000 L
	Saarland-Raffinerie GmbH, Klarenthal-Saar	55,243				
	Union Rheinische Braunkohlen Kraftstoff AG, Wesseling	125,000		8,400	15,000 HDT 10,000 HDS	650 P
	Veba-Chemie AG, Gelsenkirchen- Buer	215,700	4,900 FCC	22,800	31,300 HDT 10,900 HDS	6,300 V, 3,800 A
	Wintershall AG, Lingen, Emsland	95,000	13,600 FCC	15,600	17,600 HDT 12,000 HDS	31,800 V, 800 P, 3,060 C, 4,000 A
	Mannheim	113,530		12,570	3,040 HDS	
	Salzbergen	5,000			800 HDT	5,000 V, 2,000 L, 1,400 A
	Total	2,986,723	126,550	363,520	930,190	
GHANA	Ghananian-Italian Petroleum Co., Tema	28,000		6,500	6,500 HDT	
GREECE	Hellenic Aspropyrgos Refinery SA, Aspropyrgos	98,000		15,000	23,000 HDT 16,000 HDS	5,000 V, 2,000 A
	Motor Oil (Hellas) Corinth Refineries SA, Agii Theodori Corinth	140,000			25,800 HDS	12,000 V, 2,500 L, 2,800 A
	Petrola Hellas SA, Eleusis	100,000				2,500 V, 1,300 A
	Thessaloniki Refining Co. AE, Thessaloniki	73,000		7,000	12,400 HDT 11,700 HDS	6,800 V
	Total	411,000		22,000	88,900	
GUAM	Guam Oil & Refining Co., Apra Heights	29,500				
GUATEMALA	Refinería Petrolera de Guatemala- California Inc., Puerto Barrios	10,800		2,500	1,900 HDT 1,400 HDS	
	Texas Petroleum Co., Escuintla	14,000		3,000	5,000 HDT	
	Total	24,800		5,500	8,300	
HONDURAS	Refinería Texaco de Honduras SA, Puerto Cortes	14,000		1,800	5,000 HDT	
HUNGARY	Szazhalmatta (south of Budapest)	46,497				
INDIA	Assam Oil Co. Ltd., Digboi	12,100				893 L, 32 C, 425 A
	Burmah Shell Refineries Ltd., Trombay, Bombay	111,000	17,000 FCC	7,000		33,000 V, 10,000 A
	Caltex Oil Refining (India) Ltd., Visakhapatnam	32,000	9,100 FCC			15,200 V, 2,000 A
	Cochin Refineries Ltd., Cochin	66,000		6,000	32,250 HDS	8,975 V, 3,442 A
	Hindustan Petroleum Corp. Ltd., Trombay, Bombay	70,000	6,000 FCC			19,440 V, 3,400 L, 6,500 A
	Indian Oil Corp Ltd., Barauni	60,000				15,000 V, 910 L, 270 C
	Baroda	82,000		7,000		
	Gauhati	16,000				125 C
	Haldia	50,000		4,500	4,500 HDT 13,000 HDS	
	Madras Refineries Ltd. Manali	56,000		2,158	4,700 HDT 24,962 HDS	22,300 V, 4,600 L, 4,270 A
	Total	555,100	32,100	26,658	79,412	
INDONESIA	Lemigas, Cepu, Central Java	4,000				
	Pertamina: Balikpapan, Kalimantan	75,000				13,000 V
	Dumai, Central Sumatra	100,000		7,000		
	Pangkalan Brandan, North Sumatra	4,500				200 L, 300 A
	Plaju, South Sumatra	111,200		16,000		24,000 V, 1,100 A/ky, 173 P, 1,200 A
	Sungei Gerong, South Sumatra	79,000	19,500 FCC			87,000 V, 650 A/ky, 1,200 P
	Sungei Pakning South, Central Sumatra	50,000				

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Sungei Pakning South, Central Sumatra	50,000	.....	.....	.....	.....
	Wonokromo, East Java	4,000	.....	.....	.....	1,500 A
	Total	427,700	19,500	23,000	.....	.....
IRAN	National Iranian Oil Co.: Abadan	470,000	36,000 FCC	23,500	25,000 HDT 96,000 V, 1,400 L	9,300 Alky, 10,500 A
	Kermanshah	15,000	.....	2,750	2,750 HDT 3,100 HDS	.....
	Masjid Sulaiman	64,000	.....	.....	19,000 DHC	.....
	Shiraz	40,000	.....	6,215	5,225 HDT 3,120 HDS 9,280 DHC	18,400 V, 1,000 A
	Tehran	200,000	.....	28,200	30,000 DHC	96,000 V, 2,100 L, 7,300 A
	Total	789,000	36,000	60,665	97,475	.....
IRAQ	Oil Refineries Administration: Basra	70,000	.....	.....	.....	.....
	Daura	71,000	.....	5,000 C	13,000 HDT	8,160 L, 1,815 A
	K3-Haditha	7,000	.....	.....	.....	.....
	Khanaqin	12,000	.....	.....	.....	.....
	Muthia	4,500	.....	.....	.....	.....
	Qaiyarah, Mosul	2,000	.....	.....	.....	970 A
	Iraqi Company for Oil Operations, Kirkuk	2,000	.....	.....	.....	.....
	Total	168,500	.....	5,000	13,000	.....
IRELAND	Irish Refining Co. Ltd., Whitegate	56,000	.....	13,200	.....	.....
ISRAEL	Oil Refineries Ltd., Ashdod	66,000	.....	10,000	11,000 HDT 25,000 HDS	36,000 V
	Haifa	135,000	.....	14,500	15,500 HDT 25,000 HDS	28,000 V, 800 L, 3,600 A
	Total	201,000	.....	24,500	76,500	.....
ITALY	Amoco Italia, Cremona	100,000	.....	10,000	15,600 HDT 7,100 HDS	12 A
	ANIC SpA, Gela	90,000	21,000 FCC	12,000	16,000 HDT 25,000 HDS	30,000 V, 9,500 A, 3,000 C
	Anonima Petroli Italiana, Falconara Marittima	81,000	.....	10,000	10,500 HDT 12,000 HDS	13,000 V, 3,000 A
	ERG—Raffineria Edoardo Garrone, Genoa, San Quirico	147,000	.....	14,270	21,400 HDS	.....
	Esso Italiana, Augusta, Siracusa	210,000	40,000 FCC	15,300	23,500 HDT 25,000 HDS	189,200 V, 7,700 Alky, 5,200 L, 6,700 A
	Gaeta Industrie Petroli SpA, Gaeta	39,900	27,000 FCC	11,250	10,800 HDT	225 L
	Gulf Italiana SpA, Bertinico	80,000	.....	12,350	29,450 HDS	4,370 A
	Industrie Chimiche Italiane del Petrolio SpA (Icpi), Mantova-Frassino	65,000	.....	9,700	14,600 HDT 5,000 F	7,500 V, 5,000 A
	Industria Italiana Petroli SpA, La Spezia	103,000	.....	21,100	24,600 HDT 13,000 HDS	10,300 V, 3,100 A
	Rho	80,000	12,300 TCC	16,300	21,100 HDT 13,400 HDS	29,000 V, 1,720 Alky, 1,560 L, 4,650 A
	Taranto	88,000	.....	16,700	23,500 HDT 13,000 HDS	13,300 V, 1,900 A
	Industria Leganti Stradali del Affini (Ilsea), Como	7,885	.....	1,350	.....	.....
	Industria Raffinazione Olii Minerali (Irom), Porto Marghera	110,000	.....	18,000	18,000 HDT 18,500 HDS	.....
	Iplom—Raffineria Petroli SpA, Sarissole	31,200	.....	.....	.....	5,700 V, 2,850 A
	Liquichimica SpA, Milan	12,000	.....	1,000	.....	.....
	Lombarda Petroli, Villasanta	23,500	.....	3,600	4,800 HDT	.....
	Mediocranea SpA, Milazzo, Sicily	505,000	45,000 FCC	10,000	10,000 HDT 20,000 HDS	80,000 V, 5,000 Alky
	Mobil Oil Italiana SpA, Naples	130,000	14,000 TCC	12,500	12,500 HDT 13,500 HDS	7,500 V, 750 L, 3,500 Alky, 650 A

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Montedison, Brindisi	30,000				
	Priolo	300,000	25,000 FCC	9,500	9,500 HDT 17,000 HDS	40,000 V
	Raffineria Dellepiane SpA, San Quirico, Genoa	20,000				12,200 A
	Raffineria del Po SpA, Sannazzaro d'Burgondi	122,000	22,000 FCC	24,000	24,000 HDT 12,000 HDS	50,000 V, 3,600 Alky
	Raffineria di Roma SpA, Rome	80,300		12,300	18,900 HDT 8,500 HDS	9,300 V, 3,100 A
	Raffineria Olii Lubrificanti (ROL), Viguzzola	1,425				
	Sanquirico SpA, Genova San Quirico	32,500		1,500	11,500 HDS	
	Saras—Raffinerie Sarde, Sarroch, Cagliari	360,000	50,000 FCC	30,000	30,000 HDT 60,000 HDS	5,000 Alky
	Sarom Raffinazione SpA, Ravenna	332,000		14,000	14,000 HDT	
	Sarpom, Novara	235,000	12,200 FCC	27,200	107,300 HDT	22,800 V, 2,800 A
	Societa Italiana Resine SpA, (SIR), Porto Torres, Sar- dinia	118,750		11,700	14,400 HDS	
	Societa Petrolifera Italiana, Arcola, La Spezia	18,400				
	Stanic SpA, Bari	90,000		10,000	10,000 HDT 18,000 HDS	17,000 V
	Leghorn, Livorno	125,000		24,000	24,000 HDT 16,000 HDS	20,000 V, 7,000 L
	Total Italiana—Aquila, Trieste	111,000		17,000	23,500 HDT 15,000 HDS	11,000 V, 1,200 L, 4,700 A
	Volpiano Refinery, Volpiano	72,800		10,750	18,200 HDT 10,920 HDS	
	Total	3,952,660	268,500	387,300	884,570	

IVORY COAST

Societe Ivoirienne de Raffinage, Abidjan	42,940		4,420	6,465 HDT 3,345 HDS	
Total	42,940		4,420	9,810	

JAMAICA

Esso West Indies Ltd., Kingston	32,600		3,000	18,900 HDS	1,500 V, 670 A
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JAPAN

Asia Kyoseki Co. Ltd., Sakaide, Kagawa	100,000	9,000 FCC		12,600 HDT 13,500 HDS	36,000 V
Asia Oil Co., Hakodate	23,750		1,170	2,700 HDT	
Yokohama	95,000		12,600	11,700 HDT 6,300 DHC	
Daikyo Co. Ltd., Yokkaichi-City, Mie	195,000	23,500 FCC	9,000	6,500 HDT 77,000 HDS	83,500 V, 4,200 L, 7,878 A
Fuji Kosan Co. Ltd., Kainan	77,600			9,000 HDT 20,000 HDS	44,000 V, 13,600 L, 17,500 A
Fuji Oil Co. Ltd., Sodegaura, Chiba	189,000	4,500 FCC	13,500	26,900 HDT 44,500 HDS	34,200 V
General Sekiyu Seisei KK, Kawasaki	52,300		5,700	16,150 HDT	
Sakai	114,000		23,800	72,200 HDT 29,450 HDS	50,400 V
Idemitsu Kosan Ltd., Chiba	310,000	34,000 FCC	35,000	43,000 HDT 108,000 HDS	60,000 V, 10,500 L
Hokkaido	70,000		11,000	13,000 HDT 17,000 HDS	
Hyogo	110,000		15,000	22,000 HDT 65,000 HDS	
Tokuyama	140,000	15,000 FCC	15,000	15,000 HDT 30,000 HDS	20,000 V, 976 A
Kansai Oil Co. Inc., Sakai City	110,000		5,000	20,000 HDT 20,000 HDS	34,000 V
Kashima Oil Co., Kashima	162,000	12,600 FCC	5,400	92,700 HDS	60,300 V
Koa Oil Co. Ltd., Marifu	141,550	12,600 FCC	9,900	12,600 HDT 9,000 HDS	45,000 V, 225 C, 270 A
Osaka	76,000	14,400 FCC	8,100	2,250 DHC 6,300 HDT 10,800 HDS	49,500 V
Kyokuto Petroleum Industries Ltd., Chiba	97,000		7,700	8,000 HDT 6,700 HDS	67,000 V, 1,700 A
Kyushu Oil Co. Ltd., Oita	170,000	9,000 FCC	9,000	67,000 HDS	91,000 V

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Maruzen Oil Co. Ltd., Chiba	195,000	20,000 FCC	25,000	57,000 HDT 35,000 HDS	65,000 V, 10,000 A
	Matsuyama Shimotsu	50,000 37,500	6,500 FCC	3,500 7,000	19,000 HDT 7,000 HDT	14,460 V, 1,500 L, 4,000 A
	Mitsubishi Oil Co., Kawasaki	105,000		12,000	10,000 HDT 12,500 HDS	5,800 V, 18,000 A
	Mizushima	220,000	20,000 FCC	33,700	48,600 HDT 73,000 HDS 45,000 RHD	97,000 V, 2,000 P, 2,770 L, 29,700 A
	Nichimo Sekiyu Seisei KK, Kawasaki	96,000		10,400	7,200 HDT 40,500 HDS	19,800 V
	Nihonkai Oil Co. Ltd., Toyama City	60,000				
	Nippon Mining Co. Ltd., Funakawa	13,370				1,830 V, 840 L, 700 A
	Mizushima	222,310	18,360 FCC	21,740	2,840 DHC 4,520 HDT 64,560 HDS 27,190 RHD	32,550 V, 3,450 L, 5,810 A
	Nippon Oil Co. Ltd., Niigata	26,000		5,100	18,500 HDT	2,000 V, 1,000 L, 425 A
	Nippon Petroleum Refining Co. Ltd., Kudamatsu	42,000		5,200	8,100 HDT	4,500 V, 1,610 A
	Muroran	110,000	10,000 FCC	18,000	66,700 HDT 40,000 HDS	50,000 V
	Negishi	330,000	20,000 FCC	31,000	97,900 HDT 68,000 HDS	143,000 V
	Yokohama	70,000	5,600 FCC	3,300	10,600 HDT	25,000 V, 1,050 A
	Seibu Seikyu KK, Onoda	100,000		8,000	37,000 HDT 9,000 HDS	
	Showa Sekiyu KK, Kawasaki	137,000		20,000	30,000 HDT 42,000 HDS	
	Niigata	37,000		4,000	11,000 HDT 2,000 HDS	
	Showa Yokkaichi Sekiyu KK, Yokkaichi	240,000	15,000	32,000	75,000 HDT 85,000 HDS	
	Taiyo Oil Co. Ltd., Kikuma	56,050		4,500		3,600 V
	Teiseki Topping Plant Co., Kubiki	4,410				
	Tao Nenryo Kogyo KK, Kawasaki	190,000	36,000 FCC	14,400	137,700 HDS	110,700 V, 1,340 A
	Shimizu	41,300		4,140	13,140 HDS	3,420 V, 255 L, 980 A
	Wakayama	177,700	20,970 FCC	32,400	3,900 HDT 104,400 HDS	71,550 V, 1,130 Alky, 5,410 L, 2,260 A
	Toa Oil Co. Ltd., Chita	100,000		22,000	89,000 HDT 37,000 HDS	46,000 V
	Kawasaki	100,000		11,000	33,000 HDT	
	Toho Oil Co. Ltd., Yanohama, Owase City	40,000				
	Tohoku Oil Co., Sendai City	100,000		13,000	69,000 HDS	60,000 V, 5,000 A
	Total	5,133,840	307,030	527,550	2,458,700	
JORDAN	Jordan Petroleum Refinery Co. Ltd., Zerqa	21,223	4,403 FCC			6,631 V, 615 A
KENYA	East African Oil Refineries Ltd., Mombasa	48,000		4,000	16,000 HDT	
KHMER REPUBLIC	Societe Khmere de Raffinage de Petrole, Krung Kompong Som	12,540		1,800	5,850 HDT	
KOREA	Honam Oil Refinery Co. Ltd., Yosu	160,000		7,100	11,400 HDT	2,100 A
	Korea Oil Corp., Ulsan	210,000		17,000	23,000 HDT 4,000 HDS	3,600 V, 2,100 A
	Kyung In Energy Co. Ltd., Inchon	55,000		3,600	7,000 HDT	
	Total	425,000		27,700	45,400	
KUWAIT	American Independent Oil Co., Mena Abdullah	132,000			32,000 HDS	112,000 V
	Arabian Oil Ltd. (Japan), Ras Al Khafji	30,000				

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro-processing	Other processing
	Getty Oil Co., Mina Saud	50,000				5,000 C
	Kuwait National Petroleum Co., Shuaiba	134,000		14,000	20,700 DHC 48,600 RHC 85,500 HDT 10,500 HDS	67,000 V
	Kuwait Oil Co. Ltd., Mina al Ahmadi	300,000		5,600		1,250 A
	Total	646,000		19,600	197,300	
LEBANON	Iraq Petroleum Co. Ltd., Tripoli	36,000	7,250 FCC	4,400	6,730 HDT	12,730 V, 900 A
	Mediterranean Refining Co., Sidon	17,500		2,900	2,900 HDT	
	Total	53,500	7,250	7,300	9,630	
LIBERIA	Liberia Refining Co., Monrovia	11,000		2,000	1,000 HDT	500 A
LIBYA	American Overseas Petroleum Ltd., Nafoora	1,800				
	Esso Standard Libya, Marsa El-Brega	8,000		1,500	3,900 HDT	
	Mobil Oil Corp., Amal	1,800				
	National Oil Co., Intisar	1,800				
	Zavia	60,000		6,500	17,720 HDS	
	Zeutina	3,000				300 A
	Total	76,400		8,000	21,620	
MALAGASY	Societe Malagache de Raffinage, Tamatave	15,000		2,200	5,000 HDT	
MALAYSIA	Esso Malaysia Berhad, Port Dickson	22,200		3,700	7,800 HDT 6,400 HDS	2,800 V, 1,100 A
	Shell Refining Co., Berhad, Port Dickson	31,000		2,000	8,000 HDT 4,000 HDS	
	Total	63,200		5,700	26,200	
MARTINIQUE	Societe Anonyme Raffinerie des Antilles, Fort de France	10,400		2,500	3,500 HDT 3,300 HDS	
	Total	10,400		2,500	6,800	
MEXICO	Petróleos Mexicanos: Arcapatzalco	100,000	23,000 FCC		26,000 HDS	50,000 V, 3,000 Alky, 650 P
	Cuidad Madero	169,000	23,000 FCC	15,000	18,000 HDT 15,000 HDS	50,000 V, 3,000 Alky, 650 P, 400 C, 15,000 A
	Minatitlán	233,500	24,000 FCC 21,000 TCC	12,000	21,000 HDT 29,000 HDS 5,000 HDT	32,000 V, 600 P, 3,000 L
	Poza Rica	27,000				
	Reynosa	20,500				
	Salamanca	210,000	18,000 TCC	8,300	18,500 RHC 8,300 HDT 28,000 HDS	51,200 V, 7,100 L, 3,000 A
	Total	760,000	109,000	35,300	168,800	
MOROCCO	Societe Cherifienne des Petroles, Sidi-Kacem	8,550	3,600 TCC	1,080	1,080 HDT	
	Societe Am. Marocaine Italienne de Raffinage (Samir), Mohammedia	50,000		6,500	6,500 HDT 2,200 HDS	
	Total	58,550	3,660	7,580	9,780	
MOZAMBIQUE	Sociedade Nacional de Refinacao de Petróleos, Salazar	17,000		2,500	2,500 HDT	5,000 V, 1,000 A
NETHERLANDS	BP Raffinaderij Nederland NV, Rotterdam	490,200		19,800	158,400 HDT 18,000 HDS	
	Chevron Petroleum Maatschappij, Pernis	300,000		39,000	39,000 HDT 38,000 HDT	25,000 V, 5,000 A
	Esso Nederland BV, Rotterdam	325,000		48,000	80,000 HDT 62,000 HDS	

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Gulf Oil Raffinaderij NV, Rozenburg	94,000		3,000	29,500 HDS	31,000 V, 3,300 L, 2,100 A
	Mobil Oil BV, Amsterdam	125,000		24,000	36,000 HDT 29,000 HDS	
	NV Smid & Hollander, Amsterdam	6,500			4,500 A	
	Shell Nederland Raffinaderij NV, Pernis	500,000	75,000 FCC	26,000	130,000 HDT 55,000 HDS	
	Total	1,840,700	75,000	164,800	674,900	
NETHERLANDS ANTILLES	Lago Oil & Transport Co. Ltd., Aruba	440,000			123,000 HDT 115,000 HDS	230,000 V, 1,000 Alky
	Shell Curacao NV, Emmastad	460,000	35,000 FCC	15,000	100,000 HDT 25,000 HDS	
	Total	900,000	35,000	15,000	363,000	
NEW ZEALAND	New Zealand Refining Co. Ltd., Marsden Point, Whangarei	54,000		18,000	32,000 DHT 5,000 DHD	
	Total	54,000		18,000	37,000	
NICARAGUA	Esso Standard Oil SA Ltd., Managua	13,200		2,600	10,600 HDS	1,900 V, 732 A
NIGERIA	Nigerian Petroleum Refining Co. Ltd., Alesa-Elene, Port Harcourt	60,000		6,500		
NORWAY	A/S Norske Esso, Slagen, Tonsberg	110,000		8,500	18,000 HDT 8,100 HDS	
	Valloy, Tonsberg	3,000			700 HDT	2,100 V, 700 L, 1,300 A
	A/S Norske Shell, Sola	55,000		10,000	14,000 HDT 8,000 HDS	
	Total	168,000		18,500	48,800	
OKINAWA	Nansei Sekiyu, Nishihara Okinawa Sekiyu Seisei Co. Ltd., Heianza Island	93,000		10,000	36,300 HDT	
	Toyo Petroleum Refining Co. Ltd., Nakagusuku	94,000			69,200 HDS	
	Co. Ltd., Nakagusuku	25,000		2,000	2,000 HDS	
	Total	212,000		12,000	107,500	
PAKISTAN	Attock Oil Co. Ltd., Rawalpindi	11,640				1,200 V, 350 L, 13,000 A
	National Refinery Ltd., Korangi	12,570			1,635 HDT	5,650 V, 1,635 L, 1,800 A
	Pakistan Refinery Ltd., Karachi	55,000		2,500	21,000 HDT	
	Total	79,210		2,500	22,635	
PANAMA	Refinería Panamá SA, Las Minas, Colon	100,000		7,500	30,000 HDT	14,000 V, 5,000 A
PARAGUAY	Refinería Paraguaya SA, Villa Elisa	5,000				210 A
PERU	Petróleos del Perú, Conchán	8,500				3,500 V, 1,000 A
	Iquitos	1,400				
	La Pampilla	37,000	9,360 FCC	1,760	2,700 HDT	
	Pucallpa	2,700				
	Talara	80,000	16,600 FCC			20,000 V, 1,000 L, 2,000 A
	Total	129,600	25,960	1,760	2,700	
PHILIPPINES	Bataan Refining Corp., Limay	108,000	13,200 TCC	15,300	47,100 HDT 16,400 HDS	17,500 V, 4,300 A
	Caltex (Philippines) Inc., Batangas	70,000	11,400 FCC	8,600	15,200 HDT 15,200 HDS	18,100 V, 900 P
	Filoil Refinery Corp., Rosario	28,000		3,060	7,060 HDS	8,500 V, 773 A

	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro-processing	Other processing
	Shell Philippines Inc., Batangas	68,000		8,000	12,000 DHT 6,000 HDS	
	Total	274,000	24,600	34,960	118,960	
POLAND	Glinik Mariampolski	2,470				
	Jasto	2,660				
	Jealicze	3,880				
	L. Warvnski, Czechowice	13,300				
	Mazovia, Plock	114,000	13,500	10,800	16,200 HDS	54,000 V, 9,000 C, 2,520 L, 5,400 A
	Trzebinia	9,500				
	Total	145,810	13,500	10,800	16,200	
PORTUGAL	Sacor, Boa Nova, Porto	70,000		15,600	25,800 HDT 9,400 HDS	10,000 V, 2,000 L, 700 A
	Cabo Ruivo, Lisbon	40,000	12,000 TCC		5,500 HDS	320 A
	Total	110,000	12,000	15,600	40,700	
PUERTO RICO	Caribbean Gulf Refining Corp., Bayamón	37,800	7,800 FCC	5,500	16,100 HDS	14,200 V, 400 P, 1,000 A
	Commonwealth Oil Refining Co. Inc., Peñuelas	161,000	40,000 HF	70,000	88,000 HDS	65,000 V, 6,000 Alky, 2,400 P
	Yabucoa Sun Oil Co., Yabucoa	85,000			12,000 HDT 8,300 HDS	35,000 V, 5,400 L
	Total	283,800	47,800	75,500	124,400	
QATAR	National Oil Distribution Co., Umm Said	6,800		1,300	2,200 HDT 700 HDS	
	Total	6,800		1,300	2,900	
RHODESIA	Central African Petroleum Refineries (Pvt.) Ltd., Umtali	20,000	(Not in operation; not included in total)			
RUMANIA	Brazi	76,000			2,025 DHT	
	Pitesti	57,000			86,400 DHT	15,570 L
	Sulpacu Barcau (Crisana oil field)	5,700				
Total crude capacity for all refineries: 320,000 b/cd. Other refineries at Borzetsi, Brazov, Cimpina, Darmanesti, G. Gheorghiu Dej—Onesti, Ploiesti, Telaejen.						
SAUDI ARABIA	Arabian American Oil Co., Ras Tanura	565,000		12,500	22,800 HDS	100,000 V, 4,300 A
	Jeddah Oil Refinery Co., Jeddah	31,120	8,210 FCC	2,640	9,900 HDS	12,590 V, 1,500 A
	Riyadh Oil Refinery, Riyadh	14,180		5,350	5,970 DHC 2,280 HDT	5,670 V, 550 A
	Total	610,300	8,210	20,490	40,950	
SENEGAL	Societe Africaine de Raffinage, Dakar	15,000		1,320		
SIERRA LEONE	Sierra Leone Petroleum Refining Co. Ltd., Freetown	10,000				
SINGAPORE	BP Refinery Singapore Pte. Ltd., Pasir Panjang	25,650				
	Esso Singapore Private Ltd., Pulau Ayer Chawan	230,000		6,000	41,500 HDT	47,000 V, 5,000 L, 3,300 A
	Mobil Oil Malaya Sendirian Berhad, Jurong	175,000		4,000	4,000 HDT 32,000 HDS	
	Shell Eastern Petroleum Ltd., Pulau Bukom	350,000		10,000	90,000 HDT 20,000 HDS	
	Singapore Petroleum Co. Private Ltd., Pulau Merlimau	65,000			41,010 HDS	29,790 V, 1,000 A
	Total	845,650		20,000	228,510	
SOUTH AFRICA	Caltex Oil SA (Pty) Ltd., Cape Town	46,000	10,400 FCC		30,500 HDT	21,000 V, 950 A
	Mobil Oil Refining Co. Southern Africa Pty. Ltd., Durban	100,000	14,500 FCC	16,000	18,500 HDT 22,000 HDS	28,000 V, 300 P, 2,000 A

WORLDWIDE REFINING	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro- processing	Other processing
	Durban* National Petroleum Refiners of South Africa (Pty) Ltd., Sasolburg	63,000	15,500 FCC	10,700	9,800 DHC 8,100 RHC 14,500 HDT	3,000 L 22,400 V, 4,400 Alky, 2,900 A
	Satmar Ltd., Boksburg North Shell & BP South African Petroleum Refineries Pty. Ltd., Durban	3,100 185,000				1,200 V, 600 A
			17,000 FCC	30,000	36,000 HDT 55,000 HDS	
	Total	397,100	57,400	56,700	194,400	
*South African Oil Refining Co. is owner; Mobil is operator.						
SOUTH YEMEN	BP Refinery (Aden) Ltd., Little Aden	169,100		9,000	2,700 HDS	
SPAIN	Asfaltos Españoles SA (Asesa), Tarragona	18,000				15,000 V, 11,700 A
	Cia. Española de Petróleos (Cepsa), San Roque, Cádiz	160,000		27,000	27,000 HDT 9,000 DHC 8,000 HDS	
	Santa Cruz de Tenerife, Canary Islands	175,000		16,500	10,800 HDS	10,620 V
	Cia. Ibérica Refinadora de Petróleos SA (Petroiber), La Coruña	120,000		16,500	16,500 HDT 15,000 HDS	
	Empresa Nacional Calvo Sotelo, Puertollano	152,000		16,000	1,900 HDT 30,000 HDS	12,000 V, 3,800 L
	Esso Petróleos Españoles SA, Castellón de la Plana	80,000		7,600	14,000 HDT 28,000 HDS	
	Refinería de Petróleos de Escombreras SA, Cartagena, Murcia	220,000		18,000	20,000 HDT 53,000 HDS	20,400 V, 3,000 L
	Refinería de Petróleos del Norte SA (Petronor), Somorrostro, Bilbao	160,000		21,000	48,000 HDS	
	Union Explosivos Rio Tinto SA Huelva	80,000		14,100	24,900 HDT	23,200 V, 1,300 L, 6,900 A
	Total	1,165,000		136,700	306,100	
SRI LANKA	Ceylon Petroleum Corp., Sapugaskanda	34,400		3,400	13,800 HDT	1,700 V, 850 A 1,900 HDS
	Total	34,400		3,400	15,700	
SUDAN	Shell & BP Sudan Ltd., Port Sudan	22,000		2,000	9,000 HDT	
SWEDEN	AB Nynas-Petroleum, Gothenburg	5,700				4,500 V, 900 A
	Malmö	3,800				
	Nynasham	28,500		6,300		4,500 V
	BP Raffinaderi (Goteborg) AB, Gothenburg	110,000		21,000	44,000 HDT	
	Koppartrans Olje AB (Shell), Gothenburg	100,000		17,000	27,000 HDT 16,000 HDS	
	Total	248,000		47,300	87,000	
SWITZERLAND	Raffinerie de Cressier SA, Cressier	65,000		13,000	22,000 HDT 8,000 HDS	
	Raffinerie du Sud-Ouest SA, Collombey	73,000		10,600	17,300 HDT	
	Total	138,000		23,600	47,300	
SYRIA	Homs Petroleum Refining Co., Homs	49,690		2,620		3,110 V, 1,920 A
TANZANIA	Tanzanian and Italian Petroleum Refining (Tiper) Co. Ltd., Dar es Salaam	16,100		4,200	5,000 HDS	



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	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro-processing	Other processing
THAILAND	Defence Energy Department, Bangkok	65,000		10,000	18,000 HDS	400 A
	Fang refinery, Chiang Mai	1,200				1,000 V 200 L
	Esso Standard Thailand Ltd., Sriracha	35,000		4,900	17,000 HDT	5,700 V, 2,600 A
	Thai Oil Refinery Co. Ltd., Sriracha, Choburi	65,000	7,000 FCC	9,000	32,000 HDT 10,000 HDS	14,500 V, 1,400 A
	Total	166,200	7,000	23,900	77,000	
TRINIDAD	Texaco Trinidad Inc., Pointe-a-Pierre	361,000	26,500 FCC	20,000	45,000 HDT 80,000 HDS	187,000 V, 2,200 Alky, 350 P, 4,000 L
	Trinidad and Tobago Oil Co. Ltd., Point Fortin	100,000		7,000	22,000 HDT	7,000 V
	Total	461,000	26,500	27,000	147,000	
TUNISIA	Societe Tuniso Italienne de Raffinage (Stir), Zarzouna, Bizerte	25,000		3,300		
TURKEY	Anadolu Tasiyehanesi AS, Mersin	90,000		10,500	22,000 HDT 11,500 HDS	
	Istanbul Petrol Rafinerisi AS, Izmit	140,000	25,000 FCC	11,500	14,800 HDT 28,500 HDS	22,000 A
	Turkish Petroleum Co., Aliaga-Izmir	62,700		6,490	7,500 HDT	36,700 V, 3,050 L
	Batman	22,800	3,600 TCC	1,170		3,120 A
	Total	315,500	28,600	29,660	84,300	
UNITED KINGDOM	Berry Wiggins & Co. Ltd., Kingsnorth-on-the-Medway, Hoo, Kent	2,000				5,000 V
	BP Refinery (Kent), Isle of Grain	229,900	16,200 FCC 18,000	40,050	14,750 HDS	61,650 V, 2,790 Alky, 3,600 L
	Burmah-Castrol Co., Ellesmere Port	25,280		5,060	6,430 HDT 6,430 HDS	14,370 V, 6,150 L
	Conoco Ltd., South Killingholme, South Humberside	87,500		30,000	106,000 HDS	1,110 C
	Esso Petroleum Co. Ltd., Fawley, Hampshire	391,000	81,000 FCC	50,500	33,300 HDT 66,500 HDS	62,000 V, 7,900 P, 7,100 L, 8,300 A
	Lindsey Oil Refinery Ltd., Killingholme, Grimsby	189,000		27,400	39,600 HDT 30,500 HDS	14,200 V, 7,000 A
	Mobil Oil Co. Ltd., Coryton, Essex	175,000	9,500 TCC	33,000	42,000 HDT 33,000 HDS	43,000 V, 5,500 L, 1,700 A
	Phillips Imperial Petroleum Ltd., North Tees	100,000				
	Philmac Oils Ltd., Eastham, Cheshire	13,000				9,300 V, 7,300 A
	Shell U.K. Ltd., Heysham	39,000				
	Shell Haven	200,000		32,000	63,000 HDT 16,000 HDS	
	Stanlow	215,000	50,000	53,000	40,000 HDT 12,000 HDS	
	Teesport	125,000		15,000	31,000 HDT 14,000 HDS	
	Total England	1,791,680	174,700	286,010	554,510	
	North Ireland					
	BP Refinery (Northern Ireland) Ltd., Belfast	32,300		5,850	10,150 HDT 3,350 HDS	
	Total Ireland	32,300		5,850	13,500	
	Scotland					
	BP Refinery (Grangemouth), Ltd., Grangemouth	186,200	16,200 FCC	21,600	27,000 RHC 54,000 HDT	76,500 V
	Shell U.K. Ltd., Ardrossan	6,000				
	Total Scotland	192,200	16,200	21,600	81,000	
	Wales					
	BP Refinery Ltd., Llandarcy, Neath	174,800	14,400 FCC	13,050	6,300 HDT 13,950 HDS	51,100 V, 5,400 L, 800 A
	Esso Petroleum Co. Ltd., Milford Haven, Pembrokeshire	309,000		43,000	32,000 HDT 56,000 HDS	
	Gulf Oil Refining Ltd., Milford Haven	103,000		23,000	46,500 HDS	
	Texaco Ltd., Pembroke	180,000		17,500	51,000 HDT	10,000 V
	Total Wales	766,800	14,400	96,550	205,750	
	TOTAL UNITED KINGDOM	2,782,980	205,300	410,010	854,760	

	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro-processing	Other processing
URUGUAY	Administración Nacional de Combustibles, Alcohol y Portland, La Teja, Montevideo	43,000	4,000 FCC	3,000	8,000 HDS	12,000 V, 400 C, 3,100 A
VENEZUELA	Chevron Oil Co. of Venezuela, Bajo Grande	61,500				15,300 V, 7,000 A
	Cia. Shell de Venezuela, Cardón	348,000	32,000 FCC		44,000 HDT 32,000 HDS	
	Sa. Lorenzo	32,000				
	Corporación Venezolana del Petróleo, Morón	30,000		1,600		
	Creole Petroleum Corp., Amuay	630,000		13,000	17,000 HDT 230,000 HDS	345,000 V, 2,500 L, 35,000 A
	Quiriquire	110,000				
	Mobil Oil de Venezuela, El Palito	102,000		6,000	6,000 HDT	
	Phillips Petroleum Co., San Roque	5,100				
	Sinclair-Venezuelan Oil Co., El Chaure	40,000				
	El Toreño	5,400				
	Texas Petroleum Co., Tucupita	10,000				
	Venezuela Gulf Refining Co., Puerto la Cruz	157,715	14,589 FCC			2,268 Alky
	Total	1,531,715	48,589	20,600	329,000	
VIRGIN ISLANDS	Hess Oil Virgin Islands Corp., St. Croix	590,000			93,600 HDS	105,000 V
YUGOSLAVIA	Bosanski Brod	53,982		5,861	945 HC	1,200 V, 666 A
	Lendava	10,447				
	Novi Sad	12,500				
	Pancevo	29,878		3,996	8,793 HDS	
	Rijeka	96,135		13,720	4,662 HDS	4,000 L, 866 A
	Sisak	76,627	2,997	2,664	2,464 HDS	1,000 A
ZAIRE	Sozir—Société Zairo-Italienne de Raffinage, Muanda	16,150		2,700	4,500 HDS	
ZAMBIA	Indeni Petroleum Refinery Co. Ltd., Ndola	24,620		5,600	9,000 HDS	2,400 V, 800 A

Worldwide production

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow-ing	Pump-ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
ABU DHABI	Asab, 1965		17				450,000	83,400,000	40.0
	Abu al Bu Khoosh, 1973		(Started production at 20,000 b/d in Aug., 1974 from 2 wells)						
	Bab (Murban), 1960	8,500	22				110,000	1,428,300,000	38.0-40
	Bu Hasa, 1962	8,500	41				679,820		
	El Bunduq, 1965*	8,500				15			
	Mubarras, 1971*	11,000	20			12	22,000	5,200,000	38.1
	Umm Shaif, 1958*	9,150	27			10	206,446	451,262,526	37.7
	Zakum, 1964*	9,100	33			8	284,531	531,691,675	40.1
	Total		160			35	1,752,797	2,499,854,201	
*Offshore. †To go on production in April, 1975.									
AFGHAN-ISTAN*	Angot, 1950	2,100							51
	Hodja-Gugerdag, 1961	4,170-4,700							51
	Khulaja-Borhan, 1964								51
	Sar-i-pul, 1959	5,000	13	2			150†	138,900†	51
	Yatim Tagh, 1950	1,290-4,019							51
	Total		13	2			150	138,900	
*Data estimated. † Condensate. Note: Gas production estimated 250 MMcfd.									
ALGERIA	Alrep								
	Haoud Berkaoui, 1965	10,300	9			2	32,235	85,432,775	46.0
	Hassi Messaoud North, 1956	11,000	108			15	222,000	790,867,000	49.0
	C.P.A.								
	Gassi Touil and E., 1966	6,930	58			18	69,780	29,912,000	44.0
	Creps								
	Acheb, 1963	7,382	7			2	5,484	12,367,660	43.0
	Edjeleh, 1956	1,900-3,000	40		90	62	19,775	154,352,000	35.0

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
	El Adeb Larache, 1958	4,100	21	...	...	16	9,800	36,027,000	44.5
	Hassi Mazoula, 1962	4,231-4,400	1	9	...	7	8,844	15,002,000	41.0
	Ohanet, S. (& N.), 1960	7,920	21	...	...	16	1,795	72,445,175	44.0
	Tiguentourine, 1956	3,526	43	...	...	36	7,030	41,067,950	45.0
	Tin Fouye, 1961	1,300-2,040	35	9	...	5	7,562	139,359,000	39.0-41.0
	Zarzaitaine, 1958	4,600	25	...	45	31	80,600	488,463,000	42.0
	Petral								
	Askarene, 1962	8,250	...	9	...	...	574	15,620,500	44.0
	Guelta, 1962	7,810	4	...	...	3	555	16,199,575	44.0
	Repal								
	Hassi Messaoud, S., 1956	11,000	145	...	...	16	338,077	1,071,398,000	49.0
	Nezla, 1965	8,500	2	...	...	3	2,359	18,861,000	48.0
	Sepal								
	El Gassi El Agreb, 1959	9,300	22	...	...	21	38,516	160,938,340	47.0
	Sonatrach								
	Djebel Onk, 1960	3,900	...	4	...	8	750	1,970,750	37.0
	Djoua W., 1966	2,600	1	...	...	5	166	4,938,600	40.0
	El Borma, 1967	2,495	8	...	...	...	3,341	3,807,487	45.0
	Rhourde El Baguei, 1962	3,182	17	...	...	1	10,000	242,640,000	40.0
	Timedratine, 1965	8,250	13	...	...	2	1,466	4,149,100	41.0
	Tin Fouye Tabankort, 1966	4,500-6,700	49	...	...	6	5,082	45,829,900	41.0
	Rhourde Noua, 1963	2,820	5	...	...	3	865	11,501,725	50.0
	Others		25	...	...	16	22,149	20,741,385	
	Total		660	31	135	294	888,805	3,483,891,922	

*Some data estimated.

ANGOLA

ANGOLA PROPER:									
Bento, 1972	7,500	2	...	...	...	...	2,440	1,109,874	26.1
Cabeca da Cobra, 1970	4,200	7	...	...	...	3	894	956,711	41.1
Mulenvos, 1966	6,500	1	6	...	...	3	721	3,556,771	22.6
N'Zombo, 1973	6,100-6,300	4	...	...	...	...	5,495	1,230,719	30.4
Quenguela Norte, 1968	4,900-6,200	22	4	...	...	24	5,457	22,424,773	31.0
Quingula, 1972	4,100	11	...	...	...	...	5,227	2,114,647	35.9
Others	2,100-9,900	6	2	...	...	18	752	32,988,358	29.7
Subtotal		53	12	...	...	48	20,986	64,381,871	
CABINDA:*									
Malongo, N., 1966	1,500-8,500	10	...	43	...	2	42,460	96,562,400	21.1-38.0
Malongo, L., 1966	1,300-1,600	...	...	27	...	...	11,767	28,720,722	23.0-27.0
Malongo, W., 1969	1,800-8,750	20	...	16	...	12	86,210	84,227,042	18.0-34.0
Subtotal		30	...	86	...	14	140,437	209,510,164	
Total		83	12	86	...	62	161,423	273,892,017	

*All offshore

ARGENTINA

Chubut, 1907	2,500-6,000	...	5	...	...	1	75,981	572,500,524	22.8-24.5
Juvu, 1969	11,000-15,000	25	...	...	...	...	24,824	22,012,654	23.0
La Pampa, 1968	5,000-5,500	17	...	...	...	...	12,894	15,899,134	...
Mendoza, 1932	7,500-8,000	?	800	...	...	31	112,289	523,212,915	...
Neuquen, 1918	3,000-6,000	50	300	...	...	50	48,153	184,154,078	30.0
Rio Negro, 1959	2,800-6,000	200	250	...	...	110	64,383	171,574,477	...
Salta, 1928	1,100-15,000	60	15	...	...	140	3,871	83,676,499	22.5-54.0
Santa Cruz, 1944	4,000-6,000	200	2,140	...	...	365	68,159	506,971,408	41.8
Tierra del Fuego, 1952	6,000-7,000	5	25	...	...	10	8,636	43,357,803	41.0
Others		...	...	...	...	...	2,845	240,976,417	...
Total		560	3,535	...	...	707	421,945	2,364,335,909	

Note: Production data are as of 1-1-74 (source: AAPG), well data estimated.

AUSTRALIA

Alton, 1964	6,000	...	4	...	...	2	131	1,651,927	52.0
Barracouta, 1965*	4,700	...	...	...	...	2	3,600	8,656,000	62.8
Barrow Island, 1964*	2,200-6,700	16	180	109	...	28	39,214	99,005,933	38.0
Halibut, 1967*	7,600	7	...	...	...	12	112,300	227,240,000	43.3
Moonie, 1961	5,800	1	2	17	...	2	1,358	17,503,000	44.0
Kingfish, 1967*	7,500	40	...	...	...	2	214,000	194,472,000	46.9
Total		64	186	126	...	48	370,603	548,528,860	

*Offshore.

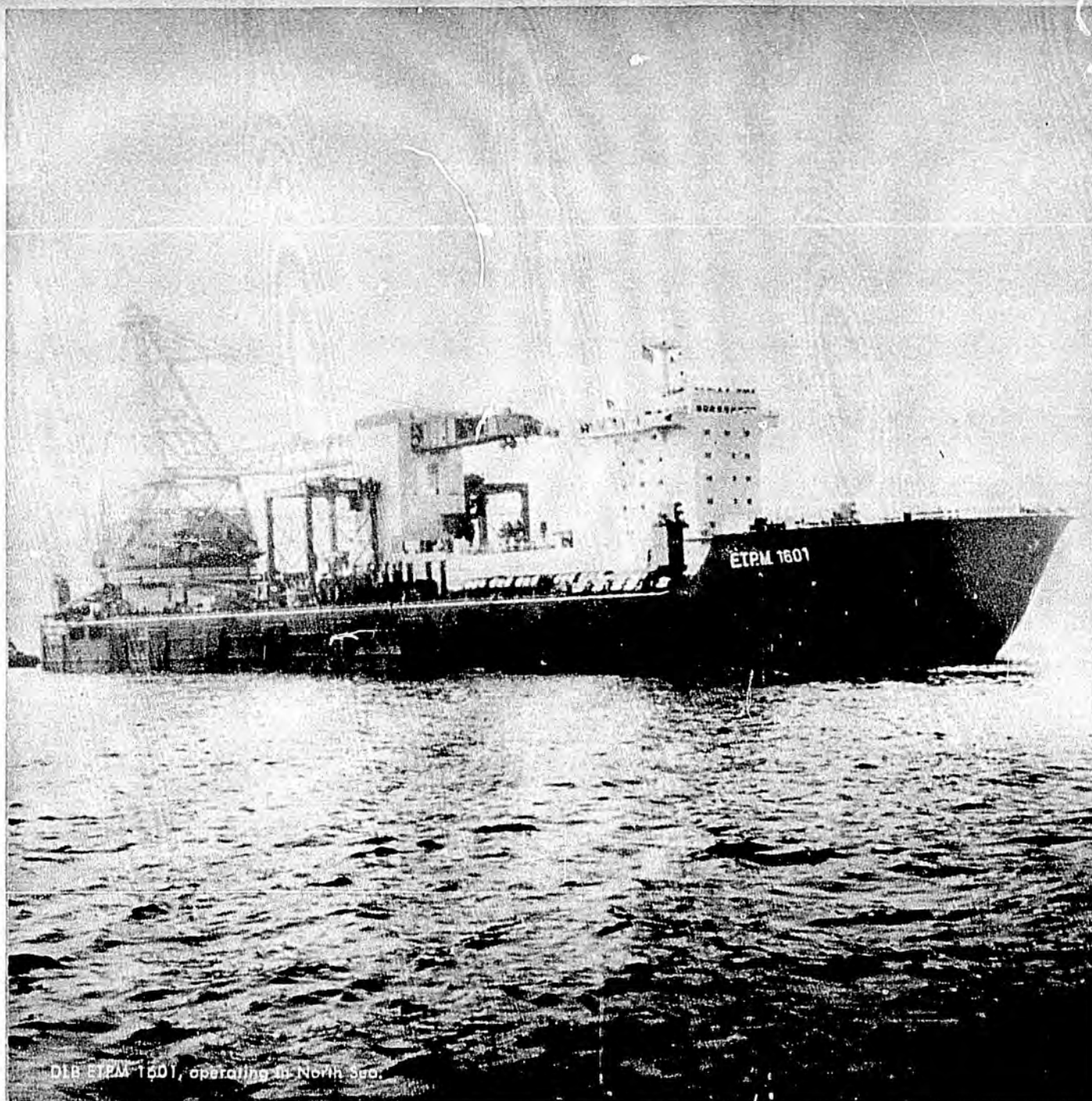
AUSTRIA

Vienna Basin									
Matzen, 1949	4,200-7,200	64	514	243	...	116	22,971	305,458,762	25.7
Muehlberg, 1942	3,900-5,500	...	43	14	...	6	692	36,077,300	35.0
Pirawarth, 1957	1,600-6,500	4	...	53	...	4	2,033	5,762,043	28.4
St. Ulrich, 1938	1,600-4,300	2	124	...	...	133	1,504	36,674,736	33.0
Schoenkirchen & Prottes Tief, 1962	7,800-10,100	16	2	2	...	5	10,635	42,949,452	31.1
Gaiselberg, 1938	3,400-6,500	...	34	...	...	25	1,050	28,007,056	24.8
Others		3	80	...	...	46	1,172	48,965,798	30.8
Molasse Zone									
Piberbach, 1968	3,500	6	...	...	...	1	780	1,728,108	39.0
Sattledt, 1971	5,580	...	8	...	...	3	1,330	62,020	37.0

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flowing	Pumping	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
AUSTRIA—Continued	Voitsdorf, 1962	6,900	3	18	...	6	3,045	14,695,345	35.8
	Others		2	36	...	8	1,847	8,266,282	34.0
	Total		100	859	312	353	47,059	529,346,902	
BAHRAIN	Awali, 1932	1,850-4,600	162	30	19	33	67,975	555,959,500	33.0
BARBADOS	Fisher Pond, 1966			3	...	...	215	85,629	...
	Woodbourne, 1966			2	...	...	95	43,952	...
	Others			3	...	...	31	11,205	...
	Total			8	...	...	341	140,786	
BOLIVIA	Camiri, 1927	3,936	18	1	55	...	1,665	43,344,808	52.0-55.0
	Caranda, 1960	3,936	41	...	5	...	6,169	43,984,299	49.5
	Caigua, 1973	3,936	2	...	...	...	4,072	275,435	47.0
	Colpa, 1961	9,184	26	...	...	...	4,753	10,228,431	46.0
	La Pena, 1965	8,856	19	...	...	...	7,501	4,998,057	43.0
	Monteagudo, 1966	4,592	29	...	1	...	8,395	13,961,698	48.0
	Rio Grande, 1961	9,184	30	...	...	...	13,543	14,907,796	62.0
	Tatarenda, 1962	2,296	5	13	...	...	888	5,472,335	...
	Others			36	...	...	536	8,592,307	...
	Total		170	50	61	...	47,522	145,765,166	
BRAZIL	Agua Grande, 1951	3,281-6,562	40	44	...	80	18,800	221,808,000	38.0-42.0
	Aracas, 1965	3,281-6,562	6	67	...	25	28,800	53,112,000	41.0
	Buracica, 1959	2,395-2,559		84	...	13	19,410	100,966,000	35.0
	Candeias, 1941	3,281-6,562	10	24	...	100	5,682	63,804,979	30.0-31.0
	Carmopolis, 1963	2,460		190	...	7	19,240	53,735,000	24.0
	Cassarongongo, 1959	4,757		19	...	6	3,235	7,338,000	32.0
	Dom Joao, 1947	918		370	...	125	10,000	59,597,500	38.0
	Faz. Boa Esperanca, 1966	7,874-8,530	3	4	...	...	2,700	5,869,500	38.0-40.0
	Imbe, 1964	2,132-8,202	4	16	...	6	3,100	7,074,000	38.0-42.0
	Guaricema, 1968*	3,543	12	...	...	5	4,800	1,682,448	43.0
	Malombe, 1966	3,281		14	...	1	1,700	2,861,000	31.0
	Miranga, 1965	3,281-6,542	34	77	...	33	32,000	104,373,599	39.0-41.0
	Riachuelo, 1961	1,476		50	...	8	2,000	4,481,000	28.0
	Siririzinho, 1967	1,640		80	...	4	5,500	11,574,000	30.0
	Taquipe, 1959	3,117-3,937	8	55	...	15	8,500	56,460,500	40.0
	Others			40	...	75	6,722	24,934,000	...
	Total		117	1,134	...	503	172,129	779,671,526	
	*Offshore								
BRUNEI-MALAYSIA	Amipa, SW, 1963*	7,068-8,155	81	...	...	34	111,399	246,442,177	41.0
	Bakau, 1971*	11,000	1	...	...	...	1,865	1,820,655	39.0
	Baram, 1967*	9,500	29	...	...	2	53,440	50,739,639	40.5
	Baronia, 1970*	11,000	1	...	...	...	2,500	1,570,333	42.0
	Champion, 1970*	4,300	30	...	...	3	35,853	24,315,492	23.0
	Fairley, 1969*	10,740	11	...	...	1	28,599	21,777,859	40.0
	Seria, 1928		345	...	...	170	39,051	823,663,692	34.0
	West Lutong, 1965*		21	...	...	3	53,440	63,031,656	39.5
	Others (Miri, Jerudong)							80,200,000	...
	Total		519	...	...	213	326,147	1,313,561,503	
	*Offshore								
BURMA*	Chauk-Lanywa, 1902		2	290	...	...	2,000		
	Mann, 1970	3,955-6,934	30	5	...	...	10,000		
	Myanaung, 1965			80	...	...	6,000		
	Prome, ?			20	...	...	1,000		
	Yenangyaung, 1902	5,000		200	...	...	4,000	157,617,000	
	Total		32	595	...	...	23,000		
	*Data estimated.								

	Name of field and discovery date	Depth (ft)	No. of wells capable of production	Daily avg. 1st 6 mos. 1974	Cumulative 7/1/74	Gravity °API
CANADA	ALBERTA					
	Acheson, 1950	4,600-5,100	98	11,626	60,617,582	38.0
	Bantry, 1948	3,250	104	5,388	18,000,100	25.0
	Bellshill Lake, 1956	3,000	142	5,500	18,442,414	27.0
	Bonnie Glen, 1952	3,950-7,100	173	51,127	202,768,853	38.0-42.0
	Carson Creek, North, 1958	8,650-8,750	60	18,577	46,301,440	44.0
	Cessford, 1952	3,000-3,350	75	2,925	12,871,143	24.0-26.0
	Chauvin, 1952	2,050	37	3,055	4,746,712	22.0
	Clive, 1951	6,150-6,250	130	6,444	18,113,655	40.0-41.0

Name of field and discovery date	Depth (ft)	No. of wells capable of production	Daily avg. 1st 6 mos. 1974	Cumulative 7/1/74	Gravity °API
CANADA—Continued					
Crossfield, 1956	6,650	88	1,520	14,757,875	38.0
Erskine, 1952	5,400	90	1,959	17,856,384	28.0
Excelsoir, 1949	3,900	33	2,253	16,789,370	36.0
Fenn-Big Valley, 1950	5,300-5,400	314	27,080	143,335,501	26.0-32.0
Garrington, 1954	6,600	95	1,550	12,815,104	39.0
Gilby, 1953	5,850-7,050	79	5,823	28,102,735	27.0-38.0
Glen Park, 1951	6,300	10	2,487	9,953,847	38.0
Golden Spike, 1949	5,050-5,650	26	36,027	162,387,347	37.0
Goose River, 1963	9,200	23	6,390	14,209,163	41.0
Harmattan, East, 1957	8,600	107	8,210	33,700,531	38.0
Harmattan Elkton, 1955	8,796-9,000	67	5,224	31,228,165	38.0
Hassar, 1957	4,800	35	2,898	11,728,501	36.0
Innisfail, 1957	8,600	83	8,050	37,218,502	44.0
Joarcam, 1949	3,250	281	7,680	72,669,447	38.0
Joffre, 1953	5,000-7,000	132	8,656	66,324,791	41.0-42.0
Judy Creek, 1959	8,650-8,850	214	61,853	172,505,676	41.0-42.0
Kaybob, 1957	9,800	86	14,189	50,939,059	43.0
Kaybob, South, 1962	6,900	95	8,592	21,910,984	42.0
Leduc, 1947	4,200-5,450	788	20,400	322,736,744	40.0
Lloydminster, 1939	2,000	253	2,322	19,685,264	16.0
Medicine River, 1956	7,050-7,250	53	6,943	7,103,752	26.0-27.0
Mitsue, 1964	5,650	236	42,413	91,138,488	43.0
Nipisi, 1965	5,600	187	40,472	77,776,926	41.0
Pembina, 1953	3,200-5,100	3,059	138,817	788,717,635	37.0-38.0
Provost, 1952	2,760-2,768	291	6,535	14,466,742	38.0-42.0
Rainbow, 1965	5,950-6,400	23	80,149	159,779,420	38.0-42.0
Red Earth, 1956	4,700	33	4,922	11,809,690	40.0
Redwater, 1948	3,200	785	85,914	498,029,776	36.0
Simonette, 1958	11,600	22	5,669	17,390,096	47.0
Snipe Lake, 1962	8,550	93	8,625	27,997,923	37.0
Stettler, 1949	5,200-5,350	125	4,406	32,787,681	28.0-30.0
Sturgeon Lake, 1952	8,850	18	2,689	11,287,562	37.0-38.0
Sturgeon Lake, South, 1953	4,900-8,500	143	15,676	66,544,960	36.0-38.0
Sundre, 1955	9,050	47	3,490	20,194,299	32.0
Swan Hills, 1957	7,450-8,300	692	105,209	309,877,498	41.0-42.0
Swan Hills, South, 1959	8,400	193	48,403	135,208,354	41.0
Sylvan Lake, 1962	7,300-7,450	33	3,170	9,388,540	28.0
Taber, South, 1963	3,250	24	3,149	10,006,116	19.0
Turner Valley, 1914	2,500-9,000	170	2,763	123,261,023	40.0
Virginia Hills, 1957	9,300	104	21,098	64,765,304	38.0
Virgo, 1967	4,900-4,950	96	8,669	21,205,254	29.0-43.0
Wainwright, 1926	2,100	294	6,649	27,543,520	22.0
Westrose, 1952	7,250	19	15,311	48,894,556	41.0
Willesden Green, 1954	6,200	412	15,096	53,428,398	41.0
Wizard Lake, 1951	6,450	35	41,443	127,563,345	38.0
Zama, 1967	4,900	179	14,053	37,545,970	25.0-43.0
Others		1,344	328,978	77,047,283	
Total		12,428	*1,398,516	*4,513,477,000	
*All fields					
BRITISH COLUMBIA					
Aitken Creek, 1959	4,400	10	980	3,767,060	38.0
Beaton River, 1958	3,800	16	934	5,603,475	
Blueberry, 1953	6,950	33	1,519	9,572,747	40.0
Boundary Lake, 1955	4,300-4,600	331	20,994	98,792,611	
Inga, 1966	5,300	79	7,076	19,349,203	40.0
Milligan Creek, 1950	3,750	29	4,385	33,440,736	41.0
Peejay, 1959	3,900	105	7,756	44,301,107	30.0
Weasel, 1965	3,800	23	3,392	9,355,619	40.0
Others		974	4,966	15,685,443	
Total		1,600	52,002	239,878,001	
MANITOBA					
Daly, 1951	2,550	148	1,354	16,470,140	32.0
Virden-Roselea, 1953	2,030	243	3,671	27,769,636	30.0
N. Virden-Scallion, 1953	2,010	244	6,509	46,144,893	35.0
Routledge, 1955	2,130	106	1,200	11,914,892	35.0
Others		80	247	2,038,185	
Total		821	12,981	104,337,746	
SASKATCHEWAN					
Alameda, 1956	4,420	87	1,492	12,723,136	40.0
Bathurst, 1955	2,900	155	6,539	33,938,885	19.0
Coleville, 1951	2,700	196	4,384	25,226,109	13.0
Dollard, 1953	4,600	57	8,219	61,580,255	23.0
Fosterton, 1952	3,200	43	4,888	46,138,217	21.0
Instow, 1954	4,500	48	5,096	33,212,924	23.0
Midale, 1953	4,600	384	8,788	74,858,082	27.0
North Premier, 1953	3,300-3,500	67	5,197	16,010,837	23.0-24.0
Steelman, 1954	4,590-4,620	616	17,988	167,345,500	38.0
Weyburn, 1955	4,600	575	23,066	182,071,094	28.0
Others		4,084	130,343	648,870,821	
Total		6,312	216,000	1,301,975,860	



DLB ETPM 1601, operating in North Sea.

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	Name of field and discovery date	Depth (ft)	No. of wells capable of production	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	Gravity °API
CANADA—Continued	ONTARIO					
	All fields			2,000	53,100,080	...
	NEW BRUNSWICK					
	Stoney Creek			24	763,399	...
	NORTHWEST TERRITORIES					
	Norman Wells		41	1,000	16,372,517	...
	Total Canada		21,202	*1,682,523	*6,229,904,603	
	*All					

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl—		Gravity °API
			Flowing	Pumping	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
CHILE	MAINLAND								
	Cañadón, 1962	6,560	15	...	8	18	1,696	10,249,312	38.4
	Daniel, 1960	5,975	37	...	18	40	4,779	28,210,426	25.4
	Daniel Este, 1961	5,740	21	...	5	14	4,321	19,445,725	25.0
	Posesión, 1960	6,100	34	...	...	7	2,506	14,125,390	63.6
	Dúgenes, 1962	6,050	7	...	1	3	747	2,363,315	28.6
	TIERRA DEL FUEGO								
	Calafate, 1955	6,200	16	...	5	33	3,353	18,155,964	49.3
	Catalina Sur, 1961	5,890	3	...	5	31	358	5,444,898	44.0
	Cullen, 1954	5,840	26	...	14	50	2,399	34,999,991	41.8
	Tres Lagos, 1957	5,640	20	...	2	37	2,097	11,014,649	40.1
	Victor Sur, 1950	7,200	...	...	6	14	452	7,223,645	39.3
	Otros		40	...	33	121	5,940	50,338,645	
	Total		219	...	97	368	28,648	201,571,960	
CHINA (TAIWAN)	Tiehchenshan, 1962	8,500-18,000	26	...	...	2	2,652	4,639,533	53.0
	Others		34	...	...	16	619	1,094,524	
	Total		60	...	...	18	3,271	5,734,057	

COLOMBIA	Acae, 1964	10,600	4	3	3	4	4,436	12,178,267	30.5
	Bonanza, 1964	4,000	4	8	1	3	2,128	7,062,835	32.3
	Boquete, 1961	8,000	12	...	...	6	3,152	10,677,912	27.2
	Caribe, 1969	7,750	2	1	...	1	1,042	1,785,958	31.9
	Casabe, 1941	3,880	...	270	...	40	6,144	197,283,929	20.8
	Chucuri-Bajo Rio, 1958	10,100	...	1	...	1	843	71,694	28.1
	Cicuco, 1961	8,000	10	...	...	13	426	41,902,747	40.3
	Colorado, 1930	3,600	4	32	...	13	694	6,350,559	39.4
	Cocorna, 1963	2,000	...	14	...	4	1,021	3,320,170	12.5
	Cristalina, 1959	10,700	...	3	...	...	738	3,782,244	30.2
	Dina, 1962	2,900	4	5	...	7	3,318	5,974,218	21.5
	Galán, 1945	3,800	...	64	...	9	1,179	14,833,647	19.0
	Infantas, 1918	3,200	1	298	...	16	4,064	208,510,209	25.8
	La Cira, 1925	3,250	...	619	...	48	17,146	406,466,926	24.0
	Lisama, 1957	9,500	8	9	...	5	2,018	4,740,318	31.0
	Llanito, 1960	7,350	2	20	...	10	1,172	9,083,613	21.0
	Orito, 1963	6,600	20	4	23	25	37,513	97,247,798	33.6
	Ortega, 1953	4,300	...	7	...	1	486	9,618,429	26.0
	Palagua-Velasquez, 1946	4,925	...	222	34	102	18,144	190,190,233	19.0
	Payoa, 1962	8,000	20	...	11	18	5,970	59,762,445	33.6
	Peñas Blancas, 1958	8,200	...	6	...	...	529	6,388,189	29.6
	Provincia, 1962	8,000	20	...	13	14	17,442	96,202,409	33.0
	Ric Zulia, 1962	5,600	4	12	...	1	16,865	101,510,219	41.2
	San Antonio, 1971	9,500	...	4	...	...	909	1,435,498	30.7
	Tello, 1972	9,200	3	...	...	...	1,147	504,518	20.9
	Tibú, 1940	4,200	30	146	22	70	10,826	249,537,540	36.5
	Tisquirama-Totumal, 1955	9,500	...	9	...	...	443	3,161,482	22.0
	Yarigui, 1943	6,850	...	39	...	3	8,995	85,922,950	20.8
	Others		1	26	...	27	942	5,954,526	
	Total		149	1,822	107	441	169,732	1,841,461,482	
CONGO REPUBLIC (Brazzaville)	Emeraude Marine, 1969*	1,000	...	49	...	5	51,000	25,537,000	23.0
	Pointe Indienne, 1957	5,000	3	...	...	6	220	5,912,600	36.9
	Total		3	49	...	11	51,220	28,735,250	
*Offshore									
DENMARK	Dan, 1971*	6,700	6	...	...	2	(t)	1,641,000	30.4
	*Offshore. †Shut down temporarily—resumed production July 1, 1974								
DUBAI	Fateh, 1966*	7,600	3,000	24	...	9	132,892	199,104,476	31.8
	Fateh SW, 1970*	7,500	9,000	12	...	1	98,482	59,696,127	32.0
	Total			36	...	9	231,374	258,800,603	
*Offshore.									

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow-ing	Pump-ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
ECUADOR	COASTAL:								
	Ancor, 1921	4,000	7	540		1,671	2,391	99,107,336	36.5-37.0
	Others	1,000-3,000	18	156		308	408	9,124,979	30.5-37.0
	ORIENTE:								
	Aguarico, 1969	9,400	9				7,962	1,441,133	29.5
	Lago Agrio, 1967	10,120	20			6	47,301	29,716,724	28.6
	Sacha, 1969	9,900	58			16	79,132	62,129,165	29.7
	Shushufirdi, 1969	9,400	11		24	15	94,668	50,806,826	31.7
	Total		123	696	24	2,016	231,862	252,326,163	
EGYPT	Abu Gharadig, 1972	9,500	2			11	1,475	4,290,295	36.0
	Abu Rudeis, 1957†	8,500						13,204,947	23.0
	Al Yusr, 1966	4,264	15				7,167	12,222,447	
	Asi, 1948†	3,000						34,269,304	23.0
	Belayim (Land and Offshore), 1954†*	7,000-8,500						224,777,435	28.0
	El Alamein, 1966	8,700		8		12	997‡	8,508,275	19.0
	El Morgan, 1965*								
	Kareim	5,500-6,400	16		24	2	39,594	420,492,068	32.0
	Belayim	5,100-5,700	5		4		8,594	6,974,854	27.0
	July, 1973*	9,000	3				13,056	2,450,589	34.0
	Kareem, 1968	2,200		8		12	997‡	8,508,275	19.0
	Ras Amer, 1965	4,264	1	3			866‡	2,860,411	20.0
	Ras Bakr, 1958	3,280	15	35			7,789‡	47,454,752	20.0
	Ras Gharib, 1938	2,100		90		12	7,298‡	217,179,819	25.0
	Razzak, 1972	7,700	11			2	17,302	11,742,447	36.0
	Sidri, 1959†	8,100						4,308,786	23.0
	Sudr, 1946†							39,198,071	23.0
	Uyun, 1968			90			1,653	1,237,389	
	Yidma, 1971	9,000		5			5,300	7,065,576	43.5
	Others		10	2		1	444	325,104	
	Total Egypt		78	241	28	46	118,335	1,103,923,932	
*Offshore. †These fields on Sinai Peninsula being produced by Israel, who refuses figures. Daily output is estimated at 120,000 bbl. Cumulative figures for the captured fields are carried forward for the record (data as of June 5, 1967). ‡Data are estimated.									
FRANCE	ALSACE (All fields shut in)							26,368,290	
	AQUITAINE BASIN								
	Esso Rep fields:								
	Cazaux, 1959	8,200	3	25		2	4,045	43,339,866	34.1-37.5
	Lavergne, 1962	10,650	2	1			322	8,768,979	40.4
	Lugos, 1956	4,900	6			1	405	3,193,516	20.8
	Parentis, 1954	7,710	5	17		4	7,804	160,516,393	33.0
	Others		1	12		2	790	13,683,401	
	Erap fields:								
	Bonrepos, 1973	9,300		1			33	181,091	42.8
	Montastruc, 1973	9,810	1				755	21,652	42.0
	SNPA fields:								
	Lacq, 1949	2,165	11	21		15	1,161	22,309,479	20.6
	PARIS BASIN								
	Copeseq fields	1,530-4,525		13		1	441	6,370,994	19.9-32.8
	Erap fields:								
	Chailly-en-Biere, 1958	5,575		20		12	474	7,518,015	35.3
	Chuelles, 1961	2,000		28		12	395	4,334,908	27.1
	Saint-Firmin, 1960	2,000		33		11	789	6,170,383	27.8
	Villemer, 1958	4,985		6		7	417	3,473,238	31.4
	Others		2	52		16	1,402	15,322,783	
	Petrorep fields:								
	Coulommies, 1958	6,070	4	27		11	937	10,390,097	32.6
	Total France		35	256		94	20,170	331,963,085	
GABON	Anguille Marine, 1962*	8,300	16			3	28,200	57,036,000	31.8
	Anguille, Northeast, 1968*	7,480	10				13,000	20,327,000	31.4
	Anguille, Northwest, 1968*	7,000	2				2,000	2,010,385	31.4
	Cap Lopez, N., 1962	6,700	4			5	5,900	16,401,500	23.9
	Gamba, 1963	3,000	31			12	29,584	98,604,344	32.4
	GBM, 1969	6,500-7,500				2	(not yet producing)		33.0-33.8
	Ivinga, 1967	3,100	25			4	21,846	40,598,928	32.5
	Lucina Marine, 1971*	Not yet on stream. Three oil wells finished at about 6,100 ft.							
	Pointe Clairette, 1956	4,000-5,000	17			12	2,750	25,330,750	29.9
	Port Gentil Ocean, 1964*	8,100	3			2	3,750	10,233,750	33.6
	Tchengue, 1959	3,500	9			14	3,500	22,277,500	30.6
	Tchengue Ocean, 1962*	6,200	5			1	1,500	5,547,500	33.1
	Torpille Marine, 1968*	9,487	10				11,000	9,886,000	33.9
	Others		5			5			
	Total		137			60	123,030	308,253,657	
	*Offshore								
	Note: Elf data estimated.								

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow-ing	Pump-ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
GERMANY, WEST	BAVARIA								
	Arlesried, 1964	4,900	...	12	...	5	2,469	6,822,519	47.0
	Darching, 1967	14,400	1	...	...	...	1,679	2,392,277	
	Moenchsrodt, 1958	4,800	...	18	...	...	1,204	6,979,224	36.0
	Others		9	26	...	...	1,846	17,532,091	
	Total		10	56	...	5	7,198	33,726,111	
	EMSLAND								
	Emlichheim, 1944	2,600	...	99	...	...	3,385	28,192,364	25.0
	Georgsdorf, 1944	1,800-2,600	45	163	...	4	8,610	65,802,957	24.0-29.0
	Meppen-Schwefingen, 1960	4,000	10	12	...	...	1,391	6,180,959	28.0-30.0
	Ruhlermoor, 1949	2,000-4,700	10	246	...	10	12,520	88,402,752	25.0-34.0
	Ruhlermoor, 1949	2,350-2,900	6	103	...	...	1,990	22,392,447	25.0
	Scheerhorn, 1949	3,550-3,750	...	123	...	5	4,831	31,026,663	30.0
	Others		...	156	...	...	1,692	23,297,702	
	Total		71	902	...	19	34,419	265,295,844	
	SCHLESWIG-HOLSTEIN								
	Plön-Ost, 1959	6,400	2	55	...	1	7,311	32,835,310	36.0
	Preetz, 1962	8,350-8,550	1	24	...	...	1,041	7,906,367	29.0
	Reitbrook, 1937	1,450-2,100	6	38	...	9	2,021	31,561,860	29.0
	Others		1	81	...	4	1,472	41,921,770	
	Total		10	198	...	14	11,845	114,225,307	
	HANNOVER								
	Eldingen, 1949	4,750	...	27	...	...	1,622	13,961,896	35.0
	Hankensbuttel, 1954	4,450-5,100	10	37	...	...	9,380	63,302,557	33.0
	Hardesse, 1958	6,050	9	11	...	...	849	3,316,343	34.0
	Hohne, 1951	4,300-5,900	...	34	...	3	3,063	32,902,948	33.0-34.0
	Kuesebeck, 1958	5,100-5,200	...	24	...	...	2,143	10,505,290	36.0
	Leiferde, 1956	2,600	2	34	...	...	2,458	15,162,434	34.0
	Luben, 1955	3,950	1	14	...	...	1,247	7,333,149	35.0-38.0
	Meckelfeld, 1938	1,000-1,300	1	24	...	1	1,253	11,131,507	24.0-32.0
	Nienhagen-Haenigsen, 1899	800-4,100	...	68	...	5	944	55,521,775	22.0-32.0
	Oelheim-Süd, 1968	1,650	9	4	...	...	1,190	2,921,707	33.0
	Oerrel-Wesendorf-Nord, 1954	4,450	...	38	...	...	1,077	7,560,590	
	Ruehme, 1954	1,950	...	39	...	1	1,019	5,534,848	
	Sinstorf, 1960	6,750-7,150	...	20	...	...	2,356	12,880,869	
	Suderbruch, 1949	3,750-7,550	...	60	...	...	1,138	19,137,035	19.0-38.0
	Volthop, 1952	2,950-6,900	2	24	...	4	1,413	10,986,830	36.0
	Others		...	262	...	...	4,792	134,833,303	
	Total		34	720	...	14	35,944	406,993,081	
	UPPER RHINE VALLEY								
	Landau, 1955	3,950-4,800	...	76	...	2	2,950	16,781,250	36.0
	Others		...	21	...	1	312	10,051,359	
	Total		...	97	...	3	3,262	26,832,609	
	WESER-EMS								
	Barenburg, 1953	2,300-3,300	9	32	...	1	2,641	24,603,940	29.0
	Rockstedt, 1954	3,750	...	25	...	3	2,249	12,706,859	
	Bramberge, 1958	2,560-3,300	56	6	...	...	2,992	50,431,806	29.0
	Dueste, 1954	2,600-4,250	...	156	...	...	2,928	31,516,104	
	Gross Lessen, 1969	3,300	4	...	...	...	6,798	7,774,865	
	Sued-Oldenburg, 1950	1,700-6,500	4	93	...	13	2,198	31,637,738	
	Voigtei, 1953	1,150-1,500	2	68	...	12	1,545	19,147,778	31.0-34.0
	Wehrbleck, 1957	3,400	...	63	...	...	1,295	10,731,388	33.0
	Others		...	83	...	...	2,281	19,201,325	
	Total		75	526	...	29	24,927	207,751,803	
	Total Germany, West		200	2,499	...	84	117,595	1,054,824,755	
GUATEMALA	Rubel Santo, 1974	5,300	...	...	...	1	...	...	30.0
	Tortugas, 1974	2,400	...	...	...	2	...	...	35.0
	Total		...	...	...	3	...	...	
Note: These two new fields, first for Guatemala, are not yet on production.									
ISRAEL	Heletz-Brur, 1955	5,200	...	18	...	1	660	11,005,015	29.0
	Kochav, 1963	5,500	...	7	...	2	169	3,682,581	26.5
	Total Israel		...	25	...	3	829	14,687,596	
ITALY	Gela, 1956*	10,720-10,870	35	27	...	19	10,227	76,588,397	6.5-15.1
	Pisticci-S. Cataldo, 1960	6,820-6,880	7	...	...	3	842	3,704,005	11.4
	Torrente Tona, 1963	4,370-4,430	1	3	...	1	232	780,278	25.7
	Malossa, 1973	18,080-18,190	1	...	...	...	630	6,123	52.0
	Ragusa, 1954	5,400-5,440	5	...	...	18	142	7,669,100	31.1-55.2
	Others	5,690-5,860	...	32	...	17	6,255	103,955,134	19.5
	Total		49	62	...	58	18,328	192,703,037	
*Partly offshore.									

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
INDIA*	GUJARAT STATE								
	An.leshwar, 1960	2,953- 3,937		186					
	Bakrol, 1968	4,593- 4,921		2					
	Kadi, N., 1968	2,953- 3,909		9					
	Kadi, S., 1968	5,906- 6,552		6					
	Kalol, 1961	4,265- 5,000		106					
	Kathana, 1965	5,250- 5,000		6					
	Kholka, 1966	4,265- 5,577		5			78,000		
	Kosamba, 1963	1,968- 2,625		6					
	Nawagam, 1963	4,429- 6,562		63					
	Sanand, 1963	4,265- 4,593		13					
	Sobhasen, 1968	4,429- 5,906		9					
	Wovel, 1963	4,265- 4,593		1				512,512,000	22.0-48.0
	ASSAM STATE								
	Digboi, 1890	300- 7,500		733					
	Geleki, 1968	12,632-12,795		1					
	Lakwa, 1965	8,038-12,795		64					
	Moran, 1958	11,000		45			78,000		
	Nahorkatiya, 1953	9,500		251					
Rudrasagar, 1961	10,171-10,500		39						
	Total			1,545			156,000		
	*Data estimated.								

INDONESIA									
	Pertamina Unit I:								
	Rantau, 1929	950- 4,540	110	2	115	227	28,732	190,020,630	48.0
	Paluh Tabuhan, 1937	3,727- 4,009	21			38	1,754	8,222,753	49.0
	Serang Jaya, 1926	4,600- 4,636	17		1	57	873	6,964,411	46.0
	Others		8	2		454	682	55,887,527	N.A.
	Total		156	4	116	776	32,041	261,095,321	
	Pertamina Unit II:								
	Dajubang, 1922	3,300		15		106	530	38,469,762	42.3
	Kenali Asam, 1931	3,800	6	45	6	187	1,520	85,835,617	24.2
	Tempino, 1931	2,700	2	55		118	1,655	80,388,225	42.3
	Tanjung Tiga, 1948	4,600		33		42	3,241	46,275,441	27.8
	Talang Akar, 1937	4,200	3	73		126	4,960	154,800,533	27.8
	Prabumulih Barat, 1953	4,740- 5,640	1		3	9	550	9,596,922	27.8
	Limau, 1928	4,500- 5,400	22		79	145	9,593	190,409,838	27.8
	Gunung Kemala, 1938	6,340	10		1	41	1,400	22,501,594	27.8
	Belimbing, 1964	5,280	3		8	10	3,057	14,795,963	27.8
	Kuang, 1967	4,800	1		6	9	1,153	3,700,848	27.8
	East Benakat, 1974		8			4	1,873	339,033	27.8
	Others		2	6	2	45	655	71,022,633	
	Total		58	227	105	842	30,187	718,136,409	
	Pertamina Unit III:								
	Jatibarang, 1970	3,500- 7,000	18			62	34,357	13,529,410	30.0
	Others		1	16		28	146	11,381,095	
	Total		19	16		90	34,503	24,910,505	
	Pertamina Unit IV:								
	Samboja, 1916	1,600	1	23		290	506	61,748,831	32.4
	Bunyu, 1923	2,020- 7,800	11		17	52	7,374	55,383,231	24.5-32.6
	Tanjung, 1938	2,500- 7,300	4	55		609	7,609	92,625,694	32.8
	Total		16	78	17	951	15,489	209,757,756	
	Pertamina Unit V:								
	Klamono, 1936	500		35		6	1,460	87,999,686	18.5
	Lemigas:								
	Kawengan, 1929	1,750- 2,700		21		116	516	83,978,364	39.0
	Others		2	32		332	466	26,649,194	
	Total Lemigas		2	53		448	982	110,627,558	
	P.T. Caltex:								
	Minas, 1944	2,400		193		80	420,356	1,744,146,961	33.3
	Petani, 1964	4,700		20		3	72,276	146,814,815	30.9
	Duri, 1941	600		349		93	29,451	242,557,885	21.6
	Pematang, 1959	2,800		20		3	53,562	122,864,047	31.3
	Bekasap, 1955	2,500		24		5	72,937	259,306,092	33.1
	Pungut, 1959	2,800		5		4	10,766	15,445,702	36.5
	No. Menggala, 1968	3,600		13		1	21,252	10,026,628	15.2
	Rangau, 1968	6,000		5		1	2,397	3,324,297	40.1
	So Bekasap, 1968	3,500		5		3	6,559	13,000,556	33.7
	Pematang Bow, 1969	5,000		3		1	1,532	1,552,949	35.8
	Kotabatak, 1952	4,700		30		11	22,713	34,957,610	29.7
	Tandun, 1970	3,000		4		1	2,852	4,726,130	32.7
	Mindal, 1971	3,200		3		1	627	1,543,369	24.0
	Pudu, 1972	5,500		5		1	9,634	4,909,493	35.5
	Bangko, 1970	1,500		34		2	111,889	102,103,311	31.1

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
	So Balam, 1969	1,500	...	21	...	1	22,147	20,471,758	33.3
	Petapahan, 1971	4,300	...	12	...	6	42,967	22,476,395	27.9
	Suram, 1973	1,700	...	4	...	3	4,107	968,502	27.4
	Sintong, 1971	2,400	1	13	...	1	19,079	14,792,112	28.3
	Pinggir, 1973	3,200	...	3	...	2	3,369	853,806	34.9
	So Menggala, 1968	4,000	...	3	...	...	10,361	4,223,803	33.7
	So Pinggir, 1974	3,255	...	2	...	1	1,482	268,228	38.2
	S.E. Balam, 1973	4,370	...	2	...	...	447	81,528	14.3
	Kulin, 1973	1,400	...	16	...	1	3,131	1,406,999	18.6
	Benar, 1973	2,200	3	...	...	1	8,771	3,124,739	21.8
	N. Sintong, 1973	2,750	2	...	...	2	5,791	1,105,347	16.4
	Aman, 1974	3,280	...	2	...	...	677	122,582	35.1
	Others	...	...	...	...	4	...	2,369	N.A.
	Total P.T. Caltex	...	6	791	...	232	961,132	2,777,188,014	
	P.T. Calasiatic & Tipco:								
	So Menggala, 1968	4,000	...	1	...	...	4,568	1,862,368	33.7
	Lindai, 1974	1,100	...	3	...	1	658	118,949	28.3
	Total C. & T.	...	...	4	...	1	5,226	1,981,317	
	P.T. Stanvac Indonesia:								
	Sago, 1940	1,800	...	86	...	31	7,568	104,315,945	35.0
	Lirik, 1939	1,600	...	27	...	6	5,338	25,499,527	35.0
	Andan, 1941	1,700	...	5	...	4	457	4,498,782	35.0
	N. Pulai, 1951	1,800	...	23	...	17	3,507	29,002,008	35.0
	Molek, 1956	2,600	...	14	...	4	1,378	5,026,572	35.0
	Binio, 1972	1,514- 1,720	...	19	...	4	4,655	3,493,112	34.0
	Talang Akar, 1922	2,800	9	20	4	512	618	240,611,496	35.0
	Benakat, 1932	1,600	3	62	...	207	4,167	121,727,489	35.0
	Selo, 1938	2,998	...	...	...	11	...	492,482	38.0
	Jirak, 1930	900	7	29	...	175	3,614	50,167,839	36.8
	Abab, 1951	6,000	9	4	12	55	8,451	31,151,631	33.9
	Dewa, 1971	7,675	5	...	...	13	2,346	2,971,065	35.0
	Ibul, 1970	5,600	7	...	4	18	4,768	12,879,796	38.0
	Others	...	10	8	...	216	1,443	133,863,867	
	Total P. T. Stanvac	...	50	297	20	1,273	48,310	765,701,611	
	Asamera:								
	Ice Tabue, 1971	2,112- 3,564	22	...	...	55	5,178	8,879,423	51.0
	Julo Rayeo, 1929	2,520- 2,590	23	...	...	45	2,485	7,474,101	47.0
	Tualang, 1973	2,648- 3,626	21	...	...	12	11,890	4,420,906	53.0
	Alur Simon, 1972	3,212- 3,960	4	...	...	2	484	303,293	55.4
	Others	...	2	1	...	29	165	4,848,906	
	Total Asamera	...	72	1	...	143	20,202	25,926,629	
	Pt. Si. (Corr. Block):								
	Kluang, 1913	2,515	...	10	...	32	961	1,535,289	45.0
	Others	...	1	10	...	95	254	21,857,963	
	Total PT. Si. (C. Block)	...	1	20	...	127	1,215	23,393,252	
	IIAPCO:								
	Cinta, 1971	4,500	2	12	...	1	53,018	38,138,786	31.8
	Kitty, 1973	4,000	...	6	...	...	3,692	1,579,405	17.3-22.8
	Total IIAPCO	...	2	18	...	1	56,710	39,718,191	
	ARCO:								
	Ardjuna, 1971	2,418- 6,205	48	...	2	2	90,541	51,988,762	36.9
	Total ARCO	...	48	...	2	2	90,541	51,988,762	
	Union Oil:								
	Attaka, 1972	4,200- 8,000	52	...	...	3	102,241	46,063,225	41.1
	Total Union Oil	...	52	...	...	3	102,241	46,063,225	
	Tesoro:								
	Tarakan, 1906	200- 2,400	23	172	102	1,107	5,189	197,833,349	20.0-21.0
	Sanga-Sanga, 1893	1,200	23	68	...	765	1,688	237,972,662	17.0-35.0
	Total Tesoro	...	46	240	102	1,872	6,877	435,806,011	
	A. A. R.								
	Bula, 1971	500-600	...	23	...	16	1,581	1,822,722	23.6
	Total A. A. R.	...	...	23	...	16	1,581	1,822,722	
	Petromer Trend:								
	Jaya, 1973	3,400	3	...	...	1	11,921	4,499,080	40 -42.1
	Kasim, 1972	4,050	5	...	...	2	13,209	3,474,339	31.3-40.2
	N. Kasim, 1973	5,400	1	1	...	2	13,090	2,369,134	27.4
	Total Petromer Trend	...	9	1	...	5	38,220	10,343,053	
	TOTAL INDONESIA	...	537	1,808	362	5,788	1,446,917	5,592,460,022	

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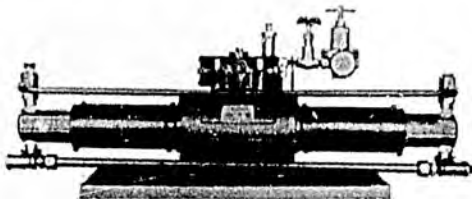
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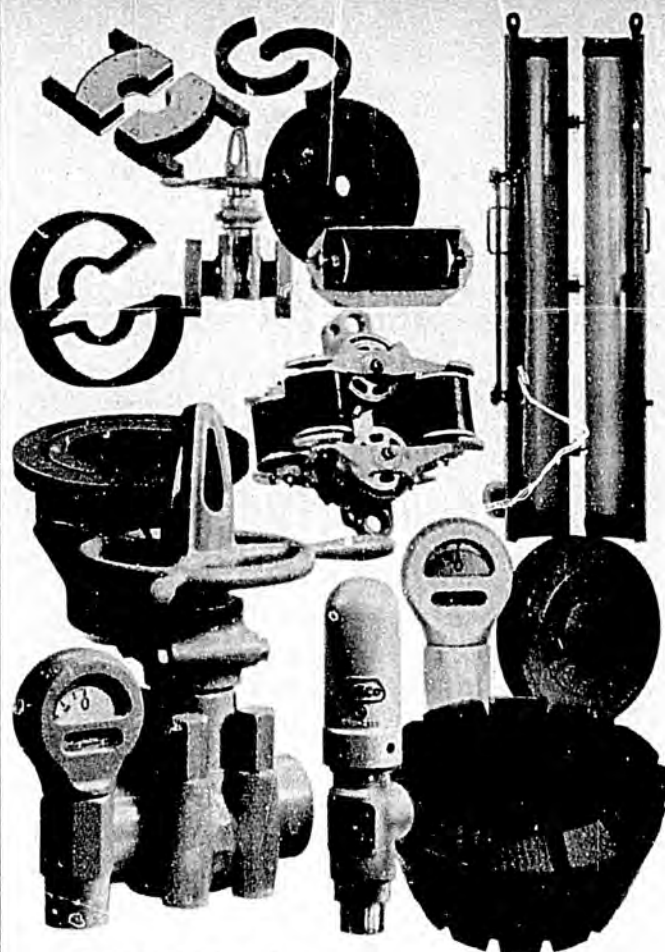


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WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API		
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74			
IRAN	Consortium-NIOC Fields										
	Agha Jari, 1933	6,500	50				1,009,693	5,723,172,000	33.9		
	Ahvaz-Bangestan, 1971	14,000	6				83,027	28,369,000	24.3		
	Ahvaz-Asmari, 1958	9,000	40				872,900	1,229,566,000	32.1		
	Bibi Hakimeh, 1961	6,800	18				361,866	1,050,000,000	29.8		
	Binak, 1959	11,600	1				56,103	101,579,000	30.0		
	Gach Saran, 1928	7,000	30				911,562	3,294,836,000	31.2		
	Haft Kel, 1927	3,500	11				35,238	1,665,240,000	36.6		
	Karani, 1963	7,800	8				316,481	478,075,000	33.8		
	Kharg Island, 1962	11,800	6				65,763	101,387,000	32.7		
	Kupal, 1965	14,000	2				20,796	13,965,000	32.1		
	Lab-e Safid, 1969	8,600	2				22,072	7,620,000	34.6		
	Mansuri, 1963	3,600	1				4,771	864,000	28.0		
	Marun, 1964	11,000	35				1,053,503	1,999,717,000	32.8		
	Masjid-e Suleiman, 1908	2,500	21				10,823	1,969,000	37.1		
	Naft Safid, 1935	6,000	12				33,469	259,465,000	35.7		
	Paris, 1964	5,700	12				422,916	555,901,000	33.9		
	Par-e Siah, 1967	6,000	1				7,411	13,106,000	37.4		
	Pazanan, 1961	9,000	6				34,293	133,379,000	35.5		
	Rag-e Safid, 1964	8,300	18				313,210	205,753,000	28.1		
	Ramshir, 1963	9,100	2				18,740	22,916,000	27.2		
		Total Consortium		282				5,654,637	17,972,879,000		
		Sirip Fields:									
		Bahregansar, 1960*	9,000-12,300	7				21,000	93,152,000	31.5	
		Hendijan, 1968*	9,950-11,000	5				22,000	28,605,000	31.5	
		Nowrouz, 1966*	8,587-10,850	10				32,000	40,267,000	20.9	
		Total Sirip *Offshore		22				75,000	162,224,000		
		IPAC Fields:									
		Cyrus, 1962*	1,000	7			6	24,448	42,896,898	18.9	
		Darius, 1961*	11,000	12			1	97,247	308,311,837	34.0	
		Total IPAC *Offshore		19			7	121,695	351,208,735		
		Iminoco Fields:									
	Rakhsh, 1969*	7,500-9,750	9	1		2	34,500	43,155,379	36.7		
	Rostam, 1966*	7,200-9,800	8	16		3	29,000	70,397,702	38.7		
	Total Iminoco *Offshore		17	17		5	63,500	113,553,081			
	Lapco Fields:										
	Sassan, 1966* *Offshore	7,500-8,100	14				195,000	102,556,000	34.1		
	NIOC Fields:										
	Naft Shah, 1923	2,000-3,000	7				18,000	58,512,000	43.0		
	Total Iran		361	17		12	6,127,832	18,760,932,816			
IRAQ	Ain Zalah, 1939	5,200-6,500	3			22	10,885	155,880,296	31.0		
	Bai Hassan, 1953	4,800-5,400	3			29	29,778	225,292,600	35.0		
	Jambur, 1954	5,500-11,500	2			16	3,036	63,399,017	35.0		
	Kirkuk, 1927	2,800-4,200	50			140	930,257	6,260,137,562	36.0		
	Naft Kaneh, 1909	3,500	2			17	11,500	108,367,500	42.5		
	Rumaila, 1953	10,800	30				620,600	1,912,343,000	35.0		
	Rumaila, North, 1958	10,500	30				121,800	80,600,740	34.0		
	Zubair, 1949	11,000	33				101,400	666,076,000	34.2		
	Others			3		10	nil	33,168,740			
	Total		153	3		234	1,829,256	9,505,327,455			
	JAPAN	Kubiki, 1954*	1,099- 6,370	122			7	830	10,560,910	31.0	
		Minami-Aga, 1964	7,278- 9,574	15			3	1,566	10,680,420	38.5	
Sarukawa, 1958		1,914- 5,280	52	2		10	1,465	10,598,650	32.8		
Others			246	607		39	10,108	94,255,650			
Total *Offshore.			435	609		59	13,959	126,095,630			
KUWAIT	Ahmadi, 1953	4,800	78								
	Bahrah, 1956	8,500	2								
	Burgan, 1938	4,800	374								
	Magwa, 1951	4,800	99								
	Minagish, 1959	10,000	14								
	Raudhatain, 1955	8,500	49								
	Sabriyah, 1957	8,000	45								
	Umm Gudcir, 1962	9,300	31								
	Total		692				2,578,534	15,351,826,280			

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
LIBYA	Amal, 1959	9,900	...	...	100	19	104,248	470,117,625	36.0
	Arshad, 1966	10,100	1	...	...	6	551	6,450,538	48.0
	Bahi, 1968	3,600-3,750	...	40	...	1	84,299	162,979,114	43.4
	Beda, 1959	4,000	29	...	...	3	4,737	75,083,714	36.0
	Belhaden, 1962	7,200	4	...	...	3	2,120	27,798,631	33.7
	Bu-Alawn, 1972	6,000	2	...	...	...	8,992	5,245,790	40.0
	Bu-Attifel, 1968	14,300	20	...	...	5	126,205	86,112,611	41.2
	Dahra, 1959	3,100-3,700	6	39	...	91	30,704	362,269,654	37.0-41.0
	Defa, 1969	5,400-5,900	73	...	...	27	156,760	321,621,945	35.6
	Dor-Mansour Unit, 1967	5,800-6,400	1	4	...	2	4,066	17,826,824	32.2
	Ed Dib, 1970	3,500	...	3	...	1	281	2,896,921	38.0
	Elgiza, 1967	5,100	1	...	...	...	233	331,777	39.0
	Farigh, 1969	12,000	3	...	...	1	143	4,123,007	39.0
	Farrud, 1965	3,200	...	...	6	3	2,073	16,524,144	42.0
	Gialo, 1961	2,200-6,300	4	157	...	41	203,072	1,089,858,569	35.7
	Intisar A, 1967	9,750	14	...	...	5	73,642	478,010,371	45.0
	Intisar B, 1974*	9,600	...	...	...	2	...	...	51.0
	Intisar C, 1967	9,650	4	...	...	3	36,725	57,536,476	37.0
	Intisar D, 1967	9,400	15	...	...	1	203,697	496,105,819	39.5
	Intisar E, 1968**	5,300-7,100	...	...	...	2	...	...	24.0-39.0
	Intisar L, 1969**	7,800-8,900	...	...	...	1	...	...	24.0-35.0
	*On production 1974. **On production 1975.								
	Jebel, 1962	8,100	18	...	...	16	23,394	103,716,669	37.0
	Kotla, 1963	5,500	6	...	...	2	6,742	36,802,175	34.0
	Lehib, 1966	9,100	...	...	...	14	10	29,589,370	49.0
	Majid, 1968	9,600-9,800	6	...	...	1	9,657	23,738,262	40.5
	Nafoora, 1965†	2,200-10,000	82	...	...	6	114,289	529,228,044	36.0
	Ora, 1962	4,700-7,500	...	1	...	1	3,547	61,922,484	37.0
	Ora AA, 1973	4,700-7,500	3	16	...	13	438	76,946	36.0
	Ora BB, 1974	8,082	1	...	...	...	1,133	205,048	37.0
	Nasser (Zelten), 1959**	5,500-7,000	44	...	83	65	163,884	1,674,885,524	40.0
	Raguba, 1961	5,400	45	...	...	27	70,423	402,113,159	43.0
	Rakb, 1962	2,600-9,000	3	7	...	1	7,049	23,067,023	34.0
	Ralah, 1964	7,650	2	...	...	2	1,729	6,248,304	37.0
	Sahabi, 1968	10,300	2	5	...	2	4,263	14,514,527	39.0
	Sarir, 1961	9,000	68	...	...	25	162,609	783,109,159	37.2
	Samah, 1961	9,000	11	...	...	9	203,072	231,474,052	33.4
	Umm Farud, 1965	3,200	...	5	...	3	1,805	15,944,591	46.5
	Waha, 1960	6,600	...	50	...	16	118,199	516,833,784	36.1
	Zaggut, 1962	6,000	4	...	...	4	2,489	16,681,342	36.4
	Zelten (see Nasser)	...	...	...	...	...	...	...	...
	Others	...	1	1	...	83	...	97,847,123	...
Total Libya			462	328	189	507	1,937,280	8,250,894,116	...

*Unitized with Augila. **Name change in 1974.

MEXICO	Poza Rica, Central Zone								
	Atún, 1966†	9,040	8	...	...	...	4,938	27,852,560	37.0
	Bagre, 1973	10,919	5	...	...	...	5,307	1,259,361	...
	A. Camacho, 1952	5,340	2	...	8	...	390	2,445,526	35.0
	Cerro Carbon, 1960	9,396	1	...	14	...	721	2,857,055	...
	Hallazgo, 1955	10,170	...	...	52	...	5,342	56,683,646	25.0
	Jiliapa, 1958	7,390	2	...	32	...	2,102	22,858,897	34.0
	Miquetla, 1959	6,480	5	...	29	...	1,929	16,817,266	35.0
	Morsa, 1971	10,434	3	...	...	...	4,367	8,334,585	37.0
	Nvo. Progreso, 1955	7,185	1	...	9	...	625	6,575,349	31.0
	Poza Rica, 1930	7,090	22	...	116	...	55,874	1,062,515,052	35.0
	Remolino, 1962	10,745	...	...	32	...	2,254	15,285,703	...
	Riachuelo, 1972	10,798	3	...	...	...	1,847	988,595	...
	Sn. Andrés, 1956	10,410	5	...	137	...	30,634	241,954,825	29.0
	Others	...	68	18	180	...	2,949	35,080,706	...
	Nueva Faja de Oro, Central Zone								
	Acuatempa, 1955	4,085	14	...	...	...	1,676	22,357,159	21.0
	Alamo-Jardín P. Real	...	26	...	...	...	531	21,857,462	...
	Copal, 1957	4,610	13	...	...	...	775	1,153,343	15.0
	El Muro, 1966	3,966	9	...	...	...	4,189	9,247,024	17.0
	E. Ordóñez, 1952	5,220	10	...	...	...	2,704	51,301,534	21.0
	Mesa Cerrada, 1956	4,085	6	...	...	...	455	10,362,915	22.0
	Ocotepc, 1953	3,737	11	...	...	...	809	17,500,602	20.0
	Sta. Agueda, 1953	4,789	29	...	...	...	6,549	90,473,621	16.0
	Others	...	35	...	...	...	846	17,051,875	...
	Veracruz District, Central Zone								
	Angostura, 1953	4,405	8	...	...	...	463	21,545,836	15.0
	Matapionche, 1974	11,129	1	...	...	...	420	76,106	37.0
	Others	...	2	...	...	...	203	276,839	...
	Isthmus of Tehuantepec, Southern Zone								
	Agata, 1956	3,830	2	...	11	...	653	9,459,411	34.0
	Cuichapa, 1935	2,200	106	5	39	...	70,090	66,638,325	30.0
	El Burro, 1931	2,200	...	15	6	...	1,256	17,317,962	26.0
	El Plan, 1931	1,700	...	27	49	...	4,142	140,398,906	30.0
	Ixhuatl' Ote., 1965	3,952	11	4	...	...	1,366	4,134,584	22.0
	Los Soldados, 1953	4,492	12	...	10	...	2,541	18,378,141	32.0

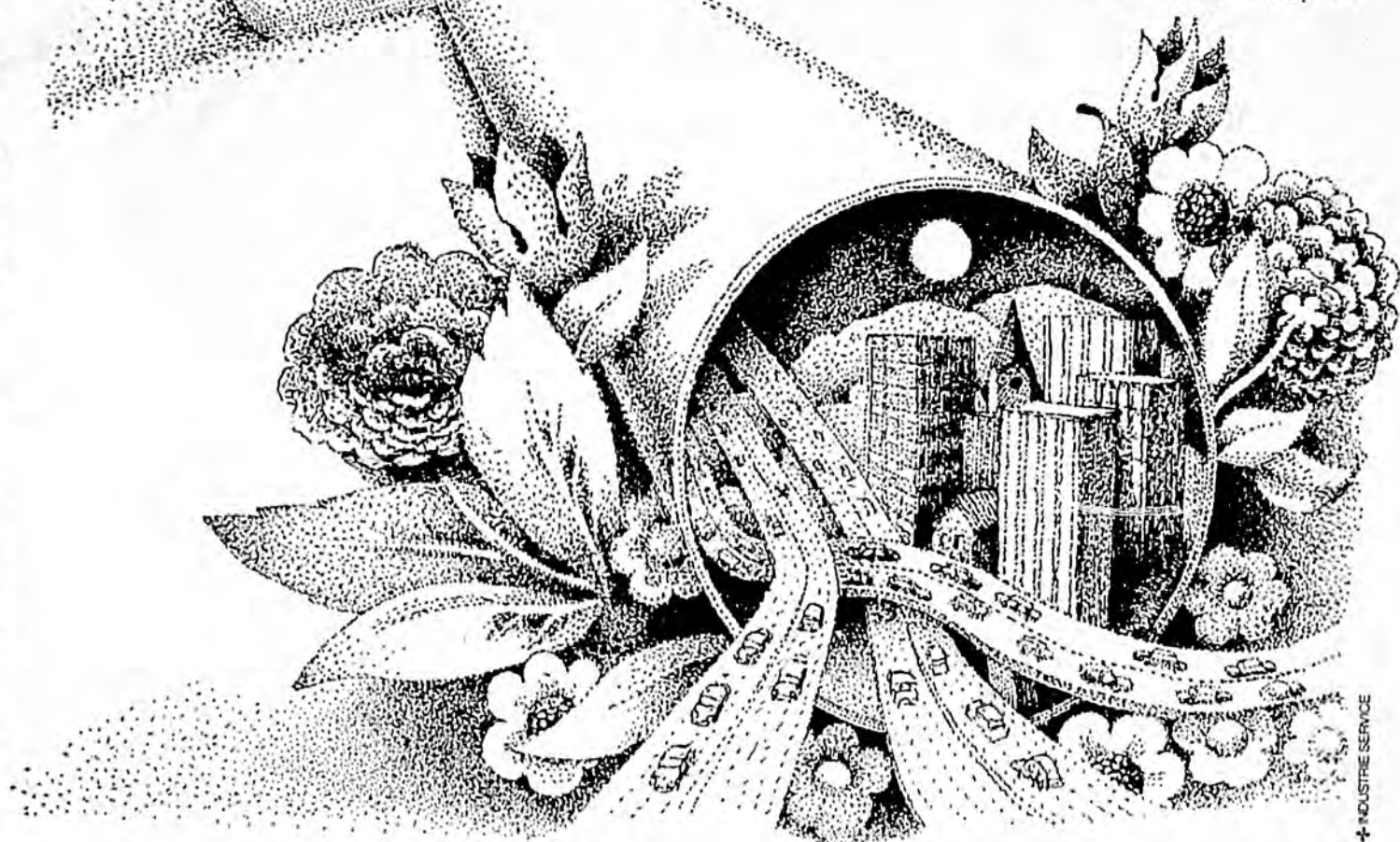
WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow-ing	Pump-ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
MEXICO—Continued	Moloacán, 1948	1,397	3	118	20	...	3,412	6,513,130	26.0
	Tonalá, 1928	1,770	3	19	13	...	1,387	71,920,815	28.0
	Others	...	14	19	1	...	978	51,484,229	...
	Tabasco, Southern Zone	...	...	...	...	...	...	...	...
	Ayapa, 1973	8,200	5	...	...	...	2,165	63,673	...
	Blasillo, 1967	7,216	2	...	7	...	574	2,166,136	40.0
	Cactus, 1972	12,333	17	...	...	...	30,474	10,709,900	41.0
	Caracolillo, 1969	11,480	5	...	...	...	1,073	2,124,979	...
	Carrizo, 1962	4,820	3	...	10	...	1,760	6,758,641	25.0
	Castarrical, 1967	10,086	9	...	38	...	10,773	21,964,406	34.0
	Cinco Pdtes., 1960	6,862	39	...	92	...	27,444	187,537,807	35.0
	El Golpe, 1963	8,836	23	...	58	...	14,753	44,354,764	35.0
	La Venta, 1954	4,730	1	2	40	...	3,375	44,833,686	41.0
	Northeastern District, Northern Zone	...	...	...	...	...	...	...	...
	Fco. Cano, 1949	5,780	4	...	1	...	321	4,456,456	48.0
	Monterrey, 1950	6,950	4	...	15	...	2,106	9,772,370	47.0
	Tigrillo, 1971	9,844	6	...	6	...	738	648,930	55.0
	Others	...	5	...	1	...	174	14,361,000	...
	Northern District, Northern Zone	...	...	...	...	...	...	...	...
	Arenque, 1970†	11,362	11	...	...	...	22,286	14,476,930	26.0
	Barcodón, 1959	4,370	7	1	...	...	233	8,489,636	17.0
	Constituciones, 1956	6,300	45	...	43	...	6,521	42,777,280	17.0
	Ebano-Pánuco, 1901	1,450	174	124	169	...	7,124	928,232,465	12.0
	Tamaulipas, 1956	4,200	68	...	44	...	8,914	39,838,517	18.0
	Others	...	...	...	...	...	...	24,481,837	...
	Southern District, Northern Zone	...	...	...	...	...	...	...	...
	Cabo Nuevo, 1967*	5,753	2	...	...	...	1,111	10,292,296	16.0
	Isla de Lobos, 1963†	6,875	3	...	...	...	3,790	17,171,381	40.0
	Moralillo, 1948	5,270	18	...	...	...	586	12,731,752	21.0
	Naranjos-C-A, 1909	1,800	32	...	...	...	7,322	1,151,913,697	20.0
	Pontón, 1971	4,248	2	...	...	...	165	116,163	30.0
	Rancho Nuevo, 1960	6,435	4	...	...	...	228	1,976,135	28.0
	Soledad, 1973	5,222	16	...	...	...	292	54,485	...
	Solis, 1952	2,445	28	...	...	...	324	7,648,658	22.0
	Tiburón, 1965†	7,314	5	...	...	...	1,100	5,226,176	20.0
	Tres. Hnos., 1959	5,960	43	...	...	...	9,466	87,520,585	21.0
	Others	...	109	...	...	...	46	5,982,717	...
	Southern District, Southern Zone	...	...	...	...	...	...	...	...
	Magallanes, 1957	4,240	11	1	151	...	14,640	97,894,473	27.0
	Mecoacán, 1958	7,110	16	...	15	...	3,763	28,320,250	27.0
	Ogarrio, 1957	5,790	56	...	50	...	17,763	82,871,715	38.0
	Otates, 1965	7,469	13	...	6	...	4,993	15,712,718	39.0
	Pajonal, 1967	9,840	2	...	9	...	2,141	2,689,284	27.0
	Rodador, 1971	11,398	1	...	1	...	539	179,705	26.0
	Sabancu, 1973	12,169	1	...	...	...	1,498	440,162	21.0
	Samaria (Cret), 1973	14,209	5	...	...	...	12,160	3,506,364	31.0
	Samaria (Terciario), 1960	2,624	2	...	13	...	1,470	4,434,585	23.0
	San Ramón, 1967	9,883	9	...	48	...	18,020	25,548,239	30.0
	Sra. Ana, 1959*	9,517	1	...	10	...	1,400	29,188,629	29.0
	Santuario, 1966	9,617	21	...	...	...	7,234	8,807,672	37.0
	Sitio Grande, 1972	13,766	15	...	...	...	65,979	16,303,422	35.0
	Tintal, 1968	5,904	6	...	...	...	815	2,049,666	22.0
	Tucán, 1968	10,824	1	...	10	...	1,637	4,831,151	36.0
	Tupilco, 1955	9,685	18	...	26	...	8,729	26,821,406	27.0
	Others	...	10	...	2	...	805	8,321,981	...
	Total Mexico	...	1,318	353	1,623	...	513,548	5,218,204,025	...
*Partly offshore. †Offshore.									
MOROCCO	Haricha, 1957	3,000	1	...	...	...	12	2,754,380	40.0
	Sidi Fiti, 1947	3,000	18	2	...	...	80	7,549,200	40.0
	Sidi Rhalem, 1961	5,600	...	1	...	...	800	5,435,000	40.0
	Total	...	19	3	...	...	892	15,738,580	...
NETHERLANDS	De Lier-Monster, 1955	5,200	...	27	...	4	912	12,731,073	33.2
	Ijsselmonde/Ridderkerk, 1956	5,000	...	46	...	11	6,254	63,119,533	18.0-24.2
	Schoonebeek, 1943	2,500	...	213	...	97	14,899	161,982,701	24.8
	Wassenaar-Meyendel, 1956	4,200	...	29	...	2	4,062	32,686,737	18.6
	Zoetermeer, 1957	3,200	...	14	...	4	750	6,781,252	16.4
	Others	...	...	18	...	23	514	8,561,606	...
	Total	...	...	347	...	132	27,391	285,862,902	...
NEUTRAL ZONE	Hout, 1969*	4,500-9,500	26	...	...	...	41,285	109,117,322	34.0
	Khafji, 1961*	4,500-9,500	101	...	...	...	292,611	1,172,039,432	28.4
	So. Fuwaris, 1962	6,300	...	3	...	5	2,345	11,334,034	24.5
	So. Umm Gudair, 1966	9,100	9	7	...	1	52,343	105,576,540	24.3
	Wafra	...	...	...	...	...	...	...	...
	Burgan, 1953	3,600	9	38	...	8	21,030	187,850,367	24.0
	Eocene, 1954	2,200	5	215	...	95	18,917	350,326,592	18.5
	Ratawi, 1955	7,000	3	33	...	3	56,842	290,773,449	24.3
	Total	...	153	296	...	112	485,347	2,227,011,736	...
*Offshore.									

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
NEW ZEALAND	Kapuni, 1959	11,300-12,500	4	...	...	...	13,780	4,357,500	49.0
	Others	...	...	...	...	...	...	217,000	...
	Total	...	4	...	...	...	3,780	4,574,500	...
	*Condensate. Note: Offshore Maui field not yet on production.								
NIGERIA	Gulf Oil								
	Abiteye, 1970	5,750- 9,400	8	...	...	2	9,248	6,934,793	38.2
	Delta, 1965*	5,600- 9,400	17	...	...	2	37,634	44,435,338	27.9
	Delta South, 1965*	7,100- 9,200	16	...	...	3	54,084	103,501,132	38.1
	Isan, 1970*	5,800- 9,000	11	...	...	...	15,948	15,213,726	39.3
	Malu, 1969*	4,800- 6,300	15	...	...	...	18,838	28,199,249	39.2
	Meji, 1965*	5,200-10,900	16	...	...	...	22,667	38,584,255	32.6
	Meren, 1965*	5,000- 7,500	47	...	...	2	126,044	175,341,136	32.3
	Okan, 1964*	5,500- 8,900	42	...	...	4	72,395	205,723,519	34.9
	Parabe/Eko, 1968*	4,500- 8,200	23	...	...	2	32,518	42,547,183	37.0
	Mobil Oil								
	Asabo, 1966*	5,412	11	...	...	2	42,300	54,807,484	34.0
	Ekpe, 1966*	7,503	7	...	...	1	69,300	58,791,081	39.0
	Etim, 1968*	6,147	7	...	...	...	33,300	16,267,771	38.0
	Enang, 1968*	5,250	9	...	...	2	1,751	315,175	34.0
	Idoho, 1966*	8,536	3	...	...	1	5,480	18,211,373	40.0
	Inim, 1966*	5,914	7	...	...	...	44,100	29,769,407	37.0
	Ubit, 1968*	4,842	17	...	...	4	23,100	39,620,998	36.0
	Unam, 1968*	5,000	4	...	...	...	13,900	530,267	36.0
	Utue, 1966*	5,914	5	...	...	1	22,200	15,141,197	38.0
	Agip-Phillips (estimated)								
	Akri, 1973	8,000-10,000	8	...	...	...	16,569	n.a.	44.4
	Ebocha, 1965	9,200-10,100	21	...	...	...	39,173	48,728,741	42.3
	Idu, 1973	8,000-10,000	7	...	...	...	9,097	5,143,478	30.9
	Mbede, 1966	9,850-10,800	24	...	...	...	49,909	48,545,639	43.2
	Ofiafu/Obrikom, 1973	8,000-10,000	16	...	...	...	29,912	10,918,026	44.5
	Obigbo, 1969	...	1	...	...	...	926	338,000	38.1
	Obigbo N., 1969	...	14	...	...	...	19,580	7,146,046	23.4
	Odugri, 1972	12,500	2	...	...	...	832	303,500	44.8
	Elf-Nigeria (ex Safrap)								
	Aghigho, 1972	6,000- 8,500	5	...	...	1	3,120	597,283	26.0
	Erema, 1972	9,800	1	...	...	1	416	24,946	35.0
	Obagi, 1964	1,000-10,000	26	...	...	4	63,835	74,961,418	24.0
	Odobo-Jatumi, 1966	6,000-11,000	5	...	...	2	7,333	1,770,871	35.0
	Okpoko, 1967	6,000- 7,500	3	...	...	...	5,892	1,355,367	22.0
	Upomami, 1965	6,000- 7,000	6	...	...	3	4,357	1,086,152	20.0
	Texaco-Chevron								
	Pennington, 1964*†	5,000-12,000	3	...	...	...	4,110	12,182,279	37.9
	†Field shut in May 8, 1974, by government order. Production to resume in 1975.								
	Shell-British Petroleum (Midwest)								
	Ugh-Ogini, 1964	5,860	7	...	...	2	4,873	6,291,890	17.5
	Ugh-Uzere East, 1960	8,500	13	...	...	...	18,467	41,887,333	22.6
	Ugh-Uzere West, 1960	8,500	10	...	...	1	17,378	58,836,870	27.7
	Ugh-Olomoro, 1963	7,000-10,000	21	...	...	10	42,279	160,063,745	22.3
	Ugh-Oweh, 1964	12,300	11	...	...	...	13,221	58,798,402	26.8
	Ugh-Kokori, 1961	8,000- 9,800	20	...	...	2	73,217	160,741,361	44.9
	Ugh-Afiesere, 1966	8,000- 9,000	20	...	...	1	18,706	32,192,357	23.8
	Ugh-Eriemu, 1961	12,550	9	...	...	2	7,007	11,507,010	29.9
	Ugh-Ughelli E., 1959	11,800	7	...	...	1	21,373	52,220,488	33.6
	Ugh-Ughelli W., 1959	7,400-10,200	6	...	...	...	6,622	14,125,498	20.0
	Ugh-Utorogu, 1964	9,000	18	...	...	1	39,861	70,337,190	25.0
	Ugh-Oroni, 1964	12,000	6	...	...	1	6,878	10,716,902	19.0
	Ugh-Warri R., 1961	12,264	3	...	...	...	4,232	4,834,250	30.8
	Ugh-Evwreni, 1967	10,900	6	...	...	3	8,053	18,830,552	25.0
	Ugh-Rapele, 1965	12,934	3	...	...	...	9,408	8,753,470	25.0
	Ugh-Osioka, 1967	12,885	2	...	...	...	1,985	2,601,353	30.0
	Forc-Jonas Cr., 1967	7,000- 9,000	28	...	...	1	126,933	160,616,935	25.0
	Forc-Odidi, 1967	10,980	19	...	...	1	58,437	38,488,800	30.0
	Forc-Egwa, 1967	9,350	15	...	...	...	28,246	32,367,979	37.0
	Forc-Yokri, 1971	10,859	2	...	...	...	2,496	523,317	24.3
	Forc-Estuary, 1969	7,000	51	...	...	1	132,500	134,037,504	25.0
	Forc-Batan, 1968	11,000	7	...	...	...	16,948	13,847,735	21.0
	Forc-Escravos Beach, 1969	9,391	8	...	...	...	13,128	9,396,840	36.0
	Forc-Ajuju, 1970	13,324	1	...	...	...	3,545	2,769,310	30.0
	Forc-Otumara, 1970	8,176	15	...	...	1	41,283	20,810,236	30.0
	Forc-Saghara, 1970	8,950	3	...	...	...	7,107	4,027,044	30.0
	Node-Sapele, 1970	12,788	10	...	...	1	45,165	20,854,110	41.0
	Node-Amukpe, 1970	12,378	2	...	...	...	6,863	4,682,011	41.0
	Node-Oben N., 1973	10,016	1	...	...	...	71	12,893	30.0
	Node-Oben, 1972	12,036	2	...	...	...	1,274	230,684	30.0
	Others	...	...	...	...	...	57	261,514	...
	Shell-British Petroleum (Eastern)								
	Phi-Bomu, 1968	6,700- 7,500	27	...	...	4	34,964	241,018,633	33.2
	Phi-Isimiri, 1964	5,900-11,000	5	...	...	...	6,533	17,073,605	28.8
	Phi-Imo R., 1959	5,800-10,100	37	...	...	3	72,437	244,172,825	32.0
	Phi-Ebubu, 1958	8,200	6	...	...	2	2,359	13,303,428	26.0
	Phi-Onne, 1965	10,384	2	...	...	...	1,830	2,281,468	20.0
	Phi-Nkali, 1963	12,000	5	...	...	1	3,647	13,355,420	41.0

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells			Shut in	Production in bbl		Gravity °API
			Flow-ing	Pump-ing	Gas Lift		Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
NIGERIA—Continued	Phl-Obigbo N., 1963	6,500-10,000	16	...	...	3	20,780	80,982,506	24.2
	Phl-Obigbo, 1963	...	1	...	...	1	951	210,086	30.0
	Phl-Elelenwa, 1959	11,000	6	...	...	...	8,368	8,937,748	38.0
	Phl-Agbada, 1960	8,000-12,000	26	...	...	2	28,942	65,425,100	32.1
	Phl-Umuechem, 1959	5,500-10,700	15	...	...	...	16,624	97,494,795	37.6
	Phl-Apara, 1960	9,000	5	...	...	1	1,965	5,415,138	34.0
	Phl-Obele, 1964	10,000	3	...	...	7	767	1,826,971	22.0
	Phl-Bodo W., 1962	9,700	9	...	...	1	18,615	40,833,020	22.5
	Phl-Afam, 1956	6,000	11	...	...	2	11,337	22,999,177	45.0
	Phl-Korokoro, 1969	8,000-9,800	7	...	...	1	13,325	56,898,741	35.2
	Phl-Yorla, 1970	11,917	13	...	...	...	32,144	16,986,040	30.0
	Phs-Alakiri, 1962	10,000	10	...	...	5	17,250	38,029,467	32.5
	Phs-Bonny, 1959	12,254	10	...	...	1	19,199	6,237,242	30.4
	Phs-Buguma Cr., 1960	12,195	6	...	...	...	10,871	6,679,915	35.0
	Phs-Cawth. Channel, 1963	11,000	10	...	...	2	46,894	97,632,450	39.0
	Phs-Ekulama, 1958	10,483	11	...	...	...	24,838	12,425,479	20.2
	Phs-Krakama, 1958	11,530	5	...	...	...	6,075	4,251,037	38.0
	Phs-Soku, 1958	11,500	22	...	...	...	41,004	32,365,903	35.0
	Phs-Oloibiri, 1956	8,000-9,800	6	...	...	5	3,006	17,445,343	22.0
	Egb-Oguta, 1965	10,300	16	...	...	...	30,377	35,389,412	30.0
	Egb-Assa, 1961	11,300	2	...	...	...	970	1,033,503	17.5
	Egb-Egbema, 1960	10,470	6	...	...	...	11,978	22,618,410	28.0
	Egb-Ahia, 1965	11,500	12	...	...	1	20,611	44,614,750	35.5
	Cesw-Nun R., 1974	...	5	...	...	...	9,435	2,106,429	37.0
	Cesw-Diebu Cr., 1974	...	8	...	...	...	21,630	1,190,956	30.0
	Cesw-Adibawa, 1966	11,950	8	...	...	...	14,368	56,878	30.0
	Cesw-Ubie, 1970	14,380	4	...	...	...	7,516	2,625,824	3.00
	Cesw-Etebebu, 1971	12,000	6	...	...	...	23,232	6,700,680	30.0
	Cesw-Kolo Cr., 1974	12,000	14	...	...	...	33,710	9,532,919	30.0
	Others	...	...	...	...	...	...	181,470	...
	Total Nigeria	...	1,088	...	...	103	2,296,035	3,544,936,991	...
NORWAY	Ekofisk, 1970* *Offshore	10,200-10,900	6	...	...	...	25,000	28,717,062	36.5
OMAN	Fahud-Natih, 1964	2,000-6,080	56	...	...	21	112,566	396,109,520	32.5
	Huwaisa-Shuaiba, 1970	5,550	20	...	...	...	42,500	44,284,651	33.0
	Natih-Natih, 1962	7,500	23	...	...	7	48,841	185,267,598	31.3
	Yibal-Shuaiba, 1962	8,465	61	...	...	2	92,998	97,460,164	39.7
	Total	...	160	...	...	30	296,905	723,121,933	...
PAKISTAN	Balkassar, 1946	8,200	3	1	...	...	1,761	19,980,993	24.3
	Dhulian, 1937	8,500	5	1	1	...	1,917	36,783,716	43.0
	Joya Mair, 1944	6,890	1	...	...	...	328	3,874,614	16.0
	Meyal, 1968	12,500	2	...	...	...	2,467	4,229,191	44.0
	Toot, 1968	13,600	2	...	...	...	590	1,240,207	35.2-37.5
	Total	...	10	4	2	...	7,063	66,108,721	...
PERU	COASTAL	...	...	...	...	...	...	...	...
	Talara Area, 1869-1943†	2,000-9,000	90	1,104	...	4,200	11,100	534,269,000	25.0-40.0
	Lima Concessions, 1905	2,000-9,000	54	900	...	1,138	23,000	160,527,000	32.0-35.0
	Others	500-1,500	...	...	...	21	...	110,901,902	...
	ORIENTE	...	...	...	...	...	...	...	...
	Agua Caliente, 1939	1,000-1,500	...	22	...	8	600	13,090,303	34.0
	Maquia, 1957	1,000-1,500	6	6	...	2	1,050	6,608,585	37.0
	CONTINENTAL SHELF	...	...	...	...	...	...	...	...
	Humboldt, 1960*	3,000-7,500	45	68	...	17	29,750	38,161,750	38.0
	Litoral & Mirador, 1955*	1,500-6,000	...	98	...	12	3,200	25,506,063	37.0-40.0
	Providencia, 1967	3,000-6,000	...	18	...	22	950	9,451,253	38.0-40.0
	Others	...	1	...	...	2	50	549,000	...
	SIERRA	...	...	...	...	...	...	...	...
	Pirin, 1906	...	...	...	...	...	...	287,000	...
	Total	...	196	2,216	...	5,422	69,700	899,351,856	...
	*Offshore	...	...	...	...	...	...	...	...
	†Includes La Brea y Parinas, Los Organos, and PDP-Belco.	...	...	...	...	...	...	...	...
QATAR	Bul Hanine, 1970*	6,000	5	...	...	...	138,463	94,609,357	35.0
	Dukhan, 1940	6,550	56	...	...	4	251,000	1,460,050,000	41.1
	Idd El Shargi, 1960*	4,500-8,250	10	...	...	4	24,088	140,572,915	35.5
	Mayden-Mahzan, 1963*	7,000-7,600	10	...	...	1	132,518	376,634,216	38.0
	Total	...	81	...	...	9	546,069	2,071,866,488	...
	*Offshore.	...	...	...	...	...	...	...	...
SAUDI ARABIA	Abqaiq, 1940	6,670	64	...	...	2	870,659	4,629,594,964	38
	Abu Hadriyah, 1940*	9,930	9	...	...	3	102,105	280,909,047	35
	Abu Sa'fah, 1963*	6,650	10	...	...	6	121,479	255,863,778	30
	Berri, 1964†	7,450	42	...	...	6	639,517	609,627,402	33-38
	Dammam, 1938	4,620	18	...	...	...	17,793	534,855,162	34
	Fadhli, 1949	8,110	4	...	...	2	49,281	148,204,174	40
	Ghawar, 1948	6,700	378	...	...	70	4,653,452	9,958,791,384	35
	Harmaliyah, 1971	8,400	6	...	...	...	129,877	38,979,403	36
	...	...	...	...	...	...	...	...	...

WORLDWIDE PRODUCTION	discovery date Name of field and	(ft) Depth	No. of Wells				Production in bbl		Gravity °API	
			Flow- ing	Pump- ing	G/s Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74		
SAUDI ARABIA—Continued	Khurais, 1957	5,100	8	...	...	1	23,594	45,736,418	33	
	Khursaniyah, 1956	6,750	11	...	...	...	115,372	451,365,249	31	
	Maharah, 1973*	7,000	...	...	...	1	...	...	34	
	Manifa, 1957*	7,950	6	...	...	2	34,861	117,816,263	28	
	Marjan, 1966*	5,200	1	...	...	6	1,894	632,396	32	
	Mazali, 1971	6,200	...	...	...	3	...	...	31	
	Qatif, 1945†	7,050	19	...	...	4	93,656	432,287,561	31	
	Qirdi, 1973	5,300	...	...	...	1	...	...	38	
	Safaniyah, 1951†	5,100	83	...	...	13	1,019,123	2,841,434,660	27	
	Shaybah, 1968	5,000	...	...	...	7	...	9,870	42	
	Zuluf, 1965*	5,800	11	...	...	1	193,446	87,645,208	32	
	Karan, 1967*	5,500	...	...	...	1	...	...	22	
	Jana, 1967*	7,400	...	...	...	2	...	...	35	
	Juraybiat, 1968	7,600	...	...	...	1	...	...	29	
	Rimtham, 1974	10,000	...	...	...	1	...	...	28-38	
	Ramlah, 1974	9,500	...	...	...	1	...	...	33	
	Total			670	...	...	134	8,066,109	20,433,743,938	
	*Offshore. †Partly offshore.									
SHARJAH										
	Mubarek, 1972	12,650-12,870	3	...	...	...	(*)	(*) 39.5-40.3		
*Note: field went on production in July, 1974 at 50,000-60,000 b/d.										
SPAIN	Ayoluengo, 1964	4,000	...	21	...	5	1,805	7,394,800	37.0	
	Amposta Marina, 1971*	10,000	3	...	...	1	35,625	10,763,466	37.0	
	Total		3	21	...	6	37,430	18,158,266		
†Offshore.										
SYRIA†	Hamsch, 1956	6,000	...	...	...	1	...	...	21.0	
	Jibissa, 1968	6,000	...	...	...	1	...	...	23.0	
	Karatchouk, 1956	6,500	13	3	...	1	20,000	...	23.0	
	Rumalan, 1956	6,500	4	...	...	1	10,000	216,300,000	25.0	
	Souedie, 1959	6,500	80	23	...	31	125,000	...	25.0	
	Total		97	26	...	35	155,000	216,300,000		
†Data estimated.										
THAILAND	Boh Ton Kham (Chai Prakarn), 1953	700	...	12	...	12	14	202,000	16.0-17.0	
	Mae Soon Luang, 1963	2,000-2,500	1	12	...	5	184	454,100	32.0	
	Total		1	24	...	17	198	656,300		
TRINIDAD & TOBAGO										
Area 1										
North Marine, 1959*	3,000-15,000	1	...	...	7	99	1,221	23.2		
Soldado, 1955*	2,150-11,000	131	21	88	83	51,323	262,819	24.8		
Area 2										
Area IV + Guapo, 1913-1922	1,000-10,626	1	35	...	110	474	32,767	16.9-25.5		
Parrylands, 1913-1918		14	42	...	150	886	33,828	10.7-30.2		
Pt. Fortin Central & West, 1907-1916		18	33	...	136	773	29,846	20.4-45.1		
Area 3										
Brighton, 1908†	700-7,500	41	31	71	286	2,783	66,524	32.8		
Area 4										
Palo Seco, 1926-1929	240-12,718	...	6	...	63	23	1,583	22.1		
Palo Seco Erin, 1915-1926		65	277	105	417	9,746	76,953	21.2		
Area 5										
Forest Reserve, 1913	500-11,000	34	268	270	1,097	11,506	231,581	23.0		
Fyzabad, 1918-1920		15	213	14	325	3,954	151,196	20.8-32.7		
Pt. Fortin East, 1929		4	39	12	47	1,680	21,365	34.4		
Area 6										
Coora-Quarry, 1936	288-14,000	9	99	66	352	3,109	78,940	20.4-24.1		
Area 7										
Oropouche, 1944		13	17	6	33	2,007	3,920	19.8-38.6		
Area 8										
Barrackpore, 1911	1,300-11,067	12	13	23	143	1,653	23,324	26.9-41.2		
Penal, 1936		29	47	9	87	1,954	55,864	37.5-55.7		
Wilson, 1936		4	25	4	37	364	18,719	26.4		
Area 9										
Catshill, 1950		2	46	...	28	831	20,251	38.3-46.3		
Moruga North, West, 1956		1	30	...	73	335	9,216	25.0-31.4		
Trinity, 1956		1	13	17	40	491	12,992	32.2		
Area 10										
Guayaguayare, 1903	500-10,750	10	155	59	321	5,943	72,996	33.7		
Area 11										
Galeota, 1972*	1,100-6,304	...	15	...	3	1,333	1,231	31.6		
Teak, 1972*	6,960-15,191	28	...	...	11	49,923	33,084	29.3		
Samaan, 1973*	8,719-11,780	14	...	...	1	23,841	10,131	36.8		
Others	3,000-7,560	70	236	38	1,020	6,219	188,891	14.1-40.7		
Trinidad & Tobago Total		517	1,661	782	4,870	181,250	1,439,242			
*Offshore. †Partly offshore.										

WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of Wells				Production in bbl		Gravity °API
			Flow- ing	Pump- ing	Gas Lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
TUNISIA†									
	AQUITAINE								
	Ashtart, 1971*	9,450- 9,700	6	...	...	...	12,442	1,231,721	29.0
	Douleb, 1966	3,300	...	11	...	2	5,071	9,568,527	40.2
	Tamesmida, 1968	4,950	...	2	...	1	364	818,708	35.4
	ENI (Sitep)								
	El Borma, 1964	8,250- 8,900	35	...	...	15	52,300	198,080,058	42.5
	CFP								
	Sidi el Itayem, 1971	9,232	4	...	...	...	3,870	4,278,000	40.0
	TOTAL		45	13	...	18	74,047	213,997,014	
†Some data estimated. *Offshore; production began Dec., 1973.									
TURKEY									
	Ersan:								
	Kahta, 1958	3,500	...	5	...	1	721	3,446,651	11.5
	Mobil:								
	Bulgurdag, 1960	6,500	...	1	...	2	102	2,203,000	39.0
	Selmo, 1964	5,800	2	10	2	2	8,542	36,286,785	34.4
	Shell:								
	Barbes, 1972	7,200	6	...	...	1	4,897	3,310,512	29.6
	Beykan, 1964	5,200	13	...	...	4	11,039	36,323,667	33.2
	Katin, 1971	6,800	2	...	...	1	1,767	1,497,369	29.5
	Kayakoy, 1961	6,000	5	...	...	2	1,934	8,285,208	38.2
	Kayakoy West, 1964	5,300	4	...	...	3	3,341	11,959,801	34.0
	Kurkan, 1963	4,500	8	...	...	1	9,435	28,201,015	31.4
	Malatepe, 1970	5,000	4	...	...	1	867	2,251,492	32.7
	Malatepe W., ?	...	...	...	...	...	859	...	31.3
	Piyanko, 1968	6,300	1	...	...	...	279	938,726	35.5
	Sahaban-Kurkan So., 1967	5,500	6	...	...	...	2,153	10,752,171	34.7
	Others	....	2	...	...	...	176	43,357	...
	TPAO:†								
	Adiyaman, 1971	5,600	...	12	...	2	2,745	2,585,590	26.6
	Garzan-Germik, 1951	5,100	...	38	...	32	2,974	26,346,869	25.0
	Magrip, 1961	6,400	...	13	...	12	1,161	11,212,275	19.3
	Raman, 1940	4,500	...	24	...	23	3,005	21,460,854	18.5
	Raman West, 1961	4,300	...	126	...	12	4,689	18,960,191	13.4
	Saricak, 1973	...	4	...	...	...	2,100	765,000	31.5
	Silivanka, 1962	7,500	...	14	...	1	1,547	3,244,058	19.6
	Yenikoy, 1973	...	8	...	...	...	551	200,000	31.0
	Others	....	...	6	...	...	412	2,784,625	...
	Total Turkey		65	249	2	100	65,296	233,059,216	
†Data estimated.									
UNITED KINGDOM									
	Beckingham, 1964	3,200- 6,600	...	8	...	...	442	415,327	...
	Bothamsall, 1958	3,300	...	6	...	7	224	2,024,707	...
	Egmont, 1955	3,250	...	8	...	35	148	2,996,303	...
	Gainsborough, 1959	3,200- 4,600	...	25	...	17	502	2,431,270	...
	Kimmeridge, 1959	1,800	...	9	...	5	184	9,959,536	...
	Total		...	56	...	64	1,500	17,827,143	
VENEZUELA* STATE OF ANZOATEGUI									
	Araibei, 1954	8,970-10,516	6	...	...	30	1,319	26,189,621	38.7
	Boca, 1951	9,500	10	10	...	60	3,238	69,270,383	35.4
	Caico Seco, 1946	6,500- 7,300	13	6	...	61	4,890	44,814,504	35.5
	Chimire, 1948-52	7,000- 7,200	35	34	...	135	11,373	339,788,339	34.9
	Dacion, 1957	6,700	12	79	...	30	10,724	170,413,260	34.2
	Elias, 1954	5,000- 6,470	43	16	...	64	24,368	68,141,820	41.1
	El Rob'e, 1939	3,500-11,500	13	1	...	31	920	36,523,800	49.5
	Guara, 1946	5,000-10,000	24	158	...	200	22,465	490,605,725	27.3
	Guaria, 1940	5,000-10,000	3	...	...	27	2,326	43,614,990	50.2
	Guico, 1944	4,500- 7,000	2	29	...	48	2,075	82,607,375	26.9
	Inca, 1948	7,250	2	3	...	21	984	12,899,160	36.8
	Junta, 1954	6,720	...	7	...	16	609	22,433,285	20.4
	La Ceiba, 1946	9,480	18	6	...	10	7,250	27,528,250	43.1
	La Ceibita, 1963	9,870- 9,878	26	...	...	19	12,777	59,763,605	43.8
	Leona, 1938	2,200-12,800	11	73	...	128	11,040	130,298,600	22.4
	Mapiri Est, 1952	9,500	2	6	...	32	1,268	23,185,820	37.0
	Mata, 1954	9,000-12,500	75	77	...	325	34,006	439,336,190	33.3
	Merrey, 1937	5,400- 5,700	9	255	...	120	22,400	173,304,000	11.1
	Nipa, 1945	6,000- 8,500	66	99	...	270	24,713	430,667,245	28.0
	Oficina, 1937	5,900	54	115	...	380	38,386	646,641,890	20.5
	Oscurote, 1952	9,513	9	28	...	45	8,374	109,956,510	20.3
	Rosa, 1958	1,250-11,412	2	...	...	1	961	7,079,297	51.7
	San Joaquin, 1935	6,560	20	2	...	52	2,804	77,666,460	46.4
	Santa Ana, 1936	8,500	28	3	...	54	6,290	86,656,850	37.9
	Santa Rosa, 1941	8,500	117	3	...	58	29,093	299,026,945	44.9
	Soto, 1950	9,500	29	13	...	151	7,093	160,473,945	36.8
	Tapuco, 1953	10,000	4	2	...	21	1,382	24,985,340	34.0
	Yopales, 1937	4,600	8	52	...	71	9,250	90,354,250	21.2



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WORLDWIDE PRODUCTION	Name of field and discovery date	Depth (ft)	No. of wells				Production in bbl—		Gravity °API
			Flowing	Pumping	Gas lift	Shut in	Daily avg. 1st 6 mo. 1974	Cumulative 7/1/74	
VENEZUELA*—Continued									
	Zanjas, 1958	13,270	7	...	...	6	4,353	20,509,845	34.1
	Zapatos, 1955	11,500	15	...	...	47	9,831	111,995,315	37.0
	Zorro, 1953	11,100	10	4	...	12	5,019	57,754,935	25.0
	Zulus, 1957	12,710	7	...	...	11	2,012	14,827,380	33.4
	Zumo, 1954	9,200	5	25	...	17	4,791	68,747,715	16.8
	Others		75	31	...	273	21,071	186,607,915	
	Total		760	1,137	...	2,626	349,455	4,654,670,564	
FEDERAL TERRITORY OF AMACURO									
	Tucupita, 1945	5,600	15	15	...	35	2,996	46,278,413	16.8
	Others		...	...	...	25	...	57,415,540	
	Total		15	15	...	60	2,996	103,693,953	
STATE OF MONAGAS									
	Acema, 1960	12,520-13,750	35	14	...	34	23,084	56,140,600	26.4
	Aguasay, 1955	8,100-13,400	25	7	...	45	8,788	76,317,387	38.5
	Jobo, 1956	3,600-4,000	7	99	...	37	37,560	59,580,400	11.9
	Morichal, 1958	3,312	...	106	...	62	28,610	111,442,650	10.4
	Oritupano, 1950	7,657	20	55	...	35	20,135	102,932,275	19.3
	Orocual, 1933	2,954	9	4	...	24	2,514	16,562,610	20.6
	Piritall, 1958	450-1,100	...	58	...	8	2,594	18,276,810	17.2
	Quiriquire, 1928	7,000-7,200	...	350	...	110	15,420	723,929,300	16.3
	Santa Barbara, 1941	5,020-6,500	15	105	...	215	3,500	157,605,325	27.8
	Tacat, 1953	1,830-3,668	...	53	...	69	2,561	36,222,265	17.2
	Temblador, 1936	3,500-4,500	4	40	...	6	5,282	98,149,430	20.0
	Others		15	68	...	205	5,661	399,066,265	
	Total		130	959	...	850	157,709	1,853,225,377	
STATE OF GUARICO									
	Las Mercedes, 1942	1,200-4,500	2	52	...	100	1,447	126,996,155	27.6
	Ruiz, 1949	4,450	4	23	...	11	1,000	30,775,650	33.1
	Budare, 1958	4,523	22	...	...	10	24,408	38,685,920	31.8
	Others		10	87	...	135	2,551	68,585,115	
	Total		38	162	...	256	29,403	265,042,840	
STATE OF BARINAS									
	Tato Viejo, 1961	9,543	2	8	...	2	3,822	29,189,030	27.1
	Maporal, 1957	10,944	...	3	...	2	2,116	7,478,340	28.1
	Silvan, 1949	10,862	1	6	...	1	2,641	36,235,965	28.5
	Silvestre, 1948	8,850	1	26	...	12	9,552	105,944,980	24.8
	Sinco, 1953	8,500-9,100	6	34	...	29	18,798	200,562,270	25.7
	Others		14	10	...	3	10,718	14,263,770	
	Total		24	87	...	49	47,647	393,674,355	
STATE OF FALCON									
	Tiguaje, 1953	3,300	...	13	...	9	735	8,544,275	26.3
	Others		...	40	...	78	331	97,167,815	
	Total		...	53	...	87	1,066	105,712,090	
STATE OF ZULIA									
	Bachaquero, 1930†	3,444	190	1,980	...	943	533,605	4,684,433,425	22.4
	Barua, 1958	10,500	4	1	...	1	3,667	12,585,955	19.8
	Boscan, 1946	6,500-7,500	...	259	...	109	44,634	479,171,910	10.4
	Cabimas, 1917†	2,200	113	467	...	229	79,072	1,455,303,280	23.7
	Centro, 1957	12,568	67	6	...	54	113,000	349,199,000	33.6
	Cruces Manueles, 1916	300-8,000	9	62	...	26	3,357	162,549,700	30.5
	Ceuta, 1956	9,600-11,000	27	34	...	34	63,700	232,117,500	29.5
	La Concepcion, 1953	3,148-8,000	3	77	...	40	5,459	114,657,835	35.0
	Lago, 1958	11,450	26	...	...	17	38,346	121,610,290	31.5
	Lagunillas, 1926†	3,000	710	2,410	...	850	803,328	8,469,651,370	24.2
	Lama, 1957	8,320	158	70	...	88	259,774	1,819,755,610	32.8
	Lamar, 1958	13,003	62	11	...	37	131,569	669,111,285	34.1
	La Paz, 1925	4,268-8,000	13	63	...	30	16,800	773,915,100	32.0
	Los Claros, 1960	9,328	...	7	...	7	4,352	29,169,980	10.4
	Mara, 1945	5,248	7	45	...	40	9,009	375,227,758	27.7
	Mena Grande, 1914	4,132	1	291	...	177	11,007	578,854,384	18.8
	Sibucara, 1948	13,451	...	1	...	3	1,203	39,289,095	35.3
	Tarra W., 1947	4,250-5,500	6	14	...	14	3,113	63,340,750	38.3
	Tia Juana, 1928	3,000	124	1,656	...	326	296,566	2,734,086,916	18.8
	Others		19	6	...	23	11,306	28,525,378	
	Total		1,539	7,460	...	3,048	2,432,867	22,998,556,521	
	Venezuela total		2,506	9,873	...	7,176	3,021,146	30,377,575,700	
	†Partly offshore								
	*Data estimated								

ZAIRE

GCO, 1970*	11,825	...	...	5	...	30.0
Mibale, 1973*	5,000-6,000	...	...	3	...	31.0

*These offshore fields may go on stream at 25,000 b/d in 1976.

Total wells drilled in the United States*—October 1974†

Data compiled by API

State-district	Total completions							Total exploratory wells‡				
	Oil‡	Gas§	Dry holes	Total wells	Total footage	Total all types||	Total footage||	Oil‡	Gas§	Dry holes	Total wildcats	Footage
Alabama	1	1	1	3	48,359	3	48,359	1	...	1	2	32,659
Alaska	1	1	...	2	10,895	2	10,895	...	1	...	1	695
Arkansas	7	...	15	22	124,451	23	132,432	1	...	9	10	71,752
California	86	9	29	124	402,371	142	416,195	3	3	13	19	111,410
North	...	8	19	27	163,926	27	163,926	...	3	9	12	77,107
Central Coastal	20	...	3	23	79,244	24	80,524	1	...	3	4	21,240
East Central	60	1	7	68	137,842	71	140,184	2	...	1	3	13,063
South	3	...	...	3	8,435	17	18,637	...	...	...	...	...
Offshore	3	...	...	3	12,924	3	12,924	...	...	...	...	...
Colorado	26	22	51	99	595,296	105	634,881	4	3	30	37	213,893
Florida	1	...	...	1	11,896	2	14,051	...	...	...	...	...
Idaho	...	...	1	1	120	1	120	...	...	1	1	120
Illinois	31	2	30	63	138,896	63	138,896	...	...	8	8	20,977
Indiana	19	2	31	52	91,865	56	97,207	2	1	19	22	37,363
Iowa	...	...	2	2	3,385	2	3,385	...	...	2	2	3,385
Kansas	107	27	107	241	584,820	254	599,132	6	1	51	58	188,695
Kentucky	11	7	29	47	65,906	52	73,190	2	...	12	14	23,987
Louisiana	76	64	109	249	1,631,031	257	1,688,765	2	3	67	72	592,391
North	38	45	47	130	539,676	133	540,998	1	2	35	38	254,034
South	24	11	31	66	604,384	67	611,943	1	...	14	15	178,124
Offshore	14	8	31	53	486,971	57	535,824	...	1	18	19	160,233
Michigan	16	2	28	46	225,461	46	225,461	6	2	22	30	143,804
Mississippi	8	5	28	41	285,400	46	305,100	1	...	13	14	128,525
Missouri	...	...	3	3	7,572	13	9,353	...	...	3	3	7,572
Montana	5	23	62	90	281,696	90	281,696	...	5	39	44	158,158
Nebraska	5	1	28	34	174,708	34	174,708	1	...	24	25	127,385
New Mexico	27	31	21	79	429,687	79	429,687	...	4	11	15	93,922
East	25	19	20	64	375,869	64	375,869	...	4	11	15	93,922
West	2	12	1	15	53,818	15	53,818	...	...	...	...	...
New York	13	...	...	13	18,270	18	24,805	...	...	...	...	...
North Dakota	8	...	15	23	164,821	23	164,821	2	...	9	11	77,449
Ohio	47	61	16	124	517,865	125	522,167	1	8	1	10	44,680
Oklahoma	98	74	104	276	1,364,869	291	1,398,505	...	9	28	37	264,204
Pennsylvania	43	33	7	83	180,419	94	197,635	2	4	6	12	44,680
Tennessee	5	...	6	11	19,127	11	19,127	2	...	6	8	14,937
Texas	375	150	413	938	5,113,271	961	5,181,870	21	43	211	275	1,700,706
Dist. 1	9	1	6	16	53,533	17	58,653	...	...	5	5	19,172
Dist. 2	9	28	29	66	372,392	67	377,502	1	15	18	34	204,449
Dist. 3	41	13	55	109	634,903	109	634,903	1	9	33	43	312,769
Dist. 4	33	27	29	89	519,433	89	519,433	3	5	17	25	181,200
Dist. 5	...	...	10	10	70,149	10	70,149	...	...	8	8	67,729
Dist. 6	11	8	14	33	221,367	35	222,603	...	2	11	13	100,021
Dist. 7B	51	14	74	139	450,349	144	466,107	7	4	53	64	242,180
Dist. 7C	39	24	87	150	968,923	155	973,950	3	...	8	11	48,370
Dist. 8	57	9	32	98	691,065	100	696,690	2	3	7	12	110,396
Dist. 8A	63	3	24	90	502,714	95	530,081	4	...	16	20	149,995
Dist. 9	47	5	30	82	227,543	84	230,899	...	2	18	20	99,257
Dist. 10	15	17	12	44	305,971	44	305,971	...	3	7	10	91,822
Offshore	...	1	11	12	94,929	12	94,929	...	...	10	10	73,346
Utah	23	...	13	36	324,716	37	330,585	...	...	11	11	67,364
Virginia	...	4	1	5	26,862	5	26,862	...	...	1	1	6,972
West Virginia	1	26	7	34	95,059	34	95,059	...	3	3	6	21,255
Wyoming	91	6	75	172	1,064,417	176	1,070,788	10	3	51	64	503,401
Gulf of Mexico—Northern	...	...	9	9	77,023	9	77,023	...	...	9	9	77,023
Total—Oct. 1974	1,131	551	1,241	2,923	14,080,534	3,054	14,392,760	67	93	661	821	4,779,364
Total—Sept. 1974	1,200	600	1,091	2,891	12,676,090	2,961	12,864,725	86	90	624	800	4,490,377
Cum. 1974	10,291	5,783	9,603	25,677	124,149,486	26,535	126,214,822	664	932	5,472	7,060	41,661,268
Cum. 12/3	7,983	4,929	8,269	21,181	106,362,217	22,066	108,352,869	506	648	4,762	5,916	...

*Does not include miscellaneous drilling not related to oil and gas exploration and production. †Covers reports of completed or abandoned wells received by the API during the period from Sept. 28, 1974, through Oct. 25, 1974. ‡Includes multiple completion wells which produce gas from one or more zones but oil from at least one zone. A multiple completion well is counted as one well. §Includes multiple completion wells that produce gas from all zones. A multiple completion well is counted as one well. Gas wells also include so-called condensate wells. ¶Exploratory wells include: new-field wildcats, new-pool wildcats, deeper-pool tests, shallower-pool tests and outpost (extension) tests. ||Includes 23 strat tests and 68 service wells, 12,059 and 300,167 ft., respectively.

terranean during the winter.

Special instrumentation includes a navigation computer which integrates dead reckoning, satellite and LORAN C inputs and provides continuous positioning data. The ship's map position is reported with accuracy to within 150 ft. Navigation services are being provided on a direct contract basis from Survey Systems Inc., a Houston-based firm specializing in electronic

positioning and surveying.

Gravity and magnetic data are recorded on magnetic tape in duplicate. The paired tapes are returned to Houston one at a time; the second remains on board until the first is reported intact at its Houston destination.

The ship stays in touch with Houston daily via a 1,000-w radiotelephone system.

Gravity and magnetic data can be

used to enhance and clarify seismic data. They are also useful in developing a broad geophysical overview of a very large area. The seven maps returned from the Mediterranean and Atlantic survey of the Karen Bech will include Bouguer gravity, total magnetic intensity, bathymetric, gravity residual, free air gravity, regional gravity, and the second vertical derivative of magnetics.

Seismic survey being done in Kamishak Bay

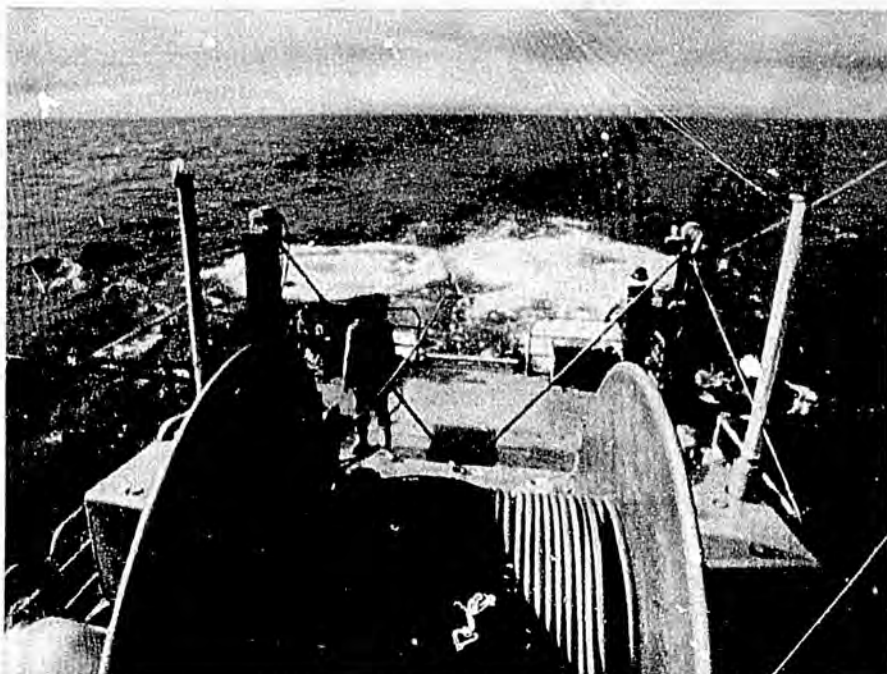
SEISMOGRAPH Service Corp. is conducting a shallow-water seismic survey in the Kamishak Bay area of Cook Inlet in Alaska using a specially built pontoon-type boat.

Of modular design, the boat, the Seisjet, was built by MonArk Boat Co. in Monticello, Ark., for ease of transport from prospect to prospect by Hercules aircraft. This is an especially important feature because of logistics difficulties common to exploration in the Arctic.

The craft is 60 ft long with an 18-ft beam and 30-in. draft fully loaded. The pontoons are 6 ft by 6 ft in cross section. Two GM 6B53 engines power Jacuzzi jet pumps to achieve 18 knots cruising speed. Fuel capacity is 2,500 gal.

Two twin-cylinder air guns, a mile of floating streamer-type cable with geophone drops, and 24-trace DFS III instrument comprise the seismic equipment.

Additionally, the boat is equipped with forward-scanning radar, Motorola miniranger for positioning, and Raytheon recording fathometer and digital



IN ITS seismic exploration mode, Seisjet trails a floating cable 4,500 ft long, attached to which are 24 four-cluster hydrophone stations. At predetermined time intervals, shock waves are created by the firing of two underwater air guns, each of which builds up 6,000 lb of air pressure.

depth finder. SSC's Anchorage Phoenix center is available to process data.

The Seisjet will begin work out of

the inlet of St. Augustine Island where the crew will be housed in a relocatable camp.

BOOKS

OFFSHORE OIL SCOUTS, January 1974 through July 1974, Status of the Offshore Oil Industry. Offshore Oil Scouts, 1669 Canal, New Orleans 70161. \$15 in U.S., \$30 overseas and Canada. Advance payment with order form is required.

This issue covers all data on Louisiana and Texas. Also available are computer-generated printouts of factual material pertaining to active OCS leases located Offshore Louisiana and Texas. Items which appear are: geographic area, block, OCS number, leased description, operator, etc. Price

\$75 printout of each sequence. Order from Offshore Oil Scouts, Box 61780, New Orleans 70161.

OIL SPILL PREVENTION AND REMOVAL HANDBOOK. Published by Noyes Data Corp., Mill Road at Grand Avenue, Park Ridge, N.J. 07656. 1974. By Marshall Sittig. 465 pp. \$36.

This book attempts to organize and clarify the many ways and means made available for the removal of contaminating oil from surfaces and beaches. Special attention is called to the list of companies producing ma-

terials and equipment useful in cleaning oil spills and beaches.

WORLD SURVEY OF SULPHUR RESOURCES—SECOND EDITION. Published by The British Sulphur Corp. Ltd., \$17.55 (£75) surface mail, \$18.72 (£80) airmail, Parnell House, 25 Wilton Rd., London SW1V 1NH, England.

Comprehensive update of 1966 first edition is arranged by major geographical regions on a country-by-country basis. It identifies sulfur resources in respect to mineral deposits, and covers recovery methods.

Worldwide crude-oil and gas production

OIL (1,000 b/d)	Oct. 1974	Sept.* 1974	10-month average				GAS (billion cu ft)		
			Daily prod. 1973	Daily prod. 1974	Change from Vol %		Oct. 1974	Sept. 1974	Cum. 1974
WESTERN HEMISPHERE									
Argentina	415.0	415.0	418.0	413.0	- 5.0	- 1.2	26.4	32.4	230.5
Bolivia	50.0	50.0	47.0	49.0	2.0	4.3	13.4	12.6	126.5
Brazil	170.0	170.0	169.0	170.0	1.0	0.6	3.7	4.2	39.1
Canada	1,597.0	1,615.0	1,790.0	1,711.0	- 79.0	- 4.4	291.7	290.9	2,728.3
Chile	30.0	30.0	32.0	30.0	- 2.0	- 6.3	20.1	21.7	173.7
Colombia	170.0	170.0	199.0	176.0	- 23.0	- 11.6	9.7	9.6	85.7
Ecuador	100.0	115.0	203.0	173.0	- 30.0	- 14.8	0.4	0.8	4.8
Mexico	580.0	580.0	462.0	570.0	108.0	23.4	58.9	59.0	565.8
Peru	75.0	75.0	68.0	76.0	8.0	11.8	6.6	6.4	60.8
Trinidad	180.0	180.0	164.0	176.0	12.0	7.3	5.0	9.9	57.7
United States	8,777.0	8,734.0	9,206.0	8,857.0	- 349.0	- 3.8	1,911.2	1,826.7	18,394.5
Venezuela	2,810.0	2,770.0	3,367.0	3,004.0	- 363.0	- 10.8	45.0	146.8	1,366.2
Total	14,954.0	14,904.0	16,125.0	15,405.0	- 720.0	- 4.5	2,392.1	2,421.0	23,833.6
WESTERN EUROPE									
Austria	45.0	45.0	49.0	46.0	- 3.0	- 6.1	4.9	5.7	77.5
Denmark	4.0	4.0	4.0	2.0	- 2.0	- 50.0	0	0	0
France	25.0	25.0	26.0	24.0	- 2.0	- 7.7	18.6	24.2	236.7
West Germany	120.0	120.0	130.0	122.0	- 8.0	- 6.2	50.4	57.9	572.1
Italy	20.0	20.0	15.0	19.0	4.0	26.7	32.9	1.1	489.2
Netherlands	39.0	39.0	30.0	31.0	1.0	3.3	234.2	229.5	2,391.6
Norway	44.0	50.0	36.0	31.0	- 5.0	- 13.9	0	0	0
Spain	40.0	40.0	15.0	41.0	26.0	173.3	0	0	0
United Kingdom	2.0	2.0	2.0	2.0	0	0	69.9	83.3	1,067.9
Yugoslavia	65.0	65.0	68.0	67.0	- 1.0	- 1.5	4.7	3.8	44.7
Total	404.0	410.0	375.0	385.0	10.0	2.7	415.6	449.5	4,879.7
MIDDLE EAST									
Abu Dhabi	1,169.0	1,412.0	1,342.0	1,452.0	110.0	8.2	0	0	0
Bahrain	68.0	67.0	68.0	67.0	- 1.0	- 1.5	0.1	0.2	3.1
Dubai	262.0	235.0	236.0	237.0	1.0	0.4	0	0	0
Iran	5,720.0	5,836.0	5,824.0	6,038.0	214.0	3.7	74.2	75.6	754.6
Iraq	1,727.0	1,604.0	1,915.0	1,766.0	- 149.0	- 7.8	11.2	9.7	107.3
Israel	100.0	100.0	101.0	100.0	- 1.0	- 1.0	0.2	0.1	3.8
Kuwait	2,060.0	2,225.0	3,115.0	2,569.0	- 546.0	- 17.5	0.1	0.2	1.4
Oman	280.0	285.0	291.0	292.0	1.0	0.3	0	0	0
Qatar	525.0	515.0	591.0	519.0	- 72.0	- 12.2	0.1	0.1	1.5
Saudi Arabia	9,052.0	8,780.0	7,840.0	8,493.0	653.0	8.3	0	0	0
Sharjah†	60.0	60.0	23.0	23.0	0	0	0	0	0
Syria	150.0	150.0	114.0	126.0	12.0	10.5	0	0	0
Turkey	65.0	65.0	66.0	65.0	- 1.0	- 1.5	0	0	0
Total	21,238.0	21,334.0	21,503.0	21,747.0	244.0	1.1	85.9	85.9	871.7
ASIA-PACIFIC									
Afghanistan							7.8	7.8	77.4
Australia	465.0	471.0	368.0	373.0	5.0	1.4	15.6	14.8	132.5
Burma	20.0	20.0	20.0	20.0	0	0	0.6	0.4	4.9
Brunei-Malaysia	375.0	375.0	316.0	368.0	52.0	16.5	0.8	0.2	2.0
India	150.0	150.0	148.0	149.0	1.0	0.7	1.5	0.4	15.5
Indonesia	1,385.0	1,350.0	1,310.0	1,430.0	120.0	9.2	17.1	13.7	125.1
Japan	15.0	15.0	15.0	15.0	0	0	7.1	8.0	81.2
Pakistan	8.0	8.0	8.0	8.0	0	0	13.9	11.2	115.7
Taiwan	3.0	3.0	2.0	3.0	1.0	50.0	4.3	3.2	37.0
Thailand	0.2	0.2	0.2	0.2	0	0	0	0	0
Total	2,421.2	2,392.2	2,187.2	2,366.2	179.0	8.2	68.7	59.7	591.3
AFRICA									
Algeria	900.0	900.0	1,112.0	1,059.0	- 53.0	- 4.8	1.7	1.6	17.1
Angola	20.0	20.0	14.0	20.0	6.0	42.9	5.1	4.9	30.8
Cabinda	150.0	150.0	138.0	149.0	11.0	8.0	0	0	0
Congo	35.0	35.0	40.0	35.0	- 5.0	- 12.5	0.6	0.6	4.8
Egypt	175.0	172.0	192.0	137.0	- 55.0	- 28.6	4.7	5.0	39.9
Gabon	190.0	190.0	144.0	176.0	32.0	22.2	1.5	1.3	12.2
Libya	1,069.0	1,325.0	2,272.0	1,596.0	- 676.0	- 29.8	3.1	4.6	34.7
Morocco	1.0	1.0	1.0	1.0	0	0	1.9	2.5	24.7
Nigeria	2,325.0	2,312.0	2,015.0	2,278.0	263.0	13.1	4.7	5.8	48.9
Tunisia	95.0	95.0	83.0	80.0	- 3.0	- 3.6	3.0	3.6	11.4
Total	4,960.0	5,200.0	6,011.0	5,531.0	- 480.0	- 8.0	26.3	29.9	224.5
COMMUNIST									
China	900.0	900.0	860.0	900.0	40.0	4.7	15.6	16.0	157.1
Rumania	290.0	290.0	283.0	290.0	7.0	2.5	77.9	97.4	777.7
U.S.S.R.†	9,396.0	9,393.0	8,525.0	9,125.0	600.0	7.0	808.4	760.0	7,554.2
Other	110.0	110.0	100.0	110.0	10.0	10.0	38.7	42.7	415.0
Total	10,696.0	10,693.0	9,768.0	10,425.0	657.0	6.7	940.6	916.1	8,904.0
World Total	54,673.2	54,933.2	55,969.2	55,859.2	- 110.0	- 0.2	3,929.2	3,962.1	39,304.8

*Figures adjusted. †On stream July 1974. ‡Includes gas liquids.

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7' x 34'	300	Steel Horiz.	10,000
7' x 34'	200	Steel Horiz.	10,000
7' x 34'	150	Steel Horiz.	10,000
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OGJ's 1973 scoreboard

Net profits	9.67 billion	Up 53.4%	(27 companies)
Total assets	123.2 billion	Up 12.8%	(27 companies)
Return on total assets	7.9%	Up 2.1%	(27 companies)
Net liquids production	24.36 million b/d	Up 1.5%	(27 companies)
Runs to stills	22.96 million b/d	Up 6.6%	(25 companies)
Product sales	25.22 million b/d	Up 4.0%	(25 companies)
Net wells drilled	5,377	Down 3.3%	(18 companies)
Net gas production	45.6 billion cfd	Down 0.2%	(27 companies)

Oils' high profits abroad bring trouble in the U.S.

W. A. BACHMAN
Senior Editor

STEVEN KELLEY
Economics Editor

THE IRONY of oil industry profits is remarkable. Companies are earning more than ever but enjoying the rewards less.

For the first time in years, the industry as a whole is reporting earnings for 1973 and the first quarter of 1974 high enough to trigger significant expansion. Ordinarily this would be optimistic news all around.

But fuel shortages, foreign embargoes on oil exports to this country, and rising product prices have created a

situation where the petroleum industry has become the whipping boy of politicians and consumer groups. This is true even though companies in other industries also are enjoying record profits.

As a result, oil executives in their annual reports, at their annual meetings, or in first-quarter 1974 announcements are going to great length to explain their earnings. The threats of punitive taxes and sweeping government regulation are forcing companies to make unprecedented analyses of their operations and revelations of just where the new funds come from and how they will be invested.

A vintage year. By now, it is well established that 1973 was a banner year for oil-industry profits. Reports now

being made also show that earnings are running high so far in 1974.

The Oil and Gas Journal's survey of annual reports for large U.S. oil companies shows an average gain in earnings of 53% for 1973 over the previous year. A survey of 97 petroleum companies by New York's First National City Bank came up with the same percentage gain. A Chase Manhattan Bank study of worldwide profits produced a gain of 71%, but the survey included several European-headquartered companies which had still higher profits (OGJ, Apr. 22, p. 66).

How oil compares. But other industries also did well last year. The profits gain of 2,136 manufacturing firms surveyed by First National City Bank was 31%. The gain of 4,640 corporations in all industries was 23%.

The 53% gain for oil companies was exceeded by several other industry groups. Lumber was up 73%, nonferrous metals 69%, paper 67%, metal mining 63%, and iron and steel 61%. Meatpacking also had a 53% gain, and substantial increases were recorded by chemicals, aerospace, office machinery, and computers.

Measured by rate of return, oil-industry profits were more moderate. The Journal survey showed a return on stockholders' equity increased from 10% to 14.2% and the return on assets went from 7.9% to 10%. The return on net worth calculated by First National City increased from 10.8% to 15.6% which was only slightly greater than the 14.8% average return for all manufacturing. Over the last 10 years, the petroleum group averaged 11.8% compared with 12.4% for all manufacturing.

How they did it. Factors behind the growth in petroleum profits are little understood by the public, because the greatest impetus came from operations abroad.

Demand for petroleum products abroad increased at a greater rate than in the United States, and so did the prices of crude oil and refined products. The Chase Manhattan group of companies reported that 75% of their increased revenues occurred outside the United States and 85% of the profits growth came from abroad.

Currency devaluation and inflation played a large role in these increases. An estimated 25% of the profits growth was attributed to devaluation of the dollar, and one-sixth was attributed to increased value of inventories.

Other factors besides devaluation

How 27 large U.S. companies fared financially last year

Rank by assets		Net profits*			Gross op. rev.†		% net profit to gross op. rev.	
		\$ million	1972	% change	\$ million	% change	1973	1972
1.	Exxon	2,443	1,532	+ 59.5	25,724	+26.7	8.7	7.5
2.	Texaco	1,292	889	+ 45.3	11,407	+31.2	11.3	10.2
3.	Mobil	849	574	+ 47.9	10,160	+24.7	8.4	7.1
4.	Gulf	800	447	+ 79.0	8,417	+34.8	9.5	7.2
5.	California Standard	844	547	+ 54.3	7,762	+32.2	10.9	9.4
6.	Indiana Standard	511	375	+ 36.3	5,416	+20.3	9.4	8.3
7.	Tenneco	230	203	+ 13.3	3,910	+19.4	5.9	6.2
8.	Shell	333	260	+ 28.1	4,884	+19.8	6.8	6.4
9.	Atlantic Richfield	270	193	+ 39.9	3,983	+19.9	6.8	5.8
10.	Continental	243	170	+ 42.9	4,224	+23.2	5.8	5.0
11.	Phillips	230	148	+ 55.4	2,990	+19.0	7.7	5.9
12.	Sun	230	155	+ 48.4	2,286	+19.2	10.1	8.1
13.	Union	180	122	+ 47.5	2,552	+21.6	7.1	5.8
14.	Cities Service	136	99	+ 37.4	2,035	+ 9.3	6.7	5.3
15.	Getty‡	135	76	+ 77.6	1,601	+14.0	8.4	5.4
16.	Pennzoil United	84	59	+ 42.4	1,059	+19.4	7.9	6.7
17.	Ohio Standard	74	60	+ 23.3	1,482	+ 8.5	5.0	4.1
18.	Amerada Hess	246	46	+434.8	1,896	+42.1	13.0	3.5
19.	Marathon	129	80	+ 61.3	1,578	+23.5	8.2	6.2
20.	Ashland§	85	68	+ 25.0	2,053	+15.3	4.1	3.8
21.	Kerr-McGee	63	51	+ 23.5	728	+ 7.1	8.7	7.4
22.	Skelly	44	38	+ 15.8	580	+10.5	7.6	7.2
23.	Murphy	48	14	+242.9	499	+32.0	9.6	3.8
24.	Superior	33	5	+560.0	152	+ 5.6	21.7	3.6
25.	Louisiana Land	70	63	+ 11.1	180	+23.3	38.9	43.1
26.	American Petrofina	37	18	+105.6	448	+57.2	8.3	6.3
27.	Clark	30	8	+275.0	397	+35.8	7.6	3.0
Total		9,669	6,300	+ 53.4	108,403	+23.5	8.9	7.2

*Excludes nonrecurring gains and losses. †Excludes nonoperating income and excise taxes ‡Getty

... and a summary of their worldwide operations for the past

Rank by assets		Net liquids production			Crude runs to stills		
		Thousand b/d	1972	% change	Thousand b/d	1972	% change
1.	Exxon	5,525	5,734	- 3.6	5,761	5,146	+12.0
2.	Texaco	4,286	3,777	+13.5	3,052	2,952	+ 3.4
3.	Mobil	2,522	2,399	+ 5.1	2,365	2,194	+ 7.8
4.	Gulf	3,140	2,214	- 2.3	1,976	1,945	+ 1.6
5.	California Standard	3,170	3,159	+ .03	2,248	2,109	+ 6.6
6.	Indiana Standard	875	815	+ 7.4	1,100	1,016	+ 8.3
7.	Tenneco	81	82	- 1.2	77	90	-14.4
8.	Shell	631	638	- 1.1	1,085	1,001	+ 8.4
9.	Atlantic Richfield	656	652	+ 0.6	746	753	- 0.9
10.	Continental	556	594	- 6.3	546	509	+ 7.2
11.	Phillips	365	363	+ 0.1	460	450	+ 2.2
12.	Sun	369	369	0	580	549	+ 5.6
13.	Union	380	365	+ 4.1	472	440	+ 7.3
14.	Cities Service	227	227	0	235	269	-12.6
15.	Getty‡	420	433	- 3.0	239	270	+ 3.9
16.	Pennzoil United	47	42	+11.9	36	33	+ 9.1
17.	Ohio Standard	51	50	+ 2.0	382	400	- 4.5
18.	Amerada Hess	215	231	- 5.9	492	444	+10.8
19.	Marathon	441	453	- 2.6	313	286	+ 9.4
20.	Ashland‡	51	42	+21.4	338	327	+ 3.4
21.	Kerr-McGee	38	41	- 7.3	39	37	- 5.4
22.	Skelly	86	89	- 3.4	86	80	+ 7.5
23.	Murphy	52	49	+ 6.1	94	72	+30.6
24.	Superior	64	70	- 8.6			
25.	Louisiana Land	86	79	+ 8.9			
26.	American Petrofina	21	20	+ 5.0	176	97	+40.2
27.	Clark	2	2	0	104	105	- 1.0
Total		24,357	23,989	+ 1.5	23,962	21,524	+ 6.6

§Sales. ‡Getty data includes interest in Skelly. †Fiscal year ended Sept. 30, 1973.

*

2 4.4 3

1 2.9 2

8.4 9

8.0 0

8-7.4 4

5.1 1

2.3 0

3.3 3

7 2.0 2 *

3

1 5.3 2

8.8 9

5.7 4

4.4 7

5.4 7

3.7 5

2.0 3

2.6 0

4 8.2 7 *

*

9 6.6 9

7 3.0 2 -

2 3.6 7 *

6 3.0 0

4 8.2 7 -

1 4.7 3 *

How 15 small companies fared

Company	Net profits (\$ thousands)		% change
	1973	1972	
Corco	34,117	3,113	+995.9
Tesoro	19,874	13,047	+ 52.3
Mapco Inc.	19,598	13,065	+ 50.0
Quaker State	19,202	15,207	+ 26.3
General Crude Oil	17,013	14,177	+ 20.0
Pioneer Natural Gas	12,397	9,852	+ 25.8
Crown Central Pet. Corp.	8,441	1,317	+540.9
Helmerich & Payne Inc.	6,368	4,449	+ 43.1
Inexco Oil Co.	5,811	4,519	+ 28.6
Apco Oil Corp.	5,717	6,186	- 7.6
Woods Corp.	5,190	3,891	+ 33.4
Barber Oil & Gas Co.	3,221	2,648	+ 21.6
Western Co. of N. America	2,372	1,744	+ 36.0
Forest Oil Corp.	(1,037)	771	-234.5
White Shield Corp.	(2,750)	981	-380.3
Total	155,534	94,967	+ 63.8

and inflated inventories also accounted for increased earnings. Tanker rates soared to record highs from subnormal levels in 1972, making transportation operations of many companies very profitable. Petrochemical operations also enjoyed a substantial recovery during the year and once again became a strong profit center for a large number of firms.

The companies surveyed by the Journal report a 23.5% gain in gross operating revenues, while the average return on revenues advanced from 7.2% to 8.9%. Working capital of the group increased by 29.8% to \$15.3 billion; and the companies put this to work by spending \$13.7 billion on capital projects, a 21.2% gain over expenditures the year before.

Operating statistics for the group also are impressive. The companies on a worldwide basis reported liquids production of 24,357,000 b/d, an increase of 1.5%. They stepped up refinery runs by 6.6% to 22,962,000 b/d and product sales by 4% to 25,216,000 b/d. Natural-gas sales held about the same at 45.5 billion cfd. The number of net wells drilled, however, declined 3.3% to 5,558.

What companies say. The trends revealed in the surveys were echoed in comments of company executives in their annual reports.

Almost without exception this year, the reports dwelled at length on explanations of the world energy picture, the vast need for capital funds, and the concern over the political attitude of governments both in this country and abroad.

Cities Service executives declared

that prices and profits are the basic issues in the long-term energy situation. Marathon said the most serious challenge before management is communicating the basic facts of the petroleum shortage to the public and of the overwhelming need for capital.

Every company in the Journal survey reported plans for substantial increases in capital investment, particularly in exploration, production, processing, and stepped-up activity in alternate energy sources. Many noted specifically that the investment needs far exceeded internal cash sources and will require outside financing. And this will make a high level of earnings vital.

Particular attention was given to U.S. earnings. Marathon and Sohio noted that profits from domestic operations actually declined. For Marathon, profits from U.S. operations dipped from \$64.9 million to \$61.8, while those from abroad increased from \$14.9 to \$67.6 million. For Sohio, the domestic decline was 4.8%, and the foreign gain 59.3%. Exxon said earnings in the U.S. were up 15.4%, about in line with the increase in product sales volume. Texaco's domestic profits were only 3.4% higher. Sun reported 80% of its added profits came from abroad, and the figure for Phillips was 81%. These joined many others in noting that their foreign earnings will help finance expansion projects in this country.

Time needed. Several companies showed a sensitivity in their annual reports to charges that industry capital spending is not showing results in greater energy reserves or rates of

production.

The executives pointed out that current expansion projects require a longer lead time and require a much larger investment than formerly, thus tying up larger amounts of nonproductive capital. Lead times of 3-5 years or longer are needed in bringing new fields on production or putting refineries on stream.

Continental illustrated this trend by a special report in its annual on the North Sea. Capital investment to develop currently known North Sea oil and gas reserves, Continental said, will amount to an estimated \$12-15 billion. Development costs per barrel of peak daily production capacity in the northern North Sea will average about \$4,000. This is about 60% greater than the cost of developing discoveries in the Gulf of Mexico and 10 times the cost required for development of onshore discoveries in the Middle East.

California Standard's report left no doubt that much time and money will be needed to correct the U.S. energy imbalance. Socal executives suggested an energy program for the U.S. which probably represents a consensus of the industry. It includes policies to emphasize more efficient energy usage, encourage domestic exploration, expedite leasing of federal lands, speed refinery expansion, moderate environmental regulations, build deepwater terminals, research the best use of coal, shale, and tar-sands resources, and finally speed the construction of nuclear-fueled power plants.

The annual report taken as a group revealed one fact. The executives of the nation's oil companies realize they face the greatest challenge since the Drake well, and they are dedicated to meeting it.

BP, Imperial set U.K. ethylene plant

BP CHEMICALS and Imperial Chemical Industries have officially announced a joint-venture 500,000-metric-ton/year ethylene plant for Teesside, U.K. (OGJ, Oct. 1, 1973, Newsletter). Completion is scheduled for mid-1977.

A 500-mile pipeline will carry ethylene to BP's Grangemouth, Scotland, complex. Each company will provide its own feedstock, mainly naphtha. The plant, designed by Stone & Webster, will also be able to process natural-gas liquids.

Working cap.		Funds from operations		Cap. & expl. expend.		% return on stockholders equity		% return on total assets		Total assets		
(\$ million)	% change	(\$ million)	% change	(\$ million)	% change	1973	1972	1973	1972	\$ million	1972	% change
3,486	+ 45.7	4,079	+ 43.0	2,235	+ 12.7	17.8	12.5	9.7	7.1	25,079	21,558	+16.3
1,723	+ 80.2	1,926	+ 46.0	1,334	+ 11.8	16.2	12.4	9.5	7.3	13,595	12,032	+13.0
564	- 11.7	1,363	+ 30.9	1,334	+ 13.0	14.9	11.2	7.9	1.2	10,690	9,217	+16.0
1,514	+ 4.8	1,560	+ 43.1	979	+ 14.0	14.4	8.3	7.9	4.8	10,074	9,324	+ 8.0
1,271	+ 60.3	1,250	+ 35.3	1,117	+ 16.9	14.5	10.5	9.3	6.8	9,082	8,084	+12.3
775	+ 13.5	971	+ 22.0	1,100	+ 16.9	12.4	9.9	7.3	6.1	7,018	6,186	+13.4
333	- 8.8	499	+ 15.8	392	+ 13.6	12.0	11.1	4.3	4.1	5,427	4,838	+12.2
752	+ 12.6	785	+ 17.3	581	- 1.7	10.7	8.9	6.2	5.0	5,381	5,172	+ 4.0
718	+ 53.4	573	+ 19.6	500	+ 37.4	8.7	6.5	5.3	4.2	5,109	4,629	+10.4
483	+ 44.6	554	+ 39.2	476	- 11.7	13.4	10.4	6.6	5.2	3,693	3,250	+13.6
612	+ 17.7	469	+ 27.8	329	+ 24.2	11.7	8.2	6.4	4.5	3,607	3,270	+10.3
357	+ 77.6	463	+ 34.6	284	+ 5.2	11.9	8.8	6.8	5.2	3,382	2,980	+13.5
357	+ 6.3	479	+ 18.0	391	+ 24.5	10.5	7.6	6.2	4.5	2,909	2,696	+ 7.9
277	+ 3.4	305	+ 17.3	402	+ 53.4	8.9	6.9	5.1	4.1	2,660	2,406	+10.6
228	- 14.0	362	+ 32.6	437	+ 60.1	8.5	5.2	5.7	3.5	2,355	2,182	+ 7.9
91	- 43.5	189	+ 21.9	293	+125.4	13.3	11.7	4.2	3.2	2,001	1,837	+ 8.9
327	+ 11.6	158	+ 6.0	193	+ 55.6	6.5	5.6	3.8	3.3	1,964	1,802	+ 9.0
417	+112.8	354	+100.0	242	+ 70.4	31.8	8.3	12.8	3.4	1,922	1,378	+39.5
105	+156.1	246	+ 33.0	169	- 12.0	14.6	10.1	8.2	5.3	1,572	1,514	+ 3.8
298	+ 7.1	177	+ 14.9	176	+ 43.0	15.5	13.4	5.9	5.3	1,437	1,170	+13.1
204	+ 3.0	125	- 1.6	113	+ 48.7	11.2	10.0	7.2	6.3	867	807	+ 7.4
91	- 20.9	136	+ 18.3	175	+ 7.3	7.4	6.7	5.5	5.0	803	748	+ 7.4
99	+ 47.8	111	+ 94.7	113	- 7.8	20.2	7.6	6.9	2.5	704	568	+23.9
43	+ 59.3	53	+ 29.3	30	- 6.3	9.0	1.5	4.9	0.9	660	572	+15.4
93	+ 93.8	106	+ 17.8	79	- 26.9	27.5	28.4	15.4	15.5	455	406	+12.1
72	+ 38.5	57	+ 62.9	135	+440.0	13.4	12.3	8.2	6.9	451	264	+70.8
42	+ 61.5	42	+100.0	15	+ 15.4	27.9	10.1	11.6	4.1	263	206	+27.7
15,332	+ 29.8	17,392	+ 34.2	13,729	+ 21.2	14.2	10.0	7.9	5.8	123,160	109,196	+12.8

data includes interest in Skelly. \$Fiscal year ended Sept. 30, 1973.

2 years

Refined product sales			Number of employees			Net wells drilled			Net natural-gas production		
Thousand b/d	1972	% change	1973	1972	% change	1973	1972	% change	MMcfd	1972	% change
6,178	5,701	+ 8.4	137,000	141,000	- 2.8				*9,767	*9,323	+ 4.8
3,472	3,381	+ 2.7	74,918	76,496	- 2.1	969	1,177	-17.7	*4,516	*4,685	- 3.6
2,482	2,409	+ 3.0	73,900	75,000	- 1.5				3,682	3,595	+ 2.4
1,781	1,677	+ 6.2	51,600	57,500	-10.3				3,360	3,572	- 5.9
2,259	2,169	+ 4.1	39,269	41,497	- 5.4	266	370	-28.1	*1,579	*1,671	- 5.5
1,234	1,226	+ 0.7	46,589	46,627	- 0.1	1,208	1,130	+ 6.9	3,935	3,911	+ 0.6
125	122	+ 2.5	83,500	78,000	+ 7.1				972	935	+ 4.0
1,136	1,068	+ 6.4	32,080	32,871	- 2.4	440	513	-14.2	2,268	2,460	- 7.8
896	884	+ 1.4	26,284	27,756	- 5.6	309	356	-13.2	2,138	2,203	- 3.0
654	657	- 0.4	39,796	38,092	+ 4.5	486	458	+ 6.1	*1,451	*1,326	+ 9.4
690	733	- 5.9	33,429	35,265	- 5.2	267	199	+34.2	1,825	1,853	- 1.5
647	634	+ 2.1	24,979	26,384	- 5.3	241	198	+21.7	*1,523	*1,510	+ 0.9
487	458	+ 6.3	15,926	16,263	- 2.1	256	252	+ 1.6	1,534	1,634	- 6.1
374	386	- 3.1	18,000	21,400	-15.9	135	159	-15.1	1,127	1,087	+ 3.7
273	298	- 8.4	11,258	12,317	- 8.6	179	163	+ 9.8	1,261	1,261	0
35	31	+ 12.9	10,732	9,618	+ 11.6				675	605	+11.6
385	408	- 5.6	18,823	21,111	-10.8				110	145	-24.1
615	575	+ 7.0	4,867	4,714	+ 3.2	60	39	+53.8	743	763	- 2.6
349	321	+ 8.7	8,238	8,048	+ 2.4				419	429	- 2.3
474	452	+ 4.9	26,123	23,077	+13.2				312	172	+81.4
112	131	-14.5	8,966	9,217	- 2.7	85	94	- 9.6	300	304	- 1.3
135	144	- 6.3	4,367	4,835	- 9.7	57	91	-37.4	512	516	- 0.8
154	147	+ 4.8	2,989	2,992	0	78	60	+30.0	71	66	+ 7.6
			2,690	2,420	+11.2	73	63	+15.9	1,033	1,083	- 4.6
						238	203	+17.2	385	390	- 1.3
149	119	+25.2	2,904	2,276	+27.6	30	33	- 9.1	50	56	-10.7
120	111	+ 8.1	3,095	1,567	+97.5				6	7	-14.3
25,216	24,242	+ 4.0	802,322	816,343	- 1.7	5,377	5,558	- 3.3	45,554	45,562	- 0.2

1965		1964		1963	
Net income	%	Net income	%	Net income	%
63.4	22.2	59.4	23.0	52.4	22.7
35.8	15.5	23.7	14.0	18.1	11.7
90.1	8.1	47.1	7.3	44.0	7.0
100.6	10.2	84.5	9.1	77.5	8.6
8.7	27.8	2.1	8.9	1.5	6.8
96.2	10.2	100.1	11.1	87.4	10.5
1,021.4	11.9	1,050.6	12.6	1,019.5	12.8
57.7	6.9	43.0	5.6	43.0	6.1
427.2	11.2	395.1	11.0	371.4	10.9
25.1	14.6	20.7	14.7	18.8	15.8
60.1	11.3	60.4	11.8	49.1	10.2
320.1	9.1	294.2	8.8	271.9	8.6
6.4	6.1	4.3	4.9	4.8	5.7
127.7	9.9	115.0	9.3	108.1	8.9
234.0	13.4	198.2	12.3	179.9	12.0
34.0	8.8	25.7	7.1	24.2	7.0
391.2	11.1	345.3	10.5	322.1	10.5
219.3	8.1	194.9	7.5	183.1	7.3
49.7	12.7	43.8	12.0	38.9	11.4
85.5	10.1	68.5	8.8	61.2	8.4
636.7	14.9	577.4	14.6	547.6	15.6
112.8	10.4	92.9	14.7	55.2	9.9
4,203.7	11.2	3,846.9	10.8	3,579.7	11.0

Quarterly financial statements filed with the Security

oil's top 22

revenue in taxes, exclusive of sales and excise levies in 1972. There were no comparable figures for other industries, but the year before the tax burden for oil and gas was 5.59¢, greater than the 4.58¢ for other U.S. mining and manufacturing corporations and the 4.17¢ for all other businesses.

Oil and gas companies paid lower income taxes per dollar of revenue, Pirinc said, due mainly to percentage depletion and intangible drilling cost deductions, but other types of taxes were greater than for other businesses. The main taxes in the other category paid by oil and gas companies were state and local property taxes and crude-oil and natural gas severance taxes.

Oil and gas companies paid \$1.2 billion in federal income taxes in 1972 and \$2.4 billion in other types of taxes. The effective federal income tax rate for the domestic oil industry rose from 19.1% in 1969 to 22% in 1970, 23.5% in 1971, and 25.6% in 1972, due

largely to the effects of the Tax Reform Act of 1969, Pirinc reported.

In addition to its domestic tax payments, the U.S. oil industry also paid foreign income taxes totaling \$7.2 billion in 1972, \$5.8 billion in 1971, and

\$3.6 billion in 1970. The foreign income tax together with the domestic federal income tax liability gave the U.S. oil industry an effective worldwide income tax rate of 58% in 1972, according to Pirinc calculations.

Oxy, Libya sign exploration deal

OCCIDENTAL Petroleum Corp. has signed the first exploration agreement made by Libya since the Sept. 1, 1969, revolution and expects to be drilling in the new exploratory area this year.

Occidental, which, along with other operators in Libya, has experienced numerous problems dealing with the revolutionary government, will be operating under a production-sharing contract on 19 blocks covering 11 million acres.

Most of the blocks are in the Sirte basin, where Libya's present producing fields are located, and some cover concessions previously relinquished by others.

Terms of the contract are demanding, but Oxy believes much of the acreage has not been adequately explored. Oxy's current production in Libya was found on relinquished acreage.

Under terms of the agreement, the national oil company, Libyan National Oil Corp., will get 81% of future production and Oxy 19%. Oxy's share will

be free of Libyan taxes and royalties.

Oxy will finance all exploration and pay 19% of development costs on commercial discoveries. Libya will pay 81% of development costs but will be reimbursed for this amount if production reaches a specified—but unannounced—figure. Oxy would make the reimbursement at a rate of 5% per year over 20 years without interest.

Production costs will be borne 81% by Libya and 19% by Oxy.

Subject to mutual agreement on prices, Oxy will have the option to purchase Libya's share of future production.

The agreement permits operations for 35 years if a commercial discovery is made on a block within 5 years. It does not effect Oxy's present concessions, held jointly by Oxy and Libyan National.

Oxy says it is contracting for two or three seismic crews to begin shooting operations this spring or summer and expects to have a rig in the field before the end of the year.

U.S. firms plan two more mobile rigs

U.S. drilling contractors plan to build two more mobile offshore rigs.

Sedco Inc., Dallas, will build still another of its 700-series semisubmersibles, and Storm Drilling S.A., a subsidiary of Houston-based Storm Drilling Co., has let contract for a new jack-up rig to Bethlehem Singapore Private Ltd.

Sedco's new unit, to be known as Sedco 708, will be leased to Sun Oil Co. for at least 2 years starting late in 1976. A shipyard contract has not yet been awarded, although Sedco is negotiating with Gulf Coast and West Coast yards.

Cost of the fully equipped rig will be in excess of \$40 million, and Sun estimates its total cost for rig operation and related equipment and supplies will run about \$75,000/day.

Sun said it made this long-term com-

mitment in order to strengthen its exploration capability in deep waters off the continental U.S.

Sedco also announced it has received a 2-year drilling contract from a consortium including Shell, ARCO, and Mobil for use of the Sedco 706. The semisubmersible unit is being built at the Kaiser shipyard in California, with delivery scheduled the fall of 1975.

Delivery of Storm's new unit is scheduled in October 1975. It's to be rated to 25,000 ft in 250 ft of water.

Award of the latest contract brings to six the number of Bethlehem-designed offshore mobile units under construction or scheduled at Bethlehem's Singapore yard.

Other units under construction by Bethlehem include five semisubmersibles and four jack ups at its Beaumont, Tex., yard.

"Ethyl" antioxidants open many doors We'll help you choose the right ones.

Today's costs, restrictions and consumer needs demand an ever-growing number of specialized refinery products.

So it makes sense to take a fresh look at what our broad family of antioxidants can do for the performance, stability and profitability of your line.

In fact, the combination of our antioxidants, with your fuels or lubricants, might well upgrade the competitive position of your refinery products.

Here are just a few antioxidants from Ethyl's long line:

Antioxidant 701—For gasolines, jet fuels, industrial oils.

Antioxidant 702—For lubricants. Ashless, non-corrosive, non-volatile, non-sludging. Reduces ring wear, scuffing.

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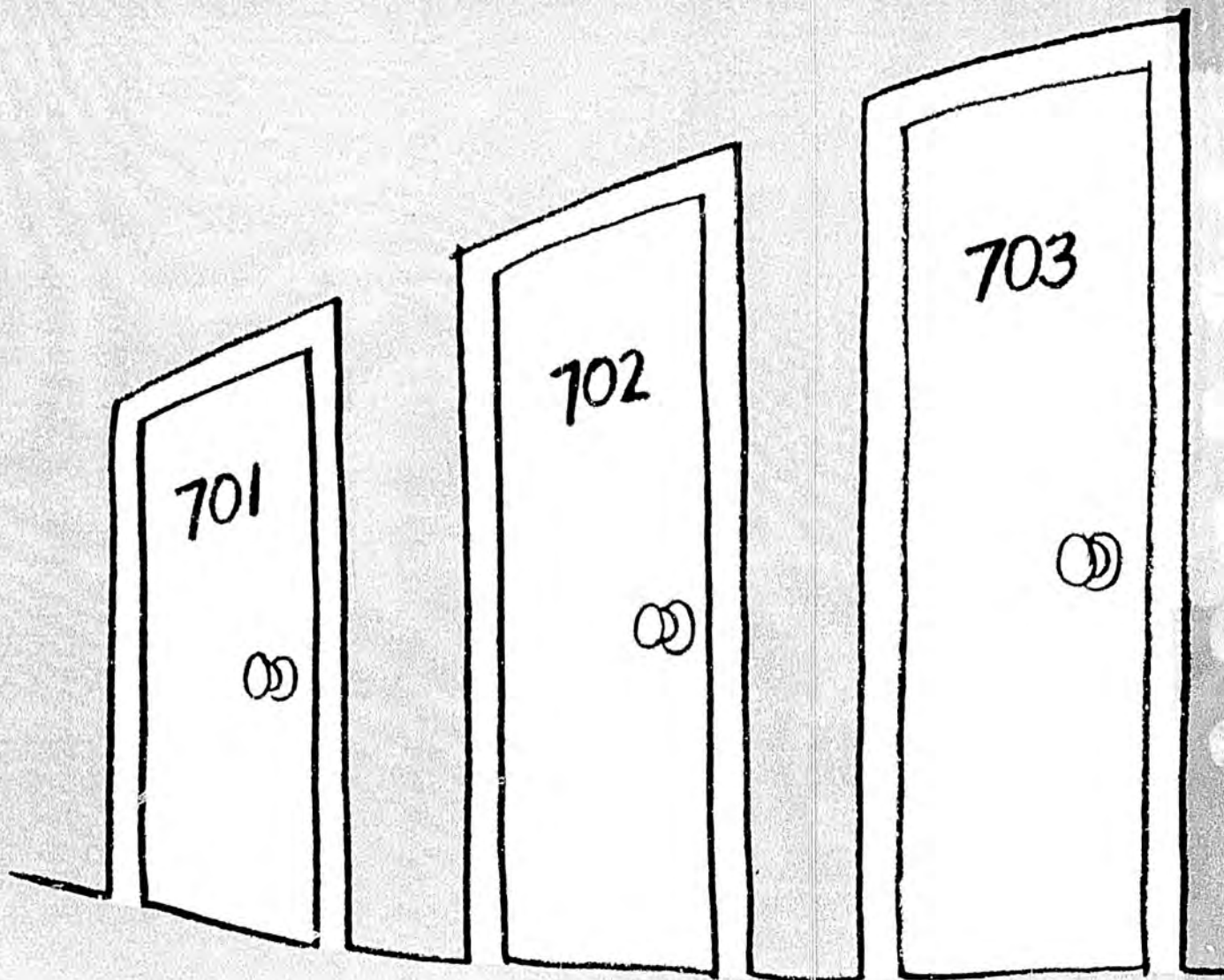
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Net income after tax and the rate of return on equity of 22 U.S. oil companies (1963-73)

Company	1973		1972		1971		1970		1969		1968		1967		1966	
	Net income	% return*	Net income	%	Net income	%	Net income	%	Net income	%	Net income	%	Net income	%	Net income	%
Amerada Hess†	151.8	23.5	46.2	8.3	133.3	24.0	114.0	25.7	86.5	23.7	89.8	19.8	76.8	22.2	73.1	2
Ashland	98.3	17.3	68.0	13.5	40.5	8.8	52.0	11.7	56.9	13.3	53.6	14.6	48.4	15.5	45.0	1
Atlantic Richfield	270.2	8.9	192.5	6.5	210.5	7.3	209.5	7.5	230.1	8.5	105.8	7.8	130.0	10.2	113.5	
Cities Service	135.6	9.8	99.1	6.9	104.5	7.7	118.6	8.9	127.2	10.0	121.3	9.9	127.8	10.9	120.1	1
Clark	30.5	29.9	8.3	9.8	3.6	4.7	10.8	14.0	13.0	18.7	12.1	20.4	11.5	23.4	9.6	2
Continental	242.7	14.0	170.2	10.4	140.1	9.1	160.3	10.7	146.4	9.8	150.0	10.6	136.1	10.1	115.6	11
Exxon Corp.	2,440.0	18.5	1,531.8	12.5	1,516.6	13.1	1,309.5	12.0	1,242.6	12.3	1,276.7	13.0	1,155.0	12.3	1,090.1	12
Getty	135.0	8.8	76.1	5.2	120.1	8.5	103.2	7.8	105.8	8.3	98.3	8.3	118.2	10.5	92.3	9
Gulf†	760.0	14.0	447.0	8.3	561.0	10.2	550.0	10.4	610.6	12.1	626.6	13.2	568.3	12.9	504.8	12
Kerr-McGeet	58.8	10.8	50.6	10.1	40.7	10.8	35.9	10.3	33.6	10.3	36.4	12.0	32.1	11.5	33.0	12
Marathon	129.4	15.2	79.8	10.2	88.7	11.7	86.5	11.8	89.4	12.1	83.3	12.7	73.9	12.3	68.8	12
Mobil	842.8	15.7	574.2	10.9	540.8	10.9	482.7	10.4	456.5	10.4	430.7	10.3	385.4	9.8	356.1	9
Murphy	53.6	24.4	14.3	7.6	11.1	6.2	9.3	6.5	6.2	4.5	7.3	5.4	8.2	6.2	8.4	7
Phillips	230.4	12.1	148.4	8.1	132.3	7.6	132.3	7.8	127.8	7.7	129.9	8.0	164.0	11.0	138.4	10
Shell	332.7	10.9	260.5	8.9	244.5	8.7	237.2	8.6	291.2	10.9	312.1	12.3	284.9	13.8	255.2	13
Skelly	44.0	7.5	37.6	6.8	38.3	7.0	36.1	7.0	38.4	7.7	40.3	8.5	42.0	9.3	37.0	8
Standard of Calif.	843.6	14.4	547.1	10.5	511.1	10.4	454.8	9.8	453.8	10.3	451.8	10.7	409.4	10.3	401.2	10
Standard (Ind.)	511.2	12.4	374.7	10.0	340.6	9.6	314.0	9.3	321.0	10.0	309.5	10.1	280.9	9.6	255.9	9
Standard (Ohio)	74.1	6.6	59.7	5.6	58.8	5.7	64.4	6.3	51.9	5.3	70.1	13.0	67.1	14.5	56.9	13
Sun	230.0	12.3	154.7	8.8	151.6	8.9	139.1	8.4	152.3	9.4	164.4	10.9	156.2	15.2	100.6	10
Texaco	1,292.4	25.0	889.0	12.4	903.9	13.4	822.0	13.1	769.8	13.1	819.6	14.5	754.4	14.8	692.1	15
Union of Calif.	180.2	10.6	121.9	7.6	114.7	7.4	114.5	7.6	138.9	9.5	149.8	10.9	145.0	11.2	134.2	11
Totals	9,087.3	15.1	5,951.7	9.7	6,007.3	10.2	5,556.7	10.4	5,549.9	10.9	5,539.4	11.8	5,175.6	12.0	4,701.9	11.

*Equity as of Sept. 30, 1973. †Full years income estimated on the basis of income reported for the first 9 months of 1973.

Source: Compiled by Office of Tax Analysis, Department of Treasury, from Standard and Poor's Industrial Survey, Moody's Industrial Manual, Exchange Commission (10 Q Forms).

AGO 529964

Treasury cites 1968-72 U.S. profits dip for

DOMESTIC profits for 22 of the largest oil companies actually declined from \$3.672 billion in 1968 to \$3.563 billion in 1972, a study by the Treasury Department discloses.

During the same period, international profits for the same group of companies rose from \$1.709 billion to \$2.353 billion.

Also, the Treasury analysis shows, the 1973 earnings are "primarily attributable to foreign inventory profits from skyrocketing prices, increased profits from increases in foreign product prices, and efficiencies in foreign refinery and other operations unrelated to the prices paid by U. S. consumers."

Affirming a point made by the companies, Treasury says further "that the higher 1973 profits must be interpreted in the light of the lower-than-normal profits realized in 1972 and the several years immediately prior."

Profits overall for the 22 companies rose last year to \$9.087 billion from \$5.951.7 billion in 1972. At the same

time the rate of return on equity jumped to 15.1%, after falling to 9.7%, the low point of the past decade, in 1972.

The 1973 figures are based on actual earnings for the first 9 months of the year, converted to an annual basis.

During the 1963-72 decade, rate of return peaked at 12% in 1967, then slumped each year thereafter until the shortage last year, made worse by the Arab embargo, firmed up world prices and profits.

A Federal Trade Commission report shows oil refiners' profits for the 12 months ending last September yielded a return of 10.5%, compared with a 12.4% return for all manufacturing. During the past decade, FTC figures show the oil-industry return to be at or below the average for other businesses.

The 1973 figures computed by Treasury show that some companies were much better situated than others to benefit from tight supply and rising prices. Clark Oil & Refining Corp.'s

return shot up from 9.8%, as computed by Treasury, to 29.9%. Texaco's rose from 12.4% to 25%, Treasury said, although the absolute increase in profits didn't rise proportionately.

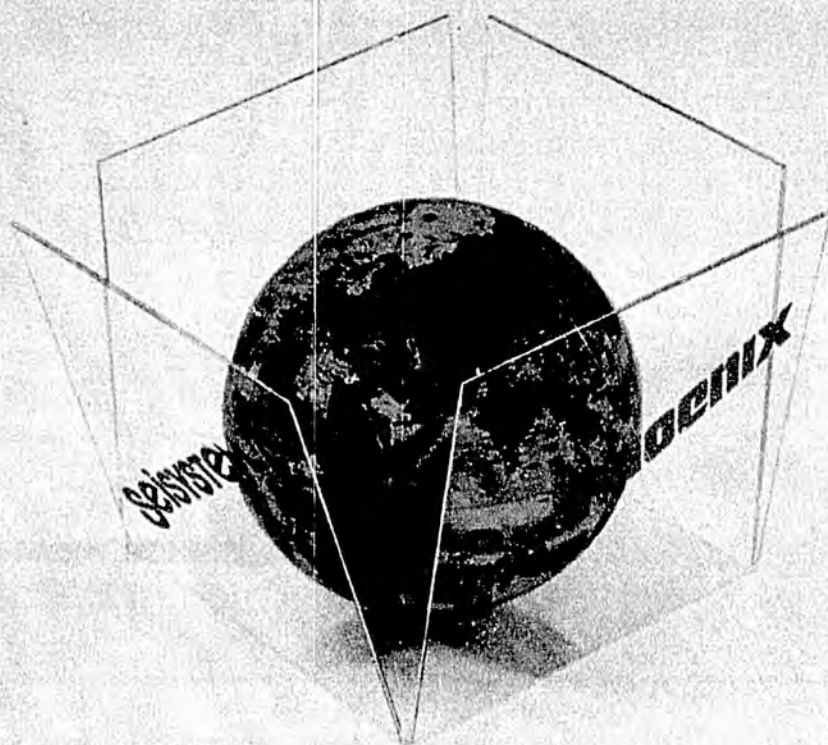
The next best performances were reported not by the international giants but by Murphy Oil Corp., which earned 24.4% on equity, and Amerada Hess Corp., which made 23.5%.

Exxon Corp. earned 18.5%, compared to 15.7% for Mobil Oil Corp., 14.4% for Standard Oil Co. of California, 14% for Gulf Oil Corp., 12.4% for Standard of Indiana, and 12.3% for Sun Oil Co.

At the lower end of the scale, Standard Oil Co. (Ohio) earned only 6.6%, Skelly Oil 7.5%, Getty Oil 8.8%, and Atlantic Richfield Co. 8.9%.

Taxes still high. Also last week, the Petroleum Industry Research Foundation Inc. released an updated report on, "The Tax Burden on the Domestic Oil and Gas Industry." It showed that domestic oil and gas companies paid an average of 5.6¢/dollar of gross

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Progress painfully slow toward improved U.S. energy position

One year after the embargo, crude supplies are ample and product stocks in better shape—but the country's basic energy position has improved little. Election-year politics in Congress, coupled with widespread ignorance in Washington of the workings and needs of the petroleum industry and business in general, crippled most helpful moves on the federal level and brought still more controls.

A YEAR has passed since the Arab oil embargo accompanied by escalating prices exposed for all Americans to see the depth of their nation's costly energy insecurity. Subsequent events have confirmed the realization that the nation faces a long and expensive economic restructuring to improve its position.

At API time last year, the entire oil industry was scurrying to find crude supplies to replace volumes lost by the Arab export embargo to this country. For the first time in its modern history, spare U.S. oil-producing capability was inadequate to cover an emergency. Fears of an industrial and transportation shutdown were widespread.

At API time this year, the embargo has long been lifted, crude supplies worldwide are ample even if quadrupled in price, and product stocks in the United States are in better shape this season than a year earlier.

Nonetheless, the nation's basic energy position has improved very little over the year, even though the industry has taken many initial steps aimed at change. The time lag for such projects looking to energy independence inhibit spectacular early achievements.

Americans, however, can count some gains

that augur well for the future. From the embargo experience, they have come closer to realizing that:

- The energy crisis is real and not contrived or arranged by the big oil companies to exploit the consumer.

- The days of cheap energy based on ample supplies of oil and gas are over for this country. New petroleum reserves and new energy sources must command higher prices to attract the vast amounts of capital needed for their development.

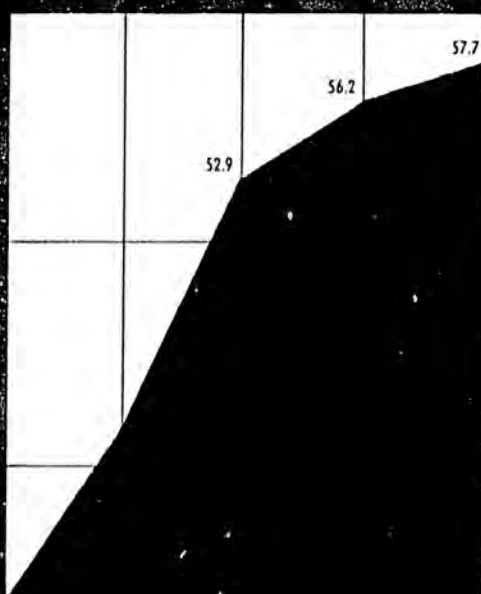
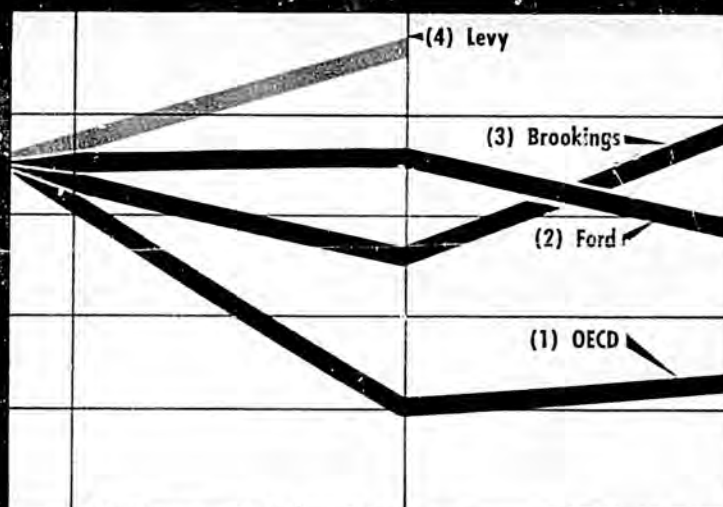
- Conservation through more-efficient use of fuels has become a necessary watchword for all consumers, industry and public alike.

- Importance of oil and gas in the nation's energy mix will continue for years, and continued imports of oil from abroad must be maintained until the nation can develop greater domestic sources.

- Outlines of a long-range energy mix are beginning to appear, emphasizing the necessity of bringing into play vast reserves of coal and of ultimate reliance on nuclear fuels for generating electricity.

What happened. The nation faced growing energy problems even before the Middle East

- (1) OECD projected import demand,
\$9 Persian Gulf fob (1972 dollars)
- (2) Ford Foundation Energy Project,
\$6.25 Persian Gulf fob (1973 dollars)
- (3) Brookings Institution,
\$7 Persian Gulf fob (1974 dollars)
- (4) W. J. Levy Consultants,
\$8 Persian Gulf fob (1974 dollars)



	1973	1975	1980	1985	1990
Venezuela	3.5	3.5	3.3	4.0*	5.0*
Ecuador	.4	.5	.5	.5	.5
Indonesia	1.5	1.7	2.0	2.0	2.0
Iran	6.0	7.5	8.5	8.0	7.5
Iraq	2.2	3.0	4.0	5.0	6.0
Kuwait†	3.5	3.5	3.5	3.5	3.5
Abu Dhabi, etc.	2.7	3.5	6.5	7.0	7.0
Libya	3.0	3.0	2.5	2.0	2.0
Algeria	1.1	1.1	1.3	1.5	1.6
Nigeria	2.0	2.5	2.8	2.7	2.6
Saudi Arabia†	8.0	12.0	18.0	20.0	20.0

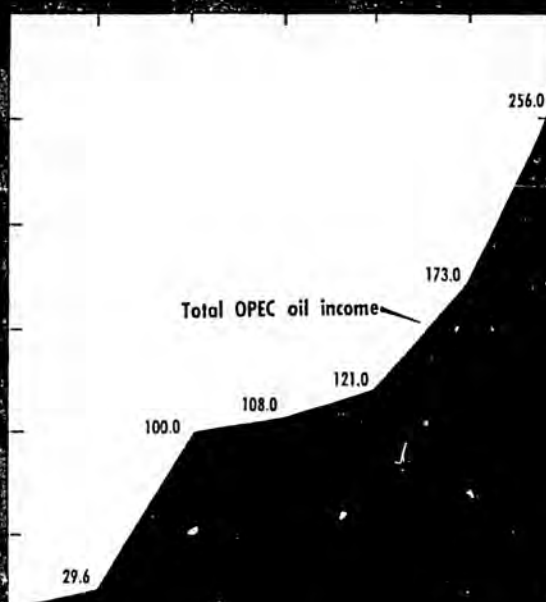
conflict of October 1973 and the embargo that followed.

In the last 15 years, the United States has not adequately developed its domestic petroleum resources, while demand for petroleum continued to rocket upward.

In 1959, for example, 2,074 rotary rigs were active and 51,764 total wells were drilled.

By comparison, in 1973 only 1,194 rigs were active and wells drilled slumped to 27,602. New crude reserves added by exploration in 1959 were estimated at nearly 3.7 billion bbl and by 1973 this had dropped to about 2.2 billion bbl.

The drain on petroleum reserves was enormous. Liquids production increased from 7,933,000 b/d in 1959 to 10,925,000 b/d in 1973;



Year	Payments by		Oil revenues of OPEC countries		Reserves of OPEC countries*
	United States	Other major importers			
1972	\$ 4.91	25.9%	\$ 14.01	74.1%	\$ 18.91
1973	8.51	28.7	21.11	71.3	29.61
1974	25.21	25.2	74.81	74.8	100.01
1975	27.0	25.0	81.0	75.0	108.01
1976	30.3	25.0	90.7	75.0	121.01
1980	43.3	25.0	129.7	75.0	173.01
1985	64.0	25.0	192.0	75.0	256.01

Crude	1970	1971	1972	1973	1974*
Arah light	1.80	2.285	2.479	5.036	11.651
Iran light	1.79	2.274	2.467	5.254	11.875
Kuwait	1.59	2.187	2.373	4.82	11.545
Abu Dhabi Murban	1.88	2.341	2.540	5.944	12.636
Iraq Basrah	1.72	2.259	2.451	4.978	11.672
Qatar Dukhan	1.93	2.387	2.590	5.737	12.414
Iraq Kirkuk	2.41	3.211	3.402	7.10	—
Libya	2.53	3.447	3.673	9.061	15.768
Nigeria	2.42	3.212	3.446	8.339	14.691
Sumatra light	1.70	2.21	2.260	6.00	10.80
Venezuela Tia Juana (31")†	2.193	2.722	2.722	7.762	14.356
Venezuela Cifina†	2.339	2.782	2.782	8.064	14.876
Louisiana	3.69	3.69	3.69	5.29	5.29
East Texas	3.60	3.60	3.60	5.20	5.20
West Texas sour	3.23	3.29	3.29	5.29	5.29

but petroleum demand was still not satisfied. It jumped from 9,749,000 b/d to 17,498,000 b/d. To close the gap, the nation's imports increased from 1,780,000 b/d in 1959 to 6,201,000 b/d in 1973. At this figure, imports represented about 35% of domestic supply.

Impact of the October 1973 embargo was not felt until mid-December because of the long

supply lines to this country from the Middle East. And full effect of the reduced flow came in the first quarter of 1974 when average imports fell some 2.2 million b/d below expectations. The crisis was met only because U.S. consumption at the same time was reduced by 2.7 million b/d through the first quarter.

Economists just now have been able fully to

World energy resources

	Billion (10 ⁹) units	
	Proved and currently recoverable	Estimated remaining recoverable
United States		
Natural gas (1,000 cu ft)	279	1,447
Natural-gas liquids (bbl)	7.3	36
Crude oil (bbl)	38.1	335
Coal (short tons)	197	1,433
Shale oil (bbl)	77	1,068
Bitumens (bbl)	1	2
Uranium oxide (short tons at \$15/lb)	580	1,620
Western Hemisphere (Incl. U.S.A.)		
Natural gas (1,000 cu ft)	407	3,340
Natural-gas liquids (bbl)	N.A.	70
Crude oil (bbl)	78	700
Coal (short tons)	220	2,310
Shale oil (bbl)	130	1,550
Bitumens (bbl)	80	500
Uranium oxide (short tons at \$15/lb)	975	2,470
Europe (Excl. U.S.S.R.)		
Natural gas (1,000 cu ft)	171	400
Natural-gas liquids (bbl)	N.A.	12
Crude oil (bbl)	17.7	135
Coal (short tons)	78	415
Shale oil (bbl)	15	150
Bitumens (bbl)	N.A.	N.A.
Uranium oxide	450	570
Asia-Pacific (inc. Europ. U.S.S.R.)		
Natural gas (1,000 cu ft)	964	4,300
Natural-gas liquids (bbl)	N.A.	128
Crude oil (bbl)	478	1,350
Coal (short tons)	880	5,565
Shale oil (bbl)	35	115
Bitumens (bbl)	N.A.	410
Uranium oxide (short tons)	170	385
Africa		
Natural gas (1,000 cu ft)	193	1,700
Natural-gas liquids (bbl)	N.A.	48
Crude oil (bbl)	58.9	500
Coal (short tons)	10	120
Shale oil (bbl)	10	100
Uranium oxide (short tons)	425	570
Total world		
Natural gas (trillion cu ft)	1,735	9,740
Natural-gas liquids (billion bbl)	N.A.	759
Crude oil (billion bbl)	633	2,685
Syncrude from oil shale and bitumen (billion bbl)	270	2,415
Coal (billion short tons)	1,188	8,410
Uranium oxide (1,000 short tons at \$15/lb)	2,020	3,995

Source: H. R. Linden & J. D. Parent, Institute Gas Technology.

OGJ

measure the embargo's impact on the economy. The National Petroleum Council, for instance, reports these effects:

- **Gross national product.** A 7% drop was experienced in GNP during the first quarter, whereas a modest increase generally had been expected. The impact especially was felt in slowed activity in autos, tourism, housing, construction and allied activities.

- **Employment.** The unemployment rate during the first quarter averaged 5.2% of the labor force, up 0.5 percentage points from the preembargo rate.

- **Prices.** The sharp, rapid increases in world oil prices during and after the embargo resulting from producer-country actions raised energy costs through the world economy. Each commodity and service became higher priced depending on its use of energy. About one-fourth of the increase in U.S. wholesale prices in 1974 has been attributed to increased energy costs. The higher price levels have revealed that, contrary to prior opinion, petroleum demand is elastic and to some degree reacts to price.

- **International trade.** The higher world oil prices became a big upsetting factor in changing the balance of payments between oil-producing and oil-consuming nations. In the case of the United States, NPC has estimated that the 1974 dollar outflow attributable to its oil imports will reach \$25 billion and that total funds flowing into the producing countries will approach \$100 billion. The Commerce Department reported that the soaring U.S. oil bill sent this nation's balance of payments into a \$900-million deficit during the first half of this year. The department warned that continued deficits could lead to a weakened U.S. dollar compared with other currencies. This in turn could prompt more devaluations or further inflation in the United States.

A World Bank study projects the U.S. dollar outflow at \$27 billion in 1975 with total OPEC revenues at \$108 billion and U.S. outflow by 1980 at \$43 billion and OPEC revenues at \$173 billion. By 1985, the U.S. oil-import bill may reach \$64 billion and OPEC revenue \$256 billion.

OPEC currency reserves from this vast income will mount to \$653 billion by 1980 and \$1,206 trillion by 1985, according to this study.

The action taken. Americans had four options to meet the oil shortages created by the embargo and in so doing learned some valuable lessons about future approaches.

The options were: cut consumption sharply, convert to alternate fuels, increase domestic production on an emergency basis, and allocate short supplies among consumers on a priority basis.

COAL: the sleeping giant

COAL is the sleeping giant in the world energy picture.

Dr. Karlheinz Bund, chairman of Rurkohle A.G. of Essen, West Germany, predicted at the 9th World Energy Conference in Detroit that technological progress will enable coal to overcome its present handicaps and assume a major world energy role.

Proved and probable coal reserves, according to Dr. Bund, are estimated to be at least 8,000 billion tons.

They amount to some 90% of the world's total fossil energy reserves compared with about 10% for crude oil and natural gas together.

Dr. Bund declared that based on a recovery of only 50% of coal reserves, they will be sufficient for 2,000 more years at the present production level of 2.2 billion tons/year. Even if coal production should be doubled, the reserves still would last about 1,000 years.

Coal reserves are not only abundant, he added, but also favorably distributed where oil and natural-gas reserves are limited and concentrated in a few areas.

However, coal has several severe handicaps regarding extraction and transport. Dr. Bund said these challenges were:

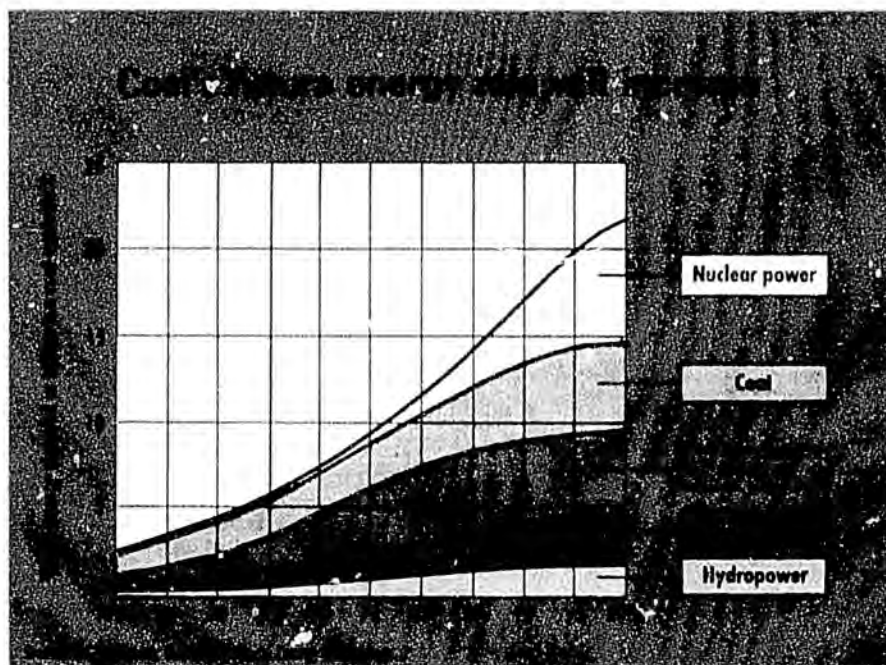
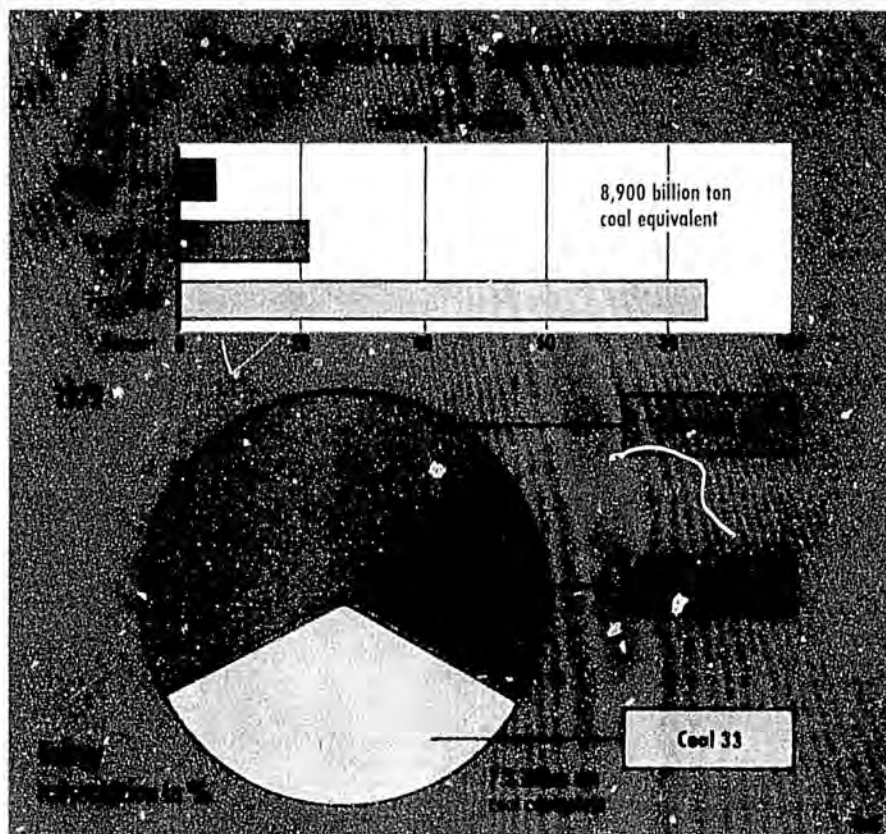
- The extraction and processing of coal is more difficult and labor intensive than the production of oil and gas. But new, and above all, labor-saving technical mining systems must therefore be expeditiously developed, tested, and introduced into the mines.

- The coal-mining industry, particularly opencast mining, is rated as hostile to the environment. New mining methods with appropriate reclamation standards can solve these problems.

- Transportation of coal over long distances is costly and re-

quires a high level of investment. Efficient transport systems must be innovated, making possible a more-economical movement of coal over long distances.

Dr. Bund forecast that new technologies for coal gasification, liquefaction, and use in power generation will allow this fossil fuel to command a substantial energy role.



Due to consumer cooperation and some luck with the weather, Americans cut petroleum consumption by 2.7 million b/d in the year's first quarter. This was accomplished by such voluntary actions as car pooling, reduced space heating and lighting, more-efficient airline operations, etc. Such mandatory actions as reduced speed limits for autos also contributed.

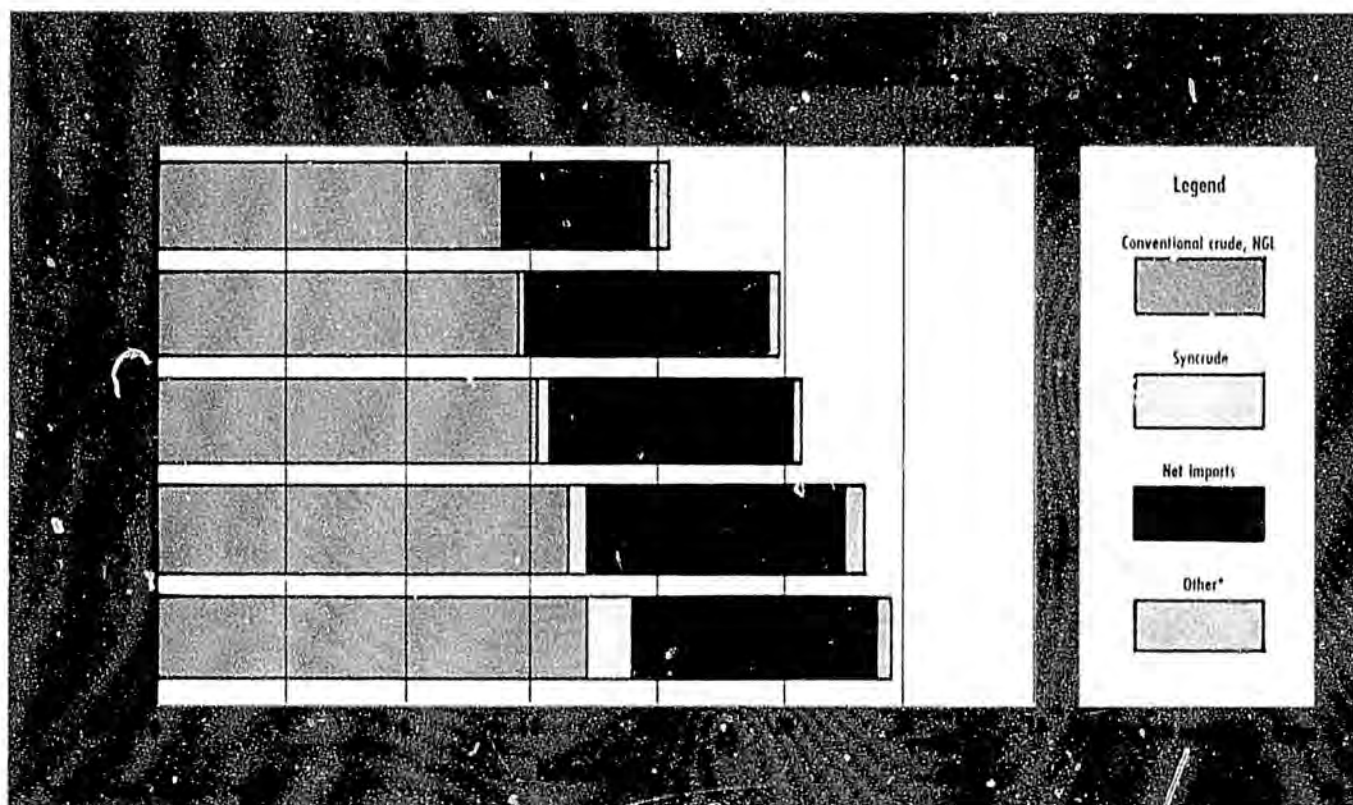
NPC estimated that conservation and curtailment activity reduced consumption by 1,010,000 b/d in the 3 months. The warmer-than-normal weather helped reduce demand by 440,000 b/d. NPC estimated that other factors, such as high fuel prices, lowered economic activity, and unavailability of particular products contributed 1,150,000 b/d to reduced consumption.

Conversion to alternate fuels proved a disappointing factor in the crisis. Switching to coal on short notice proved complicated and

difficult. NPC reported that actual oil savings from this source were only 61,000 b/d. Previous estimates of potential savings were as high as 120,000 b/d. However, imports of electricity from Canada accounted for 26,000 b/d giving a total of 87,000 b/d gained from conversion to or use of alternate fuels. A decline in petroleum exports ran this total to about 100,000 b/d.

The effects on various petroleum products from these cutbacks are interesting. Gasoline took a sharp reduction of 600,000 b/d for the quarter. Aviation fuels demand dropped 19,000 b/d, middle distillates and residual fuels each 780,000 b/d, and other products including exports 35,000 b/d.

Emergency production increases above normal rates were not employed during the short emergency period. A few oil fields in Texas and the Naval Petroleum Reserves were



Workable rigs (year-end)	Historical	Projected		
	1973	1974	1975	1976
Land rigs	1,502	1,502	1,541	1,559
Offshore rigs				
Stationary	75	81	88	96
Mobile bottom supported	58	62	67	77
Floater	15	21	32	41
Total offshore	148	164	187	214
Total all rigs	1,650	1,666	1,728	1,773
Net additions		34	44	45

New rig allocation	Historical	Projected		
	1973	1974	1975	1976
New rigs manufactured				
Offshore mobile	49	50	50	50
Remaining in U.S.	11	17	17	20
Exported	38	33	33	30
Fixed	86	112	128	128
Remaining in U.S.	48	52	50	50
Exported	38	60	78	78
Total new rigs manufactured	135	162	178	178
Less exports	76	93	108	108
Less attrition	25	25	25	25
Total unavailable	101	118	133	133
Net rig additions	34	44	45	45

considered potential sources of greater production. But these options came a cropper due to a balky Congress and equally reluctant state oil-regulatory agencies.

Instead, the Federal Energy Office undertook the job of allocating available petroleum products to cover essential activities and minimize adverse effects on agriculture and industry.

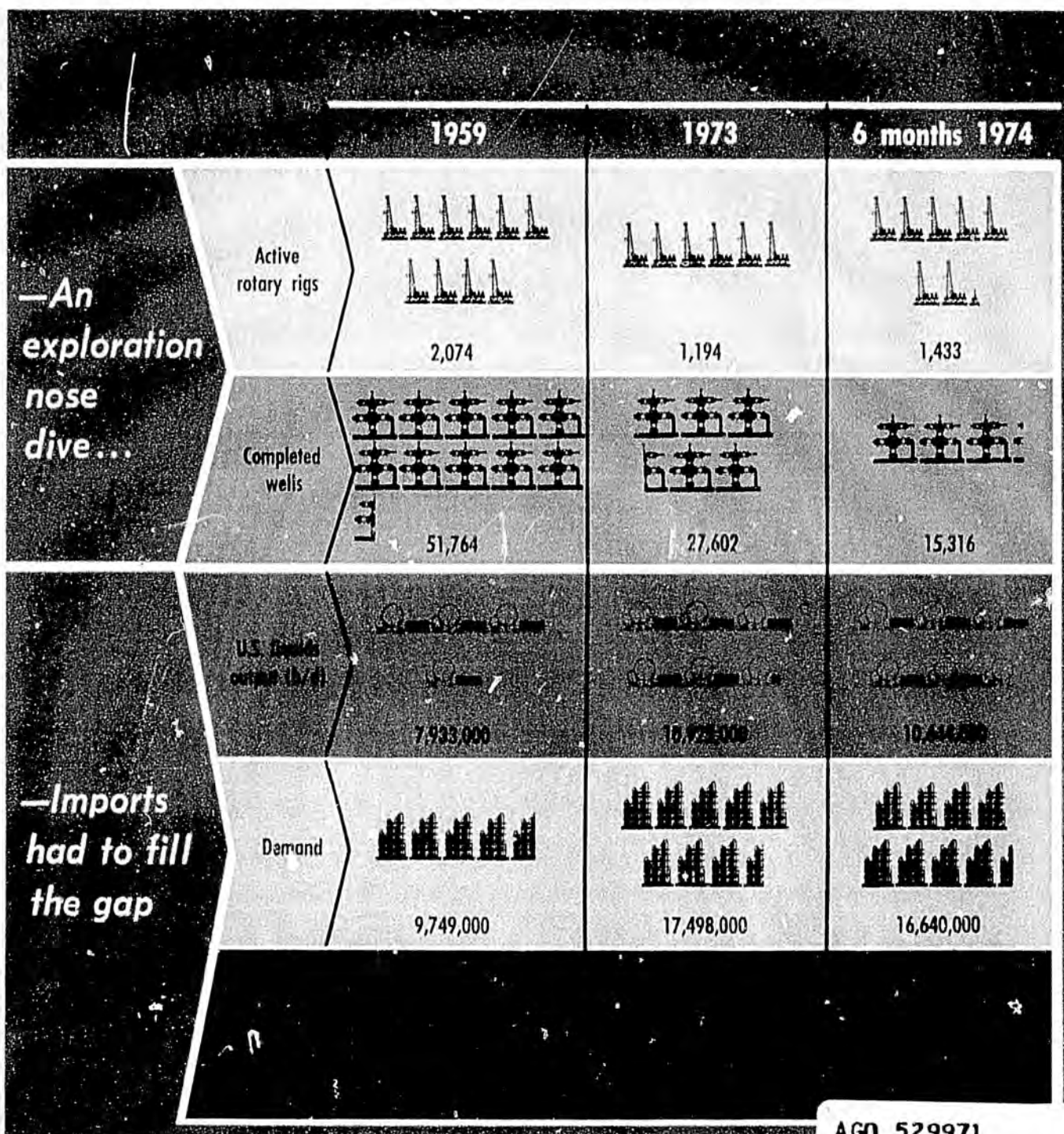
The lessons. What lessons for the future did the U.S. learn from this?

- Emergency conversion to other fuels offers little relief. The greatest opportunities are primarily in the electric-utility sector and even there are quite limited. The future in power generation is away from oil and gas to coal, and this trend will lower potential savings from conversion during an emergency, especially since the same trend also is expected in industry. NPC, however, recommends the Government

encourage dual-fuel capability in industry and environmental variances to permit coal conversion.

- Emergency domestic oil production also will be limited. The potential from existing fields is small and will decline over time as these reserves are depleted. NPC recommends, however, that the federal Government should evaluate the potential of the Naval Petroleum Reserves, complete development of the reserves, and finalize plans for use in an emergency. State and federal agencies also are urged to cooperate in developing acceptable procedures to permit emergency production of other domestic fields to make even this small degree of protection available.

- It's doubtful that voluntary conservation and curtailment measures in the future will result in more savings than achieved early this





COMPLETION of the base for the 360-mile Alyeska haul road to the North Slope paves the way for intensive construction work on the line next year—and for a major boost in domestic oil supply in 1977.

year. Continued high fuel prices, it is felt, will make conservation a way of life in this country, leaving little room for further savings in an emergency. For this reason, NPC believes the nation should develop standby emergency consumption-reduction measures strongly oriented toward consumer education and cooperation. A mandatory rationing system should be carefully developed but its use withheld until the effectiveness of other measures is fully determined.

- **An emergency petroleum-storage system** is a serious need to give the nation adequate time in a crisis to react positively to any cutoff in imports. NPC observes that "efforts to implement such a program should begin immediately because of the long construction lead times involved."

First consideration of the storage system, according to NPC, should be to provide crude-oil security to domestic refiners. It is estimated that 500 million bbl of crude storage when combined with normally available inventories will provide 90 to 180 days of supply for a large percentage range of crude imports presently foreseen.

NPC believes crude storage could be created in Gulf Coast salt-dome projects and integrated with the crude-transportation system serving Gulf Coast deepwater terminals. Storage of fuel oil at strategic locations on the East Coast also would be needed to fit specific circumstances and specific logistical problems.

Important matters to be resolved in any storage system, NPC pointed out, are the extent of government or industry financing and the administration of emergency storage and its fill.

Cost of security storage will be considerable.

The cheapest approach is storage in salt domes which could be provided for 60-85¢/bbl, if the volume to be stored exceeds 100 million bbl. This compares with a cost of \$3.80 to \$7/bbl for aboveground tank storage. Many salt domes on the Gulf Coast are capable of accommodating storage projects of several hundred million bbl and experience with such storage has proven it safe and reliable.

Leaching of several hundred million bbl of salt-dome storage could be completed in about 6 years, NPC estimated. Thus significant storage could be ready to fill about 1979.

The council recommends that security storage should not be drawn down until after (1) a proper declaration of an energy emergency by Government and (2) appropriate voluntary and mandatory standby consumption and reduction measures have been implemented.

New look at demand. Petroleum economists believe the U.S. economy as a result of the Arab action has now entered a transitional period between an era of abundant supplies of cheap energy and an era of high prices and insecure supply.

A sign of the times is what's happening to U.S. oil demand this year. It's experiencing no growth, in fact actually may decline by as much as 2% from 1973, the first downturn in many years. This trend is attributable to physical restraints early in the year and higher prices the rest of the time.

Because of increased drilling and recovery efforts, domestic oil and gas supply should decline at a slower rate this year than earlier anticipated. Import volumes should remain about equal with 1973, allowing the industry to meet current demand and rebuild inventories.

The 1974 demand experience may herald a

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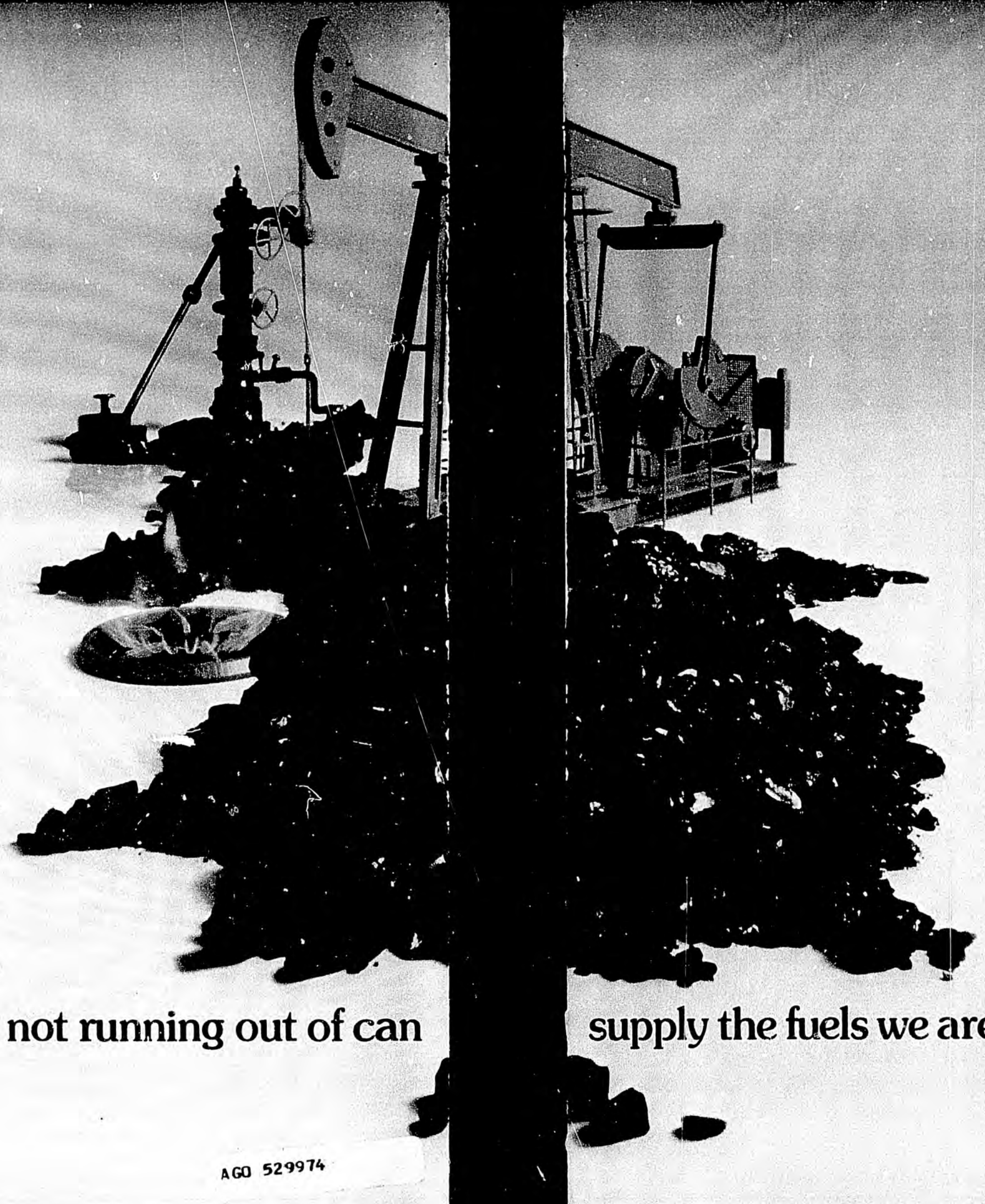
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distinct slowdown in the growth of petroleum consumption. An NPC future demand study which reflects the opinions of many private observers is based on the assumption that conservation trends will be effective and the economy will just use less energy in the future than previously assumed.

The NPC forecast was put in a framework of three possibilities—high, low and medium range. In the medium case, energy consumption is projected to grow between 1972 and 1985 at an annual average rate of 3.2% with the high range being 3.6% and the low 2.6%. These projections are all below the annual growth rate of 4.5% over the last 5 years and of the 3.7% rate over the last 25 years.

Altered projects are also evident on the supply side. Conventional domestic liquids production is expected to reverse its recent decline and grow at an average rate of 1.3% hitting 13.2 million b/d by 1985 and 13.9 million b/d by 1990. Syncrude is not expected to reach significant volumes until the mid-1980s and should be 1.2 million b/d in 1990.

Imports, in the medium case, should increase gradually from the 1973 level to 8.4 million b/d in 1985 and then gradually decline to 8.1 million b/d in 1990.

Total oil supply in this case should grow at the rate of 2.8% a year reaching 20.6 million b/d in 1980. Then, over the next 10 years, growth rate should ease off to 1.4%/year putting supply at 23.4 million b/d in 1990.

Demand abroad. The same constriction in oil demand taking place in the U.S. this year is occurring throughout the non-Communist world. The Journal's estimate, based on interviews with oil-company economists and market analysts around the world, is for a drop of up to 3% in demand this year versus 1973.

Major consuming countries everywhere are being forced to squeeze the fat out of oil consumption. Balance-of-payments positions in all of them have deteriorated badly. And governmental initiatives have been assisted by the demand-damping effect of soaring prices on the individual consumer.

The Journal sees demand in western Europe as a whole dropping about 7% this year, the U.S. down by up to 20%, and Japan holding about even—despite its almost complete dependence on crude produced by the Organization of Petroleum Exporting Countries cartel. The rest of the non-Communist world will hold about even or perhaps decline slightly.

The Journal forecast assumes normal early-winter weather worldwide, and no coal strike in the U.S. Unusually cold weather in November and December could add some 500,000 b/d to non-Communist fourth-quarter demand.



Likewise, a coal strike in the U.S. would add to demand, forcing increased oil imports and storage drawdowns.

Most market analysts expect demand to turn upward again—though modestly—next year. The composite estimate is for an increase of about 4% over 1974—far below pre-1974 gains.

Analysts all caution that trying to figure demand for 1974—even this late in the year—is difficult. Lack of a firm fix on stocks—especially in western Europe—makes it hard to determine how real demand is. There are no good primary figures available yet, and the volume of oil in secondary stocks is a complete unknown.

As a result, numbers that on their face seem to show a huge slide in demand might reflect in part a drawdown of primary and reseller stocks built up in anticipation of the late-1973 Arab oil cutback.

Future reserves. While the bulk of today's proved reserves is in the Middle East, at least one expert in the field says the bulk of those yet to be found will be proved outside the Middle East.

He is Ygnacio Bonillas, retired Standard Oil Co. of California executive. Bonillas puts current world reserves at 700 billion bbl and undiscovered reserves at 1 trillion bbl.

The Middle East today has 400 billion bbl of proved reserves, or about 60% of the world total. It has only about a third, however, of the undiscovered oil.

The U.S., which has roughly 6% of proved reserves, should contribute about 10% of the undiscovered oil. And a large new chunk, about 25%, will come from the vast but relatively poorly explored Sino-Soviet area, Bonillas predicts.

In the U.S., Bonillas counts on heavy new additions to reserves from Alaska and the Outer Continental Shelf and from a marked increase in percentage of oil recovered of that originally in place.

If the U.S. is to realize its potential in the undiscovered-reserve category, however, Bonillas says, it simply must speed up dramatically its opening and leasing of new geologic provinces. The discovery rate for oil and gas reserves in the U.S. is declining because the industry has been forced to keep on drilling in provinces that keep getting older and older. And with each discovery in such an area, conventional places to drill decline still further.

The U.S., the ex-Socal executive declares, has fallen far behind any other region with offshore potential in leasing its offshore acreage. And the result is, he says, that the U.S. is just not making as many discoveries or finding as much oil as it should.

Bonillas cites the North Sea as an example of comparative leasing practices. Ten times more acreage is under lease in the North Sea than off the U.S.—despite the much larger shelf area

with potential off the U.S. Offshore U.S. production peaked in 1971 at 1.7 million b/d and has been declining since then. In the North Sea, Bonillas says, production may reach 3-4 million b/d by 1980.

Vastly more acreage has been opened to exploration also off Africa, Southeast Asia, Australia, and Canada, although the U.S. has almost as much offshore territory as any of these areas, except for Africa.

Shortage seen for tubular goods

THE National Petroleum Council in a special study of oil-country tubular goods projects a shortage of 157,000 tons in 1974 but estimates supply and demand for steel goods will be in balance for 1975 and 1976.

This year's shortage is the chief factor in an expected drilling shortfall of some 11 million ft or 2,200 wells that possibly could be drilled with present number of drilling rigs.

The accompanying table gives the annual supply-demand breakdown for 1970-76. These considerations, however, should be borne in mind in interpreting the data:

- While total tonnage shipments projections for 1974-76 are believed reasonable, shipments less than estimates could cause a reduction in wells and footage drilled.

- Availability of imports is quite uncertain because worldwide growth in demand has overtaken the world basic steel and pipe-mill capacity. West German mills are committed to deliveries to the U.S.S.R., and substantial sales have been made by Japanese mills to the Peoples Republic of China.

- Oil and gas-well abandonments in the United States are a relatively small but important source of tubing and casing. These used tubular goods now bring prices comparable with new pipe because of the tight supply situation. Oil-well abandonments dropped from around 20,000 in 1972 to under 15,000 in 1973 and are projected to decrease even further. Gas-well abandonments which totaled about 4,000 a year in 1972 and 1973 are also expected to drop somewhat in 1974. The relative economics of abandonments for salvage vs. con-

tinued production will dictate the magnitude of this supply.

- The total tonnage of oil-country tubular goods shipped for domestic use cannot serve as a complete indication of supply-demand balance. The tight supply situation prevailing in 1974 and projected for 1975 includes grade and size availability as well as basic tonnage. All deep wells must use some high-strength casing and, if successful, high-strength tubing.

- The American Iron and Steel Institute indicates about 44% of the casing, tubing, and drill pipe shipped from U.S. mills in 1973 was high-strength material. The need for high-strength pipe is increasing and is projected to continue to rise beyond 1976. Since there is restricted capability for production of this material, there may be a continuing restraint on deep-well drilling.

- Drill pipe is in short supply

but is not a measurable constraint to drilling activity. In 1973, drill pipe represented less than 8% of total U.S. output of high-strength oil-country tubular goods. Drill-pipe manufacture is limited by the capacity of the same equipment that is used to make high-strength casing. The problem of competing for mill space is made more acute because a length of drill pipe requires twice as much mill capacity to produce as a comparable length of high-strength casing. Thus, increases in drill-pipe production at present will reduce the output of twice that length of high-strength casing.

- Present attractive economics should encourage expansion of heat-treating capacity as well as basic carbon-steel tubular production, and only a small increase of both should bring tubular supply into balance with rig availability.

Oil-country tubular goods supply-demand projection

	Thousand tons						
	Historical				Projected		
	1970	1971	1972	1973	1974	1975	1976
Demand*	1,874	1,662	1,816	1,862	2,263	2,359	2,473
Supply							
Mill output	1,307	1,404	1,277	1,436	1,956	2,317	2,432
Mill inventory				300	150		
Less exports	(88)	(81)	(95)	(198)	(300)	(300)	(300)
Plus imports	109	157	158	162	100	100	100
Miscellaneous†	546	182	476	429‡	523	492	341
Total	1,874	1,662	1,816	1,862	2,096	2,359	2,473
Shortage					167		
To inventory§				267	333	250	100

*Based on maximum rig utilization. †Use from inventory, rejects, line pipe used as oil-country goods, secondhand pipe, unreported mill shipments and unidentified imports. ‡Based on 1970-72 average, 23% of demand assumed satisfied from miscellaneous sources. §Domestic shipments to pipe-user inventory. Source: NPC 061

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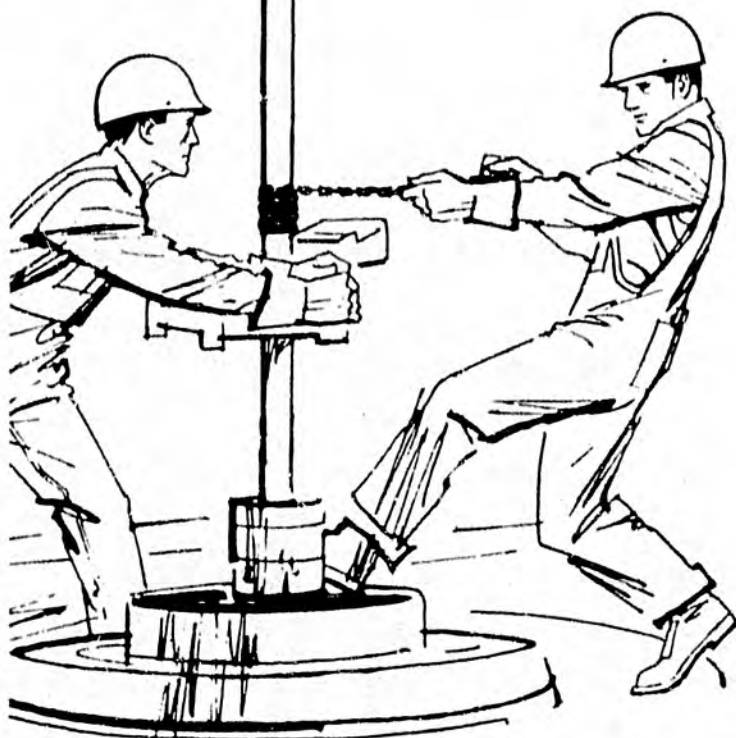
CYPAN® Drilling Mud Additive: controls filtration properties, improves stability of drilling muds and provides greater hole stability. Stable to bottom hole temperatures over 400° F. Helps lower mud costs.

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If the U.S. really wants a pronounced turnaround in domestic oil supply, Bonillas declares, it simply must open up its frontier areas—and at a much faster pace.

The job ahead. The options available to reduce U.S. dependency on overseas oil in an emergency are fairly clear.

In the short term, conservation of energy through more-efficient use of fuels and the ability to convert facilities to alternate fuels are important but at the moment limited. In the long run, a swing to heavy reliance on coal and nuclear energy, both abundant potential energy sources, will be imperative. But in both cases, full development of the nation's remaining petroleum resources is a paramount necessity.

What are the prospects of more oil and gas? They are good. Although critics have expressed disappointment at the failure of domestic oil production to make a dramatic rise in the wake of higher prices, these new price levels have sparked an upturn in drilling. And this is the necessary first step to changing production and reserve trends.

The National Petroleum Council has observed that "positive steps taken by Government, as a result of the Middle East disturbance, are in the direction of increasing the domestic energy supply." Advancing petroleum prices, accelerated offshore leasing, and approval of the Trans-Alaska pipeline have increased domestic activity, it noted.

Time, capital needed. "However, reversing the historic downward trend," NPC declared, "requires a major commitment of capital by the petroleum industry and substantial time before results are evident."

The decline in activity over the last 10 years cannot be reversed overnight. For one thing, available rigs have declined from 2,967 in 1963 to 1,824 in 1973. Many drilling contractors were forced to liquidate for lack of business, and their equipment was either exported or dismantled for spare parts.

Only activity showing any increase during the past decade was in number of gas wells drilled. These increased from some 4,800 wells in 1963 to nearly 6,400 wells last year. This was attributed largely to increased prices for natural gas in the intrastate market and the drilling needed to meet deliverability clauses of gas-sales contracts.

Drilling. The upturn in drilling started late last year and is expected to continue.

The average number of drilling rigs operating in 1973 was 1,194, but by year-end some 1,400 were operating. This level is believed to represent near maximum utilization of workable rigs available at that time, according to NPC.



By mid-1974, however, operating rigs had reached 1,500 with an average of 1,400. Rig activity is expected to rise by 1976, perhaps in 1975, to an average above 1,500, an increase of 27% over the 1973 average.

NPC forecasts that 31,800 wells will be drilled in 1974 compared with 27,551 last year, with footage drilled in 1974 reaching 160 million against 138 million. The industry should drill 33,600 wells and 172 million ft of hole in 1975 and 34,500 wells and 179 million ft in 1976.

Besides constraints imposed by lack of available rigs, domestic operators encountered severe shortages of oil-country tubular goods. NPC estimates these constraints caused deferment in 1974 of some 2,200 wells and 11 million ft of drilling.

The shortages of oil-country tubular goods arose from several causes: the substantial rise in drilling activity, a change in inventory and sales practices by the steel industry, the impact of price controls on the steel industry, and inability of steel mills to increase production rapidly.

Changes in steel-industry supply practices are an important factor in maldistribution of tubular goods. The NPC study explains what happened:

"For many years, the steel industry maintained inventories of oil-country tubulars in several strategic locations near the heaviest drilling activities. The makeup and quantities were based on customers' estimates of requirements and the sales experience of the steel industry.

"During the years of depressed drilling activity, these 'in-transit' inventories were more than adequate. While the convenience and economies to the customer-operator were obvious, the return on investment to the steel industry was unattractive. In the third quarter of 1973, each of the tubular-goods manufacturers announced that mill shipment of oil-country tubulars would be allocated based largely on each customer's purchase history, and that shipments to in-transits would be eliminated. As a consequence, each operator would have to maintain his own inventory.

"An effective drilling program must be backed up by a 'working inventory' of tubular goods, and therefore, a buildup of many individual inventories by oil companies has begun to replace the few strategic large ones. This change has substantially increased the total of

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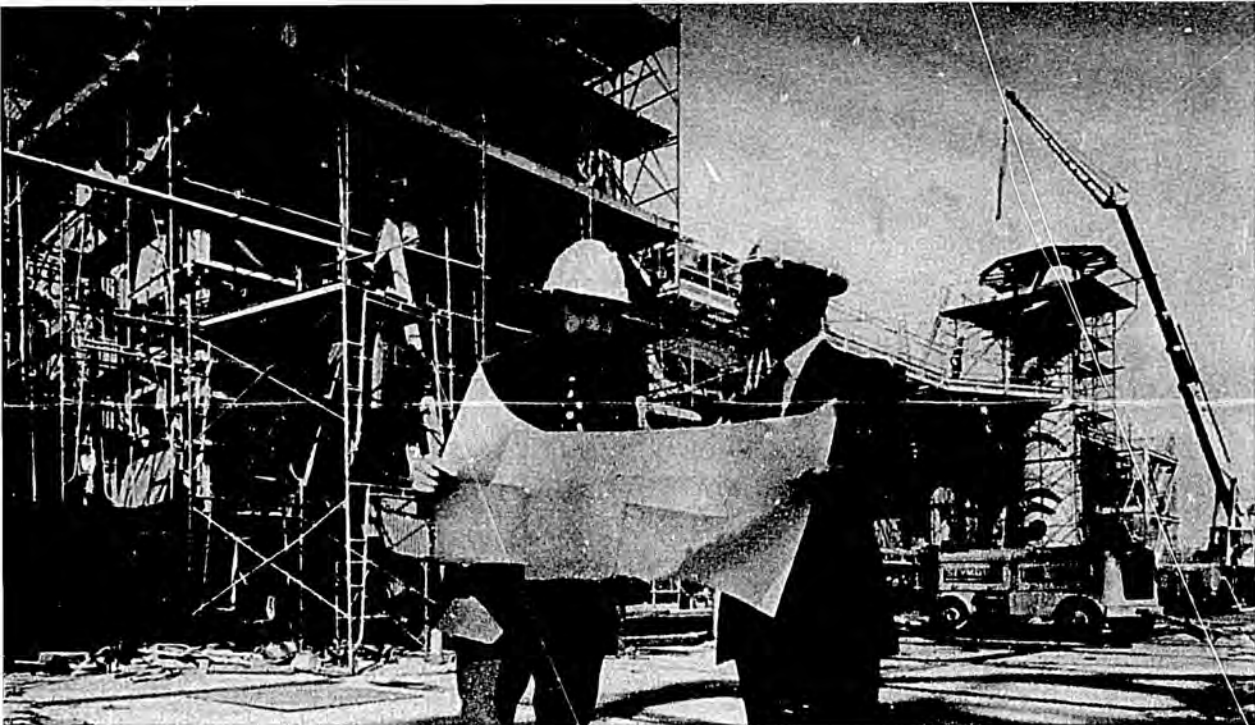
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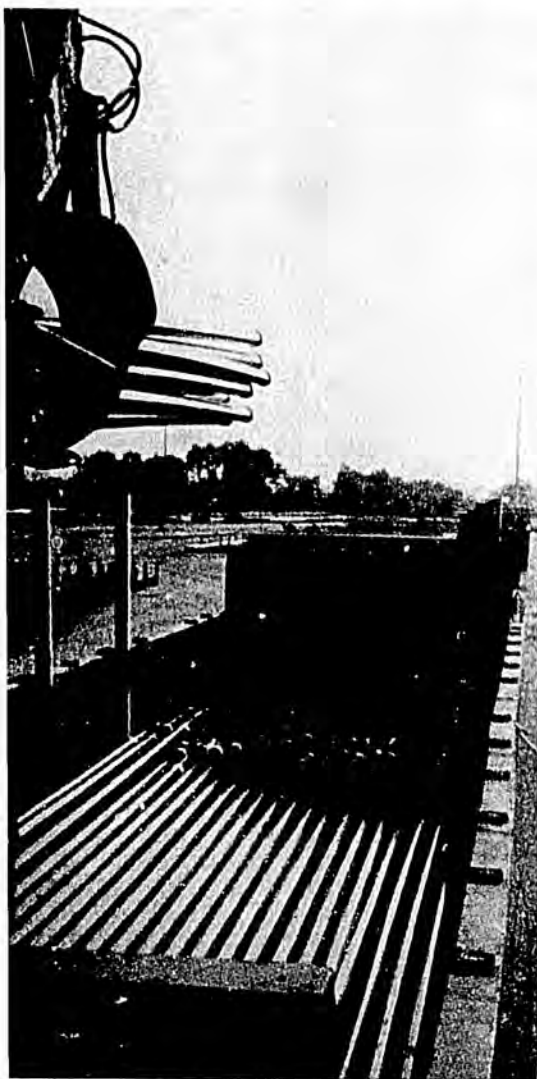
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is coming for those U.S. shallow-well drillers handcuffed casing. Output of 4½-in. O.D., the independent's bread and will mount to 5 million ft by year-end from U.S. Steel's plant since its first shipment of this size casing last May.

inventories required overall. This, coupled with the large increase in demand, will cause oil-country tubulars to remain in short supply until the inventory transition is completed.

"With the removal of price controls, increased manufacturing of tubulars has begun which speeded up the inventory transition process. Once the shift is completed, the flow of tubulars for consumption should be adequate to support drilling-rig availability, although spot shortages of high-strength casing will probably continue through 1975."

NPC observes that after 1976 the industry's ability to expand drilling will be limited by capacity to manufacture rig equipment. This could become a serious problem, complicated both by rig-plant capacity and demand for rig exports. Total new rig manufacturing is expected to increase from 135 in 1974 to 162 in 1975 and 178 in 1976; but more than half of these are believed under contract for export. The net rig additions for domestic use thus are expected to be only 34 in 1974 and 44 in 1975 and 45 in 1976.

It is estimated that 250 new rigs will have to be manufactured in 1977 to meet expanded drilling goals and that rig expansion of 30%/year from 1976 through 1980 is necessary to reach a rig level of 2,400 by 1980 required to drill at the projected rate of 250 million ft. This rate of rig additions may not be attainable, and NPC estimates that a growth rate of 10-15% annually after 1976 is more reasonable. This would allow the industry to reach a rig population of 2,900 units and drill 300 million ft by 1985.



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③ ④ ⑤ NON

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23.25 CE 4

SET DOWN TIME MINUTES	SET MIN PRODUCTION %	SET PUMP UP TIME MINUTES	SET NO. OF CYCLES
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AUTO
OFF
MANUAL



RESET



AGO 529985

However, whether these drilling goals are reached depends on rig manufacturers expanding plant capacity quickly and they cannot make decisions for the required capital investments unless assured of a continuing high level of demand for many years.

There are shortages of other materials, supplies, and equipment involved in expanding drilling—such diverse items for instance as barites, chemicals, frac sand, and wire rope. And demand is exceeding supply of pumping units and servicing rigs.

A similar situation on tubular goods, rigs, other equipment and supplies generally applies to industry activities in other areas of the world. The industry has the capability to search for oil around the world given the right economic climate and governmental cooperation.

What about oil. The big question remains: Is there enough oil and gas left to fill the world's energy needs?

For a generation, yes. Perhaps longer depending on the type of discoveries. But oil and gas are wasting resources with limitations. Eventually, the world will have to undergird its energy structure with other sources. Steps to develop these alternate sources should begin in earnest now.

A recent study made by the Institute of Gas Technology in Chicago and reported to the World Energy Conference in Detroit revealed vast world petroleum resources. It showed 633 billion bbl of oil currently proved and recoverable and another 2,685 billion bbl remaining recoverable. For natural gas 1,735 trillion cu ft is proved and recoverable and 9,740 trillion cu ft is remaining recoverable. In addition 270 billion bbl of syncrude from oil shale and bitumen are proved and 2,415 billion bbl remaining recoverable.

This study reports the United States has more than 38 billion bbl of proved oil reserves and 279 trillion cu ft of gas with 335 billion bbl of oil and 1,447 trillion cu ft of gas yet recoverable. Europe and Asia have 478 billion bbl of oil proved and 1,350 billion bbl recoverable with 964 trillion cu ft of gas proved and another 4,300 trillion recoverable. Africa has 58.9 billion bbl of proved oil reserves and 500 billion bbl recoverable with 193 trillion cu ft of gas proved and 1,700 trillion cu ft recoverable.

The United States stands in the best position of all major industrialized nations, with several unexplored potential petroleum areas. Although Gulf Coast offshore potential may level out in a few years, much importance is attached to continental shelf areas off the East Coast, Pacific Coast, and Gulf of Alaska.

A giant new field already has been discovered



in the Pacific waters off Santa Barbara where development will resume this year following a prolonged shutdown for environmental reasons. But new reserves elsewhere in the Pacific and off the Atlantic shores will take years to discover and to develop.

Alaska's North Slope will come into production in 1977, probably with an initial output close to 2 million b/d. Once the oil pipeline is built and the gas pipeline is under construction, further exploration will resume along the northern continental shores from Point Barrow to the Mackenzie Delta and beyond.

This Arctic region has great significance for the medium-range or long-range future. The technical know-how now being developed along Alaska's North Slope and into Canada's High Arctic Islands will find application off the



NORTH SEA reserves figures grow more impressive daily. And 1974's exploration bag includes the sea's biggest field yet—Statfjord in Blocks 33/9 and 33/12 in Norwegian waters. Production tests by the Mobil group at above well and two stepouts led to Norway industry ministry reserve estimate of 2 billion bbl of oil and 1.76 trillion cu ft of gas.

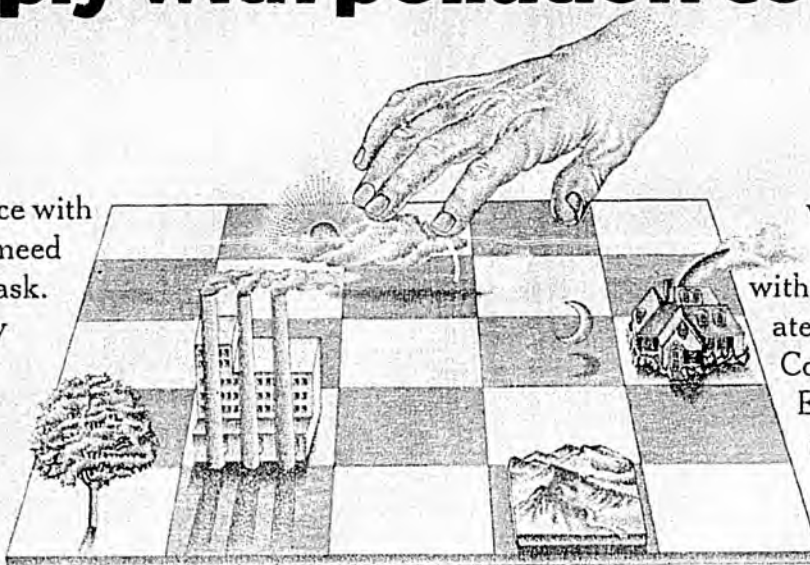
Why move heaven and earth to comply with pollution controls?

Achieving compliance with environmental laws need not be a Herculean task. But without properly managed programs and acceptable environmental studies, financial resources can be wasted.

For superior accuracy and reliability in environmental assessments, industry and government are both depending on Environmental Research & Technology. ERT has proven many times that its methods for environmental modeling, monitoring, analysis and prediction set the standards for cost effectiveness in environmental diagnosis.

When a planned activity's total environmental effect must be evaluated, ERT offers complete environmental impact assessment. ERT provides precise appraisals of the impact of design, construction and future operations of any industrial project. Because of the close liaison ERT maintains between the project sponsor and the regulatory agencies, several of ERT's assessment efforts have resulted in landmark permit approvals within very short time spans.

The company's staff of over 350 includes experienced specialists in every major discipline of environmental science. ERT uses many specially developed state-of-the-art mathematical models to provide quantitative predictions of the impact of future developments. Typically, ERT specialists first model the current conditions in an area, then validate the model through carefully designed monitoring and advanced analytical techniques. The



validated model can then be used with confidence to evaluate future conditions. Consider AIRMAP®, ERT's real-time air quality and meteorological network. Using

analytical instrumentation, telemetry equipment and computer software programs, AIRMAP provides highly reliable measurements of current air quality and very accurate predictions of air quality up to 30 hours in advance. The same talent and technology responsible for the integrated AIRMAP programs is also available in its component parts — air diffusion analysis, stack and ambient air monitoring, and air quality impact assessments.

The company's bioassay techniques, chemistry and biology laboratories, and general field experience are valuable to every aspect of water quality evaluation. Specially designed software is merged with comprehensive data gathering to simulate the effects of industrial effluents on water quality. Unique mathematical models provide an assessment framework for evaluating the physical, chemical and biological integrity of water bodies. In addition, ERT has developed advanced techniques to analyze the hydrologic cycle, including precipitation, runoff, percolation through the soil and groundwater movement.

For more information on ERT and its leadership in the field of environmental science and technology, write Ms. Karen Mathiasen, Marketing Services, Environmental Research & Technology, Inc., 696 Virginia Road, Concord, MA 01742.



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North Cape of Norway and into the waters surrounding Greenland and the Svalbard or Spitzbergen group of islands.

In more-immediate prospect, however, is additional output from established oil-producing areas across the United States. In the past 115 years, a grand total of about 60 billion metric tons of oil has been discovered. Of that, about 14 billion tons has been produced and consumed. Of the remaining oil known to be in place, roughly 4.8 billion metric tons can be economically recovered at prices that were effective in 1972.

Now that new U.S. oil has increased in value to more than \$10/bbl, more of the remaining oil can be recovered by various means. Some engineers estimate the target for eventual recovery at nearly 7 billion tons or 50 billion bbl.

Add to that prospects that were not explored or developed when oil prices were lower. Add further, marginal oil sands bypassed in thousands of wells.

None of these measures toward added recovery will contribute tremendous volumes individually. But when extrapolated by the multitude of prospects, such efforts by thousands of producers—coupled with vigorous offshore exploration and development—could reverse the U.S. oil decline. That is if the incentives remain.

North Sea spreads. Among the other industrialized nations with excellent oil and gas prospects relative to their own domestic needs stand Britain and Norway. They share the bulk of the new oil development in the North Sea.

The Netherlands enjoys a strong natural-gas position; and Germany, France, and Italy retain oil and gas potential which was by and large neglected during the lush period of cheap, plentiful foreign oil. Only Japan of all the major importers has little recourse for offsetting the economic drain with domestic output.

The North Sea is a prime example of what can happen. As one success follows another in oil and gas exploration in the waters of northwestern Europe, it is no longer appropriate to confine attention simply to the North Sea.

Hydrocarbons have now been reported in the Atlantic west of the Shetland Islands, in the Celtic Sea off southern Ireland, and in the Norwegian Sea between Norway and Greenland.

Proved gas reserves in the United Kingdom alone now stand at about 1.2 trillion cu m with potential in all British waters estimated at 3.3 trillion cu m, or in American terms 116 trillion cu ft.

Oil discoveries in the British and Norwegian sectors of the North Sea show even greater promise of improving Europe's energy self-sufficiency. On the U.K. side, existing reservoirs

indicate an annual production rate of 100 million tons or 2 million b/d by 1980. This may be doubled with new discoveries by 1983.

Norway's output, primarily from Ekofisk will approach 15 million tons next year together with about 40 million cu m of associated gas pipelined to the German coast.

Altogether, the North Sea is hailed as Britain's salvation in the current energy crisis, and its promised output will go far to aid all of Europe in a difficult period.

The new order of energy planning in the European Community calls for a daring, threefold increase in the use of natural gas from all sources by 1985. This would require the doubling of domestic production within the nine nations. Oil will remain the principal fuel as imports are supplanted by increasing production from the North Sea and elsewhere. But oil's share of total energy will decline from today's 58% to less than 40%, while natural gas assumes second position at 25% of total energy. European producers feel that these ambitious goals may be met on natural-gas production and usage by 1985.

The opportunities for successful petroleum exploration in many areas of the earth remain enormous in future potential.

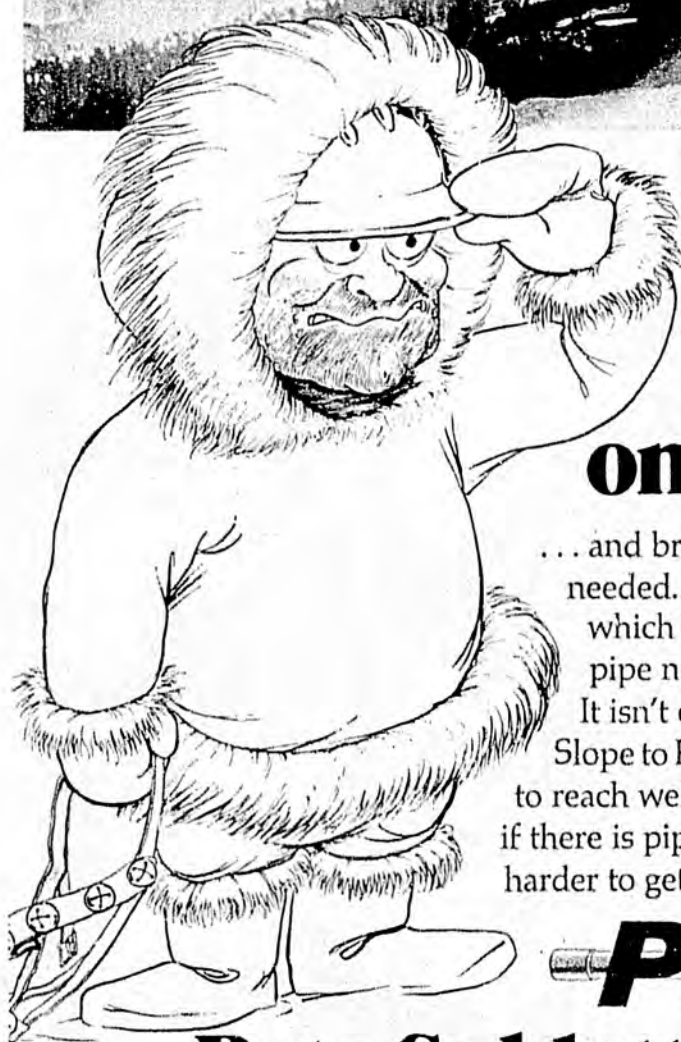
Productive capacity. Of more critical near-term importance, perhaps, is productive capacity. And here's where the U.S. is really hurting. U.S. spare producing capacity has vanished. Only a handful of U.S. fields could produce substantially more oil than they are producing now. And most if not all of them are blocked from doing so in short order because of legal or physical bottlenecks. More oil is being produced than is being found. And Lower 48 production continues its slow decline.

On the other hand, the 11 member countries of the Organization of Petroleum Exporting Countries are adding rapidly to total OPEC producing capacity—whether or not they choose to use it.

FEA credits OPEC with productive capacity in 1973 of 33.9 million b/d. By 1975, FEA predicts, this figure will soar to 41.8 million b/d, and on up to 52.9 million b/d by 1980—with a comparative leveling off then for the next 10 years to 56.2 million b/d in 1985 and 57.7 million b/d in 1990.

The biggest single contributor to the OPEC climb will be Saudi Arabia. FEA plots the Saudi gain from 8 million b/d in 1973 to 12 million in 1975, 18 million in 1980, reaching 20 million in 1985 and holding there through 1990.

Other big gainers include Abu Dhabi and its Trucial Coast neighbors and Iraq. FEA sees Abu Dhabi et al jumping from 2.7 million b/d in 1973 to 7 million b/d in 1990 and Iraq gaining



We located surplus oil well casing on the North Slope.

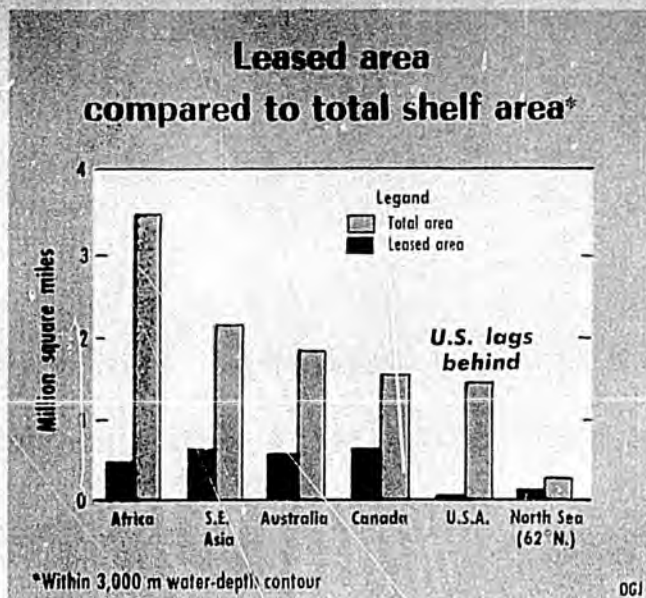
... and brought it back to the "Lower 48" where it was needed. This is an extreme example of the lengths to which Pete Sublett & Co. will go in order to meet the pipe needs of the American oil and gas industry.

It isn't every day that we arrange to fly pipe from the Slope to Fairbanks, then trans-ship it thousands of miles to reach wells on the Gulf Coast. But you can be sure that if there is pipe available, anywhere in the world, we'll try harder to get it for you. And deliver it where it's needed—to help alleviate the Energy Crisis.



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from 2.2 million to 6 million over the same period.

Modest gains are seen for Nigeria, Algeria, Iran, Indonesia, and Ecuador. Venezuelan capacity is seen dropping by 1980 then turning upward—but only if she begins development and production by then from the Orinoco heavy-oil belt.

Kuwait is forecast to hold steady at 3.5 million b/d of capacity. The only loser among the OPEC clan, FEA predicts, will be Libya which is expected to drop to 2 million b/d by 1990 from 3 million b/d in 1973.

U.S. decline slowed. While production (and productive capacity) continues to drop in the U.S., the drop is less steep than it would have been had not higher crude prices been permitted.

A broad Journal survey of U.S. oil companies came up with estimates ranging up to 200,000 b/d as the added volume of oil being produced Oct. 1 as a direct result of improved prices. That's some 2.27% of current total output of about 8.8 million b/d of crude and lease condensate. The consensus puts the figure at 100,000-200,000 b/d.

The impact of higher prices, however, is just beginning to show. All companies—from majors to the smaller independents—agree that the impact will balloon with time as new fields are developed and new enhanced-recovery projects begin to pay off.

In general, oil companies expect to see an increase in U.S. production (excluding the Alaskan North Slope) in the 1975-79 timeframe. The delay is due to the lengthy lead times required to bring new production on stream to make up for normal declines in existing wells.

Examples of industry response to higher crude prices are many and varied. They include:

- Accelerated exploration and leasing of wildcat acreage.



- Drilling of wildcat prospects and proved leases that were ignored or considered marginal at best under old prices.

- Expansion of secondary-recovery projects and stepped-up research on tertiary methods designed to increase ultimate recovery from known fields.

- Reactivation of wells that had been temporarily abandoned because they no longer were profitable at old prices.

- Lengthened life for stripper wells.

Cost is high. The industry must find over 600 billion bbl of reserves in the world between 1970-1985 to keep pace with demand, according to projections of Chase Manhattan Bank. That is about equal to present estimated proved world reserves.

The bank breaks down estimated capital costs for this tremendous task like this: About \$400 billion to find these reserves and prepare wells for production and \$370 billion for capital items beyond the wellhead, for a total of \$770 billion. Other miscellaneous capital spending and debt service will boost that to \$1.2 trillion in current dollars. A 10% annual inflation rate would increase this to \$2.2 trillion over the 15-year period and a 15% inflation rate would put the total cost at \$3.1 trillion.

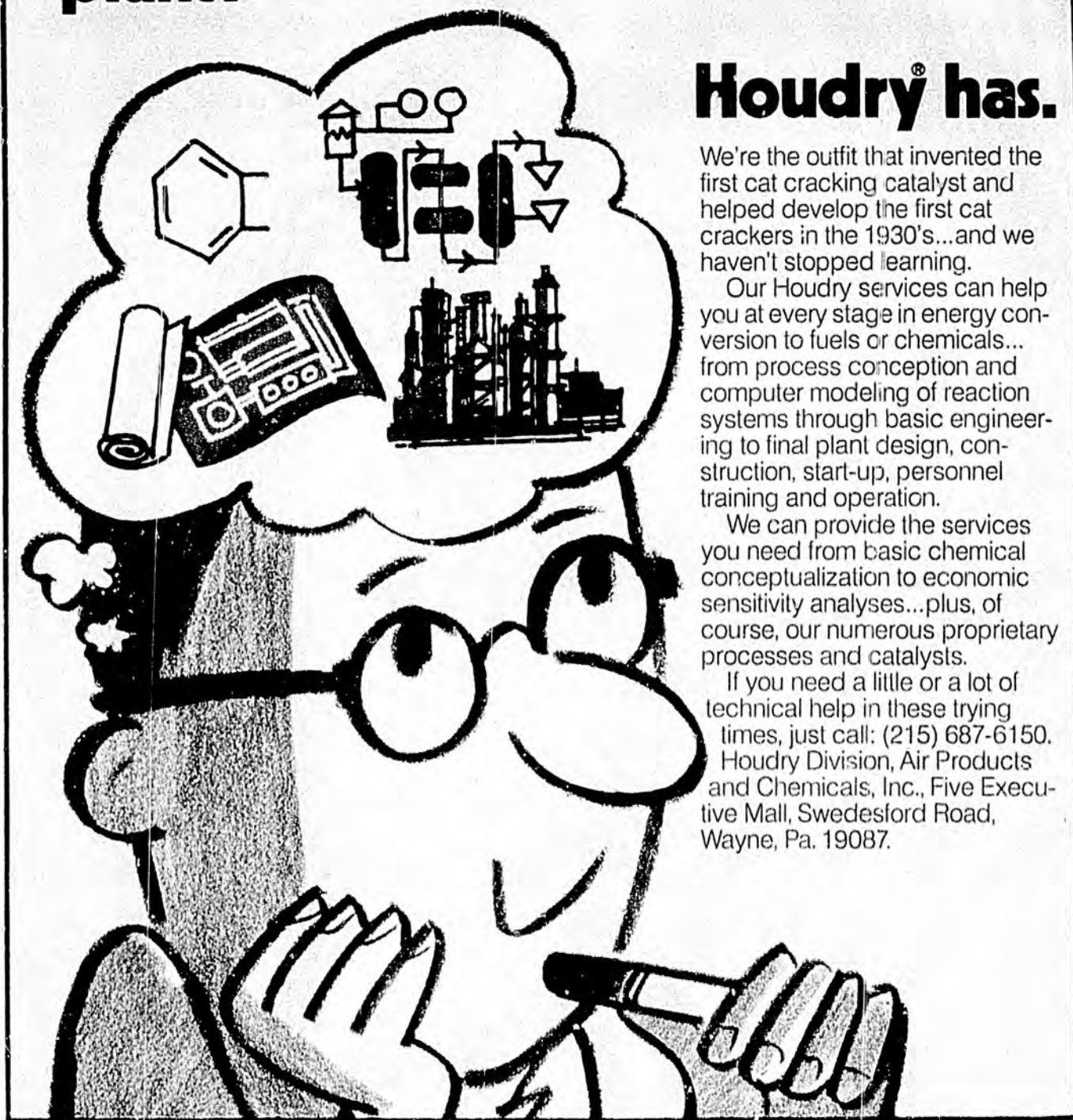
Of the original uninflated \$1.2 trillion, some \$460 billion in terms of current dollars must come from profits, and at the 10% inflation rate this figure would rocket to \$900 billion. If this inflated figure is attained, the oil industry would need profit growth of 21% a year based on 1970 earnings and 17% a year based on 1973's higher profits.

Some of the capital-spending categories are staggering. In the exploration area, nearly \$150 billion would go for drilling contractors' on such items as platforms, workboats, other offshore vehicles, and services. Another \$67 billion would go for drilling contractors' services and \$54 billion for lease equipment. Processing facilities would require \$156 billion of which \$110 billion would go for conventional refineries. Pipelines would take \$36 billion.

Can this huge amount of capital funds be generated? Probably. Speaking only of the situation in the United States, the National Petroleum Council recently observed:

"It appears that adequate capital will be available to the petroleum industry to expand exploration and drilling in line with availability

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of equipment and manpower during the 1974-76 period. Longer range, free-market prices of domestically produced hydrocarbons will be needed to generate sufficient internal capital to attract enough outside funds to increase exploration and drilling within the United States.

"Similarly, capital formation of all segments of the petroleum-service industry appears adequate to provide equipment and supplies for increased operations through 1976. But for the longer term, a clear energy policy leading toward increased development of indigenous energy supplies must be set forth to assure the service industry of steadily rising profits so that adequate plant expansion can begin soon and be financed."

The alternatives. The only real alternative for the United States and other consuming nations aside from developing greater domestic oil and gas resources is developing other sources of energy.

Reducing consumption or storing reserve supplies are short-term options. They are necessary. But used alone, conservation could adjust demand to supply only at heavy cost to human well-being and prosperity.

John W. Simpson and Philip N. Ross of Westinghouse Electric Corp., speaking to the World Energy Conference, declared that "at current growth rates, the world is simply running out of oil and gas. Since these are the fuels on which we depend for almost two-thirds of our energy needs, their potential depletion, as well as their current shortage, defines the true nature of the energy crisis.

"We must sharply reduce our disproportionate dependence upon oil and gas," they said, "by shifting to energy sources that are more plentiful—uranium and coal."

Nuclear admittedly is the greatest hope in long range. It already is accelerating under the new order of energy self-sufficiency. The European Community, for example, only recently stepped up its plans to multiply present nuclear capacity by a factor of nearly 20 by 1985. Electricity from the atom will meet 17% of Community needs by then compared with 1.5% now. The United States is off to a slower start, planning a ten-fold increase by that date.

These are impressive figures, but nuclear power will not become an important energy factor until much later. When Europeans and Americans join in learning how to harness the

fast-breeder reactor and eventually nuclear fusion, giving mankind the same power that energizes the sun, a new era in world energy will have arrived.

Coal is widely hailed as the most plentiful fossil fuel. But in recent years, competition from lower-cost oil and more recently new environmental restrictions have contributed to a steady downturn in coal production in Europe. In the Netherlands, the last coal mine is due for closing shortly. German production is declining at about 10%/year with total output approaching the 100-million-ton level. French and Belgian production follow the same downward trends. In the U.S., with more coal reserves than all other Western industrialized nations, a similar decline resulted many years ago from the inroads made by domestic oil and particularly by natural gas priced too cheaply because of federal regulation.

Coal recently seemed ready for a strong revival. Then along came new environmental laws which denied to coal many of the markets it had managed to retain. The outlook today for reversing the coal-production trend is not good. Despite the ambitious U.S. Government program for increasing output from the present 550 million tons/year to 1 billion tons by 1985, the coal industry is still bound in inaction. Price restrictions were recently lifted, but all the other impediments remain.

The escalated prices for oil have made coal potentially competitive throughout the world, but the problems of accelerating coal production are staggering, forcing this resource to rank as a long-range option.

Other alternate hydrocarbons in the form of shale oil and tar sands show some promise in North America. Their potential contributions to energy supply, of course, cannot help Europe directly. But to the extent that they permit the withdrawal of the U.S. from buying competition for world oil, they remain of interest in Europe.

The reserves of these alternate American fuels are impressive. But the rate at which they can be produced entails significant limiting factors. Shale-oil production in the Rocky Mountains will be hampered by environmentalists, shortages of capital, and shortages of process water. The most optimistic outlook is for an ultimate production rate of about 1 million b/d. The Canadian tar sands may do better than that, but they suffer the problems of remoteness, high capital, and possible national export curbs.

With all the limitations shared by nuclear power, by coal, and by alternate fuels, the greatest portion of the short-term energy load remains where it has been for years—with conventional oil and natural gas.

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Worldwide crude production

(Daily average in thousands of bbl)

	Sept. 1974	Aug.* 1974	Daily prod. 1973	Daily prod. 1974	9-month average Change from Vol %	
WESTERN HEMISPHERE						
Argentina	405.0	405.0	418.0	411.0	- 7.0	- 1.7
Bolivia	50.0	50.0	47.0	49.0	2.0	4.3
Brazil	170.0	170.0	169.0	171.0	2.0	1.2
Canada	1,615.0	1,644.0	2,127.0	1,728.0	-399.0	-10.1
Chile	30.0	30.0	32.0	29.0	- 3.0	- 9.4
Colombia	170.0	170.0	199.0	177.0	- 22.0	-11.1
Ecuador	115.0	110.0	203.0	181.0	- 22.0	-10.8
Mexico	580.0	580.0	460.0	568.0	108.0	23.5
Peru	75.0	75.0	68.0	76.0	8.0	11.8
Trinidad	180.0	180.0	165.0	176.0	11.0	6.7
United States	8,340.0	8,926.0	9,210.0	8,945.0	-265.0	- 2.9
Venezuela	2,770.0	2,859.0	3,365.0	3,026.0	-339.0	-10.1
Total	14,994.0	15,199.0	16,463.0	15,537.0	-926.0	- 5.6
WESTERN EUROPE						
Austria	45.0	45.0	49.0	46.0	- 3.0	- 6.1
Denmark	4.0	4.0	4.0	4.0		
France	25.0	25.0	26.0	23.0	- 3.0	-11.5
West Germany	120.0	117.0	131.0	122.0	- 9.0	- 6.9
Italy	20.0	20.0	15.0	19.0	4.0	26.0
Netherlands	39.0	25.0	30.0	30.0		
Norway	50.0	47.0	36.0	30.0	- 6.0	-16.7
Spain	40.0	40.0	14.0	41.0	27.0	192.9
United Kingdom	2.0	2.0	2.0	2.0		
Yugoslavia	65.0	65.0	67.0	68.0	1.0	1.5
Total	410.0	390.0	374.0	385.0	11.0	2.9
MIDDLE EAST						
Abu Dhabi	1,412.0	1,479.0	1,342.0	1,484.0	142.0	10.6
Bahrain	67.0	66.0	68.0	67.0	- 1.0	- 1.5
Dubai	235.0	243.0	238.0	232.0	- 6.0	- 2.6
Iran	5,836.0	5,956.0	5,807.0	6,074.0	267.0	4.6
Iraq	1,604.0	1,718.0	1,939.0	1,770.0	-169.0	- 8.7
Israel	100.0	100.0	100.0	100.0		
Kuwait	2,225.0	2,068.0	3,122.0	2,627.0	-495.0	-15.9
Oman	285.0	289.0	290.0	294.0	4.0	1.4
Qatar	515.0	516.0	591.0	518.0	- 73.0	-12.4
Saudi Arabia	8,780.0	8,276.0	7,845.0	8,429.0	584.0	7.4
Sharjah†	60.0	60.0		20.0		
Syria	150.0	150.0	150.0	150.0		
Turkey	65.0	65.0	65.0	65.0		
Total	21,334.0	20,986.0	21,557.0	21,830.0	273.0	1.3
ASIA-PACIFIC						
Afghanistan	0	0	0	0	0	0
Australia	471.0	290.0	368.0	363.0	- 5.0	- 1.4
Burma	20.0	20.0	20.0	20.0		
Brunei-Malaysia	378.0	375.0	314.0	367.0	53.0	16.9
India	150.0	150.0	148.0	149.0	1.0	0.7
Indonesia	1,420.0	1,350.0	1,299.0	1,459.0	160.0	12.3
Japan	15.0	15.0	15.0	15.0		
Pakistan	8.0	8.0	8.0	8.0		
Taiwan	2.0	2.0	2.0	2.0		
Thailand	0.2	0.2	0.2	0.2		
Total	2,464.2	2,210.2	2,174.2	2,383.2	209.0	9.6
AFRICA						
Algeria	900.0	950.0	1,123.0	1,077.0	- 46.0	- 4.1
Angola	20.0	20.0	14.0	20.0	6.0	42.9
Cabinda	150.0	150.0	137.0	149.0	12.0	8.8
Congo	40.0	40.0	39.0	38.0	- 1.0	- 2.6
Egypt	172.0	170.0	207.0	133.0	- 74.0	-35.7
Gabon	210.0	210.0	143.0	182.0	39.0	27.3
Libya	1,325.0	1,273.0	2,259.0	1,656.0	-603.0	-26.7
Morocco	2.0	2.0	2.0	2.0		
Nigeria	2,294.0	2,299.0	1,995.0	2,269.0	274.0	13.7
Tunisia	95.0	94.0	83.0	79.0	- 4.0	- 4.8
Total	5,208.0	5,172.0	6,002.0	5,605.0	-397.0	- 6.6
COMMUNIST						
China	900.0	900.0	860.0	900.0	40.0	4.7
Rumania	290.0	290.0	283.0	290.0	7.0	2.5
U.S.S.R.†	9,393.0	9,042.0	8,496.0	9,091.0	595.0	7.0
Other	110.0	110.0	100.0	110.0	10.0	10.0
Total	10,693.0	10,342.0	9,739.0	10,391.0	652.0	6.7
WORLD TOTAL						
	55,103.2	54,299.2	56,309.2	56,131.2	-178.0	- 0.3

*Figures adjusted †On stream July 1974. ‡Includes gas liquids.

Worldwide gas production

	(billion cu ft)	
Sept.	Aug.	1974 cum.
32.4	24.0	204.1
12.6	11.6	113.1
4.2	4.0	35.4
290.9	268.3	2,436.6
21.7	11.9	153.6
9.6	4.6	76.0
0.8	0.8	4.4
59.0	59.0	506.9
6.4	6.4	54.2
9.9	4.7	52.7
1,826.7	1,824.7	16,483.3
146.8	41.0	1,321.2
2,421.0	2,261.0	21,441.5
5.7	5.3	72.6
0	0	0
24.2	28.3	218.1
57.9	59.7	521.7
45.1	58.2	456.3
229.5	135.3	2,157.4
0	0	0
0	0	0
83.3	137.9	998.0
3.8	4.2	40.0
449.5	428.9	4,464.1
0	0	0
0.2	0.3	3.0
0	0	0
75.6	151.3	680.4
9.7	10.0	96.1
0.1	0.2	3.6
0.2	0.2	1.3
0	0	0
0.1	0.1	1.4
0	0	0
0	0	0
0	0	0
0	0	0
85.9	162.1	785.8
7.8	7.8	69.6
14.8	15.9	116.9
0.4	0.5	4.3
0.2	0.3	1.2
0.4	0.2	14.0
13.7	1.7	108.0
8.0	8.5	74.1
11.2	11.1	101.8
3.2	4.1	32.7
0	0	0
59.7	50.1	522.6
1.6	0.9	15.4
4.9	2.8	25.7
0	0	0
0.6	0.6	4.2
5.0	5.7	35.2
1.3	1.3	10.7
4.6	4.3	31.6
2.5	6.6	22.8
5.8	4.6	44.2
3.6	0.2	8.4
29.9	27.0	198.2
16.0	16.8	141.5
97.4	77.1	699.8
760.0	758.9	6,725.7
42.7	26.9	376.3
916.1	879.7	7,943.3
3,962.1	3,808.8	35,355.5

AGO 529993

328.5 mil bbl/yr

Total wells drilled in the United States*—September 1974†

Data compiled by API

State-district	Total completions								Total exploratory wells‡				
	Oil‡	Gas§	Dry holes	Total wells**	Total footage	Total wells all types||	Total footage||		Oil‡	Gas§	Dry holes	Total wildcats	Footage
Alabama	1	2	5	8	57,499	8	57,499	..	1		4	5	36,513
Alaska	2		1	3	18,153	3	18,153	...	...		1	1	7,954
Arkansas	9	4	15	28	150,374	28	150,374	...	...		5	5	32,040
California	164	5	33	202	506,251	207	528,539	6	1		20	27	159,419
North		4	15	19	101,879	19	101,879	...	1		8	9	45,840
Central Coastal	29		7	36	150,923	38	157,425	3			5	8	57,721
East Central	124	1	9	134	223,102	134	223,102	2			6	8	50,608
South	9		2	11	25,157	12	25,782	...			1	1	1,250
Offshore	2			2	5,190	4	20,351	1				1	4,000
Colorado	15	2	36	53	271,582	53	271,582	...			25	25	123,527
Florida	1		5	6	67,520	6	67,520	1			5	6	67,520
Illinois	34		42	76	184,406	78	184,964	3			18	21	55,198
Indiana	14	4	26	44	64,158	45	65,774	3	2		14	19	24,326
Kansas	104	53	131	288	803,977	292	810,435	11	3		78	92	304,174
Kentucky	19	11	29	59	87,696	60	88,608	3	2		10	15	24,180
Louisiana	64	44	108	216	1,558,482	219	1,582,976	5	4		62	71	694,602
North	32	30	34	96	400,766	96	400,766	1	3		17	21	142,121
South	15	6	53	74	706,320	75	716,720	4	1		29	34	399,314
Offshore	17	8	21	46	451,395	48	465,490	...			16	16	153,167
Michigan	12	5	32	49	251,029	53	261,708	4	5		21	30	150,280
Mississippi	1	1	31	33	236,363	33	236,363	...	1		26	27	207,142
Missouri			2	2	4,555	2	4,555	...			2	2	4,555
Montana	4	4	44	52	162,226	52	162,226	2			30	32	115,286
Nebraska	3		14	17	87,507	17	87,507	...			10	10	50,478
New Mexico	33	50	29	112	647,131	112	647,131	...	3		12	15	111,605
East	28	24	21	73	495,831	73	495,831	...	3		10	13	101,684
West	5	26	8	39	151,300	39	151,300	..			2	2	9,921
New York	13			13	15,304	17	19,325	...					
North Dakota	3		8	11	85,388	11	85,388	3			5	8	64,710
Ohio	40	61	11	112	514,445	112	514,445	5	13		1	19	94,540
Oklahoma	108	86	120	314	1,732,553	323	1,763,243	7	5		28	40	289,048
Pennsylvania	102	57	8	167	335,129	191	370,719	2	6		6	14	52,225
South Dakota	1		3	4	22,166	4	22,166	...			3	3	13,080
Tennessee	7		7	14	19,696	14	19,696	4			7	11	15,527
Texas	375	144	301	820	3,996,237	833	4,047,568	24	39		203	266	1,561,457
Dist. 1	19	1	7	27	66,128	27	66,128	1	1		6	8	25,320
Dist. 2	1	19	23	43	271,123	43	271,123	...	9		19	28	179,950
Dist. 3	34	12	30	76	470,960	76	470,960	1	8		20	29	265,296
Dist. 4	13	29	16	58	371,276	58	371,276	...	9		9	18	119,306
Dist. 5	2	1	13	16	77,639	16	77,639	...			8	8	45,699
Dist. 6	3	5	17	25	195,165	25	195,165	...	1		11	12	93,305
Dist. 7B	66	16	61	143	451,240	149	469,020	8	2		50	60	224,462
Dist. 7C	37	24	25	86	401,417	88	405,817	3	1		14	18	51,933
Dist. 8	86	11	14	111	564,444	112	570,708	3	5		10	18	138,174
Dist. 8A	34	7	22	63	337,769	67	360,656	...			11	11	73,900
Dist. 9	53	3	44	100	290,066	100	290,066	7	2		24	33	133,669
Dist. 10	27	16	22	65	440,433	65	440,433	1	1		14	16	151,866
Offshore			7	7	58,577	7	58,577	...			7	7	58,577
Utah	10		2	12	75,444	12	75,444	...			1	1	5,015
Virginia		3		3	15,411	3	15,411	...					
West Virginia	41	59	18	118	307,269	118	307,269	2	3		4	9	26,401
Wyoming	20	5	30	55	398,137	55	398,137	1	2		23	26	193,575
Total—Sept. 1974	1,200	600	1,091	2,891	12,676,090	2,961	12,864,725	86	90		624	800	4,490,377
Total Aug. 1974	1,210	555	968	2,733	12,409,855	2,814	12,619,981	62	66		536	694	3,942,903
Cum. 1974	9,160	5,232	8,362	22,754	110,068,952	23,481	111,822,062	597	839		4,811	6,247	36,881,904
Cum. 1973	7,193	4,375	7,311	18,879	94,668,545	19,604	96,459,242	457	535		4,185	5,207	...

*Does not include miscellaneous drilling not related to oil and gas exploration and production. †Covers reports of completed or abandoned wells received by the API during the period from Aug. 24, 1974, through Sept. 27, 1974. ‡Includes multiple completion wells which produce gas from one or more zones but oil from at least one zone. A multiple completion well is counted as one well. §Includes multiple completion wells that produce gas from all zones. A multiple completion well is counted as one well. Gas wells also include so-called condensate wells. ¶Exploratory wells include: new-field wildcats, new-pool wildcats, deeper-pool tests, shallower-pool tests and outpost (extension) tests. ||Includes two strat tests and 68 service wells, 4,400 and 184,235 ft. **Excludes service wells, strat, and core tests.

Worldwide crude production

(Daily average in thousands of bbl)

	Aug. 1974	July* 1974	Daily prod. 1973	8-month average Daily prod. 1974	Change from Vol	%
WESTERN HEMISPHERE						
Argentina	405.0	405.0	419.0	411.0	- 8.0	- 1.9
Bolivia	50.0	50.0	48.0	48.0		
Brazil	170.0	170.0	169.0	171.0	2.0	1.2
Canada	1,644.0	1,676.0	1,793.0	1,748.0	- 45.0	- 2.5
Chile	30.0	30.0	32.0	30.0	- 2.0	- 6.3
Colombia	170.0	170.0	199.0	173.0	- 26.0	-13.1
Ecuador	110.0	85.0	202.0	190.0	- 12.0	- 5.9
Mexico	160.0	600.0	459.0	572.0	113.0	24.6
Peru	75.0	75.0	68.0	76.0	8.0	11.8
Trinidad	170.0	170.0	164.0	172.0	8.0	4.9
United States	8,926.0	8,955.0	9,227.0	8,957.0	-268.0	- 2.9
Venezuela	2,850.0	2,940.0	3,362.0	3,056.0	-306.0	- 9.1
Total	15,200.0	15,326.0	16,142.0	15,606.0	-536.0	- 3.3
WESTERN EUROPE						
Austria	45.0	45.0	49.0	47.0	- 2.0	- 4.1
Denmark	4.0	4.0	4.0	4.0		
France	25.0	25.0	26.0	24.0	- 2.0	- 7.7
West Germany	120.0	120.0	131.0	123.0	- 8.0	- 6.1
Italy	20.0	20.0	15.0	20.0	5.0	33.3
Netherlands	25.0	30.0	30.0	29.0	- 1.0	- 3.3
Norway	47.0	47.0	35.0	27.0	- 8.0	-22.9
Spain	41.0	40.0	13.0	41.0	28.0	215.4
United Kingdom	2.0	2.0	2.0	2.0		
Yugoslavia	65.0	65.0	67.0	67.0		
Total	394.0	398.0	372.0	384.0	12.0	3.2
MIDDLE EAST						
Abu Dhabi	1,479.0	1,641.0	1,338.0	1,493.0	155.0	11.6
Bahrain	66.0	67.0	68.0	67.0	- 1.0	- 1.5
Dubai	245.0	245.0	233.0	240.0	7.0	3.0
Iran	5,956.0	6,064.0	5,810.0	6,103.0	293.0	5.0
Iraq	1,440.0	1,635.0	1,919.0	1,755.0	-164.0	- 8.5
Israel	100.0	100.0	100.0	100.0		
Kuwait	2,076.0	2,286.0	3,072.0	2,678.0	-394.0	-12.8
Oman	289.0	288.0	288.0	295.0	7.0	2.4
Qatar	516.0	520.0	588.0	518.0	- 70.0	-11.9
Saudi Arabia	8,284.0	8,778.0	7,755.0	8,387.0	632.0	8.1
Sharjah†	50.0	50.0	0	8.5	8.5	
Syria	150.0	150.0	150.0	150.0		
Turkey	65.0	65.0	65.0	66.0	1.0	1.5
Total	20,716.0	21,889.0	21,386.0	21,860.5	474.5	2.2
ASIA-PACIFIC						
Afghanistan	0	0	0	0	0	0
Australia	290.0	313.0	367.0	350.0	- 17.0	- 4.6
Burma	20.0	20.0	20.0	20.0		
Brunei-Malaysia	375.0	375.0	313.0	366.0	53.0	16.9
India	150.0	150.0	148.0	149.0	1.0	0.7
Indonesia	1,417.0	1,450.0	1,284.0	1,465.0	171.0	13.2
Japan	15.0	15.0	15.0	15.0		
Pakistan	8.0	8.0	8.0	8.0		
Taiwan	2.0	2.0	2.0	2.0		
Thailand	0.2	0.2	0.2	0.2		
Total	2,277.2	2,333.2	2,167.2	2,375.2	208.0	9.6
AFRICA						
Algeria	850.0	900.0	1,122.0	1,019.0	-103.0	- 9.2
Angola	20.0	20.0	14.0	20.0	6.0	42.9
Cabinda	145.0	145.0	135.0	147.0	12.0	8.9
Congo	37.0	37.0	38.0	36.0	- 2.0	- 5.3
Egypt	155.0	160.0	206.0	113.0	- 93.0	-45.1
Gabon	155.0	160.0	140.0	161.0	21.0	15.0
Libya	1,394.0	1,583.0	2,256.0	1,785.0	-471.0	-20.9
Morocco	2.0	2.0	2.0	2.0		
Nigeria	2,100.0	2,196.0	1,977.0	2,240.0	263.0	13.3
Tunisia	65.0	65.0	83.0	66.0	- 17.0	-20.5
Total	4,922.0	5,268.0	5,973.0	5,589.0	-384.0	6.4
COMMUNIST						
China	900.0	900.0	860.0	900.0	40.0	4.7
Rumania	290.0	290.0	283.0	290.0	7.0	2.5
U.S.S.R.†	9,042.0	9,207.0	8,450.0	9,042.0	592.0	7.0
Other	110.0	110.0	100.0	110.0	10.0	10.0
Total	10,342.0	10,507.0	9,693.0	10,342.0	649.0	6.7
WORLD TOTAL	53,851.2	55,721.0	55,733.2	56,156.7	423.5	1.0

*Figures adjusted. †On stream July 1974. ‡Includes gas liquids.

Worldwide gas production

	Aug. 1974	July 1974	1974 cum.
(billion cu ft)			
Argentina	24.0	24.0	171.7
Bolivia	11.6	11.9	100.5
Brazil	4.0	4.7	31.2
Canada	268.3	260.2	2,145.7
Chile	11.9	19.1	131.9
Colombia	4.6	10.8	66.4
Ecuador	0.8	0.7	3.6
Mexico	59.0	55.0	447.9
Peru	6.4	6.1	47.8
Trinidad	4.7	5.2	42.8
United States	1,824.7	1,822.7	14,656.6
Venezuela	41.0	41.0	784.1
Total	2,261.0	2,261.4	18,630.2
WESTERN EUROPE			
Austria	5.3	5.4	66.9
Denmark	0	0	0
France	28.3	24.2	193.9
West Germany	59.7	58.9	463.8
Italy	58.2	55.1	411.2
Netherlands	135.3	203.2	1,927.9
Norway	0	0	0
Spain	0	0	0
United Kingdom	137.9	93.0	914.7
Yugoslavia	4.2	4.7	36.2
Total	428.9	444.5	4,014.6
MIDDLE EAST			
Abu Dhabi	0	0	0
Bahrain	0.3	0.5	2.8
Dubai	0	0	0
Iran	151.3	159.2	1,183.1
Iraq	10.0	10.1	86.4
Israel	0.2	0.1	3.5
Kuwait	0.2	0.1	1.1
Oman	0	0	0
Qatar	0.1	0.1	1.3
Saudi Arabia	0	0	0
Sharjah†	0	0	0
Syria	0	0	0
Turkey	0	0	0
Total	162.1	170.1	1,278.2
ASIA-PACIFIC			
Afghanistan	7.8	7.8	61.8
Australia	15.9	15.0	102.1
Burma	0.5	0.5	3.9
Brunei-Malaysia	0.3	0.3	1.0
India	0.2	0.3	13.6
Indonesia	1.7	1.8	100.1
Japan	8.5	16.1	66.1
Pakistan	11.1	9.1	90.6
Taiwan	4.1	4.0	29.5
Thailand	0	0	0
Total	50.1	65.4	468.7
AFRICA			
Algeria	0.9	1.7	13.8
Angola	2.8	3.0	20.8
Cabinda	0	0	0
Congo	0.6	0.4	3.6
Egypt	5.7	5.1	30.2
Gabon	1.3	1.2	9.4
Libya	4.3	4.2	27.0
Morocco	6.6	1.8	20.3
Nigeria	4.6	5.2	38.4
Tunisia	0.2	0.4	4.8
Total	27.0	23.0	168.3
COMMUNIST			
China	16.8	17.1	125.5
Rumania	77.1	78.2	602.4
U.S.S.R.†	758.9	724.6	5,965.7
Other	26.9	38.0	333.6
Total	879.7	857.9	7,027.2
WORLD TOTAL	3,808.8	3,822.3	31,587.2

Gasoline prices

(Suggested prices for major-brand regular)

	Price ex. tax	Pump price	Pump price
	10-22-74	10-22-74	10-23-73
Albany	42.9	54.9	41.6
Albuquerque	43.9	54.9	37.9
Amarillo	40.1	49.1	33.9
—Atlanta	42.1	53.6	39.0
—Baltimore	39.6	52.6	40.6
Birmingham	39.9	51.9	39.6
—Boston*	42.1	53.6	39.9
Buffalo	42.9	54.9	41.6
Charlotte	39.9	52.9	40.6
Cheyenne	44.9	55.9	41.6
—Chicago*	41.6	54.6	42.1
Cleveland	40.9	51.9	39.6
Corpus Christi	40.6	49.6	33.9
Dallas	40.6	49.6	33.9
Denver	44.9	55.9	40.6
Des Moines	41.0	52.0	37.9
Detroit	39.5	52.5	41.6
Fort Worth	40.6	49.6	33.9
Houston	40.6	49.6	33.9
Indianapolis	41.9	53.9	41.6
Jacksonville	39.9	51.9	39.6
Kansas City	43.9	54.9	39.6
Little Rock	39.5	51.0	36.9
Louisville	42.9	53.9	41.6
Los Angeles	39.8	50.8	38.9
Memphis	41.0	52.0	37.9
—Miami	41.6	53.6	39.0
Milwaukee	41.9	52.9	40.6
Minn.-St. Paul	42.0	53.0	38.9
—Newark	43.6	54.6	40.9
New Orleans	38.9	50.9	38.6
New York*	44.6	57.6	44.6
—Norfolk	39.6	52.6	38.9
Okla. City	43.3	53.9	36.9
Omaha	41.4	53.9	41.6
Philadelphia	39.9	52.9	39.6
Phoenix	42.8	53.8	39.9
Pittsburgh	39.9	52.9	39.6
Portland, Ore.	41.8	52.8	39.9
Salt Lake City	42.9	53.9	38.6
San Antonio	40.1	49.1	33.9
San Diego	40.4	51.4	38.9
San Francisco	41.0	52.0	39.9
Seattle	40.4	53.4	39.9
Spokane	40.4	53.4	40.9
Springfield, Ill.*	42.0	55.0	40.9
St. Louis	42.0	53.0	40.6
—Tampa	41.6	53.6	39.0
Texarkana	40.1	49.1	33.9
Tulsa	40.4	51.0	36.9
Wichita	40.9	51.9	39.6
Wichita Falls	40.1	49.1	33.9
Week's avg.	41.37	52.68	38.90
Sept. avg.	43.32	54.63	37.84
Aug. avg.	43.36	54.67	37.99
1974 to date	40.20	51.48	
1973 to date	26.96	38.46	

+ Increase, — decrease from previous week. *Pump price includes local tax ranging from 0.5 to 2.0 cents/gal.

Refined-products prices

Following quotations are realistic spot prices for refined products moving intrastate on Tuesday each week. They may differ from refiners' prices for branded products. They should not be considered as postings.

Light products are in cents per gallon. Residual prices are in dollars per barrel.

Gasoline

Mid-Continent (Group 3):

Regular (92 octane)	26.75-30.00
Premium (99 octane)	28.75-32.00

California (rack) Los Angeles:

—Regular (91 octane)	25.00-31.50
—Regular (95 octane)	26.10-32.50
—Premium (100 octane)	27.40-33.50

Chicago:

Regular (94 octane)	28.00-33.00
Premium (100 octane)	30.00-35.00

Kerosine, distillate

Chicago:

+Distillate No. 1	27.50-33.50
+Distillate No. 2	26.50-32.00

Gulf Coast (cargoes):

Kerosine (42-43)	27.50-29.00
Distillate No. 2	26.50-28.00

Mid-Continent (Group 3):

Kerosine (42-44)	27.25-29.25
Diesel oil (58 d.i. & above)	27.00-30.00
Distillate No. 1	26.50-29.50
Distillate No. 2	25.50-27.50

New York Harbor (barges):

Kerosine (42-44)	28.05-33.75
Distillate No. 2	27.50-29.25
Diesel fuel (48-52 di.)	27.80

Residual fuel

Mid-Continent (Group 3):

No. 6 (max 1% S)	\$10.30
No. 6 (over 1% S)	\$ 9.30

Chicago:

No. 6 (max. 1% S)	\$13.86
No. 5 (max. 1% S)	\$14.70

New York Harbor (barges):

No. 6 (max. 0.3% S)	\$13.03-14.13
+No. 5 (0.3% S)	\$13.41-14.38

API reports of crude and products

(Thousands of barrels daily)

	DISTRICTS 1-4			DISTRICT 5			TOTAL U.S.		
	10-18 1974	10-11 1974	10-19 1973	10-18 1974	10-11 1974	10-19 1973	10-18 1974	10-11 1974	10-19 1973
Gasoline	259	225	153	10	10		269	235	153
Special Naphthas									
Kerosine	5	5					5	5	
Distillate	218	282	341	10	10	21	228	292	362
No. 4 Fuel Oil	40	53	63				40	53	63
Residual	1,663	1,511	1,687	50	50	41	1,713	1,561	1,728
Jet Fuel (Naphtha)			1	2	2	5	2	2	6
Jet Fuel (Kerosine)	98	160	125	58	56	56	156	216	181
Asphalt	21	19	40				21	19	40
LP-Gas	111	106	69	18	14	12	129	120	81
Petrochem Feedstocks	32	20	1				32	20	1
Unfinished	115	84	71	10	10	39	125	94	110
Plant Condensate	89	72	75	5	5	8	94	77	83
Total Prod.	2,651	2,537	2,626	163	157	182	2,814	2,694	2,808
Canadian Crude	541	450	698	242	101	55	783	551	763
Other Foreign	2,275	2,546	2,178	567	568	981	2,842	3,114	3,149
Total Crude	2,816	2,996	2,876	809	669	1,036	3,625	3,665	3,912
Total Imports	5,467	5,533	5,502	972	826	1,218	6,439	6,359	6,720

Worldwide crude production

(Daily average in thousands of bbl)

	July 1974	June* 1974	Daily prod. 1973	7-month average Daily prod. 1974	Change from Vol. %	
WESTERN HEMISPHERE						
Argentina	405.0	406.0	419.0	412.0	- 7.0	- 1.7
Bolivia	50.0	50.0	48.0	49.0	1.0	2.1
Brazil	170.0	170.0	169.0	171.0	2.0	1.2
Canada	1,676.0	1,682.0	1,789.0	1,770.0	- 19.0	- 1.1
Chile	30.0	30.0	32.0	30.0	- 2.0	- 6.3
Colombia	175.0	175.0	199.0	175.0	- 24.0	-12.1
Ecuador	200.0	230.0	201.0	228.0	27.0	13.4
Mexico	600.0	575.0	457.0	568.0	111.0	24.3
Peru	75.0	75.0	67.0	76.0	9.0	13.4
Trinidad	170.0	170.0	164.0	172.0	8.0	4.9
United States	8,955.0	8,940.0	9,236.0	8,969.0	-267.0	- 2.9
Venezuela	2,940.0	2,944.0	3,360.0	3,086.0	-274.0	- 8.2
Total	15,446.0	15,447.0	16,141.0	15,706.0	-435.0	- 2.7
WESTERN EUROPE						
Austria	45.0	45.0	49.0	47.0	- 2.0	- 4.1
Denmark	4.0	4.0	4.0	4.0		
France	25.0	25.0	27.0	24.0	- 3.0	-11.1
West Germany	123.0	122.0	131.0	124.0	- 7.0	- 5.3
Italy	20.0	20.0	15.0	20.0	5.0	33.3
Netherlands	30.0	30.0	29.0	30.0	1.0	3.4
Norway	47.0	38.0	36.0	24.0	- 12.0	-33.3
Spain	44.0	44.0	12.0	42.0	30.0	250.0
United Kingdom	2.0	2.0	2.0	2.0		
Yugoslavia	65.0	65.0	67.0	68.0	1.0	1.5
Total	405.0	395.0	372.0	385.0	13.0	3.5
MIDDLE EAST						
Abu Dhabi	1,641.0	1,581.0	1,339.0	1,495.0	156.0	11.7
Bahrain	67.0	67.0	68.0	68.0		
Dubai	295.0	243.0	225.0	241.0	16.0	7.1
Iran	6,064.0	6,063.0	5,826.0	6,125.0	299.0	5.1
Iraq	1,635.0	1,584.0	1,903.0	1,784.0	-119.0	- 6.3
Israel	100.0	100.0	100.0	100.0		
Kuwait	2,286.0	2,869.0	3,075.0	2,764.0	-311.0	-10.1
Oman	288.0	296.0	287.0	296.0	9.0	3.1
Qatar	518.0	520.0	591.0	518.0	- 73.0	-12.4
Saudi Arabia	8,778.0	8,870.0	7,650.0	8,401.0	751.0	9.8
Sharjah†	50.0					
Syria	150.0	150.0	150.0	150.0		
Turkey	65.0	65.0	64.0	66.0	2.0	3.1
Total	21,937.0	22,408.0	21,278.0	22,008.0	730.0	3.4
ASIA-PACIFIC						
Afghanistan						
Australia	313.0	325.0	364.0	358.0	- 6.0	- 1.6
Burma	20.0	20.0	20.0	20.0		
Brunei-Malaysia	375.0	375.0	311.0	364.0	53.0	17.0
India	150.0	150.0	148.0	149.0	1.0	0.7
Indonesia	1,469.0	1,488.0	1,285.0	1,478.0	193.0	15.0
Japan	15.0	15.0	15.0	15.0		
Pakistan	8.5	8.5	8.5	8.5		
Taiwan	2.0	2.0	2.0	2.0		
Thailand	0.2	0.2	0.2	0.2		
Total	2,352.7	2,383.7	2,153.7	2,394.7	241.0	11.2
AFRICA						
Algeria	900.0	950.0	1,110.0	1,044.0	- 66.0	- 5.9
Angola	20.0	20.0	14.0	20.0	6.0	42.9
Cabinda	145.0	145.0	133.0	148.0	15.0	11.3
Congo	37.0	37.0	37.0	36.0	- 1.0	- 2.7
Egypt	160.0	160.0	205.0	107.0	- 98.0	-47.8
Gabon	160.0	160.0	138.0	162.0	24.0	17.4
Libya	1,583.0	1,775.0	2,277.0	1,842.0	-435.0	-19.1
Morocco	1.0	1.0	1.0	1.0		
Nigeria	2,196.0	2,336.0	1,958.0	2,283.0	325.0	16.6
Tunisia	65.0	65.0	84.0	66.0	- 18.0	-21.4
Total	5,267.0	5,649.0	5,957.0	5,709.0	-248.0	- 4.2
COMMUNIST						
China	900.0	900.0	860.0	900.0	40.0	4.7
Rumania	290.0	290.0	283.0	290.0	7.0	2.5
U.S.S.R.†	9,207.0	9,198.0	8,385.0	9,056.0	671.0	8.0
Other	110.0	110.0	100.0	110.0	10.0	10.0
Total	10,507.0	10,498.0	9,628.0	10,356.0	728.0	7.6
WORLD TOTAL	55,914.7	56,760.7	55,529.7	56,558.7	1,029.0	1.9

*Figures adjusted. †On stream July 1974. ‡Includes gas liquids.

Worldwide gas production

(billion cu ft)

	July* 1974	June 1974	1977 cum.
WESTERN HEMISPHERE			
Argentina	24.0	21.5	147.7
Bolivia	11.9	12.0	88.9
Brazil	4.7	3.9	27.2
Canada	260.2	259.7	1,877.4
Chile	19.1	20.1	120.0
Colombia	10.8	11.9	61.8
Ecuador	0.7	0.5	2.8
Mexico	55.0	53.9	388.9
Peru	6.1	4.9	41.4
Trinidad	5.2	4.8	38.1
United States	1,897.7	1,710.2	12,987.1
Venezuela	41.0	35.0	743.1
Total	2,336.4	2,138.4	16,524.4
WESTERN EUROPE			
Austria	5.4	8.9	61.6
Denmark	24.2	22.1	165.6
France	58.9	49.9	404.1
West Germany	55.1	49.9	353.0
Italy	203.2	264.6	1,792.6
Netherlands	93.0	98.5	776.8
Norway	4.7	4.7	32.0
Spain	44.5	49.5	3,585.7
United Kingdom	4.7	4.7	32.0
Yugoslavia	4.7	4.7	32.0
Total	444.5	498.5	3,585.7
MIDDLE EAST			
Abu Dhabi	0.5	0.4	2.5
Bahrain	159.2	149.6	1,031.8
Dubai	10.1	11.1	76.4
Iran	0.1	0.2	3.3
Iraq	0.1	0.1	0.9
Israel	0.1	0.2	1.2
Kuwait	0.1	0.2	1.2
Oman	0.1	0.2	1.2
Qatar	0.1	0.2	1.2
Saudi Arabia	0.1	0.2	1.2
Sharjah†	0.1	0.2	1.2
Syria	0.1	0.2	1.2
Turkey	0.1	0.2	1.2
Total	170.1	161.6	1,116.1
ASIA-PACIFIC			
Afghanistan	7.8	7.9	54.0
Australia	15.0	14.8	86.2
Burma	0.5	0.4	3.4
Brunei-Malaysia	0.3	0.2	0.7
India	1.8	2.1	13.4
Indonesia	16.1	14.0	98.4
Japan	9.1	8.6	57.6
Pakistan	10.8	11.1	79.5
Taiwan	4.0	3.2	25.4
Thailand	4.0	3.2	25.4
Total	65.4	62.3	418.6
AFRICA			
Algeria	1.7	1.9	12.9
Angola	3.0	2.3	18.0
Cabinda	0.4	0.6	3.0
Congo	5.1	4.5	24.5
Egypt	1.2	1.3	8.1
Gabon	4.2	4.9	22.7
Libya	1.8	2.0	13.7
Morocco	5.2	4.7	33.8
Nigeria	0.4	0.5	4.6
Tunisia	0.4	0.5	4.6
Total	23.0	23.2	141.3
COMMUNIST			
China	17.1	16.0	108.7
Rumania	78.2	77.1	525.3
U.S.S.R.†	724.6	723.7	5,207.7
Other	38.0	31.9	306.7
Total	857.9	848.7	6,148.4
WORLD TOTAL	3,897.3	3,732.8	27,934.5

Gasoline prices

(Suggested prices for major-brand regular)

	Price ex. tax 9-17-74	Pump price 9-17-74	Pump price 9-18-73
Albany	45.9	57.9	39.9
Albuquerque	46.9	57.9	37.9
Amarillo	41.1	50.1	33.9
Atlanta	42.2	55.7	38.9
Baltimore	42.9	55.9	38.9
Birmingham	42.9	54.9	37.9
Boston*	44.2	55.7	38.9
Buffalo	45.9	57.9	39.9
Charlotte	42.9	55.9	38.9
Cheyenne	47.9	58.9	39.9
Chicago*	45.6	58.6	40.4
Cleveland	43.9	54.9	37.9
Corpus Christi	41.6	50.6	33.9
Dallas	41.6	50.6	33.9
Denver	47.9	58.9	38.9
+ Des Moines	41.0	52.0	37.9
Detroit	42.5	55.5	39.9
Fort Worth	41.6	50.6	33.9
Houston	41.6	50.6	33.9
Indianapolis	44.9	56.9	39.9
Jacksonville	42.9	54.9	37.9
Kansas City	46.9	57.9	37.9
+ Little Rock	39.5	51.0	36.9
Louisville	45.9	56.9	37.9
Los Angeles	41.1	52.1	37.9
+ Memphis	41.0	52.0	37.9
Miami	43.7	55.7	38.9
Milwaukee	44.9	55.9	38.9
+ Minn. St. Paul	42.0	53.0	38.9
Newark	45.7	56.7	39.9
New Orleans	41.9	53.9	36.9
New York*	46.9	59.9	41.9
Norfolk	41.7	54.7	37.9
Okla. City	46.3	56.9	36.9
Omaha	44.4	56.9	39.9
Philadelphia	42.9	55.9	37.9
Phoenix	43.7	54.7	38.9
Pittsburgh	42.9	55.9	37.9
Portland, Ore.	43.2	54.2	38.9
Salt Lake City	45.9	56.9	36.9
San Antonio	41.1	50.1	33.9
San Diego	41.7	52.7	38.9
San Francisco	42.3	53.3	38.9
Seattle	41.7	54.7	39.9
Spokane	41.7	54.7	39.9
+ Springfield, Ill.*	42.0	55.0	40.9
St. Louis	44.3	55.9	38.9
Tampa	43.7	55.7	38.9
Texarkana	41.1	50.1	33.9
+ Tulsa	40.4	51.0	36.9
Wichita	43.9	54.9	37.9
Wichita Falls	41.1	50.1	33.9
Week's avg.	43.38	54.70	37.99
Aug. avg.	43.36	54.67	37.99
July avg.	43.24	54.51	38.00
1974 to date	39.93	51.21	
1973 to date	26.95	38.52	

+ Increase, — decrease from previous week. *Pump price includes local tax ranging from 0.5 to 2.0 cents/gal.

Refined-products prices

Following quotations are realistic spot prices for refined products moving intrastate on Tuesday each week. They may differ from refiners' prices for branded products. They should not be considered as postings.

Light products are in cents per gallon. Residual prices are in dollars per barrel.

Gasoline

Mid-Continent (Group 3):

Regular (92 octane)	28.00-32.00
Premium (99 octane)	30.00-34.00

California (rack) Los Angeles:

Regular (91 octane)	25.00-33.55
Regular (95 octane)	26.10-34.65
Premium (100 octane)	27.40-35.65

Chicago:

Regular (94 octane)	28.00-33.00
Premium (100 octane)	30.00-35.00

Kerosine, distillate

Chicago:

Distillate No. 1	27.50-34.00
Distillate No. 2	26.50-33.00

Gulf Coast (cargoes):

Kerosine (42-43)	27.50-29.00
Distillate No. 2	26.50-28.00

Mid-Continent (Group 3):

Kerosine (42-44)	24.50-28.75
Diesel oil (58 d.i. & above)	27.00-30.00
Distillate No. 1	24.50-29.50
Distillate No. 2	23.00-27.50

New York Harbor (barges):

Kerosine (42-44)	29.50-33.75
Distillate No. 2	26.25-29.20
Diesel fuel (48-52 d.i.)	26.80

Residual fuel

Mid-Continent (Group 3):

No. 6 (max 1% S)	\$10.30
No. 6 (over 1% S)	\$ 9.30

Chicago:

+ No. 6 (max. 1% S)	\$13.86
+ No. 5 (max. 1% S)	\$14.70

New York Harbor (barges):

No. 6 (max. 0.3% S)	\$13.39-14.13
No. 5 (0.3% S)	\$13.57-14.34

California (marine pipeline):

— Bunker C Los Angeles	\$4.76
------------------------	--------

API imports of crude and products

(Thousands of barrels daily)

	DISTRICTS 1-4			DISTRICT 5			TOTAL U.S.		
	5-13 1974	9-6 1974	9-14 1973	9-13 1974	9-6 1974	9-14 1973	9-13 1974	9-6 1974	9-14 1973
Gasoline	278	139	150	5	23		283	162	150
Special Naphthas	5	5					5	5	
Kerosine	4	3					4	3	
Distillate	143	76	160	5	12		148	88	160
No. 4 Fuel Oil	20	36	31				20	36	31
Residual	1,742	1,895	1,643	50	50	17	1,792	1,945	1,660
Jet Fuel (Naphtha)			5	5	5	5	5	5	10
Jet Fuel (Kerosine)	95	112	116	56	53	42	151	165	158
Asphalt	74	67	30				74	67	30
LP-Gas	106	105	85	13	16	12	119	121	97
Petrochem Feedstocks	31	14	39				31	14	39
Unfinished	91	110	113	33	25	10	124	135	123
Plant Condensate	112	68	109	5	5	8	117	73	117
Total Prod.	2,701	2,630	2,481	172	189	94	2,873	2,819	2,575
Canadian Crude	478	400	711	216	233	242	694	633	953
Other Foreign	2,077	2,573	2,062	626	659	600	2,703	3,232	2,662
Total Crude	2,555	2,973	2,773	842	892	842	3,397	3,865	3,615
Total Imports	5,256	5,603	5,254	1,014	1,081	936	6,270	6,684	6,190

Worldwide crude production (Daily average in thousands of bbl)

	June 1974	May* 1974	Daily prod. 1973	6-month average Daily prod. 1974	Change from Vol.	%
WESTERN HEMISPHERE						
Argentina	420.0	420.0	421.0	419.0	- 2.0	- 0.5
Bolivia	50.0	50.0	48.0	50.0	2.0	4.2
Brazil	170.0	170.0	169.0	170.0	1.0	0.6
Canada	1,836.0	1,732.0	1,786.0	1,840.0	54.0	3.0
Chile	30.0	30.0	33.0	30.0	- 3.0	- 9.1
Colombia	175.0	175.0	199.0	175.0	- 24.0	-12.1
Ecuador	230.0	227.0	199.0	233.0	34.0	17.1
Mexico	530.0	530.0	455.0	525.0	70.0	15.4
Peru	75.0	75.0	67.0	70.0	9.0	13.4
Trinidad	170.0	170.0	164.0	173.0	9.0	5.5
United States	8,940.0	8,939.0	9,243.0	8,973.0	-270.0	- 2.9
Venezuela	2,944.0	2,930.0	3,351.0	3,102.0	-249.0	- 7.4
Total	15,570.0	15,448.0	16,135.0	15,766.0	-369.0	- 2.3
WESTERN EUROPE						
Austria	50.0	50.0	50.0	50.0	....	....
Denmark	4.0	4.0	4.0	4.0	....	....
France	25.0	25.0	27.0	24.0	- 3.0	-11.1
West Germany	124.0	123.0	131.0	125.0	- 6.0	- 4.6
Italy	15.0	15.0	14.0	15.0	1.0	7.1
Netherlands	30.0	30.0	30.0	30.0	....	....
Norway	38.0	30.0	36.0	20.0	- 16.0	-44.4
Spain	44.0	44.0	11.0	37.0	26.0	236.4
United Kingdom	2.0	2.0	2.0	2.0	....	....
Yugoslavia	65.0	65.0	66.0	66.0	....	....
Total	397.0	388.0	371.0	373.0	2.0	0.5
MIDDLE EAST						
Abu Dhabi	1,581.0	1,632.0	1,338.0	1,470.0	132.0	9.9
Bahrain	67.0	66.0	68.0	68.0	....	....
Dubai	230.0	227.0	222.0	229.0	7.0	3.2
Iran	6,063.0	6,182.0	5,818.0	6,136.0	318.0	5.5
Iraq	1,584.0	1,592.0	1,871.0	1,810.0	- 61.0	- 3.3
Israel	100.0	100.0	100.0	100.0	....	....
Kuwait	2,869.0	2,845.0	3,031.0	2,846.0	-185.0	- 6.1
Oman	300.0	303.0	285.0	298.0	13.0	4.6
Qatar	518.0	519.0	589.0	518.0	- 71.0	-12.1
Saudi Arabia	8,870.0	9,017.0	7,464.0	8,336.0	872.0	11.7
Syria	150.0	150.0	121.0	142.0	21.0	17.4
Turkey	65.0	65.0	63.0	65.0	2.0	3.2
Total	22,397.0	22,698.0	20,970.0	22,018.0	1,048.0	5.0
ASIA-PACIFIC						
Australia	325.0	361.0	359.0	366.0	7.0	1.9
Burma	20.0	20.0	20.0	21.0	1.0	5.0
Brunei-Malaysia	375.0	375.0	309.0	363.0	54.0	17.5
India	150.0	150.0	148.0	150.0	2.0	1.4
Indonesia	1,522.0	1,530.0	1,271.0	1,485.0	214.0	16.8
Japan	15.0	15.0	15.0	15.0	....	....
Pakistan	8.0	8.0	8.0	8.0	....	....
Taiwan	2.0	2.0	2.0	2.0	....	....
Thailand	0.2	0.2	0.2	0.2	....	....
Total	2,417.2	2,461.2	2,132.2	2,410.2	278.0	13.0
AFRICA						
Algeria	950.0	1,000.0	1,110.0	1,039.0	- 71.0	- 6.4
Angola	20.0	20.0	13.0	20.0	7.0	53.8
Cabinda	145.0	145.0	132.0	149.0	16.0	12.1
Congo	37.0	37.0	38.0	36.0	- 2.0	- 5.3
Egypt	160.0	150.0	200.0	97.0	-103.0	-51.5
Gabon	160.0	160.0	135.0	162.0	27.0	20.0
Libya	1,775.0	1,950.0	2,292.0	1,887.0	-405.0	-17.7
Morocco	1.0	1.0	1.0	1.0	....	....
Nigeria	2,335.0	2,250.0	1,953.0	2,271.0	318.0	16.2
Tunisia	65.0	65.0	84.0	66.0	- 18.0	-21.4
Total	5,648.0	5,778.0	5,958.0	5,727.0	-231.0	3.9
COMMUNIST						
China	900.0	900.0	860.0	900.0	40.0	4.7
Rumania	280.0	280.0	275.0	280.0	5.0	1.8
U.S.S.R.	9,198.0	9,137.0	8,368.0	9,034.0	666.0	8.0
Other	110.0	110.0	100.0	110.0	10.0	10.0
Total	10,488.0	10,427.0	9,603.0	10,324.0	721.0	7.5
WORLD TOTAL	56,917.2	57,200.2	55,169.2	56,618.2	14,490.0	2.6

*Figures adjusted. †Includes gas liquids.

Worldwide gas production (Billion cu ft)

	June	May	1974 cum.
WESTERN HEMISPHERE			
Argentina	21.5	21.0	123.7
Bolivia	12.0	11.9	77.0
Brazil	3.9	3.6	22.5
Canada	259.7	261.1	1,617.2
Chile	20.1	23.2	100.9
Colombia	11.9	10.2	51.0
Ecuador	0.5	0.4	2.1
Mexico	53.9	55.8	333.9
Peru	4.9	3.8	35.3
Trinidad	4.8	2.4	32.9
United States	1,710.2	1,711.4	11,089.4
Venezuela	35.0	44.9	702.1
Total	2,138.4	2,149.7	14,188.0
WESTERN EUROPE			
Austria	8.9	9.4	56.2
Denmark	....	....	....
France	22.1	24.2	141.4
West Germany	49.9	65.8	345.2
Italy	49.9	50.0	297.9
Netherlands	264.6	305.5	1,589.4
Norway	....	....	....
Spain	98.5	117.4	683.8
United Kingdom	4.7	3.7	27.3
Total	498.6	576.0	3,141.2
MIDDLE EAST			
Abu Dhabi	....	....	....
Bahrain	0.4	0.5	2.0
Dubai	....	....	....
Iran	149.6	153.5	872.6
Iraq	11.1	11.1	66.3
Israel	0.2	0.1	3.2
Kuwait	0.1	0.2	0.8
Oman	....	....	....
Qatar	0.2	0.3	1.1
Saudi Arabia	....	....	....
Syria	....	....	....
Turkey	....	....	....
Total	161.6	154.6	946.0
ASIA-PACIFIC			
Australia	7.9	7.8	46.2
Burma	14.8	11.4	71.2
Brunei-Malaysia	0.4	0.6	2.9
India	0.2	0.2	0.4
Indonesia	2.1	1.6	11.6
Japan	14.0	15.5	82.3
Pakistan	8.6	6.2	48.5
Taiwan	11.1	14.0	68.7
Thailand	3.2	3.1	21.4
Total	62.3	60.4	353.2
AFRICA			
Algeria	1.9	1.7	11.2
Angola	2.8	2.9	15.0
Cabinda	....	....	....
Congo	0.6	0.4	2.6
Egypt	4.5	4.1	19.4
Gabon	1.3	1.2	6.9
Libya	4.9	4.7	18.5
Morocco	2.0	2.5	11.9
Nigeria	4.7	6.2	28.6
Tunisia	0.5	0.6	4.2
Total	23.2	24.3	118.3
COMMUNIST			
China	16.0	15.9	91.6
Rumania	77.1	68.2	447.1
U.S.S.R.	723.7	741.3	4,483.1
Other	31.9	31.9	268.7
Total	848.7	857.3	5,290.5
WORLD TOTAL	3,732.8	3,822.3	24,037.2

*Figures Adjusted.

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REACTORS

6-138" x 16'9", 770 PSIG, 650° F., internally insulated. Excellent condition. Available shipment Michigan location. More detailed info available.

HEAT EXCHANGERS

E-31 Heat Exchanger, 770 psig @ 650° F., 23,800 sq. ft. surface, 1 pass both sides, 2191-3/4" tubes x 0.075" M.W. thickness x 56 ft. long.

E-1 Heat Exchanger, 770 psig @ 650° F., 3000 sq. ft. surface, U Tube, 2 pass both sides, 680-3/4" tubes x 14 Ga. x 14' long.

E-3 Heat Exchanger, shell 770 psig @ 750° F., 2 pass, Tubes 770 psig @ 650° F., 2 pass, 1240 low fin 3/4" tubes x 14 ga. x 16' long, 19,500 sq. ft. extended surface or equivalent to 9,000 sq. ft. of smooth tube. More detailed info. available. Delivery Michigan location.

AIR COOLERS

E-2 Air Cooler, 770 PSIG design, 6 sections, 3 pass, 3 fans 30 HP each, 3 bays, 5700 sq. ft. bare surface, 110,166 sq. ft. extended surface.

E-4 Air Cooler, 770 PSIG design, 2 sections, 2 pass, 1 fan 40 HP, 1 bay, 2098 sq. ft. bare surface, 40,536 sq. ft. extended surface.

E-8 Air Cooler consisting of: depropanizer reflux condenser, debutanizer reflux condenser and propane product cooler, one structure, 2 fans 2 speed 20 HP each. More info. available. All excellent condition. Available shipment Michigan location.

All above items used, good condition. Available delivery Michigan location. More detailed INFO available.

Mid-States Equipment Company

Box 2534 • (918) 582-9122
Tulsa, Oklahoma 74101

FOR SALE — TESTED LINE PIPE, P.E.

76,212'	4 1/2" O.D.	.188 wall, Grade B	\$281.00/cft
188,840'	4 1/2" O.D.	.203 wall, Grade B	\$303.00/cft
303,000'	4 1/2" O.D.	.237 wall, Grade B	\$398.00/cft
61,223'	6 5/8" O.D.	.156 wall, Grade B	\$350.00/cft
136,222'	6 5/8" O.D.	.188 wall, Grade B	\$420.00/cft
63,218'	6 5/8" O.D.	.203 wall, Grade B	\$452.00/cft
46,775'	8 5/8" O.D.	.156 wall, Grade B	\$459.00/cft
104,141'	8 5/8" O.D.	.188 wall, Grade B	\$550.00/cft
36,143'	8 5/8" O.D.	.203 wall, Grade B	\$593.00/cft
3,000'	24" O.D.	.250 wall, 63.41#/ft	\$2,335.00/cft
3,000'	24" O.D.	.312 wall, 79.06#/ft	\$2,911.00/cft
4,000'	24" O.D.	.375 wall, 94.62#/ft	\$3,465.00/cft
1,500'	24" O.D.	.500 wall, 125.49#/ft	\$4,595.00/cft
1,000'	30" O.D.	.312 wall, 98.93#/ft	\$3,700.00/cft
2,000'	30" O.D.	.375 wall, 118.65#/ft	\$4,420.00/cft
750'	30" O.D.	.500 wall, 157.53#/ft	\$5,868.00/cft
1,000'	36" O.D.	.312 wall, 118.92#/ft	\$4,551.00/cft
2,000'	36" O.D.	.375 wall, 142.68#/ft	\$5,440.00/cft
520'	36" O.D.	.500 wall, 189.57#/ft	\$7,228.00/cft

F.O.B. Docks, Houston, Texas and Los Angeles, Calif.

40 ton minimum lots. • Subject to prior sale.

Due to arrive approximately 90 days.

KELLY PIPE COMPANY

11700 Bloomfield Ave., Santa Fe Springs (Los Angeles), Calif. 90670
Phone: 213-771-5311 Telex: 65-7363

Ask for Byron Glass or Earle Cohen.
Complete stocks — pipe, valves and fittings.

Worldwide crude production (Daily average in thousands of bbl)

	May 1974	April* 1974	Daily prod. 1973	5-month average Daily prod. 1974	Change from Vol.	%
WESTERN HEMISPHERE						
Argentina	420.0	420.0	423.0	420.0	- 3.0	- 0.7
Bolivia	57.0	50.0	49.0	50.0	1.0	2.0
Brazil	171.0	170.0	169.0	170.0	1.0	0.6
Canada	1,732.0	1,810.0	1,802.0	1,822.0	20.0	1.1
Chile	30.0	30.0	33.0	30.0	- 3.0	- 9.1
Colombia	175.0	175.0	199.0	176.0	- 23.0	- 11.6
Ecuador	227.0	245.0	200.0	233.0	33.0	16.5
Mexico	530.0	530.0	454.0	524.0	70.0	15.4
Peru	75.0	75.0	67.0	75.0	8.0	11.9
Trinidad	170.0	170.0	164.0	172.0	8.0	4.9
United States	8,939.0	8,965.0	9,250.0	8,995.0	-255.0	- 2.8
Venezuela	2,930.0	3,044.0	3,337.0	3,133.0	-204.0	- 6.1
Total	15,448.0	15,684.0	16,147.0	15,800.0	-247.0	- 2.5
WESTERN EUROPE						
Austria	50.0	50.0	50.0	50.0		
Denmark	0.0	2.0	4.0	4.0		
France	25.0	25.0	27.0	24.0	- 3.0	- 11.1
West Germany	123.0	123.0	131.0	125.0	- 6.0	- 4.6
Italy	15.0	15.0	15.0	15.0		
Netherlands	30.0	30.0	30.0	30.0		
Norway	27.0	13.0	35.0	17.0	- 18.0	- 51.4
Spain	40.0	40.0	9.0	37.0	28.0	311.1
United Kingdom	2.0	2.0	2.0	2.0		
Yugoslavia	65.0	65.0	66.0	66.0		
Total	377.0	365.0	369.0	370.0	1.0	0.3
MIDDLE EAST						
Abu Dhabi	1,632.0	1,616.0	1,344.0	1,448.0	104.0	7.7
Bahrain	66.0	67.0	68.0	68.0		
Dubai	227.0	241.0	224.0	229.0	5.0	2.2
Iran	6,182.0	6,175.0	5,822.0	6,150.0	328.0	5.6
Iraq	1,592.0	1,882.0	1,853.0	1,855.0	2.0	0.1
Israel	100.0	100.0	100.0	100.0		
Kuwait	2,845.0	2,836.0	3,072.0	2,842.0	-230.0	- 7.5
Omran	303.0	296.0	284.0	297.0	13.5	4.6
Qatar	519.0	519.0	595.0	518.0	- 77.0	- 12.9
Saudi Arabia	9,017.0	8,653.0	7,453.0	8,230.0	777.0	10.4
Syria	150.0	150.0	120.0	141.0	21.0	17.5
Turkey	65.0	65.0	62.0	65.0	3.0	4.8
Total	22,698.0	22,600.0	20,997.0	21,943.0	946.0	4.5
ASIA-PACIFIC						
Afghanistan						
Australia	361.0	351.0	354.0	374.0	20.0	5.6
Burma	20.0	20.0	20.0	21.0	1.0	5.0
Brunei-Malaysia	375.0	375.0	307.0	360.0	53.0	17.3
India	150.0	150.0	148.0	150.0	2.0	1.4
Indonesia	1,530.0	1,500.0	1,254.0	1,477.0	223.0	17.8
Japan	15.0	15.0	15.0	15.0		
Pakistan	9.0	9.0	9.0	9.0		
Taiwan	2.0	2.0	2.0	2.0		
Thailand	0.2	0.2	0.2	0.2		
Total	2,462.2	2,422.2	2,109.2	2,408.2	299.0	14.2
AFRICA						
Algeria	1,000.0	1,000.0	1,109.0	1,056.0	- 53.0	- 4.8
Angola	20.0	20.0	13.0	20.0	7.0	53.8
Cabinda	145.0	150.0	132.0	149.0	17.0	12.9
Congo	37.0	34.0	36.0	35.0	- 1.0	- 2.8
Egypt	130.0	100.0	205.0	81.0	-124.0	- 60.5
Gabon	160.0	176.0	133.0	162.0	29.0	21.8
Libya	1,950.0	1,734.0	2,293.0	1,909.0	-384.0	- 16.7
Morocco	1.0	1.0	1.0	1.0		
Nigeria	2,250.0	2,275.0	1,943.0	2,251.0	308.0	15.9
Tunisia	65.0	65.0	84.0	67.0	- 17.0	- 20.2
Total	5,758.0	5,555.0	5,949.0	5,731.0	-218.0	- 3.6
COMMUNIST						
China	860.0	860.0	650.0	860.0	210.0	32.3
Rumania	280.0	280.0	275.0	280.0	5.0	1.8
U.S.S.R.†	9,137.0	9,028.0	8,327.0	8,992.0	665.0	8.0
Other	110.0	110.0	100.0	110.0	10.0	10.0
Total	10,387.0	10,198.0	9,352.0	10,242.0	890.0	9.5
WORLD TOTAL	57,130.2	56,824.2	54,923.2	56,494.2	1,571.0	2.9

*Figures adjusted. †Includes gas liquids.

Worldwide gas production (Billion cu ft)

	May	April	1974 cum.
WESTERN HEMISPHERE			
Argentina	21.0	21.0	102.2
Bolivia	11.9	14.1	65.0
Brazil	3.6	4.6	18.6
Canada	261.1	271.2	1,357.5
Chile	23.2	11.9	80.8
Colombia	10.2	5.0	39.1
Ecuador	0.4	0.3	1.6
Mexico	55.8	56.3	280.0
Peru	3.8	3.5	30.4
Trinidad	2.4	4.9	28.1
United States	1,711.4	1,770.2	9,379.2
Venezuela	44.9	140.1	667.1
Total	2,149.7	2,303.1	12,049.6
WESTERN EUROPE			
Austria	9.4	10.1	47.3
Denmark			
France	24.2	24.1	119.3
West Germany	65.8	60.2	295.3
Italy	50.0	49.3	248.0
Netherlands	305.5	271.2	1,324.8
Norway			
Spain	117.4	141.2	585.3
United Kingdom	3.7	5.0	22.6
Yugoslavia			
Total	576.0	561.1	2,642.6
MIDDLE EAST			
Abu Dhabi			
Bahrain	0.5	0.1	1.6
Dubai			
Iran	153.5	140.8	723.0
Iraq	11.1	11.0	55.2
Israel	0.1	1.0	3.0
Kuwait	0.2	0.1	0.7
Omran			
Qatar	0.3	0.2	0.9
Saudi Arabia			
Syria			
Turkey			
Total	154.6	153.2	784.4
ASIA-PACIFIC			
Afghanistan	7.8	8.1	38.3
Australia	11.4	10.2	56.4
Burma	0.6	0.4	2.5
Brunei-Malaysia	0.2		0.2
India	1.6	1.8	9.5
Indonesia	15.5	12.0	68.3
Japan	6.2	9.0	39.9
Pakistan	14.0	10.1	57.6
Taiwan	3.1	3.8	18.2
Thailand			
Total	60.4	55.4	290.9
AFRICA			
Algeria	1.7	2.0	9.3
Angola	2.9	3.0	12.2
Cabinda			
Congo	0.4	0.2	2.0
Egypt	4.1	3.0	14.9
Gabon	1.2	1.0	5.6
Libya	4.7	2.1	13.6
Morocco	2.5	1.5	9.9
Nigeria	6.2	5.0	23.9
Tunisia	0.6	0.2	3.7
Total	24.3	18.0	95.1
COMMUNIST			
China	15.9	16.0	75.6
Rumania	68.2	70.1	373.0
U.S.S.R.†	741.3	737.7	3,741.8
Other	31.9	35.0	236.8
Total	857.3	858.8	4,424.2
WORLD TOTAL	3,822.3	3,949.6	20,286.6