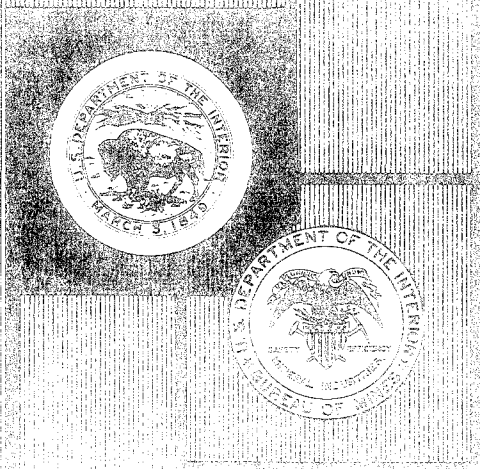


C 9290

BUREAU OF MINES
INFORMATION CIRCULAR/1991

Analysis of Marine Bivalve Shell

1991-1992



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REPORT DOCUMENTATION PAGE		1. REPORT NO. IC 9290	2.	3. PB91-241216
4. Title and Subtitle Analyses of Natural Gases, 1990			5. Report Date 1991	
7. Author(s) J.E. Hamak and Stella Sigler			6.	
9. Performing Organization Name and Address Bureau of Mines			8. Performing Organization Rept. No.	
			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address Bureau of Mines 2401 E Street, N.W. Washington, D.C. 20241			13. Type of Report & Period Covered Information Circular	
15. Supplementary Notes			14.	
16. Abstract (Limit: 200 words) This publication contains analyses and related source data for 144 natural gas samples from 19 States. Of the total samples, 139 were collected during calendar year 1990. The remainder were collected earlier, but releases granting permission to publish were not received until 1990. All samples were obtained and analyzed as part of the U.S. Bureau of Mines investigations of the occurrences of helium in natural gases of countries with free market economies. This survey has been conducted since 1917. The analyses were made by mass spectrometer and chromatograph.				
17. Document Analysis a. Descriptors				
b. Identifiers/Open-Ended Terms				
c. COSATI Field/Group				
18. Availability Statement Release unlimited		19. Security Class (This Report) Unclassified		21. No. of Pages 56
		20. Security Class (This Page) Unclassified		22. Price

Information Circular 9290

Analyses of Natural Gases, 1990

By J. E. Hamak and Stella Sigler

UNITED STATES DEPARTMENT OF THE INTERIOR
Manuel Lujan, Jr., Secretary

BUREAU OF MINES
T S Ary, Director

Library of Congress Cataloging in Publication Data:

Hamak, John E.

Analyses of natural gases, 1990 / by J.E. Hamak and Stella Sigler.

p. cm. — (Information circular; 9290)

Includes bibliographical references (p. 56).

Supt. of Docs. no.: I 28.27:9290.

1. Gas, Natural—United States—Analysis. I. Sigler, Stella. II. Title. III. Series: Information circular (United States. Bureau of Mines); 9290.

TN295.U4 [TP350] 622 s—dc20 [665.7'3] 90-1950 CIP

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ANALYSES OF NATURAL GASES, 1990

By J. E. Hamak¹ and Stella Sigler²

ABSTRACT

This publication contains analyses and related source data for 144 natural gas samples from 19 States. Of the total samples, 139 were collected during calendar year 1990. The remainder were collected earlier, but releases granting permission to publish were not received until 1990. All samples were obtained and analyzed as part of the U.S. Bureau of Mines investigations of the occurrences of helium in natural gases of countries with free-market economies. This survey has been conducted since 1917. The analyses were made by mass spectrometer and chromatograph.

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INTRODUCTION

This Bureau of Mines publication contains analyses and related source data for 144 natural gas samples from 19 States. Of these samples, 139 were collected during calendar year 1990; 5 samples were collected earlier, but releases granting permission to publish were not received until 1990. All samples were obtained and analyzed as part of the Bureau's investigations of the occurrences of helium in natural gases of countries with free-market economies. This survey has been conducted since 1917. The analyses published herein were made by the mass spectrometer and chromatograph.

The results of these investigations are published annually to make the information available to the petroleum industry and the general public. Thirty-five publications have presented the results of 15,023 gas analyses made prior to 1990. The first three bulletins (1-3)³ contain analyses and related source data on 5,218 gas samples collected from 1917 through 1960; these bulletins have been supplemented annually by information circulars (4-17, 19-24, 26-30, 32-35) containing 10,027 analyses of samples collected since 1960.

In 1976, a compilation of the analyses made prior to 1975 was prepared by the Bureau of Mines and published by the National Technical Information Service of the U.S. Department of Commerce (18). This compilation contains

10,562 analyses of gas samples from gas and oil wells and natural gas pipelines in 37 States and 23 foreign countries.

In 1982, a compilation of analyses made prior to 1981 was published (25); it contains 12,554 analyses of gas samples from gas and oil wells and natural gas pipelines in 39 States and 24 foreign countries and includes the analyses from the 1976 publication. In 1987, a third cumulative compilation was published (31); it contains 14,242 analyses made prior to 1986 of samples taken from wells or pipelines in 40 States and 24 foreign countries.

In addition to being in the publications, all analyses and related information published through 1990 are available on a magnetic tape file sold for \$220 by the National Technical Information Service, Springfield, VA 22161, phone 1-800/553-NTIS (in Virginia 703/487-4650). Orders should refer to Bureau of Mines tape of Natural Gas Analyses.

The helium survey program is conducted by soliciting natural gas samples throughout the United States and other countries with free-market economies. Without the assistance of the petroleum industry, State and Federal agencies, and many individuals engaged in oil and gas exploration and production, the helium survey in its present scope would not be possible.

GEOLOGIC PROVINCES OF THE UNITED STATES

The tables include geologic province codes so each sample source can be located within a specific geologic province as defined by the Committee on Statistics of Drilling of the American Association of Petroleum Geologists.⁴ These provinces, which are given in the following list and shown in figure 1, are delineated by

political boundaries for convenience and for accommodation of data processing equipment. Not all of the provinces shown are gas-producing areas, so many of the codes are not used in this publication. Since State or Federal ownership is not always known in offshore areas, only one code is used for each State. Owing to the lack of information on the location of wells in Alaska, only one code, 972, is used for all wells.

The following list and figure 1 are taken from the article cited in footnote 4.

³Italic numbers in parentheses refer to items in the list of previous publications at the end of this report.

⁴Meyer, R. F. Geologic Provinces Code Map for Computer Use. AAPG Bull., v. 54, No. 7, July 1970, pp. 1301-1305.

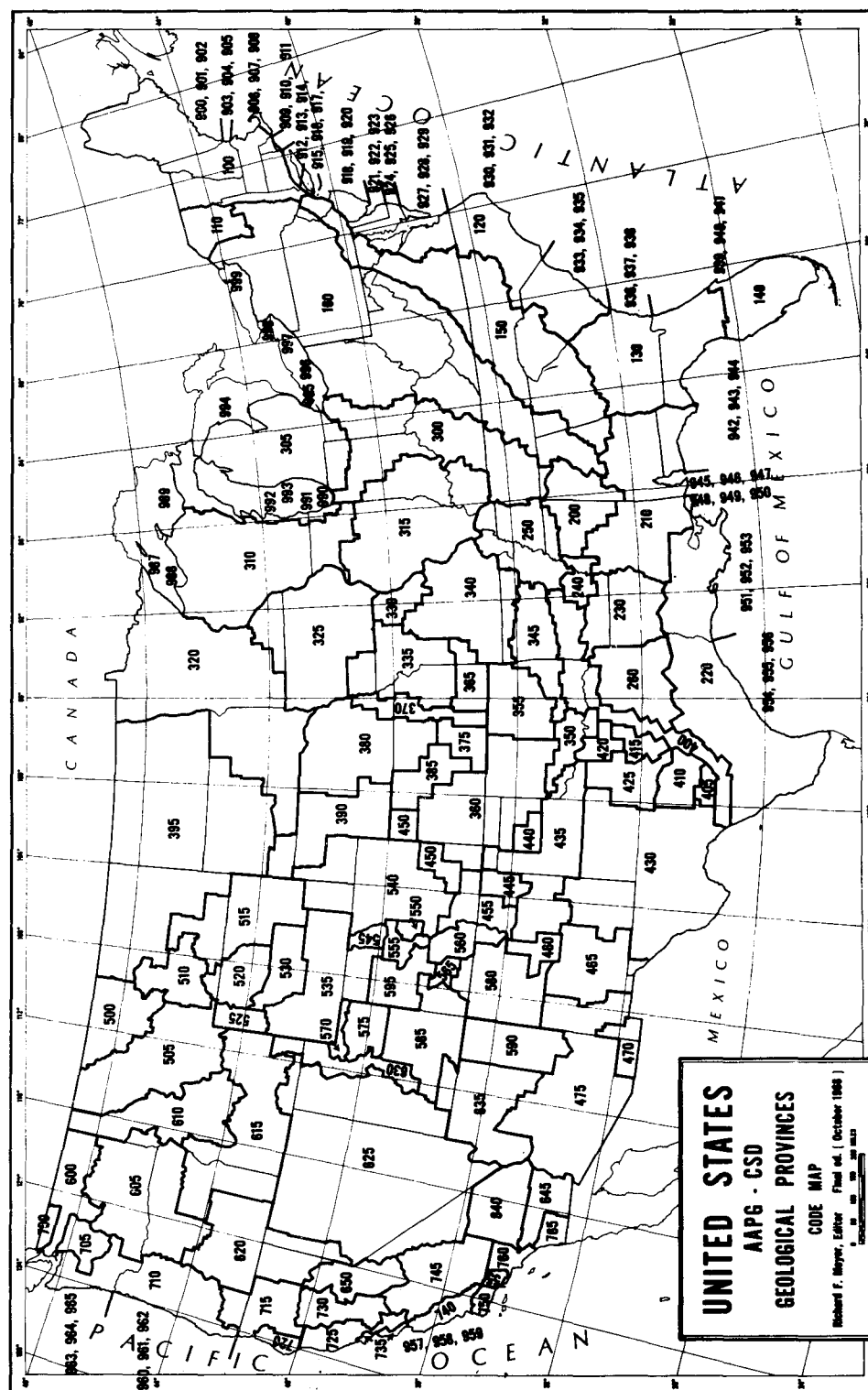


Figure 1.—Geologic provinces of the United States.

Code	Province	Code	Province
100	New England Province	500	Sweetgrass Arch
110	Adirondack Uplift	505	Montana Folded Belt Province
120	Atlantic Coast Basin	510	Central Montana Uplift
130	South Georgia-North Florida Sedimentary Province	515	Powder River Basin
140	South Florida Province	520	Big Horn Basin
150	Piedmont-Blue Ridge Province	525	Yellowstone Province
160	Appalachian Basin	530	Wind River Basin
200	Warrior Basin	535	Green River Basin
210	Mid-Gulf Coast Basin	540	Denver Basin
220	Gulf Coast Basin	545	North Park Basin
230	Arkla Basin	550	South Park Basin
240	Desha Basin	555	Eagle Basin
250	Upper Mississippi Embayment	560	San Luis Basin
260	East Texas Basin	565	San Juan Mountain Province
		570	Uinta Uplift
300	Cincinnati Arch	575	Uinta Basin
305	Michigan Basin	580	San Juan Basin
310	Wisconsin Arch	585	Paradox Basin
315	Illinois Basin	590	Black Mesa Basin
320	Sioux Uplift	595	Piceance Basin
325	Iowa Shelf		
330	Lincoln Anticline	600	Northern Cascade Range-Okanagan Province
335	Forest City Basin	605	Eastern Columbia Basin
340	Ozark Uplift	610	Idaho Mountains Province
345	Arkoma Basin	615	Snake River Basin
350	South Oklahoma Folded Belt Province	620	Southern Oregon Basin
355	Chautauqua Platform	625	Great Basin Province
360	Anadarko Basin	630	Wasatch Uplift
365	Cherokee Basin	635	Plateau Sedimentary Province
370	Nemaha Anticline	640	Mojave Basin
375	Sedgwick Basin	645	Salton Basin
380	Salina Basin	650	Sierra Nevada Province
385	Central Kansas Uplift		
390	Chadron Arch	700	Bellingham Basin
395	Williston Basin	705	Puget Sound Province
		710	Western Columbia Basin
400	Ouachita Tectonic Belt Province	715	Klamath Mountains Province
405	Kerr Basin	720	Eel River Basin
410	Llano Uplift	725	Northern Coast Range Province
415	Strawn Basin	730	Sacramento Basin
420	Fort Worth Syncline	735	Santa Cruz Basin
425	Bend Arch	740	Coastal Basins
430	Permian Basin	745	San Joaquin Basin
435	Palo Duro Basin	750	Santa Maria Basin
440	Amarillo Arch	755	Ventura Basin
445	Sierra Grande Uplift	760	Los Angeles Basin
450	Las Animas Arch	765	Capistrano Basin
455	Las Vegas-Raton Basin		
460	Estancia Basin	800	Heceta Island Area
465	Orogrande Basin	805	Keku Islands Area
470	Pedregosa Basin	810	Gulf of Alaska Basin
475	Basin-and-Range Province	815	Copper River Basin

Code	Province	Code	Province
820	Cook Inlet Basin	935	South Carolina Atlantic offshore—Federal
830	Kandik Province	936	Georgia Atlantic offshore—general
835	Kobuk Province	937	Georgia Atlantic offshore—State
840	Koyukuk Province	938	Georgia Atlantic offshore—Federal
845	Bristol Bay Basin	939	Florida Atlantic offshore—general
850	Bethel Basin	940	Florida Atlantic offshore—State
855	Norton Basin	941	Florida Atlantic offshore—Federal
860	Selawik Basin	942	Florida Gulf of Mexico offshore—general
863	Yukon Flats Basin	943	Florida Gulf of Mexico offshore—State
865	Lower Tanana Basin	944	Florida Gulf of Mexico offshore—Federal
867	Middle Tanana Basin	945	Alabama Gulf of Mexico offshore—general
870	Upper Tanana Basin	946	Alabama Gulf of Mexico offshore—State
873	Galena Basin	947	Alabama Gulf of Mexico offshore—Federal
875	Innokko Basin	948	Mississippi Gulf of Mexico offshore—general
877	Minchumina Basin	949	Mississippi Gulf of Mexico offshore—State
880	Holitna Basin	950	Mississippi Gulf of Mexico offshore—Federal
885	Arctic Foothills Province	951	Louisiana Gulf of Mexico offshore—general
890	Arctic Slope Basin	952	Louisiana Gulf of Mexico offshore—State
		953	Louisiana Gulf of Mexico offshore—Federal
900	Maine Atlantic offshore—general	954	Texas Gulf of Mexico offshore—general
901	Maine Atlantic offshore—State	955	Texas Gulf of Mexico offshore—State
902	Maine Atlantic offshore—Federal	956	Texas Gulf of Mexico offshore—Federal
903	New Hampshire Atlantic offshore—general	957	California Pacific offshore—general
904	New Hampshire Atlantic offshore—State	958	California Pacific offshore—State
905	New Hampshire Atlantic offshore—Federal	959	California Pacific offshore—Federal
906	Massachusetts Atlantic offshore—general	960	Oregon Pacific offshore—general
907	Massachusetts Atlantic offshore—State	961	Oregon Pacific offshore—State
908	Massachusetts Atlantic offshore—Federal	962	Oregon Pacific offshore—Federal
909	Rhode Island Atlantic offshore—general	963	Washington Pacific offshore—general
910	Rhode Island Atlantic offshore—State	964	Washington Pacific offshore—State
911	Rhode Island Atlantic offshore—Federal	965	Washington Pacific offshore—Federal
912	Connecticut Atlantic offshore—general	972	Alaska Arctic offshore—general
913	Connecticut Atlantic offshore—State	973	Alaska Arctic offshore—State
914	Connecticut Atlantic offshore—Federal	974	Alaska Arctic offshore—Federal
915	New York Atlantic offshore—general	975	Alaska Bering Sea offshore—general
916	New York Atlantic offshore—State	976	Alaska Bering Sea offshore—State
917	New York Atlantic offshore—Federal	977	Alaska Bering Sea offshore—Federal
918	New Jersey Atlantic offshore—general	978	Alaska Pacific offshore—general
919	New Jersey Atlantic offshore—State	979	Alaska Pacific offshore—State
920	New Jersey Atlantic offshore—Federal	980	Alaska Pacific offshore—Federal
921	Delaware Atlantic offshore—general	987	Minnesota Lake Superior offshore
922	Delaware Atlantic offshore—State	988	Wisconsin Lake Superior offshore
923	Delaware Atlantic offshore—Federal	989	Michigan Lake Superior offshore
924	Maryland Atlantic offshore—general	990	Indiana Lake Michigan offshore
925	Maryland Atlantic offshore—State	991	Illinois Lake Michigan offshore
926	Maryland Atlantic offshore—Federal	992	Wisconsin Lake Michigan offshore
927	Virginia Atlantic offshore—general	993	Michigan Lake Michigan offshore
928	Virginia Atlantic offshore—State	994	Michigan Lake Huron offshore
929	Virginia Atlantic offshore—Federal	995	Michigan Lake Erie offshore
930	North Carolina Atlantic offshore—general	996	Ohio Lake Erie offshore
931	North Carolina Atlantic offshore—State	997	Pennsylvania Lake Erie offshore
932	North Carolina Atlantic offshore—Federal	998	New York Lake Erie offshore
933	South Carolina Atlantic offshore—general	999	New York Lake Ontario offshore
934	South Carolina Atlantic offshore—State		

TABLES

The following tables include the results of analyses and related source data from the gas samples, which are divided into two groups as follows:

Table 1.—Samples from gas and oil wells in the United States.

Source	Number of samples	Tables
Alabama ...	4	1
Arkansas ...	21	1,2
California ...	2	1
Colorado ...	2	1
Kansas	10	1
Kentucky ...	1	1
Louisiana ...	4	1
Maryland ...	1	1
Michigan ...	5	1
Mississippi ..	8	1

Table 2.—Samples from pipelines in the United States.

The following list indicates the sources of the samples listed in the tables:

Source	Number of samples	Tables
New Mexico ...	5	1
New York	2	1
North Dakota ..	2	1
Oklahoma	26	1,2
Pennsylvania ..	6	1
Texas	25	1
Utah	3	1
West Virginia ..	10	1
Wyoming	7	1

All components of the analyses in the tables are reported to the nearest 0.1 pct, except helium, which is reported to the nearest 0.01 pct. The word "trace" is

used to denote quantities of helium of less than 0.005 pct and quantities of other components of less than 0.05 pct.

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19015	INDEX SAMPLE 18944	INDEX SAMPLE 18945
STATE.....	ALABAMA	ALABAMA	ALABAMA
COUNTY.....	CONECUH	MARION	MARION
FIELD.....	NOT GIVEN	WATTS CREEK	WATTS CREEK
WELL NAME.....	PARAMOUNT-ATIC 7-13 NO. 1	JONES 33-1 NO. 1	JONES 33-1 NO. 1
API.....			
LOCATION.....	SEC. 7, T4N, R8E	SEC. 33, T10S, R15W	SEC. 33, T10S, R15W
OWNER.....	COX OIL & GAS, INC.	HAWKEYE OIL & GAS, INC.	HAWKEYE OIL & GAS, INC.
COMPLETED.....	88/--/00	88/--/00	88/--/00
SAMPLED.....	90/09/00	90/04/13	90/04/13
FORMATION.....	JURA-SMACKOVER	CRET-LEWIS	MISS-CARTER
GEOLOGIC PROVINCE CODE...	210	200	200
DEPTH, FEET.....	13162	1602	824
WELLHEAD PRESSURE, PSIG...	1785	500	190
OPEN FLOW, MCFD.....	1244	250	250
COMPONENT, MOLE PCT			
METHANE.....	78.5	97.3	98.3
ETHANE.....	7.4	1.1	1.1
PROPANE.....	3.1	0.0	0.0
N-BUTANE.....	1.4	0.0	0.0
ISOBUTANE.....	0.5	0.0	0.0
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	0.3	0.0	0.0
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.1	0.0	0.0
NITROGEN.....	8.0	1.2	0.0
OXYGEN.....	TRACE	0.0	0.0
ARGON.....	0.1	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.4	0.5
HELIUM.....	0.03	0.08	0.08
HEATING VALUE*	1106	1005	1015
SPECIFIC GRAVITY.....	0.703	0.568	0.565

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18978	INDEX SAMPLE 18947	INDEX SAMPLE 18893
STATE.....	ALABAMA	ARKANSAS	ARKANSAS
COUNTY.....	PICKENS	COLUMBIA	CRAWFORD
FIELD.....	BUNCOMB CREEK	SPRING HILL	HOLLIS LAKE
WELL NAME.....	BLALOCK 33-13 NO. 1	M. D. HAYNES JR. HEIRS NO. 1	BAILEY NO. 2-26
API.....			
LOCATION.....	SEC. 33, T18S, R15W	NOT GIVEN	SEC. 26, T9N, R31W
OWNER.....	MERIDIAN OIL, INC.	MARATHON OIL CO.	ANADARKO PETROLEUM CORP.
COMPLETED.....	89/--/00	99/08/08	88/12/04
SAMPLED.....	90/01/08	90/04/17	89/08/07
FORMATION.....	MISS-CARTER	JURA-HAYNESVILLE	PENN-CARPENTER
GEOLOGIC PROVINCE CODE...	200	230	345
DEPTH, FEET.....	5636	10670	2316
WELLHEAD PRESSURE, PSIG...	342	1944	230
OPEN FLOW, MCFD.....	1268	3500	1057
COMPONENT, MOLE PCT			
METHANE.....	82.7	85.3	98.0
ETHANE.....	9.9	5.8	0.7
PROPANE.....	4.0	3.2	0.1
N-BUTANE.....	1.5	0.0	0.0
ISOBUTANE.....	0.5	3.2	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.0	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.4	0.6	0.9
OXYGEN.....	0.0	0.0	0.0
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	TRACE	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	1.9	TRACE
HELIUM.....	0.10	0.01	0.08
HEATING VALUE*.....	1185	1157	1014
SPECIFIC GRAVITY.....	0.679	0.684	0.565

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18934	INDEX SAMPLE 18976	INDEX SAMPLE 18931
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	CRAWFORD	FAULKNER	FRANKLIN
FIELD.....	HOLLIS LAKE	BARNEY	AETNA
WELL NAME.....	MORRIS NO. 2-36	SIMPSON NO. 1-9	ALSTON HEIRS NO. 2
API.....			
LOCATION.....	SEC. 36, T9N, R31W	SEC. 9, T7N, R11W	SEC. 23, T10N, R28W
OWNER.....	ANADARKO PETROLEUM CORP.	ARKLA EXPLORATION CO.	EXXON CO., U.S.A.
COMPLETED.....	88/03/21	90/01/16	89/11/14
SAMPLED.....	90/03/19	90/06/06	90/03/13
FORMATION.....	PENN-CASEY	PENN-HALE U	PENN-ORR
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	4253	4491	3775
WELLHEAD PRESSURE, PSIG...	660	1297	1350
OPEN FLOW, MCFD.....	1760	1365	8990
COMPONENT, MOLE PCT			
METHANE.....	97.4	97.2	97.5
ETHANE.....	1.5	0.9	1.8
PROPANE.....	0.2	0.1	0.1
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	TRACE	TRACE	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	TRACE	0.0	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.3	1.1	0.4
OXYGEN.....	0.0	0.3	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	TRACE	TRACE	0.1
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.2	0.1
HELIUM.....	0.09	0.11	0.07
HEATING VALUE*.....	1018	1005	1024
SPECIFIC GRAVITY.....	0.570	0.568	0.566

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18932	INDEX SAMPLE 18903	INDEX SAMPLE 18904
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	FRANKLIN	FRANKLIN	FRANKLIN
FIELD.....	ALTUS	JETHRO	ROCK CREEK
WELL NAME.....	WESTERN COAL NO. 2	ARMSTRONG NO. 1	WATALULA NO. 1-36-C
API.....			
LOCATION.....	SEC. 23, T9N, R26W	SEC. 35, T11N, R27W	SEC. 36, T11N, R27W
OWNER.....	EXXON CO., U.S.A.	SEECO, INC.	WEISER-BROWN OIL CO.
COMPLETED.....	89/12/05	89/09/22	89/06/01
SAMPLED.....	90/03/13	90/01/17	90/01/11
FORMATION.....	PENN-FRIEBURG	PENN-CANNON	PENN-CASEY-HURST-DUNN A
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	3366	3636	2487
WELLHEAD PRESSURE, PSIG...	1125	842	NOT GIVEN
OPEN FLOW, MCFD.....	7100	7660	74367
COMPONENT, MOLE PCT			
METHANE.....	95.8	95.5	97.1
ETHANE.....	1.0	1.3	1.1
PROPANE.....	0.1	0.2	0.1
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	0.1	0.1
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.0	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	2.8	2.2	0.5
OXYGEN.....	0.0	0.5	0.0
ARGON.....	0.0	TRACE	0.0
HYDROGEN.....	0.1	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.2	1.0
HELIUM.....	0.12	0.06	0.09
HEATING VALUE*.....	989	997	1011
SPECIFIC GRAVITY.....	0.572	0.578	0.574

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 13 SAMPLE 18905	INDEX 14 SAMPLE 18902	INDEX 15 SAMPLE 18967
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	FRANKLIN	JOHNSON	JOHNSON
FIELD.....	ROCK CREEK	COAL HILL	ROSS
WELL NAME.....	WATALULA NO. 1-36-T	SOSEBEE NO. 1	SPOOKY NO. 1-4
API.....			
LOCATION.....	SEC. 36, T11N, R27W	SEC. 31, T10N, R25W	SEC. 4, T9N, R22W
OWNER.....	WEISER-BROWN OIL CO.	SEECO, INC.	WEISER-BROWN OIL CO.
COMPLETED.....	89/06/01	89/10/23	90/03/30
SAMPLED.....	90/01/11	90/01/17	90/05/00
FORMATION.....	PENN-CASEY-HURST-DUNN A	PENN-HAMM	PENN-BARTON A
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	2487	3548	3542
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	NOT GIVEN	NOT GIVEN
OPEN FLOW, MCFD.....	1605	2529	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE.....	91.1	98.1	75.8
ETHANE.....	1.0	0.9	2.3
PROPANE.....	0.1	0.1	0.0
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	TRACE	0.1	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	5.3	0.5	20.9
OXYGEN.....	1.4	0.0	0.0
ARGON.....	0.1	0.0	0.2
HYDROGEN.....	0.0	TRACE	0.3
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.9	0.2	0.3
HELIUM.....	0.08	0.11	0.09
HEATING VALUE*.....	945	1016	811
SPECIFIC GRAVITY.....	0.600	0.564	0.656

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19005	INDEX SAMPLE 18954	INDEX SAMPLE 19004
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	JOHNSON	LOGAN	POPE
FIELD.....	ROSS	CHISMVILLE	DOVER
WELL NAME.....	BIG DADDY NO. 1	VIOLA C. BLATY NO. 1-16	DOLLAR NO. 1
API.....			
LOCATION.....	SEC. 34, T10N, R22W	SEC. 16, T7N, R26W	SEC. 30, T9N, R19W
OWNER.....	WEISER-BROWN OIL CO.	MARALO, INC.	REBEL EXPLORATION, INC.
COMPLETED.....	89/--/00	90/01/11	88/02/16
SAMPLED.....	90/07/26	90/05/01	90/08/06
FORMATION.....	PENN-BYNUM L	PENN-TACKETT	PENN-TACKETT
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	2710	5955	2120
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	2011	255
OPEN FLOW, MCFD.....	1254	1729	200
COMPONENT, MOLE PCT			
METHANE.....	93.7	96.9	99.0
ETHANE.....	0.6	1.7	0.1
PROPANE.....	0.1	0.1	0.1
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	0.0	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	TRACE	0.0	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	4.0	0.9	0.5
OXYGEN.....	1.3	0.0	0.1
ARGON.....	0.1	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.4	0.1
HELIUM.....	0.13	0.06	0.09
HEATING VALUE*	962	1014	1008
SPECIFIC GRAVITY.....	0.584	0.571	0.559

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18938	INDEX SAMPLE 18884	INDEX SAMPLE 18953
STATE.....	CALIFORNIA	CALIFORNIA	COLORADO
COUNTY.....	COLUSA	SAN JOAQUIN	GARFIELD
FIELD.....	GRIMES W	BEAVER SLOUGH	PARACHUTE
WELL NAME.....	BALSDON NO. 10	GAMBLE NO. 1	DOE NO. 2-W-27
API.....			
LOCATION.....	SEC. 21, T14N, R1W	SEC. 30, T4N, R5E	SEC. 27, T6S, R9SW
OWNER.....	TEXACO INC.	COASTAL OIL & GAS CORP.	U.S. DEPARTMENT OF ENERGY
COMPLETED.....	90/--/00	88/--/00	89/10/00
SAMPLED.....	90/03/20	89/12/01	90/04/00
FORMATION.....	CRET-FORBES	CRET-WINTERS SAND	EOCE-WASATCH
GEOLOGIC PROVINCE CODE...	730	730	595
DEPTH, FEET.....	7177	8657	2804
WELLHEAD PRESSURE, PSIG...	3665	3650	600
OPEN FLOW, MCFD.....	1100	10140	850
COMPONENT, MOLE PCT			
METHANE.....	95.9	95.0	96.2
ETHANE.....	0.3	0.5	2.4
PROPANE.....	TRACE	0.1	0.7
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	TRACE	0.4
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.2	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	3.6	3.5	0.2
OXYGEN.....	0.0	0.4	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.3	0.1
HELIUM.....	TRACE	0.01	TRACE
HEATING VALUE*.....	979	983	1050
SPECIFIC GRAVITY.....	0.572	0.581	0.581

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19013	INDEX SAMPLE 18913	INDEX SAMPLE 18919
STATE.....	COLORADO	KANSAS	KANSAS
COUNTY.....	YUMA	CLARK	COMANCHE
FIELD.....	MILDRED	WILDCAT	BEALS
WELL NAME.....	KELLER CATTLE CO. NO. 11-14	VAN BLARICUM "A" NO. 1	HARPER NO. 1
API.....			
LOCATION.....	SEC. 14, T2S, R46W	SEC. 29, T32S, R22W	SEC. 5, T34S, R17W
OWNER.....	J-W OPERATING CO.	SOURCE PETROLEUM	AFG ENERGY, INC.
COMPLETED.....	89/07/27	89/04/06	85/04/05
SAMPLED.....	90/08/15	90/02/07	90/02/13
FORMATION.....	CRET-NIOBRARA	PENN-LANSING-KANSAS CITY	PERM-WABAUNSEE
GEOLOGIC PROVINCE CODE...	540	360	360
DEPTH, FEET.....	2210	4494	3354
WELLHEAD PRESSURE, PSIG...	482	1320	640
OPEN FLOW, MCFD.....	560	1050	4750
COMPONENT, MOLE PCT			
METHANE.....	95.1	72.9	77.5
ETHANE.....	0.9	5.7	2.9
PROPANE.....	0.5	3.8	1.6
N-BUTANE.....	0.2	1.1	0.4
ISOBUTANE.....	0.0	0.6	0.6
N-PENTANE.....	0.0	0.3	0.0
ISOPENTANE.....	0.1	0.2	0.5
CYCLOPENTANE.....	0.0	0.1	0.0
HEXANES PLUS.....	0.0	0.2	0.0
NITROGEN.....	2.8	14.7	15.8
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.1	TRACE	TRACE
HYDROGEN.....	TRACE	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.1	0.1
HELIUM.....	0.06	0.26	0.47
HEATING VALUE*.....	1005	1034	935
SPECIFIC GRAVITY.....	0.584	0.724	0.675

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 25 SAMPLE 19050	INDEX 26 SAMPLE 18988	INDEX 27 SAMPLE 18952
STATE.....	KANSAS	KANSAS	KANSAS
COUNTY.....	EDWARDS	HASKELL	MORTON
FIELD.....	WAYNE	VICTORY	STIRRUP
WELL NAME.....	CROSS NO. 2-16	D. HOFFMAN NO. 1	BLUCHER NO. A-2
API.....		15-081-20433	15-129-20883
LOCATION.....	SEC. 16, T24S, R17W	SEC. 5, T30S, R33W	SEC. 34, T32S, R40W
OWNER.....	HOLL, F. G. CO.	HELMERICH & PAYNE, INC.	ANADARKO PETROLEUM CORP.
COMPLETED.....	89/10/02	87/06/18	87/09/08
SAMPLED.....	90/11/06	90/07/12	90/04/24
FORMATION.....	MISS-NOT GIVEN	PENN-MARATON-KANSAS CITY	PENN-MORROW U
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	4357	4658	5330
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	500	1398
OPEN FLOW, MCFD.....	1250	1300	6422
COMPONENT, MOLE PCT			
METHANE.....	86.1	82.4	96.0
ETHANE.....	3.8	4.7	1.3
PROPANE.....	1.7	2.0	0.2
N-BUTANE.....	0.9	0.5	0.0
ISOBUTANE.....	0.2	0.0	0.4
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	0.1	0.1	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.0
NITROGEN.....	5.9	9.3	1.6
OXYGEN.....	0.0	0.6	0.0
ARGON.....	0.1	0.1	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.0	0.4
HELIUM.....	0.86	0.32	0.20
HEATING VALUE*.....	1044	995	1012
SPECIFIC GRAVITY.....	0.639	0.649	0.577

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18928	INDEX SAMPLE 18958	INDEX SAMPLE 19010
STATE.....	KANSAS	KANSAS	KANSAS
COUNTY.....	SEWARD	SEWARD	STAFFORD
FIELD.....	ANGMAN	HITCH	SHEPHERD
WELL NAME.....	MORGAN NO. H-1	HITCH NO. 1-25	SHEPHERD NO. 2
API.....			
LOCATION.....	SEC. 5, T32S, R33W	SEC. 25, T32S, R34W	SEC. 16, T22S, R11W
OWNER.....	ANADARKO PETROLEUM CORP.	VINTAGE PETROLEUM, INC.	KANSAS PETROLEUM, INC.
COMPLETED.....	87/12/19	88/04/00	86/08/18
SAMPLED.....	90/03/07	90/05/09	90/08/20
FORMATION.....	MISS-CHESTER	PENN-MORROW U	CAMO-CONGLOMERATE
GEOLOGIC PROVINCE CODE...	360	360	385
DEPTH, FEET.....	5559	5900	3460
WELLHEAD PRESSURE, PSIG...	988	NOT GIVEN	1050
OPEN FLOW, MCFD.....	2100	NOT GIVEN	1500
COMPONENT, MOLE PCT			
METHANE.....	88.2	78.5	56.6
ETHANE.....	4.8	5.2	8.8
PROPANE.....	2.0	4.1	5.2
N-BUTANE.....	0.7	0.0	1.9
ISOBUTANE.....	0.4	1.5	0.5
N-PENTANE.....	0.4	0.0	0.3
ISOPENTANE.....	0.2	0.0	0.4
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.7	0.0	0.1
NITROGEN.....	2.0	10.5	25.0
OXYGEN.....	0.0	0.0	0.1
ARGON.....	TRACE	0.1	0.2
HYDROGEN.....	TRACE	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.1	0.0
HELIUM.....	0.26	0.14	1.03
HEATING VALUE*.....	1133	1042	979
SPECIFIC GRAVITY.....	0.655	0.687	0.802

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18973	INDEX SAMPLE 18920	INDEX SAMPLE 19023
STATE.....	KANSAS	KANSAS	KENTUCKY
COUNTY.....	STEVENS	STEVENS	PIKE
FIELD.....	FETERITA	MIDSTREAM	EASTERN
WELL NAME.....	KELLY NO. D-1	RHINEHART NO. B-2	REPUBLIC-BIG SANDY UNIT NO.1
API.....	15-189-21103		
LOCATION.....	SEC. 22, T34S, R39W	SEC. 27, T32S, R39W	CARTER COORDINATE 24-K-86
OWNER.....	ANADARKO PETROLEUM CORP.	ANADARKO PETROLEUM CORP.	ASHLAND EXPLORATION, INC.
COMPLETED.....	87/10/19	87/07/21	90/--/00
SAMPLED.....	90/06/06	90/02/15	90/09/13
FORMATION.....	PENN-MORROW U	PENN-MORROW	MISS-BEREA-DEVONIAN
GEOLOGIC PROVINCE CODE...	360	360	160
DEPTH, FEET.....	5976	5931	4750
WELLHEAD PRESSURE, PSIG...	1025	1095	650
OPEN FLOW, MCFD.....	1228	200	1550
COMPONENT, MOLE PCT			
METHANE.....	78.0	86.9	89.4
ETHANE.....	7.2	4.2	6.3
PROPANE.....	4.3	1.9	1.5
N-BUTANE.....	1.2	0.4	0.3
ISOBUTANE.....	0.6	0.3	0.0
N-PENTANE.....	0.7	0.0	0.0
ISOPENTANE.....	0.0	0.3	0.0
CYCLOPENTANE.....	TRACE	0.0	0.0
HEXANES PLUS.....	0.4	0.0	0.0
NITROGEN.....	6.8	4.9	2.3
OXYGEN.....	0.0	0.0	0.0
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	TRACE	0.1	0.2
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.3	0.0
HELIUM.....	0.17	0.73	0.04
HEATING VALUE*.....	1143	1040	1068
SPECIFIC GRAVITY.....	0.717	0.630	0.613

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19017	INDEX SAMPLE 18885	INDEX SAMPLE 18951
STATE.....	LOUISIANA	LOUISIANA	LOUISIANA
PARISH.....	DE SOTO	IBERIA	RED RIVER
FIELD.....	BELLE BOWER	COTEAU	BRACKY BRANCH
WELL NAME.....	SANDERS ESTATE NO. 1	RAYMOND DORE NO. 1	WIGGINS NO. 1
API.....	17-031-22773		
LOCATION.....	SEC. 7, T12N, R16W	SEC. 26, T11S, R5E	SEC. 36, T14N, R10W
OWNER.....	MARSHALL EXPLORATION CO., INC.	QUINTANA PETROLEUM CORP.	SKLAR & PHILLIPS OIL CO.
COMPLETED.....	90/07/09	89/01/04	89/08/16
SAMPLED.....	90/08/28	89/12/12	89/04/18
FORMATION.....	CRET-HOSSTON	MIOC-ALLIANCE	CRET-GLEN ROSE
GEOLOGIC PROVINCE CODE...	230	220	230
DEPTH, FEET.....	7000	11854	3101
WELLHEAD PRESSURE, PSIG...	2800	4100	1300
OPEN FLOW, MCFD.....	2550	2000	1500
COMPONENT, MOLE PCT			
METHANE.....	94.8	93.9	96.2
ETHANE.....	1.5	2.4	1.3
PROPANE.....	0.3	1.1	0.2
N-BUTANE.....	0.2	0.4	0.0
ISOBUTANE.....	0.0	0.6	0.4
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	0.1	0.0
CYCLOPENTANE.....	0.0	TRACE	0.0
HEXANES PLUS.....	0.0	0.5	0.0
NITROGEN.....	2.4	0.6	1.6
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	TRACE	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.7	0.3	0.4
HELIUM.....	0.03	TRACE	0.03
HEATING VALUE*.....	1005	1089	1014
SPECIFIC GRAVITY.....	0.586	0.614	0.578

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18911	INDEX SAMPLE 18998	INDEX SAMPLE 18888
STATE.....	LOUISIANA	MARYLAND	MICHIGAN
PARISH.....	VERMILION	GARRETT	ALPENA
FIELD.....	FRESHWATER BAYOU	MOUNTAIN LAKE PARK	NOT GIVEN
WELL NAME.....	E. A. MCILHENNY NO. B-1	BECKMAN NO. 4857	SNOWFLOW NO. 1-5
API.....		19-023-10058	
LOCATION.....	SEC. 36, T16S, R2E	OAKLAND FIELD	SEC. 5, T29N, R5E
OWNER.....	CONLEY P. SMITH OIL PRODUCING	COLUMBIA NATURAL RESOURCES, IN	BROWN, H. L., JR.
COMPLETED.....	89/--/00	52/08/05	85/--/00
SAMPLED.....	90/02/07	90/08/01	89/12/00
FORMATION.....	MIOC-ROB L5	DEVO-ORISKANY	SILU-CLINTON
GEOLOGIC PROVINCE CODE...	220	160	305
DEPTH, FEET.....	11687	3351	5520
WELLHEAD PRESSURE, PSIG...	3010	940	2000
OPEN FLOW, MCFD.....	2100	509	1250
COMPONENT, MOLE PCT			
METHANE.....	93.7	94.9	79.0
ETHANE.....	3.3	0.9	9.3
PROPANE.....	0.9	0.1	4.5
N-BUTANE.....	0.0	0.0	1.2
ISOBUTANE.....	0.4	0.0	1.5
N-PENTANE.....	0.0	0.0	0.2
ISOPENTANE.....	0.1	0.0	0.6
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.4
NITROGEN.....	0.5	3.1	3.2
OXYGEN.....	TRACE	0.7	TRACE
ARGON.....	TRACE	0.1	TRACE
HYDROGEN.....	TRACE	0.1	0.0
HYDROGEN SULFIDE**.....	0.2	0.0	0.0
CARBON DIOXIDE.....	1.0	0.0	TRACE
HELIUM.....	TRACE	0.09	0.03
HEATING VALUE*.....	1048	982	1228
SPECIFIC GRAVITY.....	0.600	0.577	0.725

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18935	INDEX SAMPLE 19007	INDEX SAMPLE 19052
STATE.....	MICHIGAN	MICHIGAN	MICHIGAN
COUNTY.....	MIDLAND	NEWAYGO	OSCEOLA
FIELD.....	PORTER	CROTON	WILDCAT
WELL NAME.....	CLINE NO. 1-32	BIRD NO. 1-3	STATE SHERMAN ET AL NO. 1-33
API.....			21-133-41327
LOCATION.....	SEC. 32, T14N, R2W	SEC. 3, T11N, R11W	SEC. 33, T20N, R9W
OWNER.....	COASTAL OIL & GAS CORP.	ARCO OIL & GAS CO.	NORTHERN MICHIGAN EXPLORATION
COMPLETED.....	90/--/00	90/--/00	90/07/00
SAMPLED.....	90/03/19	90/08/20	90/11/07
FORMATION.....	ORDO-PRAIRIE DU CHIEN	ORDO-GLENWOOD	ORDO-ST. PETER
GEOLOGIC PROVINCE CODE...	305	305	305
DEPTH, FEET.....	10669	6942	10490
WELLHEAD PRESSURE, PSIG....	4050	2500	202
OPEN FLOW, MCFD.....	30000	8430	455
COMPONENT, MOLE PCT			
METHANE.....	81.9	86.9	84.5
ETHANE.....	4.5	4.7	3.0
PROPANE.....	0.8	1.7	3.1
N-BUTANE.....	0.0	0.6	2.9
ISOBUTANE.....	0.3	0.6	2.0
N-PENTANE.....	0.0	0.2	0.8
ISOPENTANE.....	TRACE	0.0	1.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.2	0.4
NITROGEN.....	11.0	4.9	1.9
OXYGEN.....	1.3	0.1	0.0
ARGON.....	0.1	0.1	0.3
HYDROGEN.....	TRACE	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.0	0.1
HELIUM.....	0.05	0.08	0.02
HEATING VALUE*.....	940	1066	1254
SPECIFIC GRAVITY.....	0.643	0.641	0.731

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19038	INDEX SAMPLE 18950	INDEX SAMPLE 1887
STATE.....	MICHIGAN	MISSISSIPPI	MISSISSIPPI
COUNTY.....	PRESQUE ISLE	AMITE	AMITE
FIELD.....	NOT GIVEN	INDEPENDENCE	LIBERTY
WELL NAME.....	STATE-BISMARCK NO. 1-16B	JACK D. LOBRANO ETAL NO.1-36	FRED A. ANDERSON NO. 1
API.....			
LOCATION.....	SEC. 9 & 17, T34N, R4E	SEC. 36, T2N, R2E	SEC. 15, T1N, R4E
OWNER.....	NORTHERN PROCESSORS, INC.	ARKLA EXPLORATION CO.	C & D RESOURCES, INC.
COMPLETED.....	90/08/07	89/--/00	89/--/00
SAMPLED.....	90/10/09	90/04/18	89/12/17
FORMATION.....	SILU-NIAGARAN	OLIG-FRIO	CRET-TUSCALOOSA B
GEOLOGIC PROVINCE CODE.....	305	210	210
DEPTH, FEET.....	3464	4011	12208
WELLHEAD PRESSURE, PSIG.....	1350	50	2550
OPEN FLOW, MCFD.....	5000	440	1092
COMPONENT, MOLE PCT			
METHANE.....	88.5	97.8	76.3
ETHANE.....	5.2	0.8	8.6
PROPANE.....	2.0	0.0	3.8
N-BUTANE.....	0.9	0.0	1.0
ISOBUTANE.....	0.5	0.0	1.0
N-PENTANE.....	0.2	0.0	0.2
ISOPENTANE.....	0.2	0.0	0.6
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.0	0.5
NITROGEN.....	2.3	1.0	3.1
OXYGEN.....	0.0	0.0	0.4
ARGON.....	0.1	0.0	TRACE
HYDROGEN.....	0.0	TRACE	0.1
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.4	4.3
HELIUM.....	0.05	0.01	0.01
HEATING VALUE*.....	1107	1005	1156
SPECIFIC GRAVITY.....	0.640	0.566	0.751

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18999	INDEX SAMPLE 18940	INDEX SAMPLE 18917
STATE.....	MISSISSIPPI	MISSISSIPPI	MISSISSIPPI
COUNTY.....	JEFFERSON DAVIS	JONES	RANKIN
FIELD.....	GRANGE	FREE STATE	HOLLYBUSH
WELL NAME.....	DONALDSON 25-16 NO. 1	FRANKIE SMITH NO. 1	MCKAY ETAL NO. 1
API.....			
LOCATION.....	SEC. 25, T8N, R20W	SEC. 19, T8N, R13W	SEC. 30, T7N, R5E
OWNER.....	TEXAS CRUDE EXPLORATION, INC.	ORYX ENERGY CO.	SHELL WESTERN EXP. & PROD., IN
COMPLETED.....	90/04/25	89/11/09	89/11/15
SAMPLED.....	90/07/18	90/03/23	90/02/13
FORMATION.....	CRET-SLIGO	CRET-HOSSTON	JURA-NORPHLET
GEOLOGIC PROVINCE CODE...	210	210	210
DEPTH, FEET.....	13950	15906	16250
WELLHEAD PRESSURE, PSIG...	5200	NOT GIVEN	1500
OPEN FLOW, MCFD.....	2000	3750	9000
COMPONENT, MOLE PCT			
METHANE.....	94.9	86.0	0.5
ETHANE.....	0.7	5.4	0.0
PROPANE.....	0.3	2.1	TRACE
N-BUTANE.....	0.1	0.8	0.0
ISOBUTANE.....	0.1	0.8	TRACE
N-PENTANE.....	0.1	0.4	0.0
ISOPENTANE.....	0.1	0.2	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.4	0.0
NITROGEN.....	1.3	0.9	4.1
OXYGEN.....	0.1	TRACE	0.8
ARGON.....	0.0	TRACE	0.1
HYDROGEN.....	0.0	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.4	2.8	94.5
HELIUM.....	0.01	0.03	TRACE
HEATING VALUE*.....	993	1122	7
SPECIFIC GRAVITY.....	0.595	0.679	1.498

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 49 18967	INDEX SAMPLE 50 18922	INDEX SAMPLE 51 19056
STATE.....	MISSISSIPPI	MISSISSIPPI	MISSISSIPPI
COUNTY.....	SMITH	SMITH	WAYNE
FIELD.....	TRIMBLE	TRIMBLE	HIWANEEN
WELL NAME.....	PURSER NO. 17-1	BOARD OF SUPERVISORS NO. 1	BOARD OF EDUCATION 16-14 NO2
API.....			
LOCATION.....	SEC. 17, T10N, R16W	SEC. 16, T10N, R16W	SEC. 16, T10N, R7W
OWNER.....	COBRA OIL & GAS CORP.	COBRA OIL & GAS CORP.	INEXCO OIL CO.
COMPLETED.....	88/12/19	89/09/09	88/--/00
SAMPLED.....	90/01/29	90/02/13	90/11/12
FORMATION.....	CRET-EUTAW-STANLEY	CRET-EUTAW-STANLEY	JURA-SMACKOVER
GEOLOGIC PROVINCE CODE...	210	210	210
DEPTH, FEET.....	7488	7494	15562
WELLHEAD PRESSURE, PSIG....	2700	2700	1757
OPEN FLOW, MCFD.....	3128	3036	5693
COMPONENT, MOLE PCT			
METHANE.....	96.4	96.7	79.3
ETHANE.....	0.4	0.4	8.3
PROPANE.....	TRACE	0.2	4.4
N-BUTANE.....	0.3	0.0	1.6
ISOBUTANE.....	0.0	0.3	1.5
N-PENTANE.....	0.0	0.0	0.3
ISOPENTANE.....	0.4	TRACE	0.6
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.2
NITROGEN.....	1.9	1.8	1.0
OXYGEN.....	0.0	TRACE	0.2
* ARGON.....	0.0	0.0	0.1
HYDROGEN.....	0.0	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.1
CARBON DIOXIDE.....	0.6	0.5	2.5
HELIUM.....	0.03	0.03	TRACE
HEATING VALUE*.....	1011	1004	1216
SPECIFIC GRAVITY.....	0.582	0.577	0.738

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18941	INDEX SAMPLE 19043	INDEX SAMPLE 19054
STATE.....	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY.....	CHAVES	EDDY	EDDY
FIELD.....	DIABLO	DARK CANYON	HAPPY VALLEY
WELL NAME.....	MCBRIDE STATE COMM. NO. 1	MOSLEY SPRING "32" NO. 3	FEDERAL "N" NO. 1
API.....			
LOCATION.....	SEC. 28, T10S, R27E	SEC. 32, T22S, R25E	SEC. 6, T22S, R26E
OWNER.....	STEVENS OPERATING CORP.	GREAT WESTERN DRILLING CO.	MEWBOURNE OIL CO.
COMPLETED.....	89/11/28	90/--/00	89/04/22
SAMPLED.....	90/04/10	90/10/19	90/11/14
FORMATION.....	SILU-FUSSELMAN	PENN-STRAWN	PENN-CANYON
GEOLOGIC PROVINCE CODE...	430	430	430
DEPTH, FEET.....	6218	9842	9780
WELLHEAD PRESSURE, PSIG...	2000	2240	NOT GIVEN
OPEN FLOW, MCFD.....	2500	1400	150
COMPONENT, MOLE PCT			
METHANE.....	82.3	96.1	81.3
ETHANE.....	5.3	2.5	10.6
PROPANE.....	2.0	0.6	4.2
N-BUTANE.....	0.5	0.2	1.2
ISOBUTANE.....	0.7	0.1	0.9
N-PENTANE.....	0.0	0.0	0.2
ISOPENTANE.....	0.2	0.0	0.2
CYCLOPENTANE.....	0.0	0.0	0.1
HEXANES PLUS.....	0.0	0.0	0.2
NITROGEN.....	5.6	0.0	0.9
OXYGEN.....	0.7	0.0	TRACE
ARGON.....	0.3	0.1	0.1
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.2	0.4	0.1
HELIUM.....	0.22	0.03	0.02
HEATING VALUE*.....	1029	1043	1225
SPECIFIC GRAVITY.....	0.672	0.582	0.701

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18994	INDEX SAMPLE 19053	INDEX SAMPLE 18993
STATE.....	NEW MEXICO	NEW MEXICO	NEW YORK
COUNTY.....	LEA	LEA	SENECA
FIELD.....	BILBREY	TONTO	SENECA N
WELL NAME.....	BILBREY 28-A FEDERAL NO. 1	WYNELL FEDERAL NO. 1	W. FRIER UNIT NO. 1
API.....			31-099-19583
LOCATION.....	SEC. 28, T21S, R32E	SEC. 15, T19S, R33E	42 52 30 LAT, 76 52 30 LON
OWNER.....	SANTA FE ENERGY RESOURCES, INC	MANZANO OIL CORP.	MITCHELL ENERGY CORP.
COMPLETED.....	90/--/00	89/10/00	86/03/21
SAMPLED.....	90/07/25	90/11/14	90/07/21
FORMATION.....	PENN-MORROW	PENN-ATOKA	ORDO-QUEENSTON
GEOLOGIC PROVINCE CODE....	430	430	160
DEPTH, FEET.....	13902	12630	1799
WELLHEAD PRESSURE, PSIG...	6500	2250	520
OPEN FLOW, MCFD.....	7106	32504	2151
COMPONENT, MOLE PCT			
METHANE.....	93.0	40.0	96.7
ETHANE.....	3.4	20.5	1.2
PROPANE.....	1.0	23.1	0.2
N-BUTANE.....	0.3	7.5	0.0
ISOBUTANE.....	0.0	3.8	0.0
N-PENTANE.....	0.1	1.6	0.0
ISOPENTANE.....	0.0	1.6	0.0
CYCLOPENTANE.....	0.0	0.4	0.0
HEXANES PLUS.....	0.1	0.7	0.0
NITROGEN.....	1.7	0.5	1.8
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.3	0.0
HYDROGEN.....	TRACE	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.0	0.0
HELIUM.....	0.02	TRACE	0.12
HEATING VALUE*.....	1049	1940	1006
SPECIFIC GRAVITY.....	0.600	1.150	0.569

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19006	INDEX SAMPLE 18906	INDEX SAMPLE 18923
STATE.....	NEW YORK	NORTH DAKOTA	NORTH DAKOTA
COUNTY.....	SENECA	MCKENZIE	MCKENZIE
FIELD.....	SENECA N	ANTELOPE DEEP	BUFFALO WALLOW
WELL NAME.....	J. SKINNER UNIT NO. 1	MCKEEN NO. 30-23	CONOCO-NELSON NO. 41-7
API.....	31-099-19584		
LOCATION.....	42 52 30 LAT, 76 52 30 LONG	SEC. 30, T153N, R94W	SEC. 7, T148N, R100W
OWNER.....	MITCHELL ENERGY CORP.	AMERADA HESS CORP.	CONOCO, INC.
COMPLETED.....	86/03/06	89/09/00	89/06/26
SAMPLED.....	90/08/09	90/01/15	90/02/00
FORMATION.....	ORDO-QUEENSTON	ORDO-RED RIVER	ORDO-RED RIVER A & B
GEOLOGIC PROVINCE CODE...	160	395	395
DEPTH, FEET.....	1785	13644	13626
WELLHEAD PRESSURE, PSIG...	588	3300	NOT GIVEN
OPEN FLOW, MCFD.....	4913	1100	1203
COMPONENT, MOLE PCT			
METHANE.....	96.7	80.6	81.6
ETHANE.....	1.2	8.1	7.9
PROPANE.....	0.2	2.6	2.6
N-BUTANE.....	0.0	0.3	0.3
ISOBUTANE.....	0.0	0.6	1.2
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	TRACE	0.4	0.8
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.7	3.1	3.5
OXYGEN.....	0.1	1.1	0.0
ARGON.....	0.0	0.1	0.1
HYDROGEN.....	0.1	0.1	TRACE
HYDROGEN SULFIDE**.....	0.0	2.4	0.8
CARBON DIOXIDE.....	TRACE	0.7	1.3
HELIUM.....	0.11	0.04	0.04
HEATING VALUE*.....	1007	1091	1121
SPECIFIC GRAVITY.....	0.569	0.683	0.689

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 61 18914	INDEX SAMPLE 62 18886	INDEX SAMPLE 63 18948
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	ALFALFA	ATOKA	BEAVER
FIELD.....	AMORITA S	ARKOMA	FORGAN NW
WELL NAME.....	STATE OF OKLAHOMA NO. 2-36	J. C. LAFEVERS NO. 1	ADAMS NO. H-1
API.....			
LOCATION.....	SEC. 36, T28N, R11W	SEC. 10, T1N, R13E	SEC. 16, T6N, R23E
OWNER.....	RAMCO ENERGY CORP.	TEXACO INC.	ANADARKO PETROLEUM CORP.
COMPLETED.....	89/08/08	88/11/02	88/05/16
SAMPLED.....	90/02/05	89/12/14	90/04/18
FORMATION.....	DEVO-MISENER	PENN-WAPANUCKA	PENN-MORROW U
GEOLOGIC PROVINCE CODE...	360	400	360
DEPTH, FEET.....	5610	12285	5791
WELLHEAD PRESSURE, PSIG...	1153	4240	1280
OPEN FLOW, MCFD.....	402	13914	7460
COMPONENT, MOLE PCT			
METHANE.....	84.4	96.7	85.4
ETHANE.....	7.0	1.2	5.5
PROPANE.....	2.7	0.2	3.8
N-BUTANE.....	0.6	0.0	0.0
ISOBUTANE.....	0.1	0.1	2.3
N-PENTANE.....	0.1	0.0	0.0
ISOPENTANE.....	0.2	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	4.5	0.4	2.7
OXYGEN.....	0.0	0.0	0.0
ARGON.....	TRACE	TRACE	0.1
HYDROGEN.....	TRACE	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	1.4	0.2
HELIUM.....	0.16	0.03	0.10
HEATING VALUE*.....	1090	1008	1138
SPECIFIC GRAVITY.....	0.654	0.579	0.667

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18960	INDEX SAMPLE 18921	INDEX SAMPLE 19003
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	BEAVER	BECKHAM	CADDO
FIELD.....	MOCANE-LAVERNE GAS AREA	MAYFIELD SW	EAKLY-WEATHERFORD
WELL NAME.....	VIRGIL DEAN NO. 1-13	SOONER UNIT NO. 2	LORENE NO. 1-33
API.....			
LOCATION.....	SEC. 13, T4N, R23ECM	SEC. 35, T10N, R26W	SEC. 33, T10N, R12W
OWNER.....	VINTAGE PETROLEUM, INC.	HELMERICH & PAYNE, INC.	ANSON CO.
COMPLETED.....	89/07/26	89/01/20	88/10/24
SAMPLED.....	90/05/16	90/02/21	90/08/06
FORMATION.....	PERM-COUNCIL GROVE	PENN-VIRGIL RED	PENN-CHEROKEE
GEOLOGIC PROVINCE CODE.....	360	360	360
DEPTH, FEET.....	3094	5671	12802
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	1436	2700
OPEN FLOW, MCFD.....	784	1277	265
COMPONENT, MOLE PCT			
METHANE.....	84.4	84.8	86.1
ETHANE.....	5.8	5.3	6.4
PROPANE.....	3.8	2.7	2.5
N-BUTANE.....	0.0	0.7	0.5
ISOBUTANE.....	2.1	0.5	0.2
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	0.0	0.4	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.3	0.0
NITROGEN.....	3.8	4.9	3.1
OXYGEN.....	0.0	0.0	0.8
ARGON.....	0.0	TRACE	0.1
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.1	0.3
HELIUM.....	0.15	0.17	0.03
HEATING VALUE*.....	1126	1102	1081
SPECIFIC GRAVITY.....	0.667	0.664	0.644

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19058	INDEX SAMPLE 19018	INDEX SAMPLE 18912
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	CADDO	CLEVELAND	COMANCHE
FIELD.....	WATONGA-CHICKASHA TREND	WILDCAT	STERLING
WELL NAME.....	FLETCHER NO. 1-36	BOOMER NO. 1-31	BETTY LOU NO. 1-21
API.....			
LOCATION.....	SEC. 36, T9N, R9W	SEC. 31, T10N, R3W	SEC. 21, T3N, R9W
OWNER.....	KAISER-FRANCIS OIL CO.	SANTA FE ENERGY RESOURCES, INC	C D OPERATING CO.
COMPLETED.....	90/08/15	90/08/00	88/10/14
SAMPLED.....	90/11/20	90/08/28	90/02/00
FORMATION.....	PENN-YULE SAND	ORDO-SIMPSON PERM-DOLomite	PENN-BRISCOE U
GEOLOGIC PROVINCE CODE...	360	355	350
DEPTH, FEET.....	7986	9051	7016
WELLHEAD PRESSURE, PSIG....	2700	2810	1100
OPEN FLOW, MCFD.....	3000	11569	1000
COMPONENT, MOLE PCT			
METHANE.....	88.0	86.4	90.4
ETHANE.....	3.1	6.4	3.6
PROPANE.....	0.9	2.7	1.4
N-BUTANE.....	0.2	0.9	0.2
ISOBUTANE.....	0.0	0.3	0.3
N-PENTANE.....	0.1	0.2	0.0
ISOPENTANE.....	0.1	0.1	0.2
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.0	0.1	0.0
NITROGEN.....	7.2	2.7	3.6
OXYGEN.....	0.0	0.1	0.0
ARGON.....	0.0	0.1	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.0	0.1
HELIUM.....	0.17	0.03	0.08
HEATING VALUE*.....	986	1120	1045
SPECIFIC GRAVITY.....	0.618	0.652	0.614

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 70 SAMPLE 18891	INDEX 71 SAMPLE 19009	INDEX 72 SAMPLE 18946
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	DEWEY	GRADY	HARPER
FIELD.....	OAKWOOD N	GOLDEN TREND	BOILING SPRINGS N
WELL NAME.....	WASINGER-MEYER NO. 1	RIDDLE NO. 1	SMITH NO. 1-19
API.....		35-051-22116	35-059-35345
LOCATION.....	SEC. 6, T17N, R14W	SEC. 32, T5N, R5W	SEC. 19, T25N, R20W
OWNER.....	TXO PRODUCTION CORP.	HOME-STAKE ROYALTY CORP.	MIDWESTERN EXPLORATION CO.
COMPLETED.....	89/07/26	90/03/07	90/01/16
SAMPLED.....	89/12/28	90/08/22	90/04/16
FORMATION.....	DEVO-HUNTON	PENN-PRIMROSE	MISS-CHESTER U
GEOLOGIC PROVINCE CODE.....	360	360	360
DEPTH, FEET.....	11415	10064	7004
WELLHEAD PRESSURE, PSIG...	3900	1620	NOT GIVEN
OPEN FLOW, MCFD.....	8827	2784	6200
COMPONENT, MOLE PCT			
METHANE.....	94.0	87.7	89.4
ETHANE.....	2.2	5.3	3.5
PROPANE.....	0.8	2.6	1.5
N-BUTANE.....	0.1	0.8	0.0
ISOBUTANE.....	0.4	0.2	1.0
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	0.0	0.2	0.3
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.3	0.1	0.0
NITROGEN.....	1.1	2.5	1.8
OXYGEN.....	0.0	0.1	1.8
ARGON.....	0.1	0.1	0.0
HYDROGEN.....	0.0	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.9	0.1	0.6
HELIUM.....	0.03	0.10	0.10
HEATING VALUE*.....	1047	1112	1055
SPECIFIC GRAVITY.....	0.603	0.645	0.631

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 73 SAMPLE 18939	INDEX 74 SAMPLE 19046	INDEX 75 SAMPLE 18894
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	HARPER	HUGHES	LATIMER
FIELD.....	NOT GIVEN	WETUMKA SE	HARTSHORNE S
WELL NAME.....	AMBER NO. 1	BRAY NO. 1	PATTERSON UNIT NO. 1-C
API.....		35-063-22855	
LOCATION.....	SEC. 22, T25N, R22W	SEC. 25, T9N, R10E	SEC. 27, T4N, R17E
OWNER.....	MEWBOURNE OIL CO.	G R B RESOURCES, INC.	AMOCO PRODUCTION CO.
COMPLETED.....	89/07/01	89/10/20	89/05/31
SAMPLED.....	90/03/19	90/11/00	90/01/00
FORMATION.....	PENN-MORROW L	PENN-RED FORK	PENN-SPIRO
GEOLOGIC PROVINCE CODE...	360	355	345
DEPTH, FEET.....	7314	1310	NOT GIVEN
WELLHEAD PRESSURE, PSIG...	2200	600	4100
OPEN FLOW, MCFD.....	1548	1500	14500
COMPONENT, MOLE PCT			
METHANE.....	94.1	90.5	96.1
ETHANE.....	2.2	1.3	1.3
PROPANE.....	0.6	0.6	0.2
N-BUTANE.....	0.1	0.0	0.0
ISOBUTANE.....	0.2	0.1	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.4	7.1	0.4
OXYGEN.....	0.5	0.1	0.0
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	TRACE	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.7	0.1	1.9
HELIUM.....	0.07	0.21	0.03
HEATING VALUE*	1022	959	1003
SPECIFIC GRAVITY.....	0.593	0.599	0.583

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 76 SAMPLE 18895	INDEX 77 SAMPLE 19036	INDEX 78 SAMPLE 18983
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	LATIMER	LATIMER	MCINTOSH
FIELD.....	HARTSHORNE S	PANOLA	NEEDHAM NE
WELL NAME.....	PATTERSON UNIT NO. 1-T	LIVELY NO. 2-6	STEWART NO. 1
API.....		35-077-20534	35-091-20854
LOCATION.....	SEC. 27, T4N, R17E	SEC. 6, T5N, R20E	SEC. 9, T11N, R18E
OWNER.....	AMOCO PRODUCTION CO.	M E C, INC.	TEXAKOMA OIL & GAS CORP.
COMPLETED.....	89/05/31	90/06/05	89/12/20
SAMPLED.....	90/01/00	90/10/05	90/06/26
FORMATION.....	PENN-WAPANUCKA	PENN-CECIL	PENN-POPE CHAPEL
GEOLOGIC PROVINCE CODE...	345	345	355
DEPTH, FEET.....	NOT GIVEN	11952	1093
WELLHEAD PRESSURE, PSIG...	4100	5800	550
OPEN FLOW, MCFD.....	14500	900	1500
COMPONENT, MOLE PCT			
METHANE.....	96.1	96.0	87.8
ETHANE.....	1.4	1.0	6.3
PROPANE.....	0.1	0.2	1.7
N-BUTANE.....	0.0	0.0	0.2
ISOBUTANE.....	0.1	0.0	0.1
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.3	0.8	3.5
OXYGEN.....	TRACE	0.2	0.0
ARGON.....	0.0	0.0	TRACE
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.9	1.7	0.1
HELIUM.....	0.03	0.02	0.14
HEATING VALUE*.....	1007	995	1060
SPECIFIC GRAVITY.....	0.584	0.582	0.624

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 79 SAMPLE 18979	INDEX 80 SAMPLE 18992	INDEX 81 SAMPLE 18989
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	MUSKOGEE	PITTSBURG	PITTSBURG
FIELD.....	WAINWRIGHT	HAILEYVILLE SW	MCALESTER SW
WELL NAME.....	WARNER-BORUM-WARNER NE NO. 1	SCOTT UNIT NO. 1	CABLE NO. 3-18
API.....	35-101-22640	35-121-21490	35-121-21510
LOCATION.....	SEC. 25, T14N, R16E	SEC. 36, T4N, R15E	SEC. 18, T4N, R15E
OWNER.....	F. D. & JACK OIL CO.	AMOCO PRODUCTION CO.	SANTA FE MINERALS, INC.
COMPLETED.....	89/12/00	89/11/09	90/01/17
SAMPLED.....	90/06/00	90/07/00	90/07/12
FORMATION.....	PENN-CROMWELL	PENN-BRAZIL	PENN-ATOKA
GEOLOGIC PROVINCE CODE...	355	345	345
DEPTH, FEET.....	2140	6494	7004
WELLHEAD PRESSURE, PSIG...	950	2100	1580
OPEN FLOW, MCFD.....	1000	7000	1032
COMPONENT, MOLE PCT			
METHANE.....	79.6	92.9	95.2
ETHANE.....	13.2	3.1	2.5
PROPANE.....	5.1	1.0	0.6
N-BUTANE.....	1.6	0.1	0.0
ISOBUTANE.....	0.4	TRACE	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.0	2.0	1.1
OXYGEN.....	0.0	0.6	0.0
ARGON.....	0.0	0.1	0.0
HYDROGEN.....	TRACE	0.1	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.3	0.5
HELIUM.....	0.11	0.04	0.05
HEATING VALUE*.....	1242	1025	1027
SPECIFIC GRAVITY.....	0.700	0.595	0.583

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19048	INDEX SAMPLE 19049	INDEX SAMPLE 19047
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	ROGER MILLS	ROGER MILLS	STEPHENS
FIELD.....	HAMMON NW	STRONG CITY DISTRICT	MILROY
WELL NAME.....	WILLIAMS NO. 3-17	MOONEY NO. 1-26	HEFNER NO. 1-10
API.....	35-129-21512	35-129-21513	35-137-24820
LOCATION.....	SEC. 17, T15N, R21W	SEC. 26, T15N, R23W	SEC. 10, T2S, R4W
OWNER.....	APACHE CORP.	APACHE CORP.	APACHE CORP.
COMPLETED.....	90/07/02	90/07/01	90/03/19
SAMPLED.....	90/11/06	90/11/06	90/11/06
FORMATION.....	PENN-PRUE	PENN-PRUE-RED FORK	ORDO-OIL CREEK
GEOLOGIC PROVINCE CODE...	360	360	350
DEPTH, FEET.....	11201	11244	7872
WELLHEAD PRESSURE, PSIG...	3359	4350	1159
OPEN FLOW, MCFD.....	5855	1817	20704
COMPONENT, MOLE PCT			
METHANE.....	84.0	85.9	77.2
ETHANE.....	8.0	6.5	8.1
PROPANE.....	3.3	2.4	4.6
N-BUTANE.....	1.0	1.0	3.1
ISOBUTANE.....	0.2	0.2	0.5
N-PENTANE.....	0.2	0.3	0.8
ISOPENTANE.....	0.1	0.2	0.4
CYCLOPENTANE.....	0.0	0.1	0.1
HEXANES PLUS.....	0.1	0.2	0.3
NITROGEN.....	2.6	2.2	4.5
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.1	0.2
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.3
CARBON DIOXIDE.....	0.4	1.0	0.0
HELIUM.....	0.03	0.03	0.06
HEATING VALUE*	1140	1121	1235
SPECIFIC GRAVITY.....	0.669	0.663	0.747

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18974	INDEX SAMPLE 18962	INDEX SAMPLE 19042
STATE.....	OKLAHOMA	PENNSYLVANIA	PENNSYLVANIA
COUNTY.....	WASHITA	ERIE	SOMERSET
FIELD.....	SENTINEL	ELK CREEK	HIGGINS RUN
WELL NAME.....	CLUCK NO. 1-7	WILBUR KEAN NO. 1	LAMBERSON NO. 4141
API.....			
LOCATION.....	SEC. 7, T8N, R19W	SEC. 1, ALBION QUAD	STOYSTOWN QUAD
OWNER.....	KAISER-FRANCIS OIL CO.	TEXAS MERIDIAN OPERATING CO.,	CNG DEVELOPMENT CO.
COMPLETED.....	88/09/11	82/12/04	89/11/01
SAMPLED.....	90/06/06	90/05/16	90/10/12
FORMATION.....	PENN-CUNNINGHAM-MORROW	DEVO-ORISKANY	DEVO-ORISKANY
GEOLOGIC PROVINCE CODE...	360	160	160
DEPTH, FEET.....	12565	2442	8897
WELLHEAD PRESSURE, PSIG...	1700	6	3500
OPEN FLOW, MCFD.....	1360	NOT GIVEN	4500
COMPONENT, MOLE PCT			
METHANE.....	93.7	83.6	98.2
ETHANE.....	3.7	4.8	0.6
PROPANE.....	0.7	3.4	0.1
N-BUTANE.....	0.7	0.0	0.0
ISOBUTANE.....	TRACE	1.5	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.0	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.5	6.5	0.6
OXYGEN.....	0.0	0.0	0.1
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.7	TRACE	0.3
HELIUM.....	0.02	0.29	0.03
HEATING VALUE*.....	1057	1069	1010
SPECIFIC GRAVITY.....	0.599	0.660	0.565

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18892	INDEX SAMPLE 19040	INDEX SAMPLE 18916
STATE.....	PENNSYLVANIA	PENNSYLVANIA	PENNSYLVANIA
COUNTY.....	VENANGO	VENANGO	VENANGO
FIELD.....	BREEDTOWN	COOPERSTOWN	CRAMERVEN
WELL NAME.....	R. O. & D. L. SHAFFER NO. 1	PHYLLIS B. MOTTER NO. 1	CHRIS G. BELL NO. 1-A
API.....			
LOCATION.....	SEC. E, CHERRYTREE DIST.	SEC. B., PLUM DIST., DEMPSEY T	CANAL TOWNSHIP
OWNER.....	QUAKER STATE CORP.	MARK RESOURCES CORP.	CABOT OIL & GAS CORP.
COMPLETED.....	86/10/25	84/09/19	89/07/22
SAMPLED.....	90/01/02	90/10/12	90/01/29
FORMATION.....	SILU-MEDINA-GRIMSBY	SILU-MEDINA	SILU-MEDINA
GEOLOGIC PROVINCE CODE...	160	160	160
DEPTH, FEET.....	5596	5300	5250
WELLHEAD PRESSURE, PSIG...	1190	1500	1380
OPEN FLOW, MCFD.....	1200	1200	2909
COMPONENT, MOLE PCT			
METHANE.....	93.1	92.2	91.9
ETHANE.....	2.6	3.4	4.0
PROPANE.....	0.3	0.9	0.6
N-BUTANE.....	0.2	0.2	0.2
ISOBUTANE.....	0.1	0.1	0.1
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	0.3	0.0	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.1	0.3
NITROGEN.....	3.0	2.9	2.7
OXYGEN.....	0.0	0.1	0.0
ARGON.....	0.0	TRACE	0.0
HYDROGEN.....	0.2	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	TRACE	0.0	0.1
HELIUM.....	0.09	0.09	0.09
HEATING VALUE*.....	1023	1039	1042
SPECIFIC GRAVITY.....	0.593	0.601	0.603

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 91 SAMPLE 18879	INDEX 92 SAMPLE 18924	INDEX 93 SAMPLE 18918
STATE.....	PENNSYLVANIA	TEXAS	TEXAS
COUNTY.....	WESTMORELAND	CROCKETT	DENTON
FIELD.....	JOHNSTOWN	OZONA SW	MONTEATH
WELL NAME.....	MELLON BANK NA NO. 1	VADA BEAN NO. 3	H & B JACKSON NO. 1
API.....			
LOCATION.....	SEC. C, LIGONIER DIST., LIGONI	SEC. 14, BLK. M., GC&SF SUR.	A. HENRY SUR., A-527
OWNER.....	CNG DEVELOPMENT CO.	HARRISON INTERESTS, LTD.	ENRE CORP.
COMPLETED.....	88/--/00	90/04/10	10/90/02
SAMPLED.....	89/11/17	90/03/01	90/02/13
FORMATION.....	DEVO-ORISKANY	PENN-STRAWN	PENN-PREGNANT SHALE
GEOLOGIC PROVINCE CODE...	160	430	420
DEPTH, FEET.....	7704	9185	5171
WELLHEAD PRESSURE, PSIG...	1100	2990	1200
OPEN FLOW, MCFD.....	6500	11000	375
COMPONENT, MOLE PCT			
METHANE.....	97.6	95.9	78.3
ETHANE.....	1.3	1.2	6.6
PROPANE.....	TRACE	0.1	3.4
N-BUTANE.....	0.0	0.0	0.6
ISOBUTANE.....	0.0	TRACE	0.6
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.1	0.5
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.7	1.2	8.4
OXYGEN.....	0.1	TRACE	0.8
ARGON.....	0.0	0.0	TRACE
HYDROGEN.....	0.0	0.0	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	1.5	0.6
HELIUM.....	0.03	0.03	0.13
HEATING VALUE*.....	1013	999	1061
SPECIFIC GRAVITY.....	0.567	0.582	0.694

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19000	INDEX SAMPLE 19001	INDEX SAMPLE 18965
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	DUVAL	DUVAL	FREESTONE
WELL.....	MUY GRANDE	MUY GRANDE	BEAR GRASS
WELL NAME.....	FROST NATIONAL BANK NO. 1	PETERS ESTATE GAS UNIT NO. 1	LOVERING NO. 1
API.....	42-131-37305		
LOCATION.....	W. H. BROOKS SUR., NO. 30		
OWNER.....	AMOCO PRODUCTION CO.	NOT GIVEN	NOT GIVEN
COMPLETED.....	--/--/00	89/--/00	89/06/19
SAMPLED.....	90/08/02	90/08/02	90/05/24
FORMATION.....	NOT GIVEN	EOCE-WILCOX-MUY GRANDE	CRET-TRAVIS PEAK
GEOLOGIC PROVINCE CODE...	220	220	260
DEPTH, FEET.....	NOT GIVEN	14756	9412
WELLHEAD PRESSURE, PSIG...	7500	7000	3500
OPEN FLOW, MCFD.....	1250	5200	1400
COMPONENT, MOLE PCT			
METHANE.....	88.9	88.7	94.7
ETHANE.....	0.0	0.0	3.1
PROPANE.....	TRACE	0.0	0.2
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	0.0	0.7
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.0	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.4	0.3	0.0
OXYGEN.....	0.1	0.1	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	10.6	10.8	1.2
HELIUM.....	TRACE	0.00	0.01
HEATING VALUE*.....	901	900	1048
SPECIFIC GRAVITY.....	0.660	0.662	0.596

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 97 SAMPLE 18896	INDEX 98 SAMPLE 19041	INDEX 99 SAMPLE 18942
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	HANSFORD	HANSFORD	HANSFORD
FIELD.....	HANSFORD	MORSE SW	VENNEMAN
WELL NAME.....	ETTER NO. 2	WOMBLE NO. 3	VENNEMAN NO. 1
API.....		42-195-31077	
LOCATION.....	SEC. 25, BLK. R, B&B SUR.	SEC. 27, BLK. 3, GH&H SUR.	SEC. 29, BLK. 1, WCRS SUR.
OWNER.....	BHP PETROLEUM (AMERICAS), INC.	J. M. HUBER CORP.	STRAT LAND EXPLORATION CO.
COMPLETED.....	89/06/26	90/05/10	88/09/29
SAMPLED.....	90/01/04	90/10/00	90/04/11
FORMATION.....	PENN-CLEVELAND	PERM-WICHITA-ALBANY	PENN-ATOKA
GEOLOGIC PROVINCE CODE.....	360	360	360
DEPTH, FEET.....	6533	30178	6444
WELLHEAD PRESSURE, PSIG.....	1462	342	1040
OPEN FLOW, MCFD.....	3527	2200	1100
COMPONENT, MOLE PCT			
METHANE.....	82.0	71.4	85.3
ETHANE.....	6.7	7.5	6.1
PROPANE.....	4.3	4.1	2.5
N-BUTANE.....	1.3	1.2	0.8
ISOBUTANE.....	0.6	0.2	0.4
N-PENTANE.....	0.2	0.1	0.0
ISOPENTANE.....	0.5	0.1	0.1
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.5	0.0	0.0
NITROGEN.....	3.3	14.1	2.2
OXYGEN.....	0.0	0.0	2.2
ARGON.....	0.0	0.2	0.1
HYDROGEN.....	0.0	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.0	0.3
HELIUM.....	0.17	1.02	0.09
HEATING VALUE*.....	1189	1020	1083
SPECIFIC GRAVITY.....	0.704	0.713	0.654

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19014	INDEX SAMPLE 18966	INDEX SAMPLE 18862
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	HUTCHINSON	LEON	LEON
FIELD.....	ARRINGTON	BEAR GRASS	EILEEN SULLIVAN
WELL NAME.....	OWNBEY NO. 2	MCASHAN NO. 3	LEMEKE NO. 1
API.....	42-233-32412		
LOCATION.....	SEC. 25, Z. C. COLLIER SUR.	NOT GIVEN	R. HOLLAND SUR., A-416
OWNER.....	STRAT LAND EXPLORATION CO.	GRACE PETROLEUM CORP.	WISEBAKER PRODUCTION CO.
COMPLETED.....	90/06/10	89/06/16	88/10/21
SAMPLED.....	90/08/00	90/05/24	89/10/09
FORMATION.....	PENN-DOUGLAS-TONKAWA	JURA-COTTON VALLEY	CRET-GLEN ROSE
GEOLOGIC PROVINCE CODE.....	440	260	260
DEPTH, FEET.....	5032	14167	8947
WELLHEAD PRESSURE, PSIG.....	1176	6500	3065
OPEN FLOW, MCFD.....	1900	12000	808
COMPONENT, MOLE PCT			
METHANE.....	86.0	94.0	82.9
ETHANE.....	3.3	3.3	8.9
PROPANE.....	2.0	0.0	4.0
N-BUTANE.....	0.8	0.0	0.9
ISOBUTANE.....	0.2	0.0	0.7
N-PENTANE.....	0.2	0.0	0.2
ISOPENTANE.....	0.2	0.0	0.3
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.0	0.5
NITROGEN.....	6.8	0.0	0.3
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.1	0.0	TRACE
HYDROGEN.....	0.0	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	2.8	1.3
HELIUM.....	0.30	TRACE	0.01
HEATING VALUE*.....	1040	1010	1205
SPECIFIC GRAVITY.....	0.645	0.598	0.699

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19019	INDEX SAMPLE 19022	INDEX SAMPLE 18981
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	LIBERTY	LIPSCOMB	LIPSCOMB
FIELD.....	HATHAWAY HARDY SE	SPERRY	STABEL
WELL NAME.....	STONE NO. 2	HARRELSON NO. 1-1137	HERBERT & BECHTOLD NO. 1
API.....			
LOCATION.....	NOT GIVEN	SEC. 1137, BLK. 43, H&TC SUR.	SEC. 989, BLK. 43, H&TC SUR.
OWNER.....	ARCO OIL & GAS CO.	ZINKE & TRUMBO, LTD.	PRINCESS THREE
COMPLETED.....	89/--/00	89/05/03	88/07/14
SAMPLED.....	90/09/06	90/09/07	90/08/06
FORMATION.....	EOCE-YEGUA	PENN-MORROW	PENN-TONKAWA
GEOLOGIC PROVINCE CODE...	220	360	360
DEPTH, FEET.....	10411	9003	6544
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	1118	1800
OPEN FLOW, MCFD.....	24620	625	4600
COMPONENT, MOLE PCT			
METHANE.....	87.6	86.4	84.8
ETHANE.....	5.7	5.7	6.5
PROPANE.....	2.3	2.9	2.9
N-BUTANE.....	0.9	1.2	1.2
ISOBUTANE.....	0.3	0.4	0.2
N-PENTANE.....	0.2	0.3	0.2
ISOPENTANE.....	0.2	0.3	0.2
CYCLOPENTANE.....	0.1	0.1	0.0
HEXANES PLUS.....	0.2	0.2	0.1
NITROGEN.....	1.9	2.2	3.2
OXYGEN.....	0.1	0.0	0.2
ARGON.....	0.1	0.1	0.3
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.5	0.0
HELIUM.....	TRACE	0.06	0.09
HEATING VALUE*.....	1119	1139	1123
SPECIFIC GRAVITY.....	0.651	0.665	0.665

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18959	INDEX SAMPLE 18927	INDEX SAMPLE 18972
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	LIVE OAK	OCHILTREE	OCHILTREE
FIELD.....	GOEBEL S	CALLIE JOE	CALLIE JOE
WELL NAME.....	GOEBEL GAS UNIT NO. 8	BROWNLEE NO. 1	MCGARRAUGH NO. 1
API.....	42-297-33815		42-357-31941
LOCATION.....	J. POITEVENT SUR., A-338	SEC. 305, BLK. 43, H&TC SUR.	SEC. 224, BLK. 43, H&TC SUR.
OWNER.....	BRIDGE OIL CO.	MEWBOURNE OIL CO.	MEWBOURNE OIL CO.
COMPLETED.....	88/04/14	89/11/22	90/03/19
SAMPLED.....	90/05/14	90/03/07	90/05/30
FORMATION.....	EOCE-SLICK	PENN-MORROW	PENN-MORROW U
GEOLOGIC PROVINCE CODE.....	220	360	360
DEPTH, FEET.....	6900	9044	9028
WELLHEAD PRESSURE, PSIG...	1850	2225	2153
OPEN FLOW, MCFD.....	2600	4000	5000
COMPONENT, MOLE PCT			
METHANE.....	85.1	87.1	87.2
ETHANE.....	4.5	7.0	5.9
PROPANE.....	2.8	3.0	3.0
N-BUTANE.....	0.0	0.9	0.0
ISOBUTANE.....	1.2	0.4	1.1
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	0.0	0.3	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.3	0.0
NITROGEN.....	2.9	TRACE	1.9
OXYGEN.....	1.3	0.0	0.0
ARGON.....	0.2	TRACE	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.1	0.7	0.8
HELIUM.....	TRACE	0.08	0.08
HEATING VALUE*.....	1053	1167	1105
SPECIFIC GRAVITY.....	0.663	0.663	0.646

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18997	INDEX SAMPLE 18970	INDEX SAMPLE 18910
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	OCHILTREE	REFUGIO	SHERMAN
FIELD.....	HANSFORD	L SQUARED	PALO DURO CREEK
WELL NAME.....	BLODGETT NO. 2	BERNADINE WOOD NO. 1	FIKE NO. 2
API.....			
LOCATION.....	SEC. 24, BLK. R, B&B SUR.	EDMUND ST. JOHN SUR., A-69	SEC. 11, BLK. 3-B, GH&H SUR.
OWNER.....	BHP PETROLEUM (AMERICAS), INC.	ORYX ENERGY CO.	PHILLIPS PETROLEUM CO.
COMPLETED.....	89/05/17	89/01/00	89/11/08
SAMPLED.....	90/07/26	90/05/24	90/02/07
FORMATION.....	PENN-CLEVELAND	OLIG-FRIO-SINTON "A" SAND	PENN-VIRGIL L
GEOLOGIC PROVINCE CODE...	360	220	360
DEPTH, FEET.....	6622	4799	4228
WELLHEAD PRESSURE, PSIG...	1115	NOT GIVEN	639
OPEN FLOW, MCFD.....	3400	618	38800
COMPONENT, MOLE PCT			
METHANE.....	82.7	95.6	73.3
ETHANE.....	5.9	2.0	6.0
PROPANE.....	4.1	0.4	4.0
N-BUTANE.....	1.8	0.0	1.0
ISOBUTANE.....	0.4	1.1	0.6
N-PENTANE.....	0.3	0.0	0.1
ISOPENTANE.....	0.4	0.3	0.7
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.0
NITROGEN.....	4.0	0.0	13.6
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.1	0.0	TRACE
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.5	0.1
HELIUM.....	0.17	0.01	0.46
HEATING VALUE*.....	1161	1068	1042
SPECIFIC GRAVITY.....	0.692	0.597	0.720

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 112 SAMPLE 18943	INDEX 113 SAMPLE 19064	INDEX 114 SAMPLE 19035
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	SHERMAN	VAN ZANDT	WEBB
FIELD.....	STRATFORD DOME	BEN WHEELER	BASHARA HEREFORD
WELL NAME.....	BRYAN NO. 2	M. G. MARSH NO. 1	C. BRUNI MINERAL TRUST NO. 22
API.....			42-479-35004
LOCATION.....	SEC. 369, BLK. 1-T, FS7WL SUR.	J. H. BOWMAN SUR., A-65	JOSE ANTONIO TREVINO NO. 56
OWNER.....	BRYAN EXPLORATION CO.	ENERGY DEVELOPMENT CORP.	CHEVRON U.S.A., INC.
COMPLETED.....	89/10/25	88/07/00	90/06/04
SAMPLED.....	90/03/06	90/11/27	90/09/24
FORMATION.....	PENN-CISCO LIME U	CRET-BACON LIMESTONE	CRET-LOBO
GEOLOGIC PROVINCE CODE.....	360	260	220
DEPTH, FEET.....	2852	8493	7199
WELLHEAD PRESSURE, PSIG...	31	3011	4320
OPEN FLOW, MCFD.....	1400	6700	21300
COMPONENT, MOLE PCT			
METHANE.....	62.3	87.6	90.4
ETHANE.....	6.9	5.9	4.8
PROPANE.....	6.0	2.3	1.5
N-BUTANE.....	2.7	0.8	0.4
ISOBUTANE.....	2.8	0.5	0.3
N-PENTANE.....	0.0	0.4	0.2
ISOPENTANE.....	2.7	0.1	0.0
CYCLOPENTANE.....	0.0	0.1	0.0
HEXANES PLUS.....	0.0	0.2	0.2
NITROGEN.....	15.0	0.8	1.5
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.1	0.1	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.9	1.3	0.6
HELIUM.....	0.73	0.02	TRACE
HEATING VALUE*.....	1210	1129	1082
SPECIFIC GRAVITY.....	0.852	0.657	0.625

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 115 SAMPLE 18995	INDEX 116 SAMPLE 18956	INDEX 117 SAMPLE 19002
STATE.....	TEXAS	TEXAS	UTAH
COUNTY.....	WHARTON	WHEELER	SAN JUAN
FIELD.....	JONES CREEK	BRITT RANCH W	BUG
WELL NAME.....	ELRAY MATZKE NO. 1	THOMAS NO. 2-3	BUG NO. 16
API.....			43-373-30607
LOCATION.....	G. G. GIFFORD SUR., A-662	SEC. 3, BLK. 5, B&B SUR.	SEC. 17, T36S, R26E
OWNER.....	MEDALLION OIL CO.	HARDY OIL & GAS U.S.A.	WEXPRO CO.
COMPLETED.....	89/11/05	89/07/31	89/06/02
SAMPLED.....	90/07/24	90/05/08	90/08/00
FORMATION.....	EOCE-WILCOX	PENN-GRANITE WASH	PENN-ISMAY
GEOLOGIC PROVINCE CODE...	220	360	585
DEPTH, FEET.....	14000	12120	6176
WELLHEAD PRESSURE, PSIG...	10300	1914	1475
OPEN FLOW, MCFD.....	4568	10000	1427
COMPONENT, MOLE PCT			
METHANE.....	84.4	77.8	82.7
ETHANE.....	4.8	12.6	8.8
PROPANE.....	1.6	4.9	3.1
N-BUTANE.....	0.4	1.7	1.0
ISOBUTANE.....	0.2	0.9	0.2
N-PENTANE.....	0.1	0.0	0.2
ISOPENTANE.....	0.2	0.6	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.0	0.1
NITROGEN.....	1.6	1.5	3.8
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	6.5	0.0	0.0
HELIUM.....	0.00	0.04	0.02
HEATING VALUE*.....	1021	1255	1131
SPECIFIC GRAVITY.....	0.682	0.723	0.670

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 118 18890	INDEX SAMPLE 119 18977	INDEX SAMPLE 120 18930
STATE.....	UTAH	UTAH	WEST VIRGINIA
COUNTY.....	SAN JUAN	UINTAH	BARBOUR
FIELD.....	NOT GIVEN	NATURAL BUTTES	BELINGTON
WELL NAME.....	CABALLO UNIT NO. 2-9	COTTONWOOD FEDERAL NO. 1-20	FRI-109 FEE
API.....		43-047-31875	
LOCATION.....	SEC. 9, T36S, R23E	SEC. 20, T9S, R21E	VALLEY DIST., BELINGTON QUAD
OWNER.....	QUINTANA PETROLEUM CORP.	ENRON OIL & GAS CO.	FUEL RESOURCES PROD. & DEVELOP
COMPLETED.....	88/06/23	90/02/11	89/--/00
SAMPLED.....	89/12/20	90/06/09	89/03/00
FORMATION.....	PENN-ISLAY	EOCE-GREEN RIVER	DEVO-HAVERY 1, 2, & 3-ELKS
GEOLOGIC PROVINCE CODE.....	585	575	160
DEPTH, FEET.....	6492	4526	5531
WELLHEAD PRESSURE, PSIG...	1000	1825	1250
OPEN FLOW, MCFD.....	100	3600	888
COMPONENT, MOLE PCT			
METHANE.....	77.8	89.0	89.7
ETHANE.....	11.8	3.3	5.4
PROPANE.....	5.2	1.5	1.5
N-BUTANE.....	1.3	0.4	0.2
ISOBUTANE.....	0.9	0.2	0.7
N-PENTANE.....	0.2	0.0	0.0
ISOPENTANE.....	0.5	0.0	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.3	0.0	0.0
NITROGEN.....	1.7	4.0	1.6
OXYGEN.....	0.1	1.5	0.2
ARGON.....	TRACE	0.1	TRACE
HYDROGEN.....	0.1	TRACE	0.5
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	TRACE	0.2	0.1
HELIUM.....	0.03	0.02	0.12
HEATING VALUE*.....	1257	1018	1080
SPECIFIC GRAVITY.....	0.728	0.621	0.617

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 121 SAMPLE 19059	INDEX 122 SAMPLE 18909	INDEX 123 SAMPLE 18990
STATE.....	WEST VIRGINIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY.....	DODDRIDGE	DODDRIDGE	HARRISON
FIELD.....	NOT GIVEN	STRAIGHT FORK	JARVISVILLE
WELL NAME.....	HINKLE NO. D-14	BRITON NO. 3	REYNOLDS NO. 1
API.....			
LOCATION.....	GREENBRIER DIST.		
OWNER.....	SHELDON & ASSOCIATES, INC.		
COMPLETED.....	88/04/02		
SAMPLED.....	90/10/00		
FORMATION.....	DEVO-ELK-BALLTOWN-SPEECHLY		
GEOLOGIC PROVINCE CODE.....	160		
DEPTH, FEET.....	3572		
WELLHEAD PRESSURE, PSIG....	1550		
OPEN FLOW, MCFD.....	300		
COMPONENT, MOLE PCT			
METHANE.....	81.7	80.0	85.7
ETHANE.....	11.5	12.3	7.8
PROPANE.....	3.7	4.1	2.4
N-BUTANE.....	0.7	0.8	0.6
ISOBUTANE.....	0.5	0.7	0.3
N-PENTANE.....	0.2	0.1	0.1
ISOPENTANE.....	0.2	0.4	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.4	0.1
NITROGEN.....	1.2	0.9	2.8
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	TRACE	0.0
HYDROGEN.....	0.1	0.1	0.1
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.1	0.0
HELIUM.....	0.07	0.05	0.06
HEATING VALUE*.....	1190	1232	1110
SPECIFIC GRAVITY.....	0.682	0.704	0.646

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 124 SAMPLE 19060	INDEX 125 SAMPLE 19055	INDEX 126 SAMPLE 19057
STATE.....	WEST VIRGINIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY.....	LEWIS	RANDOLPH	RANDOLPH
FIELD.....	WESTON-JANE LEW	BOWDEN	BOWDEN
WELL NAME.....	HARRISON NO. D-20	C. J. KELLY NO. 3775	J. M. COBERLY NO. 3570
API.....		47-083-21093	
LOCATION.....	HACKERS CREEK DIST.	BEVERLY DIST., BOWDEN QUAD	BEVERLY DIST., BOWDEN QUAD
OWNER.....	SHELDON & ASSOCIATES, INC.	CNG DEVELOPMENT CO.	CNG DEVELOPMENT CO.
COMPLETED.....	88/10/20	90/--/--/00	90/--/--/00
SAMPLED.....	90/09/15	90/11/16	90/11/16
FORMATION.....	DEVO-BENSON-BALLTOWN	DEVO-ORISKANY	DEVO-CHERT
GEOLOGIC PROVINCE CODE...	160	160	160
DEPTH, FEET.....	4286	8400	7191
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	2100	2450
OPEN FLOW, MCFD.....	1350	1100	2000
COMPONENT, MOLE PCT			
METHANE.....	85.5	97.8	98.1
ETHANE.....	9.0	1.1	1.0
PROPANE.....	3.0	0.1	0.1
N-BUTANE.....	0.6	0.0	0.0
ISOBUTANE.....	0.3	TRACE	0.0
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	0.1	0.1	0.0
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.1	0.0	0.0
NITROGEN.....	1.0	0.7	0.5
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.1	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.3	0.2
HELIUM.....	0.07	0.05	0.05
HEATING VALUE*.....	1157	1014	1016
SPECIFIC GRAVITY.....	0.656	0.567	0.565

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 127 SAMPLE 18991	INDEX 128 SAMPLE 18961	INDEX 129 SAMPLE 18889
STATE.....	WEST VIRGINIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY.....	RITCHIE	RITCHIE	TYLER
FIELD.....	BEASON RUN	LONG RUN WATERSHED	CENTERVILLE
WELL NAME.....	TAYLOR NO. H-5	E. R. TAYLOR NO. 21	CLARK NO. 1
API.....			
LOCATION.....	CLAY DIST., PULLMAN QUAD	CLAY DIST.	WEST UNION QUAD
OWNER.....	GAS SEARCH CORP.	EASTERN AMERICAN ENERGY CORP.	COASTAL CORP., THE
COMPLETED.....	89/--/00	90/--/00	89/07/19
SAMPLED.....	90/07/18	90/05/04	89/12/15
FORMATION.....	DEVO-RILEY	DEVO-ALEXANDER-WARREN	DEVO-BENSON-RILEY
GEOLOGIC PROVINCE CODE...	160	160	160
DEPTH, FEET.....	4303	3487	4674
WELLHEAD PRESSURE, PSIG...	1600	1600	1600
OPEN FLOW, MCFD.....	2200	2232	1200
COMPONENT, MOLE PCT			
METHANE.....	81.2	76.6	80.2
ETHANE.....	9.8	11.7	11.1
PROPANE.....	3.3	5.8	4.4
N-BUTANE.....	0.7	0.0	1.1
ISOBUTANE.....	0.2	3.1	0.7
N-PENTANE.....	0.0	0.0	0.3
ISOPENTANE.....	0.1	0.0	0.3
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.0	0.5
NITROGEN.....	4.4	2.7	1.3
OXYGEN.....	0.1	0.0	TRACE
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	0.0	0.1
HELIUM.....	0.08	0.06	0.08
HEATING VALUE*.....	1125	1240	1234
SPECIFIC GRAVITY.....	0.672	0.728	0.709

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18915	INDEX SAMPLE 19039	INDEX SAMPLE 19021
STATE.....	WYOMING	WYOMING	WYOMING
COUNTY.....	CAMPBELL	FREMONT	FREMONT
FIELD.....	OEDEKOVEN	LONG CREEK	STEAMBOAT BUTTE
WELL NAME.....	PAL NO. 82-B	HEANEY GOVERNMENT NO. 4	TRIBAL "A" NO. 1
API.....	SEC. 19, T55N, R73W	49-013-21583	40-013-06327
LOCATION.....	RESOURCE ENTERPRISES, INC.	SEC. 5, T31N, R94W	SEC. 15, T3N, R1W
OWNER.....	89/12/08	WOLD OIL & GAS	CHEVRON U.S.A., INC.
COMPLETED.....	90/02/08	90/07/28	86/05/06
FORMATION.....	EOCE-FORT UNION	90/10/02	90/09/06
GEOLOGIC PROVINCE CODE.....	515	CRET-LAKOTA	CRET-FRONTIER
DEPTH, FEET.....	406	530	530
WELLHEAD PRESSURE, PSIG.....	38	2737	2387
OPEN FLOW, MCFD.....	860	710	400
COMPONENT, MOLE PCT		1038	1005
METHANE.....	93.5	91.1	92.2
ETHANE.....	0.0	1.9	3.2
PROPANE.....	TRACE	0.5	1.4
N-BUTANE.....	0.0	0.3	0.6
ISOBUTANE.....	0.0	0.0	0.2
N-PENTANE.....	0.0	0.0	0.2
ISOPENTANE.....	0.0	0.1	0.2
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.1
NITROGEN.....	5.8	5.1	1.8
OXYGEN.....	0.2	0.7	0.0
ARGON.....	0.1	0.1	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.1	0.2
HELIUM.....	TRACE	0.20	0.02
HEATING VALUE*.....	948	984	1074
SPECIFIC GRAVITY.....	0.584	0.601	0.614

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 133 18929	INDEX SAMPLE 134 19024	INDEX SAMPLE 135 19037
STATE.....	WYOMING	WYOMING	WYOMING
COUNTY.....	SUBLETTE	SWEETWATER	SWEETWATER
FIELD.....	MIDDLE PINEY	PINE CANYON	SWAN
WELL NAME.....	MIDDLE PINEY NO. 20-11	PINE CANYON NO. 10-34	RICH-STATE NO. 32-36
API.....		49-037-22693	49-037-22643
LOCATION.....	SEC. 11, T29N, R113W	SEC. 34, T23N, R103W	SEC. 36, T24N, R111W
OWNER.....	ENRON OIL & GAS CO.	PACIFIC ENTERPRISES OIL CO. (U.	PRESIDIO ENERGY, INC.
COMPLETED.....	89/08/15	90/05/08	89/10/31
SAMPLED.....	90/03/01	90/09/10	90/09/19
FORMATION.....	CRET-MESAVERDE	JURA-MORRISON	CRET-FRONTIER
GEOLOGIC PROVINCE CODE...	535	535	535
DEPTH, FEET.....	2605	8610	10242
WELLHEAD PRESSURE, PSIG...	1050	2550	4700
OPEN FLOW, MCFD.....	1300	1600	2414
COMPONENT, MOLE PCT			
METHANE.....	85.2	95.3	89.5
ETHANE.....	7.8	2.2	5.5
PROPANE.....	2.5	0.7	1.5
N-BUTANE.....	0.4	0.0	0.3
ISOBUTANE.....	1.1	0.2	0.0
N-PENTANE.....	0.0	0.0	0.1
ISOPENTANE.....	TRACE	0.1	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.5	0.0	0.1
NITROGEN.....	0.0	1.2	2.6
OXYGEN.....	0.0	0.1	0.2
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	TRACE	TRACE	TRACE
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.3	0.2	0.3
HELIUM.....	0.01	0.02	0.01
HEATING VALUE*.....	1148	1032	1064
SPECIFIC GRAVITY.....	0.677	0.584	0.620

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 136 SAMPLE 18969	
STATE.....	WYOMING	
COUNTY.....	UINTA	
FIELD.....	CHURCH BUTTES	
WELL NAME.....	CHURCH BUTTES UNIT NO. 66	
API.....	49-041-20805	
LOCATION.....	SEC. 20, T17N, R112W	
OWNER.....	WEXPRO CO.	
COMPLETED.....	90/02/11	
SAMPLED.....	90/05/24	
FORMATION.....	CRET-FRONTIER	
GEOLOGIC PROVINCE CODE.....	535	
DEPTH, FEET.....	12296	
WELLHEAD PRESSURE, PSIG.....	NOT GIVEN	
OPEN FLOW, MCFD.....	1535	
COMPONENT, MOLE PCT		
METHANE.....	80.9	-----
ETHANE.....	10.5	-----
PROPANE.....	3.9	-----
N-BUTANE.....	0.0	-----
ISOBUTANE.....	2.1	-----
N-PENTANE.....	0.0	-----
ISOPENTANE.....	0.0	-----
CYCLOPENTANE.....	0.0	-----
HEXANES PLUS.....	0.0	-----
NITROGEN.....	0.0	-----
OXYGEN.....	0.0	-----
ARGON.....	0.0	-----
HYDROGEN.....	TRACE	-----
HYDROGEN SULFIDE**.....	0.0	-----
CARBON DIOXIDE.....	2.5	-----
HELIUM.....	0.01	-----
HEATING VALUE*.....	1181	-----
SPECIFIC GRAVITY.....	0.702	-----

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 19029	INDEX SAMPLE 19027	INDEX SAMPLE 19030
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	FRANKLIN	FRANKLIN	FRANKLIN
FIELD.....	BATSON	LONE ELM	ROCK CREEK
LOCATION.....	10" INLET- BATSON	8" INLET- LONE ELM	4" INLET- ROCK CREEK
OWNER.....	ARKANSAS WESTERN GAS CO.	ARKANSAS WESTERN GAS CO.	ARKANSAS WESTERN GAS CO.
SAMPLED.....	90/09/17	90/09/17	90/09/17
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	235	238	100
FLOW, MCFD.....	10000	1500	2000
COMPONENT, MOLE PCT			
METHANE.....	98.8	97.8	98.0
ETHANE.....	0.1	1.0	1.0
PROPANE.....	0.1	0.2	0.2
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	0.0	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.0	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.8	0.7	0.6
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	TRACE	0.0	0.1
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.2	0.0
HELIUM.....	0.09	0.07	0.08
HEATING VALUE*.....	1005	1014	1016
SPECIFIC GRAVITY.....	0.560	0.566	0.564

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 19028	INDEX SAMPLE 19032	INDEX SAMPLE 19031
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	FRANKLIN	LOGAN	LOGAN
FIELD.....	WHITE OAK	CECIL & KNOXVILLE	E. OK-WILBURTON\RED OAK, AR
LOCATION.....	6" INLET- WHITE OAK	BT-1 INLET	24"/30" INLET- 0 & 010 LINES
OWNER.....	ARKANSAS WESTERN GAS CO.	ARKLA ENERGY RESOURCES	ARKLA ENERGY RESOURCES
SAMPLED.....	90/09/17	90/09/18	90/09/18
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	238	680	700
FLOW, MCFD.....	50000	30000	800000
COMPONENT, MOLE PCT			
METHANE.....	98.2	97.8	96.1
ETHANE.....	0.9	1.0	1.4
PROPANE.....	0.2	0.2	0.4
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	0.0	0.1
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.4	0.4	0.6
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	TRACE
HYDROGEN.....	0.0	0.0	TRACE
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.5	1.4
HELIUM.....	0.07	0.08	0.03
HEATING VALUE*.....	1015	1013	1010
SPECIFIC GRAVITY.....	0.564	0.568	0.582

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 19033	INDEX SAMPLE 19026
STATE.....	ARKANSAS	OKLAHOMA
COUNTY.....	POPE	CREEK
FIELD.....	KNOXVILLE	CENTRAL & WESTERN OKLAHOMA
LOCATION.....	6" INLET	24" INLET
OWNER.....	ARKLA ENERGY RESOURCES	OKLAHOMA NATURAL GAS CO.
SAMPLED.....	90/09/18	90/09/12
FORMATION.....	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	345	355
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	125	520
FLOW, MCFD.....	1000	125000
COMPONENT, MOLE PCT		
METHANE.....	98.1	93.8
ETHANE.....	0.9	3.0
PROPANE.....	0.2	0.6
N-BUTANE.....	0.0	0.0
ISOBUTANE.....	0.0	0.1
N-PENTANE.....	0.0	0.0
ISOPENTANE.....	0.0	0.0
CYCLOPENTANE.....	0.0	0.0
HEXANES PLUS.....	0.0	0.0
NITROGEN.....	0.5	2.3
OXYGEN.....	0.0	0.0
ARGON.....	0.0	0.0
HYDROGEN.....	0.0	TRACE
HYDROGEN SULFIDE.....	0.0	0.0
CARBON DIOXIDE.....	0.3	0.1
HELIUM.....	0.06	0.05
HEATING VALUE*.....	1014	1023
SPECIFIC GRAVITY.....	0.565	0.587

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

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⁵Although many of these publications are out of print, a magnetic tape file containing all analyses and related information published through 1990 is available from the National Technical Information Service, Springfield, VA 22161; 1-800/553-NTIS. Order should refer to Bureau of Mines tape of Natural Gas Analyses; the cost is \$220.