

HOLLAND & HART LLP
AND
CAMPBELL & CARR
ATTORNEYS AT LAW

12417
B

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July 11, 2001

HAND DELIVERED

David R. Catanach
Engineer / Examiner
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
SAGA	EXHIBIT NO. B
CASE NO. 12417	

ORIGINAL FILED
JUL 11 2001

Re: Case 12417: Saga Petroleum L.L.C.
Crossroads Siluro-Devonian Unit
Lea County, New Mexico.

Dear Mr. Catanach;

Saga Petroleum, L.L.C. submits the enclosed information in response to the three issues which you identified in your June 4, 2001.

Notice---By certified letters dated June 21, 2001, Saga Petroleum L.L.C. notified all working, royalty and overriding royalty interest owners in the proposed Crossroads Siluro-Devonian Unit area of its application for statutory unitization of the unit area in Case 12417 (Reopened). At the time of the hearing on this reopened case, I will present an affidavit confirming that all parties have been properly notified of this hearing including Sinclair Trust and Fernald Point Prod. Trust. You will note that no notice was provided to Alfa Resources, Inc. Alfa Resources, Inc. owned a working interest in the NW/4 of Section 27, Township 9 South, Range 36 East, NMPM, Lea County, New Mexico (Unit Tract 2). This interest has been acquired by Saga. Enclosed (pages 1 through 3a.) is a copy of the Assignment and Bill of Sale from Alfa Resources, Inc. conveying this interest to Saga Petroleum L.L.C.

For our application for the proposed waterflood project, we also re-notified all leasehold operators within one mile of our proposed injection well in the unit area and the owner of the surface of the land upon which the injection well is to be located (Case No. 12418). I will present an affidavit confirming the additional notice in this case at the July 12 Examiner hearing.

Tract Allocation---Actual numbers for the calculation of the production allocated to each tract in the unit were determined in accordance with a weighted formula: reserves 45% and Production 55%.

- (a) The cumulative production, as of the cut off date of 1 January 1, 2000, used for each tract within the unit is set out on page 4 of the enclosed information.
- (b) Saga's reserve estimates are based on the decline curves for each lease and are adjusted for operating costs, oil prices and taxes. The decline curve and Reserve and Economic data used for each of the three leases in the proposed unit area are enclosed as pages 8 through 15. Reserves calculations for each tract within the unit are also enclosed. Pages -16 through 18 identify all data utilized to determine the tract allocation percentages for each tract within the proposed unit area. As I previously advised, the actual reserve numbers for each tract were determined by use of a OGRE computer program which generates the reserve figures. We have obtained from OGRE Partners LTD. the formulas used to calculate the individual tract allocation percentages for each of the three tracts in the proposed Crossroads Siluro-Devonian Unit. These formulas are also enclosed (Pages 19 through 25).
- (c) The actual calculation that determined the tract allocation percentages is set out on page 4 of the enclosed material.

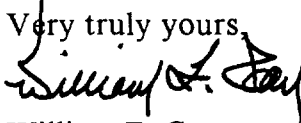
This material contains all the data used to determine the tract allocation percentages of 38%, 51% and 11%.

Project Costs---Enclosed (page26) is a summary by well of the Field Status and Development Costs for the Crossroads Siluro-Devonian Unit. The total project costs, as shown on this table, are \$480,000. This table shows the costs associated with the original plan for conducting unit operations. Since these plans were presented to the Oil Conservation Division, Saga has had to plug and abandon the well No. 311 and well No. 306 will also be plugged. Accordingly, after adjustment for the Well 311 and 306, the additional costs of conducting waterflood operations in the proposed unit area is \$430,000. The water to be injected is produced water from the leases in the proposed unit area and no additional costs are attributed to acquisition of water. Saga anticipates that 1,361,000 barrels of additional oil will be recovered as a result of waterflood operations in the Crossroads Siluro-Devonian Unit Area (See Testimony of Seltzer, transcript at pages 33-34, 40-41). The estimated value of this production is \$24,498,000 at an average price of \$18.00 per barrel. (See, Reserves and Economics Tables attached hereto, pages 8 through 15). Accordingly, the estimated additional

Letter to David R. Catanach
July 11, 2001
Page 3.

costs of conducting these waterflood operations will not exceed the estimated value of the additional oil and gas to be recovered plus a reasonable profit.

I believe Saga Petroleum, L.L.C. has provided all data requested in your June 4, 2001 letter. If you need additional data, please advise.

Very truly yours,

William F. Carr

cc: Charles Farmer
Joe Clement
Saga Petroleum, L.L.C.

ASSIGNMENT of OIL and GAS LEASE
and
BILL OF SALE

STATE OF NEW MEXICO }
 }
COUNTY OF LEA } KNOW ALL MEN BY THESE PRESENTS:

THAT, ALFA RESOURCES INC., A COLORADO CORPORATION, whose address is 1975 East Otero Lane, Littleton, Colorado 80122, (hereinafter called "Assignor"), for and in consideration of FORGIVENESS OF DEBT and other good and valuable consideration, receipt of which is hereby acknowledged, does hereby assign, transfer, grant and convey unto SAGA PETROLEUM CORP, whose address is 415 West Wall, Suite 835, Midland, Texas 79701, (hereinafter collectively called "Assignee"), and their successors and assigns Assignor's entire RIGHT, TITLE and INTEREST, one hundred percent (100%) in and to the Oil and Gas Lease described on Exhibit "A" attached hereto and made a part hereof for all purposes (hereinafter called the "Subject Lease"), together with all rights incident thereto including the following:

- (a) Assignor's leasehold interest in oil, gas and other minerals, including working interest, net profits interests, rights of assignment and reassignment, and all other rights and interest under the Subject Lease.
- (b) All rights and interests in or derived from unit agreements, orders and decisions of state and federal regulatory authorities establishing units, joint operating agreements, enhanced recovery agreements, water flood agreements, farmout agreements and farm in agreements, options, drilling agreements, unitization, pooling and communitization agreements, oil and/or gas sales agreements, processing agreements, gas gathering and transmission agreements, gas balancing agreements, salt water disposal and injection agreements, assignments of operating rights, subleases, and any and all other agreements to the extent they pertain to the Subject Lease, the lands and the wells located on the Subject Lease.
- (c) All rights of way, easements, surface fees, surface leases, servitudes and franchises, insofar as they pertain to the Subject Leases and any wells located on the Subject Lease.
- (d) All permits and licenses of any nature owned, held or operated by Assignor in connection with the Subject Lease, land and the wells located on the Subject Lease.
- (e) All producing, nonproducing and shut in oil and gas wells, salt water disposal wells, water wells, injection wells, and all other wells on or attributable to the Subject Lease, whether or not identified in the Exhibit to this Assignment.
- (f) All personal property, fixtures and improvements situated upon or used or held for use in connection with the production, treatment, storage or transportation of oil, gas distillate, casinghead gas, condensate or other liquid or vaporous hydrocarbons or other minerals from the Subject Lease, and all wells, tanks, buildings, boilers, plant fixtures, pumps, casing, rods, tubing, wellhead equipment, separators, heater treaters, pipelines, gathering

Page 2

Assignment of Oil and Gas Lease

- (i) lines, flow lines, valves fittings, all other surface and down hole equipment, fixtures, related inventory, roads, telephone and telegraph lines, and all other appurtenances pertaining to and used in connection with the Subject Lease and the wells located on the Subject Lease and all other interests described above.

This Assignment is executed expressly subject to the terms and provisions of the Subject Lease and Assignee shall bear proportionately their part of any royalty and/or overriding royalty which is currently of record and to which the assigned lease is subject.

This Assignment shall be further subject to the following terms, conditions or exceptions:

1. This Assignment shall be effective as of 12:01 AM local time, September 1, 1999 ("Effective Date").
2. Assignee hereby agrees to assume all responsibility for said wells, the casing and leasehold equipment in and on said wells, and all other property used on or in connection therewith, from and after the Effective Date of this Assignment, including all costs of plugging and abandonment of the wells located thereon, restoration of areas disturbed by oil and gas activities and any permit conditions and related liabilities of Assignor as of the Effective Date of this Assignment.
3. This Assignment is made and accepted and constitutes full satisfaction of all debts owed by Assignor to Assignee and Assignee to Assignor pursuant to any contractual arrangement arising out of past or present operations attributable to the subject lease.

TO HAVE AND TO HOLD the Property granted, bargained, sold, conveyed, transferred, assigned and delivered as successors and assigns, subject to the matters set forth herein; PROVIDED, HOWEVER, THIS ASSIGNMENT IS MADE AND ACCEPTED WITHOUT WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WARRANTIES RELATING TO (j) TITLES TO THE SUBJECT PROPERTY OR THE FITNESS OF THE SUBJECT PROPERTY FOR A PARTICULAR PURPOSE OR PURPOSES. ASSIGNEE HAS INSPECTED THE SUBJECT MATERIAL, EQUIPMENT AND PERSONAL PROPERTY AND ACCEPTS THE SAME "AS IS, WHERE IS" AND "WITH ALL FAULTS." This Assignment is made with full substitution and subrogation of Assignee in and to all covenants and warranties by others heretofore given or made in respect to the Property or any part hereof insofar as such covenants and warranties extend beyond the Effective Date.

This Assignment is executed this the 25 day of October, 1999, but shall be effective for all purposes as of the 1st day of September, 1999.

ASSIGNOR:

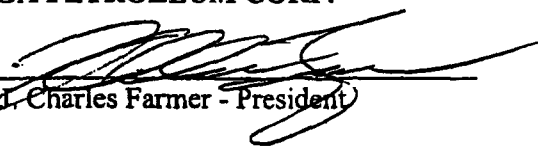
ALFA RESOURCE INC., A COLORADO CORPORATION

By: Dennis R. Staal

Mr. Dennis Staal, Treasurer

ASSIGNEE:

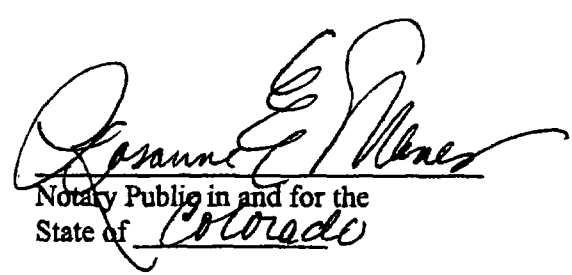
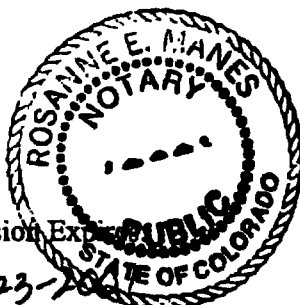
SAGA PETROLEUM CORP.

By: 

L. Charles Farmer - President

STATE OF Colorado }
COUNTY OF Denver }This instrument was acknowledged before me on October 25, 1999, by Mr. Dennis Staal, Treasurer of Alfa Resource Inc., A Colorado Corporation.

My Commission Expires

4-23-2001
Notary Public in and for the
State of Colorado

STATE OF TEXAS }

COUNTY OF MIDLAND }

This instrument was acknowledged before me on this 29th day of October, 1999 by J. Charles Farmer as President, of Saga Petroleum Corp.

My Commission Expires: 10/20/03

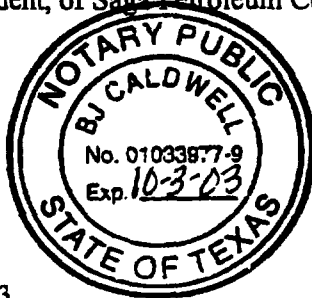

Notary Public in and for the
State of Texas

EXHIBIT "A"

Santa Fe Pacific

Lease Date: June 1, 1950
Lessor: Santa Fe Pacific Railroad Company
Lessee: Oil Development Company of Texas
Volume/Page: 89 OG 302
Description: Insofar as said Lease covers a 6.0% Working Interest (5.25% Net Revenue Interest) in and to the NW/4 of Section 27, Township 9 South, Range 36 East, NMPM, Lea County, New Mexico, limited as to those formations from the surface to a depth of 100 feet below the Devonian Formation.

Crossroads Unitization

TRACT #	LEASE NAME	CUMULATIVE OIL (1/1/00)	% CUMULATIVE	REMAINING RESERVES	% RESERVES	Current Production -BOPD	% Current Production
1	Texaco U.D. Sawyer	2352391	23.2451	268859	39.7399	40	36.036
2	Santa Fe Pacific	1942967	19.1994	325964	48.1805	60	54.054
3	U.D. Sawyer	5824599	57.5556	81724	12.0796	11	9.910
TOTAL		10119957	100.0000	676547	100.0000	111.000	100.000

Cumulative Oil as of 1/1/2000

Participation = (% Reserves*.45)+(% Current Production*.55)

Tract #		%
1	Participation = $(39.7399 \times 0.45) + (36.036 \times 0.55) =$	37.702768
2	Participation = $(48.1805 \times 0.45) + (54.054 \times 0.55) =$	51.410973
3	Participation = $(12.0796 \times 0.45) + (9.910 \times 0.55) =$	10.886259
Total		100.000

Tract 1 - Texaco U.D. Sawyer

Owner	WORKING INTEREST	Tract Participation %	UNIT TRACT PART. %
Saga Petroleum LLC	0.02000000	X 0.37702768	= 0.00754055
Forcenergy, Inc.	0.75000000	X 0.37702768	= 0.28277076
Saga Petroleum Corp.	0.23000000	X 0.37702768	= 0.08671637
TOTAL	1.00000000		0.37702768

Owner	REVENUE INTEREST	Tract Participation %	UNIT TRACT PART. %
Saga Petroleum LLC	0.01640630	X 0.37702768	= 0.00618563
Forcenergy, Inc.	0.61523430	X 0.37702768	= 0.23196036
Saga Petroleum Corp.	0.18867190	X 0.37702768	= 0.07113453
Sandra Good RA Mey Trust	0.01074200	X 0.37702768	= 0.00405003
Price Y-CIA	0.00244150	X 0.37702768	= 0.00092051
Myrl Sawyer Good	0.02506500	X 0.37702768	= 0.00945020
Susie L. Wadley First Trust	0.00203470	X 0.37702768	= 0.00076714
Susie L. Wadley First Trust	0.00203460	X 0.37702768	= 0.00076710
Sinclair Trust	0.00195310	X 0.37702768	= 0.00073637
Fernald Point Prod. Trust	0.00195310	X 0.37702768	= 0.00073637
Candace Good Jacobson	0.03938800	X 0.37702768	= 0.01485037
Thomas Jefferson Good	0.03938800	X 0.37702768	= 0.01485037
Sandra Good RA Mey Trust (OR)	0.00512700	X 0.37702768	= 0.00193302
Myrl Sawyer Good (OR)	0.01196290	X 0.37702768	= 0.00451034
Candace Good Jacobson (OR)	0.01879880	X 0.37702768	= 0.00708767
Thomas Jefferson Good (OR)	0.01879880	X 0.37702768	= 0.00708767
TOTAL	1.00000000		0.37702768

Tract 2 - Santa Fe Pacific

Owner	WORKING INTEREST	Tract Participation %	UNIT TRACT PART. %
Saga Petroleum LLC	0.01820000	X 0.51410973	= 0.00935680
Forcenergy, Inc.	0.68250000	X 0.51410973	= 0.35087989
Saga Petroleum Corp.	0.20930000	X 0.51410973	= 0.10760317
Yellow Queen Uranium Co.	0.03000000	X 0.51410973	= 0.01542329
Alfa Resources, Inc.	0.06000000	X 0.51410973	= 0.03084658
TOTAL	1.00000000		0.51410973

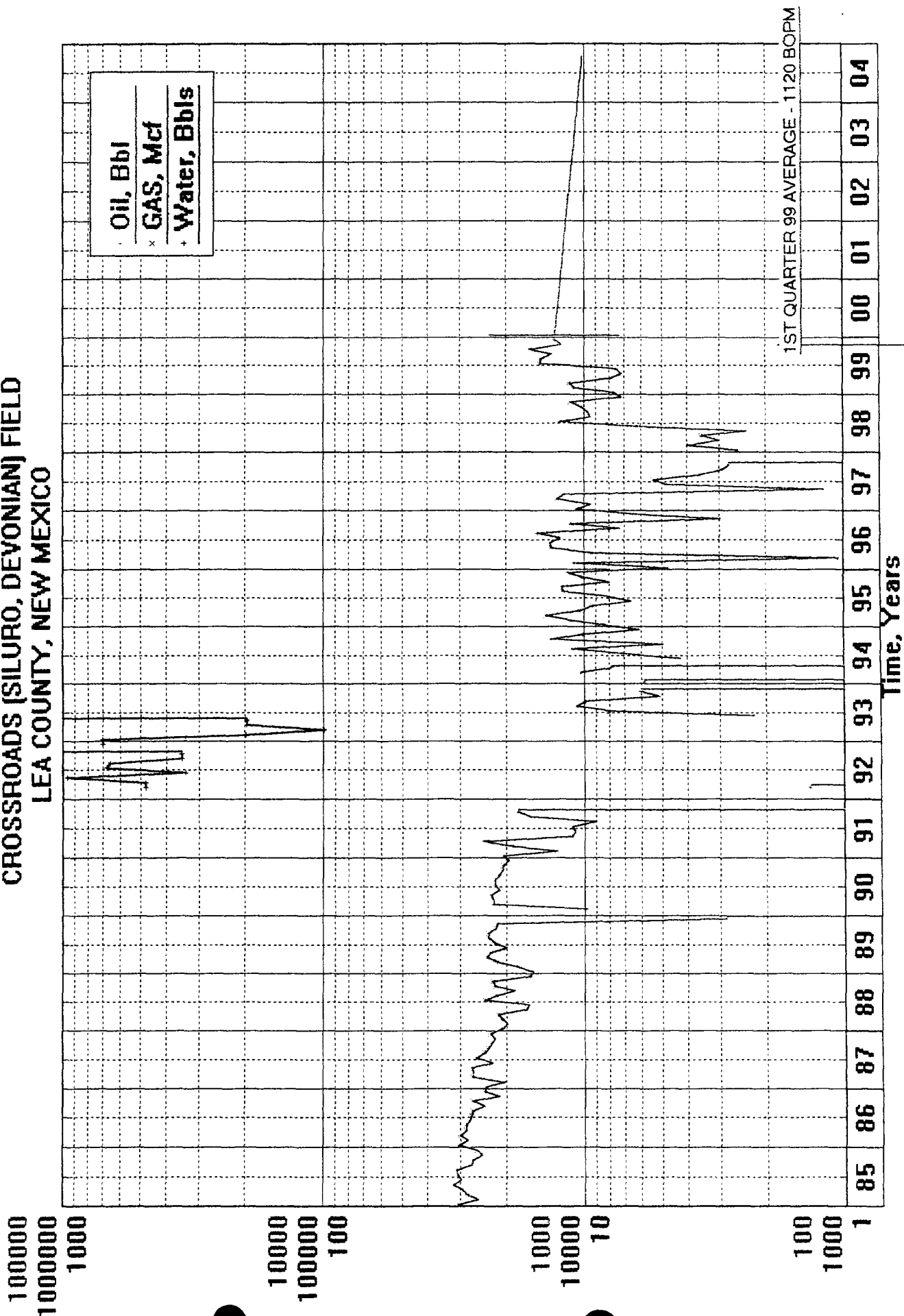
Owner	REVENUE INTEREST	Tract Participation %	UNIT TRACT PART. %
Saga Petroleum LLC	0.01448500	X 0.51410973	= 0.00744688
Yellow Queen Uranium Co.	0.02625000	X 0.51410973	= 0.01349538
Alfa Resources, Inc.	0.05250000	X 0.51410973	= 0.02699076
Forcenergy, Inc.	0.54318750	X 0.51410973	= 0.27925798
Saga Petroleum Corp.	0.16657750	X 0.51410973	= 0.08563911
Allan Capital Corp.	0.00714280	X 0.51410973	= 0.00367218
Floos, Inc.	0.12500000	X 0.51410973	= 0.06426372
H. Wayne Hoover	0.00714280	X 0.51410973	= 0.00367218
C. Thomas Houseman	0.00357140	X 0.51410973	= 0.00183609
Mystique Resources Co.	0.00714280	X 0.51410973	= 0.00367218
Edward J. Names	0.00714280	X 0.51410973	= 0.00367218
C. L. Nordstrom	0.00714280	X 0.51410973	= 0.00367218
Bruce M. Patterson	0.00714280	X 0.51410973	= 0.00367218
Floos, Inc. (OR)	0.02557180	X 0.51410973	= 0.01314671
TOTAL	1.00000000		0.51410973

Tract 3 - U.D. Sawyer

Owner	WORKING INTEREST	Tract Participation %	UNIT TRACT PART. %
Saga Petroleum LLC	0.01916880	X 0.10886259	= 0.00208677
Forcenergy, Inc.	0.71882810	X 0.10886259	= 0.07825349
Saga Petroleum Corp.	0.22044060	X 0.10886259	= 0.02399773
Saga Petroleum LLC FAO-TMN	0.03187500	X 0.10886259	= 0.00347000
Marius Jensen Nygaard, Jr.	0.00062500	X 0.10886259	= 0.00006804
Gerald D. Mills	0.00593750	X 0.10886259	= 0.00064637
Yuma E & P	0.00281250	X 0.10886259	= 0.00030618
Perry & Patricia Shaw Trust	0.00031250	X 0.10886259	= 0.00003402
TOTAL	1.00000000		0.10886259

Owner	REVENUE INTEREST	Tract Participation %	UNIT TRACT PART. %
Saga Petroleum LLC	0.01592884	X 0.10886259	= 0.00173405
Gerald D. Mills	0.00519533	X 0.10886259	= 0.00056558
Yuma E & P	0.00246096	X 0.10886259	= 0.00026791
Perry & Patricia Shaw Trust	0.00027344	X 0.10886259	= 0.00002977
Forcenergy, Inc.	0.59733405	X 0.10886259	= 0.06502733
Saga Petroleum Corp.	0.18318248	X 0.10886259	= 0.01994172
Saga Petroleum LLC FAO-TMN	0.02789060	X 0.10886259	= 0.00303624
Marius Jensen Nygaard, Jr.	0.00054680	X 0.10886259	= 0.00005953
Susie L. Wadley First Trust	0.00203453	X 0.10886259	= 0.00022148
Fernald Point Prod. Trust	0.00195310	X 0.10886259	= 0.00021262
Susie Wadley Trust #10-05527	0.00203457	X 0.10886259	= 0.00022149
Sinclair Rev. Trust #0108952	0.00195310	X 0.10886259	= 0.00021262
William Marsh Rice Univ.	0.05729170	X 0.10886259	= 0.00623692
Candace G. Jacobson	0.02208116	X 0.10886259	= 0.00240381
Thomas J. Good III	0.02208106	X 0.10886259	= 0.00240380
Price & Cia, Inc.	0.00244140	X 0.10886259	= 0.00026578
Myrl Sawyer Good	0.00537109	X 0.10886259	= 0.00058471
Beja Embry	0.00537109	X 0.10886259	= 0.00058471
Myrl Good Suc. Trustee	0.00238720	X 0.10886259	= 0.00025988
Floos, Inc. (OR)	0.04218750	X 0.10886259	= 0.00459264
TOTAL	1.00000000		0.10886259

TEXACO U D SAWYER LSE SUMMARY
CROSSROADS (SILURO, DEVONIAN) FIELD
LEA COUNTY, NEW MEXICO



R E S E R V E S A N D E C O N O M I C S

AS OF JANUARY 1, 2000

-END- MO-YR	---GROSS PRODUCTION---			---NET PRODUCTION---		---PRICES---		-----OPERATIONS, M\$-----			CAPITAL COSTS, M\$	CASH FLOW BTAX, M\$	10.00 PCT CUM. DISC BTAX, M\$
	OIL, MBBL	GAS, MMCF	MMCF	OIL, MBBL	GAS, MMCF	OIL \$/B	GAS \$/M	NET OPER REVENUES	SEV+ADV TAXES	NET OPER EXPENSES			
12- 0	15.207	.000	.000	2.994	.000	18.00	.00	53.892	4.569	5.898	.000	43.425	41.404
12- 1	14.446	.000	.000	2.844	.000	18.00	.00	51.192	4.340	5.898	.000	40.954	76.902
12- 2	13.724	.000	.000	2.702	.000	18.00	.00	48.636	4.124	5.898	.000	38.614	107.329
12- 3	13.038	.000	.000	2.567	.000	18.00	.00	46.206	3.918	5.898	.000	36.390	133.397
12- 4	12.386	.000	.000	2.439	.000	18.00	.00	43.902	3.722	5.898	.000	34.282	155.722
12- 5	11.766	.000	.000	2.317	.000	18.00	.00	41.706	3.536	5.898	.000	32.272	174.828
12- 6	11.179	.000	.000	2.201	.000	18.00	.00	39.618	3.359	5.898	.000	30.361	191.168
12- 7	10.619	.000	.000	2.091	.000	18.00	.00	37.638	3.192	5.898	.000	28.548	205.136
12- 8	10.088	.000	.000	1.986	.000	18.00	.00	35.748	3.031	5.898	.000	26.819	217.065
12- 9	9.584	.000	.000	1.887	.000	18.00	.00	33.966	2.879	5.898	.000	25.189	227.250
12-10	9.105	.000	.000	1.793	.000	18.00	.00	32.274	2.737	5.898	.000	23.639	235.940
12-11	8.650	.000	.000	1.703	.000	18.00	.00	30.654	2.599	5.898	.000	22.157	243.344
12-12	8.217	.000	.000	1.618	.000	18.00	.00	29.124	2.469	5.898	.000	20.757	249.650
12-13	7.806	.000	.000	1.537	.000	18.00	.00	27.666	2.346	5.898	.000	19.422	255.014
12-14	7.416	.000	.000	1.460	.000	18.00	.00	26.280	2.228	5.898	.000	18.154	259.572
12-15	7.045	.000	.000	1.387	.000	18.00	.00	24.966	2.117	5.898	.000	16.951	263.441
12-16	6.693	.000	.000	1.318	.000	18.00	.00	23.724	2.012	5.898	.000	15.814	266.722
12-17	6.358	.000	.000	1.252	.000	18.00	.00	22.536	1.911	5.898	.000	14.727	269.500
12-18	6.041	.000	.000	1.189	.000	18.00	.00	21.402	1.814	5.898	.000	13.690	271.848
S TOT	189.368	.000	.000	37.285	.000	18.00	.00	671.130	56.903	112.062	.000	502.165	271.848
REM.	79.491	.000	.000	15.651	.000	18.00	.00	281.718	23.886	135.654	.000	122.178	283.413
TOTAL	268.859	.000	.000	52.936	.000	18.00	.00	952.848	80.789	247.716	.000	624.343	283.413
CUM.	2308.860	.000	.000						952.848				
	2577.719	.000	.000						952.848				
-----PRESENT WORTH PROFILE-----													
BTAX RATE OF RETURN (PCT)				100.00				PROJECT LIFE (YEARS)		DISC RATE	PW OF NET BTAX, M\$		
BTAX PAYOUT YEARS				.00				DISCOUNT RATE (PCT)				30.0	138.255
BTAX PAYOUT YEARS (DISC)				.00				GROSS OIL WELLS	1.000	5.0		35.0	123.690
BTAX NET INCOME/INVEST				.00				GROSS GAS WELLS	.000	8.0		40.0	112.237
BTAX NET INCOME/INVEST (DISC)				.00				GROSS WELLS	1.000	10.0		45.0	102.999
INITIAL W.I. FRACTION				.239627				INITIAL NET OIL FRACTION	.196885	12.0		50.0	95.385
FINAL W.I. FRACTION				.239627				FINAL NET OIL FRACTION	.196885	15.0		60.0	83.548
PRODUCTION START DATE				1- 1- 0				INITIAL NET GAS FRACTION	.000000	18.0		70.0	74.758
MONTHS IN FIRST LINE				12.00				FINAL NET GAS FRACTION	.000000	20.0		80.0	67.959
										25.0		90.0	62.531
												100.0	58.088

CUMULATIVE OIL AND GAS SINCE 1/1970.

101 TEXACO U SAWYER LSE SUMMARY
102 CROSSROADS (SILURO, DEVONIAN) FIELD
103 LEA COUNTY, NEW MEXICO
104 SAGA PETROLEUM LLC OF CO

117 CASE \$COM
* 120 11 99 12 1 1 2000 10 2
* 121 2 12
* 161 SET RPTFRM = 2

W.I. FRACTION	OP. COST (\$/W/MO)	OP. COST (\$/MO.)	ADV. TAX (PCT)	MAJOR PH. NAME	PROD DATE (MO/DY/YR)	NO. OF WELLS	RATIO TO MAJOR PH
210	.23962700	.00	2051.00	OIL	1/ 1/ 0	1.0	
221	PHASE NAME	CUM PROD (MUNITS)	REV. INT FRACTION	PRICE (\$/UNIT)	SEV. TAX (PCT)	QT RATE	CUM. LIMIT
	OIL	2308.860	.19688500	18.000	7.085		
400	PH. NAME	CURVE TP	DECLINE%	Q1 RATE	Q2 RATE	IMOS	YRS
	OIL	EXP	5.000	1300.000	X	601.000	
CALC	OIL	EXP	END= 5.000	1300.000	99.602	50.250	

FOOTNOTES:

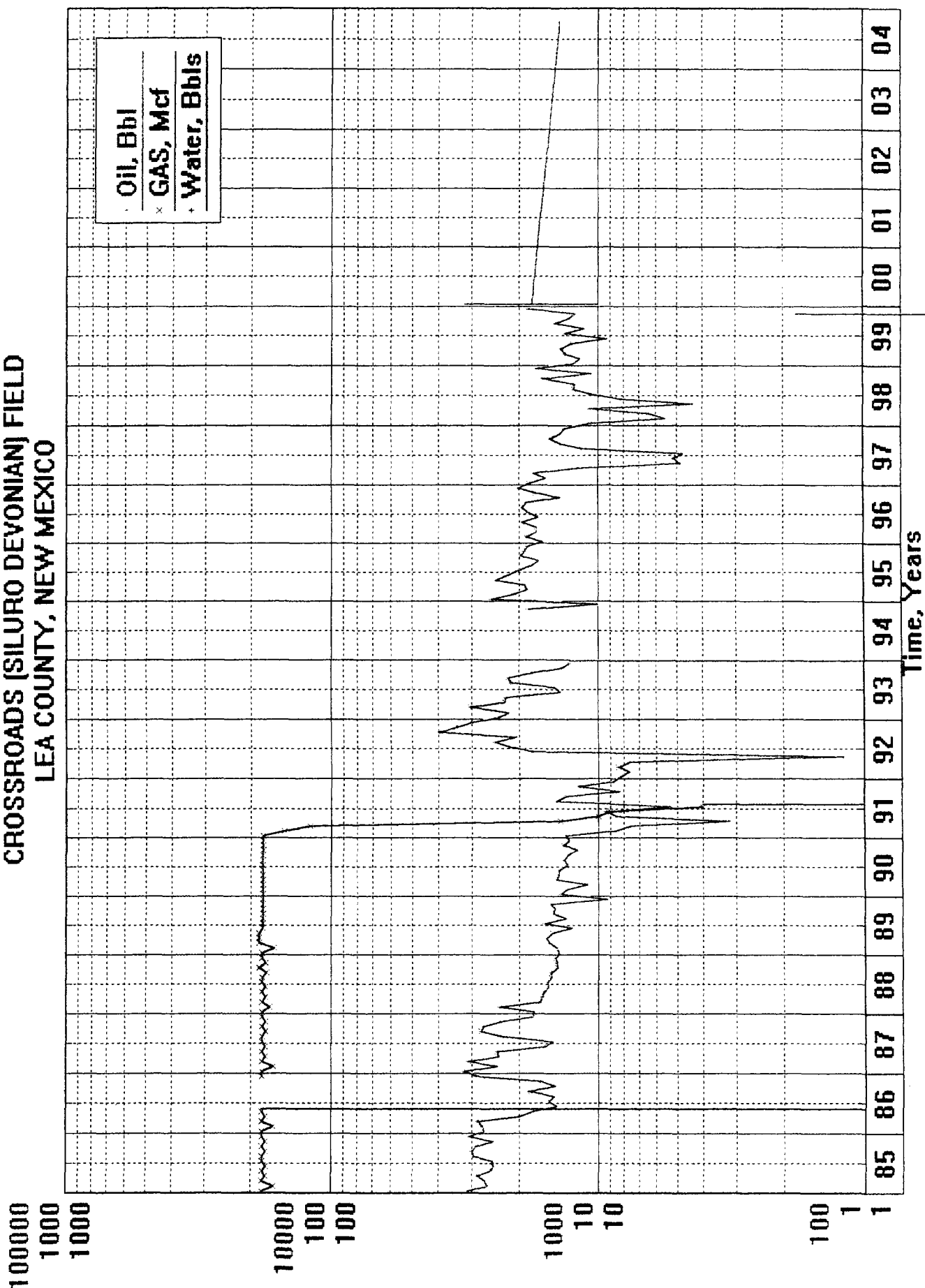
901 CUMULATIVE OIL AND GAS SINCE 1/1970.
911 ! DATE 1999.380 OIL 355.000 0 1
911 REPLACED RODS-DECEMBER

ECONOMIC LIFE (YRS): 42.000
GROSS OIL (MBBL): 268.859

(M OR Y)
M M
2589.692 MBBL

CALC VALUE

SANTA FE PACIFIC LSE SUMMARY
 CROSSROADS (SILURO DEVONIAN) FIELD
 LEA COUNTY, NEW MEXICO



R E S E R V E S A N D E C O N O M I C S

AS OF JANUARY 1, 2000

END- MO-YR	---GROSS PRODUCTION---			---NET PRODUCTION---			---PRICES---			---OPERATIONS, M\$---			CAPITAL			CASH FLOW			10.00 PCT		
	OIL, MBL	GAS, MBL	MMCF	OIL, MBL	GAS, MBL	MMCF	OIL \$/B	GAS \$/M	NET OPER REVENUES	SEV+ADV TAXES	NET OPER EXPENSES	COSTS, M\$	BTAX, M\$	BTAX, M\$	BTAX, M\$	BTAX, M\$	BTAX, M\$	BTAX, M\$	BTAX, M\$		
12- 0	21.055	.000	.000	4.145	.000	.000	18.00	.00	74.610	6.326	16.109	.000	.000	52.175	49.747	49.747	49.747	49.747	49.747		
12- 1	20.003	.000	.000	3.938	.000	.000	18.00	.00	70.884	6.010	16.109	.000	.000	48.765	92.016	92.016	92.016	92.016	92.016		
12- 2	19.002	.000	.000	3.741	.000	.000	18.00	.00	67.338	5.710	16.109	.000	.000	45.519	127.884	127.884	127.884	127.884	127.884		
12- 3	18.053	.000	.000	3.554	.000	.000	18.00	.00	63.972	5.424	16.109	.000	.000	42.439	158.285	158.285	158.285	158.285	158.285		
12- 4	17.150	.000	.000	3.377	.000	.000	18.00	.00	60.786	5.154	16.109	.000	.000	39.523	184.023	184.023	184.023	184.023	184.023		
12- 5	16.292	.000	.000	3.208	.000	.000	18.00	.00	57.744	4.896	16.109	.000	.000	36.739	205.773	205.773	205.773	205.773	205.773		
12- 6	15.477	.000	.000	3.047	.000	.000	18.00	.00	54.846	4.650	16.109	.000	.000	34.087	224.119	224.119	224.119	224.119	224.119		
12- 7	14.704	.000	.000	2.895	.000	.000	18.00	.00	52.110	4.418	16.109	.000	.000	31.583	239.572	239.572	239.572	239.572	239.572		
12- 8	13.969	.000	.000	2.750	.000	.000	18.00	.00	49.500	4.197	16.109	.000	.000	29.194	252.557	252.557	252.557	252.557	252.557		
12- 9	13.270	.000	.000	2.613	.000	.000	18.00	.00	47.034	3.988	16.109	.000	.000	26.937	263.449	263.449	263.449	263.449	263.449		
12-10	12.607	.000	.000	2.482	.000	.000	18.00	.00	44.676	3.788	16.109	.000	.000	24.779	272.558	272.558	272.558	272.558	272.558		
12-11	11.976	.000	.000	2.358	.000	.000	18.00	.00	42.444	3.599	16.109	.000	.000	22.736	280.156	280.156	280.156	280.156	280.156		
12-12	11.377	.000	.000	2.240	.000	.000	18.00	.00	40.320	3.419	16.109	.000	.000	20.792	286.473	286.473	286.473	286.473	286.473		
12-13	10.809	.000	.000	2.128	.000	.000	18.00	.00	38.304	3.248	16.109	.000	.000	18.947	291.706	291.706	291.706	291.706	291.706		
12-14	10.268	.000	.000	2.022	.000	.000	18.00	.00	36.396	3.086	16.109	.000	.000	17.201	296.025	296.025	296.025	296.025	296.025		
12-15	9.755	.000	.000	1.921	.000	.000	18.00	.00	34.578	2.932	16.109	.000	.000	15.537	299.571	299.571	299.571	299.571	299.571		
12-16	9.267	.000	.000	1.825	.000	.000	18.00	.00	32.850	2.785	16.109	.000	.000	13.956	302.467	302.467	302.467	302.467	302.467		
12-17	8.804	.000	.000	1.733	.000	.000	18.00	.00	31.194	2.645	16.109	.000	.000	12.440	304.814	304.814	304.814	304.814	304.814		
12-18	8.363	.000	.000	1.647	.000	.000	18.00	.00	29.646	2.513	16.109	.000	.000	11.024	306.704	306.704	306.704	306.704	306.704		
S TOT	262.201	.000	.000	51.624	.000	.000	18.00	.00	929.232	78.788	306.071	.000	.000	544.373	306.704	306.704	306.704	306.704	306.704		
REM.	63.763	.000	.000	12.554	.000	.000	18.00	.00	225.972	19.159	161.090	.000	.000	45.723	312.389	312.389	312.389	312.389	312.389		
TOTAL	325.964	.000	.000	64.178	.000	.000	18.00	.00	1155.204	97.947	467.161	.000	.000	590.096	312.389	312.389	312.389	312.389	312.389		
CUM.	1871.092	.000	.000							1155.204											
	2197.056	.000	.000							1155.204											
-----PRESENT WORTH PROFILE-----																					
NET OIL REVENUES (M\$)										DISC PW OF NET											
NET GAS REVENUES (M\$)										RATE BTAX, M\$											
TOTAL REVENUES (M\$)										DISC RATE											
PROJECT LIFE (YEARS)										BTAX, M\$											
DISCOUNT RATE (PCT)										PW OF NET											
GROSS OIL WELLS										BTAX, M\$											
GROSS GAS WELLS										BTAX, M\$											
GROSS WELLS										BTAX, M\$											
INITIAL NET OIL FRACTION										BTAX, M\$											
FINAL NET OIL FRACTION										BTAX, M\$											
INITIAL NET GAS FRACTION										BTAX, M\$											
FINAL NET GAS FRACTION										BTAX, M\$											
1- 1- 0										BTAX, M\$											
12.00										BTAX, M\$											

CUMULATIVE OIL AND GAS SINCE 1/1970.

DATE: 10/17/11
TIME: 12:03:11

DATA REPORT

OGRE(R) V1.40 BTAX
FILE NAME: CROSSRD (1)
CASE NAME: SANTA FE PACIFIC LSE SUMMARY
CMD NAME: STDA0311(300)

101 SANTA FE PACIFIC LSE SUMMARY
102 CROSSROADS (SILURO DEVONIAN) FIELD
103 LEA COUNTY, NEW MEXICO
104 SAGA PETROLEUM LLC OF CO

117 CASE \$COM

* 120 11 99 12 1 1 2000 10 2

* 121 2 12

* 161 SET RPTERM = 2

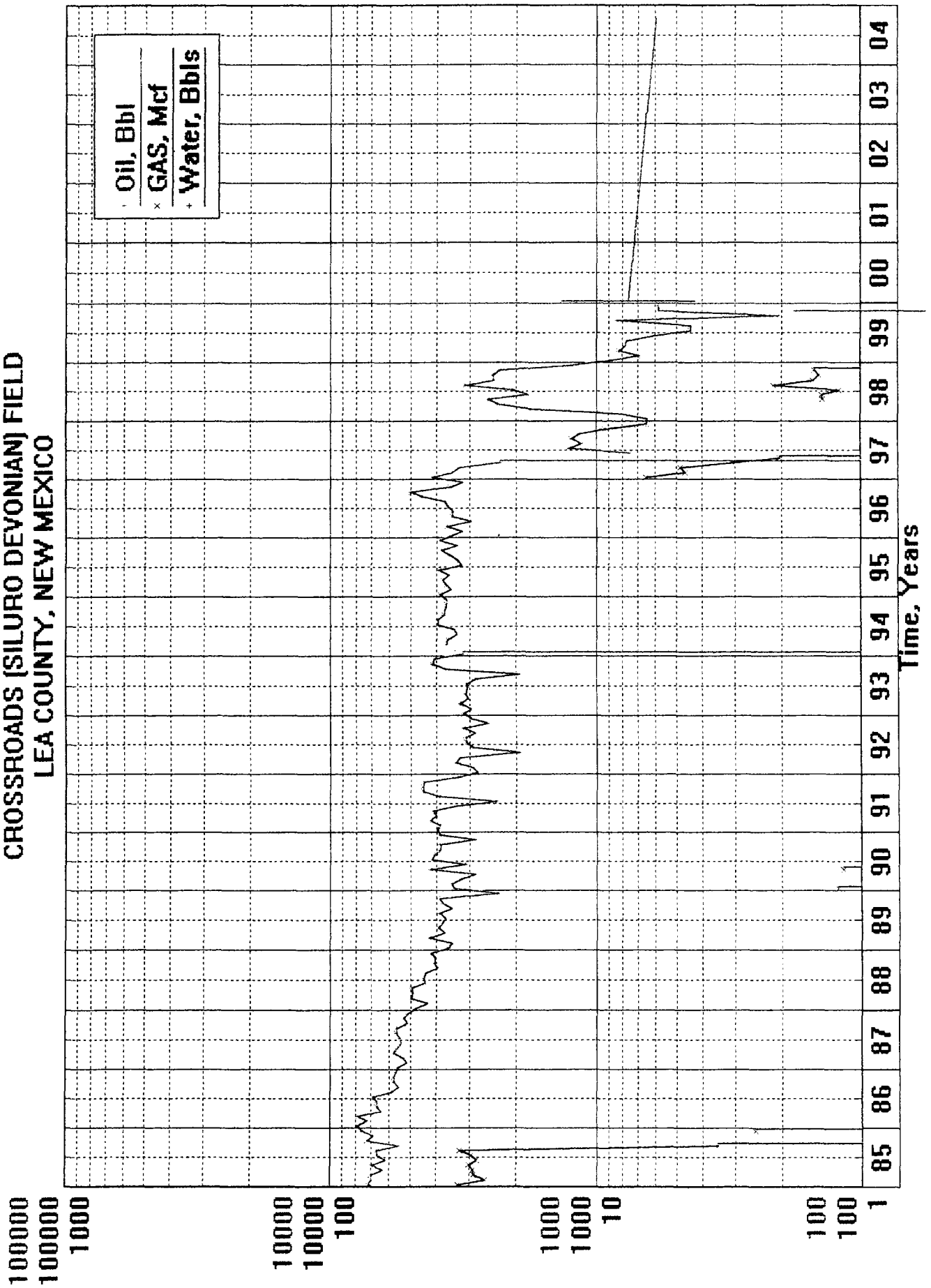
	W.I. FRACTION	OP. COST (\$/W/MO)	OP. COST (\$/MO.)	ADV. TAX (PCT)	MAJOR PH. NAME	PROD DATE (MO/DY/YR)	NO. OF WELLS	RATIO TO MAJOR PH	(M OR Y)	CUM. LIMIT	CALC VALUE
210	.23962700	.00	5602.00	1.500	OIL	1/ 1/ 0					
				PRICE (\$/UNIT)	SEV. TAX (PCT)						
				18.000	7.085		1.0				
221		1871.092	.19688500	QI RATE	QT RATE						
	PHASE NAME	CUM PROD (MUNITS)	REV. INT FRACTION	1800.000	X						
	OIL	EXP	5.000	1800.000	137.910		601.000	IMOS	M		
	OIL	EXP	END= 5.000	1800.000			50.250	YRS	M	2259.936	MBBL
400											
CALC											

FOOTNOTES:

901 CUMULATIVE OIL AND GAS SINCE 1/1970.
911 ! DATE 1994.633 OIL 272.134 0 1
911 SWD PROBLEMS

ECONOMIC LIFE (YRS): 29.000
GROSS OIL (MBBL): 325.964

UD SAWYER LSE SUMMARY
CROSSROADS (SILURO DEVONIAN) FIELD
LEA COUNTY, NEW MEXICO



R E S E R V E S A N D E C O N O M I C S

AS OF JANUARY 1, 2000

-END- MO-YR	---GROSS PRODUCTION---		---NET PRODUCTION---		---PRICES---		---OPERATIONS, M\$---		CAPITAL COSTS, M\$	CASH FLOW BTAX, M\$	10.00 PCT CUM. DISC BTAX, M\$	
	OIL, MBL	GAS, MMCF	OIL, MBL	GAS, MMCF	OIL \$/B	GAS \$/M	NET OPER REVENUES	SEV+ADV TAXES				
12- 0	8.890	.000	1.750	.000	.000 18.00	.00	31.500	2.671	.000	12.720	12.128	
12- 1	8.446	.000	1.663	.000	.000 18.00	.00	29.934	2.538	.000	11.287	21.911	
12- 2	8.023	.000	1.580	.000	.000 18.00	.00	28.440	2.411	.000	9.920	29.728	
12- 3	7.622	.000	1.501	.000	.000 18.00	.00	27.018	2.291	.000	8.618	35.902	
12- 4	7.241	.000	1.426	.000	.000 18.00	.00	25.668	2.177	.000	7.382	40.709	
12- 5	6.879	.000	1.354	.000	.000 18.00	.00	24.372	2.067	.000	6.196	44.377	
12- 6	6.535	.000	1.287	.000	.000 18.00	.00	23.166	1.964	.000	5.093	47.118	
12- 7	6.208	.000	1.222	.000	.000 18.00	.00	21.996	1.865	.000	4.022	49.086	
12- 8	5.898	.000	1.161	.000	.000 18.00	.00	20.898	1.772	.000	3.017	50.428	
12- 9	5.603	.000	1.103	.000	.000 18.00	.00	19.854	1.684	.000	2.061	51.261	
12-10	5.323	.000	1.048	.000	.000 18.00	.00	18.864	1.600	.000	1.155	51.686	
12-11	5.056	.000	.995	.000	.000 18.00	.00	17.910	1.519	.000	.282	51.780	
12-12												
12-13												
12-14												
12-15												
12-16												
12-17												
12-18												
S TOT	81.724	.000	16.090	.000	.000 18.00	.00	289.620	24.559	.000	71.753	51.780	
REM.	.000	.000	.000	.000	.000 .00	.00	.000	.000	.000	.000	51.780	
TOTAL	81.724	.000	16.090	.000	.000 18.00	.00	289.620	24.559	.000	71.753	51.780	
CUM.	5714.646	.000										
	5796.370	.000										
-----PRESENT WORTH PROFILE-----												
BTAX RATE OF RETURN (PCT)			NET OIL REVENUES (M\$)			DISC PW OF NET			PW OF NET			
BTAX PAYOUT YEARS			NET GAS REVENUES (M\$)			RATE			BTAX, M\$			
BTAX PAYOUT YEARS (DISC)			TOTAL REVENUES (M\$)			RATE			BTAX, M\$			
BTAX NET INCOME/INVEST			PROJECT LIFE (YEARS)			RATE			BTAX, M\$			
BTAX NET INCOME/INVEST (DISC)			DISCOUNT RATE (PCT)			RATE			BTAX, M\$			
			GROSS OIL WELLS			RATE			BTAX, M\$			
			GROSS GAS WELLS			RATE			BTAX, M\$			
			GROSS WELLS			RATE			BTAX, M\$			
INITIAL W.I. FRACTION			INITIAL NET OIL FRACTION			RATE			BTAX, M\$			
FINAL W.I. FRACTION			FINAL NET OIL FRACTION			RATE			BTAX, M\$			
PRODUCTION START DATE			INITIAL NET GAS FRACTION			RATE			BTAX, M\$			
MONTHS IN FIRST LINE			FINAL NET GAS FRACTION			RATE			BTAX, M\$			

DATE: 10/17/**
TIME: 12:03:11

D A T A R E P O R T

OGRE(A) V1.40 BTAX
FILE NAME: CROSSRD (3)
CASE NAME: UD SAWYER LEASE SUMMARY
CMD NAME: STDA0311(300)

101 U D SAWYER LSE SUMMARY
102 CROSSROADS (SILURO DEVONIAN) FIELD
103 LEA COUNTY, NEW MEXICO
104 SAGA PETROLEUM LLC OF CO

117 CASE \$COM
* 120 11 99 12 1 1 2000 10 2
* 121 2 12
* 161 SET RPTERM = 2

W.I. FRACTION	OP. COST (\$/W/MO)	OP. COST (\$/MO.)	ADV. TAX (PCT)	MAJOR PH. NAME	PROD DATE (MO/DY/YR)	NO. OF WELLS	RATIO TO MAJOR PH	(M OR Y)	CALC VALUE
210	.23962700	.00	5602.00	OIL	1/ 1/ 0				
			1.500						
				SEV. TAX (PCT)					
				7.085		1.0			
221			18.000	QT RATE					
400			760.000	X		600.000	IMOS	M	
CALC			760.000	58.478		50.167	YRS	M	5878.766 MBBL

ECONOMIC LIFE (YRS): 12.000
GROSS OIL (MBBL): 81.724

Crossroads Unit Tract 1

(formerly Texaco Sawyer Lease)

Input data for Decline Curve Analysis

INITIAL INPUT DATA	
Initial Oil Rate (Q_i) =	1300 BOPM
Final Oil Rate (Q_t) =	x BOPM
Decline Rate =	5 %
Operating Cost =	2051 \$/month
Ad Valorem Tax =	1.5 %
Severance Tax =	7.085 %
Oil Price =	\$18 held flat
Working Interest =	100 %
Net Revenue Interest =	82.16 %

The above data was input in a decline curve analysis / economic software called OGRE. Using standardized, industry methodology, OGRE determined the Final Oil Rate (Q_t), at the economic limit of the lease, and returned the attached output of oil reserves and cash flows.

Crossroads Unit Tract 2

(formerly Santa Fe Pacific Lease)

Input data for Decline Curve Analysis

INITIAL INPUT DATA	
Initial Oil Rate (Q_i) =	1800 BOPM
Final Oil Rate (Q_f) =	x BOPM
Decline Rate =	5 %
Operating Cost =	5602 \$/month
Ad Valorem Tax =	1.5 %
Severance Tax =	7.085 %
Oil Price =	\$18 held flat
Working Interest =	100 %
Net Revenue Interest =	82.16 %

The above data was input in a decline curve analysis / economic software called OGRE. Using standardized, industry methodology, OGRE determined the Final Oil Rate (Q_f), at the economic limit of the lease, and returned the attached output of oil reserves and cash flows.

Crossroads Unit Tract 3

(formerly U.D. Sawyer Lease)

Input data for Decline Curve Analysis

INITIAL INPUT DATA	
Initial Oil Rate (Qi) =	790 BOPM
Final Oil Rate (Qt) =	x BOPM
Decline Rate =	5 %
Operating Cost =	5602 \$/month
Ad Valorem Tax =	1.5 %
Severance Tax =	7.085 %
Oil Price =	\$18 held flat
Working Interest =	100 %
Net Revenue Interest =	82.16 %

The above data was input in a decline curve analysis / economic software called OGRE. Using standardized, industry methodology, OGRE determined the Final Oil Rate (Qt), at the economic limit of the lease, and returned the attached output of oil reserves and cash flows.

OGRE PARTNERS, LTD.

13111 N. Central Expressway, Suite 350
Dallas, Texas 75243-1138

Direct: 972-367-0604
Fax: 972-367-0636
arved@ogrepartners.com

FAX TRANSMITTAL

Date: 7/10/01

Total Pages:

From: Arved VonZurmuehlen

To: Mr. Joe Clement

Fax: 915-684-4285

Joe, Attached is the copy of the formulas that OGRE uses in its decline calculations. If you have any questions or need any additional information please let me know

Sincerely

Arved VonZurmuehlen.

HELPFUL HINTS AND INFORMATION**TABLE OF CONTENTS**

	<u>NO. OF PAGES</u>
I. EXPONENTIAL DECLINE CALCULATIONS IN OGRE	1
II. HYPERBOLIC DECLINE CALCULATIONS IN OGRE	2
III. MORE EXPONENTIAL DECLINE RELATIONS USED BY OGRE	3
IV. HARMONIC DECLINE RELATIONS USED BY OGRE	4
V. HYPERBOLIC DECLINE RELATIONS USED BY OGRE	5

EXPONENTIAL & HYPERBOLIC DECLINE TREND CALCULATIONS IN OGRE

I. Exponential Decline

Production rate decreases exponentially with time:

$$q(t) = q(o) e^{-Dt}$$

Where: q = production rate (vol/time)
 D = nominal decline rate = constant, inverse time units

inverting. $D = -\frac{d}{dt} \ln q(t) = -\frac{dq/dt}{q(t)} = \frac{\ln q(o) - \ln q(t)}{\Delta t}$

$N(t)$ = Cumulative production at time t

$$N(t) = \frac{q(o) - q(t)}{D} \quad \text{from} \quad \int_0^t q(t) dt$$

Note: If D is an annual decline rate, q must be in units/year. Although the nominal decline rate, D is the slope of the curve of $\ln q(t)$ vs. t , one often speaks of a so-called effective decline rate D_e . D_e has a different definition:

$$D_e = \frac{q(o) - q(1)}{q(o)} = \frac{\Delta q \text{ in one year}}{\text{initial } q}$$

Plugging in from above, $D_e = \frac{q(o) - q(o)e^{-D}}{q(o)} = 1 - e^{-D}$ and thus $D_e < D$ if $D > 0$

For example:

D	.10	.20	.30
D_e	.095	.181	.259

Since D_e is more easily calculated by hand, it is usually referred to as "decline rate". The OGRE program uses D_e .

Inverting, $D = -\ln(1 - D_e)$

For example: $D_e \quad Q_i \quad Q_f$
41x OIL EXP 10 100 10 X X

$N = \frac{36500 - 3650}{-\ln(1 - .1)} = 311786.6 \text{ bbls.}$ OGRE reports 311787 bbls.

I. Hyperbolic Decline

Here the nominal decline rate D is not constant, but rather decreases with time.

$$D(t) = D(o) \left[\frac{q(t)}{q(o)} \right]^n$$

where n is a constant called the hyperbolic exponent. If $n = 0$, then the equation reduces to exponential.

Production varies as: $q(t) = q(o) \{1 + nD(o)t\}^{-1/n} \quad n \neq 0$

And cumulative production is: $N(t) = \frac{q^n(o)}{D(o)(1-n)} \left[q^{1-n}(o) - q^{1-n}(t) \right]$

D and D_E are related by: $D_E(o) = 1 - (1 + nD(o))^{-1/n}$

$$D(o) = 1/n \{ (1 - D_E(o))^{-n} - 1 \}$$

However, the concept of annual decline rate is less meaningful when the instantaneous decline rate is continuously changing. For this reason, OGRE uses the exponential relation $D = -\ln(1 - D_E)$ to convert the input initial decline rate (D_o) to nominal. Thus,

$$N(t) = \frac{q^n(o)}{-\ln(1 - D_E(o))(1-n)} \left[q^{1-n}(o) - q^{1-n}(t) \right]$$

An Example: $\begin{matrix} n & D_E(o) & Q_i & Q_f \\ 410 \text{ OIL} & 50 & 50 & 100 \end{matrix} \quad \begin{matrix} 10 & x & x \end{matrix}$

$$N(t) = \frac{36500^{-.5}}{-\ln[1 - .5](1-.5)} [36500^{1-.5} - 3650^{1-.5}] = 72012.66 \text{ bbls.}$$

OGRE reports 72013 bbls.

ref: *Frick, Petroleum Production Handbook Vol. II*
pp. 37-3 37-4

EXPONENTIAL DECLINE RELATIONS USED BY OGRE

Nominal decline factor, a

$$a = -\ln(1-d)$$

where: a = nominal decline factor, % / yr
 d = effective decline rate, % / yr (from OGRE 400 lines)

Note: This nominal decline factor is used for ALL relations in OGRE (i.e. EXP, HYP, etc)

Rate, q ,

$$q = q_i e^{-at}$$

where: q = flow rate, bbl / yr
 q_i = initial flow rate, bbl / yr
 a = nominal decline factor, % / yr
 t = time, yrs

Cumulative production, Q , as a function of time, $f(t)$,

$$Q = \frac{q_i}{a} (1 - e^{-at})$$

where: Q = cumulative production, bbl.
 q_i = initial flow rate, bbls / yr
 a = nominal decline factor, % / yr
 t = time, yrs

Cumulative production, Q , as a function of rate, $f(q)$

$$Q = \frac{q_i - q}{a}$$

where: Q = cumulative production, bbl.
 q_i = initial production rate, bbls / yr (OGRE 400 line)
 q = production rate, bbls / yr (OGRE 400 line)
 a = nominal decline factor, % / yr

Project Life, N ,

$$N = \frac{\ln r}{a}$$

where: N = project life, yrs
 r = producing rate ratio, q_i / q (beginning & ending rate in OGRE 400 lines)
 a = nominal decline factor, % / yr

HARMONIC DECLINE RELATIONS USED BY OGRE (n = 1)Nominal decline factor, a

$$a = -\ln(1 - d)$$

where:

 a = nominal decline factor, % / yr d = effective decline rate, % / yr (from OGRE 400 lines)Rate, q .

$$q = \frac{q_i}{1 + a_i t}$$

where:

 q = flow rate, bbl / yr q_i = initial flow rate, bbl / yr a_i = nominal decline factor, % / yr t = time, yrsCumulative production, Q , as a function of time, $f(t)$.

$$Q = \frac{q_i}{a_i} (1 + a_i t)$$

where:

 Q = cumulative production, bbl. q_i = initial flow rate, bbls / yr a_i = nominal decline factor, % / yr t = time, yrsCumulative production, Q , as a function of rate, $f(q)$

$$Q = \frac{q_i}{a_i} \ln \frac{q_i}{q}$$

where:

 Q = cumulative production, bbl. q_i = initial production rate, bbls / yr (OGRE 400 line) q = production rate, bbls / yr (OGRE 400 line) a_i = nominal decline factor, % / yrProject Life, N .

$$N = \frac{1}{a_i} \ln \frac{q_i}{q_r}$$

where:

 N = project life, yrs r = producing rate ratio, q_i / q (beginning & ending rate in OGRE 400 lines) a_i = nominal decline factor, % / yr

HYPERBOLIC DECLINE RELATIONS USED BY OGRE

Nominal decline factor, a

$$a = -\ln(1-d)$$

where: a = nominal decline factor, % / yr
 d = effective decline rate, % / yr (from OGRE 400 lines)

Rate, q ,

$$q = \frac{q_i}{(1 + n a_i t)^{1/n}}$$

where: q = flow rate, bbl / yr
 q_i = initial flow rate, bbl / yr
 n = hyperbolic exponent
 a_i = nominal decline factor, % / yr
 t = time, yrs

Cumulative production, Q , as a function of time, $f(t)$,

$$Q = \frac{q_i}{a_i} \left(\frac{1}{1-n} \right) \left[1 - \frac{1}{(1 + n a_i t)^{(1/n)+1}} \right]$$

where: Q = cumulative production, bbl.
 q_i = initial flow rate, bbls / yr
 a_i = initial nominal decline factor, % / yr
 t = time, yrs
 n = hyperbolic exponent

Cumulative production, Q , as a function of rate, $f(q)$

$$Q = \frac{q_i}{a_i} \left(\frac{1}{1-n} \right) \left[1 - \left(\frac{q}{q_i} \right)^{(1/n)+1} \right]$$

where: Q = cumulative production, bbl.
 q_i = initial production rate, bbls / yr
 (OGRE 400 line)
 q = production rate, bbls / yr
 (OGRE 400 line)
 n = hyperbolic exponent (from Curve Type
 on OGRE 400 series lines)

Project Life, N ,

$$N = \frac{1}{n a_i} (r^n - 1)$$

where: N = project life, yrs
 a_i = initial nominal decline factor, % / yr
 n = hyperbolic exponent (from Curve Type on OGRE 400 series
 lines)
 r = producing rate ratio, q_i / q (beginning & ending rate in
 OGRE 400 lines)