

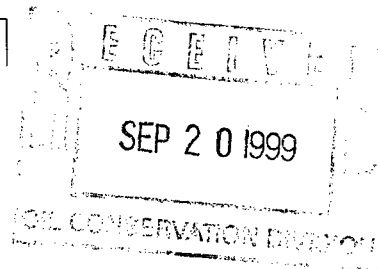
DHC

10/12/99
14000 Quail Springs Parkway
Suite 600
Oklahoma City, Oklahoma
73134-2600

Telephone 405 749-1300
www.ldng.com

September 17, 1999

Mr. Dave Catanach
New Mexico Energy, Minerals and
Natural Resources Department
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505-6429



Re: LDNGC Sheep Draw Federal Com. Well No. 1
B Sec. 33-T22S-R26E
Eddy County, New Mexico

Dear Mr. Catanach:

The Sheep Draw Federal Com. Well No. 1 is currently a dual completion, producing from both the Strawn and Morrow formations. Louis Dreyfus Natural Gas Corp is applying for approval to downhole commingle this production. Form C-107-A, with attachments, is enclosed for your review. Should you need additional information or have any questions concerning the enclosed, please call me at (405) 749-5287.

Sincerely,

LOUIS DREYFUS NATURAL GAS CORP.



Terrye D. Bryant
Regulatory Technician

enc.

cc: NMOCD District 2 Office
BLM Roswell District Office

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

811 South First St., Artesia, NM 88210-2835

DISTRICT III

1000 Rio Brazos Rd, Aztec, NM 87410-1693

DISTRICT IV

2040 S. Pacheco, Santa Fe NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 S. Pacheco
Santa Fe, New Mexico 87505-6429Form C-107-A
Revised August 1999

APPROVAL PROCESS:

___ Administrative ___ Hearing

EXISTING WELLBORE

___ YES ___ NO

APPLICATION FOR DOWNHOLE COMMINGLING

LOUIS DREYFUS NATURAL GAS CORP. 14000 Quail Springs Parkway, Suite 600, Oklahoma City, OK
Operator 73134 AddressSHEEP DRAW FEDERAL COM. 1 B Sec. 33-T22S-R26E EDDY
Lease Well No. Unit Ltr. - Sec - Twp - Rge CountyOGRID NO. 025773 Property Code 016396 API NO. 30-015-26847 Spacing Unit Lease Types: (check 1 or more)
Federal ☒ , State ___ , (and/or) Fee ___

The following facts are submitted in support of downhole commingling:	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	SHEEP DRAW; STRAWN (GAS) 85200		HAPPY VALLEY; MORROW (GAS) 78060
2. Top and Bottom of Pay Section (Perforations)	10203' - 10220' 10292' - 10304'		11238' - 11384' 11515' - 11520' 11584' - 11612'
3. Type of production (Oil or Gas)	GAS		GAS
4. Method of Production (Flowing or Artificial Lift)	FLOWING		FLOWING
5. Bottomhole Pressure Oil Zones - Artificial Lift: Gas & Oil - Flowing: All Gas Zones: Estimated Current Measured Current Estimated Or Measured Original	a. (Current) 1000 b. (Original) 5398	a. b.	a. 1000 b. 2950
6. Oil Gravity ($^{\circ}$ API) or Gas BTU Content	BTU - 1088		BTU - 1050
7. Producing or Shut-In?	PRODUCING		PRODUCING
Production Marginal? (yes or no)	NO		NO
* If Shut-In, give date and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data * If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: Rates: Date: 10/31/98 Rates: 50 MCFPD	Date: Rates: Date: Rates:	Date: Rates: Date: 10/31/98 Rates: 114 MCFPD
8. Fixed Percentage Allocation Formula - % for each zone	Oil: % Gas: 17 %	Oil: % Gas: %	Oil: % Gas: 83 %

9. If allocation formula is based upon something other than current or past production, or is based upon some other method, submit attachments with supporting data and/or explaining method and providing rate projections or other required data.

10. Are all working, overriding, and royalty interests identical in all commingled zones? ☒ Yes ___ No
If not, have all working, overriding, and royalty interests been notified by certified mail? ___ Yes ___ No11. Will cross-flow occur? ___ Yes ☒ No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. ___ Yes ___ No (If No, attach explanation)12. Are all produced fluids from all commingled zones compatible with each other? ☒ Yes ___ No13. Will the value of production be decreased by commingling? ___ Yes ☒ No (If Yes, attach explanation)14. If this well is on, or communized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. ☒ Yes ___ No

15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S). _____

16. ATTACHMENTS:

- * C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- * Production curve for each zone for at least one year. (If not available, attach explanation.)
- * For zones with no production history, estimated production rates and supporting data.
- * Data to support allocation method or formula.
- * Notification list of working, overriding, and royalty interests for uncommon interest cases.
- * Any additional statements, data, or documents required to support commingling.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Terrye D. Bryant TITLE Regulatory Tech. DATE 9/17/99TYPE OR PRINT NAME Terrye D. Bryant TELEPHONE NO. (405) 749-5287

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised October 18, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-26847		² Pool Code 85200	³ Pool Name SHEEP DRAW; STRAWN (GAS)
⁴ Property Code 016396	⁵ Property Name SHEEP DRAW FEDERAL COM.		⁶ Well Number 1
⁷ OGRID No. 025773	⁸ Operator Name LOUIS DREYFUS NATURAL GAS CORP.		⁹ Elevation 3282.4

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	33	22S	26E		660	North	2310	East	Eddy

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code C	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief Original C-102 on file with the OCD. <i>Terrye D. Bryant</i> Signature Terrye D. Bryant Printed Name Regulatory Technician Title 9/17/99 Date	
	¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date of Survey Signature and Seal of Professional Surveyer:	
	Certificate Number	

District I
PO Box 1980, Hobbs, NM 88241-1980
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-26847	² Pool Code 78060	³ Pool Name HAPPY VALLEY; MORROW (GAS)
⁴ Property Code 016396	⁵ Property Name SHEEP DRAW FEDERAL COM.	⁶ Well Number 1
⁷ OGRID No. 025773	⁸ Operator Name LOUIS DREYFUS NATURAL GAS CORP.	⁹ Elevation 3282.4

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¹⁶	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
	Original C-102 on file with the OCD. Signature Terrye D. Bryant Printed Name Regulatory Technician Title 9/17/99 Date	
	¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.	
	Date of Survey Signature and Seal of Professional Surveyer: Certificate Number	

**LOUIS DREYFUS NATURAL GAS CORP.
SHEEP DRAW FED COM NO. 1
33-22S-26E
EDDY CO., NM
APPLICATION FOR DOWNHOLE COMMINGLING**

DISCUSSION OF APPLICATION

Collins & Ware originally drilled the Sheep Draw Fed Com 1 in December 1991 to a total depth of 11735'. A 7" casing string was set at 10742' and a 4 1/2" liner was set to total depth at 11733' with the liner top at 10646'. The well was initially completed as a Strawn producer from perforations at 10292-10304. A second Strawn interval from 10203-10220 was tested by setting a packer between the two. A sliding sleeve was inserted in the tubing, which allowed both Strawn intervals to be tested separately or commingled without moving the packer. Finally, in December 1993, a packer was set at 10603' with a sliding sleeve above at 10496' and the Morrow was completed from perforations between 11288-11735 overall. The sleeve was opened briefly during completion operation to unload the Strawn up the tubing with a temporary plug set in the packer above the Morrow. Then the sliding sleeve was closed, isolating the Morrow from the Strawn. Since December 27, 1993, the well has produced as a dual completion with Morrow producing up 2 3/8" tubing, and the Strawn producing up the tubing-casing (2 3/8" - 7") annulus.

Louis Dreyfus Natural Gas Corp. (LDNGC) took over operations January 1, 1995. As a general observation, the Strawn production dropped from about 165 MCFPD to 75 MCFPD when it was switched from producing up tubing to producing up the annulus in December 1993 when the Morrow was added. Liquid loading was suspected to be the reason. LDNGC has considered some stimulation options for the Morrow, but has not pursued those due to the dual production arrangement. Also the tail of the tubing (11107') is 477' above the lowest set of Morrow perforations, so some liquid loading of the Morrow is possible. LDNGC has also considered putting a plug over the Morrow and just producing the Strawn to depletion up the tubing. This would cause total production to drop, and might put the Morrow reserves at risk.

Recently, it became apparent that some communication had developed between the Morrow and the Strawn. The sliding-sleeve in the tubing is considered to be a likely point for leakage. LDNGC tried producing each side separately with the other side shut-in. By producing the well up the tubing with the annulus shut-in, production has increased over what could be produced by both zones separately. Therefore, LDNGC is making an application to continue producing the Morrow and Strawn commingled. It is apparent that some reallocation of production may be necessary. Our estimate of the correction is attached.

Material balance data was available for the lower Strawn interval (10292-10304), showing original gas-in-place to be 127 MMF with recoverable reserves of 117 MMF to an abandonment pressure of 500 psi. An initial pressure was available for the upper Strawn interval (10203-10220), and one pressure was taken with both intervals commingled. Consequently, material balance is only approximate. Recoverable reserves of 387 MMF was made by rate-time extrapolation. If recovery as a percent of gas-in-place is the same for both zones as it is for the lower, the original gas-in-place would be 418 MMF. This does not appear unreasonable from the pressure data available.

The Morrow had three pressure points. The first pressure was for the Morrow intervals of 11515-11520 and 11584-11612. Two pressures were available with all Morrow intervals open (11288-11612). Fitting these two points indicated original gas-in-place to be 783 MMF. Recoverable reserves to 750 psi were in good agreement with the rate-time estimate of 584 MMF.

RESERVE ALLOCATION

A summary of the recoverable reserves is given below effective 7/1/1999 with cumulative reserves shown at 11/30/98:

Zone	Intervals	Cum MMF	Recoverable MMF	Remaining MMF	Remaining % of Total	Reserves by
Strawn	10203-304	336	387	51	17.0%	R/T & MB
Morrow	11288-612	337	585	248	83.0%	R/T & MB
Total		673	972	299	100.0%	

If the above allocation is acceptable, then the following reallocation of production could be made:

Month/Yr	As Reported			Corrected Allocation		
	Strawn MCF	Morrow MCF	Total MCF	Strawn MCF	Morrow MCF	Total MCF
Dec-98	4,055	1,542	5,597	951	4,646	5,597
Jan-99	18	5,492	5,510	937	4,573	5,510
Feb-99		7,104	7,104	1,208	5,896	7,104
Mar-99		7,185	7,185	1,221	5,964	7,185
Apr-99		7,032	7,032	1,195	5,837	7,032
May-99		7,394	7,394	1,257	6,137	7,394
Jun-99		7,096	7,096	1,206	5,890	7,096
Total	4,073	42,845	46,918	7,976	38,942	46,918
% of	8.7%	91.3%	100.0%	17.0%	83.0%	100.0%
Change				3,903	(3,903)	0

WORK PURPOSE

Open Morrow on tbg;
Strawn up annulus;
sliding sleeve installed.

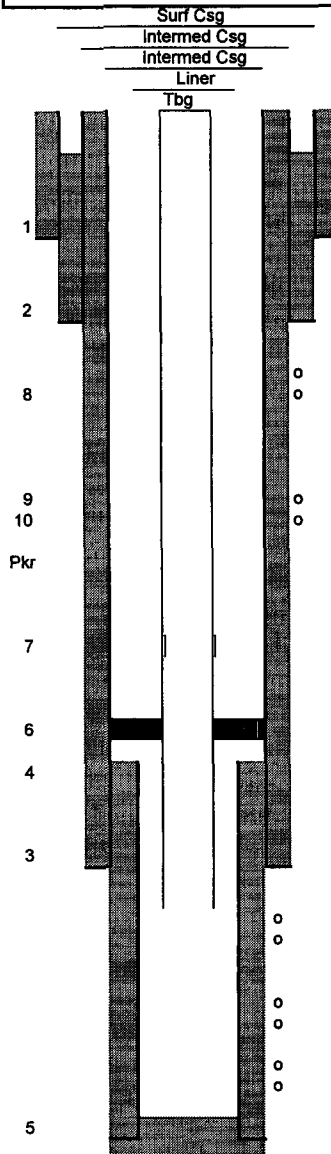
See Operation reports
from: 12/09/93
thru: 12/29/93

Well: SHEEP DRAW FED #1

Operator: LNDGC

Spot: NW NE
Location: 33-22S-26E
County: Eddy
State: New Mexico
Spud: 12/07/91
Compl: 05/20/92
1st Prod: 06/02/92
Last prod: 12/27/93
Last Work: 12/27/93
Prod zone: Strawn (ann); Morrow (tbg)

Quick-Look Summary	
Status	Current
GR	3282 ft
DF	3303 ft
KB	3304 ft
PBTD	11708 ft
MPP	11450 ft
Max OD to PBTD	1.81 in.
TBG	2.375 in
Pkr Depth	10603 ft



Item	Work Date	Jts	Hole size in.	Nominal O.D. in.	API Grade	Wt lb/ft	Cplg Thrd	Sks	Cmt Top	Max O.D. in.	Min I.D. in.	Length ft	Depth ft
1 Surf csg				13.375	K55	54.5/68	STC	425					417
2 Intermed				9.625	N80	43.5	LTC	1050					1630
3 2nd Intermed				7.000	N80/RS90P11	32/29	LTC	2050					10742
DV tool								870					5236.9
4 Liner top								1050					10646
5 Liner				4.5	11.6/13.5	95	FL45	215				*****	11733
DV tool													

8 Strawn perfs 06/01/92
Strawn perfs 06/01/92 10203

7 Strawn perfs 02/17/92
Strawn perfs 02/17/92 10292
10304

Tbg 325 2.375 N80 10220
2 3/8 tbg spacer 8 2.375 J55
9 CMD sliding sleeve w/ 2 3/8 box & pin w/ 1.87 F profile set @ 10 (NOTE: SLIDING SLEEVE CLOSED)
2 3/8 tbg spacer 3 2.375 J55
ER receptacle/ F profile 2.375 1.810
6 Baker A-3 lok-set 12/13/93 7 10603
2 3/8 tbg tail w/ 1.81 SN 16 2.375 J55 504 11107

M Morrow perfs 11288
M Morrow perfs 11384

L Morrow perfs 11515
L Morrow perfs 11520

L Morrow C perfs 11584
L Morrow C perfs 11612

PBTD 11708
TD 01/18/92 11735

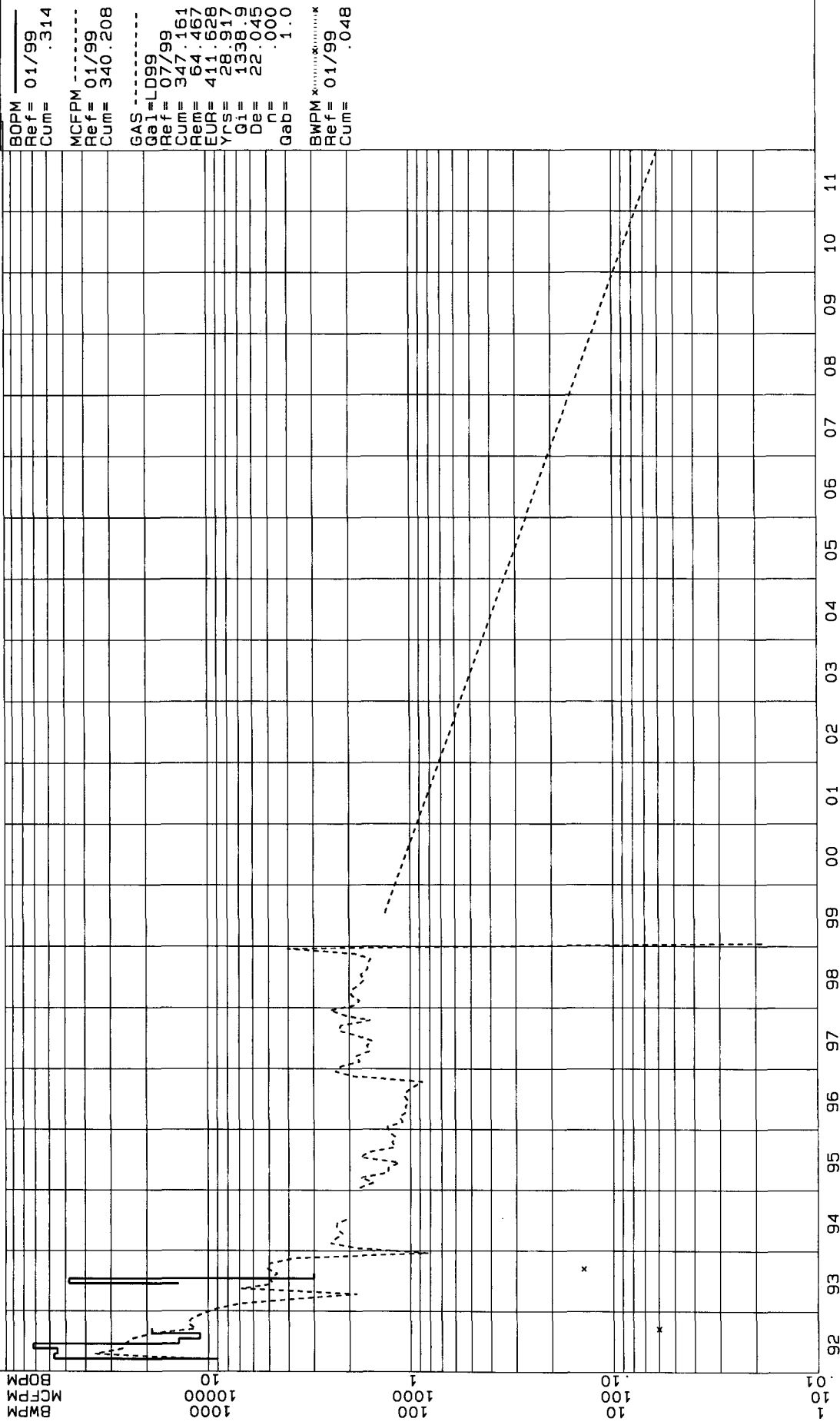
#	Completions Zone	Top Perf	Bot Perf	spf	shots	ACID TYPE	GAL	FRAC GAL	#	Comment
1	STRAWN (OA)	10292	10304	4		NEFE 15	2500	none		
2	STRAWN (OA)	10203	10220	4	69	NEFE 15	2500	none		
3	L MORROW	11515	11520	2						
3	L MORROW C	11584	11612	2						
3	L MORROW (OA)	11515	11612			HCL 7.5	1500			
4	M MORROW	11288	11300	2						
4	M MORROW	11351	11361	2						
4	M MORROW	11368	11384	2						

	Production Tests	Date	Mcfpd	Bopd	Bwpd	FTP	ck	hours	SITP	BHP	BHT Gas	SG	Liq API	AOF
1	STRAWN	920326	1600	0	0	2850	16/64	19	4372	5398	166			
1	STRAWN	920530							2275	3176				
2	STRAWN	920610	1426	5	0	360	1/2	48	3608	4894	164			
2	STRAWN	920924							1250					
3	L MORROW (OA)	931217	217	0	0			20		2950				
3&4	L & M MORROW	931229	492	5	0	390		24						
1&2	STRAWN (OA)	931229	89	0.0	0.0	50		24						

LOUIS DREYFUS NATURAL GAS CORP

WELL : SHEEP DRAW FED 1-S
 OPER : LONGC
 ZONE : STRAWN
 CO : EDDY
 RCAT : PDP

LOC : 33-22S-26E
 API : 30015268470000
 FIELD : SHEEP DRAW
 STATE : NM
 PERFS : 0- 0



Page No.: 4

Print Time: Tue Aug 10 14:47:39 1999

Property ID: 9678

Property Name: SHEEP DRAW FED 1-S | SHEEP DRAW | 420127.002

Table Name: H:\ARIES\COMPANY\PRODUCT.DBF

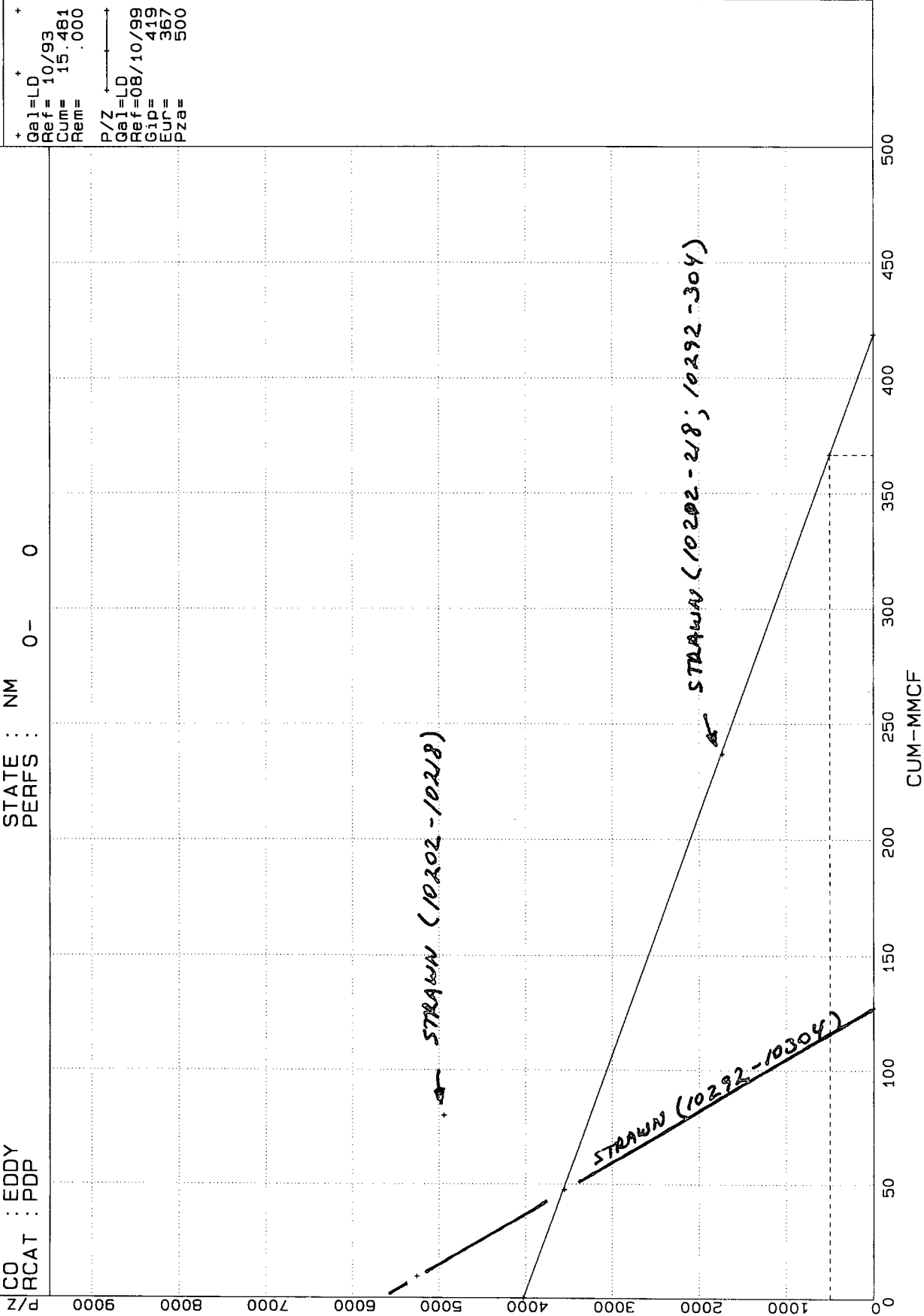
--DATE--	----OIL----	-OIL_SALES	----GAS----	-GAS_SALES	---WATER--	DA	ARTESIA_NO-	LEA	COM	--WELLID--	-----GOR----	---YIELD--	--WTRCUT--	--O
	Bbl		Mcf		Bbl						Scf/Bbl			
06/30/96			1019	983			28				0.000	0.000	0.000	
07/31/96			1064	1024			31				0.000	0.000	0.000	
08/31/96			1041	1001			31				0.000	0.000	0.000	
09/30/96			960	922			30				0.000	0.000	0.000	
10/31/96			869	830			31				0.000	0.000	0.000	
11/30/96			1887	1806			29				0.000	0.000	0.000	
12/31/96			2333	2232			31				0.000	0.000	0.000	
01/31/97	0	0	2184	1941	0	31					0.000	0.000	0.000	
02/28/97			1772	1772		28					0.000	0.000	0.000	
03/31/97			1863	1863		31					0.000	0.000	0.000	
04/30/97			1578	1529		30					0.000	0.000	0.000	
05/31/97			1638	1455		31					0.000	0.000	0.000	
06/30/97	0	0	1539	1347	0	30					0.000	0.000	0.000	
07/31/97	0	0	1839	1616	0	31					0.000	0.000	0.000	
08/31/97	0	0	2256	1981	0	31					0.000	0.000	0.000	
09/30/97	0	0	2194	1916	0	30					0.000	0.000	0.000	
10/31/97	0	0	1576	1382	0	30					0.000	0.000	0.000	
11/30/97	0	0	2095	1824	0	30					0.000	0.000	0.000	
12/31/97	0	0	2488	2048	0	31					0.000	0.000	0.000	
01/31/98	0	0	1846	1590	0	31					0.000	0.000	0.000	
02/28/98	0	0	1781	1534	0	27					0.000	0.000	0.000	
03/31/98	0	0	1960	1693	0	31					0.000	0.000	0.000	
04/30/98	0	0	1951	1681	0	30					0.000	0.000	0.000	
05/31/98	0	0	1791	1521	0	31					0.000	0.000	0.000	
06/30/98	0	0	1680	1429	0	30					0.000	0.000	0.000	
07/31/98	0	0	1756	1490	0	31					0.000	0.000	0.000	
08/31/98	0	0	1626	1437	0	31					0.000	0.000	0.000	
09/30/98	0	0	1629	1440	0	30					0.000	0.000	0.000	
10/31/98	0	0	1567	1373	0	30					0.000	0.000	0.000	
11/30/98	0	0	1856	1542	0	30					0.000	0.000	0.000	
12/31/98	0	0	4055	3428	0	31					0.000	0.000	0.000	
01/31/99	0	0	18	9	0	2					0.000	0.000	0.000	

--DATE--	---OIL---	-OIL_SALES	---GAS---	-GAS_SALES	---WATER--	DA	ARTESIA_NO-	LEA	COM	--WELLID--	---GOR---	---YIELD--	--WTRCUT--	--O
	Bbl		Mcf		Bbl						Scf/Bbl			
01/31/92	0		0		0						0.000	0.000	0.000	
02/29/92	0		0		0						0.000	0.000	0.000	
03/31/92	9		11671		0						*****.***	0.771	0.000	
04/30/92	57		36042		0						632315.789	1.581	0.000	
05/31/92	55		26592		0						483490.909	2.068	0.000	
06/30/92	72		25616		0						355777.778	2.811	0.000	
07/31/92	14		23732		0						*****.***	0.590	0.000	
08/31/92	11		18762		0						*****.***	0.586	0.000	
09/30/92	19		11566		6						608736.842	1.643	24.000	
10/31/92	0		12601		0						0.000	0.000	0.000	
11/30/92	0		12054		0						0.000	0.000	0.000	
12/31/92	0		10504		0						0.000	0.000	0.000	
01/31/93	0		8979		5						0.000	0.000	100.000	
02/28/93	0		6989		0						0.000	0.000	0.000	
03/31/93	9		3557		0						395222.222	2.530	0.000	
04/30/93	0		1840		0						0.000	0.000	0.000	
05/31/93	0		6867		0						0.000	0.000	0.000	
06/30/93	14		4826		0						344714.286	2.901	0.000	
07/31/93	48		4943		13						102979.167	9.711	21.311	
08/31/93	3		4560		0						*****.***	0.658	0.000	
09/30/93	0		5132		14						0.000	0.000	100.000	
10/31/93	0		4964								0.000	0.000	0.000	
11/30/93	0		3719								0.000	0.000	0.000	
12/31/93	0		820								0.000	0.000	0.000	
01/31/94	0		1835								0.000	0.000	0.000	
02/28/94	0		2477								0.000	0.000	0.000	
03/31/94	0		2344								0.000	0.000	0.000	
04/30/94	0		2163		0						0.000	0.000	0.000	
05/31/94	2		2316		0						*****.***	0.864	0.000	
06/30/94	0		2313		0						0.000	0.000	0.000	
07/31/94	0		2031		10						0.000	0.000	100.000	
01/31/95	1		1782	1654		31					*****.***	0.561	0.000	
02/28/95			1527	1421		28					0.000	0.000	0.000	
03/31/95			1759	1587		30					0.000	0.000	0.000	
04/30/95			1293	1199		30					0.000	0.000	0.000	
05/31/95			1284	1174		31					0.000	0.000	0.000	
06/30/95			1140	1045		30					0.000	0.000	0.000	
07/31/95			1769	1710		31					0.000	0.000	0.000	
08/31/95			1621	1569		31					0.000	0.000	0.000	
09/30/95			1193	1155		30					0.000	0.000	0.000	
10/31/95			1230	1193		27					0.000	0.000	0.000	
11/30/95			1187	1150		30					0.000	0.000	0.000	
12/31/95			1275	1231		31					0.000	0.000	0.000	
01/31/96			1304	1257		31					0.000	0.000	0.000	
02/29/96			1095	1057		29					0.000	0.000	0.000	
03/31/96			1128	1091		31					0.000	0.000	0.000	
04/30/96			1041	1004		30					0.000	0.000	0.000	
05/31/96			1054	1018		31					0.000	0.000	0.000	

LOUIS DREYFUS NATURAL CORP.

WELL : SHEEP DRAW FED 1-S
 OPER : LDNGC
 ZONE : STRAWN
 CO : EDDY
 RCAT : PDP
 LOC : 33-22S-26E
 ENG : JMG
 FIELD : SHEEP DRAW
 STATE : NM
 PERFS : 0- 0

Gal=LD
 Ref= 10/93
 Cum= 15.481
 Rem= .000
 P/Z
 Gal=LD
 Ref=08/10/99
 GIP= 419
 EUR= 367
 PZa= 500



Page No.: 2

Print Time: Tue Aug 10 14:52:31 1999

Property ID: 9678

Property Name: SHEEP DRAW FED 1-S | SHEEP DRAW | 420127.002

Table Name: H:\ARIES\COMPANY\TEST.DBF

--DATE--	TIME-	C	-LONG-	PHA	TYPE	CO	--CUM_OIL-	---CUM_GAS--	-CUM_WATER	--BOPD--	--MCFPD-	--BHPD--	WHT	M_FWHP-	M_FBHP-	M_SIWHP	M_SIBHP
							Bbl	Mcf	Bbl				F	Psi	Psi	Psi	Psi
03/25/92					M_SI			9412					60			4372.0	5398.0
04/30/92					M_SI			47713					60			2449.0	3176.0
06/07/92					M_SI			80282					60			3608.0	4894.0
10/01/93					M_SI			236993					60			992.0	1548.0

CASE RUN DATE : 08/09/99
CASE RUN TIME : 18:38:31

LOUIS DREYFUS NATURAL GAS CORP

I N C O M E F O R E C A S T S C H E D U L E

EVALUATION OF ESTIMATED RESERVES
AS OF 7/99

WELL NAME : SHEEP DRAW FED 1-S
FIELD : 420127.002
FORMATION : SHEEP DRAW
OPERATOR : STRAWN
RESERVE CATEGORY : NM

LOCATION : LDNGC
COUNTY : 33-22S-26E
STATE : EDDY
EVAL BASIS : PDP
ENGINEER : WESTERN

-END- MO-YR	-GROSS PRODUCTION- MBBL	MMCF	--NET PRODUCTION-- MBBL	MMCF	----PRICES---- \$/BBL	\$/MCF	NET OPER REV, M\$	NET OPER EXP, M\$	NET CAP COST, M\$	ADV+SEV TAX, M\$	CASH FLOW BFIT, M\$	CUM DISC BFIT, M\$
12-99	.000	6.481	.000	4.334	.00	2.140	9.275	2.433	.000	.839	6.003	5.866
12-00	.000	10.774	.000	7.205	.00	2.140	15.419	4.865	.000	1.395	9.158	14.220
12-01	.000	8.399	.000	5.617	.00	2.140	12.020	4.865	.000	1.088	6.067	19.253
12-02	.000	6.547	.000	4.379	.00	2.140	9.370	4.865	.000	.848	3.657	22.014
12-03	.000	5.104	.000	3.413	.00	2.140	7.305	4.865	.000	.661	1.778	23.238
12-04	.000	3.075	.000	2.056	.00	2.140	4.401	3.649	.000	.398	.353	23.463
12-05												
12-06												
12-07												
12-08												
12-09												
12-10												
12-11												
12-12												
12-13												
S TOT	.000	40.380	.000	27.004	.00	2.140	57.789	25.543	.000	5.230	27.016	23.463
AFTER	.000	.000	.000	.000	.00	.000	.000	.000	.000	.000	.000	23.463
TOTAL	.000	40.380	.000	27.004	.00	2.140	57.789	25.543	.000	5.230	27.016	23.463
CUM	.000	347.161					NET OIL REVENUES (M\$)	.000				
ULT	.000	387.541					NET GAS REVENUES (M\$)	57.789				

PRESENT WORTH
PROFILE

				DISC RATE	BTAX PW (M\$)
BTAX RATE OF RETURN (%)	80.00	PROJECT LIFE (YEARS)	5.3		
BTAX UNDISC PAYOUT (YEARS)	.00	DISCOUNT RATE (%)	10.0		
BTAX DISC PAYOUT (YEARS)	.00	GROSS OIL WELLS	.0		
BTAX UNDISC NET INC/INV	.00	GROSS GAS WELLS	1.0	5.00	25.097
BTAX DISC NET INC/INV	.00	GROSS WELLS	1.0	7.00	24.413
				8.00	24.087
INITIAL W.I. (%)	85.000	INITIAL OIL N.R.I. (%)	.000	9.00	23.770
FINAL W.I. (%)	85.000	FINAL OIL N.R.I. (%)	.000	11.00	23.165
		INITIAL GAS N.R.I. (%)	66.875	12.00	22.876
PROD START DATE	7/99	FINAL GAS N.R.I. (%)	66.875	20.00	20.83
				40.00	17.238
				60.00	14.905
				80.00	13.274

SHEEP DRAW FED 1-S
 420127.002
 SHEEP DRAW
 STRAWN
 LDNGC
 33-22S-26E

DATE : 08/09/99
 TIME : 18:38:31
 DBS FILE : company
 SETUP FILE : JU99
 SEQ NUMBER : 9678

INPUT DATA

CALCULATED DATA

ITEM	SCHEDULING RATES			SCHEDULE UNTIL		PROCEDURE		ULTIMATE	LAST	EFF. DECL	INIT. RATE	FINAL RATE
405 START	07/99											
410 GAS	1338.90	X	M/M	64.47	IMU	EXP	22.05	411.628	5/28	22.05	1339.	1.
505 STX/OIL	8.20	X	%	TO	LIFE	PC	.00		5/28		.082	.082
510 STX/GAS	9.05	X	%	TO	LIFE	PC	.00		5/28		.090	.090
515 STX/NGL	9.05	X	%	TO	LIFE	PC	.00		5/28		.090	.090
520 PRI/GAS	2.1400	X	\$/M	TO	LIFE	PC	.00		5/28		2.140	2.140
525 PRI/OIL	15.3800	X	\$/B	TO	LIFE	PC	.00		5/28		15.380	15.380
530 OPC/T	1114.00	X	\$/M	TO	LIFE	PC	.00		5/28		1114.000	1114.000
535 OPC/T	-637.00	X	\$/M	TO	LIFE	PC	.00		5/28		-637.000	1114.000
700 NET/WI	.8500	D	FRAC	TO	LIFE	FLAT	.00		5/28		.850	.850
720 NET/NIC	.6687	D	FRAC	TO	LIFE	FLAT	.00		5/28		.669	.669
740 NET/NIG	.6687	D	FRAC	TO	LIFE	FLAT	.00		5/28		.669	.669

RESERVE PARAMETERS

ITEM

ITEM

201 LOSS	NO											
205 CUMO, MB	.00	CUMG, MMF	347.16	CUML, MB								
210 WELLS	.00	1.00										
215 SHRINK	.86											

PROJECT ASSUMPTIONS

BASE DATE : 1/99 TIME FRAMES : 1*6 1*6 37*12 1*150
 P.W. DATE : 7/99 PW %-AGE : 10.0 DISC. FREQUENCY : MO
 REPORT DATE : 7/99 PROD QUAL : LD99 OWNER QUAL : LD OTHER QUAL :

LDNGC GAS VOLUMETRICS

API #: 3001526847
WELL NAME: SHEEP DRAW FED NO. 1
OPERATOR : LDNG
LEGAL : 33-22S-33E 660 FNL 2310 FEL
COUNTY : EDDY
STATE : NEW MEXICO
FORMATION: STRAWN U
FIELD NAME: HAPPY VALLEY
Reserve Cat: PDP
Interval top, ft: 10202 -6898 KB 3304
Interval base, ft: 10218 DF 3303
Datum, MPP, ft: 10210 GR 3282
Temp grad, deg/100 ft: 1.03
Mean Surface Temp: 60 U PERF: 10203 -6899
Pressure grad, psi/ft 0.478 L PERF: 10220 -6916
Atmospheric, psi: 14.65

Input variables

Calculated Variables

GAS GRAVITY	0.62	Tc =	362.56	
% N2	0.62 %	Pc =	671.21	
% CO2	0.54 %	Tc' =	361.50	
% H2S	%	Pc' =	669.24	
CONDENSATE (YES=1)	1	Tr =	1.732	
RES. TEMPERATURE	165 'F	Pri =	7.385	
INITIAL PRESSURE (grad)	4,895 psia	Pra =	0.747	
INITIAL PRESSURE (used)	4942 psia	Zi =	0.9927	4978
ABANDONMENT PRES	500 psia	Za =	0.9559	
GROSS PAY	16 feet	SCFi/rcf =	283	
NET PAY (wellbore)	6 feet			
NET PAY (drainage area)	6 feet			
ACRES	82.83 acres	DPHI	NPHI	Rt Rw a m n
WATER SAT	9.77 %	7.63	1.23	2000 0.057 1 2 2
POROSITY	5.46 %			Rw @ 0.12 Tref, F 75

MCF/AC-FT	542.42	
GAS IN PLACE	301,224 MCF	VOLUMETRIC
RECOVERABLE GAS	269,573 MCF	
RECOVERY	89.49 %	

GAS IN PLACE	MCF	MATERIAL BALANCE
NET PAY	6 feet	GIVEN
ACRES (P/Z)	0 acres	CALCULATED

RECOVERABLE GAS	269,579	RATE-TIME
NET PAY (wellbore)	6 feet	GIVEN
ACRES (R/T)	83	CALCULATED

Production Tests	Date	Gas	Oil/Cond	Water	FTP	ck	Flowtim	SITP	BHP
Stimulation	ymody	mcfpd	bopd	bwpd	psig	64ths	hours	psig	psig
2500 gal NEFE	920610	1426	5	0	360	32	48	3608	4894
Reservoir Properties	Test	Date	Interval	k	skin	kair	phi	Sw	rhom
Source	type	ymody	ft	md	s	md	%	%	g/cc
Caliper indicates rugose hole.				fractures					

Produced from 6/2/92 ti 9/2/92 alone thru 2 3/8; then commingled w/ 10292-10304.

LDNGC GAS VOLUMETRICS

API #: 3001526847
 WELL NAME: SHEEP DRAW FED NO. 1
 OPERATOR : LDNG
 LEGAL : 33-22S-33E 660 FNL 2310 FEL
 COUNTY : EDDY
 STATE : NEW MEXICO
 FORMATION: STRAWN L Completed 920218.
 FIELD NAME: HAPPY VALLEY
 Reserve Cat: PDP
 Interval top, ft: 10292 -6988 KB: 3304
 Interval base, ft: 10304 DF: 3303
 Datum, MPP, ft: 10298 GR: 3282
 Temp grad, deg/100 ft: 1.03
 Mean Surface Temp: 60 U PERF: 10292 -6988
 Pressure grad, psi/ft 0.5229 L PERF: 10304 -7000
 Atmospheric, psi: 14.65

Input variables

Calculated Variables

GAS GRAVITY	0.62	Tc =	363.05	
% N2	0.62 %	Pc =	671.08	
% CO2	0.54 %	Tc' =	361.98	
% H2S	%	Pc' =	669.11	
CONDENSATE (YES=1)	1	Tr =	1.732	
RES. TEMPERATURE	166 'F	Pri =	8.480	
INITIAL PRESSURE (grad)	5,399 psia	Pra =	0.747	
INITIAL PRESSURE (used)	5673.74 psia	Zi =	1.0487	5410
ABANDONMENT PRES	500 psia	Za =	0.9559	
GROSS PAY	12 feet	SCFi/rcf =	307	
NET PAY (wellbore)	10 feet			
NET PAY (drainage area)	10 feet			
ACRES	13 acres	DPHI	NPHI	Rt Rw a m n
WATER SAT	4.94 %	11.16	0.98	3700 0.057 1 2 2
POROSITY	7.92 %	rhomatrix		Rw @ 0.12
				Tref, F 75

MCF/AC-FT	907.40	
GAS IN PLACE	130,587 MCF	VOLUMETRIC
RECOVERABLE GAS	117,962 MCF	
RECOVERY	90.33 %	

GAS IN PLACE	127,529 MCF	MATERIAL BALANCE	9203255255.7	0
NET PAY	10 feet	GIVEN	9205303685.6	74.31
ACRES (P/Z)	13 acres	CALCULATED		248.7

RECOVERABLE GAS	117,962	RATE-TIME
NET PAY (wellbore)	10 feet	GIVEN
ACRES (R/T)	13	CALCULATED

Production Tests	Date	Gas	Oil/Cond	Water	FTP	ck	Flowtim	SITP	BHP
Stimulation	ymody	mcfpd	bopd	bwpd	psig	64ths	hours	psig	psig
2500 gal 15% NEFE	920326	1600	0	0	2850	16	19	4372	5398
Reservoir Properties	Test	Date	Interval	k	skin	kair	phi	Sw	rhom
Source	type	ymody	ft	md	s	md	%	%	g/cc

Caliper indicates rugose hole.

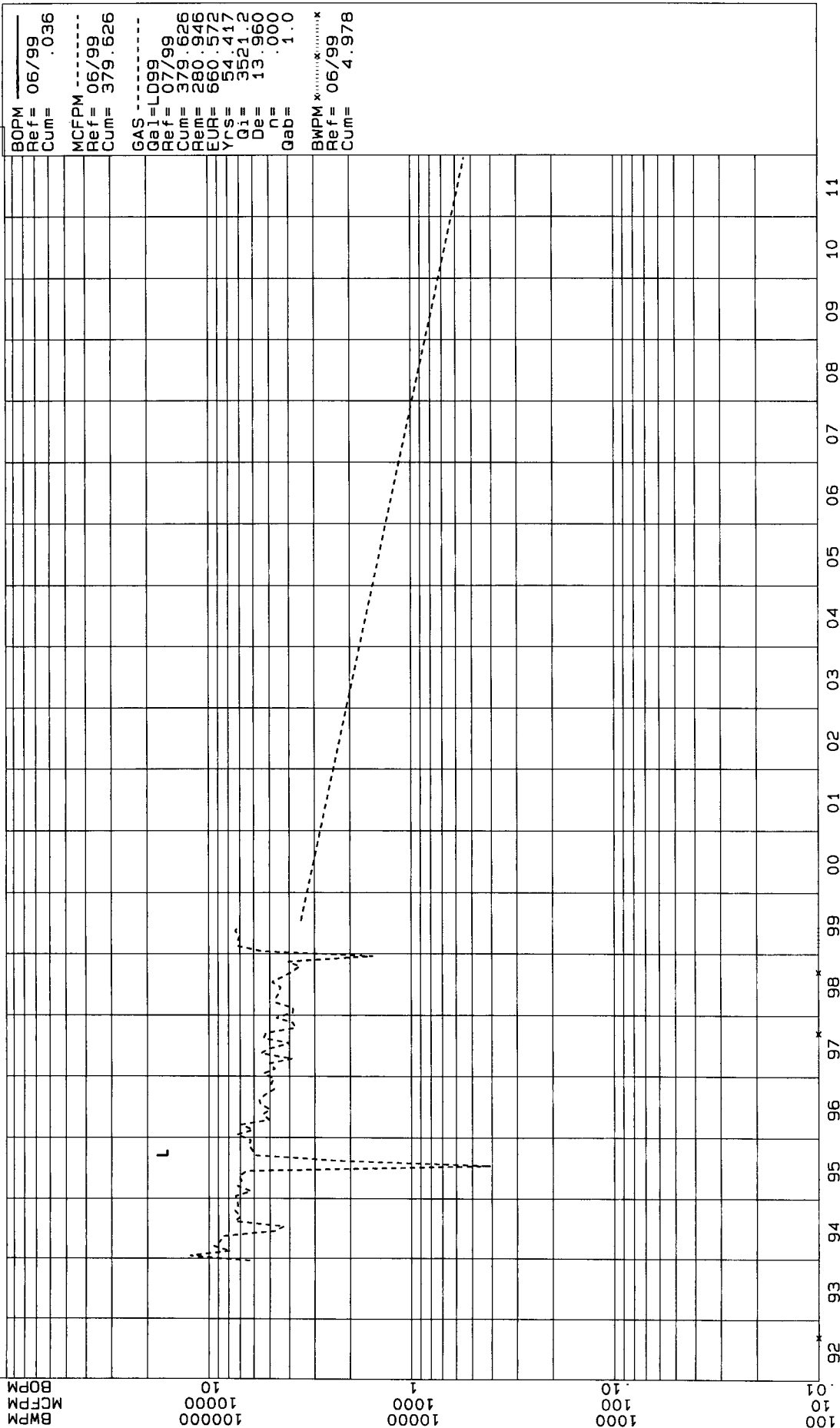
fractures

Produced alone from 3/92 to 6/2/92; then commingled with 10203-10220 up tubing to 12/93; then commingled with 10203-10220 up 7" x 2 3/8" annulus to present.

LOUIS DREYFUS NATURAL GAS CORP

WELL : SHEEP DRAW FED 1-M
 OPER : LDNGC
 ZONE : MORROW
 CO : EDDY
 RCAT : PDP

LOC : 33-22S-26E
 API : 30015268470000
 FIELD : HAPPY VALLEY
 STATE : NM
 PERFS : 0- 0



Page No.: 2
 Print Time: Tue Aug 10 14:47:38 1999
 Property ID: 9676
 Property Name: SHEEP DRAW FED 1-M | HAPPY VALLEY | 420127.001
 Table Name: H:\ARIES\COMPANY\PRODUCT.DBF

--DATE--	---OIL---	-OIL_SALES	---GAS---	-GAS_SALES	---WATER---	DA	ARTESIA_NO-	LEA	COM	--WELLID--	----GOR---	---YIELD--	--WTRCUT--	--O
	Bbl		Mcf		Bbl						Scf/Bbl			
01/31/96			7292	7027		31					0.000	0.000	0.000	
02/29/96			6073	5861		26					0.000	0.000	0.000	
03/31/96			6920	6692		31					0.000	0.000	0.000	
04/30/96			5049	4868		30					0.000	0.000	0.000	
05/31/96			5421	5236		31					0.000	0.000	0.000	
06/30/96			4993	4815		28					0.000	0.000	0.000	
07/31/96			5574	5365		31					0.000	0.000	0.000	
08/31/96			5643	5427		31					0.000	0.000	0.000	
09/30/96			5216	5012		30					0.000	0.000	0.000	
10/31/96			4759	4547		31					0.000	0.000	0.000	
11/30/96			4943	4731		29					0.000	0.000	0.000	
12/31/96			4772	4566		31					0.000	0.000	0.000	
01/31/97	0	0	5355	4758		0 31					0.000	0.000	0.000	
02/28/97			4716	4716		28					0.000	0.000	0.000	
03/31/97			5030	5030		31					0.000	0.000	0.000	
04/30/97			3864	3744		26					0.000	0.000	0.000	
05/31/97			5533	4805		31					0.000	0.000	0.000	
06/30/97	0	0	5001	4377		0 30					0.000	0.000	0.000	
07/31/97	0	0	4001	3516		0 31					0.000	0.000	0.000	
08/31/97	0	0	5361	4707		0 31					0.000	0.000	0.000	
09/30/97	0	0	5228	4565		1 30					0.000	0.000	100.000	
10/31/97	0	0	3734	3274		0 29					0.000	0.000	0.000	
11/30/97	0	0	3841	3135		0 30					0.000	0.000	0.000	
12/31/97	0	0	4658	3606		3 31					0.000	0.000	100.000	
01/31/98	0	0	3845	3099		0 31					0.000	0.000	0.000	
02/28/98	0	0	3835	3110		0 28					0.000	0.000	0.000	
03/31/98	0	0	4702	3846		0 31					0.000	0.000	0.000	
04/30/98	0	0	4644	4001		0 30					0.000	0.000	0.000	
05/31/98	0	0	4473	3799		0 31					0.000	0.000	0.000	
06/30/98	0	0	4431	3768		0 30					0.000	0.000	0.000	
07/31/98	0	0	4865	4127	4913	31					0.000	0.000	100.000	
08/31/98	0	0	4295	3795		0 31					0.000	0.000	0.000	
09/30/98	0	0	3905	3452		2 30					0.000	0.000	100.000	
10/31/98	0	0	3548	3109		0 30					0.000	0.000	0.000	
11/30/98	0	0	4056	3389		0 30					0.000	0.000	0.000	
12/31/98	0	0	1542	1195		0 24					0.000	0.000	0.000	
01/31/99	0	0	5492	4601		0 27					0.000	0.000	0.000	
02/28/99	0	0	7104	6103		6 28					0.000	0.000	100.000	
03/31/99	0	0	7185	6281		2 31					0.000	0.000	100.000	
04/30/99	0	0	7032	6162		4 30					0.000	0.000	100.000	
05/31/99	0	0	7394	6487		9 31					0.000	0.000	100.000	
06/30/99	0	0	7096	6227		1 30					0.000	0.000	100.000	

Page No.: 1

Print Time: Tue Aug 10 14:47:38 1999

Property ID: 9676

Property Name: SHEEP DRAW FED 1-M | HAPPY VALLEY | 420127.001

Table Name: H:\ARIES\COMPANY\PRODUCT.DBF

--DATE--	----OIL----	-OIL_SALES	----GAS----	-GAS_SALES	---WATER--	DA	ARTESIA_NO-	LEA	COM	--WELLID--	-----GOR----	---YIELD--	--WTRCUT--	--O
	Bbl		Mcf		Bbl						Scf/Bbl			
01/31/92	0		0		0						0.000	0.000	0.000	
02/29/92	0		0		0						0.000	0.000	0.000	
03/31/92	0		0		0						0.000	0.000	0.000	
04/30/92	0		0		0						0.000	0.000	0.000	
05/31/92	0		0		0						0.000	0.000	0.000	
06/30/92	0		0		0						0.000	0.000	0.000	
07/31/92	0		0		0						0.000	0.000	0.000	
08/31/92	0		0		0						0.000	0.000	0.000	
09/30/92	0		0		18						0.000	0.000	100.000	
10/31/92	0		0		0						0.000	0.000	0.000	
11/30/92	0		0		10						0.000	0.000	100.000	
12/31/92			0								0.000	0.000	0.000	
01/31/93			0								0.000	0.000	0.000	
02/28/93			0								0.000	0.000	0.000	
03/31/93			0								0.000	0.000	0.000	
04/30/93			0								0.000	0.000	0.000	
05/31/93			0								0.000	0.000	0.000	
06/30/93			0								0.000	0.000	0.000	
07/31/93			0								0.000	0.000	0.000	
08/31/93			0								0.000	0.000	0.000	
09/30/93			0								0.000	0.000	0.000	
10/31/93			0								0.000	0.000	0.000	
11/30/93			0								0.000	0.000	0.000	
12/31/93			6297								0.000	0.000	0.000	
01/31/94			12379								0.000	0.000	0.000	
02/28/94			7840								0.000	0.000	0.000	
03/31/94			9458								0.000	0.000	0.000	
04/30/94			8794								0.000	0.000	0.000	
05/31/94			8550								0.000	0.000	0.000	
06/30/94			4745								0.000	0.000	0.000	
07/31/94			4264								0.000	0.000	0.000	
08/31/94			7444								0.000	0.000	0.000	
09/30/94			6957								0.000	0.000	0.000	
10/31/94			7447								0.000	0.000	0.000	
11/30/94			7187								0.000	0.000	0.000	
12/31/94			7232								0.000	0.000	0.000	
01/31/95			7386	7386	31						0.000	0.000	0.000	
02/28/95	1		6214	6214	28						*****.***	0.161	0.000	
03/31/95			7224	7224	31						0.000	0.000	0.000	
04/30/95	1		6890	6890	30						*****.***	0.145	0.000	
05/31/95			7092	7092	6 31						0.000	0.000	100.000	
06/30/95			6515	6515	30						0.000	0.000	0.000	
07/31/95			406	392	3 31						0.000	0.000	100.000	
08/31/95			2332	2257	31						0.000	0.000	0.000	
09/30/95	18		5876	5691	30						326444.444	3.063	0.000	
10/31/95	16		6109	5923	29						381812.500	2.619	0.000	
11/30/95			6344	6145	30						0.000	0.000	0.000	
12/31/95			6223	6009	31						0.000	0.000	0.000	

LOUIS DREYFUS NATURAL CORP.

WELL : SHEEP DRAW FED 1-M
 OPER : LDNGC
 ZONE : MORROW
 CO : EDDY
 RCAT : PDP

LOC : 33-22S-26E
 ENG : JMG
 FIELD : HAPPY VALLEY
 STATE : NM
 PERFS : 0- 0

Gal=LD
 Ref= 01/99
 Cum= .603
 Rem= .000

P/Z
 Gal=LD
 Ref=08/10/99
 Gdp= 783
 Eup= 579
 Pza= 750

P/Z

4500

4000

3500

3000

2500

2000

1500

1000

500

0

← MORROW (11515-520; 11584-612)

← MORROW (11288-612 OA)

1000

900

800

700

600

500

400

300

200

100

CUM-MMCF

08/10/99

Page No.: 1

Print Time: Tue Aug 10 14:52:31 1999

Property ID: 9676

Property Name: SHEEP DRAW FED 1-M | HAPPY VALLEY | 420127.001

Table Name: H:\ARIES\COMPANY\TEST.DBF

--DATE--	TIME-	C	-LONG-	PHA	TYPE	CO	--CUM_OIL-- Bbl	---CUM_GAS--- Mcf	-CUM_WATER Bbl	--BOPD--	--MCFPD--	--BWPD--	WHT F	M_FWHP- Psi	M_FBHP- Psi	M_SIWHP Psi	M_SIBHP Psi
12/15/93		C			M_SI			3047					60				2959.0
02/26/96					M_SI			179942					60			1551.0	2005.0
01/07/99					M_SI			339563					60				1492.0

DISC RATE	BTAX PW (M\$)
5.00	154.877
7.00	145.881
8.00	141.767
9.00	137.883
11.00	130.739
12.00	127.448
20.00	106.35
40.00	76.699
60.00	61.437
80.00	52.177

SHEEP DRAW FED 1-M
 420127.001
 HAPPY VALLEY
 MORROW
 LDNGC
 33-22S-26E

DATE : 08/09/99
 TIME : 18:37:07
 DBS FILE : company
 SETUP FILE : JU99
 SEQ NUMBER : 9676

I N P U T D A T A								C A L C U L A T E D D A T A				
ITEM	SCHEDULING RATES			SCHEDULE UNTIL		PROCEDURE		ULTIMATE	LAST	EFF. DECL	INIT. RATE	FINAL RATE
405 START	07/99											
410 GAS	3521.20	X	M/M	280.95	IMU	EXP	13.96	660.572	11/53	13.96	3521.	1.
505 STX/OIL	8.20	X	%	TO	LIFE	PC	.00		6/49		.082	.082
510 STX/GAS	9.05	X	%	TO	LIFE	PC	.00		6/49		.090	.090
515 STX/NGL	9.05	X	%	TO	LIFE	PC	.00		6/49		.090	.090
520 PRI/GAS	2.1400	X	\$/M	TO	LIFE	PC	.00		6/49		2.140	2.140

LDNGC GAS VOLUMETRICS

API #: 3001526847
WELL NAME: SHEEP DRAW FED NO. 1
OPERATOR : LDNG
LEGAL : 33-22S-33E 660 FNL 2310 FEL
COUNTY : EDDY
STATE : NEW MEXICO
FORMATION: MORROW M
FIELD NAME: HAPPY VALLEY
Reserve Cat: PDP
Interval top, ft: 11288 -7984 KB 3304
Interval base, ft: 11384 DF 3303
Datum, MPP, ft: 11336 GR 3282
Temp grad, deg/100 ft: 1.03
Mean Surface Temp: 60 U PERF: 11288 -7984
Pressure grad, psi/ft 0.4107 L PERF: 11384 -8080
Atmospheric, psi: 14.65

Input variables

Calculated Variables

GAS GRAVITY	0.58	Tc =	353.56						
% N2	0.16 %	Pc =	676.99						
% CO2	1.08 %	Tc' =	351.61						
% H2S	%	Pc' =	673.25						
CONDENSATE (YES=1)	1	Tr =	1.814						
RES. TEMPERATURE	177 'F	Pri =	6.936						
INITIAL PRESSURE (grad)	4,670 psia	Pra =	1.114						
INITIAL PRESSURE (used)	4670 psia	Zi =	0.9882						
ABANDONMENT PRES	750 psia	Za =	0.9467						
GROSS PAY	96 feet	SCFi/rcf =	263						
NET PAY (wellbore)	36 feet								
NET PAY (drainage area)	36 feet								
ACRES	19 acres	DPHI	NPHI	Rt	Rw	a	m	n	
WATER SAT	17.53 %	10.25	3.22	301.5	0.053	1	2	2	
POROSITY	7.60 %				Rw @				
					0.12				
					Tref, F				
					75				

MCF/AC-FT	597.49		
GAS IN PLACE	490,995 MCF	VOLUMETRIC	
RECOVERABLE GAS	408,687 MCF		
RECOVERY	83.24 %		

GAS IN PLACE	MCF	MATERIAL BALANCE
NET PAY	36 feet	GIVEN
ACRES (P/Z)	0 acres	CALCULATED

RECOVERABLE GAS	399,000	RATE-TIME
NET PAY (wellbore)	36 feet	GIVEN
ACRES (R/T)	19	CALCULATED

Production Tests	Date	Gas	Oil/Cond	Water	FTP	ck	Flowtim	SITP	BHP
Stimulation	ymody	mcfpd	bopd	bwpd	psig	64ths	hours	psig	psig
Est from increase over L Morrow	931229	275	5	0	390		24		
Reservoir Properties	Test	Date	Interval	k	skin	kair	phi	Sw	rhom
Source	type	ymody	ft	md	s	md	%	%	g/cc

LDNGC GAS VOLUMETRICS

API #: 3001526847
 WELL NAME: SHEEP DRAW FED NO. 1
 OPERATOR : LDNG
 LEGAL : 33-22S-33E 660 FNL 2310 FEL
 COUNTY : EDDY
 STATE : NEW MEXICO
 FORMATION: L MORROW A
 FIELD NAME: HAPPY VALLEY
 Reserve Cat: PDP
 Interval top, ft: 11515 -8211 KB 3304
 Interval base, ft: 11520 DF 3303
 Datum, MPP, ft: 11517.5 GR 3282
 Temp grad, deg/100 ft: 1.03
 Mean Surface Temp: 60 U PERF: 11515 -8211
 Pressure grad, psi/ft 0.4107 L PERF: 11520 -8216
 Atmospheric, psi: 14.65

Input variables

Calculated Variables

GAS GRAVITY	0.58	Tc =	350.86						
% N2	0.16 %	Pc =	677.40						
% CO2	1.08 %	Tc' =	348.91						
% H2S	%	Pc' =	673.63						
CONDENSATE (YES=1)	0	Tr =	1.833						
RES. TEMPERATURE	179 'F	Pri =	7.044						
INITIAL PRESSURE (grad)	4,745 psia	Pra =	1.113						
INITIAL PRESSURE (used)	4745 psia	Zi =	0.9964						
ABANDONMENT PRES	750 psia	Za =	0.9489						
GROSS PAY	5 feet	SCFi/rcf =	265						
NET PAY (wellbore)	4 feet								
NET PAY (drainage area)	4 feet								
ACRES	50 acres	DPHI	NPHI	Rt	Rw	a	m	n	
WATER SAT	14.28 %	8.2	1.4	750	0.053	1	2	2	
POROSITY	5.88 %				Rw @				
					0.12				
					Tref, F				
					75				
MCF/AC-FT	484.06								
GAS IN PLACE	116,080 MCF	VOLUMETRIC							
RECOVERABLE GAS	96,813 MCF								
RECOVERY	83.40 %								
GAS IN PLACE	36,000 MCF	MATERIAL BALANCE							
NET PAY	4 feet	GIVEN							
ACRES (P/Z)	15 acres	CALCULATED							
RECOVERABLE GAS	30,000	RATE-TIME							
NET PAY (wellbore)	4 feet	GIVEN							
ACRES (R/T)	15	CALCULATED							

Production Tests	Date	Gas	Oil/Cond	Water	FTP	ck	Flowtim	SITP	BHP
Stimulation	ymrmody	mcfpd	bopd	bwpd	psig	64ths	hours	psig	psig
Reservoir Properties	Test	Date	Interval	k	skin	kair	phi	Sw	rhom
Source	type	ymrmody	ft	md	s	md	%	%	g/cc

BHP is from measurement when commingled with 11586-11612; should not be depleted.

LDNGC GAS VOLUMETRICS

API #: 3001526847
WELL NAME: SHEEP DRAW FED NO. 1
OPERATOR : LDNG
LEGAL : 33-22S-33E 660 FNL 2310 FEL
COUNTY : EDDY
STATE : NEW MEXICO
FORMATION: L MORROW C
FIELD NAME: HAPPY VALLEY
Reserve Cat: PDP
Interval top, ft: 11585 -8281 KB 3304
Interval base, ft: 11612 DF 3303
Datum, MPP, ft: 11598.5 GR 3282
Temp grad, deg/100 ft: 1.19
Mean Surface Temp: 60 U PERF: 11586 -8282
Pressure grad, psi/ft 0.4107 L PERF: 11612 -8308
Atmospheric, psi: 14.65

Input variables

Calculated Variables

GAS GRAVITY	0.58	Tc =	350.86					
% N2	0.16 %	Pc =	677.40					
% CO2	1.08 %	Tc' =	348.91					
% H2S	%	Pc' =	673.63					
CONDENSATE (YES=1)	0	Tr =	1.889					
RES. TEMPERATURE	198 'F	Pri =	4.379					
INITIAL PRESSURE (grad)	4,778 psia	Pra =	1.113					
INITIAL PRESSURE (used)	2950 psia	Zi =	0.9260					
ABANDONMENT PRES	750 psia	Za =	0.9545					
GROSS PAY	27 feet	SCFi/rcf =	172					
NET PAY (wellbore)	14 feet							
NET PAY (drainage area)	14 feet							
ACRES	31 acres	DPHI	NPHI	Rt	Rw	a	m	n
WATER SAT	18.17 %	10.51	2.31	250.7	0.048	1	2	2
POROSITY	7.61 %				Rw @			
					0.12			
					Tref, F			
					75			

MCF/AC-FT	350.58	
GAS IN PLACE	201,969 MCF	VOLUMETRIC
RECOVERABLE GAS	152,152 MCF	
RECOVERY	75.33 %	

GAS IN PLACE	MCF	MATERIAL BALANCE
NET PAY	14 feet	GIVEN
ACRES (P/Z)	0 acres	CALCULATED

RECOVERABLE GAS	150,000	RATE-TIME
NET PAY (wellbore)	14 feet	GIVEN
ACRES (R/T)	31	CALCULATED

Production Tests	Date	Gas	Oil/Cond	Water	FTP	ck	Flowtim	SITP	BHP
Stimulation	ymrmody	mcfpd	bopd	bwpd	psig	64ths	hours	psig	psig
1500 gal 7.5% HCl	931217	217	0	0			20		2950
Reservoir Properties	Test	Date	Interval	k	skin	kair	phi	Sw	rhom
Source	type	ymrmody	ft	md	s	md	%	%	g/cc

BHP is from measurement when commingled with 11515-11520; depleted by HV B 1.