P. O. Box 1980

P. O. Box 1980

Hobbs, NM 68241-1980

District II - (505) 748-1283

811 S. First

Artesia, NM 88210

District III - (505) 334-6178

1000 Rio Brazos Road

Aztec, NM 87410

District IV

# New Mexico Energy Minerals and Natural Resources Department Oil Conservation Division

2040 South Pacheco Street Santa Fe, New Mexico 87505 (505) 827-7131 Form C-140 Originated 11/1/95

> Submit Original Plus 2 Copies to appropriate District Office

# APPLICATION FOR QUALIFICATION OF WELL WORKOVER PROJECT AND CERTIFICATION OF APPROVAL

THREE	E COPIES OFTHIS APPLICATION AND ALL ATTACHMENTS MUST BE FILED WITH THE APPROPRIATE DISTRICT E OF THE OIL CONSERVATION DIVISION.
1.	Operator: M&G DRILLING COMPANY OGRID #: 141852
	Address: c/o KM PRODUCTION COMPANY, PO BOX 2406, FARMINGTON, NM 87499
	Contact Party: KEVIN MCCORD Phone: (505) 325-6900
II.	Name of Well: HARDIE #68  Location of Well: Unit Letter M , 900 Feet from the SOUTH line and 800 feet from the WEST line, Section 14, Township 29N , Range 12W , NMPM, SAN JUAN County
III.	Date Workover Procedures Commenced: 10/10/95
	Date Workover Procedures were Completed: 10/10/95
IV.	Attach a description of the Workover Procedures undertaken to increase the projection from the Well.
V.	Attach an estimate of the production rate of the Well (a production decline curve or other acceptable method, and table showing monthly oil and/or gas Project Production) based on at least twelve (12) months of established production which shows the future rate of production based on well performance prior to performing Workover.
VI.	Pool(s) on which Production Projection is based:
VII.	Fulch CPC AFFIDAVIT:
	State of NEW MEXICO APR 2 9 1996 L
	County of SAN JUAN )  KEVIN MCCORD, being first duly sworn, upon oath states:
	I am the Operator or authorized representative of the Operator of the above referenced Well.
2	I have made, or caused to be made, a diligent search of the production records which are reasonably available and contain information relevant to the production history of this Well.
Ş	To the best of my knowledge, the data used to prepare the Production Projection for this Well is complete and accurate and this projection was prepared using sound petroleum engineering principles.  (Name)
	PETROLEUM ENGINEER

(Title)

	and the second of the second o		Att Comment					
SUBS	CRIBED AND SWORN TO before me this 26	1.	•					
		_ Kaemela Westmoreland						
	and the second of the second o	Notary Public						
Му Со	ommission expires: April 8,2000	_						
·······								
FOR C	DIL CONSERVATION DIVISION USE ONLY:							
		•	•					
VIII.	CERTIFICATION OF APPROVAL:							
	Chapter 15, Sections 1 through 8). The Oil C Workover Project attached to this application.	orkover Project is hereby approved and the above referent to the "Natural Gas and Crude Oil Production Incentionservation Division hereby verifies the Production Production of Application of this Application and Certification of Application Department of this Approval and certifies that this Dec., 197)	tive Act" (Laws 1995, rojection for the Well					
	<del>-</del>	37	<b>C</b>					
		District Supervisor, District  Oil Conservation Division	7					
		Date: 5/16/96	•					
X.	DATE OF NOTIFICATION TO THE SECRE	TARY OF THE TAXATION AND REVENUE DEPAR	RTMENT					
	DATE:		CIMILITI.					
	~4 kk id.							

# M&G DRILLING COMPANY HARDIE #68 900 FSL & 800 FWL SWSW, SECTION 14, T29N R12W SAN JUAN COUNTY, NEW MEXICO

The workover performed on the Hardie #68 well involved installation of a compressor. Compression was added to help this well lift liquids by decreasing backpressure on the well and increasing it's flow rate. This workover was started and completed on 10/10/95.

	M	&G DRILLIN	G COMPA	NY	
		HARDI	E #68		
	HIS	TORICAL F	RODUCT	ION	
			GAS	COND	PROD
	YEAR	MONTH	(MCF)	(BBLS)	DAYS
1	1991	JAN	4327	0	31
2	1991	FEB	4385	0	20
3	1991	MAR	3617	0	18
4	1991	APR	122	0	11
5	1991	MAY	7200	0	30
6	1991	JUN	2	0	11
7	1991	JUL	4064	0	15
8	1991	AUG	6618	0	28
9	1991	SEP	5527	0	30
10	1991	ОСТ	8	0	1
11	1991	NOV	4703	0	27
12	1991	DEC	6850	0	31
	1000				
13	1992	JAN	9543	0	31
14	1992	FEB	7647	0	29
15	1992	MAR	6178	0	31
16	1992	APR	3615	0	29
17	1992	MAY	4442	0	28
18	1992	JUN	4843	0	26
19	1992	JUL	3570	0	31
20	1992	AUG	4450	0	31
21	1992	SEP	4159	0	26
23	1992	OCT	3959	0	31
24	1992	NOV	3874	0	24
	1992	DEC	8054	0	31
25	1993	IAN	7201		21
26	1993	JAN FEB	7281 4962	0	31
27	1993	MAR	3948	0	28
28	1993	APR	2771	0	29
<u>28</u> 	1993	MAY	2678	0	28 31
30	1993	JUN	1644	0	30
31	1993	JUL	698	0	14
32	1993	AUG	1729	0	31
33	1993	SEP	1697	0	28
34	1993	OCT	4004	0	28
35	1993	NOV	2325	0	21
36	1993	DEC	1969	0	31
			1303		
37	1994	JAN	0	0	0
38	1994	FEB	0	0	0
39	1994	MAR	0	0	0

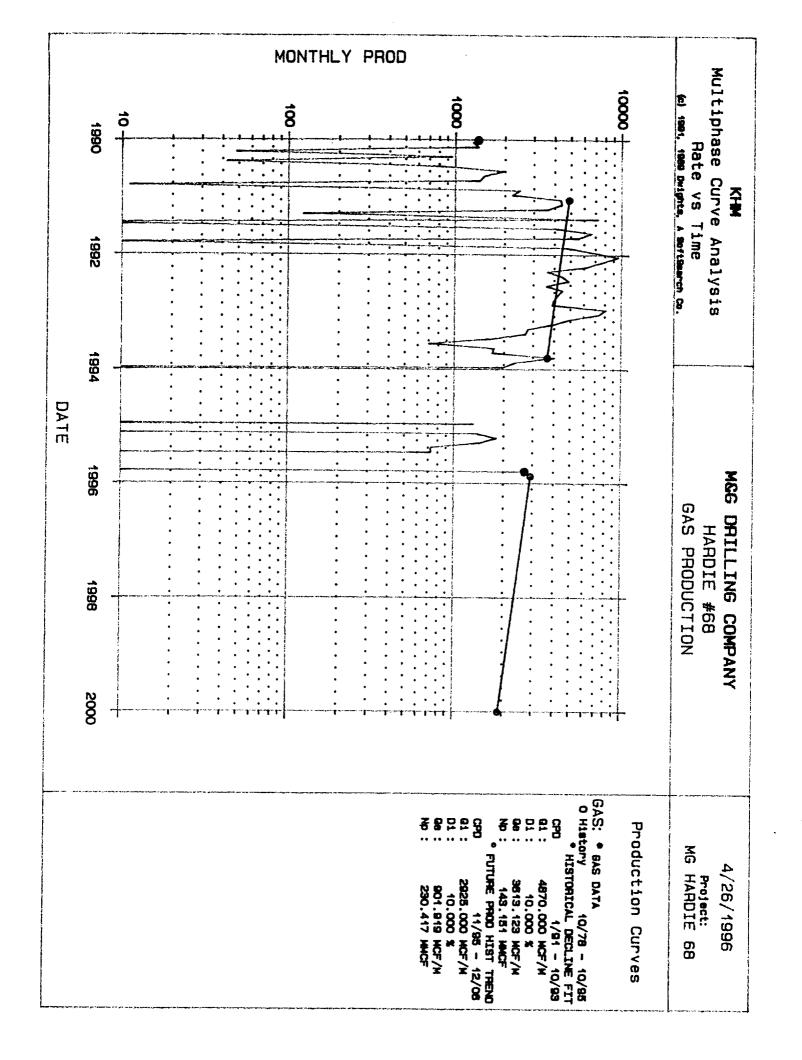
M&G DRILLING COMPANY					
		HARD	IE #68		
	HIS	TORICAL	<b>PRODUCT</b>	ION	
	-				
ļ			GAS	COND	PROD
	YEAR	MONTH	(MCF)	(BBLS)	DAYS
40	1994	APR	0	0	
41	1994	MAY	0	0	0
42	1994	JUN	0	0	0
43	1994	JUL	0	0	0
44	1994	AUG	0	0	0
45	1994	SEP	0	0	0
46	1994	OCT	0	0	0
47	1994	NOV	0	0	0
48	1994	DEC	1310	0	31
			15.0		
49	1995	JAN	0	0	0
50	1995	FEB	1348	0	28
51	1995	MAR	1806	0	31
52	1995	APR	1426	0	30
53	1995	MAY	719	0	31
54	1995	JUN	721	0	29
55	1995	JUL	0	0	0
56	1995	AUG	0	0	0
57	1995	SEP	0	0	0
58	1995	OCT	2678	0	21
59	1995	NOV	3823	0	30
	TOTAL		161,294	0	
	luczes:				
	HISTORICAL	PRODUCTION	ON DECLINE	FIT CHECK	
Initial Rate	Initial Rate (January 1991):			870 MCFM	
Final Rate (October 1993):			3629 MCFM		
	ecline Rate:		10.0%		
	Gas Reserve	s:	14	3,151 MCF	
Actual Gas				3,169 MCF	
			1 1.	21102 1101	

M &G DRILLING COMPANY
HARDIE #68
900 FSL & 800 FWL
SWSW, SECTION 14, T29N R12W
SAN JUAN COUNTY, NEW MEXICO

# **DECLINE CURVE ANALYSIS**

The Hardie #68 well produces from the Fulcher Kutz Pictured Cliffs pool. This well does not produce or sell any condensate. It is It is apparent from the gas production decline curve from this well that a 10% annual decline existed between January of 1991 and October of 1993 (34 months). The total gas production calculated from a 10% decline fit through the monthly production during this period compares very nicely to the actual total gas production from the well during this period (143,151 MCF calculated vs 143,169 MCF actual). Erratic production has existed on this well from November of 1993 to present because of logging off problems due to liquids production.

The future gas production projection before the workover on the Hardie #68 was performed by extending the historical production decline trend described earlier to the present and then to the future. This projection has a starting rate of 2925 MCF per month in November of 1995 and continues at a 10% annual decline. The monthly tabular production is presented for this well for a 10 year period of time.



# M&G DRILLING COMPANY HARDIE #68 **FUTURE PRODUCTION PROJECTION BEFORE WORKOVER USING HISTORICAL TREND** Initial Rate (November 1995): 2925 MCFM Effective Decline Rate: 10.0% **GAS** COND YEAR MONTH (MCF) (BBLS) 1 1995 NOV 2,912 0 2 1995 DEC 2.887 0 3 1996 JAN 2,861 0 4 1996 FEB 2,836 0 5 1996 MAR 2,812 0 6 1996 APR 2,787 0 7 1996 MAY 2,763 0 8 1996 JUN 2,739 0 9 1996 JUL 2,715 0 10 1996 AUG 2,691 0 11 1996 SEP 2,667 0 12 1996 OCT 2,644 0 13 1996 NOV 2,621 0 14 1996 DEC 2,598 0 15 1997 IAN 2,575 0 16 1997 FEB 2,553 0 17 1997 MAR 2,531 0 18 1997 **APR** 2,508 0 19 1997 MAY 2,486 0 20 1997 JUN 2,465 0 21 1997 JUL 2,443 0 22 1997 AUG 2,422 0 23 1997 SEP 2,401 0 24 1997 OCT 2,380 0 25 1997 VON 2,359 0 26 1997 DEC 2,338 0 27 1998 JAN 2,318 0 28 1998 FEB 2,298 0 29 1998 MAR 2,277 0 30 1998 APR 2,258 0 31 1998 MAY 2,238 0 32 1998 JUN 2,218 0 33 1998 JUL 2,199 0 34 1998 **AUG** 2,180 0 35 1998 SEP 2,161 0

# M&G DRILLING COMPANY HARDIE #68 FUTURE PRODUCTION PROJECTION BEFORE **WORKOVER USING HISTORICAL TREND** Initial Rate (November 1995): 2925 MCFM Effective Decline Rate: 10.0% GAS COND YEAR MONTH (MCF) (BBLS) 36 1998 OCT 2,142 0 37 1998 NOV 2,123 0 38 1998 DEC 2,104 0 39 1999 JAN 2,086 0 40 1999 **FEB** 2,068 0 41 1999 MAR 2,050 0 42 1999 APR 2,032 0 43 1999 MAY 2,014 0 44 1999 JUN 1,996 0 45 1999 JUL 1,979 0 46 1999 AUG 1,962 0 47 1999 SEP 1,945 0 48 1999 OCT 1,928 0 49 1999 NOV 1,911 0 50 1999 DEC 1,894 0 51 2000 JAN 1,877 0 52 2000 **FEB** 1,861 0 53 2000 MAR 1,845 0 54 2000 **APR** 1,829 0 55 2000 MAY 1,813 0 56 2000 JUN 1,797 0 57 2000 JUL 1,781 0 58 2000 AUG 1,766 0 59 2000 SEP 1,750 0 60 2000 OCT 1,735 0 61 2000 NOV 1,720 0 62 2000 DEC 1,705 0 63 2001 JAN 1,690 0 64 2001 FEB 1,675 0 65 2001 MAR 1,660 0 66 2001 APR 1,646 0 67 2001 MAY 1,631 0 68 2001 JUN 1,617 0 69 2001 JUL 1,603 0 70 2001 AUG 1,589

# **M&G DRILLING COMPANY** HARDIE #68 **FUTURE PRODUCTION PROJECTION BEFORE** WORKOVER USING HISTORICAL TREND Initial Rate (November 1995): 2925 MCFM Effective Decline Rate: 10.0% GAS COND YEAR MONTH (MCF) (BBLS) 71 2001 SEP 1,575 0 72 2001 **OCT** 1,561 0 73 2001 NOV 1,548 0 74 2001 DEC 1,534 0 75 2002 JAN 1,521 0 76 2002 FEB 1,507 0 77 2002 MAR 1,494 0 78 2002 APR 1,481 0 79 2002 MAY 1,468 0 80 2002 JUN 1,455 0 81 2002 JUL 1,443 0 82 2002 AUG 1,430 0 83 2002 SEP 1,418 0 84 2002 OCT 1,405 0 85 2002 NOV 1,393 0 86 2002 DEC 1,381 0 87 2003 JAN 1,369 0 88 2003 **FEB** 1,357 0 89 2003 MAR 1,345 0 90 2003 APR 1,333 0 91 2003 MAY 1,321 0 92 2003 JUN 1,310 0 93 JUL 2003 1,298 0 94 2003 AUG 1,287 0 95 2003 SEP 1,276 0 96 2003 OCT 1,265 0 97 2003 NOV 1,254 0 98 2003 DEC 1,243 0 99 2004 JAN 1,232 0 100 2004 **FEB** 1,221 0 101 2004 MAR 1,210 0 102 2004 APR 1,200 0 103 2004 MAY 1,189 0 104 2004 JUN 1,179 0 105 2004 JUL 1,169 0

	<del></del>	HARDIE #	68	T	
FUTI	IDE DDODI	JCTION PR	OIECTION	LBEEOD	
1010	DECOME	HEING HIE	COPICAL	N BEFORE	
	JKKUVEK	USING HIS	ORICAL	IKEND	
Initial Rate	(November	1995)	292	5 MCFM	
	ecline Rate:		2925 MCFM 10.0%		
				0.070	
			GAS	CONE	
	YEAR	MONTH	(MCF)	(BBLS	
106	2004	AUG	1,158	0	
107	2004	SEP	1,148	0	
108	2004	OCT	1,138	0	
109	2004	NOV	1,128	0	
110	2004	DEC	1,118	0	
111	2005	1431	1 100		
112	2005	JAN FEB	1,109	0	
113	2005	MAR	1,099 1,089	0	
114	2005	APR	1,089	0	
115	2005	MAY	1,030	0	
116	2005	JUN	1,061	0	
117	2005	JUL	1,057	0	
118	2005	AUG	1,043	0	
119	2005	SEP	1,033	0	
120	2005	ОСТ	1,024	0	
121	2005	NOV	1,015	0	
122	2005	DEC	1,007	0	
123	2006	JAN	998	0	
124	2006	FEB	989	0	
125	2006	MAR	980	0	
126	2006	APR	972	0	
127	2006	MAY	963	0	
128	2006	JUN	955	0	
129	2006	JUL	947	0	
130 131	2006	AUG SEP	938	0	
132	2006 2006		930	0	
133	2006	OCT NOV	922 914	0	
134	2006	DEC	906	0	
	2000	DEC	300		