DATE IN D. D.4 SUBJEO 4 ENGINEER JONUS LOGGED IN 8.11.04 FRE DHC REMO422430276
ABOVE THIS LINE FOR DMISION USE ONLY (1144-A)
NEW MEXICO OIL CONSERVATION DIVISION - Engineering Bureau - 1220 South St. Francis Drive, Santa Fe, NM 87505
ADMINISTRATIVE APPLICATION CHECKLIST
THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE
Application Acronyms: [NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication] [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling] [DHC-Downhole Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement] [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement] [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion] [SWD-Sait Water Disposal] [IPI-Injection Pressure Increase] [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]
 [1] TYPE OF APPLICATION - Check Those Which Apply for [A] [A] Location - Spacing Unit - Simultaneous Dedication [] NSL [] NSP [] SD
Check One Only for [B] or [C] [B] Commingling - Storage - Measurement DHC CTB PLC PC OLS OLM
[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery WFX PMX IPI EOR PPR
[D] Other: Specify
 [2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply [A] Working, Royalty or Overriding Royalty Interest Owners
[B] Offset Operators, Leaseholders or Surface Owner
[C] Application is One Which Requires Published Legal Notice
[D] Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
[E] For all of the above, Proof of Notification or Publication is Attached, and/or,
[F] Waivers are Attached
[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.
[4] CERTIFICATION: I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on this application until the required information and notifications are submitted to the Division.
Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Print or Type Name

Signature

Title

Date

÷.

e-mail Address

District I

District II 1301 W. Grand Avenue, Artesia, NM 88210

Hobbs NM 88240

District III

1000 Rio Brazos Road, Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy, Minerals and Natural Resources Department

Form C-107A Revised June 10, 2003

Oil Conservation Division

APPLICATION FOR DOWNHOLE COMMINGLING

1220 South St. Francis Dr. Santa Fe, New Mexico 87505

APPLICATION TYPE _X_Single Well Establish Pre-Approved Pools EXISTING WELLBORE _X_Yes ___No

CDX	RIO.	LLC
	лц <i>о</i> ,	

CDX RIO, LLC		4801 North butler Ave., Suite 2000, Farmington, NM 87401				
Operator		Address				
JICARILLA GAS COM B	#1	<u>G - 31 - T26N - R5W</u>	RIO ARRIBA			
Lease	Well No.	Unit Letter-Section-Township-Range	County			
OGRID No 222374	Property Code	API No. <u>30-039-06258</u> Lease Type: <u>x</u>	FederalStateFee			

DATA ELEMENT	UPPER ZONE			INTERMEDIATE ZONE			LOWER ZONE				
	0	TERO CHACRA		BLA	NCO MESAVER	DE		BASIN DAKOT	ГА		
Pool Name											
		82329			72319			71599			
Pool Code											
		3573 - 3593			4760 - 5070			6894 - 7080			
Top and Bottom of Pay Section											
(Perforated or Open-Hole Interval)		D1 V 10							, <u>, ,</u> ,		
		Plunger Lift			Plunger Lift			Plunger Lift			
Method of Production											
(Flowing or Artificial Lift)	ļ				<u>-</u>						
(Note: Pressure data will not be required if the bottom											
perforation in the lower zone is within 150% of the											
depth of the top perforation in the upper zone)											
Oil Gravity or Gas BTU (Degree API or Gas BTU)		1194 BTU			1200 BTU			1307 BTU			
Producing, Shut-In or		PRODUCING			NEW	, ,		PRODUCING	<u>}</u>		
New Zone											
Date and Oil/Gas/Water Rates of						<u></u>					
Last Production.		1 2004		Ditt				1 2004			
(Note: For new zones with no production history,	Date: Ju	11 2004		Date:			Date: Ju	11 2004			
applicant shall be required to attach production		17 mcfd					ļ	94 mcfd			
estimates and supporting data.)	Rates:	0 bopd		Rates:			Rates:	3 bopd			
		0 bwpd						0 bwpd			
Fixed Allocation Percentage (Note: If allocation is based upon something other	Oil	Gas		Oil	Gas		Oil	Ga	S		
than current or past production, supporting data or	1	0/	0/		0/	0/		0/2	0/		
explanation will be required.)		70	70		/0	70		/0	/0		

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones? If not, have all working, royalty and overriding royalty interest owners been notified by certified mail?	Yes Yes	_ <u>x</u> _	NoX_ No	
Are all produced fluids from all commingled zones compatible with each other?	Yes	<u>X</u>	No	
Will commingling decrease the value of production?	Yes		No	<u>x</u> _
If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands or the United States Bureau of Land Management been notified in writing of this application?	Yes	<u>x</u>	No	
NMOCD Reference Case No. applicable to this well:				

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, royalty and overriding royalty interests for uncommon interest cases.

Any additional statements, data or documents required to support commingling.

PRE-APPROVED POOLS

If application is to establish Pre-Approved Pools, the following additional information will be required:

List of other orders approving downhole commingling within the proposed Pre-Approved Pools

List of all operators within the proposed Pre-Approved Pools

Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.

Bottomhole pressure data

I

hereby certify that the	nformatid	on above is true and	complete to t	the best of my	knowledge and belief.	
	M C		1	5	0	

SIGNATURE	Vill	1

TITLE Operations Engineer

____DATE____8/3/04

TYPE OR PRINT NAME Robert Lemmons TELEPHONE NO. (505) 326-3003

E-MAIL ADDRESS _rob.lemmons@cdxgas.com



CDX Gas, LLC 4801 N. Butler Avenue, Suite 2000 Farmington, NM 87401 Main: 505-326-3003 Fax: 505-325-4007

3.August.2004

Mr. William Jones New Mexico Oil Conservation Division Engineering Bureau 1220 So. St. Francis Drive P.O. Box 6429 Santa Fe, New Mexico 87505

RE: Application for Exception to Rule 303-A Downhole Commingling Jicarilla Gas Com B#1 API No. 30-0397-06258 Basin Dakota / Otero Chacra and Blanco Mesaverde Pools 1450' FNL, 1850' FEL, Unit G Sec31-T26N-R5W Rio Arriba County, New Mexico

Dear Mr. Jones;

CDX RIO, LLC hereby request administrative approval to downhole commingle production from the Basin Dakota and Otero Chacra Pools with production from the Blanco Mesaverde Pools in the Jicarilla Gas Com B#1.

The Gas COM B#1 was originally completed as a dual producer in the Dakota and Chacra formations. In August 1995 approval was obtained to downhole commingle the Dakota and Chacra.

The Mesaverde is marginal in the area but is not substantial enough to justify drilling a new well, but commingling with existing production through an existing wellbore can capture the reserves. Adding the Mesaverde production will have no detrimental effects and the fluids have no abnormal components that would prohibit commingling or promote the creation of emulsions or scale. As an analogy the Jicarilla 155 #13M was a Dakota / Chacra commingled producer and in 1996 approval was obtained to commingle the Mesaverde. Commingling the Mesaverde realized a 100 mcfd and 7-bopd increases in production, increasing the value and extending the life of the well. The 155 #13M well has produced trouble free since that time.

By copy of this application by certified mail, return receipt requested, CDX is notifying all royalty owners in the affected spacing units, since although owned by the same parties, their respective proportions change. CDX is the only operator / working interest owner in all formations.

When the Mesaverde is completed it will be isolated and tested thru tubing. The subtraction method, combined with the existing allocation of the Chacra and Dakota, will be used to

determine the new allocation for the commingled production. Existing Chacra – Dakota allocation is

Chacra	Oil 0%	Gas 15%
Dakota	Oil 100%	Gas 85%

Estimated production from the Mesaverde is 100 mcfd and 9 bopd (using the analogy offset data from Jicarilla 155 #13M). New allocations will then be

Mesaverde	Oil 75%	Gas 47%
Chacra	Oil 0%	Gas 8%
Dakota	Oil 25%	Gas 45%

Attached to aid in your review are plats showing the location of the well and offset wells in the same formation, a recent production plot for the commingled zones and historical plots for the Chacra and Dakota production, and form C-102 showing the location and spacing units.

This spacing unit is located on an Indian lease (Jicarilla Apache Tribal #155) and a copy of this application package will be sent to the BLM / Jicarilla Tribe requesting their consent.

Should have any question concerning this application please contact the undersigned at (505) 326-3003.

Sincerely

Robert Lemmons Drilling / Operations Engineer CDX GAS, LLC 505-326-3003 ext 2820 rob.lemmons@cdxgas.com

cc Mr. Steve Wells, BLM Rich Corcoran, CDX Land R. Johnston, CDX Op Mgr. Fred Vigil, Jicarilla Oil & Gas Admin.

PI/Dwights PLUS on CD Map Report

	23	26	35	7
5W	22	27	45	m
26N	21	58	33	4
	20	33年 33年 26 26 29 29 31 ※ 32 ※ 32 31 34 32 ※ 33 34 33 34 34 34 34 34 34 34 34 34 34	در 20 ↔ % 23 21 ¥ 23 32 ¥ 4 -	₩ ₩ ₩ 2 ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩
	6	※ 33 35 35 35 30 30 30 30 30 30 30 30 30 30 30 30 30	· ★ · ★ · ★ · ★ · ★ · · · · · · · · · ·	× 22 × 3 × 9 0 ∞ × 9 0 ∞
	24	4 7 4 4 4 4 8 6 5 5 * 4 * 4 * * * * * * * * * * * * * *	1 18M 18M 16 17 18 17 16 4 17 16 4 17 17 16 4 17 16	15239E 233 *** 239 1 *** 239 1 ***
	53	58	35	N
6W	52	27	34	m
26N	· · · · · · · · · · · · · · · · · · ·			

Form C-128 (6-57) NEW	MEXICO OIL CONSERVATION COMMISSION						
	Well Location and Acreage Dedication Plat						
Section A.	Date March 27, 1961						
Operator PAN_AMERICAN_PETROLEUM Well No. 1 Located 1450 Feet From the County RIO_ARRIBA G. L. El Name of Producing Formation Da 1. Is the Operator the only owner in the d Yes X	CORPORATIONJICARILLA GAS UNIT "B"Section 31Township 26 NORTH Range 5 WEST, NMPMNORTH Line,1850Ievation To report laterDedicated AcreageNotaPoolBasin DakotaIedicated acreage outlined on the plat below?						
 If the answer to question one is "no agreement or otherwise? Yes If the answer to question two is "no" <u>Owner</u> 	 b", have the interests of all the owners been consolidated by communitization No						
	OIL CON. COM. DIST. 3						
Section B.	Note: All distances must be from outer boundaries of section.						
This is to certify that the information in Section A above is true and complete to the best of my knowledge and belief. Pan American Petroleum Corporation							
(Operator) R. M. Bauer, Jr. / 2001 Sauce, July (Representative) Box 480, Farmington, New Mexico (Address)	- <i>1850'</i>						
Ref: GLO platcdated 4 November	NOTE: Drill site on Fee Lease First National Bank of Albuquerque Trustee						
	0 330 660 990 1320 656 1985 2310 2640 2000 1500 1000 800 c Scale 4 inches equal 1 mile						
STREET BY	to certify that the above plat was prepared from field notes of actual surveys interim or under my supervision and that the same are true and correct to the best nowledge and belief.						
(Seal)	Date Surveyed 24 March 1961						
Farmington, New Mexico	Registered Professional Engineer and/or Land Surveyor James P. Leese N. Mex. Reg. No. 1463						

District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

Form C-102 Revised June 10, 2003 Submit to Appropriate District Office State Lease - 4 Copies Fee Lease - 3 Copies

□ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

, , , , , , , , , , , , , , , , , , ,	API Number	r		² Pool Code 82329		³ Pool Name				
⁴ Property (Code			⁵ Property Name ⁶ Well Number					Well Number	
			JICARILLA GAS COM B 1						1	
'OGRID I	No.				* Operator	Name				'Elevation
222374					CDX RIO,	LLC				6405 GR
	¹⁰ Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/We	st line	County
G	31	26N	RW		1450	NORTH	1850	EAS	T	ROA ARRIBA
			¹¹ Bo	ttom Hole	Location I	f Different Fro	m Surface			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/We	st line	County
¹² Dedicated Acres	i ¹³ Joint of	r Infill ¹⁴ Co	nsolidation	Code ¹⁵ Orde	er No.	L	<u> </u>	L		L

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

		¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete
	Q 0	to the best of my knowledge and belief.
	[Signature
 1450'	. U	Printed Name
0 1850' ·		
0		Title and E-mail Address
0	Į.	Operations Engineer, rob.lemmons@cdxgas.com
Π	0	Date
n	I	8/3/04
		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.
		March 24, 1961
		Late of Survey
		Signature and Seat OF FIGESSIONAL SULVEYOF.
		ON FILE
		Certificate Number
	s	1463

District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

Form C-102 Revised June 10, 2003 Submit to Appropriate District Office State Lease - 4 Copies Fee Lease - 3 Copies

□ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 A	API Number	7	² Pool Code ³ Pool Name			³ Pool Name						
3	0-039-06258			82329		BLAN	ICO MESAVERDE	& BASIN D	AKOTA			
⁴ Property (Code				⁵ Property	Name			6.	Well Number		
					JICARILLA GA	AS COM B				1		
'OGRID	No.				* Operator	Name				'Elevation		
222374					CDX RIO,	LLC				6405 GR		
					¹⁰ Surface	Location						
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/W	est line	County		
G	31	26N	RW		1450	NORTH	1850	EAS	EAST ROA ARRIBA			
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/W	t/West line County			
¹² Dedicated Acres	Joint of	r Infill ¹⁴ Con	solidation	Code ¹⁵ Ord	ler No.	L				L		

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

	$ \begin{bmatrix} - & - & - \\ 1 & - & - \end{bmatrix} $		¹⁷ OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete</i>
		0 0 0	to the best of my knowledge and beltef.
0		U	Signature
1 ~	1450'		Printed Name
	O ₁₈₅₀ , –		Robert Lemmons
0		0	Title and E-mail Address
0		0	Operations Engineer, rob.lemmons@cdxgas.com
0		0	Date
0		0	8/3/04
]	
			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.
			March 24, 1961
			Date of Survey
			Signature and Seal of Professional Surveyor:
			Certificate Number
			1463

CDX G	AS	Jicarilla Gas Com B #1 MV Recompletion	June 30, 2004 DCS
Spud Date:	April 18, 1961		API NO 30-039-06258 Jnit G. Sec 31-T26N-R5W 1450'FNL & 1850' FEL Rio Arriba Co., NM 550' (8 5/8" - 24# - J-55)
Surface Casin OD: Wt: Coupling: Grade: Depth: Sxs Cmt: Cmt Type: Hole Size: Circulated 100	9 8 5/8" 24# STC J-55 550' 400 B + 2% CaCl 12 1/4" sx cement to surface	Proposed T TBG: 2 3/ PKR: Ren Perfs: Cha DK	<u>ubing Configuration</u> 3" at 6,900' +/- noved, was at 6850 cra - 3,573-77, 3,589-93 (6 spf) - 6894-7080 (6 spf)
Production Ca OD: Wt: Coupling: Grade:	<mark>asing</mark> 5 1/2" 15.5# STC J-55	Chacra	- 3,573-77, 3,589-93 (6 spf)
Depth: Sxs Cmt: Cmt Type: Top of Cmt: Hole Size:	7,229' 2 stg - 250 & 250 Class B & gel 5,600 (est) 7 7/8"	■ ■ ● ■ ■ ■	DV Tool @ 3,717' SED MESAVERDE PERFS 6070
Production Tu OD: Wt: XN Nipple	<mark>1bing</mark> 2 3/8" 4.7# ?'		
Grade: Current EOT:	J-55 7,112'	 Н 1 В В В В В В В В В В В В В В В В В В В	94-7080 (6 spf) D: 7188
PBTD: Temp:	7188 ~165 F	✓ 7,22	9' (5 1/2"-15.5#-J-55)



Lease Name: JICARILLA GAS COM B County, State: RIO ARBA, NM Operator: CDX RIO LIMITED LIABILITY CORPORATIO Field: OTERO Reservoir: CHACRA Location: 31 26N 5W SW NE

JICARILLA GAS COM B - OTERO 1



Lease Name: JICARILLA GAS COM B County, State: RIO ARBA, NM Operator: CDX RIO LIMITED LIABILITY CORPORATIO Field: BASIN Reservoir: DAKOTA Location: 31 26N 5W SW NE





Production Rates

Lease Name: JICARILLA GAS COM B County, State: RIO ARBA, NM Operator: CDX RIO LIMITED LIABILITY CORPORATIO Field: MULTIPLE Reservoir: MULTIPLE Location:



JICARILLA GAS COM B - MULTIPLE

Production Rates

Time

Lease Name: JICARILLA CONTRACT 155 County, State: RIO ARBA, NM Operator: CDX RIO LIMITED LIABILITY CORPORATIO Field: BASIN Reservoir: DAKOTA Location: 30 26N 5W SE NW SW

Ser. PR 20







OFFBET WELL

Production Rates

Time

GULFTERRA FIELD { Preparer Code: Statement Title: Contact:	SERVICES LLC (SAN JUAN) 837495894 Measurement Audit Statement(Di1 HARDID TONDFPA (832)675-7043	(ferential)	Accounting/P Meter ID: Meter Name:	roduction P 73291 JICAR	eriod: 06/2004 -01 :ILLA GAS COM B #1 CH		0424	DX RIO LLC Recipient Code: 999913325 Location Code: NA DRN Report Dare/Time: 07/13/2004 06:10	
Statement Type:	Original		Reporting Ba	sis: MCF á	0 14.730				1
			CERTI	FICATE OF A	NALYSIS				
Sample Id: Sample Desc:	73291 JICARILLA GAS COM B #1 CH							District: SJ BLANCO AREA #7	
Effective Date: Sample Date: Analyzed Date: Sample Freq:	03/01/2004 07:00 02/09/2004 Semiannually		Sample Type: Sampled By: Analyzed By: GPA Version:	SPOT FSLAB 2145-03				Device: (No spec equip) Chrom ID: N/A	
Sample Temp (F): Sample Press: Press Base:	51.0 154.0 14.73			·					
		Component	Mole %	GPM	Others	Mole %	GPM		
		Methane	78.2879	0.0000	Carbon Dioxide	0.7386	0000.0		
		Etnane Propane Teo Butene	5.2498	0. 1245 1.4454 0. 2775	Nî trogen Widrogen	0.3441	00000		
		Iso butane Butane Iso Pentane	1,4387	0.4536	nyurogen Oxygen Helîum	0000.0	0.000		
		Pentane NeoPentane	0.3597	0.0000	Argon Carbon Monoxide	0.000	0.0000		
		Hexane Heptane	0.5584 0.0000	0.2296 0.0000	Sub Total Others	1.0827	0.0000.0		
		Octane Nonane Decene	0,000	0.0000					
-		Vecane	U,UUUU 	U.UUUU 5 8766					
		Sub fotal urm	C114.04						
		utners Total	100,0000	u.uuuu 5.8366					
		Gravity: Dry BTU: Wet BTU:	0.7370 1274.0 1251.8						
L	ĺ			L	C				

Rocky Mountain Region 1675 Broadway, Suite 1500 Denver, CO 80202 (303) 573-2772 Lab Team Leader - Sheila Hernandez (915) 495-7240

Water Analysis Report by Baker Petrolite

Company:	CDX GAS COMPANY	Sales RDT:	44211
Region:	ROCKY MOUNTAINS	Account Manager:	CRAIG SMITH (505) 330-3224
Area:	FARMINGTON, NM	Sample #:	300963
Lease/Platform:	JICARILLA 155	Analysis ID #:	42939
Entity (or well #):	B 001	Analysis Cost:	\$40.00
Formation:	UNKNOWN		
Sample Point:	SEPARATOR		

Summary		Analysis of Sample 300963 @ 75 °F							
Sampling Date: 4/27	Anions	mg/l	meq/l	Cations	mg/l	meq/l			
Analysis Date:5/5/Analysis Date:5/5/Analyst:JAMES AHRLETDS (mg/l or g/m3):80/Density (g/cm3, tonne/m3):80/Anion/Cation Ratio:0.99999	 Chloride: Bicarbonate: Carbonate: Sulfate: Phosphate: Borate: Silicate: 	284.0 235.0 0.0 10.0	8.01 3.85 0. 0.21	Sodium: Magnesium: Calcium: Strontium: Barium: Iron: Potassium:	262.8 2.0 5.0 1.0 0.1 2.0 5.0	11.43 0.16 0.25 0.02 0. 0. 0.07 0.13			
Carbon Dioxide: Oxygen: Comments:	Hydrogen Sulfide: pH at time of sampling: pH at time of analysis: pH used in Calculation	:	6.8 8.17 6.8	Aluminum: Chromium: Copper: Lead: Manganese: Nickel:					

Cond	Gauge Press. °F psi In 80 0 -1 100 0 -1		Values Calculated at the Given			n Conditi	<u>1 Conditions - Amounts of Scale in lb/100</u>				00 bbl		
Temp	Gauge Press.	Ca	alcite CaCO ₃	Gyp CaSC	sum 0 *2H ₂ 0	Anh C	nydrite aSO ₄	Celo S	estite rSO ₄	Ba Ba	arite aSO ₄	CO ₂ Press	
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi	
80	0	-1.62	0.00	-3.70	0.00	-3.77	0.00	-2.67	0.00	-0.59	0.00	0.54	
100	0	-1.48	0.00	-3.69	0.00	-3.70	0.00	-2.64	0.00	-0.72	0.00	0.71	
120	0	-1.32	0.00	-3.68	0.00	-3.60	0.00	-2.60	0.00	-0.83	0.00	0.89	
140	0	-1.16	0.00	-3.65	0.00	-3.48	0.00	-2.55	0.00	-0.91	0.00	1.07	

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

Scale Predictions from Baker Petrolite

Analysis of Sample 300963 @ 75 °F for CDX GAS COMPANY, 5/5/04

