

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires: January 31, 2004

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NM-97841
2. Name of Operator Richardson Operating Company		6. If Indian, Allottee or Tribe Name
3a. Address 3100 La Plata Highway, Farmington, NM 87401	3b. Phone No. (include area code) 505-564-3100	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T, R., M., or Survey Description) 1200' FSL & 1515' FEL, Sec 20, T30N, R14W		8. Well Name and No. WF Federal 20-3
		9. API Well No. 30-045-30114
		10. Field and Pool, or Exploratory Area Twin Mounds FS PC / BFC
		11. County or Parish, State San Juan County, New Mexico

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Approval & Copy
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	NMOCD DHC
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	Application

3. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Richardson Operating Company proposes to down-hole commingle the Basin Fruitland Coal with the Twin Mounds Fruitland Sand- PC in this well. As per NMOCD Rule 303C (3) (b) (vii), attached is a copy of the application to downhole commingle these "pre-approved pools".

Your consideration, concurrence and approval of this application is appreciated.



14. I hereby certify that the foregoing is true and correct	
Name (Printed/Typed) Charles Neeley	Title Agent/PE
Signature <i>Charles Neeley</i>	Date 8/16/04

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by (Signature)	Name (Printed/Typed)	Title
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	Date

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on next page)

NMOCD

District I

1625 N. I.

1625 N. French Dr., Hobbs, NM 88240

District II

1301 W. Grand Ave., 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 and Natural Resources

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-103

March 4, 2004

<p align="center">SUNDRY NOTICES AND REPORTS ON WELLS</p> <p>(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)</p> <p>1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other</p>		<p>7. Lease Name or Unit Agreement Name WF Federal NM-97841</p>
<p>2. Name of Operator Richardson Operating Company</p>		<p>8. Well Number WF Federal 20-3</p>
<p>3. Address of Operator 3100 La Plata Highway, Farmington, NM</p>		<p>9. OGRID Number 19219</p>
<p>4. Well Location</p> <p>Unit Letter _____ O : 1200' _____ feet from the _____ South _____ line and _____ 1515' _____ feet from the _____ East _____ line</p> <p>Section 20 Township 30N Range 14W NMPM San Juan County</p>		<p>10. Pool name or Wildcat Twin Mounds FR SD PC/BFC</p>
<p>11. Elevation (Show whether DR, RKB, RT, GR, etc.) 5594' GL</p>		
<p>Pit or Below-grade Tank Application (For pit or below-grade tank closures, a form C-144 must be attached)</p>		
<p>Pit Location: UL _____ Sect _____ Twp _____ Rng _____ Pit type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____</p> <p>Distance from nearest surface water _____ Below-grade Tank Location UL _____ Sect _____ Twp _____ Rng _____ ;</p> <p>_____ feet from the _____ line and _____ feet from the _____ line</p>		

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐

TEMPORARILY ABANDON ☐ CHANGE PLANS ☐

PULL OR ALTER CASING ☐ MULTIPLE COMPLETION ☐

OTHER: Down-hole Commingling Application ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐

COMMENCE DRILLING OPNS. ☐ PLUG AND ☐
ABANDONMENT

CASING TEST AND CEMENT JOB ☐

OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Richardson Operating Company proposes to down-hole commingle the Basin Fruitland Coal with the Twin Mounds Fruitland Sand – PC production in this well. Please see the attached for details on down-hole commingling these "pre-approved" pools. A copy of this application has been submitted to the BLM, as per Rule 303C (3) (b) (vii).

Your consideration and approval of this application is appreciated.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOC guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE

TITLE

Agent/PE

DATE _____

Type or print name

Charles Neeley

E-mail address: neelece@acrnet.com

Telephone No. 505-486-0211

(This space for State use)

APPROVED BY

TITLE

DATE _____

Conditions of approval, if any:

Richardson Operating Company
WF Federal 20-3
Downhole Commingling Application

The WF Federal 20-3 is a producing Twin Mounds Pictured Cliffs well completed in February, 2001. As part of Richardson's development program in their WF (West Farmington) field, this well has been perforated and stimulated in the Basin Fruitland Coal.

Pursuant to NMOCD Order R-11363, Richardson Operating Company seeks approval to down-hole commingle the "Pre-approved pools and areas": Twin Mounds Fruitland Sand PC (86620) and Basin Fruitland Coal (79680) pools in this well.

Based on Richardson Operating wells in this township: both zones have similar bottom hole pressures of approximately 200 psi., both zones produce gas with formation water and no liquid hydrocarbons, and fluids from the two zones are compatible.

Richardson Operating proposes to allocate production based on the initial (base) production rate and matched hyperbolic decline production history from the Pictured Cliffs. Production allocation attributable to the Fruitland Coal Formation will be based on the difference in the production forecast for the Pictured Cliffs and the commingled gas stream of both intervals.

The monthly production from the Pictured Cliffs (q_t) will be calculated from the hyperbolic decline Formula:

$$q_t = \frac{q_i}{(1 + b(D)t)^{1/b}}$$

Where: q_i = base rate of 2088 mcfpm
 b = .4
 t = time produced in years
 D = 49.4 %

Fruitland Coal Production = Total Production for month – Pictured Cliffs production for month

WF Federal 20-3

PC Gas Production History

The well was perforated and stimulated in the Pictured Cliffs. The well was allowed to flow back immediately after stimulation. The well was then cleaned up and produced for 924 days. The first 64 days of production was 4396 mscf or 68.7/day or avg 30.4 day month = 2088 mcf (base rate). The 924 day production decline fit a hyperbolic decline curve with a "b" = .4 and D = 49.4%. Richardson Operating proposes to use these constants to determine future production from the Pictured Cliffs on this well.

The production history, production forecast and matched production curves are attached for your review.

The Twin Mounds Fruitland Sand PC is perforated: 1098' – 1106'. The Basin Fruitland Coal is perforated: 982' – 988', 1027' and 1086' – 1095'.

The down-hole commingling will not reduce the value of the total remaining production of this well.

Ownership between the two pools is not identical.

Richardson Operating Company has sent notice to all interest owners in the spacing units by certified mail (return receipt) of their intent to apply for down-hole commingling. No objection was received within 20 days of sending the notice.

A copy of this application has been submitted via Sundry Notice Form 3160-5 to the Bureau of Land Management.

Your consideration and approval of this application is appreciated.

Richardson Operating Company
WF Federal 20-3

PRODUCTION DATA

Time (Days)	Flow Rate (Mscf/d)	Cum Prod (Mscf)
8	53.125	425
35	65	2180
64	76.4137931	4396
93	67.5172414	6354
122	46.4827586	7702
153	72.1290323	9938
184	63.6774194	11912
214	58.4666667	13666
244	39.6333333	14855
264	32.9	15513
265	5	15518
272	28.7142857	15719
300	21.9642857	16334
331	26.7741936	17164
360	23.6206897	17849
378	26.0555556	18318
382	25.75	18421
396	50.2142857	19124
427	49.8064516	20668
456	53.2068966	22211
487	41.3225807	23492
517	33.5333333	24498
548	53.2580645	26149
579	37.5806452	27314
607	31.0357143	28183
630	25.9130435	28779
660	14.3	29208
691	12.7741936	29604
721	10.7666667	29927
751	10.5333333	30243
771	16.4	30571
801	34.0333333	31592
832	33.0322581	32616
862	29.8666667	33512
893	23.9354839	34254
924	26.7096774	35082

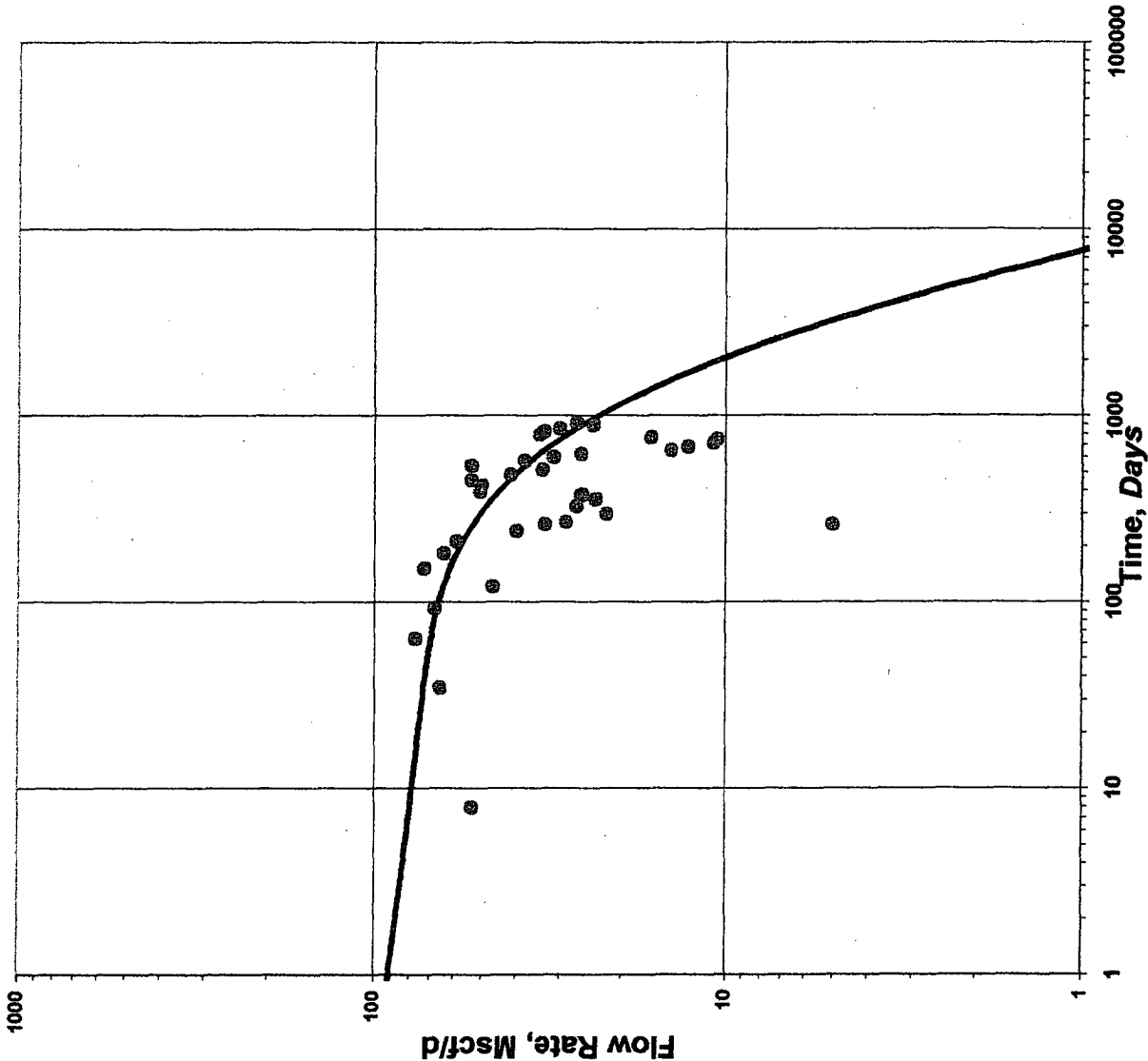
Richardson Operating Company
WF Federal 20-3

FUTURE PRODUCTION

Well ID : WF Fed 20-3
Field : PC
Location : 20-30N-14W
Company : Richardson

Time (Days)	Flow Rate (Mscf/d)	Cum (Mscf)	Last Reported Production
924	26.709677	35082	
1019.831	22.869658	40397.2	
1140.598	20.469897	42843.38	
1261.371	18.408461	45038.01	
1382.139	16.626259	47015.84	
1502.906	15.076665	48805.58	
1623.68	13.721917	50431.98	
1744.447	12.531668	51914.42	
1865.214	11.481075	53270.3	
1985.988	10.549806	54514.68	
2106.755	9.720889	55659.32	
2227.528	8.9804136	56715.99	
2348.296	8.3165313	57692.67	
2469.063	7.7194575	58598.79	
2589.837	7.1806388	59440.45	
2710.604	6.6930579	60223.77	
2831.371	6.2505997	60955.35	
2952.145	5.8480354	61638.46	
3072.912	5.4808554	62278.77	
3193.679	5.1451533	62879.08	

Richardson Operating Company
WF Federal 20-3
Hyperbolic Decline Curve



Richardson Operating Company
WF Federal 20-3
Hyperbolic Decline Curve

