



PHOENIX
TECHNOLOGY SERVICES

January 7, 2015

Apache Corporation
Attention: Regulatory Department
303 Veterans Airpark Lane, Suite 3000,
Midland, TX 79705

Re: Apache Corporation
Tony Federal #48
Eddy County, NM
API #30-015-41989
Job No. 1410652

Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the Survey Data Certification, Surveys, and Lease Plat for the above referenced well with the State of New Mexico Oil Conservation Division – District 2 via certified mail. A copy of the filing is attached for your records.

Name of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Marcus Colvin	48	371	6,370	04/19/14	04/27/14	MWD

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

Dana Robinson

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 12 2015

Dana Robinson
Operations Administrator

RECEIVED

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1410652

OPERATOR

APACHE

WELL NAME

TONY FEDERAL #48

COUNTY & STATE

LEA COUNTY, NM

API WELL NUMBER

30-015-41989

PROPOSED DIRECTION

89.67

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
0 ft	.00 ft	.0 ft	.0 ft	.00 ft	.00 ft	Surface

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
19-Apr-14	371 ft	1.2	238.5

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
27-Apr-14	6,370 ft	2.6	84.9

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
27-Apr-14	6,416 ft	2.6	84.9

Marcus Colvin

PRINT YOUR NAME ABOVE

Marcus Colvin

SIGN YOUR NAME ABOVE

4/27/2014

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	-0.22
DECLINATION OR GRID	GRID

MWD SUPERVISOR 1

MARCUS COLVIN

DIRECTIONAL DRILLER 1

Dave Smith

MWD SUPERVISOR 2

DIRECTIONAL DRILLER 2

Chris Hutley

12329 Cutten Road

Houston, Texas 77066

(713)337-0609 (Voice), (713)337-0599 (Fax)

NM OIL CONSERVATION

ARTESIA DISTRICT

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

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

JAN 12 2015

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Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-41989	Pool Code 96831	Pool Name Cedar Lake ; Elorietta - Yeso
Property Code 308738	Property Name TONY FEDERAL	Well Number 48
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3760'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	18	17-S	31-E		1650	SOUTH	800	WEST	EDDY

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
L	18	17-S	31-E		1650	SOUTH	990	WEST	EDDY

Dedicated Acres 40	Joint or Infill	Consolidation Code	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

GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=666516.2 N X=628898.8 E LAT.=32.831636° N LONG.=103.913693° W LAT.=32° 49' 54" N LONG.=103° 54' 49" W BOTTOM HOLE LOCATION Y=666517.3 N X=629088.8 E GRID AZ.=89°38'41" HORIZ. DIST.=190.0' CORNER COORDINATES A) Y=667502.2 N; X=628095.9 E B) Y=667509.9 N; X=629282.4 E C) Y=666189.4 N; X=629286.6 E D) Y=666181.9 N; X=628100.1 E DETAIL 3758.8' 3754.3' S.L. 600' 3748.5' 3767.0' SEE DETAIL 990' 800' S.L. B.H. 1650'	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Sorina L. Flores</i> 11/21/13 Signature Date Sorina L. Flores Printed Name sorina.flores@apachecorp.com E-mail Address 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. MAY 29, 2012 Date of Survey Signature & Seal of Professional Surveyor: <i>Ronald J. Eidson</i> 5/21/2013 Certificate Number: 3239 Ronald J. Eidson 12641 NEW MEXICO JWSC W.O.: 12.11.0391
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Apache Corporation

Eddy County, NM (NAD27 NME)

Tony Federal

#48

WB1/Job #1410652

Survey: Phoenix MWD Survey

Survey Report

16 May, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 12 2015

RECEIVED



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3771.00usft (Capstar 118)
Site:	Tony Federal	MD Reference:	KB @ 3771.00usft (Capstar 118)
Well:	#48	North Reference:	Grid
Wellbore:	WB1/Job #1410652	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR DB v5000

Project:	Eddy County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Tony Federal		
Site Position:		Northing:	666,516.20 usft
From:	Map	Easting:	628,898.80 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 53.88921 N
		Longitude:	103° 54' 49.29675 W
		Grid Convergence:	0.23 °

Well:	#48			
Well Position	+N/-S	0.00 usft	Northing:	666,516.20 usft
	+E/-W	0.00 usft	Easting:	628,898.80 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft
			Latitude:	32° 49' 53.88921 N
			Longitude:	103° 54' 49.29675 W
			Ground Level:	3,760.00 usft

Wellbore:	WB1/Job #1410652				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	BGGM2013	2014/04/15	7.56	60.61	48,634

Design:	Surveys (Capstar 118)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	89.67	

Survey Program	Date	2014/05/16		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
371.02	6,416.00	Phoenix MWD Survey (WB1/Job #141065	MWD	MWD - Standard

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48
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Site:	Tony Federal	MD Reference:	KB @ 3771.00usft (Capstar 118)
Well:	#48	North Reference:	Grid
Wellbore:	WB1/Job #1410652	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	-3,771.00	0.00	0.00	0.00	0.00	0.00	666,516.20	628,898.80
371.02	1.20	238.50	-3,400.01	370.99	-2.03	-3.31	-3.32	0.32	666,514.17	628,895.49
First Phoenix MWD Survey										
400.62	1.40	241.00	-3,370.41	400.59	-2.37	-3.89	-3.91	0.70	666,513.83	628,894.91
430.23	1.20	218.50	-3,340.81	430.19	-2.79	-4.40	-4.42	1.84	666,513.41	628,894.40
457.65	1.60	207.60	-3,313.40	457.60	-3.35	-4.76	-4.78	1.75	666,512.85	628,894.04
487.13	1.60	199.20	-3,283.93	487.07	-4.10	-5.08	-5.11	0.79	666,512.10	628,893.72
515.33	1.80	199.50	-3,255.74	515.26	-4.89	-5.36	-5.39	0.71	666,511.31	628,893.44
542.45	1.90	191.40	-3,228.64	542.36	-5.73	-5.59	-5.63	1.03	666,510.47	628,893.21
573.35	1.10	197.40	-3,197.75	573.25	-6.52	-5.78	-5.82	2.63	666,509.68	628,893.02
615.79	0.90	184.80	-3,155.32	615.68	-7.24	-5.93	-5.97	0.70	666,508.96	628,892.87
658.54	0.70	187.90	-3,112.57	658.43	-7.83	-6.00	-6.04	0.48	666,508.37	628,892.80
701.26	0.70	117.60	-3,069.85	701.15	-8.21	-5.80	-5.85	1.89	666,507.99	628,893.00
744.05	1.40	92.60	-3,027.07	743.93	-8.36	-5.05	-5.10	1.92	666,507.84	628,893.75
786.77	1.80	93.70	-2,984.37	786.63	-8.42	-3.86	-3.91	0.94	666,507.78	628,894.94
829.55	2.10	86.00	-2,941.61	829.39	-8.41	-2.40	-2.45	0.93	666,507.79	628,896.40
872.29	2.60	88.10	-2,898.91	872.09	-8.33	-0.65	-0.70	1.19	666,507.87	628,898.15
915.02	2.50	80.70	-2,856.22	914.78	-8.14	1.23	1.19	0.80	666,508.06	628,900.03
957.77	1.90	80.70	-2,813.50	957.50	-7.88	2.85	2.81	1.40	666,508.32	628,901.65
1,000.52	2.30	76.80	-2,770.78	1,000.22	-7.57	4.39	4.34	0.99	666,508.63	628,903.19
1,043.25	1.90	90.90	-2,728.08	1,042.92	-7.38	5.93	5.89	1.52	666,508.82	628,904.73
1,085.88	1.60	105.70	-2,685.47	1,085.53	-7.56	7.21	7.17	1.27	666,508.64	628,906.01
1,128.59	1.60	108.10	-2,642.77	1,128.23	-7.90	8.35	8.31	0.16	666,508.30	628,907.15
1,171.30	1.80	89.50	-2,600.08	1,170.92	-8.08	9.59	9.54	1.37	666,508.12	628,908.39
1,214.04	2.10	63.80	-2,557.37	1,213.63	-7.73	10.96	10.92	2.14	666,508.47	628,909.76
1,256.76	2.30	65.60	-2,514.68	1,256.32	-7.03	12.45	12.41	0.50	666,509.17	628,911.25
1,299.50	2.50	59.60	-2,471.98	1,299.02	-6.20	14.03	14.00	0.75	666,510.00	628,912.83

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3771.00usft (Capstar 118)
Site:	Tony Federal	MD Reference:	KB @ 3771.00usft (Capstar 118)
Well:	#48	North Reference:	Grid
Wellbore:	WB1/Job #1410652	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
1,342.90	2.30	49.00	-2,428.61	1,342.39	-5.15	15.50	15.47	1.12	666,511.05	628,914.30
1,384.91	1.80	49.40	-2,386.63	1,384.37	-4.17	16.64	16.62	1.19	666,512.03	628,915.44
1,427.63	1.80	46.20	-2,343.93	1,427.07	-3.27	17.64	17.62	0.24	666,512.93	628,916.44
1,470.35	1.80	55.70	-2,301.23	1,469.77	-2.43	18.67	18.66	0.70	666,513.77	628,917.47
1,513.06	1.40	64.90	-2,258.54	1,512.46	-1.83	19.70	19.69	1.11	666,514.37	628,918.50
1,598.49	1.40	69.40	-2,173.14	1,597.86	-1.02	21.62	21.62	0.13	666,515.18	628,920.42
1,683.73	1.60	76.80	-2,087.92	1,683.08	-0.38	23.76	23.75	0.33	666,515.82	628,922.56
1,769.19	1.90	77.90	-2,002.50	1,768.50	0.19	26.30	26.30	0.35	666,516.39	628,925.10
1,854.66	2.10	93.00	-1,917.09	1,853.91	0.40	29.25	29.25	0.66	666,516.60	628,928.05
1,897.36	2.10	95.40	-1,874.41	1,896.59	0.29	30.81	30.81	0.21	666,516.49	628,929.61
1,982.75	1.60	98.60	-1,789.07	1,981.93	-0.04	33.55	33.55	0.60	666,516.16	628,932.35
2,025.45	1.80	89.10	-1,746.39	2,024.61	-0.11	34.81	34.81	0.81	666,516.09	628,933.61
2,110.81	1.90	87.00	-1,661.07	2,109.93	-0.02	37.56	37.56	0.14	666,516.18	628,936.36
2,196.15	1.80	88.10	-1,575.78	2,195.22	0.10	40.31	40.31	0.12	666,516.30	628,939.11
2,281.58	2.30	83.20	-1,490.40	2,280.60	0.35	43.36	43.36	0.62	666,516.55	628,942.16
2,367.03	2.10	99.70	-1,405.01	2,365.99	0.29	46.60	46.60	0.77	666,516.49	628,945.40
2,452.40	1.80	95.10	-1,319.69	2,451.31	-0.10	49.48	49.48	0.40	666,516.10	628,948.28
2,537.76	1.80	104.20	-1,234.38	2,536.62	-0.55	52.12	52.11	0.33	666,515.65	628,950.92
2,623.26	1.80	86.00	-1,148.92	2,622.08	-0.78	54.76	54.75	0.67	666,515.42	628,953.56
2,708.61	1.80	95.10	-1,063.61	2,707.39	-0.81	57.43	57.42	0.33	666,515.39	628,956.23
2,794.04	2.10	84.60	-978.23	2,792.77	-0.78	60.32	60.32	0.54	666,515.42	628,959.12
2,879.44	2.30	83.20	-892.89	2,878.11	-0.43	63.58	63.58	0.24	666,515.77	628,962.38
2,964.97	2.10	76.50	-807.42	2,963.58	0.14	66.81	66.81	0.38	666,516.34	628,965.61
3,050.41	2.50	93.00	-722.05	3,048.95	0.41	70.19	70.20	0.90	666,516.61	628,968.99
3,135.81	2.50	87.70	-636.73	3,134.27	0.39	73.92	73.92	0.27	666,516.59	628,972.72
3,221.27	2.50	85.60	-551.35	3,219.65	0.60	77.64	77.64	0.11	666,516.80	628,976.44
3,306.81	2.10	88.80	-465.88	3,305.12	0.78	81.06	81.07	0.49	666,516.98	628,979.86

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3771.00usft (Capstar 118)
Site:	Tony Federal	MD Reference:	KB @ 3771.00usft (Capstar 118)
Well:	#48	North Reference:	Grid
Wellbore:	WB1/Job #1410652	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR_DB v5000

Survey										
MD (usft)	Inc. (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
3,393.24	2.60	94.80	-379.53	3,391.47	0.65	84.60	84.60	0.64	666,516.85	628,983.40
3,460.00	2.30	87.00	-312.83	3,458.17	0.59	87.45	87.45	0.67	666,516.79	628,986.25
3,508.00	2.30	88.00	-264.87	3,506.13	0.68	89.37	89.37	0.08	666,516.88	628,988.17
3,520.30	2.60	88.80	-252.58	3,518.42	0.69	89.90	89.90	2.45	666,516.89	628,988.70
3,615.71	1.40	88.40	-157.23	3,613.77	0.77	93.23	93.23	1.26	666,516.97	628,992.03
3,692.07	1.40	91.20	-80.89	3,690.11	0.77	95.09	95.09	0.09	666,516.97	628,993.89
3,776.38	1.60	90.90	3.39	3,774.39	0.73	97.30	97.30	0.24	666,516.93	628,996.10
3,861.77	1.80	99.30	88.74	3,859.74	0.50	99.81	99.81	0.37	666,516.70	628,998.61
3,947.18	1.90	67.70	174.11	3,945.11	0.82	102.45	102.45	1.18	666,517.02	629,001.25
4,075.29	1.10	86.70	302.18	4,073.18	1.70	105.64	105.65	0.73	666,517.90	629,004.44
4,160.63	1.60	95.80	387.49	4,158.49	1.62	107.64	107.65	0.64	666,517.82	629,006.44
4,245.80	1.40	95.10	472.63	4,243.63	1.41	109.86	109.87	0.24	666,517.61	629,008.66
4,331.10	2.30	89.80	557.89	4,328.89	1.32	112.61	112.62	1.07	666,517.52	629,011.41
4,416.50	2.30	90.90	643.22	4,414.22	1.30	116.04	116.04	0.05	666,517.50	629,014.84
4,501.91	2.10	92.60	728.57	4,499.57	1.20	119.31	119.32	0.25	666,517.40	629,018.11
4,587.31	2.50	100.40	813.90	4,584.90	0.80	122.71	122.71	0.59	666,517.00	629,021.51
4,672.77	1.90	94.40	899.29	4,670.29	0.35	125.96	125.96	0.75	666,516.55	629,024.76
4,758.22	1.80	87.70	984.70	4,755.70	0.30	128.71	128.71	0.28	666,516.50	629,027.51
4,886.22	1.90	91.90	1,112.63	4,883.63	0.31	132.84	132.84	0.13	666,516.51	629,031.64
4,971.49	2.10	90.90	1,197.85	4,968.85	0.24	135.81	135.81	0.24	666,516.44	629,034.61
5,056.54	2.10	90.20	1,282.84	5,053.84	0.21	138.93	138.93	0.03	666,516.41	629,037.73
5,141.97	2.30	92.60	1,368.21	5,139.21	0.12	142.21	142.21	0.26	666,516.32	629,041.01
5,227.38	2.10	89.10	1,453.56	5,224.56	0.07	145.48	145.48	0.28	666,516.27	629,044.28
5,312.82	2.10	91.60	1,538.94	5,309.94	0.05	148.61	148.61	0.11	666,516.25	629,047.41
5,398.28	1.90	91.20	1,624.35	5,395.35	-0.02	151.60	151.59	0.23	666,516.18	629,050.40
5,483.62	1.80	91.60	1,709.64	5,480.64	-0.09	154.35	154.35	0.12	666,516.11	629,053.15
5,569.07	1.90	94.00	1,795.05	5,566.05	-0.23	157.10	157.10	0.15	666,515.97	629,055.90

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3771.00usft (Capstar 118)
Site:	Tony Federal	MD Reference:	KB @ 3771.00usft (Capstar 118)
Well:	#48	North Reference:	Grid
Wellbore:	WB1/Job #1410652	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR.DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
5,654.50	1.90	75.40	1,880.43	5,651.43	0.03	159.89	159.89	0.72	666,516.23	629,058.69	
5,739.92	2.50	81.00	1,965.79	5,736.79	0.68	163.10	163.10	0.75	666,516.88	629,061.90	
5,825.21	2.60	82.40	2,051.00	5,822.00	1.23	166.85	166.86	0.14	666,517.43	629,065.65	
5,914.63	2.60	96.50	2,140.33	5,911.33	1.27	170.88	170.88	0.71	666,517.47	629,069.68	
5,996.03	2.80	94.40	2,221.63	5,992.63	0.91	174.70	174.70	0.27	666,517.11	629,073.50	
6,081.41	2.80	95.10	2,306.91	6,077.91	0.56	178.85	178.85	0.04	666,516.76	629,077.65	
6,166.85	2.60	91.90	2,392.26	6,163.26	0.31	182.87	182.87	0.29	666,516.51	629,081.67	
6,370.00	2.60	84.90	2,595.20	6,366.20	0.57	192.06	192.06	0.16	666,516.77	629,090.86	
Final Phoenix MWD Survey											
6,416.00	2.60	84.90	2,641.15	6,412.15	0.75	194.14	194.14	0.00	666,516.95	629,092.94	
Projection to TD											

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
371.02	370.99	-2.03	-3.31	First Phoenix MWD Survey	
6,370.00	6,366.20	0.57	192.06	Final Phoenix MWD Survey	
6,416.00	6,412.15	0.75	194.14	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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