J.K. EDWARDS
CHACO #2R
SEC 7 T26N R12W

01/31/95

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
M/W EXHIBIT NO. 38
CASE NO. 11996

CHACO #2R, 07/05/95, L311893

ACCOUNTING COPY

SERVICE ORDER AND FIELD RECEIPT NO. 08463 L 311893

The Western Company of North America

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
J K Edwards			27340	476455

MAIL INVOICE TO: 1401 17th St. Suite 1400 — CITY: Denver — STATE: CO — ZIP CODE: 80202

DATE WORK COMPLETED: MO. 7 DAY 5 YEAR 95

WESTERN SERVICE SUPERVISOR: SAUNDERS 18816

WELL TYPE: (CHECK ONE) 1 ☐ NEW 2 ☐ ~~OLD~~

WESTERN DISTRICT: Farm T

JOB DEPTH (FT.)

WELL CLASS: (CHECK ONE) 1 ☐ OIL 3 ☐ DISPOSAL 2 ☐ ~~GAS~~ 4 ☐ INJECTION

WELL NAME AND NUMBER: Chaco #2L

TD WELL DEPTH (FT.)

GAS USED ON JOB: (CHECK ONE) 1 ☐ ~~N2~~ 3 ☐ NONE 2 ☐ CO_2 4 ☐ BINARY

LOCATION: SEC/TWP/RGE 7-26N-12W — COUNTY: San Juan — STATE: N.M. 30 045

JOB TYPE CODES

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE
13. LONG
14. LINER
15. TIEBACK
16. PLUG & ABANDON
17. PLUG BACK
18. SQUEEZE
19. PUMPING (CEMENT)
20. BULK SALES (CEMENT

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE, 0-9,999 psi
33. FRACTURE, 10,000 + psi
34. PUMPING (STIM)
35. BULK SALE (STIM)
40. SAND CONTROL
41. GRAVEL PACK TOOL SALES
42. GRAVEL PACK TOOL RENTAL

TOOL SERVICES
50. TOOL SALE
51. TOOL RENTAL
52. TOOL REDRESS
53. TOOL SERVICE

3 4 J

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
V023E	N_2 1st 50,000	100 SCF	500 00	1 89	945 —		
V008E	N_2	100 SCF	377 00	1 84	693 68		
W200G	N_2 Pump	EA	1 00	1 110 —	1 110 00		
J340G	Pickup Mile	EA	30 00	1 80	54 —		
J391G	Truck mile	EA	30 60	2 95	88 50		
					2 891 18	16	1 850 35
			TAX				109 89
			TOTAL				1 960 25

ARRIVE LOCATION — MO. — DAY — YEAR — TIME

CUSTOMER REP. LAST NAME: Hahn

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

X Wes L. Hahn

CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

CUSTOMER AUTHORIZED AGENT

X Wes L. Hahn

WESTERN APPROVED

X Mark Knight

WCNA 1168 10/91 25M

DUPLICATE

BJ SERVICES COMPANY

INVOICE NO.	OUR RECEIPT NO.	DATE

		YOUR ORDER NO.

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON STORAGE		

FOR SERVICING WELL NAME	COUNTY	STATE
GHCO UNIT #2R	SAN JUAN	NM 30

FEDERAL I.D. NO. C 75-0763484

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT

PAY THIS AMOUNT

IS 1120

95-7227/3070

Bank of America
New Mexico, N.A.
P.O. Box 25000
Albuquerque, New Mexico 87125

No. 48004694

REMITTER JK EDWARDS ASSOCIATES IN

07/06/95

PAY ****** ONE THOUSAND NINE HUNDRED SIXTY AND 25/100

$$**1,960.25

TO THE ORDER OF
THE WESTERN COMPANY OF NORTH AMERICA

CASHIERS CHECK
VOID AFTER SIX MONTHS

BY Vicki Clark
AUTHORIZED SIGNATURE

Bank of America New Mexico, N.A.

[redacted]

```
[illegible]
[illegible]        DESCRIPTION                                    [illegible]
[illegible]  [illegible]  N2 1ST [illegible], FARMINGTON, NM      [illegible]    [illegible]
[illegible]  [illegible]  N2 CHARGES, FARMINGTON, [illegible]     [illegible]    [illegible]
[illegible]    1.0  LOW RATE N2 PUMP,    0 - [illegible] PSI  [illegible]  [illegible]
[illegible]   30.0  MILEAGE, AUTO/PICK-UP/TREATING VAN      1.800        54.00
[illegible]906 30.0  MILEAGE, HEAVY VEHICLE, PER UNIT        2.950        88.50

******************************************************************************
PF08=FORWARD      PF07=FIRST PAGE ENTER=UPDATE (STATUS=S SUMMARY)     PAGE:    1
OPT:

*************************  FIELD RECEIPT SUMMARY  ****************************
CUST # 27340 - 000                        CC #: 1314    FR#: L311892  STATUS: [illegible]
NAME:  J. K. EDWARDS ASSOCIATES, INC.     WELL: CHACO UNIT #2R

   PROD REVENUE:        1638.68           PURCHASE ORDER #:
  EQUIP REVENUE:        1252.50           PROPOSAL NUMBER :
  GROSS REVENUE:        2891.18           HOW TO PRINT?...: E EXTENDED
             LINE DISCOUNTS APPLY? N      === ACCRUED DISCOUNTS ===
      SALES CON:        1040.82  36.00    REG:            .00     .00
         JO CON:            .00    .00     JO:            .00     .00
        BID CON:            .00    .00
       DIST CON:            .00    .00    ======= QUALITY INFORMATION ========
      TOTAL CON:        1040.82  36.00    RTS.....?   (Y/N)   PROF...?    (1-5)
                                          EQUIP...?   (1-5)   PRODUCT?    (1-5)
    NET REVENUE:        1850.36           PERF....?   (1-5)   SAFE...?    (1-5)
                                          SHOULD WE CONTACT..........?    (Y/N)
     TAX AMOUNT:         109.89           JOB REPORT PROBLEM.........?    (Y/N)
     ROY AMOUNT:            .00           CUSTOMER REACTION..........?    (1-4)
                     ----------           ===== BILLING INSTRUCTIONS ======
         TOTAL:         1960.25
                     ==========
```

CUSTOMER COPY

The Western Company of North America

SERVICE ORDER AND FIELD RECEIPT NO. L 311893

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER

MAIL INVOICE TO:	STREET OR BOX NUMBER	CITY	STATE	ZIP CODE

DATE WORK COMPLETED: MO.	DAY	YEAR	WESTERN SERVICE SUPERVISOR	WELL TYPE: (CHECK ONE)	JOB TYPE CODES
7	15	95		1 NEW 2 OLD	

WESTERN DISTRICT	JOB DEPTH (FT.)	WELL CLASS: (CHECK ONE)	JOB TYPE CODES
		1 OIL 3 DISPOSAL 2 GAS 4 INJECTION	

WELL NAME AND NUMBER	TD WELL DEPTH (FT.)	GAS USED ON JOB: (CHECK ONE)	JOB TYPE CODES
		1 N_2 3 NONE 2 CO_2 4 BINARY	

WELL LOCATION:	SEC/TWP/RGE	COUNTY	STATE
	7-21N-11W	SAN JUAN	N.M.

JOB TYPE CODES

CEMENTING SERVICES	STIMULATION SERVICES
10. CONDUCTOR	30. ACID, MATRIX
11. SURFACE	31. ACID, FRACTURE
12. INTERMEDIATE	32. FRACTURE, 0-9,999 psi
13. LONG	33. FRACTURE, 10,000 + psi
14. LINER	34. PUMPING (STIM)
15. TIEBACK	35. BULK SALE (STIM)
16. PLUG & ABANDON	40. SAND CONTROL
17. PLUG BACK	41. GRAVEL PACK TOOL SALES
18. SQUEEZE	42. GRAVEL PACK TOOL RENTAL
19. PUMPING (CEMENT)	
20. BULK SALES (CEMENT	TOOL SERVICES
	50. TOOL SALE
	51. TOOL RENTAL
	52. TOOL REDRESS
	53. TOOL SERVICE

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE UNIT	GROSS AMOUNT	PERCENT DISC	NET AMOUNT
	TAX						109.59
	TOTAL						1960.25

ARRIVE LOCATION	MO.	DAY	YEAR	TIME

CUSTOMER REP. LAST NAME

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

CUSTOMER AUTHORIZED AGENT

X

WESTERN APPROVED

X

1168 10/91 25M

JOB PERFORMANCE REPORT

District _____ Date 2 5 Field Receipt Number _____

Customer Name _____ Well Name _____

Stimulation: ☐ Fracture ☐ Acid ☐ Sand Control ☐ ~~Misc. Pump~~ Cement: ☐ Land ☐ Offshore ☐ Marine ☐ T.O.B.

Gas: ☐ N_2 ☐ CO_2 ☐ Binary ☐ Tools ☐ Surface ☐ Int./Long ☐ Squeeze ☐ Other _____

Customer Rep. Reaction: ☐ Pleased ☐ Neutral ☐ Displeased ☐ Not on Job

Was there a problem on this job? ☐ Yes ☐ ~~No~~ (If NO checked, do not complete form further)

A. RTS PERFORMANCE

01 ☐ Under 1 Hour Late
02 ☐ 1-4 Hours Late - No. Hours Late _____
03 ☐ Over 4 Hours Late - No. Hours Late _____

Cause:

04 ☐ Borrowed Equip/Labor Late
05 ☐ Delay on Prior Job
06 ☐ District Personnel Late on Yard
07 ☐ Equipment Failure on Location
08 ☐ Equipment Failure on Way to Location
09 ☐ Equipment Failure on Yard
10 ☐ Hotshot Trip
11 ☐ Lost Way to Location
12 ☐ Outside Service Late
13 ☐ Poor Communications
14 ☐ Products Problem
15 ☐ Road/Location Conditions
16 ☐ Wait on Customer Rep
17 ☐ Other _____

B. PRODUCT PERFORMANCE

01 ☐ Additive Incorrect/Not Used
02 ☐ Bad Water
03 ☐ Contamination
04 ☐ Defective Material
05 ☐ Freezing
06 ☐ Incorrect Base Material
07 ☐ Incorrect Mixture
08 ☐ PH
09 ☐ Total Sand Does Not Match What Was Pumped
10 ☐ Viscosity
11 ☐ Volume of Fluid/Additives Recorded Does Not Match What Was Pumped
12 ☐ Product Code _____ _____ _____ _____ _____ _____
13 ☐ Other _____

C. JOB PROCEDURE

01 ☐ Cemented Csg/Tbg
02 ☐ HP/Rate Requirements
03 ☐ Improper Slurry Density
04 ☐ Job Interruption
05 ☐ No Returns
06 ☐ Plug Not Bumped
07 ☐ Screenout
08 ☐ Other _____

Cause:

09 ☐ Equipment Failure
10 ☐ Human Error
11 ☐ Inadequate Job Design
12 ☐ Insufficient Material
13 ☐ Product Failure
14 ☐ Well Conditions
15 ☐ Other _____

D. EQUIPMENT

01 ☐ Acid Frac/Pump
02 ☐ Batch Mixer
03 ☐ Blender
04 ☐ Bulk Truck
05 ☐ Cement Pump
06 ☐ Chem Add
07 ☐ Field Bin
08 ☐ Frac Pump
09 ☐ Goose
10 ☐ Line Truck
11 ☐ N_2 Pump
12 ☐ N_2 Transport
13 ☐ Q.C. Lab Van
14 ☐ SPC/CMG
15 ☐ Sand Conveyor
16 ☐ Sandmaster
17 ☐ Sand Truck/Air Can
18 ☐ TMV
19 ☐ Tractor
20 ☐ Transport Cement
21 ☐ Transport Liquid
22 ☐ Van/Pickup
23 ☐ Other _____

E. EQUIPMENT PERFORMANCE

Problem Unit(s) _____ _____ _____ _____ _____ _____

Fluid End:

01 ☐ Fluid End Block
02 ☐ Manifold
03 ☐ Packing
04 ☐ Valve
05 ☐ Other _____

Pumping Equipment:

06 ☐ Engine
07 ☐ Hydraulics
08 ☐ Power End
09 ☐ Supercharge/Mix Pump
10 ☐ Transmission
11 ☐ Vaporizer
12 ☐ Other _____

Mixing Equipment:

13 ☐ Agitator
14 ☐ Chemical Pump
15 ☐ Dry Chemical Feed
16 ☐ Electrical
17 ☐ Engine
18 ☐ Hydraulic/Air Hoses
19 ☐ Hydraulics
20 ☐ OSHA Air Valves
21 ☐ Recirculating Cement Mixer
22 ☐ Sand Ramp
23 ☐ Sandscrews
24 ☐ Suction/Supercharge Pump
25 ☐ Transmission
26 ☐ Tub Level
27 ☐ Other _____

Instrumentation/Monitoring:

28 ☐ Cables/Connections
29 ☐ Closed Loop Controllers
30 ☐ Densiometer
31 ☐ Flow Meter
32 ☐ Martin Decker
33 ☐ Model "C"
34 ☐ Modem Data Line
35 ☐ Printer/Plotter
36 ☐ Software
37 ☐ Transducer
38 ☐ Viscometer
39 ☐ WestComp
40 ☐ WestFrac III
41 ☐ WestFrac IV
42 ☐ WestView
43 ☐ Other _____

Miscellaneous:

44 ☐ Air Blower
45 ☐ Ball Injector
46 ☐ Cement Head
47 ☐ CO_2 Booster
48 ☐ Failed Line/Fitting
49 ☐ Hydraulic Power Pack
50 ☐ Pressure Relief Valve
51 ☐ Stake Bed
52 ☐ Suction Manifold Trailer
53 ☐ Wellhead Protector
54 ☐ Other _____

F. OTHER PROBLEMS

01 ☐ Accident
02 ☐ Communications System
03 ☐ Connection/Valve Leak
04 ☐ No Ball Out
05 ☐ Personal Injury
06 ☐ Remote Data Transmission
07 ☐ Other _____

Brief Explanation of Problem(s): If product failure, list the trade name of the fluid used. Forward complete description, samples, and test data as per FIELD PROCEDURES MANUAL to WPS Research, Technical Lab Services

Service Supervisor: _____ District Manager: Mark Krug

JOB REPORT

PURPOSE:

To identify the areas within a service procedure which need to be corrected. It will serve as a vehicle to quantify the types of problems experienced and allow responses to be directed for correction.

PROCEDURE:

A Job Report is to be completed on each job performed by The Western Company.

JOB REPORT INSTRUCTION SHEET

1 PRINT DISTRICT NAME.

2 LIST DATE OF JOB.

3 LIST FIELD RECEIPT NUMBER.

4 PRINT CUSTOMER'S NAME.

5 PRINT WELL NAME.

6 CHECK BOX SHOWING TYPE OF JOB FOR THIS JOB REPORT (I.E. TYPE OF STIMULATION, GAS, CEMENT).

7 CHECK BOX CORRESPONDING TO CUSTOMER'S REACTION TO JOB.

8 CHECK EITHER YES OR NO BOX; IF NO BOX IS CHECKED, DO NOT COMPLETE FORM FURTHER. (FOLLOW INSTRUCTIONS AT THE END OF THIS PAGE FOR DISTRIBUTION.)

9 CHECK CORRESPONDING BOX IF YES TO ANY OF THESE PROBLEMS.

10 PRINT A BRIEF EXPLANATION OF ANY PROBLEM(S). IF PRODUCT FAILURE, FOLLOW INSTRUCTIONS AS OUTLINED IN THIS AREA.

11 HAVE SERVICE SUPERVISOR SIGN.

12 HAVE DISTRICT MANAGER SIGN.

FOLLOWING COMPLETION OF THIS FORM, SEND:

WHITE COPY TO EQUIPMENT, MAINTENANCE AND STANDARDS IN FORT WORTH

KEEP YELLOW COPY FOR YOUR DISTRICT FILES

CHEMICAL MATERIALS ISSUED/RETURNED

DISTRICT Farmington DISPATCH SHEET NO. 15728 WELL NAME Chaco #2E

CUSTOMER J.K. Edward DATE OF JOB 7-5

ACCOUNT | | | | | | FIELD RECEIPT NO. B11893 FIELD RECEIPT DATE 7-5

PRODUCT DESCRIPTION	WIN	UOM	QUANTITY		QUANTITY RETURNED	NET USAGE	VERIFIED TO FIELD RECEIPT
			ORDERED	LOADED/ BLENDED			
N_2	1000	SCF	200,000			87700	✓

ISSUED BY [signature] DATE 7-5-93 RECEIVED BY [signature] DATE 7-5

APPROVAL Mark Knight
OPERATIONS SUPERVISOR

WCNA-1460 (11/89)

VOLUME CALCULATION
(SHOW ALL JOB CALCULATIONS BELOW)

A Supervisor must either prepare or verify this form

PREPARED BY

TITLE

VERIFIED BY

TITLE

CHEMICAL MATERIALS ISSUED/RETURNED

DISTRICT _____ DISPATCH SHEET NO. _____ WELL NAME _____

CUSTOMER _____ DATE OF JOB _____

ACCOUNT _____ FIELD RECEIPT NO. _____ FIELD RECEIPT DATE _____

PRODUCT DESCRIPTION	WIN	UOM	QUANTITY		QUANTITY RETURNED	NET USAGE	VERIFIED TO FIELD RECEIPT
			ORDERED	LOADED/ BLENDED			
N		AC	877	877	—	877	877

ISSUED BY _____ DATE 7/5/95 RECEIVED BY _____ DATE 7/5/95

APPROVAL _____
OPERATIONS SUPERVISOR

WCNA-1460 (11/89)

VOLUME CALCULATIONS
(SHOW ALL JOB CALCULATIONS BELOW)

A Supervisor must either prepare or verify this form

As Required

PREPARED BY

TITLE F.S.

VERIFIED BY

TITLE

The Western Company

STIMULATION DISPATCH SHEET

District: Farmington	Dist. No.	Job No. 150	Same As Job No.		
Field Receipt 1.	2.	3.	4.	5.	6.
Order Taken By: Ralph	Time: 1045	Date: 7-5-95	Operator P.O. No.		
Order Placed By: Dave	Phone: 599 6811	Credit Number			
Company: J. K Edwards	Lease Name & No.: Chaco #2E				

Job Instructions

PT

NZ

Fluid Type:

01 ☐ Oil-Water Emul.	08 ☐ Gelled Oil	15 ☐ Clay Stab.			
02 ☐ Oil-Acid Emul.	09 ☐ Other Oil	16 ☐ Flow Control			
03 ☐ Acid 0 - 10%	10 ☐ X-Linked Water	17 ☐ Super Frac			
04 ☐ Acid 10.1 - 20%	11 ☐ Gelled Water	18 ☐ Misc.			
05 ☐ Acid 20.1% & up	12 ☐ Other Water				
06 ☐ Gelled Acid	13 ☐ Foam				
07 ☐ Other Acid	14 ☐ Scale Treat.				

Gas: 1 ☐ CO_2 3 ☐ OTH 2 ☐ N_2 4 ☐ None

Proppant: 1 ☐ Sand 2 ☐ Beads 3 ☐ Other 4 ☐ None

Press (PSI): 1 ☐ 0 - 3000 2 ☐ 3001 - 5000 3 ☐ 5001 - 6000 4 ☐ 6001 - 8000 5 ☐ 8001 - 10000 6 ☐ 10001 - 15000 7 ☐ 15001 & up

Vol (Gal): 1 ☐ 0 - 1500 2 ☐ 1501 - 5000 3 ☐ 5001 - 20000 4 ☐ 20001 - 60000 5 ☐ 60001 - 100000 6 ☐ 100001 & up

Well: 1 ☐ New 2 ☐ Rework 3 ☐ New Zone 4 ☐ Other

Date & Time Wanted: 7-5-95 noon	Total Depth: 1200	Type & Amount Material Needed 1: 200,000 scf N2
Casing Size & Wgt.	Oper. Max Press: 2000	2
Tubing Size & Wgt.: 2 7/8	Hole Size	3
Flush In: N. Trogen		4
Top Connection: 1 1/2		5

Directions to Well: West to Rapi rd Go To 4 Way Stop, Straight Through Like your going To Chaco plant 2mi after pavement end Location on Right

Miscellaneous Information:

NAME	Yard Time	Unit 1	Unit 2	Service Engineer	Empl. No.	Unit	Act. Hrs.
Eldridge	MM	33 v 4		Savage			

Rented Services

Total Off-road Mileage

BORROWED EQUIPMENT

Loaning District	Rendezvous Place	Rendezvous Time	Equip. Type

Left Last Job/Yard — Date / Time

Arrived Job — Date / Time

Start Service — Date / Time

Stop Service — Date / Time

Arrived Next Job/Yard — Date / Time

Speedometer Reading — End / Start

FORM WCNA - 1189 (12-90 15M)

HOUSTON COPY

CHACO #2R, 07/05/95, L311893

ACCOUNTING COPY

SERVICE ORDER AND FIELD RECEIPT NO. L 309745 (08462)

The Western Company of North America

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
JK Edwards	683		27340	406680

MAIL INVOICE TO: 1401 17th St Suite 1400 Denver CO 80202
(STREET OR BOX NUMBER / CITY / STATE / ZIP CODE)

DATE WORK COMPLETED: MO. 2 DAY 16 YEAR 95 — WESTERN SERVICE SUPERVISOR: Mitchell 16354

WESTERN DISTRICT: Farmington — JOB DEPTH (FT.): 1100

WELL NAME AND NUMBER: Chaco #2-R — TD WELL DEPTH (FT.): 1100

WELL LOCATION: SEC/TWP/RGE 27/26N/12W — COUNTY: San Juan — STATE: NM

WELL TYPE (CHECK ONE): 1 [Y] NEW 2 [ ] OLD

WELL CLASS (CHECK ONE): 1 [ ] OIL 2 [Y] GAS 3 [ ] DISPOSAL 4 [ ] INJECTION

GAS USED ON JOB (CHECK ONE): 1 [Y] N_2 2 [ ] CO_2 3 [ ] NONE 4 [ ] BINARY

JOB TYPE CODES: 34

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE
13. LONG
14. LINER
15. TIEBACK
16. PLUG & ABANDON
17. PLUG BACK
18. SQUEEZE
19. PUMPING (CEMENT)
20. BULK SALES (CEMENT

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE, 0-9,999 psi
33. FRACTURE, 10,000 + psi
34. PUMPING (STIM)
35. BULK SALE (STIM)
40. SAND CONTROL
41. GRAVEL PACK TOOL SALES
42. GRAVEL PACK TOOL RENTAL

TOOL SERVICES
50. TOOL SALE
51. TOOL RENTAL
52. TOOL REDRESS
53. TOOL SERVICE

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
073170	Pickup Miles	mi	220	1.80	396.00	38%	
073060	Truck Miles	mi	220	2.95	649.00		
N0004	Pump	4hrs	10	1410.00	1410.00		
N023E	N_2 1st 50,000 scf	per 100	5000	1.85	9250.00		
N003E	N_2 over 50,000 scf	per 100	6610	1.85	12228.50		
H1.86	Fracturing	gal	80	5.85	468.00		
					35536.50		22487

ARRIVE LOCATION: MO. 2 DAY 16 YEAR 95 TIME

CUSTOMER REP. LAST NAME: Thompson

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

Paul C. Thompson
CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

CUSTOMER AUTHORIZED AGENT
X Paul Thompson

WESTERN APPROVED
X Mark Knight

WCNA 1168 10/91 25M

DUPLICATE

The Western Company of North America

REMIT TO: P.O. BOX 911543
DALLAS, TX 75391-1543

INVOICE NO.	OUR RECEIPT NO.	DATE

		YOUR ORDER NO.
22300	131	

J. E. EDWARDS ASSOCIATES, INC.
1675 12TH STREET, SUITE 1400
DENVER CO 80202

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON SLINGLATT	MITCHELL	PAUL THOMPSON

FOR SERVICING WELL NAME	COUNTY	STATE
CHACO #2F	SAN JUAN	NM 30

FEDERAL I.D. NO. C 75-0763484

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT	
	[illegible]	MILE	[illegible]	1.92	[illegible]	[illegible]	[illegible]	**
	[illegible], PICK-UP VEHICLE, PER UNIT	MILE	22.0	2.939	64.66	35.00	42.15	**
	[illegible] PUMP, 0 - 3000 PSI	HRS	1.0	1110.000	1110.00	80.00	221.50	**
	[illegible] SCF,1ST 50000 SCF,[illegible]	1000F	600.0	1.855	855.60	80.00	114.25	**
	[illegible] FARMINGTON NM	100CF	660.0	1.380	1214.40	35.00	789.36	**
	[illegible]	GAL	3.0	26.250	82.50	75.00	22.50	**
	SUB TOTAL				3431.22		3,245.32	
	NEW MEXICO SALES TAX 4.5%						101.02	
	NEW MEXICO, SAN JUAN SALES TAX .25%						7.61	
	NEW MEX FARMINGTON SALES TAX 1.3125%						24.68	

[illegible] [illegible] [illegible] PAY THIS AMOUNT 3,378.93

WCNA 1120 (10-91)

PF07=FIRST PAGE ENTER=UPDATE (SUMMARY) PAGE: 1

LINE DISCOUNTS APPLY? N

SALES CON:	1209.16	35.00
JB CON:	.00	.00
SSD CON:	.00	.00
DIST CON:	.00	.00
TOTAL CON:	1209.16	35.00

PROD REVENUE:	2210.25
EQUIP REVENUE:	1214.50
GROSS REVENUE:	3424.75
NET REVENUE:	2245.59
TAX AMOUNT:	133.34
MISC AMOUNT:	.00
TOTAL:	2378.93

ACCRUED DISCOUNTS

REG:	.00	.00
JB:	.00	.00

WARRANTY INFORMATION

WERE WE READY TO PUMP .....?
WERE WE PROFESSIONAL .....?
DID EQUIPMENT PERFORM OK .....?
DID WE DO WHAT WE AGREED TO .....?
AMOUNT OF CREDIT REQUESTED...

BILLING INSTRUCTIONS

CUSTOMER COPY

The Western Company of North America

SERVICE ORDER AND FIELD RECEIPT NO. L 309745

CUSTOMER COMPANY NAME	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
JK Edwards				

MAIL INVOICE TO: STREET OR BOX NUMBER	CITY	STATE	ZIP CODE
[illegible]	[illegible]	CO	80202

DATE WORK COMPLETED: MO	DAY	YEAR	WESTERN SERVICE SUPERVISOR
2	16	15	Mitchell 1634

WESTERN DISTRICT	JOB DEPTH (FT)
Farmington	1100

WELL NAME AND NUMBER	TD WELL DEPTH (FT)
CHCU #2-R	1100

WELL LOCATION: SEC/TWP/RGE 27/30N/12 COUNTY San Juan STATE NM

WELL TYPE: (CHECK ONE) 1 [X] NEW 2 [ ] OLD

WELL CLASS: (CHECK ONE) 1 [ ] OIL 3 [ ] DISPOSAL 2 [X] GAS 4 [ ] INJECTION

GAS USED ON JOB: (CHECK ONE) 1 [ ] N_2 3 [ ] NONE 2 [ ] CO_2 4 [ ] BINARY

JOB TYPE CODES

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE
13. LONG
14. LINER
15. TIEBACK
16. PLUG & ABANDON
17. PLUG BACK
18. SQUEEZE
19. PUMPING (CEMENT)
20. BULK SALES (CEMENT

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE, 0-9,999 psi
33. FRACTURE, 10,000 + psi
34. PUMPING (STIM) 34
35. BULK SALE (STIM)
40. SAND CONTROL
41. GRAVEL PACK TOOL SALES
42. GRAVEL PACK TOOL RENTAL

TOOL SERVICES
50. TOOL SALE
51. TOOL RENTAL
52. TOOL REDRESS
53. TOOL SERVICE

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE UNIT	GROSS AMOUNT	PERCENT DISC	NET AMOUNT
[illegible]	Pickup Miles	Mi.	220	1 80	396	30 %	
[illegible]	Pickup Miles	Mi	220	3 90	858		
[illegible]	Pump	4 hr	1D	111 00	1110 00		
[illegible]	1st 5000 SCF	per 00	5000	1 80	9000		
[illegible]	each 5000 SCF	per 00	4000	1 74	6960		
[illegible]	Friction	job	30	2 62	78 60		
					34535		2414 89

ARRIVE LOCATION MO	DAY	YEAR	TIME
2	16	15	

CUSTOMER REP. LAST NAME: [illegible]

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

CUSTOMER AUTHORIZED AGENT X [illegible]

WESTERN APPROVED X Mark Knight

WCNA 1168 10.91 25M

PRETREATMENT SAFETY REPORT

CUSTOMER NAME	CUSTOMER LEASE	CONDUCTED ON LOCATION DATE	AM / PM	FIELD RECEIPT NUMBER
JK Edwards	Chaco 2R	2/16/95		389745

DISTRICT IN WHICH MEETING IS HELD	NAME OF PERSON CONDUCTING MEETING	TYPE OF JOB
Farmington	Harry Mitchell	SD

EMPLOYEES PRESENT (INCLUDE ALL PERSONS ON LOCATION)

1. Hal Saunders	10.	19.	28.
2.	11.	20.	29.
3.	12.	21.	30.
4.	13.	22.	31.
5.	14.	23.	32.
6.	15.	24.	33.
7.	16.	25.	34.
8.	17.	26.	35.
9.	18.	27.	36.

TOPIC DISCUSSED (ITEMS SPECIFIC TO THIS JOB, I.E. WEATHER, MSDS)

CHECK EACH BOX (NORMAL ITEMS FOR EACH SAFETY MEETING)

1. EVERYONE PRESENT		7. FIRE FIGHTING EQUIPMENT ASSIGNED	
2. OUTLINE JOB		8. PERSONAL PROTECTIVE EQUIPMENT	
3. JOB ASSIGNMENTS		9. CAUTION BYSTANDERS	
4. PRESSURE LIMITS		10. ESCAPE ROUTES	
5. INSTRUCTIONS ON PRESSURE TEST		11. CHECK FOR CUSTOMER COMMENTS	
6. DISCUSS HAZARDS		12. SMOKING AREA ESTABLISHED	

EXPLANATION OF INCIDENT
THIS AREA FOR EMPLOYEE WRITE-UPS, BAD IRON, SYSTEM CHANGES, ETC.; FOR JOB PROBLEM, REFER TO JOB REPORT.

THERE MUST BE ONE REPORT FOR EACH DAY AT A LOCATION, I.E. MISCELLANEOUS PUMP, SQUEEZE JOB, ETC. ALTHOUGH THERE MAY ONLY BE ONE FIELD RECEIPT NUMBER

DISTRIBUTION

- COPY TO DISTRICT WELL FILE
- COPY TO SAFETY & REGULATORY COMPLIANCE IF AN UNSAFE ACT IS NOTED

SIGNATURE OF PERSON CONDUCTING MEETING	PRINTED NAME OF COMPANY REPRESENTATIVE
Harry Mitchell	Bob Thompson

WCNA 1351 (09/92)

JOB PERFORMANCE REPORT

District _____ Date _____ Field Receipt Number _____

Customer Name _____ Well Name _____

Stimulation: ☐ Fracture ☐ Acid ☒ Sand Control ☐ Misc. Pump Cement: ☐ Land ☐ Offshore ☐ Marine ☐ T.O.B.

Gas: ☐ N_2 ☐ CO_2 ☐ Binary ☐ Tools ☐ Surface ☐ Int./Long ☐ Squeeze ☐ Other _____

Customer Rep. Reaction: ☒ Pleased ☐ Neutral ☐ Displeased ☐ Not on Job

Was there a problem on this job? ☐ Yes ☒ No (If NO checked, do not complete form further)

A. RTS PERFORMANCE

01 ☐ Under 1 Hour Late
02 ☐ 1-4 Hours Late - No. Hours Late _____
03 ☐ Over 4 Hours Late - No. Hours Late _____

Cause:

04 ☐ Borrowed Equip/Labor Late
05 ☐ Delay on Prior Job
06 ☐ District Personnel Late on Yard
07 ☐ Equipment Failure on Location
08 ☐ Equipment Failure on Way to Location
09 ☐ Equipment Failure on Yard
10 ☐ Hotshot Trip
11 ☐ Lost Way to Location
12 ☐ Outside Service Late
13 ☐ Poor Communications
14 ☐ Products Problem
15 ☐ Road/Location Conditions
16 ☐ Wait on Customer Rep
17 ☐ Other _____

B. PRODUCT PERFORMANCE

01 ☐ Additive Incorrect/Not Used
02 ☐ Bad Water
03 ☐ Contsmination
04 ☐ Defective Material
05 ☐ Freezing
06 ☐ Incorrect Base Material
07 ☐ Incorrect Mixture
08 ☐ PH
09 ☐ Total Sand Does Not Match What Was Pumped
10 ☐ Viscosity
11 ☐ Volume of Fluid/Additives Recorded Does Not Match What Was Pumped
12 ☐ Product Code _____ _____ _____ _____ _____ _____
13 ☐ Other _____

C. JOB PROCEDURE

01 ☐ Cemented Csg/Tbg
02 ☐ HP/Rate Requirements
03 ☐ Improper Slurry Density
04 ☐ Job Interruption
05 ☐ No Returns
06 ☐ Plug Not Bumped
07 ☐ Screenout
08 ☐ Other _____

Cause:

09 ☐ Equipment Failure
10 ☐ Human Error
11 ☐ Inadequate Job Design
12 ☐ Insufficient Material
13 ☐ Product Failure
14 ☐ Well Conditions
15 ☐ Other _____

D. EQUIPMENT

01 ☐ Acid Frac/Pump
02 ☐ Batch Mixer
03 ☐ Blender
04 ☐ Bulk Truck
05 ☐ Cement Pump
06 ☐ Chem Add
07 ☐ Field Bin
08 ☐ Frac Pump
09 ☐ Goose
10 ☐ Line Truck
11 ☐ N_2 Pump
12 ☐ N_2 Transport
13 ☐ Q.C. Lab Van
14 ☐ SPC/CMG
15 ☐ Sand Conveyor
16 ☐ Sandmaster
17 ☐ Sand Truck/Air Can
18 ☐ TMV
19 ☐ Tractor
20 ☐ Transport Cement
21 ☐ Transport Liquid
22 ☐ Van/Pickup
23 ☐ Other _____

E. EQUIPMENT PERFORMANCE

Problem Unit(s) _____ _____ _____ _____ _____ _____

Fluid End:

01 ☐ Fluid End Block
02 ☐ Manifold
03 ☐ Packing
04 ☐ Valve
05 ☐ Other _____

Pumping Equipment:

06 ☐ Engine
07 ☐ Hydraulics
08 ☐ Power End
09 ☐ Supercharge/Mix Pump
10 ☐ Transmission
11 ☐ Vaporizer
12 ☐ Other _____

Mixing Equipment:

13 ☐ Agitator
14 ☐ Chemical Pump
15 ☐ Dry Chemical Feed
16 ☐ Electrical
17 ☐ Engine
18 ☐ Hydraulic/Air Hoses
19 ☐ Hydraulics
20 ☐ OSHA Air Valves
21 ☐ Recirculating Cement Mixer
22 ☐ Sand Ramp
23 ☐ Sandscrews
24 ☐ Suction/Supercharge Pump
25 ☐ Transmission
26 ☐ Tub Level
27 ☐ Other _____

Instrumentation/Monitoring:

28 ☐ Cables/Connections
29 ☐ Closed Loop Controllers
30 ☐ Densiometer
31 ☐ Flow Meter
32 ☐ Martin Decker
33 ☐ Model "C"
34 ☐ Modem Data Line
35 ☐ Printer/Plotter
36 ☐ Software
37 ☐ Transducer
38 ☐ Viscometer
39 ☐ WestComp
40 ☐ WestFrac III
41 ☐ WestFrac IV
42 ☐ WestView
43 ☐ Other _____

Miscellaneous:

44 ☐ Air Blower
45 ☐ Ball Injector
46 ☐ Cement Head
47 ☐ CO_2 Booster
48 ☐ Failed Line/Fitting
49 ☐ Hydraulic Power Pack
50 ☐ Pressure Relief Valve
51 ☐ Stake Bed
52 ☐ Suction Manifold Trailer
53 ☐ Wellhead Protector
54 ☐ Other _____

F. OTHER PROBLEMS

01 ☐ Accident
02 ☐ Communications System
03 ☐ Connection/Valve Leak
04 ☐ No Ball Out
05 ☐ Personal Injury
06 ☐ Remote Data Transmission
07 ☐ Other _____

Brief Explanation of Problem(s):

If product failure, list the trade name of the fluid used. Forward complete description, samples, and test data as per FIELD PROCEDURES MANUAL to WPS Research, Technical Lab Services

Service Supervisor: _____ District Manager: _____

JOB REPORT

PURPOSE:

To identify the areas within a service procedure which need to be corrected. It will serve as a vehicle to quantify the types of problems experienced and allow responses to be directed for correction.

PROCEDURE:

A Job Report is to be completed on each job performed by The Western Company.

JOB REPORT INSTRUCTION SHEET

1 PRINT DISTRICT NAME.

2 LIST DATE OF JOB.

3 LIST FIELD RECEIPT NUMBER.

4 PRINT CUSTOMER'S NAME.

5 PRINT WELL NAME.

6 CHECK BOX SHOWING TYPE OF JOB FOR THIS JOB REPORT (I.E. TYPE OF STIMULATION, GAS, CEMENT).

7 CHECK BOX CORRESPONDING TO CUSTOMER'S REACTION TO JOB.

8 CHECK EITHER YES OR NO BOX; IF NO BOX IS CHECKED, DO NOT COMPLETE FORM FURTHER. (FOLLOW INSTRUCTIONS AT THE END OF THIS PAGE FOR DISTRIBUTION.)

9 CHECK CORRESPONDING BOX IF YES TO ANY OF THESE PROBLEMS.

10 PRINT A BRIEF EXPLANATION OF ANY PROBLEM(S). IF PRODUCT FAILURE, FOLLOW INSTRUCTIONS AS OUTLINED IN THIS AREA.

11 HAVE SERVICE SUPERVISOR SIGN.

12 HAVE DISTRICT MANAGER SIGN.

FOLLOWING COMPLETION OF THIS FORM, SEND:

WHITE COPY TO EQUIPMENT, MAINTENANCE AND STANDARDS IN FORT WORTH

KEEP YELLOW COPY FOR YOUR DISTRICT FILES

Well-Site Quality Control and Blend Schedule for Energized Fluids

(attachment to treatment report)

Operator: JK Edwards
Lease Name & Well No.: Chaos #2R

Date: 2/16/95
Field Receipt No.: 209745

Note: Use additional copies of this form for more transports.

Liquid Phase: attach appropriate blend schedule(s), Q.C. report(s) and list type(s) _____

Type of liquified gas (circle one)? CO_2 / N_2

Liquified Gas:

	1	2	3	4	5	6	Quantity SCF(sft³)
transport/tank number	3866						
SCF (sft³) loaded	434	173,000					
minus SCF (sft³) after job	184	57000					
SCF (sft³) used		116,000					

pressure, psig(kPa)	before							
	after							
tank cap., gal(m³)	before							
	after							
fraction containing liq.	before							
	after							
volume available, gallon(m³)	before							
	after							
temperature, °F(°C)	before							
	after							
weight used, lb_m(kg)								

Foaming Agent used? Yes/No

list foaming agent tradename _____

loading _____ gal/100 gal. liq. phase

Foamer dilution required? Yes/No

volume of foamer available _____ gallon or _____ m³

volume of diluent used _____ gallon or _____ m³

volume of diluted foamer _____ gallon or _____ m³

expected liquid phase pumping rate _____ bbl/min or _____ m³/min

pump rate for foamer _____ gal/min or _____ m³/min

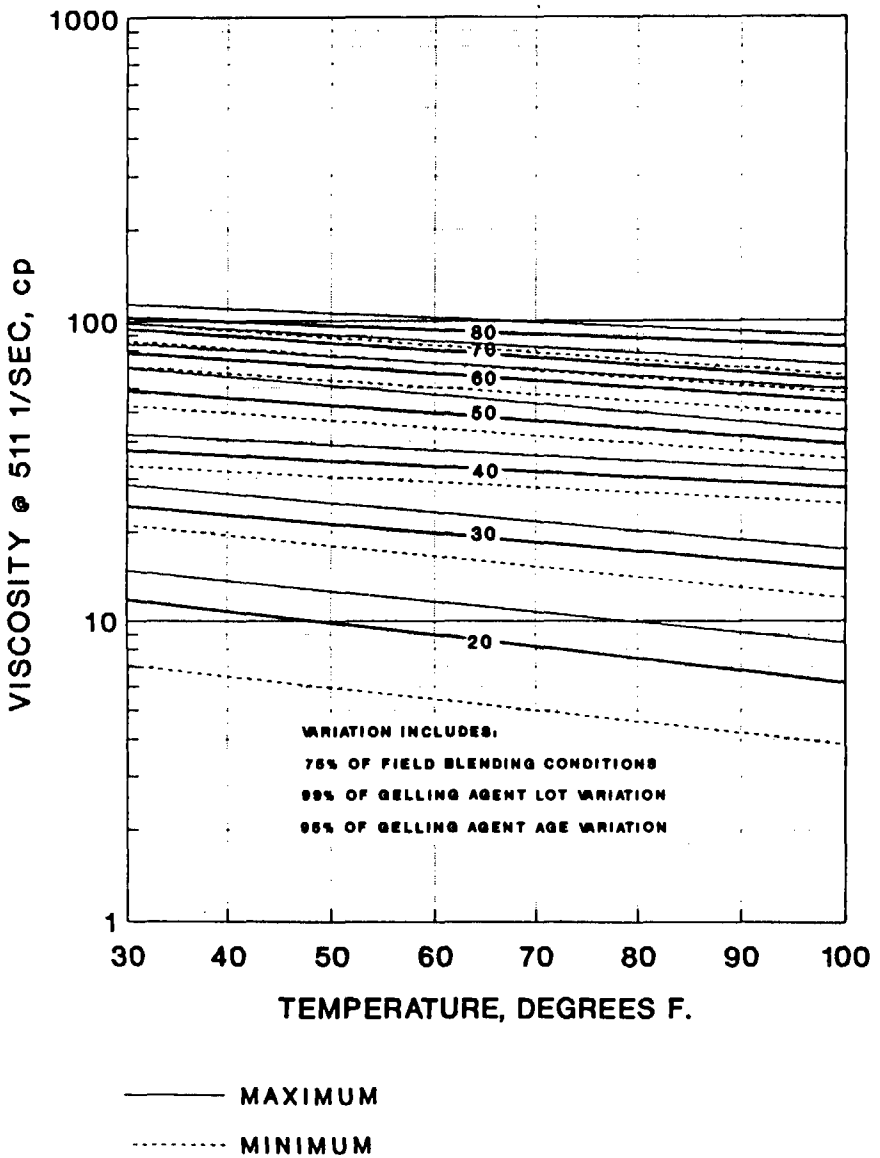
Attachments:

Blend Schedule and Q.C. Report for liquid phase

WCNA 1518 5/93

Prepared by _____

PROPERTIES OF BASE GELS FOR USE IN CROSSLINKED AND NON-CROSSLINKED FRACTURING FLUID SYSTEMS



PROPERTIES OF BASE GELS FOR USE IN CROSSLINKED AND LINEAR GEL SYSTEMS

GELLING AGENT	LOADING lbm/mgal	pH RANGE	VISCOSITY, cp AT 511 1/SEC 70 DEGREES F.
J-4/J-4L	20	5.5-10.5	8 +/- 3
	30	5.5-10.5	19 +/- 3
	40	5.5-10.5	32 +/- 4
	50	5.5-10.5	47 +/- 6
	60	5.5-10.5	64 +/- 7
	70	5.5-10.5	78 +/- 8
	80	5.5-10.5	91 +/- 9
J-20/J-20L	20	5.5-10.5	8 +/- 3
	30	5.5-10.5	19 +/- 3
	40	5.5-10.5	32 +/- 4
	50	5.5-10.5	47 +/- 6
	60	5.5-10.5	64 +/- 7
	70	5.5-10.5	76 +/- 8
	80	5.5-10.5	91 +/- 9
J-22/J-22L•	20	5.5-10.5	8 +/- 3
	30	5.5-10.5	19 +/- 3
	40	5.5-10.5	32 +/- 4
	50	5.5-10.5	47 +/- 6
	60	5.5-10.5	64 +/- 7
	70	5.5-10.5	76 +/- 8
	80	5.5-10.5	91 +/- 9

GEL SYSTEM	GELLING AGENT	pH RANGE	RANGE OF GEL LOADINGS lbm/mgal
APOLLO	J-20/J-20L	6-7.5	20-80
POLARIS	J-20/J-20L	6-7.5	20-80
SATURN	J-20/J-20L	6.5-9.75	30-80
MINI MAX IIB	J-20/J-20L	6.5-9.0	20-40
MAXI FRAC	J-4/J-4L	6-7.5	20-60
MINI MAX IB	J-4/J-4L	6-6.5	20-40
ATLAS	J-4/J-4L	6.5-9.75	40
GEMINI	J-22/J-22L•	4-5.5	20-40
GEMINI II	J-22/J-22L•	4-5.5	20-40
TAURUS	J-22/J-22L•	6-6.5	40

• SPECIFICATIONS FOR J-22 AND J-22L ARE CURRENTLY BEING DEFINED BY RESEARCH IN ORDER TO IDENTIFY THE MATERIAL THAT IS MOST DESIREABLE TO MEET THE RHEOLOGICAL NEEDS OF FLUID SYSTEMS THAT ARE CURRENTLY UNDER INVESTIGATION.

THE WESTERN COMPANY
FARMINGTON DISTRICT

POST JOB LOCATION CONDITION / CLEANLINESS

WAS ALL TRASH PICKED UP	YES___ NO___
WERE ALL SPILLS CLEANED UP	YES___ NO___
WERE ALL SAND PILES KNOCKED DOWN AND SPREAD OUT	YES___ NO___
WAS LOCATION LEFT IN AN ACCEPTABLE CONDITION THAT MEETS OR EXCEEDS YOUR COMPANY GUIDELINES	YES___ NO___

COMMENTS:_____

_____

_____

_____

SERVICE SUPERVISOR:_____

CUSTOMER:_____

The Western Company

STIMULATION DISPATCH SHEET

District Farmington	Dist. No.	Job No. 150 16	Same As Job No.		
Field Receipt 1. 3044	2.	3.	4.	5.	6.
Order Taken By A. Hepworth		~~Time~~ DATE 2-15-95	~~Date~~ Time 1600	Operator P.O. No.	
Order Placed By Paul Thompson		Phone 320-3194		Credit Number	
Company JK Edwards		Lease Name & No. Chaco 2R			

Job Instructions

TAKE 10 gal of Foam

Fluid Type:

- 01 ☐ Oil-Water Emul.
- 02 ☐ Oil-Acid Emul.
- 03 ☐ Acid 0 - 10%
- 04 ☐ Acid 10.1 - 20%
- 05 ☐ Acid 20.1% & up
- 06 ☐ Gelled Acid
- 07 ☐ Other Acid
- 08 ☐ Gelled Oil
- 09 ☐ Other Oil
- 10 ☐ X-Linked Water
- 11 ☐ Gelled Water
- 12 ☐ Other Water
- 13 ☐ Foam
- 14 ☐ Scale Treat.
- 15 ☐ Clay Stab.
- 16 ☐ Flow Control
- 17 ☐ Super Frac
- 18 ☐ Misc.

Gas: 1 ☐ CO_2 2 ☑ N_2 3 ☐ OTH 4 ☐ None

Proppant: 1 ☐ Sand 2 ☐ Beads 3 ☐ Other 4 ☐ None

Press (PSI): 1 ☒ 0 - 3000 | 2 ☐ 3001 - 5000 | 3 ☐ 5001 - 6000 | 4 ☐ 6001 - 8000 | 5 ☐ 8001 - 10000 | 6 ☐ 10001 - 15000 | 7 ☐ 15001 & up

Vol (Gal): 1 ☐ 0 - 1500 | 2 ☐ 1501 - 5000 | 3 ☐ 5001 - 20000 | 4 ☐ 20001 - 60000 | 5 ☐ 60001 - 100000 | 6 ☐ 100001 & up

Well: 1 ☐ New 2 ☐ Rework 3 ☐ New Zone 4 ☐ Other

Date & Time Wanted 2-16-95 0730	Total Depth 1200	Type & Amount Material Needed 1 NITROGEN 200,000 SCFM
Casing Size & Wgt.	Oper. Max Press 2000	2
Tubing Size & Wgt. 2 7/8	Hole Size	3
Flush In		4
Top Connection 2 in Reg OR 2" THREAD		5

Directions to Well: West to Navi Headquarters, Go to 4 way stop. Straight through like your going to Chaco Plant. 2 mi after pavement ends Location on Right

Miscellaneous Information: Tubing is 1½ in IJ, They should have change over on Location

NAME	Yard Time	Unit 1	Unit 2	Service Engineer	Empl. No.	Unit	Act. Hrs.
Larrabee P.	06:00	3306		Mitchell H.		36542	

Rented Services

Total Off-road Mileage

BORROWED EQUIPMENT

Loaning District	Rendezvous Place	Rendezvous Time	Equip. Type

Left Last Job/Yard — Date / Time

Arrived Job — Date / Time

Start Service — Date / Time

Stop Service — Date / Time

Arrived Next Job/Yard — Date / Time

Speedometer Reading — End / Start

FORM WCNA - 1189 (12-90 15M)

HOUSTON COPY

CHEMICAL MATERIALS ISSUED/RETURNED

2/17/95

DISTRICT Kwnf. DISPATCH SHEET NO. 5023/6 WELL NAME Chaco 2R

CUSTOMER JK Edwards 309745 DATE OF JOB 2/14/95

ACCOUNT [ ][ ][ ][ ][BA] FIELD RECEIPT NO. 309745 FIELD RECEIPT DATE 2/16/95

PRODUCT DESCRIPTION	WIN	UOM	QUANTITY ORDERED	QUANTITY LOADED/ BLENDED	QUANTITY RETURNED	NET USAGE	VERIFIED TO FIELD RECEIPT
N_2	100005	MC	116500	116500	0	116500	1165
Foracon I	100262	GL	10	10	5	5	5

ISSUED BY B DATE 2/16/95 RECEIVED BY [signature] DATE 2/16/95

APPROVAL MK OPERATIONS SUPERVISOR

WCNA-1460 (11/89)

VOLUME CALCULATIONS
(SHOW ALL JOB CALCULATIONS BELOW)

A Supervisor must either prepare or verify this form

PREPARED BY

TITLE

VERIFIED BY

TITLE SS

CHACO #2R, 02/16/95, L309745

ACCOUNTING COPY

SERVICE ORDER AND FIELD RECEIPT NO. 08463 L 309667

The Western Company of North America

Single Stage 1 of 2

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
J.K. Edwards	683		27340	465567

MAIL INVOICE TO:	STREET OR BOX NUMBER	CITY	STATE	ZIP CODE
401	17th St. Suite 1400	Denver	CO	80202

DATE WORK COMPLETED: MO.	DAY	YEAR	WESTERN SERVICE SUPERVISOR
1	31	95	T.M. Crabb 15347

WELL TYPE: (CHECK ONE) 1 ☐ NEW 2 ☑ OLD

WESTERN DISTRICT	JOB DEPTH (FT.)	WELL CLASS: (CHECK ONE)
Fmgt. N.M.	1132-1142	1 ☐ OIL 3 ☐ DISPOSAL 2 ☑ GAS 4 ☐ INJECTION

WELL NAME AND NUMBER	TD WELL DEPTH (FT.)	GAS USED ON JOB: (CHECK ONE)
Chaco #2R	1213	1 ☑ N_2 3 ☐ NONE 2 ☐ CO_2 4 ☐ BINARY

WELL LOCATION: SEC/TWP/RGE	COUNTY	STATE
Sec 7-T26N-R12W	San Juan 045	N.M. 30

JOB TYPE CODES

CEMENTING SERVICES	STIMULATION SERVICES
10. CONDUCTOR	30. ACID, MATRIX
11. SURFACE	31. ACID, FRACTURE
12. INTERMEDIATE	32. FRACTURE, 0-9,999 psi
13. LONG	33. FRACTURE, 10,000 + psi
14. LINER	34. PUMPING (STIM)
15. TIEBACK	35. BULK SALE (STIM)
16. PLUG & ABANDON	40. SAND CONTROL
17. PLUG BACK	41. GRAVEL PACK TOOL SALES
18. SQUEEZE	42. GRAVEL PACK TOOL RENTAL
19. PUMPING (CEMENT)	
20. BULK SALES (CEMENT	TOOL SERVICES
	50. TOOL SALE
	51. TOOL RENTAL
	52. TOOL REDRESS
	53. TOOL SERVICE

3 2

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
J3916	Light Vehicle Mileage 2 vc X 32 mi	mi	64 00	1 80	2 048 00	35	
J3906	Heavy Equipment Mileage 6 vc X 32 mi	mi	192 00	2 95	566 40		
J4016	Proppant Delivery Charge 20T X 20 mi	T/mi	400 00	1 00	400 00		
J7406	Chemical Delivery Charge	mi	64 00	2 95	188 80		
F2016B	Frac Pumps 1800 PSI X 11.5 B/hr / 40.8	HHP	507 00	6 05	3067 35		
E118AB	Proppant Pump Charge 20/40 / 40/70	CWT	329 00	42	138 18		
E118AB	" " " " 12/20	CWT	60 00	1 30	78 00		
J462bB	Prop. Conc. Charge (6.1 - 9 ppg)	gal	2999 00	13	389 87		
J462bB	" " " (9.1 - 12 ppg)	gal	500 00	20	100 00		
F3016B	Master Mixer	unit	1 00	1 105 00	1 105 00		
J2186	Blending Charge	hr	1 00	500 00	500 00		
F 86	Liquid Add Pump	job	1 00	750 00	750 00		
N 216	Field Storage Silo	job	1 00	515 00	515 00		
J3216	Densiometer	job	1 00	575 00	575 00		
H0846	J-4	#	300 00	4 85	1455 00		
H0336	Fraccide 20	#	6 00	37 00	222 00		
H2186	Frac-Foam I	gal	45 00	26 95	1212 75		
H0906	B-5	#		4 50	NXC	35	

ARRIVE LOCATION MO.	DAY	YEAR	TIME
1	31	95	11:00 AM

CUSTOMER REP. LAST NAME: Thompson

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

Paul Thompson
CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

CUSTOMER AUTHORIZED AGENT
X Paul Thompson

WESTERN APPROVED
X

WCNA-1168 10/91-25M

ACCOUNTING COPY

SERVICE ORDER AND FIELD RECEIPT NO. 309667 / L 309666

The Western Company of North America

Single Stage 2 of 2

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
J. K. Edwards				

MAIL INVOICE TO: STREET OR BOX NUMBER / CITY / STATE / ZIP CODE

DATE WORK COMPLETED: MO.	DAY	YEAR	WESTERN SERVICE SUPERVISOR
1	31	95	T. M. Crabb 15347

WELL TYPE: (CHECK ONE) 1 ☐ NEW 2 ☑ OLD

WELL CLASS: (CHECK ONE) 1 ☐ OIL 3 ☐ DISPOSAL 2 ☑ GAS 4 ☐ INJECTION

GAS USED ON JOB: (CHECK ONE) 1 ☑ N_2 3 ☐ NONE 2 ☐ CO_2 4 ☐ BINARY

WESTERN DISTRICT	JOB DEPTH (FT.)	WELL NAME AND NUMBER	TD WELL DEPTH (FT.)
Fmgt. N.M.	1132-1142	Chaco #2R	1213

WELL LOCATION: SEC/TWP/RGE Sec. 7-T26N-R12W; COUNTY San Juan; STATE N.M.

JOB TYPE CODES

CEMENTING SERVICES: 10. CONDUCTOR; 11. SURFACE; 12. INTERMEDIATE; 13. LONG; 14. LINER; 15. TIEBACK; 16. PLUG & ABANDON; 17. PLUG BACK; 18. SQUEEZE; 19. PUMPING (CEMENT); 20. BULK SALES (CEMENT)

STIMULATION SERVICES: 30. ACID, MATRIX; 31. ACID, FRACTURE; 32. FRACTURE, 0-9,999 psi; 33. FRACTURE, 10,000 + psi; 34. PUMPING (STIM); 35. BULK SALE (STIM); 40. SAND CONTROL; 41. GRAVEL PACK TOOL SALES; 42. GRAVEL PACK TOOL RENTAL

TOOL SERVICES: 50. TOOL SALE; 51. TOOL RENTAL; 52. TOOL REDRESS; 53. TOOL SERVICE

3 | 2

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
H0936	B-11	#	800	12 75	102 00	35	
H1096	P-4	#	50 00	3 05	152 50		
E30-3E	40/70 Brady SAND	CWT	58 00	9 98	578 84		
E30-3P	20/40 Arizona SAND	CWT	271 00	7 54	2 043 34		
E31-3E	12/20 Brady SAND	CWT	60 00	11 57	694 20		
					16 882 23	35	10 973 45
E3006	TMV	job	1 00	1 965 00	1 965 00	0	1 965 00
	Estimated Field total				~~18 847 23~~		~~12 938 45~~
					16 914 43		11 682 15

ARRIVE LOCATION MO.	DAY	YEAR	TIME
1	31	95	10:00 AM

CUSTOMER REP. LAST NAME: Thompson

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

Paul Thompson

CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

X Paul C. Thompson

CUSTOMER AUTHORIZED AGENT

WESTERN APPROVED

X

WCNA-1168 10/91-25M

DUPLICATE

The Western Company of North America

REMIT TO: P.O. BOX 911543
DALLAS, TX 75391-1543

INVOICE NO.	OUR RECEIPT NO.	DATE
463547	329662	01/31/92

YOUR ORDER NO.	
27340	1318

J. K. EDWARDS ASSOCIATES, INC.
1801 17TH STREET, SUITE 1400
DENVER CO 80202

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON STIMULATI	CRABB	PAUL THOMPSON

FOR SERVICING WELL NAME	COUNTY	STATE
CHACO #2R	SAN JUAN	NM 30

FEDERAL I.D. NO. C 75-0763484

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT	
[illegible]	[illegible] AUTO/PICK-UP/TREATING VAN	MILE	61.0	1.800	113.00	35.00	74.88	**
[illegible]	[illegible] HEAVY VEHICLE, PER UNIT	MILE	192.0	2.950	566.40	35.00	368.16	**
[illegible]	[illegible] POTENTIAL DELIVERY, DRY	TONMI	100.0	1.000	100.00	35.00	260.00	**
[illegible]	[illegible] CHARGE, UNITS OVER 1.5 TONS	MILE	64.0	2.950	188.80	35.00	122.72	**
[illegible]	[illegible] PUMP, 0 - 5000 PSI	1HRS	507.0	6.050	3067.35	35.00	1,993.78	**
[illegible]	[illegible] PUMP CHG, MODERATE STRENGTH	CUT	329.0	.420	138.18	35.00	89.82	**
[illegible]	[illegible] HSP CHG, MODERATE STRENGTH	CWT	60.0	1.300	78.00	35.00	50.70	**
[illegible]	[illegible] CONCENTRATION CHG/6-9 LBS	GAL	2997.0	.130	389.61	35.00	253.42	**
[illegible]	[illegible] CONCENTRATION CHG/9-12 LBS	GAL	500.0	.200	100.00	35.00	65.00	**
[illegible]	[illegible] MIXER, 11 - 20 BPM	4HRS	1.0	1105.000	1105.00	35.00	718.25	**
[illegible]	[illegible] MISCELLANEOUS BLENDING CHARGE	1HOUR	1.0	500.000	500.00	35.00	325.00	**
[illegible]	[illegible] LIQUID ADDITIVE PUMP	JOB	1.0	750.000	750.00	35.00	487.50	**
[illegible]	[illegible] GEL STORAGE BIN	JOB	1.0	515.000	515.00	35.00	334.75	**
[illegible]	[illegible] FLUID DENSIOMETER	JOB	1.0	575.000	575.00	35.00	373.75	**
[illegible]	[illegible] LO RESIDUE GUAR GUI	LB	300.0	4.850	1455.00	35.00	945.75	**
[illegible]	[illegible] CUBE 20	LB	6.0	37.000	222.00	35.00	144.30	**
[illegible]	[illegible] FOAM-1	GAL	45.0	26.950	1212.75	35.00	788.29	**
[illegible]	[illegible] GEL BREAKER	LB	1.0	4.500	N/C	.00	N/C	
[illegible]	[illegible] GEL BREAKER	LB	8.0	12.750	102.00	35.00	66.30	**
[illegible]	[illegible] PH CONTROL	LB	30.0	3.050	152.50	35.00	99.13	**
[illegible]	[illegible] SID BLK, 20/40, FARMINGTON, NM	CWT	59.0	9.980	588.84	35.00	382.75	**
[illegible]	[illegible] AZ SILICA, 20/40, FARMINGT, NM	CWT	271.0	7.540	2043.34	35.00	1,328.17	**
[illegible]	[illegible] SID BLK, 12/20, FARMINGTON, NM	CWT	60.0	11.570	694.20	35.00	451.23	**
[illegible]	[illegible] MENT MONITORING VAN	JOB	1.0	1965.000	1965.00	.00	1,965.00	**
	SUB TOTAL				16914.43		11,682.15	

PAY THIS AMOUNT

WCNA 1120 (10-91)

DUPLICATE

The Western Company of North America

REMIT TO: P.O. BOX 911549
DALLAS, TX 75391-1549

INVOICE NO.	OUR RECEIPT NO.	DATE
465967	907227	01/31/95

		YOUR ORDER NO.
22310	1-11	

J. K. EDWARDS ASSOCIATES, INC.
1331 17TH STREET, SUITE 1400
DENVER CO 80202

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON STIMULATI	CRABB	PAUL THOMPSON

FOR SERVICING WELL NAME	COUNTY	STATE
CHACO #2R	SAN JUAN	NM 30

FEDERAL I.D. NO. C 75-0763484

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
	NEW MEXICO SALES TAX 1.5%				19411.43		325.79
	NEW MEXICO, SAN JUAN SALES TAX .25%						29.20
	NEW MEXICO FARMINGTON SALES TAX 1.19%						138.76

PAY THIS AMOUNT 12,325.83

[illegible] 599-2600 TERMS: NET 30 DAYS

WCNA 1120 (10-91)

[illegible]	[illegible] HEAVY VEHICLE MILE		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	BULK MATERIAL DELIVERY	TONMI	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] MILEAGE, UNITS OVER	MILE	2.[illegible]	1[illegible]2.80	[illegible]	[illegible]
[illegible]	FRAC PUMP 0 - 500	4HRS	[illegible].050	3067.32	[illegible].00	[illegible]
[illegible]	PROP PUMP CHG, MODERATE	CWT	.400	138.13	35.00	[illegible].52
[illegible]988	PROP PUMP CHG, MODERATE	CWT	1.300	78.00	35.00	50.70
[illegible]6768	PROPPANT CONCENTRATION	GAL	.130	369.87	35.00	[illegible]
J[illegible]368	PROPPANT CONCENTRATION	GAL	.200	100.00	35.00	65.00
F30268	MASTER MIXER, 11 - 20	4HRS	1105.000	1105.00	35.00	718.25
J2186	MISCELLANEOUS BLENDING	HOUR	500.000	500.00	35.00	325.00
J0[illegible]	LIQUID ADDITIVE PUMP	JOB	750.000	750.00	35.00	[illegible]87.50
K371[illegible]	FIELD STORAGE BIN	JOB	515.000	515.00	35.00	334.75
J3216	FLUID DENSIOMETER	JOB	575.000	575.00	35.00	373.75
[illegible]	J-4, LOW RESIDUE GUAR G	LB	4.850	1455.00	35.00	[illegible]45.75
H0[illegible]	FRAC-CIDE 20	LB	37.000	222.00	35.00	144.30

****

PF08=FORWARD PF07=FIRST PAGE ENTER=UPDATE PAGE: 1

OPT:

*** L I N E D I S C O U N T S ***

[illegible] : [illegible]67 CUST #: [illegible] - 000 [illegible] DISC %: 35.[illegible]

CODE	DESCRIPTION	U/M	PRICE	GROSS	DISC%	NET
[illegible]	FRAC FOAM-1	GAL	26.[illegible]	1212.[illegible]	35.00	[illegible]
H0906	B-5, GEL BREAKER	LB	4.500	.00	.00	.00
H0936	B-11, GEL BREAKER	LB	12.750	102.00	35.00	66.30
H1096	P-4, PH CONTROL	LB	3.050	152.50	35.00	99.13
[illegible]308E	SAND, STD BLK, 20/40, F	CWT	9.980	578.84	35.00	376.[illegible]
[illegible]308F	SAND, AZ SILICA, 20/40,	CWT	7.[illegible]40	204[illegible].34	35.00	13[illegible].17
[illegible]	SAND, STD BLK, 12/20, F	CWT	11.570	694.20	35.00	[illegible]
J3006	TREATMENT MONITORING VA	JOB	1965.000	1965.00	.00	19[illegible].00

****

PF08=FORWARD PF07=FIRST PAGE ENTER=UPDATE PAGE: 2

OPT:

	LINE DISCOUNTS APPLY ?	
SALES CON:	$232.29	30.93
JO CON:	.00	.00
BID CON:	.00	.00
DIST CON:	.00	.00
TOTAL CON:	$232.29	30.93

NET REVENUE:	11602.15
TAX AMOUNT:	693.68
ROT AMOUNT:	.00
TOTAL:	12375.83

	ADDED DISCOUNTS	
SO:	.00	.00
JO:	.00	.00

====== WARRANTY INFORMATION ======
WERE WE READY TO PUMP .....?
WERE WE PROFESSIONAL .....?
DID EQUIPMENT PERFORM OK .....?
DID WE DO WHAT WE AGREED TO ....?
AMOUNT OF CREDIT REQUESTED...

===== BILLING INSTRUCTIONS =====

CUSTOMER COPY

The Western Company of North America

SERVICE ORDER AND FIELD RECEIPT NO. L 30866

CUSTOMER (COMPANY NAME)

CREDIT APPROVAL

CUSTOMER ORDER NO.

CUSTOMER NUMBER 5736

INVOICE NUMBER 41550

MAIL INVOICE TO:

CITY

STATE

ZIP CODE

DATE WORK COMPLETED: MO. 1 DAY 31

WESTERN DISTRICT

JOB DEPTH

WELL

WELL NAME AND NUMBER

WELL LOCATION:

COUNTY

JOB TYPE CODES

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE

PRODUCT CODE							

ARRIVE LOCATION MO. 1 DAY 31

CUSTOMER REP. LAST NAME

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN AT THE SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

FIELD RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED HEREIN WERE PROVIDED IN A WORKMANLIKE MANNER.

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

CUSTOMER AUTHORIZED AGENT

WESTERN AGENT

WCNA-1168 10-91-25M

CUSTOMER COPY

The Western Company of North America

SERVICE ORDER AND FIELD RECEIPT NO. L 3988[illegible]

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
MAIL INVOICE TO:	CITY	STATE	ZIP CODE	
DATE WORK COMPLETED: MO. 1 DAY 31				
WESTERN DISTRICT N. [illegible]	JOB DEPTH (FT.) 1132-1142	WELL CLASS		
WELL NAME AND NUMBER	TD WELL DEPTH (FT.)	GAS USED ON JOB		
WELL LOCATION: Sec [illegible]	COUNTY [illegible]			

JOB TYPE CODES:

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE
13. LONG
14. LINER
15. REMEDIAL
16. PLUG & ABANDON
17. PLUG BACK
18. SQUEEZE
19. PUMPING (CEMENT)
20. BULK SALES (CEMENT)

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE
33. FRACTURE
40. SAND CONTROL
41. GRAVEL PACK
42. GRAVEL PACK

PRODUCT CODE				
[illegible]	[illegible]			100 00
[illegible]	[illegible]			1162 50
[illegible]	[illegible]			778 99
[illegible]	[illegible]			2043 34
[illegible]	[illegible]		1157	674 20
				16 382 23
[illegible]				1125 00
				[illegible]
				16 [illegible] 43

ARRIVE LOCATION MO. 1 DAY 31

CUSTOMER REP. LAST NAME [illegible]

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

CUSTOMER AUTHORIZED AGENT

[illegible] THAT THE MATERIALS AND SERVICES LISTED HEREON [illegible] PERFORMED IN A WORKMANLIKE MANNER.

X [signature]

X [signature]

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

WCNA 1168 10/91 25M

PRETREATMENT SAFETY REPORT

CUSTOMER NAME	CUSTOMER LEASE	CONDUCTED ON LOCATION DATE	AM / PM	FIELD RECEIPT NUMBER
J.K. Edwards	Chaco #2R	1-31-95		L309667

DISTRICT IN WHICH MEETING IS HELD	NAME OF PERSON CONDUCTING MEETING	TYPE OF JOB
Emgt, N.M.	T.M. Crabb	Foam Frac

EMPLOYEES PRESENT (INCLUDE ALL PERSONS ON LOCATION)

1. [signature]	10. T.M. Crabb	19.	28.
2. [signature]	11. Jay Savage	20.	29.
3. [signature]	12. Capt Scarborough	21.	30.
4. [signature]	13. Bryce Greery	22.	31.
5. [signature]	14. Paul Thompson	23.	32.
6. [signature]	15.	24.	33.
7. [signature]	16.	25.	34.
8. [signature]	17.	26.	35.
9. [signature]	18.	27.	36.

TOPIC DISCUSSED (ITEMS SPECIFIC TO THIS JOB, I.E. WEATHER, MSDS)

topics noted Below:

CHECK EACH BOX (NORMAL ITEMS FOR EACH SAFETY MEETING)

1. EVERYONE PRESENT		7. FIRE FIGHTING EQUIPMENT ASSIGNED	
2. OUTLINE JOB		8. PERSONAL PROTECTIVE EQUIPMENT	
3. JOB ASSIGNMENTS		9. CAUTION BYSTANDERS	
4. PRESSURE LIMITS		10. ESCAPE ROUTES	
5. INSTRUCTIONS ON PRESSURE TEST		11. CHECK FOR CUSTOMER COMMENTS	
6. DISCUSS HAZARDS		12. SMOKING AREA ESTABLISHED	

EXPLANATION OF INCIDENT
THIS AREA FOR EMPLOYEE WRITE-UPS, BAD IRON, SYSTEM CHANGES, ETC.; FOR JOB PROBLEM, REFER TO JOB REPORT.

None noted

THERE MUST BE ONE REPORT FOR EACH DAY AT A LOCATION, I.E. MISCELLANEOUS PUMP, SQUEEZE JOB, ETC. ALTHOUGH THERE MAY ONLY BE ONE FIELD RECEIPT NUMBER

DISTRIBUTION

- COPY TO DISTRICT WELL FILE
- COPY TO SAFETY & REGULATORY COMPLIANCE IF AN UNSAFE ACT IS NOTED

SIGNATURE OF PERSON CONDUCTING MEETING	PRINTED NAME OF COMPANY REPRESENTATIVE
T.M. Crabb	Paul Thompson

WCNA 1351 (09/92)

JOB PERFORMANCE REPORT

District _____ Date _____ Field Receipt Number _____

Customer Name _____ Well Name _____

Stimulation: ☑ Fracture ☐ Acid ☐ Sand Control ☐ Misc. Pump Cement: ☐ Land ☐ Offshore ☐ Marine ☐ T.O.B.

Gas: ☑ N_2 ☐ CO_2 ☐ Binary ☐ Tools ☐ Surface ☐ Int./Long ☐ Squeeze ☐ Other_____

Customer Rep. Reaction: ☑ Pleased ☐ Neutral ☐ Displeased ☐ Not on Job

Was there a problem on this job? ☐ Yes ☑ No (If NO checked, do not complete form further)

A. RTS PERFORMANCE

01 ☐ Under 1 Hour Late
02 ☐ 1-4 Hours Late - No. Hours Late_____
03 ☐ Over 4 Hours Late - No. Hours Late_____

Cause:

04 ☐ Borrowed Equip/Labor Late
05 ☐ Delay on Prior Job
06 ☐ District Personnel Late on Yard
07 ☐ Equipment Failure on Location
08 ☐ Equipment Failure on Way to Location
09 ☐ Equipment Failure on Yard
10 ☐ Hotshot Trip
11 ☐ Lost Way to Location
12 ☐ Outside Service Late
13 ☐ Poor Communications
14 ☐ Products Problem
15 ☐ Road/Location Conditions
16 ☐ Wait on Customer Rep
17 ☐ Other_____

B. PRODUCT PERFORMANCE

01 ☐ Additive Incorrect/Not Used
02 ☐ Bad Water
03 ☐ Contamination
04 ☐ Defective Material
05 ☐ Freezing
06 ☐ Incorrect Base Material
07 ☐ Incorrect Mixture
08 ☐ PH
09 ☐ Total Sand Does Not Match What Was Pumped
10 ☐ Viscosity
11 ☐ Volume of Fluid/Additives Recorded Does Not Match What Was Pumped
12 ☐ Product Code_____ _____ _____ _____ _____
13 ☐ Other_____

C. JOB PROCEDURE

01 ☐ Cemented Csg/Tbg
02 ☐ HP/Rate Requirements
03 ☐ Improper Slurry Density
04 ☐ Job Interruption
05 ☐ No Returns
06 ☐ Plug Not Bumped
07 ☐ Screenout
08 ☐ Other_____

Cause:

09 ☐ Equipment Failure
10 ☐ Human Error
11 ☐ Inadequate Job Design
12 ☐ Insufficient Material
13 ☐ Product Failure
14 ☐ Well Conditions
15 ☐ Other_____

D. EQUIPMENT

01 ☐ Acid Frac/Pump
02 ☐ Batch Mixer
03 ☐ Blender
04 ☐ Bulk Truck
05 ☐ Cement Pump
06 ☐ Chem Add
07 ☐ Field Bin
08 ☐ Frac Pump
09 ☐ Goose
10 ☐ Line Truck
11 ☐ N_2 Pump
12 ☐ N_2 Transport
13 ☐ Q.C. Lab Van
14 ☐ SPC/CMG
15 ☐ Sand Conveyor
16 ☐ Sandmaster
17 ☐ Sand Truck/Air Can
18 ☐ TMV
19 ☐ Tractor
20 ☐ Transport Cement
21 ☐ Transport Liquid
22 ☐ Van/Pickup
23 ☐ Other_____

E. EQUIPMENT PERFORMANCE

Problem Unit(s) _____ _____ _____ _____ _____

Fluid End:

01 ☐ Fluid End Block
02 ☐ Manifold
03 ☐ Packing
04 ☐ Valve
05 ☐ Other_____

Pumping Equipment:

06 ☐ Engine
07 ☐ Hydraulics
08 ☐ Power End
09 ☐ Supercharge/Mix Pump
10 ☐ Transmission
11 ☐ Vaporizer
12 ☐ Other_____

Mixing Equipment:

13 ☐ Agitator
14 ☐ Chemical Pump
15 ☐ Dry Chemical Feed
16 ☐ Electrical
17 ☐ Engine
18 ☐ Hydraulic/Air Hoses
19 ☐ Hydraulics
20 ☐ OSHA Air Valves
21 ☐ Recirculating Cement Mixer
22 ☐ Sand Ramp
23 ☐ Sandscrews
24 ☐ Suction/Supercharge Pump
25 ☐ Transmission
26 ☐ Tub Level
27 ☐ Other_____

Instrumentation/Monitoring:

28 ☐ Cables/Connections
29 ☐ Closed Loop Controllers
30 ☐ Densiometer
31 ☐ Flow Meter
32 ☐ Martin Decker
33 ☐ Model "C"
34 ☐ Modem Data Line
35 ☐ Printer/Plotter
36 ☐ Software
37 ☐ Transducer
38 ☐ Viscometer
39 ☐ WestComp
40 ☐ WestFrac III
41 ☐ WestFrac IV
42 ☐ WestView
43 ☐ Other_____

Miscellaneous:

44 ☐ Air Blower
45 ☐ Ball Injector
46 ☐ Cement Head
47 ☐ CO_2 Booster
48 ☐ Failed Line/Fitting
49 ☐ Hydraulic Power Pack
50 ☐ Pressure Relief Valve
51 ☐ Stake Bed
52 ☐ Suction Manifold Trailer
53 ☐ Wellhead Protector
54 ☐ Other_____

F. OTHER PROBLEMS

01 ☐ Accident
02 ☐ Communications System
03 ☐ Connection/Valve Leak
04 ☐ No Ball Out
05 ☐ Personal Injury
06 ☐ Remote Data Transmission
07 ☐ Other_____

Brief Explanation of Problem(s):

If product failure, list the trade name of the fluid used. Forward complete description, samples, and test data as per FIELD PROCEDURES MANUAL to WPS Research, Technical Lab Services

Service Supervisor: _____ District Manager: _____

JOB REPORT

PURPOSE:

To identify the areas within a service procedure which need to be corrected. It will serve as a vehicle to quantify the types of problems experienced and allow responses to be directed for correction.

PROCEDURE:

A Job Report is to be completed on each job performed by The Western Company.

JOB REPORT INSTRUCTION SHEET

1 PRINT DISTRICT NAME.

2 LIST DATE OF JOB.

3 LIST FIELD RECEIPT NUMBER.

4 PRINT CUSTOMER'S NAME.

5 PRINT WELL NAME.

6 CHECK BOX SHOWING TYPE OF JOB FOR THIS JOB REPORT (I.E. TYPE OF STIMULATION, GAS, CEMENT).

7 CHECK BOX CORRESPONDING TO CUSTOMER'S REACTION TO JOB.

8 CHECK EITHER YES OR NO BOX; IF NO BOX IS CHECKED, DO NOT COMPLETE FORM FURTHER. (FOLLOW INSTRUCTIONS AT THE END OF THIS PAGE FOR DISTRIBUTION.)

9 CHECK CORRESPONDING BOX IF YES TO ANY OF THESE PROBLEMS.

10 PRINT A BRIEF EXPLANATION OF ANY PROBLEM(S). IF PRODUCT FAILURE, FOLLOW INSTRUCTIONS AS OUTLINED IN THIS AREA.

11 HAVE SERVICE SUPERVISOR SIGN.

12 HAVE DISTRICT MANAGER SIGN.

FOLLOWING COMPLETION OF THIS FORM, SEND:

WHITE COPY TO EQUIPMENT, MAINTENANCE AND STANDARDS IN FORT WORTH

KEEP YELLOW COPY FOR YOUR DISTRICT FILES

345526

Date 1-30-95

Customer's Name JK Edwards

Address Chaco #2R

Commodity 20/40 AZ

Remarks

60160 lbs. Gross

33060 lbs. Tare

27100 lbs. Net @ _____ Per lb. Price _____

Shipper R. Ledford 6433-3206

Weigher _____

FORM SJ 2114D

345527

Date 1-30-95

Customer's Name JK Edwards

Address Chaco #2R

Commodity 12/20 B

Remarks

46300 lbs. Gross

34110 lbs. Tare

12190 lbs. Net @ _____ Per lb. Price _____

Shipper _____

Weigher _____

FORM SJ 2114D

345530

Date 1-30-95

Customer's Name JK Edwards

Address Chaco #2R

Commodity 40/70 B

Remarks

50405 lbs. Gross

45300 lbs. Tare

5105 lbs. Net @ _____ Per lb. Price _____

Shipper _____

Weigher _____

FORM SJ 2114D

COMPANY: J.M. Edwards LEASE: Chino #2R STAGE: 1

TYPE OF SAND	WEIGHT	UNIT	DRIVER
12/20 B	6,190	4063	
40/70 B	5105	4063	
20/40 Az	27100	6433-3906	R Leeford

DISPATCH NUMBER: 150823 DATE: 1-28-95

SAND TRANSFERRED FROM OTHER LOCATION

TOTAL SAND ORDERED TYPE: 40/70 B AMOUNT: 5,000 lbs.
20/40 AZ 25000 lbs.
12/20 B 5,000 lbs.
35,000 Total Sand

SIGNED

FARMINGTON DISTRICT
PRE-STIMULATION CHECKLIST-ENGINEERING

DISPATCH:

CO. J.K. Edwards - RTS Date w/c

Well Chaco #2R. RTS Time w/c

	check Y/N
Water Samples	
Sand Samples	
Engineer(s) notified Name _____	
Dispatcher	AS

ENGINEERING:

WPS Engineer _____ Eng-on-loc(time) _____

Verify Procedure .	
Verify Chemical Loading (chemicals & amounts)	
Type of Chem-Ad acceptable?	
Q.C. Van Needed?	
Driver _____	
TMV Required?	
Driver _____	
Stregs Info Complete?	

Other _____

_____

_____

Engineer _____

THE WESTERN COMPANY
FARMINGTON DISTRICT

POST JOB LOCATION CONDITION / CLEANLINESS

WAS ALL TRASH PICKED UP	YES ✓ NO___
WERE ALL SPILLS CLEANED UP	YES ✓ NO___
WERE ALL SAND PILES KNOCKED DOWN AND SPREAD OUT	YES ✓ NO___
WAS LOCATION LEFT IN AN ACCEPTABLE CONDITION THAT MEETS OR EXCEEDS YOUR COMPANY GUIDELINES	YES ✓ NO___

COMMENTS: _____

_____

_____

_____

SERVICE SUPERVISOR: Tim Crabb

CUSTOMER: J. K. Edwards

CHEMICAL MATERIALS ISSUED/RETURNED

1/31/95

DISTRICT Farmington DISPATCH SHEET NO. 150523 WELL NAME Chino #2R

CUSTOMER J.K. Edwards 309667 DATE OF JOB 1-31-95

ACCOUNT 26 FIELD RECEIPT NO. 309667 FIELD RECEIPT DATE 1-31-95

PRODUCT DESCRIPTION	WIN	UOM	QUANTITY ORDERED	QUANTITY LOADED/ BLENDED	QUANTITY RETURNED	NET USAGE	VERIFIED TO FIELD RECEIPT
FRAccide 20	100486	lbs.	6	6	0	6	6
J-4	499805	lbs.	336	300	0	300	300
P-4	100095	lbs.	50	50	0	50	50
B-11	100085	lbs.	16	16	8	8	8
FRACFOAM-1	100362	gals.	84	55	10	45	45
40/70 B	100009	lbs.	5,000	6190	390	5800	5800
20/40 AC	100013	lbs.	25000	27100	0	27,100	27100
12/20 B.	100008	lbs.	5000	11,000	5000	6000	6000
						1550.07	

ISSUED BY EH DATE 1/31/95 RECEIVED BY T.M. Crabb DATE 1-31-95

APPROVAL _____ OPERATIONS SUPERVISOR

WCNA-1460 (11/89)

VOLUME CALCULATIONS
(SHOW ALL JOB CALCULATIONS BELOW)

A Supervisor must either prepare or verify this form

20# J-4

16,800 GALS -

FRACCIDE 20, 33/1000 = 6

J-4 - 20/1000 = 336

P-4 - 3/1000 = 50

B-11 - 1/1000 = 16

FRACFOAM-1 - 5/1000 = 84

40/70 B - 5,000

20/40 AZ - 25,000

12/20 B - 5,000

PREPARED BY

TITLE

VERIFIED BY

TITLE SS

The Western Company

STIMULATION DISPATCH SHEET

District FARMINGTON	Dist. No.	Job No. 1503 3	Same As Job No.		
Field Receipt 1. 1309667	2.	3.	4.	5.	6.
Order Taken By Vick Montoya	Time 0700	Date 1-28-95	Operator P.O. No.		
Order Placed By Paul Thompson	Phone 320-3194		Credit Number		
Company J. K EDWARDS	Lease Name & No. Chaco 2R				

Job Instructions

700 N2 FOAM-20
30 BPM -

40/70 B - 5,000 lbs.
20/40 AZ - 25,000 lbs.
12/20 B - 5,000 lbs.

Fluid Type:

01	Oil-Water Emul.	08	Gelled Oil	15	Clay Stab.		
02	Oil-Acid Emul.	09	Other Oil	16	Flow Control		
03	Acid 0 - 10%	10	X-Linked Water	17	Super Frac		
04	Acid 10.1 - 20%	11	Gelled Water	18	Misc.		
05	Acid 20.1% & up	12	Other Water				
06	Gelled Acid	13	Foam				
07	Other Acid	14	Scale Treat.				

Gas: 1 CO_2 2 N_2 3 OTH 4 None

Proppant: 1 Sand 2 Beads 3 Other 4 None

Press (PSI): 1 0 - 3000 2 3001 - 5000 3 5001 - 6000 4 6001 - 8000 5 8001 - 10000 6 10001 - 15000 7 15001 & up

Vol (Gal): 1 0 - 1500 2 1501 - 5000 3 5001 - 20000 4 20001 - 60000 5 60001 - 100000 6 100001 & up

Well: 1 New 2 Rework 3 New Zone 4 Other

Date & Time Wanted 1-31-95 NOW.	Total Depth 1137	Type & Amount Material Needed 1 FRAccide 20 = 6
Casing Size & Wgt.	Oper. Max Press 3,000	2 J-4 = 336
Tubing Size & Wgt. 2 7/8 - 6.5#	Hole Size	3 P-4 = 50
Flush In ON Loc.		4 B-11 = 16
Top Connection 2 7/8 WST		5 FRAC FOAM-1 = 84

Directions to Well: TURN LEFT AT NAPI HEADQUARTERS TO 4 WAY. AT END of PAVEMENT go 1.4 MI. T/R go TO CROWS FOOT ABOUT 50 ft. AFTER R/T. TAKE MIDDLE TO LOCATION

Miscellaneous Information:

NAME	Yard Time	Unit 1	Unit 2
M. BAUGH	NOW.	7340	
R. MARSHALL		7463	
R. CRABB		12364	
T. SITTON		12270	
D. SHEPHERD		34426	
PIGMAN		46411	

Service Engineer	Empl. No.	Unit	Act. Hrs.
T. CRABB		06463	
D. Sheppard		34426	

Rented Services

Total Off-road Mileage

BORROWED EQUIPMENT

Loaning District	Rendezvous Place	Rendezvous Time	Equip. Type

Left Last Job/Yard	Date / Time
Arrived Job	Date / Time
Start Service	Date / Time
Stop Service	Date / Time
Arrived Next Job/Yard	Date / Time
Speedometer Reading	

FORM WCNA - 1189 (12-90 15M)

HOUSTON COPY

ACCOUNTING COPY

SERVICE ORDER AND FIELD RECEIPT NO. 08463 L 309332

The Western Company of North America

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
~~BP~~ JK Edwards	683		27340	4655568

MAIL INVOICE TO: 1401 17th St. Suite 1400 — CITY: Denver — STATE: CO — ZIP CODE: 80202

DATE WORK COMPLETED: MO. 1 DAY 31 YEAR 95 — WESTERN SERVICE SUPERVISOR: SAMAGE 18316

WELL TYPE: (CHECK ONE) 1 ☐ ~~NEW~~ 2 ☐ OLD

WESTERN DISTRICT

JOB DEPTH (FT.) 1137

WELL CLASS: (CHECK ONE) 1 ☐ OIL 2 ☒ ~~GAS~~ 3 ☐ DISPOSAL 4 ☐ INJECTION

WELL NAME AND NUMBER: Chaco #2R

TD WELL DEPTH (FT.) 1213

GAS USED ON JOB: (CHECK ONE) 1 ☒ ~~N_2~~ 2 ☐ CO_2 3 ☐ NONE 4 ☐ BINARY

WELL LOCATION: SEC/TWP/AGE — COUNTY: San Juan 045 — STATE: NM 30

JOB TYPE CODES

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE
13. LONG
14. LINER
15. TIEBACK
16. PLUG & ABANDON
17. PLUG BACK
18. SQUEEZE
19. PUMPING (CEMENT)
20. BULK SALES (CEMENT

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE, 0-9,999 psi
33. FRACTURE, 10,000 + psi
34. PUMPING (STIM)
35. BULK SALE (STIM)
40. SAND CONTROL
41. GRAVEL PACK TOOL SALES
42. GRAVEL PACK TOOL RENTAL

TOOL SERVICES
50. TOOL SALE
51. TOOL RENTAL
52. TOOL REDRESS
53. TOOL SERVICE

3 2

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
N0232	N_2 1ST 50,000	100SCF	500	1 89	945 -		
N0032	N_2	100SCF	1620	1 84	3 061 80		
J3916	Light milage	EA	3	1 80	5 40		
J3906	Heavy milage 3 units x 3 mi	EA	9	2 95	26 55		
N2016	N_2 Pump	EA	2	1 110 -	2 220 -		
N1686	N_2 Target flow meter	EA	1	290	290 -		
H4456	N_2 header & valve	EA	1	390	390 -		
					~~6 687 85~~ 5537 75	~~35~~	~~4 314 41~~ 3599 54

ARRIVE LOCATION: MO. 1 DAY 31 YEAR 95 TIME 11:00

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

OPERATOR REP. LAST NAME: Simpson

Performed in Accordance with Contract No.

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

X Paul C. Thomas
CUSTOMER AUTHORIZED AGENT

CUSTOMER AUTHORIZED AGENT

X
WESTERN APPROVED

DUPLICATE

The Western Company of North America

REMIT TO: P.O. BOX 911548
DALLAS, TX 75391-1548

INVOICE NO.	OUR RECEIPT NO.	DATE
[illegible]	[illegible]	[illegible]

YOUR ORDER NO.	
27390	1314

J. K. EDWARDS ASSOCIATES, INC.
1401 17TH STREET, SUITE 1400
DENVER CO 80202

FEDERAL I.D. NO. C 75-0763484

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON SYNCRATI	SAVAGE	PAUL THOMPSON

FOR SERVICING WELL NAME	COUNTY	STATE
CHACO #2R	SAN JUAN	NM

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
N023E	N2/100 SCF;1ST 50000 SCF,FMINGTON,NM	100CF	500.0	1.890	945.00	35.00	[illegible]
N003E	NITROGEN CHARGES-FARMINGTON NM	100CF	1620.0	1.840	2980.80	35.00	1,[illegible]
J3916	MILEAGE, AUTO/PICK-UP/TREATING VAN	MILE	3.0	1.800	5.40	35.00	[illegible]
J3906	MILEAGE, HEAVY VEHICLE, PER UNIT	MILE	9.0	2.950	26.55	35.00	[illegible]
N2016	LOW RATE N2 PUMP, 5001 - 7000 PSI	4HRS	1.0	1190.000	1190.00	35.00	[illegible]
H4456	SERVICE CHARGE, HEADER AND VALVE	JOB	1.0	390.000	390.00	35.00	[illegible]
	SUB TOTAL				5537.75		[illegible]
98447	NEW MEXICO SALES TAX 4.5%						[illegible]
98428	NEW MEXICO, SAN JUAN SALES TAX .25%						[illegible]
98449	NEW MEX. FARMINGTON SALES TAX 1.188%						[illegible]

PAY THIS AMOUNT

PHONE: (713) [illegible] NET 20 DAYS

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3.0	MILEAGE, AUTO/PICK-UP/VAN [illegible]	[illegible]	[illegible]
[illegible]	9.0	MILEAGE, HEAVY VEHICLE, [illegible]	2.90	[illegible]
[illegible]	1.0	LOW RATE N2 PUMP, 5001 - 7000 PSI	1,000.00	1,000.00
[illegible]	1.0	SERVICE CHARGE, HEADER AND VALVE	390.000	390.00

PF08=FORWARD PF07=FIRST PAGE ENTER=UPDATE (STATUS=S SUMMARY) PAGE: 1
OPT:

FIELD RECEIPT SUMMARY

CUST # [illegible] - 000
NAME: J. H. EDWARDS ASSOCIATES, INC.

PROD REVENUE:	3925.80	
EQUIP REVENUE:	1611.95	
GROSS REVENUE:	5537.75	
LINE DISCOUNTS APPLY? N		
SALES CON:	1938.21	35.00
JQ CON:	.00	.00
BID CON:	.00	.00
DIST CON:	.00	.00
TOTAL CON:	1938.21	35.00
NET REVENUE:	3599.54	
TAX AMOUNT:	213.75	
ROY AMOUNT:	.00	
TOTAL:	3813.29	

CC #: 1214 FR#: [illegible] STATUS: O
WELL: CHACO #2R
PURCHASE ORDER #:
PROPOSAL NUMBER :
HOW TO PRINT?...: E EXTENDED

=== ACCRUED DISCOUNTS ===

REG:	.00	.00
JQ:	.00	.00

====== WARRANTY INFORMATION ======
WERE WE READY TO PUMP .....?
WERE WE PROFESSIONAL .....?
DID EQUIPMENT PERFORM OK .....?
DID WE DO WHAT WE AGREED TO .....?
AMOUNT OF CREDIT REQUESTED...

===== BILLING INSTRUCTIONS =====

CUSTOMER COPY

The Western Company of North America

SERVICE ORDER AND FIELD RECEIPT NO. L 309332

CUSTOMER (COMPANY NAME)	CREDIT APPROVAL NO.	PURCHASE ORDER NO.	CUSTOMER NUMBER	INVOICE NUMBER
JK Edwards				

MAIL INVOICE TO: STREET OR BOX NUMBER	CITY	STATE	ZIP CODE

DATE WORK COMPLETED: MO	DAY	YEAR	WESTERN SERVICE SUPERVISOR
1	31	92	

WESTERN DISTRICT	JOB DEPTH (FT.)	TD WELL DEPTH (FT.)
	1137	1217

WELL TYPE: (CHECK ONE) 1 ☐ NEW 2 ☐ OLD

WELL CLASS: (CHECK ONE) 1 ☐ OIL 2 ☒ GAS 3 ☐ DISPOSAL 4 ☐ INJECTION

GAS USED ON JOB: (CHECK ONE) 1 ☐ N_2 2 ☐ CO_2 3 ☐ NONE 4 ☐ BINARY

WELL LOCATION: SEC/TWP/RGE | COUNTY San Juan | STATE NM

JOB TYPE CODES

CEMENTING SERVICES
10. CONDUCTOR
11. SURFACE
12. INTERMEDIATE
13. LONG
14. LINER
15. TIEBACK
16. PLUG & ABANDON
17. PLUG BACK
18. SQUEEZE
19. PUMPING (CEMENT)
20. BULK SALES (CEMENT

STIMULATION SERVICES
30. ACID, MATRIX
31. ACID, FRACTURE
32. FRACTURE, 0-9,999 psi
33. FRACTURE, 10,000 + psi
34. PUMPING (STIM)
35. BULK SALE (STIM)
40. SAND CONTROL
41. GRAVEL PACK TOOL SALES
42. GRAVEL PACK TOOL RENTAL

TOOL SERVICES
50. TOOL SALE
51. TOOL RENTAL
52. TOOL REDRESS
53. TOOL SERVICE

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE UNIT	GROSS AMOUNT	PERCENT DISC	NET AMOUNT
	N2 1-1/2" [illegible]	1000SCF	[illegible]	1 85	[illegible]		
	N2	1000SCF	1620	1 54	3 0018 0		
	[illegible]	EA	1	1 90	3 45		
	[illegible]	EA	9	2 95	26 55		
	Pump	EA	2	1 11 -	2220		
	Turbine Flow meter	EA	1	2[illegible]	29 -		
	header & valve	EA	1	79	79 -		
					6 [illegible]		4 3[illegible]41
					6 [illegible] 75		4 [illegible]79
							3[illegible]1

ARRIVE LOCATION MO	DAY	YEAR	TIME
1	31	92	[illegible]

CUSTOMER REP. LAST NAME

SEE REVERSE SIDE FOR GENERAL TERMS AND CONDITIONS

SERVICE ORDER: I AUTHORIZE WORK TO BEGIN PER SERVICE INSTRUCTIONS IN ACCORDANCE WITH TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS FORM AND REPRESENT THAT I HAVE AUTHORITY TO ACCEPT AND SIGN THIS ORDER.

CUSTOMER AUTHORIZED AGENT

SERVICE RECEIPT: I CERTIFY THAT THE MATERIALS AND SERVICES LISTED WERE RECEIVED AND ALL SERVICES PERFORMED IN A WORKMANLIKE MANNER.

X CUSTOMER AUTHORIZED AGENT

X WESTERN APPROVED

WCNA 1168 10/91-25M

CONDITIONS OF CONTRACT

Customer and Western agree that the services described on the face of this Service Order and Field Receipt are to be performed subject to and in consideration of the following terms and conditions.

1. **Customer.** For purpose of this contract, the term Customer shall include agents, subsidiaries, joint venturers and partners of Customer.

2. **Well Condition.** Customer warrants that the well described on the face of this Service Order and Field Receipt is in proper condition to receive the products, supplies, materials, and services described herein.

3. **Independent Contractor:** Western is and shall be an independent contractor with respect to the performance of this contract and neither Western nor anyone employed by Western shall be the agent, representative, employee or servant of Customer in the performance of this contract or any part hereof.

4. **Price.** Customer agrees to pay Western for the products, supplies, materials, and services described herein in accordance with Western's current price list. In the event that Western has agreed to charge Customer other than as set forth in such price list, the charges agreed upon by Customer and Western shall be those set forth on the face of this Service Order and Field Receipt and the agreement of Customer thereto shall be conclusively established by its execution of the receipt set forth on the face of this Service Order and Field Receipt.

5. **Terms.** Cash in advance unless Western has approved credit prior to the sale. Credit terms for approved accounts are total invoice amount due on or before the 30th day from the date of the invoice at the address set forth therein. Past due accounts shall pay interest on the balance due at the rate of 1½% per month or the maximum allowable under applicable state law if such law limits interest to a lesser amount. In the event it is necessary to employ a third party to effect collection of said account, Customer agrees to pay all fees of such third party directly or indirectly incurred for such collection.

6. **Taxes.** Customer agrees to pay all taxes based on or measured by the charges set forth on the face of this Service Order and Field Receipt.

7. **Amendments and Modifications.** No field employee of Western shall be empowered to alter the terms and conditions of this contract and Western shall not be bound by any changes or modifications in this contract unless made in writing by a duly authorized executive officer of Western. By requesting the goods and services set forth herein, Customer agrees to all the terms and conditions contained on both sides of this Service Order and Field Receipt unless Customer and Western have entered into a master service agreement or master work contract applicable to the services performed and products, supplies and materials furnished by Western hereunder, in which event any term or provision of this Service Order and Field Receipt in conflict with the provisions thereof shall be deemed invalid to such extent. Subject only to the preceding sentence Western hereby objects to any term of any purchase order, delivery ticket or receipt or other document that varies from or conflicts with the terms of this contract.

8. **Severability.** It is understood and agreed by Customer and Western that any term or provision of this contract prohibited by law shall be deemed invalid to the extent of such prohibition and shall be modified to the extent necessary to conform to such rule of law. Any term or provision of this contract not deemed invalid and modified pursuant to the preceding sentence shall remain in full force and effect without regard to such invalidity and modification.

9. **Limited Warranty.** Western warrants only title to the products, supplies and materials furnished pursuant to this contract and that the same are free from defects. **THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE.** Western's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach or warranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies or materials or, at Western's option, to the allowance to the Customer of credit for the cost of such items. Western is unable to, and does not, guarantee the accuracy of any job recommendation, research analysis, data interpretation, or other information furnished to Customer by Western in view of the uncertainty of well conditions and the reliance by Western and Customer upon information and services furnished by third parties. **THEREFORE, NO WARRANTY EXPRESSED OR IMPLIED IS GIVEN CONCERING THE EFFECTIVENESS OF THE PRODUCTS, SUPPLIES OR MATERIALS USED, RECOMMENDATIONS GIVEN, OR SERVICES PERFORMED BY WESTERN.** Customer agrees that Western shall not be responsible for any damages arising from the use of data furnished by Western. Customer accepts full responsibility for returning the well described on the face of this Service Order and Field Receipt to production. Western does not guarantee the effectiveness of the products, supplies or materials furnished pursuant to this contract nor the results of any treatment or service it performs hereunder.

10. **Force Majeure.** Any delays or failure by Western in the performance of this contract shall be excused if and to the extent caused by war, fire, flood, strike or other labor trouble, accident, riot, act of God or any other cause beyond the reasonable control of Western.

11. **Chemical Disposal.** Customer agrees that all chemicals used in performance of this contract which are not removed from the location of the well by Western shall be disposed of by Customer in accordance with all applicable federal, state and local laws and regulations.

12. **Liability and Indemnity Obligations.** In recognition of the control exercised by Customer over the conditions under which this contract is performed by Western (including, without limitation, the well site, drilling equipment, the well itself, other contractors and vendors, and ingress and egress to and from locations), and in exchange for the performance by Western of the services described on the face of this Service Order and Field Receipt and the products, supplies and materials furnished by Western hereunder, Customer agrees to be fully responsible for and to defend, indemnify and hold harmless Western, its officers, agents and employees, from and against:

(a) liability of every kind and character for injury to or death of employees of Customer or third parties arising directly or indirectly during or out of the performance of this contract from any cause, regardless of negligence or fault of Western or the unseaworthiness of any vessel. For purposes of this paragraph, employees of Customer's other contractors shall be considered employees of Customer.

(b) liability for damage to property of Customer (and well owner if different from Customer) including, but not limited to, subsurface damage and surface damage arising from subsurface damage, regardless of whether caused in whole or in part by the negligence of Western or the unseaworthiness of any vessel.

(c) liability for reservoir loss or damage, or any property damage (including, but not limited to, that caused by pollution or contamination), or personal injuries resulting directly or indirectly from uncontrolled pressure, well blowout or cratering, or losing control of the well, regardless of whether caused in whole or in part by the negligence of Western or the unseaworthiness of any vessel.

(d) liability for damages to property of Customer or third parties or injuries to persons alleged or claimed to have been caused by contamination or pollution from the application or use of products, supplies or materials furnished under this contract, regardless of whether caused in whole or in part by the negligence of Western or the unseaworthiness of any vessel.

(e) liability for damage to property of Customer (and well owner if different from Customer) arising directly or indirectly from products, supplies or materials, including, but not limited to, equipment furnished by Western hereunder being lost in the well, regardless whether caused in whole or in part by the negligence of Western or the unseaworthiness of any vessel.

(f) any liability for special, incidental, indirect, punitive or consequential damages, including, but not limited to, loss of use or loss of profit, for breach of contract or negligence, regardless whether caused in whole or in part by the negligence of Western or the unseaworthiness of any vessel.

(g) Customer agrees to support its indemnity obligations herein by insurance of the kind customarily having policy limits of $500,000 or the maximum amount which applicable law from time to time requires to be contractually required, whichever is greater. If it should be determined that any of the obligations assumed hereunder which are to be supported either by insurance or indemnity exceed that which is permitted under applicable law, then such indemnities shall automatically be limited to conform to the monetary limits permitted under such law.

13. **Downhole Tools.** If tools furnished by Western pursuant to this contract are lost in the well, Customer agrees to make a reasonable effort at Customer's risk and expense to recover the same and agrees to recover, to pay Western the replacement cost thereof unless such tools were lost as a result of the gross negligence or willful misconduct of Western.

14. **Governing Law.** This contract shall be governed by the law of the state where the products, supplies or materials are furnished pursuant hereto. The provisions of the Deceptive Trade Practices Act, to the extent applicable hereto, are waived to the extent permitted by law.

PRETREATMENT SAFETY REPORT

CUSTOMER NAME	CUSTOMER LEASE	CONDUCTED ON LOCATION DATE	AM / PM	FIELD RECEIPT NUMBER

DISTRICT IN WHICH MEETING IS HELD	NAME OF PERSON CONDUCTING MEETING	TYPE OF JOB

EMPLOYEES PRESENT (INCLUDE ALL PERSONS ON LOCATION)			
1.	10.	19.	28.
2.	11.	20.	29.
3.	12.	21.	30.
4.	13.	22.	31.
5.	14.	23.	32.
6.	15.	24.	33.
7.	16.	25.	34.
8.	17.	26.	35.
9.	18.	27.	36.

TOPIC DISCUSSED (ITEMS SPECIFIC TO THIS JOB, I.E. WEATHER, MSDS)

CHECK EACH BOX (NORMAL ITEMS FOR EACH SAFETY MEETING)

1. EVERYONE PRESENT		7. FIRE FIGHTING EQUIPMENT ASSIGNED	
2. OUTLINE JOB		8. PERSONAL PROTECTIVE EQUIPMENT	
3. JOB ASSIGNMENTS		9. CAUTION BYSTANDERS	
4. PRESSURE LIMITS		10. ESCAPE ROUTES	
5. INSTRUCTIONS ON PRESSURE TEST		11. CHECK FOR CUSTOMER COMMENTS	
6. DISCUSS HAZARDS		12. SMOKING AREA ESTABLISHED	

EXPLANATION OF INCIDENT
THIS AREA FOR EMPLOYEE WRITE-UPS, BAD IRON, SYSTEM CHANGES, ETC.; FOR JOB PROBLEM, REFER TO JOB REPORT.

THERE MUST BE ONE REPORT FOR EACH DAY AT A LOCATION, I.E. MISCELLANEOUS PUMP, SQUEEZE JOB, ETC. ALTHOUGH THERE MAY ONLY BE ONE FIELD RECEIPT NUMBER

DISTRIBUTION

- COPY TO DISTRICT WELL FILE
- COPY TO SAFETY & REGULATORY COMPLIANCE IF AN UNSAFE ACT IS NOTED

SIGNATURE OF PERSON CONDUCTING MEETING	PRINTED NAME OF COMPANY REPRESENTATIVE

WCNA 1351 (09/92)

JOB PERFORMANCE REPORT

District_____ Date_____ Field Receipt Number_____

Customer Name_____ Well Name_____

Stimulation: ☐ Fracture ☐ Acid ☐ Sand Control ☐ Misc. Pump Cement: ☐ Land ☐ Offshore ☐ Marine ☐ T.O.B.

Gas: ☐ N_2 ☐ CO_2 ☐ Binary ☐ Tools ☐ Surface ☐ Int./Long ☐ Squeeze ☐ Other_____

Customer Rep. Reaction: ☐ Pleased ☐ Neutral ☐ Displeased ☐ Not on Job

Was there a problem on this job? ☐ Yes ☐ No (If NO checked, do not complete form further)

A. RTS PERFORMANCE

01 ☐ Under 1 Hour Late
02 ☐ 1-4 Hours Late - No. Hours Late_____
03 ☐ Over 4 Hours Late - No. Hours Late_____

Cause:

04 ☐ Borrowed Equip/Labor Late
05 ☐ Delay on Prior Job
06 ☐ District Personnel Late on Yard
07 ☐ Equipment Failure on Location
08 ☐ Equipment Failure on Way to Location
09 ☐ Equipment Failure on Yard
10 ☐ Hotshot Trip
11 ☐ Lost Way to Location
12 ☐ Outside Service Late
13 ☐ Poor Communications
14 ☐ Products Problem
15 ☐ Road/Location Conditions
16 ☐ Wait on Customer Rep
17 ☐ Other_____

B. PRODUCT PERFORMANCE

01 ☐ Additive Incorrect/Not Used
02 ☐ Bad Water
03 ☐ Contamination
04 ☐ Defective Material
05 ☐ Freezing
06 ☐ Incorrect Base Material
07 ☐ Incorrect Mixture
08 ☐ PH
09 ☐ Total Sand Does Not Match What Was Pumped
10 ☐ Viscosity
11 ☐ Volume of Fluid/Additives Recorded Does Not Match What Was Pumped
12 ☐ Product Code_____ _____ _____ _____ _____
13 ☐ Other_____

C. JOB PROCEDURE

01 ☐ Cemented Csg/Tbg
02 ☐ HP/Rate Requirements
03 ☐ Improper Slurry Density
04 ☐ Job Interruption
05 ☐ No Returns
06 ☐ Plug Not Bumped
07 ☐ Screenout
08 ☐ Other_____

Cause:

09 ☐ Equipment Failure
10 ☐ Human Error
11 ☐ Inadequate Job Design
12 ☐ Insufficient Material
13 ☐ Product Failure
14 ☐ Well Conditions
15 ☐ Other_____

D. EQUIPMENT

01 ☐ Acid Frac/Pump
02 ☐ Batch Mixer
03 ☐ Blender
04 ☐ Bulk Truck
05 ☐ Cement Pump
06 ☐ Chem Add
07 ☐ Field Bin
08 ☐ Frac Pump
09 ☐ Goose
10 ☐ Line Truck
11 ☐ N_2 Pump
12 ☐ N_2 Transport
13 ☐ Q.C. Lab Van
14 ☐ SPC/CMG
15 ☐ Sand Conveyor
16 ☐ Sandmaster
17 ☐ Sand Truck/Air Can
18 ☐ TMV
19 ☐ Tractor
20 ☐ Transport Cement
21 ☐ Transport Liquid
22 ☐ Van/Pickup
23 ☐ Other_____

E. EQUIPMENT PERFORMANCE

Problem Unit(s) _____ _____ _____ _____ _____

Fluid End:

01 ☐ Fluid End Block
02 ☐ Manifold
03 ☐ Packing
04 ☐ Valve
05 ☐ Other_____

Pumping Equipment:

06 ☐ Engine
07 ☐ Hydraulics
08 ☐ Power End
09 ☐ Supercharge/Mix Pump
10 ☐ Transmission
11 ☐ Vaporizer
12 ☐ Other_____

Mixing Equipment:

13 ☐ Agitator
14 ☐ Chemical Pump
15 ☐ Dry Chemical Feed
16 ☐ Electrical
17 ☐ Engine
18 ☐ Hydraulic/Air Hoses
19 ☐ Hydraulics
20 ☐ OSHA Air Valves
21 ☐ Recirculating Cement Mixer
22 ☐ Sand Ramp
23 ☐ Sandscrews
24 ☐ Suction/Supercharge Pump
25 ☐ Transmission
26 ☐ Tub Level
27 ☐ Other_____

Instrumentation/Monitoring:

28 ☐ Cables/Connections
29 ☐ Closed Loop Controllers
30 ☐ Densiometer
31 ☐ Flow Meter
32 ☐ Martin Decker
33 ☐ Model "C"
34 ☐ Modem Data Line
35 ☐ Printer/Plotter
36 ☐ Software
37 ☐ Transducer
38 ☐ Viscometer
39 ☐ WestComp
40 ☐ WestFrac III
41 ☐ WestFrac IV
42 ☐ WestView
43 ☐ Other_____

Miscellaneous:

44 ☐ Air Blower
45 ☐ Ball Injector
46 ☐ Cement Head
47 ☐ CO_2 Booster
48 ☐ Failed Line/Fitting
49 ☐ Hydraulic Power Pack
50 ☐ Pressure Relief Valve
51 ☐ Stake Bed
52 ☐ Suction Manifold Trailer
53 ☐ Wellhead Protector
54 ☐ Other_____

F. OTHER PROBLEMS

01 ☐ Accident
02 ☐ Communications System
03 ☐ Connection/Valve Leak
04 ☐ No Ball Out
05 ☐ Personal Injury
06 ☐ Remote Data Transmission
07 ☐ Other_____

Brief Explanation of Problem(s):

If product failure, list the trade name of the fluid used. Forward complete description, samples, and test data as per FIELD PROCEDURES MANUAL to WPS Research, Technical Lab Services

Service Supervisor: J. Saad

District Manager:

JOB REPORT

PURPOSE:

To identify the areas within a service procedure which need to be corrected. It will serve as a vehicle to quantify the types of problems experienced and allow responses to be directed for correction.

PROCEDURE:

A Job Report is to be completed on each job performed by The Western Company.

JOB REPORT INSTRUCTION SHEET

1 PRINT DISTRICT NAME.

2 LIST DATE OF JOB.

3 LIST FIELD RECEIPT NUMBER.

4 PRINT CUSTOMER'S NAME.

5 PRINT WELL NAME.

6 CHECK BOX SHOWING TYPE OF JOB FOR THIS JOB REPORT (I.E. TYPE OF STIMULATION, GAS, CEMENT).

7 CHECK BOX CORRESPONDING TO CUSTOMER'S REACTION TO JOB.

8 CHECK EITHER YES OR NO BOX; IF NO BOX IS CHECKED, DO NOT COMPLETE FORM FURTHER. (FOLLOW INSTRUCTIONS AT THE END OF THIS PAGE FOR DISTRIBUTION.)

9 CHECK CORRESPONDING BOX IF YES TO ANY OF THESE PROBLEMS.

10 PRINT A BRIEF EXPLANATION OF ANY PROBLEM(S). IF PRODUCT FAILURE, FOLLOW INSTRUCTIONS AS OUTLINED IN THIS AREA.

11 HAVE SERVICE SUPERVISOR SIGN.

12 HAVE DISTRICT MANAGER SIGN.

FOLLOWING COMPLETION OF THIS FORM, SEND:

WHITE COPY TO EQUIPMENT, MAINTENANCE AND STANDARDS IN FORT WORTH

KEEP YELLOW COPY FOR YOUR DISTRICT FILES

WESTERN COMPANY FOAM FRACTURE DESIGN WORK SHEET

GIVEN DATA:

AVERAGE DEPTH TO FORM; 1137

CONDUCTOR SIZE; 2 7/8 6.5#

PERFORATION DIAMETER .50 NUMBER OF PERFS 20

HYDROSTATIC HEAD OF WATER 492

I.S.D.P. _____

B.H.T.P. 729 (H.H. ± I.S.D.P.= B.H.T.P.)

SCF/BBL 700. (B.H.T.P. @ 80°)

S.C.F.M. = TOTAL RATE (FOAM) X QUALITY = N2 RATE X SCF/BBL = N2 RATE _____

30 70 -11.0

SURFACE CALCULATIONS

PERF FRICTION = # ~~PIPE~~ RATE DIVIDE BY ~~RATE~~ PERFS = RATE PER PERF (PERF FR. CHART) _____

PIPE FRICTION= RATE AND FOAM QUALITY (PIPE FRICTION CHART)*** _____

FOAM HYDROSTATIC= BOTTOM HOLE AND DEPTH (FOAM HYDRO CHART) _____

SURFACE TREATING PRESSURE= B.H.T.P. - FOAM HYDRO + PIPE FR.+ PERF FR.

TO FIND FRAC GRADIENT

DIVIDE BOTTOM HOLE FRAC PRESSURE BY DEPTH TO THE PERFORATIONS.

*** WHEN USING GEL

20# USE 70% OF GIVEN FRICTION NUMBER
30# USE 60% OF GIVEN FRICTION NUMBER

Well-Site Quality Control and Blend Schedule for Energized Fluids

(attachment to treatment report)

Operator: J K Edwards
Lease Name & Well No.: Chaco #7K

Date: ~~309329~~ 1-31-95
Field Receipt No.: ~~309329~~

Note: Use additional copies of this form for more transports.

Liquid Phase: attach appropriate blend schedule(s), Q.C. report(s) and list type(s) ____

Type of liquified gas (circle one)? CO_2 / N_2

Liquified Gas:

	1	2	3	4	5	6	Quantity SCF(sft³)
transport/tank number	3306	3318	3310				
SCF (sft³) loaded	198,000	204800	204800				607600
minus SCF (sft³) after job	~~198000~~ 95800	198800	101800				395600
SCF (sft³) used							212,00

pressure, psig(kPa)	before							
	after							
tank cap., gal(m³)	before							
	after							
fraction containing liq.	before							
	after							
volume available, gallon(m³)	before							
	after							
temperature, °F(°C)	before							
	after							
weight used, lb_m(kg)								

Foaming Agent used? Yes/No
list foaming agent tradename ____
loading ____ gal/100 gal. liq. phase

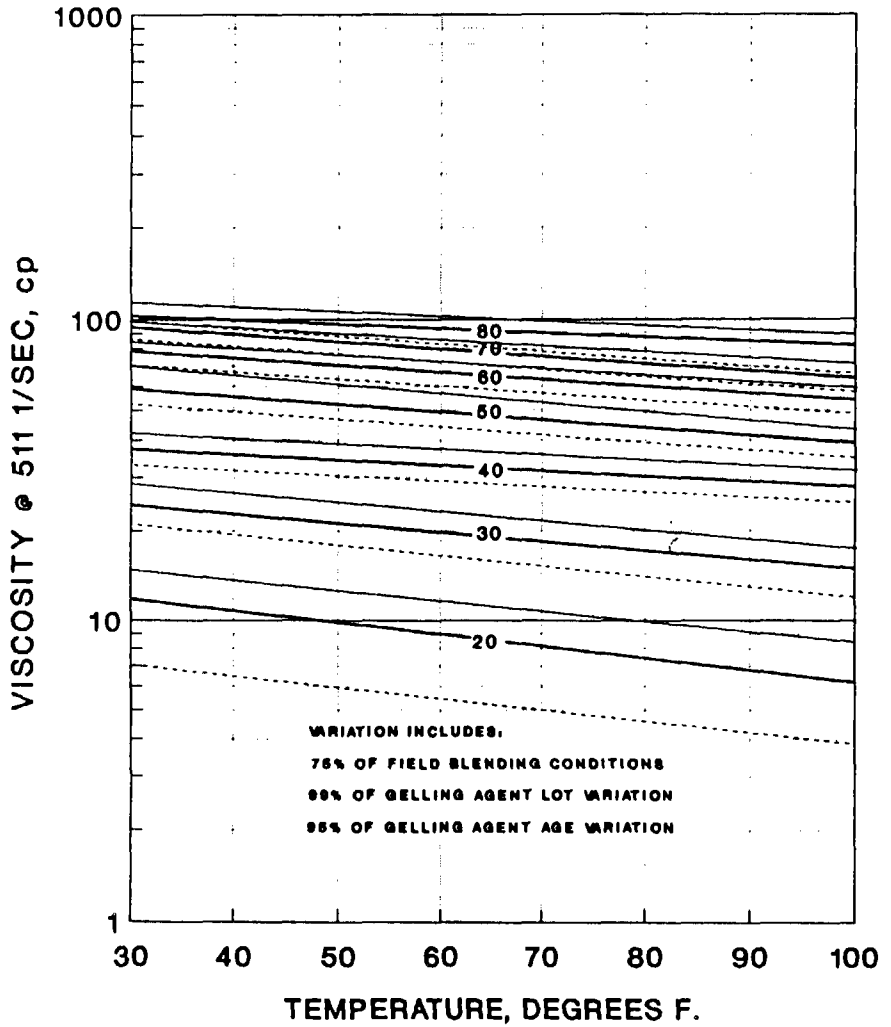
Foamer dilution required? Yes/No
volume of foamer available ____ gallon or ____ m³
volume of diluent used ____ gallon or ____ m³
volume of diluted foamer ____ gallon or ____ m³
expected liquid phase pumping rate ____ bbl/min or ____ m³/min
pump rate for foamer ____ gal/min or ____ m³/min

Attachments:
Blend Schedule and Q.C. Report for liquid phase

WCNA 1518 5/93

Prepared by: ____

PROPERTIES OF BASE GELS FOR USE IN CROSSLINKED AND NON-CROSSLINKED FRACTURING FLUID SYSTEMS



PROPERTIES OF BASE GELS FOR USE IN CROSSLINKED AND LINEAR GEL SYSTEMS

GELLING AGENT	LOADING lbm/mgal	pH RANGE	VISCOSITY, cp AT 511 1/SEC 70 DEGREES F.
J-4/J-4L	20	5.5-10.5	8 +/- 3
	30	5.5-10.5	19 +/- 3
	40	5.5-10.5	32 +/- 4
	50	5.5-10.5	47 +/- 6
	60	5.5-10.5	64 +/- 7
	70	5.5-10.5	76 +/- 8
	80	5.5-10.5	91 +/- 9
J-20/J-20L	20	5.5-10.5	8 +/- 3
	30	5.5-10.5	19 +/- 3
	40	5.5-10.5	32 +/- 4
	50	5.5-10.5	47 +/- 6
	60	5.5-10.5	64 +/- 7
	70	5.5-10.5	76 +/- 8
	80	5.5-10.5	91 +/- 9
J-22/J-22L•	20	5.5-10.5	8 +/- 3
	30	5.5-10.5	19 +/- 3
	40	5.5-10.5	32 +/- 4
	50	5.5-10.5	47 +/- 6
	60	5.5-10.5	64 +/- 7
	70	5.5-10.5	76 +/- 8
	80	5.5-10.5	91 +/- 9

GEL SYSTEM	GELLING AGENT	pH RANGE	RANGE OF GEL LOADINGS lbm/mgal
APOLLO	J-20/J-20L	6-7.5	20-80
POLARIS	J-20/J-20L	6-7.5	20-80
SATURN	J-20/J-20L	8.5-9.75	30-80
MINI MAX IIB	J-20/J-20L	8.5-9.0	20-40
MAXI FRAC	J-4/J-4L	6-7.5	20-60
MINI MAX IB	J-4/J-4L	8-8.5	20-40
ATLAS	J-4/J-4L	8.5-9.75	40
GEMINI	J-22/J-22L•	4-5.5	20-40
GEMINI II	J-22/J-22L•	4-5.5	20-40
TAURUS	J-22/J-22L•	6-6.5	40

• SPECIFICATIONS FOR J-22 AND J-22L ARE CURRENTLY BEING DEFINED BY RESEARCH IN ORDER TO IDENTIFY THE MATERIAL THAT IS MOST DESIREABLE TO MEET THE RHEOLOGICAL NEEDS OF FLUID SYSTEMS THAT ARE CURRENTLY UNDER INVESTIGATION.

The Western Company—Treatment Report-Supplement

FIELD RECEIPT NO._____

Time AM/PM	Treating Pressure-Psi		Surface Slurry BBLS. Pumped		Slurry Rate BPM	Surface CO_2 BBLS. Pumped		CO_2 Rate BPM	Surface N^2 MSCF Pumped		N^2 Rate SCFM	Comments
	STP	Annulus	Stage	Total		Stage	Total		Stage	Total		
60	18	65	19.5	70	21	0	~~10800~~			6	0-6000	ST Pad
	17.7		18.7		20.1	50	~~1260~~			32	6800	ST 1# 40/70
574	17.2	622	18.7	670	20.1	91	1267			74	9500	1 ST ~~65Q~~
550	16.5	596	17.9	642	19.2	132	1415			111	~~9500~~ 9000	2
					1:20	159	1515			131	9000	65Q
							1414					
528	15.8	572	17.7	616	18.5	225	~~1824~~			191	9000	3
508		550		593								4
489		530		571								5
60	18	65	19.5	70	21	243	1920			212	9000	Flush CMT Sq
	~~0~~		~~0~~		~~0~~	244						shut down
4000	3700											
4000	3800											
4500	3700											

J.K. EDWARDS (WALSH ENG.)

CHACO #2R
NIIP PICTURED CLIFFS FIELD
SEC.07,T26N,R12W
SAN JUAN COUNTY, NM
PICTURED CLIFFS FORMATION

The Western Company

STIMULATION RECOMMENDATION

PREPARED FOR

MR. PAUL THOMPSON
WALSH ENGINEERING

SERVICE POINT
FARMINGTON, NM
(505) 327-6222

PREPARED BY
MIKE MCNEESE
TECH REP II
FARMINGTON

JANUARY 24, 1995

FM050251

SALES REPRESENTATIVE
MIKE MCNEESE
TECH REP II

THE WESTERN COMPANY

OPERATOR: J.K. EDWARDS (WALSH ENG.)
WELL: CHACO #2R
FORMATION: PICTURED CLIFFS

WELL DATA

Net Pay	10 ft
Depth to Middle Perforation	1,137 ft
Tubing	2 7/8", 6.5# 2 7/8" SLIM HOLE
Fracture Gradient	.65 psi/ft
Bottom Hole Frac Pressure	739 psi
Bottom Hole Temperature	90 deg F
Perforated Interval	1132'-1142' (2 JSPF) TOTAL OF 20 HOLES @ 0.50".

THE WESTERN COMPANY

Treatment Requirements for: **CHACO #2R**

FRAC/FLUSH: **28,927 GALLONS 70Q N2 FOAM-20**

Pumped Volumes:
8,677 Gallons 20# J-4

Mixed Volumes:
9,677 Gallons 20# J-4

Containing per 1000 Gallons:

0.38	Pounds	FRAC-CIDE 20, BACTERIACIDE
20.00	Pounds	J-4, GELLING AGENT
3.00	Pounds	P-4, PH CONTROL
1.00	Pounds	B-11, GEL BREAKER
5.00	Gallons	FRAC-FOAM 1, FOAMING AGENT

THE MIXED VOL. CONTAINS 1,000 GAL. FOR TANK BOTTOM.
LOWER PH = 4.0-4.5 WITH P-4 AS NEEDED. MAX STP IS 3,000 PSI.

PROPPANTS:

5,000	Pounds	BRADY 40/70 MESH
25,000	Pounds	ARIZONA 20/40 MESH
5,000	Pounds	BRADY 12/20 MESH

THE WESTERN COMPANY

NITROGEN FOAM PUMPING SCHEDULE

OPERATOR	J.K. EDWARDS (WALSH ENG.)
WELL	CHACO #2R
FIELD	NIIP PICTURED CLIFFS
LOCATION	SEC.07,T26N,R12W
COUNTY, STATE	SAN JUAN, NM
FORMATION	PICTURED CLIFFS
PREPARED BY	MIKE MCNEESE
DATE	JANUARY 24, 1995

WELL AND RESERVOIR PARAMETERS

Depth (mid perforation)	1137 ft
Bottom Hole Frac Pressure	739 psi
Bottom Hole Static Temperature	90 deg F

TREATMENT PARAMETERS

Treating Conductor I.D.	2.441 in
Fluid Specific Gravity	1.000
Gel Temperature in Tanks	60 deg F
Temperature of N2 at surface	100 deg F
Foam Injection Rate	30.0 bpm
Total Slurry Treatment Volume	30514 gal

Foam Quality and Injection Rate are held constant downhole.

CALCULATED TEMPERATURES

	Low	High
Foam at Surface	61 deg F	61 deg F
Foam at Perfs	83 deg F	83 deg F

Average Formation Pumping Temperature 89 deg F

THE WESTERN COMPANY

NITROGEN FOAM PUMPING SCHEDULE

PROCEDURE

STAGE	DOWNHOLE FOAM VOLUME (GALS)	DOWNHOLE FOAM QUALITY	DOWNHOLE FOAM RATE (BPM)	PROPPANT				CLEAN GEL VOLUME (BBLS)	N2 VOLUME (MSCF)
				CONC. LB/GAL	MESH	TYPE	(LBS)		
1	7000	70.0	30.0	0.00			0	50.0	30.86
2	5000	70.0	30.0	1.00	40/70	SAND	5000	35.7	22.04
3	5000	70.0	30.0	1.00	20/40	SAND	5000	35.7	22.04
4	10000	70.0	30.0	2.00	20/40	SAND	20000	71.4	44.09
5	1667	70.0	30.0	3.00	12/20	SAND	5001	11.9	7.35
FLUSH	260	70.0	30.0	0.00	FLUSH		0	1.9	1.15
	28927						35001	206.6	127.54

TREATMENT SCHEDULE

STAGE	PROPPANT CONC. (LB/GAL)		CLEAN GEL RATE (BPM)	BLENDR SLURRY RATE (BPM)	SLURRY VOLUME (WITHOUT N2)			N2 RATE	PROP RATE	STAGE PUMP TIME
	PERF.	BLNDR			(BBLS)	(CUM.)	ON PERFS	SCFM	LB/MIN	HH:MM:SS
1	0.00	00.0	9.00	9.00	50.0	50	2	5555	0	00:05:33
2	1.00	3.33	8.61	9.91	41.1	91	52	5314	1205	00:04:08
3	1.00	3.33	8.61	9.91	41.1	132	93	5314	1205	00:04:08
4	2.00	6.67	8.25	10.75	93.0	225	134	5093	2310	00:08:39
5	3.00	10.00	7.92	11.51	17.3	243	228	4890	3327	00:01:30
FLUSH	0.00	00.0	9.00	9.00	1.9	244	244	5555	0	00:00:12
								TOTAL PUMP TIME:		00:24:13

THE WESTERN COMPANY

FOAM PRESSURE/VOLUME ANALYSIS

OPERATOR	J.K. EDWARDS (WALSH ENG.)
WELL	CHACO #2R
FIELD	NIIP PICTURED CLIFFS
LOCATION	SEC.07,T26N,R12W
COUNTY, STATE	SAN JUAN, NM
FORMATION	PICTURED CLIFFS
PREPARED BY	MIKE MCNEESE
DATE	JANUARY 24, 1995

INPUT PARAMETERS

Treatment via	2 7/8", 6.5 lb pipe	
Number of Perforations	20	
Perforation Diameter	0.500	in
Total Treatment Volume	28667	gals
Flush Volume	276	gals
Bottom Hole Frac Pressure	739	psi
Foam Injection Rate	30.0	bpm
Foam Quality	70.0	percent
Temperature of N2 at Surface	100	deg F
Design Formation Temperature	88	deg F
Specific Gravity of Base Fluid	1.00	
Well Depth	1137	ft
I.D. of Treating Conductor	2.441	in
Friction Pressure	1000	psi/1000 ft

PREDICTED PRESSURES

Fluid Rate	9.0	bpm
Perforation Pressure Drop	31.6	psi
Foam Friction Pressure	1137	psi
Surface Treating Pressure	**1690**	**psi**
ISDP with Nitrogen	712	psi
ISDP with Foam	610	psi
Nitrogen Rate	5649	scfm

VOLUME REQUIREMENTS

	USING NITROGEN AS FLUSH		USING FOAM AS FLUSH	
	NITROGEN SCF	FLUID GALS	NITROGEN SCF	FLUID GALS
TREATMENT	128517	8600	128517	8600
FLUSH	1703	0	1139	83
TOTALS	130220	8600	129657	8683

THE WESTERN COMPANY

COST ESTIMATE

:HACO #2R

QTY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE	GROSS AMOUNT	DISC (%)	NET AMOUNT
9	LBS	B-11, GEL BREAKER	12.75	114.75	35.0	74.59
6	LBS	FRAC-CIDE 20, BACTERIACIDE	37.00	222.00	35.0	144.30
44	GAL	FRAC-FOAM 1, FOAMING AGENT	26.95	1,185.80	35.0	770.77
200	LBS	J-4, GELLING AGENT	4.85	970.00	35.0	630.50
50	LBS	P-4, PH CONTROL	3.05	152.50	35.0	99.13
6	MILES	CHEMICALS DELIVERY, LIGHT VEHICLE, LIGHT	1.80	10.80	35.0	7.02
50	CWT	MOD SGTH 12/20,16/20 P CH (GAS)	1.30	65.00	35.0	42.25
300	CWT	MODERATE SGTH 20/40 PUMP CHG (GAS)	0.42	126.00	35.0	81.90
2999	GAL	PROP CONC PUMP CHG(FOAM)6.1-9 PPG	0.13	389.87	35.0	253.42
500	GAL	PROP CONC PUMP CHG(FOAM)9.1-12 PPG	0.20	100.00	35.0	65.00
50	CWT	BRADY 40/70 MESH	9.98	499.00	35.0	324.35
250	CWT	ARIZONA 20/40 MESH	7.54	1,885.00	35.0	1,225.25
50	CWT	BRADY 12/20 MESH	11.57	578.50	35.0	376.02
350	T-M	DELIVERY CHARGE, 20 MILES	1.00	350.00	35.0	227.50
1	UNIT	MASTER MIXER 0 TO 10 BPM (GAS)	995.00	995.00	35.0	646.75
414	HHP	FRAC PUMP (GAS) (10 BPM, 1690 PSI)	6.05	2,504.70	35.0	1,628.06
6	MILES	LIGHT EQUIPMENT 2 VEH. 3 MILES	1.80	10.80	35.0	7.02
18	MILES	HEAVY EQUIPMENT 6 VEH. 3 MILES	2.95	53.10	35.0	34.52
1	UNIT	BLENDING CHARGE 1 HRS	500.00	500.00	35.0	325.00
1	EACH	DENSIOMETER	575.00	575.00	35.0	373.75
1	USE	LIQUID ADD PUMP	750.00	750.00	35.0	487.50
1	EACH	TREATMENT MONITORING VAN (T.M.V.)	1,965.00	1,965.00	0.0	1,965.00
1	EACH	5,000 PSI FRAC VALVE, PER JOB	655.00	655.00	0.0	655.00
500	C-SCF	NITROGEN	1.89	945.00	35.0	614.25
775	C-SCF	NITROGEN > 50000 SCF	1.84	1,426.74	35.0	927.38
3	MILES	LIGHT EQUIPMENT 1 VEH. 3 MILES	1.80	5.40	35.0	3.51
9	MILES	HEAVY EQUIPMENT 3 VEH. 3 MILES	2.95	26.55	35.0	17.26
2	UNIT	NITROGEN PUMPING 0-4000 SCFM	1,110.00	2,220.00	35.0	1,443.00
1	EACH	N2 TARGET FLOWMETER	290.00	290.00	35.0	188.50
1	EACH	SERVICE CHARGE, VALVE ON N2	390.00	390.00	35.0	253.50
			TOTALS:	$19,961.51		$13,891.98

THE TECHNICAL DATA CONTAINED IN THIS PROPOSAL IS BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF WRITING AND IS SUBJECT TO FURTHER ANALYSIS AND TESTING. THE PRICING DATA CONTAINED IN THIS PROPOSAL ARE ESTIMATES ONLY AND MAY VARY DEPENDING ON THE WORK ACTUALLY PERFORMED. PRICING DOES NOT INCLUDE FEDERAL, STATE AND LOCAL TAXES OR ROYALTIES.
THIS QUOTATION IS BASED ON THE WESTERN COMPANY BEING AWARDED THE WORK ON A FIRST CALL BASIS AND WITHIN THIRTY (30) DAYS OF THE PROPOSAL DATE. THESE PRICES WILL BE SUBJECT TO REVIEW IF THE WORK IS DONE AFTER THIRTY (30) DAYS FROM THE PROPOSAL DATE, OR ON A SECOND OR THIRD CALL BASIS.
CUSTOMER WILL BE CHARGED FOR ALL 'SPECIAL PROPPANTS' DELIVERED TO LOCATION, WHETHER THEY ARE PUMPED OR NOT. ALL PROPPANTS OTHER THAN STANDARD GRADE FRAC SAND ARE CONSIDERED 'SPECIAL PROPPANTS'.

THE WESTERN COMPANY

COST ESTIMATE

CHACO #2R

QTY	UNIT	PRODUCT DESCRIPTION	NET AMOUNT
9	LBS	B-11, GEL BREAKER	74.59
6	LBS	FRAC-CIDE 20, BACTERIACIDE	144.30
44	GAL	FRAC-FOAM 1, FOAMING AGENT	770.77
200	LBS	J-4, GELLING AGENT	630.50
50	LBS	P-4, PH CONTROL	99.13
6	MILES	CHEMICALS DELIVERY, LIGHT VEHICLE, LIGHT V	7.02
50	CWT	MOD SGTH 12/20,16/20 P CH (GAS)	42.25
300	CWT	MODERATE SGTH 20/40 PUMP CHG (GAS)	81.90
2999	GAL	PROP CONC PUMP CHG(FOAM)6.1-9 PPG	253.42
500	GAL	PROP CONC PUMP CHG(FOAM)9.1-12 PPG	65.00
50	CWT	BRADY 40/70 MESH	324.35
250	CWT	ARIZONA 20/40 MESH	1,225.25
50	CWT	BRADY 12/20 MESH	376.02
350	T-M	DELIVERY CHARGE, 20 MILES	227.50
1	UNIT	MASTER MIXER 0 TO 10 BPM (GAS)	646.75
414	HHP	FRAC PUMP (GAS) (10 BPM, 1690 PSI)	1,628.06
6	MILES	LIGHT EQUIPMENT 2 VEH. 3 MILES	7.02
18	MILES	HEAVY EQUIPMENT 6 VEH. 3 MILES	34.52
1	UNIT	BLENDING CHARGE 1 HRS	325.00
1	EACH	DENSIOMETER	373.75
1	USE	LIQUID ADD PUMP	487.50
1	EACH	TREATMENT MONITORING VAN (T.M.V.)	1,965.00
1	EACH	5,000 PSI FRAC VALVE, PER JOB	655.00
500	C-SCF	NITROGEN	614.25
775	C-SCF	NITROGEN > 50000 SCF	927.38
3	MILES	LIGHT EQUIPMENT 1 VEH. 3 MILES	3.51
9	MILES	HEAVY EQUIPMENT 3 VEH. 3 MILES	17.26
2	UNIT	NITROGEN PUMPING 0-4000 SCFM	1,443.00
1	EACH	N2 TARGET FLOWMETER	188.50
1	EACH	SERVICE CHARGE, VALVE ON N2	253.50
		TOTALS:	$13,891.98

THE TECHNICAL DATA CONTAINED IN THIS PROPOSAL IS BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF WRITING AND IS SUBJECT TO FURTHER ANALYSIS AND TESTING. THE PRICING DATA CONTAINED IN THIS PROPOSAL ARE ESTIMATES ONLY AND MAY VARY DEPENDING ON THE WORK ACTUALLY PERFORMED. PRICING DOES NOT INCLUDE FEDERAL, STATE AND LOCAL TAXES OR ROYALTIES.
THIS QUOTATION IS BASED ON THE WESTERN COMPANY BEING AWARDED THE WORK ON A FIRST CALL BASIS AND WITHIN THIRTY (30) DAYS OF THE PROPOSAL DATE. THESE PRICES WILL BE SUBJECT TO REVIEW IF THE WORK IS DONE AFTER THIRTY (30) DAYS FROM THE PROPOSAL DATE, OR ON A SECOND OR THIRD CALL BASIS.
CUSTOMER WILL BE CHARGED FOR ALL 'SPECIAL PROPPANTS' DELIVERED TO LOCATION, WHETHER THEY ARE PUMPED OR NOT. ALL PROPPANTS OTHER THAN STANDARD GRADE FRAC SAND ARE CONSIDERED 'SPECIAL PROPPANTS'.

PRODUCT DESCRIPTIONS

B-11 (Gel Breaker)

A solid enzyme breaker designed for use in neutral or slightly acidic pH fracturing fluids to sufficiently reduce the gel viscosity allowing for clean-up of the treatment system. B-11 is used primarily at low temperatures below 120 Degrees Fahrenheit.

FRAC-CIDE 20 (Bacteriacide)

An extremely effective biocide for the inhibitory control of aerobic and anaerobic (sulfate-reducing) bacteria in well treatment fluids. It is packaged as a dry powder for safety and easy of handling in all weather conditions.

FRAC FOAM-1 (Foaming Agent)

An amphoteric (cationic and anionic) surfactant used as a foaming agent for water and acid-base fracturing fluids.

J-4 (Gelling Agent)

A guar gum gelling agent blended with a buffering system. It is used in gelled water, gelled acid and crosslinked water-base fluids. The polymer residue is 6% to 9% by weight.

P-4 (pH Control)

A granular sulfamic acid used to lower the pH of various water-base fracturing fluids.

THE WESTERN COMPANY

FIELD RECEIPT WORKSHEET

CHACO #2R

PRODUCT CODE	QUANTITY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE
H0936	9	LBS	B-11, GEL BREAKER	12.75
H0356	6	LBS	FRAC-CIDE 20, BACTERIACIDE	37.00
H2186	44	GAL	FRAC-FOAM 1, FOAMING AGENT	26.95
H0846	200	LBS	J-4, GELLING AGENT	4.85
H1096	50	LBS	P-4, PH CONTROL	3.05
J7416	6	MILES	CHEMICALS DELIVERY, LIGHT VEHICLE, LIGHT	1.80
E118BB	50	CWT	MOD SGTH 12/20,16/20 P CH (GAS)	1.30
E118AB	300	CWT	MODERATE SGTH 20/40 PUMP CHG (GAS)	0.42
J4626B	2999	GAL	PROP CONC PUMP CHG(FOAM)6.1-9 PPG	0.13
J4636B	500	GAL	PROP CONC PUMP CHG(FOAM)9.1-12 PPG	0.20
NOTPR	50	CWT	BRADY 40/70 MESH	9.98
NOTPR	250	CWT	ARIZONA 20/40 MESH	7.54
NOTPR	50	CWT	BRADY 12/20 MESH	11.57
J4016	350	T-M	DELIVERY CHARGE, 20 MILES	1.00
F3016B	1	UNIT	MASTER MIXER 0 TO 10 BPM (GAS)	995.00
F2016B	414	HHP	FRAC PUMP (GAS) (10 BPM, 1690 PSI)	6.05
J3916	6	MILES	LIGHT EQUIPMENT 2 VEH. 3 MILES	1.80
J3906	18	MILES	HEAVY EQUIPMENT 6 VEH. 3 MILES	2.95
J2186	1	UNIT	BLENDING CHARGE 1 HRS	500.00
J3216	1	EACH	DENSIOMETER	575.00
J0556	1	USE	LIQUID ADD PUMP	750.00
J3006	1	EACH	TREATMENT MONITORING VAN (T.M.V.)	1965.00
NOTPR	1	EACH	5,000 PSI FRAC VALVE, PER JOB	655.00
N023E	500	C-SCF	NITROGEN	1.89
N003E	775	C-SCF	NITROGEN > 50000 SCF	1.84
J3916	3	MILES	LIGHT EQUIPMENT 1 VEH. 3 MILES	1.80
J3906	9	MILES	HEAVY EQUIPMENT 3 VEH. 3 MILES	2.95
N2006	2	UNIT	NITROGEN PUMPING 0-4000 SCFM	1110.00
N1686	1	EACH	N2 TARGET FLOWMETER	290.00
H4456	1	EACH	SERVICE CHARGE, VALVE ON N2	390.00

Walsh Engineering and Production

Completion Prognosis for
J. K. Edwards
Chaco #2R

Location: SW/4 Sec 7 T26N R12W
San Juan County, NM

Date: January 22, 1995

Field: NIIP Pictured Cliffs
Minerals: BLM NM-22046

Elev: GL 5954
PBTD 1213'GL
Perfs 1132-1142

Procedure:

1. MOL and RU completion rig. Hold safety meeting.

2. Blow well down and kill with water if necessary.

3. ND tubing head and NU BOP. NU 2-3/8" relief line.

4. Pick up extra joints of 1-1/4" tubing and TIH and check for fill. TOH and lay down 1-1/4" tubing. Tally tubing. Clean out well with sand bailer if necessary.

5. Install 5000# frac valve on 2-7/8" tubing. Rig up frac equipment and pressure test surface lines.

6. Fracture with 5,000# of 40/70 sand, 25,000# of 20/40 sand, and 5000# of 12/20 sand in a 70 % quality N2 foam. Fluid is 20# guar gel. Pump rate at 30 BPM and expected treating pressure is 1750 psig. Max treating pressure is 3000 psig. Treat with the following schedule:

Stage	Foam Vol. (Gals.)	Gel Vol. (Gals.)	Sand Vol. (lbs.)
Pad	7,000	2,100	0
1.0 ppg 40/70	5,000	1,500	5,000
1.0 ppg 20/40	5,000	1,500	5,000
2.0 ppg 20/40	10,000	3,000	20,000
3.0 ppg 12/20	1,666	500	5,000
Flush	260	80	0
Total	28,926	8,680	35,000

9. Close frac valve. RD frac company and install flowline with 1/4" ceramic choke. Flow well back to pit overnight.

10. When well dies, remove frac valve and install tubing head. NU BOPs.

11. TIH with sand bailer on 1-1/2" tubing and clean out to PBTD at 1213'GL. TOH.

12. Set 1-1/2" near top PC perf at approximately 1132'GL. ND BOPs and nipple up wellhead.

13. Rig down and release rig. Set separator and return well to production.

Paul C. Thompson

Paul C. Thompson, P.E.

CHEMICAL MATERIALS ISSUED/RETURNED

DISTRICT Farmington DISPATCH SHEET NO. 15634 WELL NAME Ohio Fed

CUSTOMER J K Williams DATE OF JOB

ACCOUNT [ ][ ][ ][ ][ ][24] FIELD RECEIPT NO. [illegible] FIELD RECEIPT DATE [illegible]

PRODUCT DESCRIPTION	WIN	UOM	QUANTITY		QUANTITY RETURNED	NET USAGE	VERIFIED TO FIELD RECEIPT
			ORDERED	LOADED/ BLENDED			
Nitrogen	K0325	SCF	12754	607600	395.6	212000	2120
						8/4/29	

ISSUED BY [signature] DATE _____ RECEIVED BY [signature] DATE 1/3/95

APPROVAL [signature] OPERATIONS SUPERVISOR

WCNA-1460 (11/89)

VOLUME CALCULATIONS
(SHOW ALL JOB CALCULATIONS BELOW)

A Supervisor must either prepare or verify this form

W. Hogan -

127.54 SCF.

PREPARED BY

TITLE

VERIFIED BY

TITLE

The Western Company

STIMULATION DISPATCH SHEET

District Farmington		Dist. No.	Job No. 150[illegible]5		Same As Job No.
Field Receipt	1.	2.	3.	4.	5.	6.
Order Taken By W. Knight			Time 0700	Date 1-28-95	Operator P.O. No.
Order Placed By P. Thompson			Phone 320-3194		Credit Number
Company J.K. Edwards			Lease Name & No. Cuneo #2R		

Job Instructions

N2 FRAC.

Fluid Type:

01	Oil-Water Emul.	08	Gelled Oil	15	Clay Stab.
02	Oil-Acid Emul.	09	Other Oil	16	Flow Control
03	Acid 0 - 10%	10	X-Linked Water	17	Super Frac
04	Acid 10.1 - 20%	11	Gelled Water	18	Misc.
05	Acid 20.1% & up	12	Other Water		
06	Gelled Acid	13	Foam		
07	Other Acid	14	Scale Treat.		

Gas: 1 CO_2 2 N_2 3 OTH 4 None

Proppent: 1 Sand 2 Beads 3 Other 4 None

Press (PSI): 1 0 - 3000 2 3001 - 5000 3 5001 - 8000 4 8001 - 10000 5 10001 - 15000 6 15001 & up

Vol (Gal): 1 0 - 1500 2 1501 - 5000 3 5001 - 20000 4 20001 - 60000 5 60001 - 100000 6 100001 & up

Well: 1 New 2 Rework 3 New Zone 4 Other

Date & Time Wanted 1-31-95 now.	Total Depth 1137'	Type & Amount Material Needed 1 Nitrogen 127.54
Casing Size & Wgt.	Oper. Max Press 3,000	2
Tubing Size & Wgt. 2 7/8 - 6.5#	Hole Size	3
Flush In LOC.		4
Top Connection 2 7/8 - WSI.		5

Directions to Well: Turn Left At NAPI Head Quarters, to H-WAY, At end of pavement go 1.4 mi., T/R go to Crows foot About 50 Feet. After R/T take middle to LOC.

Miscellaneous Information:

NAME	Yard Time	Unit 1	Unit 2	Service Engineer	Empl. No.	Unit	Act. Hrs.
D. Grigg	now	3310	✓	J. Savage.		0641	
P. Tolly		3318	✓				
R. Wilson		3304	✓				

Rented Services

Total Off-road Mileage

BORROWED EQUIPMENT

Loaning District	Rendezvous Place	Rendezvous Time	Equip. Type

Left Last Job/Yard Date Time

Arrived Job Date Time

Start Service Date Time

Stop Service Date Time

Arrived Next Job/Yard Date Time

Speedometer Reading End Start

FORM WCNA - 1189 (12-90 15M)

HOUSTON COPY

CHACO #2R, 07/05/95, L311893

THE WESTERN COMPANY

POSTFRAC
TREATMENT SUMMARY

J.K. EDWARDS (WALSH ENG.)
CHACO #2R
SEC.07,T26N,R12W
SAN JUAN COUNTY, NM
PICTURED CLIFFS FORMATION

JANUARY 31, 1995
FARMINGTON, NM
(505) 327-6222

DATE: January 31, 1995

J.K. Edwards (Walsh Eng.)
1331 17th St.
Denver, Colo. 80202

Re: Treatment Summary
Chaco #2R
Sec.07,T26N,R12W
San Juan County, NM
Pictured Cliffs Formation

This Treatment Summary contains information that was gathered through The Western Company's real time data acquisition system. The stimulation treatment on the above referenced well was performed by our Farmington District.

The information presented consists of the well data, proposed vs actual treatment, treatment graphs, and treatment data.

Thank you for giving us the opportunity to evaluate this treatment. If you have any questions or comments, please call me at (505) 327-6222.

Sincerely,

Loren Diede /mp

Loren L. Diede
District Engineer

TABLE OF CONTENTS

SECTION 1

WELL DATA

WELL DATA
**** ****

Operator:	J.K. Edwards (Walsh Eng.)
Well:	Chaco #2R
Formation:	Pictured Cliffs
Location:	Sec.07,T26N,R12W
Perforated Interval:	1,132'- 1,142'
Depth to Middle Perforation:	1,137'
Number of Perforations:	20
Perforation Size:	.50"
Tubing/Casing:	2 7/8" 6.5#
Frac Gradient:	0.65 PSI/FT
Bottom Hole Fracture Pressure:	739 PSI
Bottom Hole Temperature:	90 DEG. F.
Net Fracture Height:	10' (Estimated)

SECTION 2

PROPOSED VS ACTUAL TREATMENT

PROPOSED TREATMENT
******** *********

TREATING CONDUCTOR: 2 7/8" 6.5# TUBING

INJECTION RATE: 30 BPM

EXPECTED SURFACE TREATING PRESSURE: 1,690 PSI (Average on pad)

FLUID VOLUMES:
***** *******

TREATING FLUID VOLUME: 28,667 GALLONS 70Q FOAM

FLUSH FLUID VOLUME: 260 GALLONS 70Q FOAM

PROPPANT:
****

5,000 POUNDS 40/70 MESH BRADY

25,000 POUNDS 20/40 MESH ARIZONA

5,000 POUNDS 12/20 MESH BRADY

ADDITIVES PER 1000 GALLONS:
********* *** **** *******

TREATING\FLUSH FLUID:

0.38	LB	FRAC-CIDE 20	BACTERIACIDE
5.00	GL	FRAC-FOAM 1	FOAMING AGENT
20.00	LB	J-4	GELLING AGENT
3.00	LB	P-4	PH CONTROL
1.00	LB	B-11	GEL BREAKER

PROPOSED TREATMENT SCHEDULE
******** ********* ********

No. **	Volume ******	Fluid *****	Proppant ********
1	7,000	70Q FOAM	0.00 ppg. PAD
2	5,000	70Q FOAM	1.00 ppg. 40/70
3	5,000	70Q FOAM	1.00 ppg. 20/40
4	10,000	70Q FOAM	2.00 ppg. 20/40
5	1,667	70Q FOAM	3.00 ppg. 12/20
6	260	70Q FOAM	0.00 ppg. FLUSH

ACTUAL TREATMENT
****** *********

TREATING CONDUCTOR: 2 7/8" 6.5# TUBING

INJECTION RATE: 30 BPM

SURFACE TREATING PRESSURE: 1,800 psi (Average)

FLUID VOLUMES:
***** *******

TREATING FLUID VOLUME: 29,337 GALLONS 70Q FOAM

FLUSH FLUID VOLUME: 252 GALLONS 20# J-4

PROPPANT:
****

5,800 POUNDS 40/70 MESH BRADY

27,100 POUNDS 20/40 MESH ARIZONA

6,000 POUNDS 12/20 MESH BRADY

ADDITIVES PER 1000 GALLONS:
********* *** **** *******

TREATING FLUID:

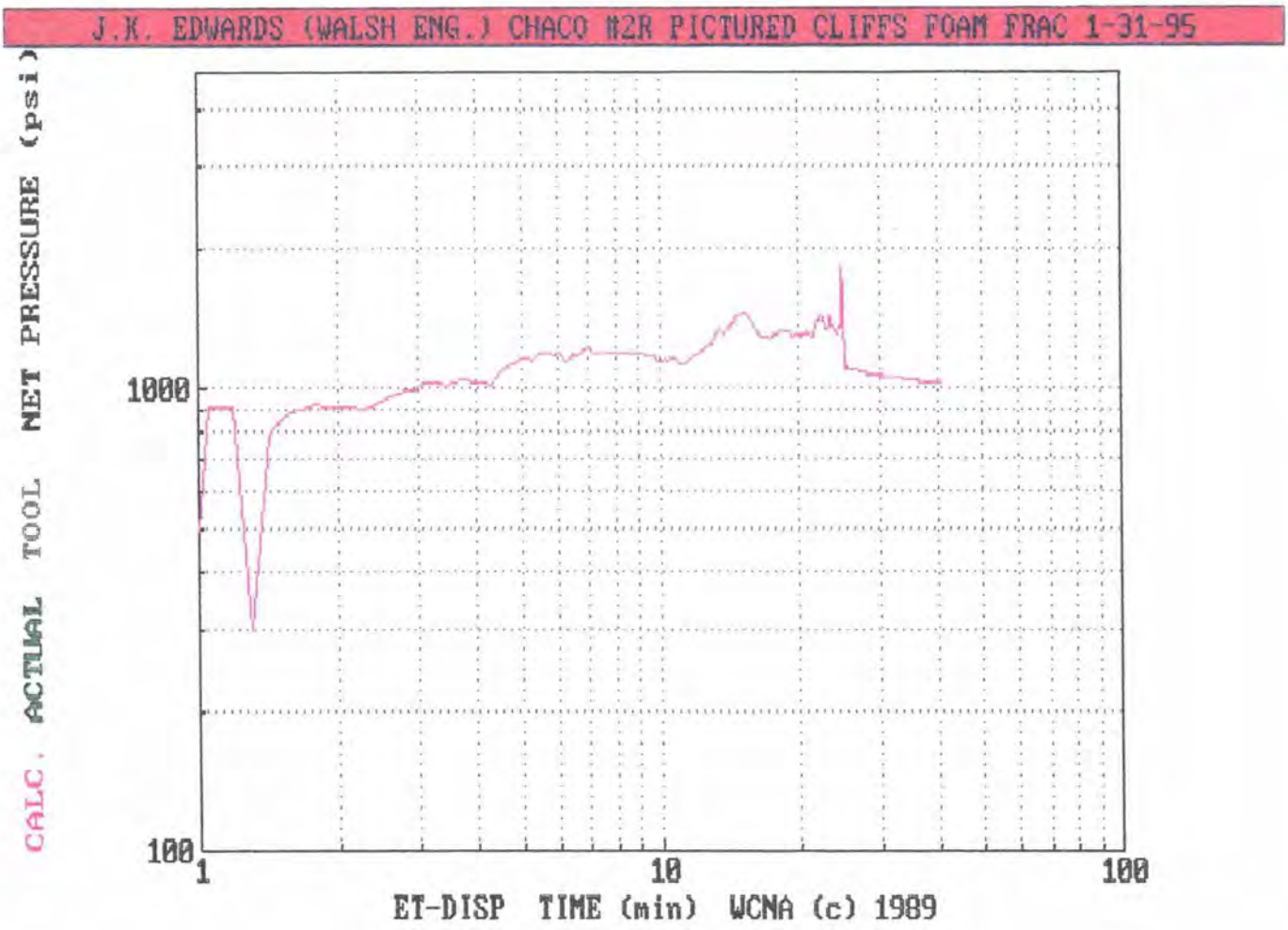
0.38	LB	FRAC-CIDE 20	BACTERIACIDE
5.00	GL	FRAC-FOAM 1	FOAMING AGENT
20.00	LB	J-4	GELLING AGENT
3.00	LB	P-4	PH CONTROL
1.00	LB	B-11	GEL BREAKER

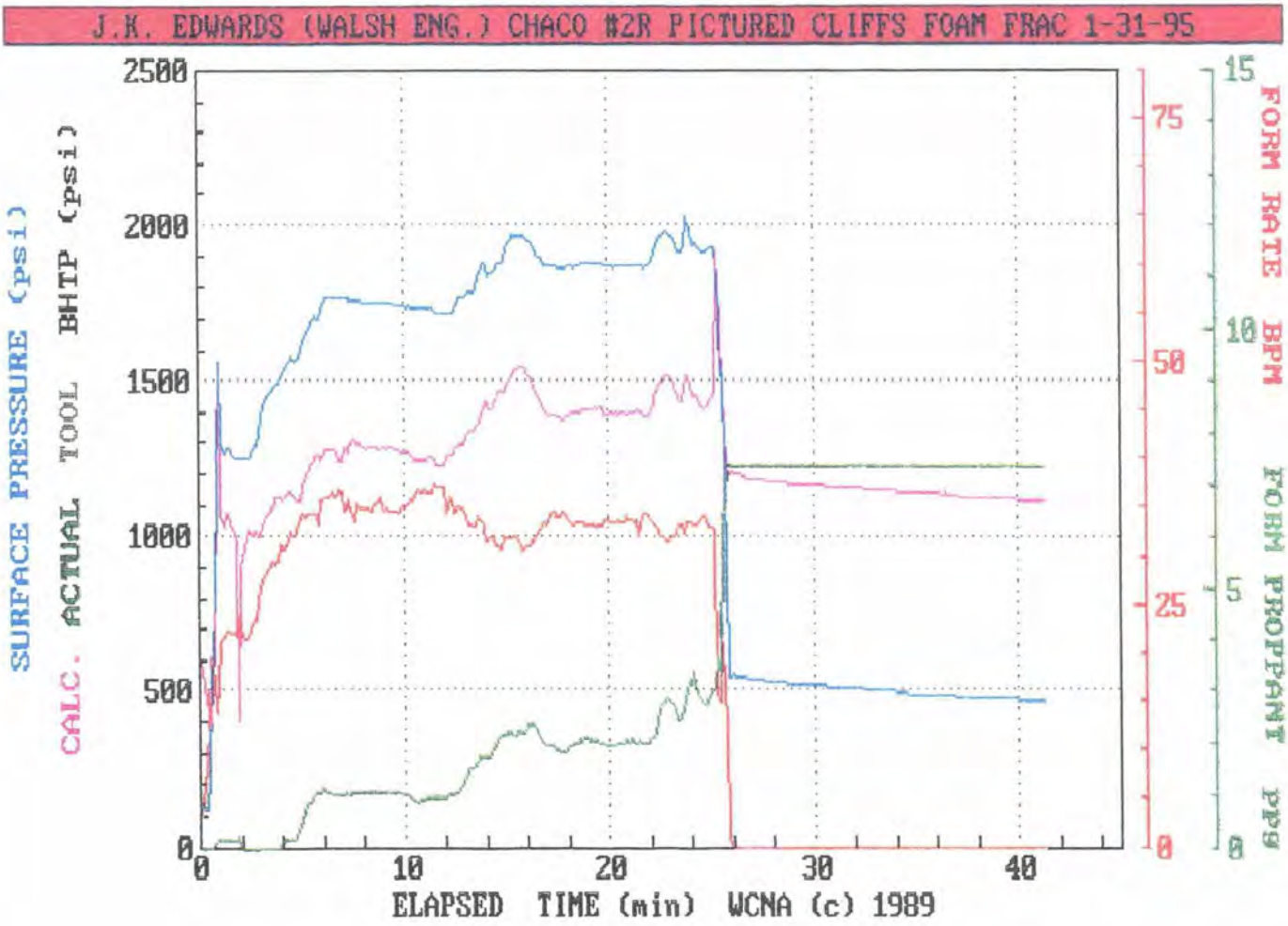
ACTUAL TREATMENT SCHEDULE
****** ********* ********

No. **	Volume ******	Fluid *****	Proppant ********
1	7,000	70Q FOAM	0.00 ppg. PAD
2	5,589	70Q FOAM	1.00 ppg. 40/70
3	5,000	70Q FOAM	1.00 ppg. 20/40
4	9,669	65Q FOAM	2.00 ppg. 20/40
5	2,079	65Q FOAM	3.00 ppg. 12/20
6	252	20# GEL	0.00 ppg. FLUSH

SECTION 3

TREATMENT GRAPHS


J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95
CALC. ACTUAL TOOL NET PRESSURE (psi)
1000
100
1
10
100
ET-DISP TIME (min) WCNA (c) 1989


J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95
SURFACE PRESSURE (psi)
CALC. ACTUAL TOOL BHTP (psi)
FORM RATE BPM
FOAM PROPANT PPG
2500
2000
1500
1000
500
0
75
50
25
0
15
10
5
0
0
10
20
30
40
ELAPSED TIME (min) WCNA (c) 1989

SECTION 4

TREATMENT DATA

The Western Company — Treatment Report

Date January 31, 1995 | District Farmington | F.Receipt L309667 | Operator J. K. Edwards
Lease Chaco | Well No. 2R | Field Pictured Cliff | Location SEC.07,T26N,R12W
County San Juan | State NM | Stage Number 1 | This Zone ☒ | This Well ☒

WELL DATA

OG ☐ NG ☒ NO ☐ OO ☐ WD ☐ IW ☐ Misc. ☐ Depth TD/PB 1,213' Formation Pictured Cliffs
Tubing Size 2 7/8" Wt. 6.5 Set at: 1,213' Type Packer N/A Set at
Casing Size N/A Wt. Set From To Liner Size N/A Wt.
Liner Set From To Open Hole: Size N/A From To
Casing Perforation: Size .50 Holes Per Foot 2 Intervals 1,132'-1,142' 20 Holes
Previous Treatment N/A Prior Production N/A

TREATMENT DATA

Pad Used: Yes ☒ No ☐ Pad Type 20# J-4 70Q FOAM
Treat. Fluid Type: Foam ☒ Water ☐ Acid ☐ Oil ☐ Vol. 9,240 Gal.
Base Fluid type 20# J-4 Base Fluid Vol. 9,660 Gal.
Foam Qual. 70 % Mitchell ☐ Slurry ☐ Surface ☐ Downhole ☒ Total Prop Qty. 38,900 Lbs.
Prop Type: Sand ☒ WP-1 ☐ WP-3 ☐ Baux. ☐ Other 12/20 BR 6,000
Prop Mesh Sizes, Types and Quantities 40/70 BR 5800/20/40 AZ 27100
Hole Loaded With KCL Treat Via: Tubing ☐ Casing ☒ Anul. ☐ Tubing & Anul. ☐
Ball Sealers: N/A In Stages of
Types and Number of Pumps Used 2 1000's/3 N2 Pumps
Auxiliary Materials 300# J-4/ 45 G. FRAC FOAM I/50# P-4/ 8# B-11/ 6# FRACCIDE 20.

PROCEDURE SUMMARY

7,000 G. PAD/ 5,589 G. 1# 40/70 /5,000 G. 1# 20/40 / 9,669 G. 2#
2,079 G. 3# 12/20 /252 G. FLUSH

LIQUID/GAS PUMPED AND CAPACITIES IN BBLS.

Tubing Cap.	6.5
Casing Cap.	N/A
Annular Cap.	N/A
Open Hole Cap.	N/A
Fluid to Load	3
Pad Volume	50
Treating Fluid	220
Flush	6
Over Flush	N/A
Fluid to Recover	230
Total N2	212,000 SCF
Total CO2	N/A

Time AM/PM	Treating Press.-Psi		Surface Slurry bbls Pumped		Slurry Rate BPM	Surface CO2 bbls Pumped		CO2 Rate BPM	Surface N2 MSCF Pumped		N2 Rate SCFM	Comments Safety Meeting/Test Lines
	STP	Annulus	Stage	Total		Stage	Total		Stage	Total		
PM 1:00	4200											PRESSURE TEST
1:05	1530		0	0	9.1				32	0	6K	START PAD
1:11	1710		50	50	10.3				42	32	8.8K	START 1# 40/70 70Q
1:15	1730		46	50	10.1				37	74	9.5K	START 1# 20/40 70Q
1:19	1840		41	96	11.8				80	111	9.5k	START 2# 20/40 65Q
1:28	1920		105	137	12.8				21	191	9K	START 3# 12/20 65Q
1:31	1950		28	242	21				0	212	9K	START FLUSH
1:31	550		6	270								SHUTDOWN

Treating Pressure: Min 1100 Max. 2200 Avg. 1800 Customer Representative Paul Thompson
Inj. Rate on Treating Fluid 31 Rate on Flush 21 Western Representative T.M. Crabb/J.B.Savage
Avg. Inj. Rate 26 I.S.D.P. 500 Flush Dens. lbs/gal 8.43 Distribution NORMAL
Final Shut-in Pressure 470 In 15 Minutes
Operator's Maximum Pressure (psi) 3000
Recommendation ID# FM050251

Job Number 150825

The Western Company

Additive Schedule

Customer: JK EDWARDS
Well Information: CHACO #2R

Date: 1-31-95
JKEDWARD

PPG	VOLUME
0.00	2100
1.00	1500
1.00	1500
2.00	3000
3.00	500

FRAC FOAMER		
CONC	STAGE	ACTUAL
5.00	10.5	10.0
5.00	7.5	8.0
5.00	7.5	8.0
5.00	15.0	15.0
5.00	2.5	3.0

BREAKER B-11		
CONC	STAGE	ACTUAL
1.00	2.1	2.0
1.00	1.5	2.0
1.00	1.5	2.0
1.00	3.0	3.0
1.00	0.5	1.0

CONC	STAGE	ACTUAL

CONC	STAGE	ACTUAL

THE WESTERN COMPANY
BATCH MIXED FRAC FLUID BLENDING SCHEDULE
(Attachment to Treatment Report)

DATE: 1-31-95	CUSTOMER: JK EDWARDS
FIELD RECEIPT NO.:	WELL INFORMATION: CHACO #2R

Tank/Transport Identification		No. 1		No.		No.		No.		No.		No.	
Initial/Final Gauge		14,500 l											
Product System Trade Name		20# J-4											
Product Trade Name & Batch/Lot No. (taken directly from the drum/bag label)		Amount to be Mixed	Mixed & Initialed By	Amount to be Mixed	Mixed & Initialed By	Amount to be Mixed	Mixed & Initialed By	Amount to be Mixed	Mixed & Initialed By	Amount to be Mixed	Mixed & Initialed By	Amount to be Mixed	Mixed & Initialed By
1) Water, gal	Batch No.	14,500											
2) 20 lb/gal J-4 GUAR GEL		300	JP										
3) .38 lb/gal FRAC-CIDE 20		6	JP										
4) 3 lb/gal P-4 BUFFER		50	JP										
5) lb/gal													
6) lb/gal													
7) lb/gal													
8) lb/gal													

THE WESTERN COMPANY
QUALITY ASSURANCE OF PROPPANT/GRAVEL
(Attachment to Treatment Report)

DATE: 1-31-95	CUSTOMER: JK EDWARDS
FIELD RECEIPT NO.:	COMPARTMENT:
WELL INFORMATION: CHACO #2R	DISTRICT PROPPANT SILO: FARMNGTON

PRODUCT DESCRIPTION: **PROPPANT**

Truck Number					
Trucking Company		WCNA			
Weight Slip Available? Attach all.		Yes			
Net Weight Delivered		5000			
Nominal Size from list below		40/70 BRADY			
Is the content of the Truck proper?	Color right	Yes			
	Low dust	Yes			
	Appearance right	Yes			
	No contamination	Yes			
Is the Manufacturer's Sieve Analysis proper? Attach all.	Oversize < 0.1%				
	Fines < 1.0% (2.0%+)				
	In Size > 90% (96%+)				
Sample Taken?		Yes			
Is the truck content acceptable?		Yes			

Total Weight, each size: Size Weight lb Size Weight lb

Is total weight for each size appropriate for job requirements?
Are the above answers appropriate and sufficient as compared to job requirements?
If not apporopriate, correct problem before sieve analysis. If appropriate but insufficient, do sieve analysis.

SIEVE ANALYSIS		<--- combine samples --->			<--- combine samples --->		
	Initial sample weight	21.65 gram Amount Retained			gram Amount Retained		
	Sieve Mesh 40/70	gram	%		gram	%	
	30	0	0	Oversize			Oversize
	40	.35	1.08				
	50	15.89	49.0	Total In size%			Total In size%
	60	4.18	12.9	64.9			
	70	.98	3.02				
	100	.25	.771				
	Pan	0	0	Fines			Fines
	Total Weight, grams	21.65					
Cleanliness of	Turbidity	Pass			N/A		
Proppant/Gravel	pH	Pass			N/A		

THE WESTERN COMPANY
QUALITY ASSURANCE OF PROPPANT/GRAVEL
(Attachment to Treatment Report)

DATE: 1-31-95	CUSTOMER: JK EDWARDS
FIELD RECEIPT NO.:	COMPARTMENT:
WELL INFORMATION: CHACO #2R	DISTRICT PROPPANT SILO: FARMINGTON

PRODUCT DESCRIPTION: **PROPPANT**

Truck Number					
Trucking Company		WCNA			
Weight Slip Available? Attach all.		Yes			
Net Weight Delivered		25000			
Nominal Size from list below		20/40 ARIZON			
Is the content of the Truck proper?	Color right	Yes			
	Low dust	Yes			
	Appearance right	Yes			
	No contamination	Yes			
Is the Manufacturer's Sieve Analysis proper? Attach all.	Oversize < 0.1%				
	Fines < 1.0% (2.0%+)				
	In Size > 90% (96%+)				
Sample Taken?		Yes			
Is the truck content acceptable?		Yes			

Total Weight, each size: Size Weight lb Size Weight lb

Is total weight for each size appropriate for job requirements?
Are the above answers appropriate and sufficient as compared to job requirements?
If not apporopriate, correct problem before sieve analysis. If appropriate but insufficient, do sieve analysis.

SIEVE ANALYSIS		<--- combine samples --->			<--- combine samples --->		
	Initial sample weight	23.37 gram Amount Retained			gram Amount Retained		
	Sieve Mesh 20/40	gram	%		gram	%	
	16	0	0	Oversize			Oversize
	20	2.26	9.94				
	30	17.33	76.2	Total In size%			Total In size%
	35	3.05	13.4	92.6			
	40	.67	2.94				
	50	.06	.263				
	Pan	0	0	Fines			Fines
	Total Weight, grams	23.37					
Cleanliness of Proppant/Gravel	Turbidity	Pass					
	pH	Pass					

THE WESTERN COMPANY
QUALITY ASSURANCE OF PROPPANT/GRAVEL
(Attachment to Treatment Report)

DATE: 1-31-95	CUSTOMER: JK EDWARDS
FIELD RECEIPT NO.:	COMPARTMENT:
WELL INFORMATION: CHACO #2R	DISTRICT PROPPANT SILO: FARMINGTON

PRODUCT DESCRIPTION: **PROPPANT**

Truck Number						
Trucking Company		WCNA				
Weight Slip Available? Attach all.		Yes				
Net Weight Delivered		5000				
Nominal Size from list below		12/20 BRADY				
Is the content of the Truck proper?	Color right	Yes				
	Low dust	Yes				
	Appearance right	Yes				
	No contamination	Yes				
Is the Manufacturer's Sieve Analysis proper? Attach all.	Oversize < 0.1%					
	Fines < 1.0% (2.0%+)					
	In Size > 90% (96%+)					
Sample Taken?		Yes				
Is the truck content acceptable?		Yes				

Total Weight, each size: Size Weight lb Size Weight lb

Is total weight for each size appropriate for job requirements?
Are the above answers appropriate and sufficient as compared to job requirements?
If not apporopriate, correct problem before sieve analysis. If appropriate but insufficient, do sieve analysis.

SIEVE ANALYSIS		<--- combine samples --->			<--- combine samples --->		
	Initial sample weight	36.33 gram Amount Retained			gram Amount Retained		
	Sieve Mesh 12/20	gram	%		gram	%	
	8	0	0	Oversize			Oversize
	12	1.16	2.18				
	16	21.06	39.6	Total In size%			Total In size%
	18	10.67	20.0	64.8			
	20	2.76	5.19				
	30	.68	1.27				
	Pan	0	0	Fines			Fines
	Total Weight, grams	36.33					
Cleanliness of Proppant/Gravel	Turbidity	Pass					
	pH	Pass					

WATER BASED FRAC FLUID QUALITY CONTROL

(Attachment to Treatment Report)

DATE: 1-31-95	OPERATOR: JK EDWARDS
FIELD RECEIPT NO.:	WELL INFORMATION: CHACO #2R

I. Tank/Transport No.	1						
A. Tank/Transport Condition	FAIR						
B. Sampling Location	VALVE						
II. Water Quality	Answer all water source questions elsewhere on this form.				Date water sampled? 1-31-95		Tanks filled?
A. Clarity, Color, Odor	CLEAR						
B. Sample Temperature, °F(°C)	48						
C. Specific Gravity	1.00						
D. Intital p.H.	7						
E. Iron II/Iron III, ppm	0 /O	/	/	/	/	/	
F. Reducing Agent	No						
G. Phosphate, ppm	NA						
H. Bacteria	Attach appropriate forms from Field Procedures manual. Date biocide added: 1-31-95						Before water?
1) Aerobic ±/time	/	/	/	/	/	/	
2) Anaerobic ±/time	/	/	/	/	/	/	
III. Base Gel Quality (Field Blend)	Use additional copies of this form for each series of tests @ 24 hr. intervals and prior to pumping.						
A. Name of Product System Mixed	20# J-4						
B. Fish Eyes:	Visually inspect the fluid in each tank via the top hatch.						
1) Thickness of Layer	NONE						
2) Partical Size	NONE						
C. Sampling Location/Time	BLENDER	/	/	/	/	/	
D. Sample Temperature, °F(°C)	48						
E. pH	5						
F. Viscosity	10						
1) Funnel Time, sec/700cc							
2) Fann Reading @ 300 rpm							R/B=
600 rpm							spring factor=
G. Calculate, lb polymer/100							
H. Complex Time, sec.							
I. Appearance of Sample							
IV. Frac Fluid Quality	These measurements are made as the job is pumped.						
A. Pad, 2 lb, Flush, etc.							
B. Time Pumped							
C. Sample Temperature, °F(°C)							
D. XL time @ Blender, sec.							
E. Appearance of Sample							

Source of Water: City

Geographic Location of Water Source:

TESTED BY: JEFF PATTON

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95

ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
0.1	219	713	613	0.1	0.1	0.0	5	0	0.0/ 0.0
0.2	220	708	608	0.1	1.2	0.0	5	0	0.0/ 0.0
0.3	218	713	613	0.1	0.2	0.0	5	0	0.0/ 0.0
0.5	218	713	613	0.1	0.0	0.0	5	0	0.0/ 0.0
0.6	215	710	610	0.1	0.0	0.0	5	0	0.0/ 0.0
0.7	211	706	606	0.1	0.0	0.0	5	0	0.0/ 0.0
0.8	211	706	606	0.1	0.0	0.0	5	0	0.0/ 0.0
0.9	213	708	608	0.1	0.0	0.0	5	0	0.0/ 0.0
1.0	214	709	609	0.1	0.0	0.0	5	0	0.0/ 0.0
1.1	211	706	606	0.1	0.0	0.0	5	0	0.0/ 0.0
1.3	216	711	611	0.1	0.0	0.0	5	0	0.0/ 0.0
1.4	214	709	609	0.1	0.0	0.0	5	0	0.0/ 0.0

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ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
0.1	130	592	492	0.1	3.3	0.0	1	0	0.0/ 0.0
0.2	123	566	466	0.1	4.5	0.0	1	0	0.0/ 0.0
0.4	114	467	367	0.1	8.1	0.0	2	0	0.0/ 0.0
0.5	238	420	320	0.1	12.7	0.0	3	0	0.0/ 0.0
0.6	513	400	300	0.1	19.5	0.0	4	0	0.0/ 0.0
0.7	759	631	531	0.1	16.8	0.1	5	0	13.5/13.9
0.8	1268	1255	1155	0.1	13.6	0.1	6	0	41.4/41.7
0.9	1562	1481	1381	0.1	16.6	0.1	6	0	59.8/60.0
1.1	1293	1069	969	0.1	21.1	0.1	7	0	62.1/62.3
1.2	1266	1026	926	0.1	21.7	0.1	8	0	68.4/68.5
1.3	1287	1069	969	0.1	22.2	0.1	9	0	64.6/64.8
1.4	1286	1068	968	0.1	22.1	0.1	10	100	58.1/58.3
1.6	1269	1037	937	0.1	22.0	0.1	12	100	56.5/56.8
1.7	1252	1004	904	-0.5	21.9	0.1	13	100	56.7/57.0
1.8	1250	1003	903	-0.0	21.7	0.2	14	100	56.7/57.1
1.9	1250	400	300	-17.7	23.7	0.0	15	100	99.9/99.9
2.0	1250	898	798	15.7	22.1	0.0	16	100	99.9/99.9
2.2	1250	967	867	1.5	21.4	0.0	17	100	99.9/99.9
2.3	1251	1000	900	0.7	21.4	0.0	18	100	56.0/56.0
2.4	1252	1017	917	0.4	21.6	0.0	20	100	55.6/55.6
2.5	1265	1008	908	-0.2	22.3	0.0	21	100	55.8/55.8
2.6	1284	1003	903	-0.1	23.0	0.0	22	100	55.5/55.5
2.7	1296	1009	909	0.1	23.3	0.0	23	100	56.9/56.9
2.9	1342	994	894	-0.4	25.2	0.0	24	100	58.3/58.3
3.0	1392	1003	903	0.3	26.6	0.0	25	100	58.5/58.5
3.1	1419	1031	931	0.8	27.4	0.0	26	100	62.0/62.0
3.2	1441	1056	956	0.7	28.0	0.0	27	100	64.1/64.1
3.3	1458	1074	974	0.5	28.4	0.0	29	100	64.4/64.4
3.4	1468	1085	985	0.4	29.1	0.0	29	100	64.6/64.6
3.6	1472	1089	989	0.1	29.3	0.0	29	100	65.1/65.1
3.7	1481	1120	1020	1.1	29.0	0.0	29	100	64.9/64.9
3.8	1497	1119	1019	-0.0	29.3	0.0	33	300	64.9/64.9
3.9	1519	1119	1019	0.0	31.3	0.1	34	300	66.2/66.4
4.1	1532	1111	1011	-0.3	30.7	0.1	35	300	66.3/66.5
4.2	1541	1122	1022	0.4	30.8	0.1	36	300	67.0/67.2
4.3	1562	1138	1038	0.5	31.5	0.1	38	400	67.2/67.4
4.4	1576	1143	1043	0.2	32.3	0.1	39	400	67.5/67.7
4.5	1568	1130	1030	-0.5	32.2	0.1	40	400	66.1/66.3
4.7	1566	1126	1026	-0.1	32.0	0.2	41	500	65.1/65.4
4.8	1573	1119	1019	-0.3	32.5	0.3	43	600	65.7/66.2
4.9	1606	1116	1016	-0.1	34.1	0.5	44	700	66.6/67.4
5.1	1632	1163	1063	1.4	34.3	0.7	45	800	68.5/69.6
5.2	1653	1200	1100	1.4	34.0	0.9	47	1000	68.4/69.6
5.3	1672	1207	1107	0.3	34.2	0.9	48	1100	68.2/69.4
5.4	1688	1227	1127	0.8	34.2	1.0	49	1200	68.2/69.5
5.5	1699	1236	1136	0.3	34.4	1.0	50	1400	68.5/69.9
5.7	1709	1252	1152	0.7	34.2	1.0	51	1500	68.6/70.1
5.8	1696	1259	1159	0.3	33.1	1.1	53	1700	68.7/70.1
5.9	1736	1245	1145	-0.6	35.7	1.1	54	1800	68.8/70.3
6.0	1755	1263	1163	0.8	35.6	1.1	55	2000	67.8/69.3
6.1	1769	1279	1179	0.7	36.1	1.1	56	2100	69.6/71.0
6.3	1770	1281	1181	0.1	35.9	1.0	58	2300	69.9/71.2
6.4	1770	1278	1178	-0.2	36.2	1.0	59	2400	70.0/71.3
6.5	1770	1275	1175	-0.2	36.5	1.0	60	2600	70.2/71.5

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95

ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
6.6	1770	1282	1182	0.3	35.8	1.0	61	2700	70.0/71.3
6.7	1769	1251	1151	-1.5	36.5	1.0	62	2800	70.6/71.8
6.8	1771	1240	1140	-0.8	36.7	1.0	62	2800	70.7/72.0
7.0	1770	1247	1147	0.3	36.4	1.0	65	3100	70.6/71.9
7.1	1770	1287	1187	1.9	34.6	1.0	66	3300	70.3/71.6
7.2	1766	1268	1168	-0.9	35.8	1.0	67	3400	70.6/71.9
7.3	1761	1283	1183	0.9	35.2	1.1	68	3500	69.7/71.1
7.5	1760	1300	1200	0.8	34.1	1.1	70	3700	69.3/70.7
7.6	1760	1309	1209	0.5	33.5	1.1	71	3900	69.2/70.7
7.7	1758	1293	1193	-0.8	35.4	1.1	72	4000	69.5/70.9
7.8	1760	1292	1192	-0.1	34.8	1.1	73	4200	69.5/70.9
7.9	1753	1287	1187	-0.3	34.8	1.1	74	4300	69.5/70.9
8.1	1750	1285	1185	-0.1	34.8	1.1	76	4500	69.8/71.2
8.2	1750	1282	1182	-0.2	34.8	1.1	77	4600	69.7/71.1
8.3	1750	1283	1183	0.1	34.7	1.1	78	4700	69.6/71.0
8.4	1750	1285	1185	0.1	34.5	1.1	79	4900	69.5/70.9
8.6	1750	1287	1187	0.1	35.3	1.1	81	5100	69.6/71.0
8.7	1750	1286	1186	-0.0	35.4	1.1	82	5200	69.6/71.0
8.8	1750	1279	1179	-0.4	35.9	1.1	83	5300	69.7/71.1
8.9	1750	1284	1184	0.3	34.9	1.1	84	5500	69.5/70.9
9.0	1750	1285	1185	0.1	34.7	1.1	86	5600	69.5/70.9
9.2	1749	1282	1182	-0.2	34.7	1.1	87	5800	69.7/71.0
9.3	1750	1284	1184	0.1	34.7	1.1	88	5900	69.7/71.1
9.4	1750	1285	1185	0.1	34.6	1.1	89	6100	69.6/71.0
9.5	1743	1282	1182	-0.2	34.5	1.1	90	6200	69.7/71.1
9.6	1740	1278	1178	-0.3	34.6	1.1	92	6400	69.7/71.1
9.8	1740	1280	1180	0.2	34.3	1.1	93	6500	69.5/70.9
9.9	1740	1273	1173	-0.5	35.0	1.0	94	6600	69.5/70.9
10.0	1740	1275	1175	0.1	34.9	1.0	95	6800	69.5/70.8
10.1	1738	1267	1167	-0.5	35.2	1.0	97	6900	69.6/70.9
10.2	1740	1266	1166	-0.1	35.4	1.0	98	7000	69.4/70.7
10.4	1736	1256	1156	-0.8	35.7	0.9	99	7100	69.4/70.6
10.5	1730	1244	1144	-0.9	36.3	0.9	100	7300	69.6/70.7
10.6	1730	1242	1142	-0.2	36.5	0.9	101	7400	70.0/71.1
10.7	1730	1243	1143	0.1	36.7	0.9	103	7600	70.2/71.4
10.8	1730	1246	1146	0.2	36.6	0.9	104	7700	70.4/71.6
11.0	1730	1243	1143	-0.2	36.7	0.9	105	7800	70.4/71.6
11.1	1730	1246	1146	0.2	36.5	0.9	106	8000	70.3/71.6
11.2	1730	1249	1149	0.2	36.6	1.0	108	8100	70.2/71.4
11.3	1730	1251	1151	0.1	36.6	0.9	109	8200	70.2/71.5
11.5	1728	1241	1141	-0.8	37.2	0.9	110	8400	70.3/71.6
11.6	1721	1231	1131	-0.9	37.0	0.9	111	8500	70.5/71.7
11.7	1720	1229	1129	-0.2	37.1	0.9	112	8600	70.6/71.8
11.8	1720	1230	1130	0.1	37.1	0.9	114	8800	70.6/71.8
12.0	1720	1229	1129	-0.1	37.2	0.9	115	8900	70.6/71.8
12.1	1720	1249	1149	1.5	34.2	1.0	116	9100	70.4/71.7
12.2	1720	1257	1157	0.8	35.9	1.0	118	9200	70.3/71.6
12.3	1721	1262	1162	0.4	35.6	1.0	119	9400	70.1/71.4
12.5	1736	1276	1176	1.3	34.4	1.0	120	9500	69.4/70.8
12.6	1755	1286	1186	0.9	34.7	1.1	121	9700	68.7/70.2
12.7	1770	1289	1189	0.3	35.3	1.1	123	9900	68.1/69.7
12.8	1770	1293	1193	0.4	34.9	1.2	124	10100	67.5/69.2
12.9	1768	1299	1199	0.5	34.5	1.4	125	10300	66.9/68.9
13.1	1777	1318	1218	1.7	33.7	1.5	127	10500	66.9/69.0

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

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ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
13.2	1786	1334	1234	1.3	33.3	1.5	128	10700	67.2/69.3
13.3	1790	1339	1239	0.5	33.1	1.6	129	11000	67.1/69.2
13.4	1790	1339	1239	0.0	33.0	1.6	131	11200	67.1/69.3
13.5	1801	1345	1245	0.5	33.2	1.6	132	11400	67.1/69.4
13.7	1841	1360	1260	1.4	33.9	1.7	133	11600	67.1/69.5
13.8	1869	1392	1292	2.9	33.6	1.7	135	11900	67.0/69.4
13.9	1877	1420	1320	2.4	32.8	1.7	136	12100	67.9/70.2
14.0	1863	1436	1336	1.4	31.6	1.7	137	12400	67.8/70.2
14.1	1840	1415	1315	-1.8	31.5	1.8	139	12600	67.9/70.3
14.3	1845	1405	1305	-0.9	32.0	1.9	140	12900	67.5/70.0
14.4	1858	1420	1320	1.3	31.7	2.0	141	13200	67.0/69.7
14.5	1871	1444	1344	2.1	31.1	2.1	142	13400	67.3/70.0
14.6	1880	1460	1360	1.3	31.1	2.1	144	13800	67.2/70.1
14.8	1883	1466	1366	0.5	30.8	2.1	145	14000	67.4/70.2
14.9	1901	1458	1358	-0.8	32.0	2.2	147	14300	67.6/70.5
15.0	1930	1474	1374	1.5	31.8	2.2	148	14600	67.4/70.3
15.1	1953	1506	1406	2.4	31.9	2.2	149	14900	67.7/70.6
15.3	1964	1522	1422	1.4	31.7	2.2	151	15200	68.3/71.1
15.4	1970	1531	1431	0.7	32.0	2.2	152	15500	68.4/71.2
15.5	1970	1533	1433	0.2	31.5	2.2	153	15800	68.4/71.2
15.6	1970	1543	1443	0.9	31.1	2.2	155	16000	68.4/71.2
15.8	1965	1548	1448	0.5	30.5	2.2	156	16300	68.2/71.0
15.9	1970	1543	1443	-0.5	30.8	2.2	158	16600	67.2/70.2
16.0	1957	1525	1425	-1.6	30.9	2.3	159	16900	65.4/68.7
16.1	1946	1509	1409	-1.5	31.0	2.4	160	17300	64.5/67.9
16.3	1938	1494	1394	-1.4	31.5	2.3	162	17500	64.6/68.0
16.4	1927	1483	1383	-1.1	31.6	2.3	163	17800	64.7/68.0
16.5	1910	1459	1359	-2.4	32.0	2.2	165	18100	64.6/67.8
16.6	1897	1438	1338	-2.1	32.6	2.0	166	18400	64.7/67.7
16.7	1885	1413	1313	-2.7	33.2	2.0	168	18600	65.0/67.9
16.9	1876	1403	1303	-1.1	33.4	2.0	169	18900	65.0/67.9
17.0	1870	1402	1302	-0.1	33.1	1.9	171	19100	65.3/68.1
17.1	1870	1390	1290	-1.1	34.2	1.9	172	19400	65.3/68.1
17.2	1870	1391	1291	0.1	34.2	1.9	174	19700	65.3/68.1
17.3	1870	1386	1286	-0.6	34.5	1.9	175	19900	65.5/68.2
17.5	1870	1388	1288	0.3	34.1	1.9	176	20200	65.3/68.0
17.6	1861	1379	1279	-1.0	34.1	1.9	178	20500	65.5/68.1
17.7	1860	1373	1273	-0.8	34.7	1.9	179	20700	65.6/68.2
17.8	1860	1373	1273	-0.0	34.3	1.9	181	21000	65.5/68.2
18.0	1860	1379	1279	0.7	34.0	1.9	182	21300	65.6/68.3
18.1	1868	1392	1292	1.5	33.5	1.9	184	21500	65.4/68.2
18.2	1870	1399	1299	0.8	33.3	2.0	185	21800	65.3/68.1
18.3	1867	1396	1296	-0.2	33.2	2.0	187	22100	65.3/68.1
18.4	1870	1399	1299	0.2	33.5	2.0	188	22400	65.3/68.2
18.6	1872	1401	1301	0.2	33.5	2.0	189	22600	65.4/68.3
18.7	1880	1409	1309	1.0	33.4	2.1	191	22900	65.3/68.2
18.8	1880	1411	1311	0.2	33.2	2.1	192	23200	65.2/68.2
18.9	1880	1411	1311	0.1	33.1	2.1	194	23500	65.2/68.2
19.0	1880	1411	1311	-0.1	33.2	2.1	195	23700	65.2/68.1
19.2	1880	1410	1310	-0.1	33.1	2.1	197	24000	65.2/68.1
19.3	1880	1410	1310	0.1	33.1	2.1	198	24300	65.2/68.1
19.4	1880	1414	1314	0.5	32.9	2.0	200	24600	65.1/68.0
19.5	1880	1410	1310	-0.6	33.3	2.0	201	24800	65.3/68.2
19.6	1880	1414	1314	0.5	33.1	2.0	202	25100	65.1/68.0

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95

ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
19.8	1870	1392	1292	-2.7	33.8	2.0	204	25400	65.6/68.4
19.9	1870	1390	1290	-0.3	33.8	1.9	205	25600	65.5/68.3
20.0	1870	1390	1290	-0.1	33.8	1.9	207	25900	65.6/68.3
20.1	1870	1395	1295	0.7	33.5	1.9	208	26200	65.3/68.1
20.3	1866	1394	1294	-0.2	33.6	1.9	210	26400	65.3/68.1
20.4	1870	1396	1296	0.3	33.6	2.0	211	26700	65.4/68.2
20.5	1870	1391	1291	-0.7	33.8	2.0	213	27000	65.5/68.3
20.6	1871	1398	1298	0.9	33.5	2.0	214	27300	65.2/68.1
20.7	1870	1398	1298	0.0	33.4	2.0	215	27500	65.4/68.4
20.9	1870	1388	1288	-1.4	33.9	2.0	217	27800	65.5/68.4
21.0	1873	1392	1292	0.6	33.8	2.0	218	28100	65.4/68.3
21.1	1875	1399	1299	0.9	33.7	2.0	220	28400	65.6/68.4
21.2	1874	1401	1301	0.3	33.5	2.0	221	28700	65.4/68.3
21.3	1870	1397	1297	-0.6	33.8	2.0	223	28900	65.6/68.4
21.5	1869	1410	1310	1.7	32.1	2.0	224	29200	65.0/68.0
21.6	1870	1397	1297	-1.8	34.0	2.0	226	29500	65.2/68.1
21.7	1863	1382	1282	-2.1	34.3	2.0	227	29800	65.4/68.2
21.8	1868	1382	1282	-0.0	34.2	2.0	229	30100	65.4/68.3
22.0	1872	1386	1286	0.6	34.1	2.0	230	30400	65.5/68.4
22.1	1889	1411	1311	3.5	33.6	2.1	232	30700	65.5/68.5
22.2	1923	1444	1344	4.4	33.3	2.2	233	31000	65.3/68.5
22.3	1942	1465	1365	3.1	32.8	2.4	235	31400	64.9/68.4
22.4	1954	1481	1381	2.1	32.3	2.6	236	31700	63.7/67.6
22.6	1963	1494	1394	1.7	32.0	2.7	238	32100	63.6/67.6
22.7	1972	1509	1409	2.0	31.9	2.8	239	32500	63.5/67.6
22.8	1980	1523	1423	1.8	31.6	2.8	241	32900	63.3/67.5
22.9	1976	1521	1421	-0.2	31.6	2.8	242	33200	63.0/67.2
23.1	1966	1503	1403	-2.4	32.1	2.8	244	33500	63.3/67.3
23.2	1947	1486	1386	-2.3	32.0	2.6	246	33900	63.1/67.0
23.3	1928	1459	1359	-3.4	32.7	2.5	247	34200	63.5/67.1
23.4	1912	1438	1338	-3.1	33.1	2.4	249	34600	64.6/68.1
23.6	1913	1436	1336	-0.3	33.3	2.6	250	35000	65.5/69.2
23.7	1942	1475	1375	5.5	32.3	2.9	252	35400	65.7/69.6
23.8	2028	1522	1422	6.4	33.6	3.1	253	35900	65.5/69.7
23.9	1986	1489	1389	-4.6	33.4	3.1	255	36300	65.4/69.7
24.1	1945	1451	1351	-5.6	33.2	3.4	257	36700	62.8/67.7
24.2	1940	1449	1349	-0.2	33.1	3.1	258	37100	64.2/68.6
24.3	1939	1450	1350	0.0	33.3	2.9	260	37400	65.0/69.1
24.4	1925	1429	1329	-3.1	33.7	2.8	261	37800	65.2/69.1
24.5	1916	1416	1316	-1.9	34.0	2.7	263	38200	65.3/69.1
24.7	1911	1409	1309	-1.2	34.0	2.7	264	38500	65.5/69.2
24.8	1915	1419	1319	1.6	33.7	2.8	266	38900	65.6/69.5
24.9	1920	1435	1335	2.4	33.0	2.9	267	39300	65.6/69.6
25.0	1930	1447	1347	1.9	32.9	3.0	269	39700	65.7/69.8
25.1	1932	1456	1356	1.3	32.6	3.1	270	40100	65.7/69.9
25.3	1854	1917	1817	60.7	15.5	3.7	272	40500	59.5/65.3
25.4	1523	1679	1579	-24.0	14.8	3.3	274	41000	62.2/67.1
25.5	1532	1467	1367	-26.9	21.1	6.2	276	41500	26.6/42.6
25.7	890	1236	1136	-34.7	11.9	7.4	279	41700	0.0/25.0
25.8	550	1189	1089	-9.1	1.1	7.4	279	41800	0.0/25.0
25.9	550	1197	1097	1.6	0.0	7.4	279	41800	0.0/25.0
26.0	559	1206	1106	2.3	0.0	7.4	279	41800	0.0/25.0
26.1	550	1197	1097	-2.6	0.0	7.4	279	41800	0.0/25.0
26.2	550	1197	1097	-0.0	0.0	7.4	279	41800	0.0/25.0

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95

ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
26.4	550	1197	1097	-0.0	0.0	7.4	279	41800	0.0/25.0
26.5	548	1195	1095	-0.5	0.0	7.4	279	41800	0.0/25.0
26.8	540	1187	1087	-0.7	0.0	7.4	279	41800	0.0/25.0
26.9	540	1187	1087	-0.0	0.0	7.4	279	41800	0.0/25.0
27.0	540	1187	1087	-0.0	0.0	7.4	279	41800	0.0/25.0
27.1	540	1187	1087	-0.0	0.0	7.4	279	41800	0.0/25.0
27.2	540	1187	1087	-0.0	0.0	7.4	279	41800	0.0/25.0
27.4	540	1187	1087	-0.0	0.0	7.4	279	41800	0.0/25.0
27.5	537	1184	1084	-0.6	0.0	7.4	279	41800	0.0/25.0
27.6	533	1180	1080	-0.9	0.0	7.4	279	41800	0.0/25.0
27.7	530	1177	1077	-0.7	0.0	7.4	279	41800	0.0/25.0
27.8	530	1177	1077	-0.0	0.0	7.4	279	41800	0.0/25.0
28.0	530	1177	1077	-0.0	0.0	7.4	279	41800	0.0/25.0
28.1	530	1177	1077	-0.0	0.0	7.4	279	41800	0.0/25.0
28.2	530	1177	1077	-0.0	0.0	7.4	279	41800	0.0/25.0
28.3	530	1177	1077	-0.0	0.0	7.4	279	41800	0.0/25.0
28.4	530	1177	1077	-0.0	0.0	7.4	279	41800	0.0/25.0
28.5	526	1173	1073	-0.9	0.0	7.4	279	41800	0.0/25.0
28.7	524	1171	1071	-0.4	0.0	7.4	279	41800	0.0/25.0
28.8	520	1167	1067	-0.9	0.0	7.4	279	41800	0.0/25.0
28.9	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.0	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.2	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.3	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.4	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.5	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.6	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.8	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
29.9	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
30.0	520	1167	1067	-0.0	0.0	7.4	279	41800	0.0/25.0
30.1	519	1166	1066	-0.2	0.0	7.4	279	41800	0.0/25.0
30.2	520	1167	1067	0.2	0.0	7.4	279	41800	0.0/25.0
30.4	519	1166	1066	-0.2	0.0	7.4	279	41800	0.0/25.0
30.5	517	1164	1064	-0.5	0.0	7.4	279	41800	0.0/25.0
30.6	511	1158	1058	-1.5	0.0	7.4	279	41800	0.0/25.0
30.7	512	1159	1059	0.2	0.0	7.4	279	41800	0.0/25.0
30.8	512	1159	1059	-0.0	0.0	7.4	279	41800	0.0/25.0
31.0	510	1157	1057	-0.5	0.0	7.4	279	41800	0.0/25.0
31.1	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.2	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.3	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.4	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.5	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.7	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.8	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
31.9	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
32.0	510	1157	1057	-0.0	0.0	7.4	279	41800	0.0/25.0
32.1	509	1156	1056	-0.2	0.0	7.4	279	41800	0.0/25.0
32.3	509	1156	1056	-0.0	0.0	7.4	279	41800	0.0/25.0
32.4	508	1155	1055	-0.2	0.0	7.4	279	41800	0.0/25.0
32.5	506	1153	1053	-0.5	0.0	7.4	279	41800	0.0/25.0
32.6	500	1147	1047	-1.6	0.0	7.4	279	41800	0.0/25.0
32.7	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
32.8	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95

ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
33.0	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.1	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.2	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.3	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.4	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.6	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.7	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
33.8	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
34.0	500	1147	1047	-0.0	0.0	7.4	279	41800	0.0/25.0
34.1	499	1146	1046	-0.3	0.0	7.4	279	41800	0.0/25.0
34.2	494	1141	1041	-1.3	0.0	7.4	279	41800	0.0/25.0
34.3	496	1143	1043	0.5	0.0	7.4	279	41800	0.0/25.0
34.4	493	1140	1040	-0.8	0.0	7.4	279	41800	0.0/25.0
34.6	491	1138	1038	-0.6	0.0	7.4	279	41800	0.0/25.0
34.7	490	1137	1037	-0.3	0.0	7.4	279	41800	0.0/25.0
34.8	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
34.9	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.0	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.1	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.3	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.4	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.5	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.6	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.7	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
35.8	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
36.0	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
36.1	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
36.2	490	1137	1037	-0.0	0.0	7.4	279	41800	0.0/25.0
36.3	486	1133	1033	-1.0	0.0	7.4	279	41800	0.0/25.0
36.5	490	1137	1037	1.2	0.0	7.4	279	41800	0.0/25.0
36.6	484	1131	1031	-1.8	0.0	7.4	279	41800	0.0/25.0
36.7	485	1132	1032	0.3	0.0	7.4	279	41800	0.0/25.0
36.8	484	1131	1031	-0.3	0.0	7.4	279	41800	0.0/25.0
36.9	482	1129	1029	-0.6	0.0	7.4	279	41800	0.0/25.0
37.1	482	1129	1029	-0.0	0.0	7.4	279	41800	0.0/25.0
37.2	480	1127	1027	-0.6	0.0	7.4	279	41800	0.0/25.0
37.3	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
37.4	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
37.5	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
37.6	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
37.8	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
37.9	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.0	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.1	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.2	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.4	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.5	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.6	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.7	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
38.8	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
39.0	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
39.1	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
39.2	480	1126	1026	-0.0	0.0	7.4	279	41800	0.0/25.0
39.3	479	1125	1025	-0.3	0.0	7.4	279	41800	0.0/25.0

THE WESTERN COMPANY OF NORTH AMERICA - N2 FOAM ANALYSIS MODEL

J.K. EDWARDS (WALSH ENG.) CHACO #2R PICTURED CLIFFS FOAM FRAC 1-31-95

ET min.	STP psi.	BHTP psi.	NET P psi.	SLOPE	RATE Fm bpm	PROP Fm ppg	Cumm Wh vol	Cumm Wh Prop	Fm Qual mich/slry
39.4	478	1124	1024	-0.3	0.0	7.4	279	41800	0.0/25.0
39.5	477	1123	1023	-0.3	0.0	7.4	279	41800	0.0/25.0
39.7	480	1126	1026	0.9	0.0	7.4	279	41800	0.0/25.0
39.8	477	1123	1023	-1.0	0.0	7.4	279	41800	0.0/25.0
39.9	478	1124	1024	0.3	0.0	7.4	279	41800	0.0/25.0
40.0	471	1117	1017	-2.4	0.0	7.4	279	41800	0.0/25.0
40.1	470	1116	1016	-0.3	0.0	7.4	279	41800	0.0/25.0
40.3	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
40.4	471	1117	1017	0.3	0.0	7.4	279	41800	0.0/25.0
40.5	470	1116	1016	-0.3	0.0	7.4	279	41800	0.0/25.0
40.6	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
40.7	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
40.8	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
41.0	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
41.1	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
41.2	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0
41.3	470	1116	1016	-0.0	0.0	7.4	279	41800	0.0/25.0

SECTION 5

PROCEDURE AND MISCELLANEOUS

J.K. EDWARDS (WALSH ENG.)

CHACO #2R
NIP PICTURED CLIFFS FIELD
SEC.07,T26N,R12W
SAN JUAN COUNTY, NM
PICTURED CLIFFS FORMATION

The Western Company

STIMULATION RECOMMENDATION

PREPARED FOR

MR. PAUL THOMPSON
WALSH ENGINEERING

SERVICE POINT
FARMINGTON, NM
(505) 327-6222

PREPARED BY
MIKE MCNEESE
TECH REP II
FARMINGTON

JANUARY 24, 1995

FM050251

SALES REPRESENTATIVE
MIKE MCNEESE
TECH REP II

THE WESTERN COMPANY

OPERATOR: J.K. EDWARDS (WALSH ENG.)
WELL: CHACO #2R
FORMATION: PICTURED CLIFFS

WELL DATA

Net Pay	10 ft
Depth to Middle Perforation	1,137 ft
Tubing	2 7/8", 6.5# 2 7/8" SLIM HOLE
Fracture Gradient	.65 psi/ft
Bottom Hole Frac Pressure	739 psi
Bottom Hole Temperature	90 deg F
Perforated Interval	1132'-1142' (2 JSPF) TOTAL OF 20 HOLES @ 0.50".

THE WESTERN COMPANY

Treatment Requirements for: CHACO #2R

FRAC/FLUSH: 28,927 GALLONS 70Q N2 FOAM-20

Pumped Volumes:
8,677 Gallons 20# J-4

Mixed Volumes:
9,677 Gallons 20# J-4

Containing per 1000 Gallons:

0.38	Pounds	FRAC-CIDE 20, BACTERIACIDE
20.00	Pounds	J-4, GELLING AGENT
3.00	Pounds	P-4, PH CONTROL
1.00	Pounds	B-11, GEL BREAKER
5.00	Gallons	FRAC-FOAM 1, FOAMING AGENT

THE MIXED VOL. CONTAINS 1,000 GAL. FOR TANK BOTTOM.
LOWER PH = 4.0-4.5 WITH P-4 AS NEEDED. MAX STP IS 3,000 PSI.

PROPPANTS:

5,000	Pounds	BRADY 40/70 MESH
25,000	Pounds	ARIZONA 20/40 MESH
5,000	Pounds	BRADY 12/20 MESH

THE WESTERN COMPANY

NITROGEN FOAM PUMPING SCHEDULE

OPERATOR	J.K. EDWARDS (WALSH ENG.)
WELL	CHACO #2R
FIELD	NIIP PICTURED CLIFFS
LOCATION	SEC.07,T26N,R12W
COUNTY, STATE	SAN JUAN, NM
FORMATION	PICTURED CLIFFS
PREPARED BY	MIKE MCNEESE
DATE	JANUARY 24, 1995

WELL AND RESERVOIR PARAMETERS

Depth (mid perforation)	1137 ft
Bottom Hole Frac Pressure	739 psi
Bottom Hole Static Temperature	90 deg F

TREATMENT PARAMETERS

Treating Conductor I.D.	2.441 in
Fluid Specific Gravity	1.000
Gel Temperature in Tanks	60 deg F
Temperature of N2 at surface	100 deg F
Foam Injection Rate	30.0 bpm
Total Slurry Treatment Volume	30514 gal

Foam Quality and Injection Rate are held constant downhole.

CALCULATED TEMPERATURES

	Low	High
Foam at Surface	61 deg F	61 deg F
Foam at Perfs	83 deg F	83 deg F

Average Formation Pumping Temperature 89 deg F

THE WESTERN COMPANY

NITROGEN FOAM PUMPING SCHEDULE

PROCEDURE

STAGE	DOWNHOLE FOAM VOLUME (GALS)	DOWNHOLE FOAM QUALITY	DOWNHOLE FOAM RATE (BPM)	PROPPANT				CLEAN GEL VOLUME (BBLS)	N2 VOLUME (MSCF)
				CONC. LB/GAL	MESH	TYPE	(LBS)		
1	7000	70.0	30.0	0.00			0	50.0	30.86
2	5000	70.0	30.0	1.00	40/70	SAND	5000	35.7	22.04
3	5000	70.0	30.0	1.00	20/40	SAND	5000	35.7	22.04
4	10000	70.0	30.0	2.00	20/40	SAND	20000	71.4	44.09
5	1667	70.0	30.0	3.00	12/20	SAND	5001	11.9	7.35
FLUSH	260	70.0	30.0	0.00	FLUSH		0	1.9	1.15
	28927						35001	206.6	127.54

TREATMENT SCHEDULE

STAGE	PROPPANT CONC. (LB/GAL)		CLEAN GEL RATE (BPM)	BLENDR SLURRY RATE (BPM)	SLURRY VOLUME (WITHOUT N2)			N2 RATE	PROP RATE	STAGE PUMP TIME
	PERF.	BLNDR			(BBLS)	(CUM.)	ON PERFS	SCFM	LB/MIN	HH:MM:SS
1	0.00	00.0	9.00	9.00	50.0	50	2	5555	0	00:05:33
2	1.00	3.33	8.61	9.91	41.1	91	52	5314	1205	00:04:08
3	1.00	3.33	8.61	9.91	41.1	132	93	5314	1205	00:04:08
4	2.00	6.67	8.25	10.75	93.0	225	134	5093	2310	00:08:39
5	3.00	10.00	7.92	11.51	17.3	243	228	4890	3327	00:01:30
FLUSH	0.00	00.0	9.00	9.00	1.9	244	244	5555	0	00:00:12
							TOTAL PUMP TIME:			00:24:13

11.346
1.597
35.666

THE WESTERN COMPANY

FOAM PRESSURE/VOLUME ANALYSIS

OPERATOR	J.K. EDWARDS (WALSH ENG.)
WELL	CHACO #2R
FIELD	NIIP PICTURED CLIFFS
LOCATION	SEC.07,T26N,R12W
COUNTY, STATE	SAN JUAN, NM
FORMATION	PICTURED CLIFFS
PREPARED BY	MIKE MCNEESE
DATE	JANUARY 24, 1995

INPUT PARAMETERS

Treatment via	2 7/8", 6.5 lb pipe	
Number of Perforations	20	
Perforation Diameter	0.500	in
Total Treatment Volume	28667	gals
Flush Volume	276	gals
Bottom Hole Frac Pressure	739	psi
Foam Injection Rate	30.0	bpm
Foam Quality	70.0	percent
Temperature of N2 at Surface	100	deg F
Design Formation Temperature	88	deg F
Specific Gravity of Base Fluid	1.00	
Well Depth	1137	ft
I.D. of Treating Conductor	2.441	in
Friction Pressure	1000	psi/1000 ft

PREDICTED PRESSURES

Fluid Rate	9.0	bpm
Perforation Pressure Drop	31.6	psi
Foam Friction Pressure	1137	psi
Surface Treating Pressure	**1690**	**psi**
ISDP with Nitrogen	712	psi
ISDP with Foam	610	psi
Nitrogen Rate	5649	scfm

VOLUME REQUIREMENTS

	USING NITROGEN AS FLUSH		USING FOAM AS FLUSH	
	NITROGEN SCF	FLUID GALS	NITROGEN SCF	FLUID GALS
TREATMENT	128517	8600	128517	8600
FLUSH	1703	0	1139	83
TOTALS	130220	8600	129657	8683

THE WESTERN COMPANY

COST ESTIMATE

HACO #2R

QTY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE	GROSS AMOUNT	DISC (%)	NET AMOUNT
9	LBS	B-11, GEL BREAKER	12.75	114.75	35.0	74.59
6	LBS	FRAC-CIDE 20, BACTERIACIDE	37.00	222.00	35.0	144.30
44	GAL	FRAC-FOAM 1, FOAMING AGENT	26.95	1,185.80	35.0	770.77
200	LBS	J-4, GELLING AGENT	4.85	970.00	35.0	630.50
50	LBS	P-4, PH CONTROL	3.05	152.50	35.0	99.13
6	MILES	CHEMICALS DELIVERY, LIGHT VEHICLE, LIGHT	1.80	10.80	35.0	7.02
50	CWT	MOD SGTH 12/20,16/20 P CH (GAS)	1.30	65.00	35.0	42.25
300	CWT	MODERATE SGTH 20/40 PUMP CHG (GAS)	0.42	126.00	35.0	81.90
2999	GAL	PROP CONC PUMP CHG(FOAM)6.1-9 PPG	0.13	389.87	35.0	253.42
500	GAL	PROP CONC PUMP CHG(FOAM)9.1-12 PPG	0.20	100.00	35.0	65.00
50	CWT	BRADY 40/70 MESH	9.98	499.00	35.0	324.35
250	CWT	ARIZONA 20/40 MESH	7.54	1,885.00	35.0	1,225.25
50	CWT	BRADY 12/20 MESH	11.57	578.50	35.0	376.02
350	T-M	DELIVERY CHARGE, 20 MILES	1.00	350.00	35.0	227.50
1	UNIT	MASTER MIXER 0 TO 10 BPM (GAS)	995.00	995.00	35.0	646.75
414	HHP	FRAC PUMP (GAS) (10 BPM, 1690 PSI)	6.05	2,504.70	35.0	1,628.06
6	MILES	LIGHT EQUIPMENT 2 VEH. 3 MILES	1.80	10.80	35.0	7.02
18	MILES	HEAVY EQUIPMENT 6 VEH. 3 MILES	2.95	53.10	35.0	34.52
1	UNIT	BLENDING CHARGE 1 HRS	500.00	500.00	35.0	325.00
1	EACH	DENSIOMETER	575.00	575.00	35.0	373.75
1	USE	LIQUID ADD PUMP	750.00	750.00	35.0	487.50
1	EACH	TREATMENT MONITORING VAN (T.M.V.)	1,965.00	1,965.00	0.0	1,965.00
1	EACH	5,000 PSI FRAC VALVE, PER JOB	655.00	655.00	0.0	655.00
500	C-SCF	NITROGEN	1.89	945.00	35.0	614.25
775	C-SCF	NITROGEN > 50000 SCF	1.84	1,426.74	35.0	927.38
3	MILES	LIGHT EQUIPMENT 1 VEH. 3 MILES	1.80	5.40	35.0	3.51
9	MILES	HEAVY EQUIPMENT 3 VEH. 3 MILES	2.95	26.55	35.0	17.26
2	UNIT	NITROGEN PUMPING 0-4000 SCFM	1,110.00	2,220.00	35.0	1,443.00
1	EACH	N2 TARGET FLOWMETER	290.00	290.00	35.0	188.50
1	EACH	SERVICE CHARGE, VALVE ON N2	390.00	390.00	35.0	253.50
			TOTALS:	$19,961.51		$13,691.98

HE TECHNICAL DATA CONTAINED IN THIS PROPOSAL IS BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF WRITING AND IS UBJECT TO FURTHER ANALYSIS AND TESTING. THE PRICING DATA CONTAINED IN THIS PROPOSAL ARE ESTIMATES ONLY AND MAY VARY DEPENDING N THE WORK ACTUALLY PERFORMED. PRICING DOES NOT INCLUDE FEDERAL, STATE AND LOCAL TAXES OR ROYALTIES.

THIS QUOTATION IS BASED ON THE WESTERN COMPANY BEING AWARDED THE WORK ON A FIRST CALL BASIS AND WITHIN THIRTY (30) DAYS F THE PROPOSAL DATE. THESE PRICES WILL BE SUBJECT TO REVIEW IF THE WORK IS DONE AFTER THIRTY (30) DAYS FROM THE PROPOSAL ATE, OR ON A SECOND OR THIRD CALL BASIS.

USTOMER WILL BE CHARGED FOR ALL 'SPECIAL PROPPANTS' DELIVERED TO LOCATION, WHETHER THEY ARE PUMPED OR NOT. ALL PROPPANTS THER THAN STANDARD GRADE FRAC SAND ARE CONSIDERED 'SPECIAL PROPPANTS'.

THE WESTERN COMPANY

COST ESTIMATE

CHACO #2R

QTY	UNIT	PRODUCT DESCRIPTION	NET AMOUNT
9	LBS	B-11, GEL BREAKER	74.59
6	LBS	FRAC-CIDE 20, BACTERIACIDE	144.30
44	GAL	FRAC-FOAM 1, FOAMING AGENT	770.77
200	LBS	J-4, GELLING AGENT	630.50
50	LBS	P-4, PH CONTROL	99.13
6	MILES	CHEMICALS DELIVERY, LIGHT VEHICLE, LIGHT V	7.02
50	CWT	MOD SGTH 12/20,16/20 P CH (GAS)	42.25
300	CWT	MODERATE SGTH 20/40 PUMP CHG (GAS)	81.90
2999	GAL	PROP CONC PUMP CHG(FOAM)6.1-9 PPG	253.42
500	GAL	PROP CONC PUMP CHG(FOAM)9.1-12 PPG	65.00
50	CWT	BRADY 40/70 MESH	324.35
250	CWT	ARIZONA 20/40 MESH	1,225.25
50	CWT	BRADY 12/20 MESH	376.02
350	T-M	DELIVERY CHARGE, 20 MILES	227.50
1	UNIT	MASTER MIXER 0 TO 10 BPM (GAS)	646.75
414	HHP	FRAC PUMP (GAS) (10 BPM, 1690 PSI)	1,628.06
6	MILES	LIGHT EQUIPMENT 2 VEH. 3 MILES	7.02
18	MILES	HEAVY EQUIPMENT 6 VEH. 3 MILES	34.52
1	UNIT	BLENDING CHARGE 1 HRS	325.00
1	EACH	DENSIOMETER	373.75
1	USE	LIQUID ADD PUMP	487.50
1	EACH	TREATMENT MONITORING VAN (T.M.V.)	1,965.00
1	EACH	5,000 PSI FRAC VALVE, PER JOB	655.00
500	C-SCF	NITROGEN	614.25
775	C-SCF	NITROGEN > 50000 SCF	927.38
3	MILES	LIGHT EQUIPMENT 1 VEH. 3 MILES	3.51
9	MILES	HEAVY EQUIPMENT 3 VEH. 3 MILES	17.26
2	UNIT	NITROGEN PUMPING 0-4000 SCFM	1,443.00
1	EACH	N2 TARGET FLOWMETER	188.50
1	EACH	SERVICE CHARGE, VALVE ON N2	253.50
		TOTALS:	$13,891.98

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BJECT TO FURTHER ANALYSIS AND TESTING. THE PRICING DATA CONTAINED IN THIS PROPOSAL ARE ESTIMATES ONLY AND MAY VARY DEPENDING
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TE, OR ON A SECOND OR THIRD CALL BASIS.
STOMER WILL BE CHARGED FOR ALL 'SPECIAL PROPPANTS' DELIVERED TO LOCATION, WHETHER THEY ARE PUMPED OR NOT. ALL PROPPANTS
HER THAN STANDARD GRADE FRAC SAND ARE CONSIDERED 'SPECIAL PROPPANTS'.

PRODUCT DESCRIPTIONS

B-11 (Gel Breaker)

A solid enzyme breaker designed for use in neutral or slightly acidic pH fracturing fluids to sufficiently reduce the gel viscosity allowing for clean-up of the treatment system. B-11 is used primarily at low temperatures below 120 Degrees Fahrenheit.

FRAC-CIDE 20 (Bacteriacide)

An extremely effective biocide for the inhibitory control of aerobic and anaerobic (sulfate-reducing) bacteria in well treatment fluids. It is packaged as a dry powder for safety and easy of handling in all weather conditions.

FRAC FOAM-1 (Foaming Agent)

An amphoteric (cationic and anionic) surfactant used as a foaming agent for water and acid-base fracturing fluids.

J-4 (Gelling Agent)

A guar gum gelling agent blended with a buffering system. It is used in gelled water, gelled acid and crosslinked water-base fluids. The polymer residue is 6% to 9% by weight.

P-4 (pH Control)

A granular sulfamic acid used to lower the pH of various water-base fracturing fluids.

THE WESTERN COMPANY

FIELD RECEIPT WORKSHEET

CHACO #2R

PRODUCT CODE	QUANTITY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE
H0936	9	LBS	B-11, GEL BREAKER	12.75
H0356	6	LBS	FRAC-CIDE 20, BACTERIACIDE	37.00
H2186	44	GAL	FRAC-FOAM 1, FOAMING AGENT	26.95
H0846	200	LBS	J-4, GELLING AGENT	4.85
H1096	50	LBS	P-4, PH CONTROL	3.05
J7416	6	MILES	CHEMICALS DELIVERY, LIGHT VEHICLE, LIGHT	1.80
E118BB	50	CWT	MOD SGTH 12/20,16/20 P CH (GAS)	1.30
E118AB	300	CWT	MODERATE SGTH 20/40 PUMP CHG (GAS)	0.42
J4626B	2999	GAL	PROP CONC PUMP CHG(FOAM)6.1-9 PPG	0.13
J4636B	500	GAL	PROP CONC PUMP CHG(FOAM)9.1-12 PPG	0.20
NOTPR	50	CWT	BRADY 40/70 MESH	9.98
NOTPR	250	CWT	ARIZONA 20/40 MESH	7.54
NOTPR	50	CWT	BRADY 12/20 MESH	11.57
J4016	350	T-M	DELIVERY CHARGE, 20 MILES	1.00
F3016B	1	UNIT	MASTER MIXER 0 TO 10 BPM (GAS)	995.00
F2016B	414	HHP	FRAC PUMP (GAS) (10 BPM, 1690 PSI)	6.05
J3916	6	MILES	LIGHT EQUIPMENT 2 VEH. 3 MILES	1.80
J3906	18	MILES	HEAVY EQUIPMENT 6 VEH. 3 MILES	2.95
J2186	1	UNIT	BLENDING CHARGE 1 HRS	500.00
J3216	1	EACH	DENSIOMETER	575.00
J0556	1	USE	LIQUID ADD PUMP	750.00
J3006	1	EACH	TREATMENT MONITORING VAN (T.M.V.)	1965.00
NOTPR	1	EACH	5,000 PSI FRAC VALVE, PER JOB	655.00
N023E	500	C-SCF	NITROGEN	1.89
N003E	775	C-SCF	NITROGEN > 50000 SCF	1.84
J3916	3	MILES	LIGHT EQUIPMENT 1 VEH. 3 MILES	1.80
J3906	9	MILES	HEAVY EQUIPMENT 3 VEH. 3 MILES	2.95
N2006	2	UNIT	NITROGEN PUMPING 0-4000 SCFM	1110.00
N1686	1	EACH	N2 TARGET FLOWMETER	290.00
H4456	1	EACH	SERVICE CHARGE, VALVE ON N2	390.00

Walsh Engineering and Production

Completion Prognosis for
J. K. Edwards
Chaco #2R

Location: SW/4 Sec 7 T26N R12W
San Juan County, NM

Date: January 22, 1995

Field: NIIP Pictured Cliffs
Minerals: BLM NM-22046

Elev: GL 5954
PBTD 1213'GL
Perfs 1132-1142

Procedure:

1. MOL and RU completion rig. Hold safety meeting.

2. Blow well down and kill with water if necessary.

3. ND tubing head and NU BOP. NU 2-3/8" relief line.

4. Pick up extra joints of 1-1/4" tubing and TIH and check for fill. TOH and lay down 1-1/4" tubing. Tally tubing. Clean out well with sand bailer if necessary.

5. Install 5000# frac valve on 2-7/8" tubing. Rig up frac equipment and pressure test surface lines.

6. Fracture with 5,000# of 40/70 sand, 25,000# of 20/40 sand, and 5000# of 12/20 sand in a 70 % quality N2 foam. Fluid is 20# guar gel. Pump rate at 30 BPM and expected treating pressure is 1750 psig. Max treating pressure is 3000 psig. Treat with the following schedule:

Stage	Foam Vol. (Gals.)	Gel Vol. (Gals.)	Sand Vol. (lbs.)
Pad	7,000	2,100	0
1.0 ppg 40/70	5,000	1,500	5,000
1.0 ppg 20/40	5,000	1,500	5,000
2.0 ppg 20/40	10,000	3,000	20,000
3.0 ppg 12/20	1,666	500	5,000
Flush	260	80	0
Total	28,926	8,680	35,000

9. Close frac valve. RD frac company and install flowline with 1/4" ceramic choke. Flow well back to pit overnight.

10. When well dies, remove frac valve and install tubing head. NU BOPs.

11. TIH with sand bailer on 1-1/2" tubing and clean out to PBTD at 1213'GL. TOH.

12. Set 1-1/2" near top PC perf at approximately 1132'GL. ND BOPs and nipple up wellhead.

13. Rig down and release rig. Set separator and return well to production.

Paul C. Thompson

Paul C. Thompson, P.E.

WESTERN COMPANY
POST FRAC ANALYSIS

CUSTOMER:	J.K. Edwards
CUSTOMER REP NAME:	~~Chaco #2K~~ Paul Thompson
WELL NAME:	Chaco #2K
LEGAL LOCATION:	7-26-12
FORMATION:	Pictured Cliffs
DATE JOB PERFORMED:	1-31-95
COUNTY:	San Juan
TUBING SIZE:	
CASING SIZE:	2 7/8
TREATMENT CONDUCTED VIA:	2 7/8
TOP PERFORATION:	1132
BOTTOM PERFORATION:	1142
NUMBER OF PERFS.:	20
SIZE OF PERFS.:	.50
AVERAGE INJ. RATE:	26
AVERAGE INJ. PRESSURE:	1800
BEGINNING ISDP:	500
ENDING ISDP:	470
DELTA P ON PAD:	—
NO. OF PERFS OPEN (PADI):	/
PAD FRIC. PSI/1000:	750
TYPE SYSTEM USED:	30# 70Q Foam
SYSTEM ON PAD:	30# 70Q Foam
TOTAL FLUID ON LOCATION:	13,440
AMOUNT OF FLUID IN FORM.:	9660
% OF JOB PUMPED-FLUID:	
FLUID LEFT ON LOCATION:	4000 +/-

PROPPANT TYPE 1 ON LOCATION:	40/70 40/70 #
VOLUME PROPPANT 1 ON LOCATION:	58 00
PROPPANT TYPE 2 ON LOCATION:	20/40 AZ 27,100 / 12/20 6000
VOLUME PROPPANT 2 ON LOCATION:	
TOTAL SAND ON LOCATION:	38,900
AMOUNT OF SAND IN FORMATION:	38,900
% OF JOB PUMPED-SAND:	100 %
SAND LEFT ON LOCATION:	0
AMOUNT OF DELAYED BREAKER USED:	0
AMOUNT OF BREAKER USED	8 # B-11
AMOUNT OF SOLID BUFFER USED:	50 # B-4
AMOUNT OF LIQUID BUFFER USED:	0
AMOUNT OF CROSSLINKER USED:	0
AMOUNT OF SURFACTANT USED:	0
AMOUNT OF FOAM/RECOVERY USED:	45 FF-1
AMOUNT OF GELLING AGENT:	300 # G-4
AMOUNT OF GEL STABILIZER USED:	0
AMOUNT OF CLAY CONTROL USED:	0
WAS SERVICE COMPANY ON TIME?:	Y
WAS QC DATA AVAILABLE?:	Y
WAS QC DATA CHECKED?:	Y
WAS JOB COMPLETED?:	Y
DID WELL SCREEN OUT?:	N
PROFESSIONAL MANNER DISPLAYED?:	Y

COMMENTS:

ORIGINAL

The Western Company of North America

REMIT TO: P.O. BOX 911543
DALLAS, TX 75391-1543

INVOICE NO.	OUR RECEIPT NO.	DATE
465547	309647	03/21/10

		YOUR ORDER NO.
27340	1314	

J. K. EDWARDS ASSOCIATES, INC.
1401 17TH STREET, SUITE 1400
DENVER CO 80202

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON STIMULATI	CRABB	PAUL THOMPSON

FOR SERVICING WELL NAME	COUNTY	STATE
CHACO #2R	SAN JUAN	NM 30

FEDERAL I.D. NO. C 75-0763484

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
J3916	MILEAGE, AUTO/PICK-UP/TREATING VAN	MILE	64.0	1.800	115.20	35.00	74.88
J3906	MILEAGE, HEAVY VEHICLE, PER UNIT	MILE	192.0	2.950	566.40	35.00	368.16
J4014	BULK MATERIAL DELIVERY, DRY	TONMI	400.0	1.000	400.00	35.00	260.00
J7406	DEL CHARGE, UNITS OVER 1.5 TONS	MILE	64.0	2.950	188.80	35.00	122.72
F2016B	FRAC PUMP, 0 - 5000 PSI	4HRS	507.0	6.050	3067.35	35.00	1.993.78
E118AB	PROP PUMP CHG, MODERATE STRENGTH	CWT	329.0	.420	138.18	35.00	89.82
E118BB	PROP PUMP CHG, MODERATE STRENGTH	CWT	60.0	1.300	78.00	35.00	50.70
J4626B	PROPPANT CONCENTRATION CHG/6-9 LBS	GAL	2999.0	.130	389.87	35.00	253.42
J4636B	PROPPANT CONCENTRATION CHG/9-12 LBS	GAL	500.0	.200	100.00	35.00	65.00
F3026B	MASTER MIXER, 11 - 20 BPM	4HRS	1.0	1105.000	1105.00	35.00	718.25
J2186	MISCELLANEOUS BLENDING CHARGE	HOUR	1.0	500.000	500.00	35.00	325.00
J0556	LIQUID ADDITIVE PUMP	JOB	1.0	750.000	750.00	35.00	487.50
K3716	FIELD STORAGE BIN	JOB	1.0	515.000	515.00	35.00	334.75
J3216	FLUID DENSIOMETER	JOB	1.0	575.000	575.00	35.00	373.75
H0846	J-4, LOW RESIDUE GUAR GUM	LB	300.0	4.850	1455.00	35.00	945
H0356	FRAC-CIDE 20	LB	6.0	37.000	222.00	35.00	144.30
H2186	FRAC FOAM-1	GAL	45.0	26.950	1212.75	35.00	788.29
H0906	B-5, GEL BREAKER	LB	1.0	4.500	N/C	.00	N/C
H0936	B-11, GEL BREAKER	LB	8.0	12.750	102.00	35.00	66.30
H1096	P-4, PH CONTROL	LB	50.0	3.050	152.50	35.00	99.13
E303E	SAND, STD BLK, 20/40, FARMINGTON, NM	CWT	58.0	9.980	578.84	35.00	376.25
E303F	SAND, AZ SILICA, 20/40, FARMINGT, NM	CWT	271.0	7.540	2043.34	35.00	1.328.17
E313E	SAND, STD BLK, 12/20, FARMINGTON, NM	CWT	60.0	11.570	694.20	35.00	451.23
J3006	TREATMENT MONITORING VAN	JOB	1.0	1965.000	1965.00	.00	1.965.00
	SUB TOTAL				16914.43		11.682.15

PAY THIS AMOUNT

ORIGINAL

The Western Company of North America

REMIT TO: P.O. BOX 911543
DALLAS, TX 75391-1543

INVOICE NO.	OUR RECEIPT NO.	DATE
465567	309667	01/31/95

		YOUR ORDER NO.
27340	131	

J. K. EDWARDS ASSOCIATES, INC.
1401 17TH STREET, SUITE 1400
DENVER CO 80202

SERVICES FROM OUR STATION AT	OUR ENGINEER	SIGNED FOR YOU BY
FARMINGTON STIMULATI	CRABB	PAUL THOMPSON

FOR SERVICING WELL NAME	COUNTY	STATE
CHACO #2R	SAN JUAN	NM 30

FEDERAL I.D. NO. C 75-0763484

PRODUCT CODE	DESCRIPTION	UNIT OF MEASURE	QUANTITY	LIST PRICE/UNIT	GROSS AMOUNT	PERCENT DISC.	NET AMOUNT
98447	NEW MEXICO SALES TAX 4.5%				16914.43		525.7[illegible]
98438	NEW MEXICO, SAN JUAN SALES TAX .25%						29.2[illegible]
98449	NEW MEX.,FARMINGTON SALES TAX 1.188%						138.7[illegible]

PAY THIS AMOUNT 12,37[illegible]

TERMS: NET 30 DAYS