



NOWSCO

An International Company

Well Service Ltd.

1300, 801 - 6th AVENUE S.W., CALGARY, ALBERTA, CANADA T2P 4E1 TELEPHONE (403) 281-2990 TELEX 03-825617

ACID WASH AND SQUEEZE

PARAMOUNT ET AL CAMERON

I-10

BASIC WELL DATA

<i>Formation:</i>	<i>Muskey</i>
<i>Perforations:</i>	<i>1485.0 - 1490.5 m</i>
<i>Tubing:</i>	<i>73.0 mm</i>
<i>Casing:</i>	<i>139.7 mm</i>

PREPARED FOR:

*Mr. Dennis Besler
RIDGESTARR PETROLEUM MANAGEMENT LTD.
1608, 840 - 7th Avenue S.W.
Calgary, Alberta T2P 3G2*

NOWSCO REPRESENTATIVE:

J. Bristow

PREPARED BY:

D. Crombie

DATE:

1986 03 12

For Service Call: High Level - 926-3823

C.C.:

W. Hehr - High Level

/js

ALBERTA (AREA CODE 403) BROOKS 362-2815 • CALGARY 281-2990 • CALGARY SHOP 279-8671 • CALGARY FAB 279-8841 • CALGARY LAB 279-8841 • DRAYTON VALLEY 542-2611 • EDMONTON SALES 437-3345 • EDMONTON SHOP 465-6495 • GRANDE PRAIRIE 539-5210 • HIGH LEVEL 926-3823 • LAC LA BICHE 623-4045 • LLOYDMINSTER 875-6181 • MEDICINE HAT 527-4471 • PEACE RIVER 624-3790 • RED DEER 346-8888 • SLAVE LAKE 849-5295 • WHITECOURT 778-3921 MANITOBA (AREA CODE 204) WASKADA 673-2466 SASKATCHEWAN (AREA CODE 306) ESTEVAN 634-5544 • KINDERSLEY 463-4200 • SWIFT CURRENT 773-3423 BRITISH COLUMBIA (AREA CODE 604) FORT NELSON 774-8142 • FORT ST. JOHN 785-6985 EAST COAST • DARTMOUTH, N.S. (902) 463-8136 • ST. JOHN'S, N.F.L.D. (709) 384-9800 FOREIGN • GREAT YARMOUTH, ENGLAND 011-44-493-651321 • RAVENNA, ITALY 011-39-544-36442 • ABERDEEN, SCOTLAND 011-44-224-704478 • SINGAPORE 011-65-545 8868 • VECHTA, WEST GERMANY 011-49-4441 5052-2 AMERICAN STATIONS • CLARKSBURG, WEST VIRGINIA (304) 624-9802 • COLUMBIA, KENTUCKY (502) 384-2161 • WOOSTER, OHIO (216) 284-2120

PROCEDURE

1. Move in a TP pumper and a tank truck containing the following:
 - 3.0 m³ 28% HCl acid
 - 24.0 L AI-250 inhibitor
 - 1.0 L WS-50 surfactant
 - 45.0 L DL-22 demulsifier
 - 18.0 kg IS-500 iron sequestrant
2. Conduct a pretreatment safety meeting with all personnel on location detailing program, pressure limitations, personnel responsibilities, and safety precautions. Discuss pressure limitations with oil company representative on location.
3. Rig up equipment to conduct an acid wash and squeeze.
4. Pressure test surface equipment, lines and wellhead to 15,000 kPa. Do not exceed 13,000 kPa during treatment. Based on an estimated 19.2 kPa/m frac gradient.
5. Circulate acid down tubing to perforations with returns up annulus through properly staked lines to an open rig tank.
6. Wash 0.6 m³ of acid past perforations in 60 L stages every 5 minutes. Hold 1,000 kPa back pressure on the first wash and increase by 1,000 kPa on each subsequent wash.
7. Squeeze remaining acid into formation displacing with KCl water.
8. Back wash spent acid out of hole.
9. Shut well in, rig out Newsco equipment, then swab or flow well back through properly staked down lines to an open rig tank to clean up and evaluate treatment.

COST ESTIMATE

TP pumper rental		1,560.00
3.0 m ³ 28% HCl acid	869.00/m ³	2,607.00
24.0 L AI-250 inhibitor	26.40/L	633.60
1.0 L WS-50 surfactnat	9.55/L	9.55
45.0 L DL-22 demulsifier	16.45/L	740.25
18.0 kg IS-500 iron sequestrant	7.40/kg	133.20
Travel charge on TP pumper, 470 km	2.30/km	<u>1,081.00</u>
TOTAL		\$ 6,764.60

KCl water supply and cartage, along with acid cartage are additional to the above costs.



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SPOT ACID FOR PERFORATING

PARAMOUNT ET AL CAMERON

I-10

BASIC WELL DATA

Formation:	Keg River
Perforations:	1524.5 - 1527.0 m
Tubing:	73.0 mm
Casing:	139.7 mm

PREPARED FOR:

Mr. Dennis Bieseler
RIDGESTAR PETROLEUM MANAGEMENT LTD.
1608, 840 - 7th Avenue S.W.
Calgary, Alberta T2P 3G2

NOWSCO REPRESENTATIVE:

J. Bristow

PREPARED BY:

D. Crombie

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PROCEDURE

1. Move in a TP pumper and the following acid blend:

- 1.0 m³ 15% HCl acid
- 4.0 L AI-250 inhibitor
- 1.0 L WS-50 surfactant
- 10.0 L DL-22 demulsifier/anti sludge

2. Conduct a pretreatment safety meeting with all personnel on location detailing program, pressure limitations, personnel responsibilities, and safety precautions. Discuss pressure limitations with oil company representative on location.
3. Rig up equipment to pump acid down tubing.
4. Pressure test surface lines and equipment to 5 MPa.
5. Inject acid down tubing. Well will be swabbed down 1527.0 m prior to injecting.
6. Raise tubing above acid (to approximately 1400 m) and inject sufficient KCl water to provide the desired under balance for perforating.
7. Pull tubing and perforate.

COST ESTIMATE

TP pumper rental		1,560.00
1.0 m ³ 15% HCl acid	435.00/m ³	435.00
4.0 L AI-250 inhibitor	26.40/L	105.60
1.0 L WS-50 surfactant	9.55/L	9.55
10.0 L DL-22 demulsifier	16.45/L	164.50
Travel charge, 470 km	2.30/km	<u>1,081.00</u>
TOTAL		\$ 3,355.65

Acid cartage and water supply and cartage are additional.