



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

EDMONTON FORT ST JOHN CALGARY

SUMP FLUID ANALYSIS



COMPANY

PARAMOUNT RESOURCES LTD.

LABORATORY No.

EB-81-14648-1

LOCATION

PARAMOUNT HB ET AL CAMERON J-7/6 N.W.T.

SAMPLE POINT

SUMP

SAMPLED BY

OTHER SAMPLE DATA THREE SAMPLES WERE COMBINED BEFORE TESTING

DATE SAMPLED:

DATE RECEIVED: MARCH 9, 1981

DATE REPORTED:

MARCH 16, 1981

FLUID CHEMISTRY

pH @ 20°C

TOTAL DISSOLVED SOLIDS (g.m. ⁻³):CHLORIDE (g.m. ⁻³):

DRIED @ 105°C

SULPHATE (g.m. ⁻³):

IGNITED @ 550°C

CALCIUM (g.m. ⁻³):BIOASSAY ANALYSIS

APPROXIMATELY 1 LITRE OF FLUID, AFTER THE TREATMENT DESCRIBED BELOW, WAS HELD AT 15°C AND GENTLY AERATED TO INSURE A MINIMUM DISSOLVED OXYGEN CONTENT OF 8mg/L. THE TEST ORGANISMS WERE RAINBOW TROUT FINGERLINGS. APPROXIMATE AVERAGE FISH SIZE:

LENGTH 3 cm; WEIGHT 1 g.

SAMPLE APPEARANCE AS RECEIVED: MUDDY WATER

SAMPLE FILTERED PRIOR TO BIOASSAY: YES NOLABORATORY TREATMENT*: YES NO

(* THIS TREATMENT MAY BE SUBJECT TO PATENTS HELD BY WILSON MUD SERVICES LTD. CANADA)

BIOASSAY RESULTS

TIME	% MORTALITY	TIME	% MORTALITY
IMMEDIATE	NIL	24 HOURS	
1 HOUR	NIL	48 HOURS	
4 HOURS	NIL	72 HOURS	
8 HOURS	100	96 HOURS	



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

EDMONTON FORT ST. JOHN CALGARY

SUMP FLUID ANALYSIS



COMPANY PARAMOUNT RESOURCES LTD. LABORATORY No EB-81-14648-2

LOCATION PARAMOUNT HB ET AL CAMERON J-71 N.W.T.

SAMPLE POINT SUMP

SAMPLED BY

OTHER SAMPLE DATA THREE SAMPLES WERE COMBINED BEFORE TESTING

DATE SAMPLED DATE RECEIVED: MARCH 9, 1981 DATE REPORTED: MARCH 16, 1981

FLUID CHEMISTRY

pH @ 20°C

TOTAL DISSOLVED SOLIDS (g.m.⁻³)CHLORIDE (g.m.⁻³)

DRIED @ 105°C

SULPHATE (g.m.⁻³)

IGNITED @ 550°C

CALCIUM (g.m.⁻³)BIOASSAY ANALYSIS

APPROXIMATELY 1 LITRE OF FLUID, AFTER THE TREATMENT DESCRIBED BELOW, WAS HELD AT 15°C AND GENTLY AERATED TO INSURE A MINIMUM DISSOLVED OXYGEN CONTENT OF 8mg/L. THE TEST ORGANISMS WERE RAINBOW TROUT FINGERLINGS. APPROXIMATE AVERAGE FISH SIZE:

LENGTH 3 cm; WEIGHT 1 g.

SAMPLE APPEARANCE AS RECEIVED:

SAMPLE FILTERED PRIOR TO BIOASSAY: YES NOLABORATORY TREATMENT*: YES NO

SAMPLE TREATED WITH 0.1 lb/bbl HYDRO DARCO B ACTIVATED CARBON AND MIXED FOR 6 HOURS. SAMPLE WAS FLOCCULATED WITH 70 lb/1000 bbl ALUMINUM SULPHATE AND 1 lb/1000 bbl CROSFLOC CFN-10, PRODUCING 80% SETTLING IN 1 HOUR. THE RESULTING pH OF 9.0 WAS ADJUSTED TO 8.4 WITH 10 lb/1000 bbl SAPP.

*****THIS TREATMENT SHOULD DETOXIFY THIS SUMP*****

(* THIS TREATMENT MAY BE SUBJECT TO PATENTS HELD BY WILSON MUD SERVICES LTD. CANADA)

BIOASSAY RESULTS

TIME	% MORTALITY	TIME	% MORTALITY
IMMEDIATE	NIL	24 HOURS	NIL
1 HOUR	NIL	48 HOURS	NIL
4 HOURS	NIL	72 HOURS	NIL
8 HOURS	NIL	96 HOURS	NIL



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

EDMONTON FORT ST. JOHN CALGARY

SUMP FLUID ANALYSIS



COMPANY

PARAMOUNT RESOURCES LTD.

LABORATORY No.

EB-81-14648-3

LOCATION

PARAMOUNT HB ET AL CAMERON J-7⁶ N.W.T.

SAMPLE POINT

SUMP

SAMPLED BY

OTHER SAMPLE DATA

THREE SAMPLES WERE COMBINED BEFORE TESTING

DATE SAMPLED

DATE RECEIVED: MARCH 9, 1981

DATE REPORTED

MARCH 16, 1981

FLUID CHEMISTRY

pH @ 20°C

TOTAL DISSOLVED SOLIDS (g.m.⁻³)CHLORIDE (g.m.⁻³)

DRIED @ 105°C

SULPHATE (g.m.⁻³)

IGNITED @ 550°C

CALCIUM (g.m.⁻³)BIOASSAY ANALYSIS

APPROXIMATELY 1 LITRE OF FLUID, AFTER THE TREATMENT DESCRIBED BELOW, WAS HELD AT 15°C AND GENTLY AERATED TO INSURE A MINIMUM DISSOLVED OXYGEN CONTENT OF 8mg/L. THE TEST ORGANISMS WERE RAINBOW TROUT FINGERLINGS. APPROXIMATE AVERAGE FISH SIZE:

LENGTH 3 cm; WEIGHT 1 g.

SAMPLE APPEARANCE AS RECEIVED:

SAMPLE FILTERED PRIOR TO BIOASSAY: YES NOLABORATORY TREATMENT*: YES NO

SAMPLE TREATED WITH 0.2 lb/bbl HYDRO DARCO B ACTIVATED CARBON AND MIXED FOR 6 HOURS. SAMPLE WAS FLOCCULATED WITH 70 lb/1000 bbl ALUMINUM SULPHATE AND 1 lb/1000 bbl CROSFLOC CFN-10, PRODUCING 80% SETTLING IN 1 HOUR. THE RESULTING pH OF 9.0 WAS ADJUSTED TO 8.5 WITH 10 lb/1000 bbl SAPP.

(* THIS TREATMENT MAY BE SUBJECT TO PATENTS HELD BY WILSON MUD SERVICES LTD. CANADA)

BIOASSAY RESULTS

TIME	% MORTALITY	TIME	% MORTALITY
IMMEDIATE	NIL	24 HOURS	NIL
1 HOUR	NIL	48 HOURS	NIL
4 HOURS	NIL	72 HOURS	NIL
8 HOURS	NIL	96 HOURS	NIL



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

EDMONTON FORT ST. JOHN CALGARY

SUMP FLUID ANALYSIS



COMPANY PARAMOUNT RESOURCES LTD. LABORATORY No. EB-81-14648-4

LOCATION PARAMOUNT HB ET AL CAMERON J-71' N.W.T.

SAMPLE POINT SUMP

SAMPLED BY

OTHER SAMPLE DATA THREE SAMPLES WERE COMBINED BEFORE TESTING

DATE SAMPLED: DATE RECEIVED: MARCH 9, 1981 DATE REPORTED: MARCH 16, 1981

FLUID CHEMISTRY

pH @ 20°C

TOTAL DISSOLVED SOLIDS (g.m.⁻³):

CHLORIDE (g.m.⁻³):

DRIED @ 105°C

SULPHATE (g.m.⁻³):

IGNITED @ 550°C

CALCIUM (g.m.⁻³):

BIOASSAY ANALYSIS

APPROXIMATELY 1 LITRE OF FLUID, AFTER THE TREATMENT DESCRIBED BELOW, WAS HELD AT 15°C AND GENTLY AERATED TO INSURE A MINIMUM DISSOLVED OXYGEN CONTENT OF 8mg/L THE TEST ORGANISMS WERE RAINBOW TROUT FINGERLINGS. APPROXIMATE AVERAGE FISH SIZE:

LENGTH 3 cm; WEIGHT 1 g

SAMPLE APPEARANCE AS RECEIVED:

SAMPLE FILTERED PRIOR TO BIOASSAY: YES NO

LABORATORY TREATMENT*: YES NO

SAMPLE TREATED WITH 0.3 lb/bbl HYDRO DARCO B ACTIVATED CARBON AND MIXED FOR 6 HOURS. SAMPLE WAS FLOCCULATED WITH 70 lb/1000 bbl ALUMINUM SULPHATE AND 1 lb/1000 bbl CROSFLOC CFN-10, PRODUCING 80% SETTLING IN 1 HOUR. THE RESULTING pH OF 9.0 WAS ADJUSTED TO 8.5 WITH 10 lb/1000 bbl SAPP.

(* THIS TREATMENT MAY BE SUBJECT TO PATENTS HELD BY WILSON MUD SERVICES LTD. CANADA)

BIOASSAY RESULTS

TIME	% MORTALITY	TIME	% MORTALITY
IMMEDIATE	NIL	24 HOURS	NIL
1 HOUR	NIL	48 HOURS	NIL
4 HOURS	NIL	72 HOURS	NIL
8 HOURS	NIL	96 HOURS	NIL



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

EDMONTON FORT ST. JOHN CALGARY

SUMP FLUID ANALYSIS



COMPANY PARAMOUNT RESOURCES LTD. LABORATORY No. EB-81-14648-5

LOCATION PARAMOUNT HB ET AL CAMERON J-71 N.W.T.

SAMPLE POINT SUMP

SAMPLED BY

OTHER SAMPLE DATA THREE SAMPLES WERE COMBINED BEFORE TESTING

DATE SAMPLED DATE RECEIVED: MARCH 9, 1981 DATE REPORTED: MARCH 16, 1981

FLUID CHEMISTRY

pH @ 20°C

TOTAL DISSOLVED SOLIDS (g.m.⁻³):CHLORIDE (g.m.⁻³)

DRIED @ 105°C

SULPHATE (g.m.⁻³)

IGNITED @ 550°C

CALCIUM (g.m.⁻³)BIOASSAY ANALYSIS

APPROXIMATELY 1 LITRE OF FLUID, AFTER THE TREATMENT DESCRIBED BELOW, WAS HELD AT 15°C AND GENTLY AERATED TO INSURE A MINIMUM DISSOLVED OXYGEN CONTENT OF 8mg/L. THE TEST ORGANISMS WERE RAINBOW TROUT FINGERLINGS. APPROXIMATE AVERAGE FISH SIZE:

LENGTH 3 cm; WEIGHT 1 g.

SAMPLE APPEARANCE AS RECEIVED:

SAMPLE FILTERED PRIOR TO BIOASSAY: YES NO

LABORATORY TREATMENT*: YES NO

SAMPLE TREATED WITH 0.4 lb/bbl HYDRO DARCO B ACTIVATED CARBON AND MIXED FOR 6 HOURS. SAMPLE WAS FLOCCULATED WITH 70 lb/1000 bbl ALUMINUM SULPHATE AND 1 lb/1000 bbl CROSFLOC CFN-10, PRODUCING 80% SETTLING IN 1 HOUR. THE RESULTING pH OF 8.9 WAS ADJUSTED TO 8.5 WITH 10 lb/1000 bbl SAPP.

(* THIS TREATMENT MAY BE SUBJECT TO PATENTS HELD BY WILSON MUD SERVICES LTD. CANADA)

BIOASSAY RESULTS

TIME	% MORTALITY	TIME	% MORTALITY
IMMEDIATE	NIL	24 HOURS	NIL
1 HOUR	NIL	48 HOURS	NIL
4 HOURS	NIL	72 HOURS	NIL
8 HOURS	NIL	96 HOURS	NIL



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

EDMONTON FORT ST. JOHN CALGARY

SUMP FLUID ANALYSIS



COMPANY PARAMOUNT RESOURCES LTD. LABORATORY No. EB-81-14648-6

LOCATION PARAMOUNT HB ET AL CAMERON J-7⁶ N.W.T.

SAMPLE POINT SUMP

SAMPLED BY

OTHER SAMPLE DATA THREE SAMPLES WERE COMBINED BEFORE TESTING

DATE SAMPLED DATE RECEIVED: MARCH 9, 1981 DATE REPORTED: MARCH 16, 1981

FLUID CHEMISTRY

pH @ 20°C

TOTAL DISSOLVED SOLIDS (g.m. ⁻³)CHLORIDE (g.m. ⁻³)

DRIED @ 105°C

SULPHATE (g.m. ⁻³)

IGNITED @ 550°C

CALCIUM (g.m. ⁻³)BIOASSAY ANALYSIS

APPROXIMATELY 1 LITRE OF FLUID, AFTER THE TREATMENT DESCRIBED BELOW, WAS HELD AT 15°C AND GENTLY AERATED TO INSURE A MINIMUM DISSOLVED OXYGEN CONTENT OF 8mg/L. THE TEST ORGANISMS WERE RAINBOW TROUT FINGERLINGS. APPROXIMATE AVERAGE FISH SIZE:

LENGTH 3 cm; WEIGHT 1 g.

SAMPLE APPEARANCE AS RECEIVED:

SAMPLE FILTERED PRIOR TO BIOASSAY: YES NOLABORATORY TREATMENT*: YES NO

SAMPLE TREATED WITH 0.5 lb/bbl HYDRO DARCO B ACTIVATED CARBON AND MIXED FOR 6 HOURS. SAMPLE WAS FLOCCULATED WITH 70 lb/1000 bbl ALUMINUM SULPHATE AND 1 lb/1000 bbl CROSFLOC CFN-10, PRODUCING 80% SETTLING IN 1 HOUR. THE RESULTING pH OF 8.9 WAS ADJUSTED TO 8.5 WITH 10 lb/1000 bbl SAPP.

(* THIS TREATMENT MAY BE SUBJECT TO PATENTS HELD BY WILSON MUD SERVICES LTD. CANADA)

BIOASSAY RESULTS

TIME	% MORTALITY	TIME	% MORTALITY
IMMEDIATE	NIL	24 HOURS	NIL
1 HOUR	NIL	48 HOURS	NIL
4 HOURS	NIL	72 HOURS	NIL
8 HOURS	NIL	96 HOURS	NIL

Total Solids	7,222	mg/L
Total suspended solids	2,904	mg/L
Oil & grease	12	mg/L
pH	7.7	
Chloride	210	mg/L

	<u>TOTAL</u>	<u>DISSOLVED</u>
Mercury	0.13 ppb	0.13 ppb
Chromium	<0.01 ppm	<0.01 ppm
Zinc	1.15 ppm	<0.02 ppm
Lead	0.43 ppm	<0.02 ppm
Cadmium	<0.01 ppm	<0.01 ppm
Nickel	<0.02 ppm	<0.02 ppm
Copper	0.060 ppm	0.006 ppm
Iron	14.1 ppm	0.09 ppm

