

PR 66-30

MUD AND CUTTINGS ANALYSIS  
FOR  
HALE RIVER NO. 1 WELL  
WILDCAT  
NORTHERN TERRITORY  
AUSTRALIA  
BY  
CORE LABORATORIES AUSTRALIA (QLD) LTD

OPEN FILE

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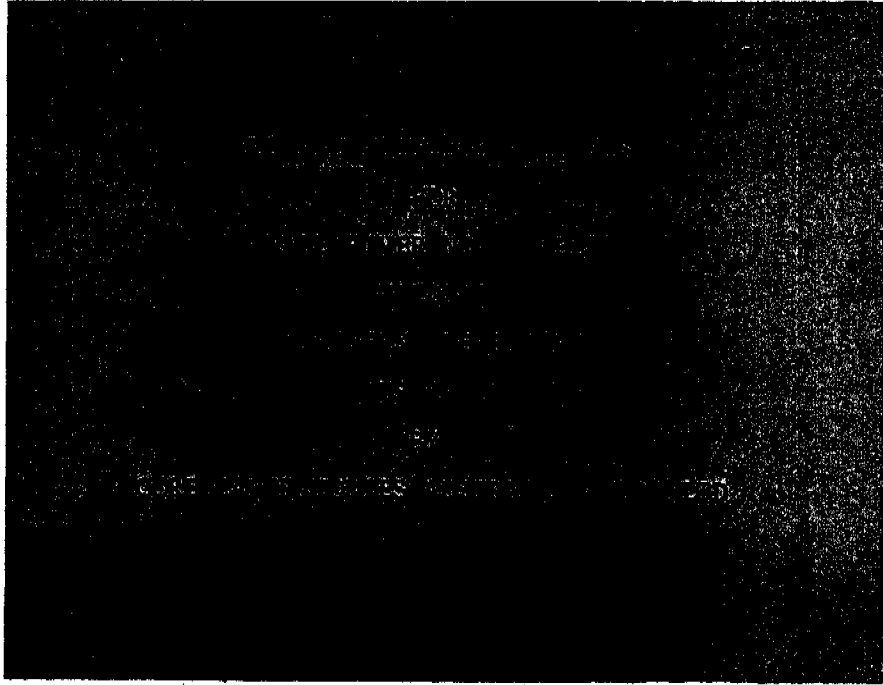


P00991

NORTHERN TERRITORY  
GEOL. SURVEY



PR 66-30



Sect.

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**OPEN FILE**

NORTHERN TERRITORY  
GEOLOGICAL SURVEY

DEPT OF MINES & ENERGY  
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P00991



# CORE LABORATORIES AUSTRALIA (QLD) LTD.

*Petroleum Reservoir Engineering*

BRISBANE, AUSTRALIA

24 NOVEMBER 1966

G.P.O. BOX 664K  
CABLE: CORELAB  
PHONE: ~~2361396~~

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AMERADA PETROLEUM CORPORATION OF AUSTRALIA LTD.  
GUARDIAN ASSURANCE BUILDING,  
380 QUEEN STREET,  
BRISBANE. QUEENSLAND.

ATTENTION: MR. C. FLITTIE

SUBJECT: MUD AND CUTTINGS ANALYSIS  
HALE RIVER NO. 1 WELL,  
WILDCAT,  
NORTHERN TERRITORY,  
AUSTRALIA.

GENTLEMEN:

A CORE LABORATORIES AUSTRALIA LTD. mud and drill cuttings analysis unit was present at the site of the subject well during drilling operations from surface to the total depth of 5683 feet.

Using standard equipment plus a Programmed Hydrocarbon Detector (Rapid Sampling Gas Chromatograph), the drilling fluid was monitored continuously for hydrocarbon content and the drill cuttings were checked at regular intervals for oil content and lithology. The results of these operations plus a lithologic description of cores recovered are given on the accompanying Grapholog.

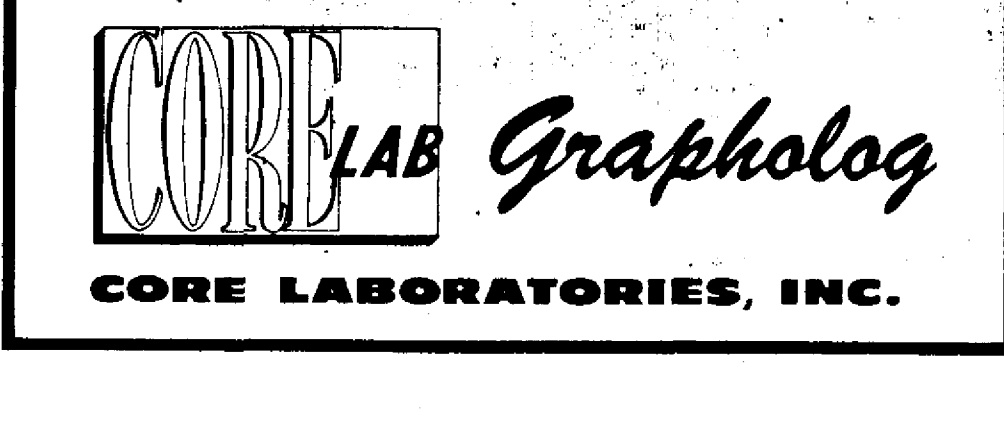
No significant shows were encountered to total depth.

We sincerely appreciate the opportunity to have been of service, and trust that the information furnished in this report, and during drilling operations, as assisted in the evaluation of this well.

Yours very truly,  
CORE LABORATORIES AUSTRALIA (QLD) LTD.



JOE B. MCADAMS  
RESIDENT MANAGER



CORE LABORATORIES, INC.

COMPANY: AMERADA PETROLEUM CORPORATION LIMITED. WELL: HALP RIVER NO. 1. FIELD: WILDCAT. LOCATION: NORTHERN TERRITORY, AUSTRALIA. LATITUDE: 25°15'50"S. LONGITUDE: 136°43'55"E.

DEPTH LOGGED FROM: SURFACE TO 5683 FT. DATE LOGGED: 16 OCTOBER 1966. TO 10 NOVEMBER 1966. CREW CHIEF: SCOTT. FILE NO.: F.N. 126. DRG. FLUID: WATER. SURFACE TO 1345 FT. GEL: 1345 TO 5683 FT.

These analyses or interpretations are based on observations and material supplied by the client to whom, and for whose accounts and confidentially, the reports are made. The interpretations or analyses represent only the best opinion of Core Laboratories, Inc. and are not intended to constitute a warranty or representation as to the accuracy or reliability of any data or other material used or in connection with which such reports are made or relied upon.

LEGEND. ABBREVIATIONS: NB = NEW BIT, CO = CIRCULATED OUT, DST = DRILL STEM TEST, LAT = LOGGED AFTER TRIP, TB = TRIP GAS, NR = NO RETURNS, DS = DIRECTIONAL SURVEY, DC = DEPTH CORRECTION, DEPTHS CORRESPOND TO DRILL PIPE MEASUREMENTS MEASURED FROM KELLY BUSHING. RESISTIVITY, OHM METERS: Rm = MUD, Rmc = MUD CAKE, Rmf = MUD FILTRATE. MUD DATA: CK = CAKE THICKNESS 32nds, V = VISCOSITY API SECONDS, F = FILTRATE API CC'S, W = WEIGHT, S = SALINITY, ppm Cl. LITHOLOGY: SAND, SILT, CLAY, COLOMITE, SYENITE, ARKOSE, MICRO-DIORITE, PHYLLITE, FELSITE, MUDSTONE.

HYDROCARBON ANALYSIS. DRILLING MUD: Butane & Pentane 5, Ethane & Propane 10, Methane 50, Total Gas & Methane 10. DRILL CUTTINGS: Butane & Pentane, Ethane & Propane, Methane, Total Gas & Methane 10.

DRILLING RATE MIN/FT x FT/HR. Scale changes at: 4756'; 4860'. DRILLING LOG: DSX0, DS00, DS10, DS20, DS30, DS40, DS50, DS60, DS70, DS80, DS90, DS100, DS110, DS120, DS130, DS140, DS150, DS160, DS170, DS180, DS190, DS200, DS210, DS220, DS230, DS240, DS250, DS260. LITHOLOGY: DSX0, DS00, DS10, DS20, DS30, DS40, DS50, DS60, DS70, DS80, DS90, DS100, DS110, DS120, DS130, DS140, DS150, DS160, DS170, DS180, DS190, DS200, DS210, DS220, DS230, DS240, DS250, DS260.

NOTE: HYDROCARBON LOGGING NOT COMMENCED UNTIL 1345'. NOTE: CASING RECORD 13 3/8" SET TO 1345'.

BIT No. 1A. REED T3A 17 1/2". SURFACE - 360' SANDSTONE. Cr, red, brn, yellow, clear. Loose unconsol. Qtz grains, fine-med, sub. ang-sub. rded, sorting poor-fair. Iron staining on some grains. Grain size increases to coarse-v/crse at 200 with grs. becoming ang-well rded. Also small amounts of SANDSTONE, v/f gr, Qtzose, garnetiferous, with white argill. matrix which becomes slightly calc. at 270'.

360' - 450' SANDSTONE. As above, also fine-very fine gr. grey-green Qtzose, glauconitic with calc. cement. Trace carbonaceous material. SILTSTONE. Grey/brn. grey. argill. kaolinitic, calc. in part, trace of coal specks.

450' - 1345' SILTSTONE. Grey, Qtzose, argill, calc. in part, with trace of limonite, patches of kaolinite, variably garnetiferous and micaceous. Grades to v/f gr. sandstone in places. Garnets very abundant 630' - 690'. Very calcareous over interval 670' - 900'.

CASING: 13 3/8" SET AT 1345'. BIT No. 1. H.T.C OSC-3. 8X".

1345' - 1380'. Samples badly contaminated with cement. 1380' - 1470' SANDSTONE. Loose Qtz. crn. Coarse, ang, clear to yllw. SHALE. Black, pyritic, carbonaceous, with traces white kaolin clay.

1470' - 1620' SHALE. Grey, dk. grey pyritic, micaceous, variably calc. and carbonaceous. Soft. Contains organic calcite prisms. 1620' - 2380' SHALE. Gradins in part to siltstone. Grey, Qtzose, argill, calc. micaceous, micro-micaceous, variably calcareous. Traces of glauconite and calcite prisms. Becomes garnetiferous at 1900'. Trace of dk. cry-brn. limestone at 1920' and 2340'. Trace of sandstone at 2200'. White, v/f gr. tight, calcareous.

2380' - 2420'. SILTSTONE. Lt. grey Qtzose, argill, calc. in part. Rarely pyritic and glauconitic. 2420' - 2520'. SILTSTONE. Lt. grey glauconitic in pt. slightly calc. interbedded with very slightly pyritic shale. 2520' - 2660'. SHALE. Grey, glauconitic, pyritic, with patches of white kaolin. Calcite prisms present, apparently organic.

1345' - 1380'. Methane 900 75. 1600'. Methane 450.

DRILLING LOG: DSX0, DS00, DS10, DS20, DS30, DS40, DS50, DS60, DS70, DS80, DS90, DS100, DS110, DS120, DS130, DS140, DS150, DS160, DS170, DS180, DS190, DS200, DS210, DS220, DS230, DS240, DS250, DS260.

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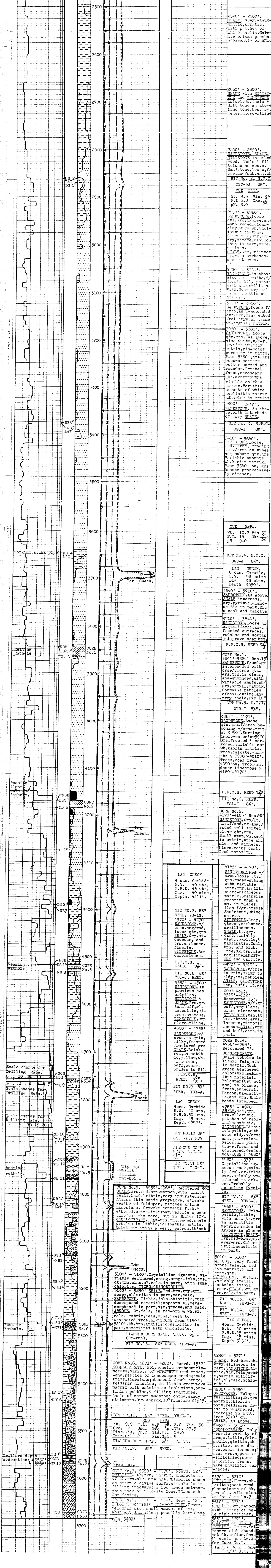
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2520' - 2660'.  
SHALE, grey, clauconitic, pyritic, with patches of calc. in part. Apparently organic.

2660' - 2800'.  
SHALE with thin silty and silty shale. Silty limestone as above. Limestone, brn. r. dense, micro-xilline.

2800' - 2950'.  
SANDSTONE, SHALE. Interbedded. Silty limestone as above. Sandstone, loose, f/c, anr/sub. anr. wh. BIT No. 2. H.T.C. OSC-31 8X".

MUD DATA.  
Wt. 9.5 Vls. 35  
F.L. 6.8 Cke. 32  
pH. 8.0

2950' - 3050'.  
SANDSTONE, loose f/c, anr. f/c, anr. sub. r. med. clear. cldy. with wh. kaolinitic coating. Silty shale, grey, micaceous, pyritic in part, trace. pyrite.

3050' - 3060'.  
SANDSTONE, loose f/c, anr. f/c, anr. sub. r. med. clear. cldy. with wh. kaolinitic coating. Silty shale, grey, micaceous, pyritic in part, trace. pyrite.

3060' - 3090'.  
SANDSTONE, loose f/c, anr. f/c, anr. sub. r. med. clear. cldy. with wh. kaolinitic coating. Silty shale, grey, micaceous, pyritic in part, trace. pyrite.

3090' - 3200'.  
SANDSTONE, loose f/c, anr. f/c, anr. sub. r. med. clear. cldy. with wh. kaolinitic coating. Silty shale, grey, micaceous, pyritic in part, trace. pyrite.

3200' - 3410'.  
SANDSTONE, loose f/c, anr. f/c, anr. sub. r. med. clear. cldy. with wh. kaolinitic coating. Silty shale, grey, micaceous, pyritic in part, trace. pyrite.

3410' - 3640'.  
SANDSTONE, loose, med. crse, grading to v/crse. at times anr-subang. qtz. crs. Variable amounts of wh. kaol. in matrix. From 3540' on, crs. become progressively cleaner.

MUD DATA.  
Wt. 10.2 Vls. 59  
F.L. 14 Cke. 32  
pH. 9.0

BIT No. 4. H.T.C. OWC-J 8X".  
LAG CHECK. 6 ozs. Carbide. H.W. 92 units. Lar. 38 mins. Depth 3650'.

3640' - 3710'.  
SANDSTONE, As above. SHALE interbeds, grey, pyritic, clauconitic in part. Trce coal and calcite.

3710' - 3844'.  
SANDSTONE, loose gr. s. qtz. f/c, anr. frosted surfaces, rindness and sorting improve near bit. H.F.C.H. REED 78

CORE No. 1. 3844' - 3864' Rec. 13 SANDSTONE, f/med. cr. Interbedded with crse/crse qtz. crs. qtz. is clear, anr-subbed, with variable amts. wh. rty. arfill. matrix. Contains pebbles of coal, qtzite, and rty. sh. Dip 10°

BIT No. 5. H.T.C. W7R-J 8X".  
3864' - 4170'. SANDSTONE, loose qtz. crs. f/c, anr. becoming v/crse-bit at 3950'. Sorting improves below 3960. Crs. frosted & corrod. w. variable amt wh. kaol. in matrix. Trce. calcite, garnets @ 3970'-4010'. Trces. coal from 4090' on. Trce. rty. sh. Dip 10°. Limestone @ 4160'-4170'.

H.F.C.H. REED 77 3  
BIT No. 6. REED. YS1-J 8X".  
CORE No. 2. 4170' - 4185' Rec. 4 SANDSTONE, Gry/Lt. rty. f/med. cr. anr. med. w. sorted clear qtz. crs. Small amt. wh. kaol. in matrix, trace wh. mica and garnets. Micro-veins coal. Good porosity.

4185' - 4370'. SANDSTONE, med-v/crse, loose qtz. crs. rind-subang with variable amts. rty. argill. matrix. Grain size greater than 2 mm. in places. Also f/c. qtzose Sandstone, white matrix, argill. SILTSTONE, grey, qtzose, carbonac. shale. Lt. rty. carb. variably clauconitic, & pyritic. Coal, brn. and black. Trce. dk. brn. microxilline. Limestone and Calcite.

4370' - 4517'. SANDSTONE, v/crse to rty. qtz. cldy. rty. pebbles. SHALE, SILTSTONE tan, buff, lt. rty.

CORE No. 3. 4517' - 4522' Recovered 15'. SANDSTONE, v/f. cr. buff, argillac. micro-micaceous. SILTSTONE, tan, lt brn. qtzose, argillaceous, micromicaceous. SHALE, grey and buff, carb. in part.

CORE No. 4. 4522' - 4763'. RECOVERED 7'. CONGLOMERATE. Shale pebbles in lithic felspathic matrix. Much green weathered chloritic siltstone. Feldspar (Orthoclase) is orange, fresh, euhedral. Maroon, haematitic, and grn. shale bands interbed.

4763' - 4920'. SHALE, red, crn. brn. chloritic, patches of kaol. in haematitic SANDSTONE, lithic felspathic, with some cldy. v/crse anr. qtz. grains. Feldspar pink, some fresh and weathered. Grades to ARKOSE @ 4880'

4920' - 4937'. Crystalline igneous rock, mainly fresh, or. feldspar, variably weathered to arkose. Fresh nepheline xenoliths.

BIT No. 12. 8X" REED. YHWG-J.  
4937' - 5010'. SANDSTONE, felspathic, lithic, with anr. qtz. crs. in haematitic matrix. Grades to arkose in places. SILTSTONE, grey, brn. red-brn. grey-brn. chloritic, haematitic in part.

5010' - 5100'. ARKOSE. Very fresh orange. Fels. in red anr. matrix; small amt. qtz. Limestone, dk. brn. micaceous. Matrix contains fossil trces. SHALE, grn. rty. brn. calc. in part.

BIT No. 13. 8X" REED. YHWG-J.  
BIT No. 14. 8X" REED. YHWG-J.  
LAG CHECK. 4ozs. Carbide. H.W. 40 units. P.H.D. 45 units. Lar. 43 mins. Depth 5156'.

5230' - 5271'. SANDSTONE, red-brn. cherty, siliceous in part. SANDSTONE, lithic, var. felspathic, partly felspathic, calc. & chloritic.

5271' - 5330'. GREYWACKE. Felspathic, lithic, dk. grn. matrix, ch. r. in part. Feldspar, fresh to weathered. Grades to ARKOSE @ 4880'

5330' - 5521'. POLYCONGLOMERATE. Polyconglomerate, variety of vari-colored rind. -ang. pebbles of micaceous, shaly frags; limestone; abundant fresh orange. feldspar granules, in lithic greywacke matrix with calcite as inclusions, outlining pebbles & filling fractures. Bands of maroon mudstone, orange sandy stringers. Dip approx. 10°. Fracture dip 45°.

BIT No. 16. 8X" REED. YHWG-J.  
MUD DATA. Wt. 9.9 P.L. 6.8 PH. 8.0 Vis. 56 Cke. 2 Snd. 7/6 Apr. Vls. 27.5 Plas. Vls. 20.0 Vld. Pt. 15.0 Init. Gel. 2 Fm. Gel. 9 DIAMOND CORE HEAD. A.C.C. 66"

BIT No. 17. 8X" REED. YHWG-J.  
CORE No. 7. 5521' - 5570'. Recvd. 12'. PYLITE, dk. crn. matrix, micaceous on steep cleavage surfaces; calc. in filling fractures; a low grade metamorphic rock of Chlorite zone. Greenschist facies.

CORE No. 8. 5570' - 5683'. Recvd. 12'. PYLITE, possibly 100% SYNCLIN. Orange. Feldspar with small amount of qtz. abundant diagenetic; possibly hornblende. T.B. 5683'

5683' - 5700'. DIAMOND CORE HEAD. A.C.C. 66"

5100' - 5130'. Crystalline igneous, variably weathered, cntng. orange, fels. qtz. dk. crn. mins. sil. calc. in part, with some chlorite. MICRO-GRANODIORITE.

5130' - 5210'. SHALE, red-brn. rty. grn. matrix with chlorite in part, var. calc. SANDSTONE, lithic, fels. chloritic, much decomposed material appears sil. metamorphosed in part, var. qtzose, and calc. ARKOSE, Or. fels. in red-brn. & wh. sil. calc. matrix. Fels. crns. fresh to weathered. Trce. SILTSTONE from 5190'-5210'. Pk. brn. argillaceous, xilline in part, associated with wh. calcite.

DIAMOND CORE HEAD. A.C.C. 66". (Re-run).

BIT No. 15. 8X" REED. YHWG-J.

CORE No. 6. 5271' - 5288'. Recvd. 15.2" CONGLOMERATE. Polyconglomerate, variety of vari-colored rind. -ang. pebbles of micaceous, shaly frags; limestone; abundant fresh orange. feldspar granules, in lithic greywacke matrix with calcite as inclusions, outlining pebbles & filling fractures. Bands of maroon mudstone, orange sandy stringers. Dip approx. 10°. Fracture dip 45°.

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