NORTHERN TERRITORY GEOLOGICAL SURVEY [redacted] PR85-098 4.

AMOCO AUSTRALIA PETROLEUM COMPANY

AMOCO COMPOSITE WELL LOG

WELL BROADMERE NO. 1

WELL DATA

COORDINATES S16°19'47.963" LAT E 135°19'16.896" LONG	COUNTRY Australia
ELEVATION K.B. to Mean Sea: 578'(176.17m) Ground Level: 564'(169.46m)	SPUD DATE May 15, 1984
TOTAL DAYS 109	TOTAL DEPTH 7133'(2174.1m)
PLUG BACK TOTAL DEPTH Surface	CASING Last casing 13⅜" at 3224' (982.67m)
RIG TYPE National 110 OWNED BY Richter	CONTRACTOR Richter
AREA O.P. 191 Northern Territory	COMPLETION DATE Abandoned Aug 30,1984
CLASSIFICATION WHEN STARTED Wildcat	CLASSIFICATION AFTER COMPLETED Dry and Abandoned
METHOD OF COMPLETION Plugged and Abandoned	PALEONTOLOGIST None
GEOLOGISTS R.G. McCullough, C.E. Revilla, M.B. Womer	

LOGGING DATA

RUN No.	TYPE	DATE	SERVICE COMPANY	FIRST READING	LAST READING
1	ISF-BHC Sonic-GR-SP-CAL	May 18, 1984	Schlumberger	905' (275.84m)	52' (15.85m)
1	DLL-MSFL-GR-SP	June 08, 1984	"	4154' (1266.14m)	906' (276.15m)
2	ISF-BHC Sonic-MSFL-GR-SP	June 08, 1984	"	"	"
1	LDL-CNL-GR	June 09, 1984	"	"	"
1	HDT	June 09, 1984			
1	CST	June 09, 1984			
1	VSP	June 11, 1984		4154' (1266.14m)	0' (0m)
1	RFT	July 03, 1984		2577' (785.47m)	1530' (466.34m)
3	ISF-BHC Sonic-MSFL-GR-SP	August 20, 1984		6640' (2023.87m)	3223' (982.37m)
2	DLL-GR-SP	August 20, 1984		6631' (2021.13m)	3572' (1088.74m)
2	LDL-CNL-GR	August 20, 1984		6643' (2024.79m)	3722' (1134.46m)
2	HDT	August 21, 1984		6644' (2025.09m)	4030' (1228.34m)
2	CST	August 21, 1984		6611' (2015.03m)	4296' (1309.42m)

LEGEND

LITHOLOGIC SYMBOLS

Clastics: Arkose; Breccia; Conglomerate; Sandstone; Sedimentary quartzite; Cross-bedded sandstone; Calcareous sandstone; Shaly sandstone

Terrigenous: Clay; Shale; Claystone; Calcareous shale; Arenaceous shale; Siltstone; Calcareous siltstone

Carbonate rocks: Limestone; Massive or thick bedded limestone; Calcarenite; Calcirudite; Oolite and pisolite; Dolomite; Dolomitic or partially dolomitized limestone; Argillaceous limestone; Arenaceous limestone or sandy limestone; Chalk; Marl

Precipitates and gels: Chert; Anhydrite; Gypsum; Salt

Carbonaceous rocks: Coal; Peat

Metamorphic rocks: Schist; Gneiss; Metamorphic quartzite; Marble

Igneous rocks: Basement (undifferentiated); Granite and related plutonic acid plutonics; Deep intrusives (undifferentiated); Dike, sill; Extrusive; Tuff

FOSSIL SYMBOLS

Algae; Ammonites; Belemnites; Brachiopods; Brackish water fossils; Bryozoa; Charophytes; Conodonts; Corals; Crinoids; Diatoms; Echinoids; Fish remains; Fish scales; Foraminifera in general; Foraminifera larger; Foraminifera benthonic; Foraminifera benthonic large; Foraminifera pelagic; Fossils in general; Fusulinids; Gastropods; Graptolites; Incertae sedis; Lamellibranchs (pelecypods); Megafossils general; Microfossils general; Nummulites; Ostracods; Oysters; Pelecypods; Phosphates (organic); Plant remains; Pollen; Radiolaria; Salt water fossils; Shark teeth; Shell debris (detrital); Spicules; Spines; Spores; Stromatoporoids; Trilobites; Vertebrates; Wood silicified

MISCELLANEOUS SYMBOLS

Authigenic quartz; Chert; Concretions; Concretion calcareous; Concretion ferruginous; Faults; Oriented dip; Concretions siliceous; Limonite hematite; Glauconite; Pyrite; Siderite; Gas show; Oil show

OPERATIONAL SYMBOLS

Abnormal pressure gradients; Acidizing or stimulation; Casing set; Cement top behind casing (Temperature log); Cement top behind casing (Cement bond log); Combination string; Core (Conventional); Core (Diamond); Core (Sidewall); Core (Wire line); Drilled within an interval being cored; Drill stem test; Drill stem test (Failed); Formation consolidation (Plastic squeeze); Formation consolidation (Gravel pack); Tubing packer; Liner with interval and diameter; Perforation diameter, interval and number; Plug (Bridge plug); Plug (Cement plug); Plugged back T.D.; Production test or completion data; Squeezed perforations (Number of stages, type and interval)

LITHOLOGIC DESCRIPTION & REMARKS

Shale: dark grey to black, mod firm to soft, pyritic with v fine qtz crystals on surfaces of bedding planes.

Shale: A.A., Trace quartz vein material, clear, pyritic. V rare brown stain with yellow fluorescence and bright streaming yellow cut fluorescence. Probable fracture surfaces. Trace Oil Show.

Shale: A.A., V rare to trace fluorescence, slow cut fluorescence.

Shale: dark grey to black, with thin interbed of light grey shale firm to hard, blocky. V common fine disseminated pyrite. Common pyrite crystals. Rare calcite crystals (fracture fill?). Dull brown to orange fluorescence. Trace Oil Show.

Shale: dark grey to black A.A. Common to abundant, (1cm), spherical (calcitic/dolomitic?) Ooids. Rare bright yellow fluorescence with slow streaming cut fluorescence. Trace Oil Show.

Shale: A.A., blocky to splintery

Shale: Med grey to dark grey, firm, blocky to sub-fissile, non-calc. Rare fine disseminated pyrite. Trace to rare argillaceous dolomite? No visible porosity. V rare golden yellow fluorescence slow streaming cut, pale yellow residue. Trace Oil Show.

Shale: grey to black, A.A. Rare disseminated pyrite.

Shale: light grey to green A.A. Trace dolomitic shale

Shale: grey, A.A., trace to rare blue/green shale

Shale: Blocky, A.A.

Shale: A.A., clasts of black to brown shale within light grey/green shale matrix.

Shale: medium grey to green grey, firm to hard, blocky to sub-fissile, non-calc

Shale: green, A.A. Trace authigenic quartz. Trace Oil Show.

Shale: A.A., becoming dominantly fissile, V rare wispy laminations of black Fe sulfide

Shale: A.A., trace glauconite

Igneous: creamy white (feldspar), white to green, hard, blocky fracture, polycrystalline. Mottled texture.

Shale: light green/grey to black, hard, fissile to blocky, non-calc., siliceous. Trace Calcite: white to light grey with fine disseminated pyrite within the calcite.

Mudstone: Light brown, firm blocky, siliceous, grading to siltstone, interbedded with light green and black shales. No shows.

Siltstone/Mudstone: medium grey to light brown, blocky, firm, siliceous. V weak cream to pale yellow crush cut fluorescence. Trace Oil Show.

Siltstone/Mudstone: A.A., trace brown stain, very faint white cut fluorescence. Trace Pyrite. Trace Oil Show.

Shale/Mudstone: light green, firm to hard, fissile, non-calc., siliceous. Mudstone A.A.

Shale/Mudstone: A.A., common to trace glauconite

Shale: ... siliceous micromicaceous

Shale/Mudstone: A.A., Trace glauconite

Sandstone: translucent to light brown, fine to medium grained, sub-ang to sub-rnded, poor to fair sort. Commonly disaggregated. No shows.

Interbedded with Shale: dark green to black, fissile, firm, non-calc., siliceous.

Sandstone: clear to light tan, med grained with occasional coarse grains, sub-ang, fair sort. Commonly disaggregated. Common Pyrite. Spotty dark brown stain. No fluorescence, v weak pale orange to tan cut fluorescence. Creamy white to orange crush cut fluorescence. Pyrite associated with hydrocarbon stain. Trace Oil Show.

Sandstone: medium to dark grey, predominately med to coarse grained, sub-rounded, mod to well sorted. Commonly disaggregated. Common Pyrite. Trace to common spotty dark brown stain; no fluorescence v weak pale golden yellow slow streaming crush cut fluorescence. Pyrite associated with hydrocarbon stain. Trace Oil Show.

Sandstone: a.a. Spotty dark brown stain. No Crush Cut fluorescence. Dry samples, spotty dull golden yellow slow streaming cut fluorescence. V poor to trace Oil Show.

Sandstone: A.A., poorly sorted. No shows.

Sandstone: creamy white to light green, fine grained, well sorted, sub-rounded. Trace Pyrite. No shows.

Sandstone: med grey to tan, mod to well sorted, sub-rounded to sub-angular. No shows.

Sandstone: red to pink, fine to medium grained, sub-ang to sub-rnded. Commonly disaggregated. V common hematite.
Interbedded with Shale: violet to red, fissile to blocky, hard, non-calc., siliceous. Common hematite. No shows.

Sandstone: A.A., No shows.

Sandstone: A.A.
Interbedded with Shale: reddish brown, fissile to blocky, hard, hematitic. Non-calc., siliceous. Clay rich. Trace siltstone. No Shows.

Sandstone: A.A.
Shale: A.A., Trace siltstone and trace glauconite. No shows.

Shale: dark grey to black, blocky to fissile, non-calc., siliceous.
Interlaminated to interbedded with Sandstone: grey, v fn to fn grained, mod to well sorted, sub-ang, siliceous. No shows; and
Siltstone: white to yellow, mod to well sorted, sub-rnded, siliceous. No shows.

A.A., Trace Pyrite and Mica

Mudstone: med to dark grey, blocky to fissile, non-calc., siliceous.
Interbedded to interlaminated with Sandstone/Siltstone: light grey, v fine grained, well sorted, sub-rnded. No shows.

Diorite Sill: dark green to white, mottled texture, v hard, v ang fragments. Intergrowths of euhedral and anhedral, white to dark grained silicate minerals, increasing in coarseness of crystallinity with depth. Individual cutting fragments commonly mono-crystaline. Average crystal size is 1cm.

3320' to 3302.22 from Core
Amdel's Petrographic Description
Pyroxene: 34%
Orthoclase: 25%
Plagioclase: 20%
Amphibole: 10%
Chlorite: 4%
Quartz: 3%
Iron Oxide: 3% (probably magnetite)
Biotite: 1%

Petrographic description 3320' Diorite: Dark green with white and pink mottling, coarsely x-talline (approx 1cm), v hard, v angular fragments. Intergrowth of euhedral and anhedral, light and dark silicate minerals: Feldspar, predom. Plagioclase, proxene, and other Ferromagnesian Minerals. Trace pyrite, sparry calcite. Cutting fragments commonly monomineralic.

Diorite: A.A., decreasing in crystal size

Diorite: A.A., decreasing in crystal size

Interbedded Siltstone: light to medium grey/green, granular, indistinct grain boundaries, v hard, blky to conchoidal fracture. Highly silicified. No shows

Shale: light green to grey, brittle, fissile to blocky, v hard, non-calc., siliceous

Siltstone: A.A., trace mica. No shows

Shale: A.A., trace to common glauconite.

Siltstone/Shale: A.A., trace glauconite. No shows

Sandstone: lt gy to translucent, fn to coarse, predom fn to med grnd, sub-rnd, commonly ang due to fracture charact. Mod sort. No shows

Sandstone: clr to crmy white to pink, fn to crse grnd, predom fn to med grnd, poor to fair sort, sub-rnded to rnded.

Quartzite: Conchoidal frac, v hard. Silica cmt with trace of intergran hematite. Massive. No shows

Petrographic Description:
Quartz: >95%
Goethite/limonite: 2%
? Kaolinite: 1-2%
Poros: trace

Sandstone: A.A. trace hematite cmt. No show.

Sandstone: A.A., trace to v common intergranular hematite and specular hematite? No Shows

Sandstone: crmy wht to red/brn, fn grnd. Quartz Arenite. Blky fract, firm to hard. Silica and hematitic cmt. Interlaminated to interbedded with Siltstone: maroon to red/brn hematitic and micaceous. Hard, silica and hematitic cmt. No shows.

Sandstone: clr to pale yellow to red/brn, fn to v crse grnd, predom fn to med grnd, mod to well sorted, sub-rnded to rnded. Silica cmt with trace to common intergran hematite where fracturing is more common. Massive Quartz Arenite. Trace to common specular hematite. No show

Sandstone: translucent to dk gy, v fn to coarse, pred fn to med, ang to rnded. Quartz Arenite/Quartzite. Common hematite and specular hematite. Trace Kaolin. No shows

Lost Circulation Zone:
Sandstone: A.A., rare authigenic qtz x-tal faces but typically coated by hematite. Fracture fill: authigenic qtz either as anhedral clr to milky splinters or shards as 1mm pyramidal to dipyramidal clr qtz x-tals, perfectly euhedral. No shows

Sandstone: A.A., trace glauconite, and authigenic qtz. No shows

Sandstone: A.A., v common authigenic qtz and specular hematite. No shows

Sandstone: clr to lt grn/gry to reddish brn, v fn to cse grnd, predom fn grnd, poor to fair sort, sub-rnded to rnded. Interbedded to interlaminated with:
Siltstone: yellow to orange blky frac, siliceous.
Shale: var between dk gry to blk, fissile to blky, non-calc, siliceous. Acc: glauconite, hematite and mica. Coarsening upward cycles are common. No shows.

Shale: dk gry to blk, splintery to fissile, firm to hard. Micromicaceous, siliceous.

No wireline log below this point.

Sandstone: lt to med gry, predom indist grn boundries, poor sort, sub-rnded, silty and clay rich, hard silica cmt. No vis por. No Shows
Interbedded with Shale: dk gry, firm, fissile to sub-fissile, micaceous, non-calc. A phyllitic sheen in part. No shows

Sandstone: A.A., Shale A.A., v common mica. No shows.

Sandstone: lt to med gry, med to fn grnd, mod sort, sub-ang to sub-rnded, blky fract. Siliceous. No vis por. No shows. Trace v fn grnd sandstone/siltstone: poor sort, silica cmt. Commonly with shale laminae A.A. No shows.

Sandstone: A.A., increasingly calcareous. No vis por. No shows

Total Depth 7133 (2174.14m) MD
7112 (2167.70m) TVD