

PEABODY WATER WELL NAVAJO NO. 2
SE/SE Sec 20-36N-18E, Navajo Co. W.W. 178

P-W

County Navajo

Area Black Mesa

Lease No. _____

Well Name PEABODY COAL COMPANY NAVAJO No. 2 WATER WELL

Location NE SE NE Sec 29 Twp 36N Range 18E Footage est. 1450 ft - 450 ft
SE/SE 20 Q-39 9.45 x 17.21

Elev 6552 KB 6539 GR Spud Date _____ Completed 6/19/67 Total Depth 3650

Contractor _____

Casing Size _____ Depth _____ Cement _____ Drilled by Rotary _____ Cable Tool _____

Production Horizon _____

Initial Production _____

REMARKS _____

Elec Logs INDUCTION-GAMMA RAY LOG Sample Log _____
Applic. Plugging Completion Sample Descript. _____
to Plug Record Report Sample Set _____
Core Analysis _____
DSTs _____

Water well accepted by _____

Bond Co. & No. _____

Bond Am't \$ _____ Cancelled _____ Date _____ Organization Report _____

Filing Receipt _____ Dated _____ Well Book _____ Plat Book _____

Loc. Plat _____ Dedication _____

API NO. _____

Permit Number _____ Date Issued _____

W.W. 178

WW 178

NAVAJO No. 2 WELL
LITHOLOGIC SAMPLE LOG

Depth Interval	Lithologic Description
150 - 160	Sandstone & shale, reddish brown (surface burn).
160 - 170	Sandstone (90%) with shale same as above.
170 - 180	Same as above with reddish brown siltstone.
180 - 200	Shale, dark gray with coal.
200 - 210	Sandstone, light gray-white, very fine grained.
210 - 230	Coal with sandstone & shale as above.
230 - 240	Coal (95%), silty.
240 - 250	Siltstone, light gray with very fine grained sandstone.
250 - 260	Siltstone and coal (70%), good.
260 - 270	Siltstone (50%), light gray and coal (50%).
270 - 280	Shale and siltstone, light to dark gray.
280 - 290	Same as above with good clean coal.
290 - 360	Shale and siltstone, light gray.
360 - 370	Sandstone, light gray-white, very fine grained.
370 - 380	Same as above with a coal stringer.
380 - 390	Shale-siltstone, light gray (90%) with coal (10%).
390 - 430	Sandstone, white, very fine grained, sugary.
430 - 470	Shale-siltstone, light gray with sandstone (30%).
470 - 490	Sandstone, very fine grained friable with siltstone and shale.
490 - 500	Siltstone, light to dark gray.
510 - 550	Sandstone, medium grained subangular, friable with transparent quartz grains.
550 - 590	Sandstone, very fine grain, white with siltstone and shale, light gray.
590 - 610	Sandstone (50%) and shale-siltstone (50%).
610 - 620	Sandstone, white, very fine grained, hard.
620 - 640	Sandstone as above with dark gray shale-siltstone (50%).
640 - 650	Sandstone as above, carbonaceous.
650 - 670	Sandstone, white, very fine to medium grained.
670 - 690	Sandstone, light gray-white, very fine grained, friable (95%).
690 - 710	Sandstone, same as above with 5% dark gray shale.
710 - 720	Sandstone, same as above with 10% shale.
720 - 730	Sandstone, same as above with 5% shale.
730 - 790	Sandstone as above with 5-10% shale.
790 - 860	Shale, dark gray.
860 - 870	Shale, dark gray with sandstone stringer or cave.
870 - 950	Shale, dark gray with occasional burn cave.
950 - 960	Shale, dark gray with calcite.
960 - 1020	Shale, dark gray.
1020 - 1030	Shale, dark gray with massive calcite.
1030 - 1330	Shale, dark gray with occasional burn cave.

Mesa Verde

Mancos

755

Navajo No. 2 Well (continued)

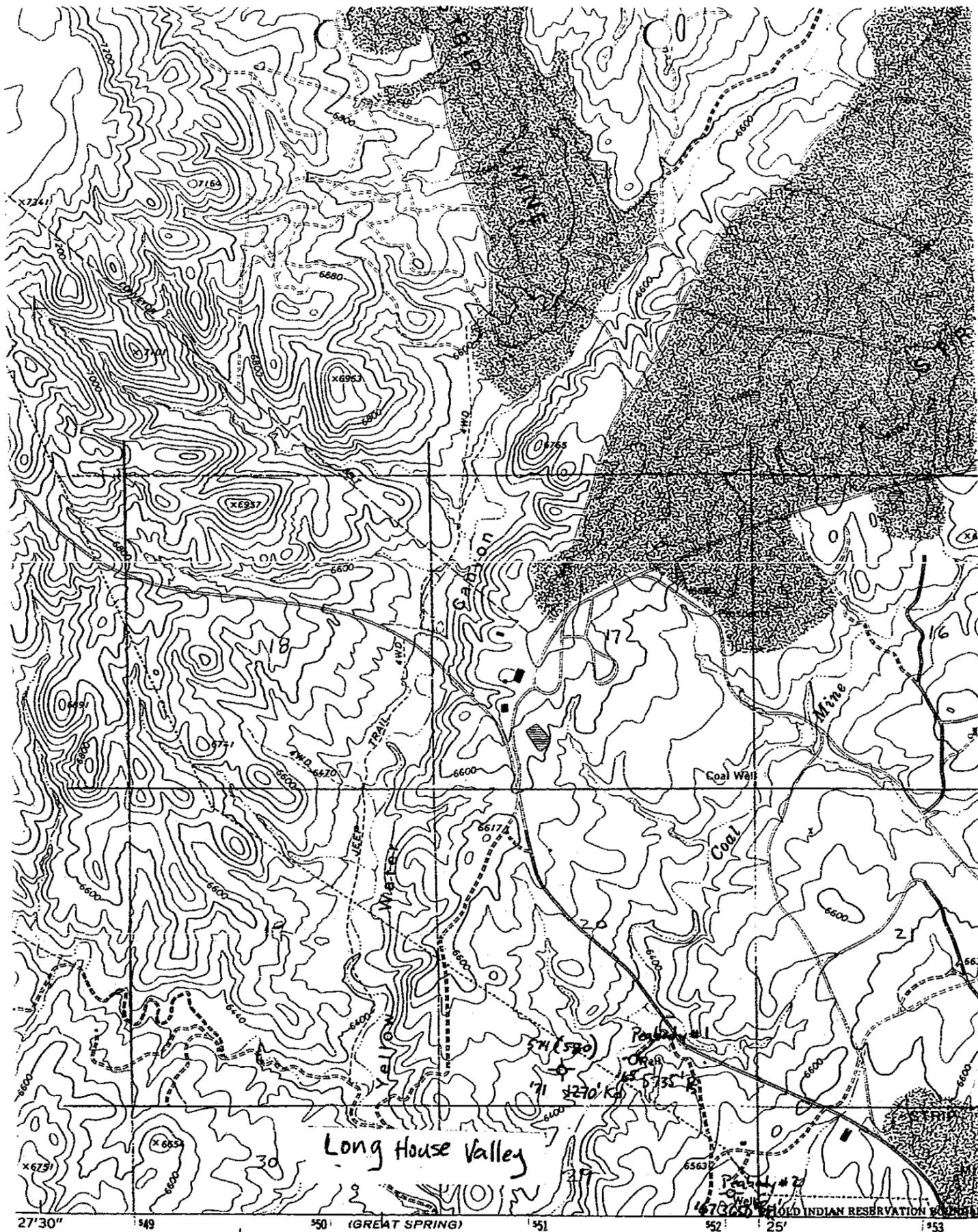
		<u>Depth Interval</u>	<u>Lithologic Description</u>
		1330 - 1350	Shale as above with 10% light gray-white very fine grained sandstone.
		1350 - 1360	Same as above with 20% sandstone.
		1360 - 1370	Same as above with 30% sandstone.
		1370 - 1380	Same as above with 40% sandstone.
		1380 - 1400	Sandstone light gray-white very fine grained (70%) with coal and cave.
Dakota		1410 - 1420	Sandstone as above (60-70%) with cave.
		1420 - 1430	Sandstone as above (50%) with cave.
		1430 - 1440	Sandstone as above (70%) with cave.
		1440 - 1450	Sandstone as above (80-90%).
		1450 - 1470	Sandstone, light gray-white, very fine grain with light green mudstone.
		1470 - 1510	Mudstone-siltstone, reddish brown, very fine grained, white sandstone & bentonitic and mudstone
		1510 - 1560	Sandstone, fine to medium grain with mudstone as above and abundant green bentonitic mudstone
		1560 - 1570	Same as above with abundant brown shale.
		1570 - 1600	Same as above with brown bentonitic mudstone.
		1600 - 1630	Same as above with green mudstone.
		1630 - 1660	Sandstone, white fine to medium grained with white and green mudstone.
		1660 - 1700	Same as above with abundant red mudstone.
Morrison		1700 - 1720	Mudstone, reddish brown.
		1720 - 1740	Mudstone, reddish brown, green and brown.
		1740 - 1810	Sandstone, white very fine-medium grain, friable with mudstone as above.
		1810 - 1910	Mudstone, reddish brown and sandstone, mudstone as above.
		1910 - 1990	Sandstone, white-gray green, very fine grained, and mudstone.
		1990 - 2060	Same as above with reddish brown siltstone.
		2060 - 2110	Sandstone, pink-red very fine grained (40%).
		2110 - 2130	Same as above with white bentonitic mudstone.
		2130 - 2160	Same as above with 50% reddish brown mudstone.
		2160 - 2170	Same as above with white bentonitic mudstone.
		2170 - 2210	Same as above with transparent calcite.
		2210 - 2130	Same as above with reddish brown siltstone.
Entrada		2230 - 2300	Sandstone, pink-red very fine grained (90%) with 10-20% reddish brown siltstone.
		2310 - 2350	Mudstone, reddish brown and very fine grained sandstone (50%).
		2350 - 2380	Sandstone, pink-red, very fine grained with 50% mudstone.

Navajo No. 2 Well (continued)

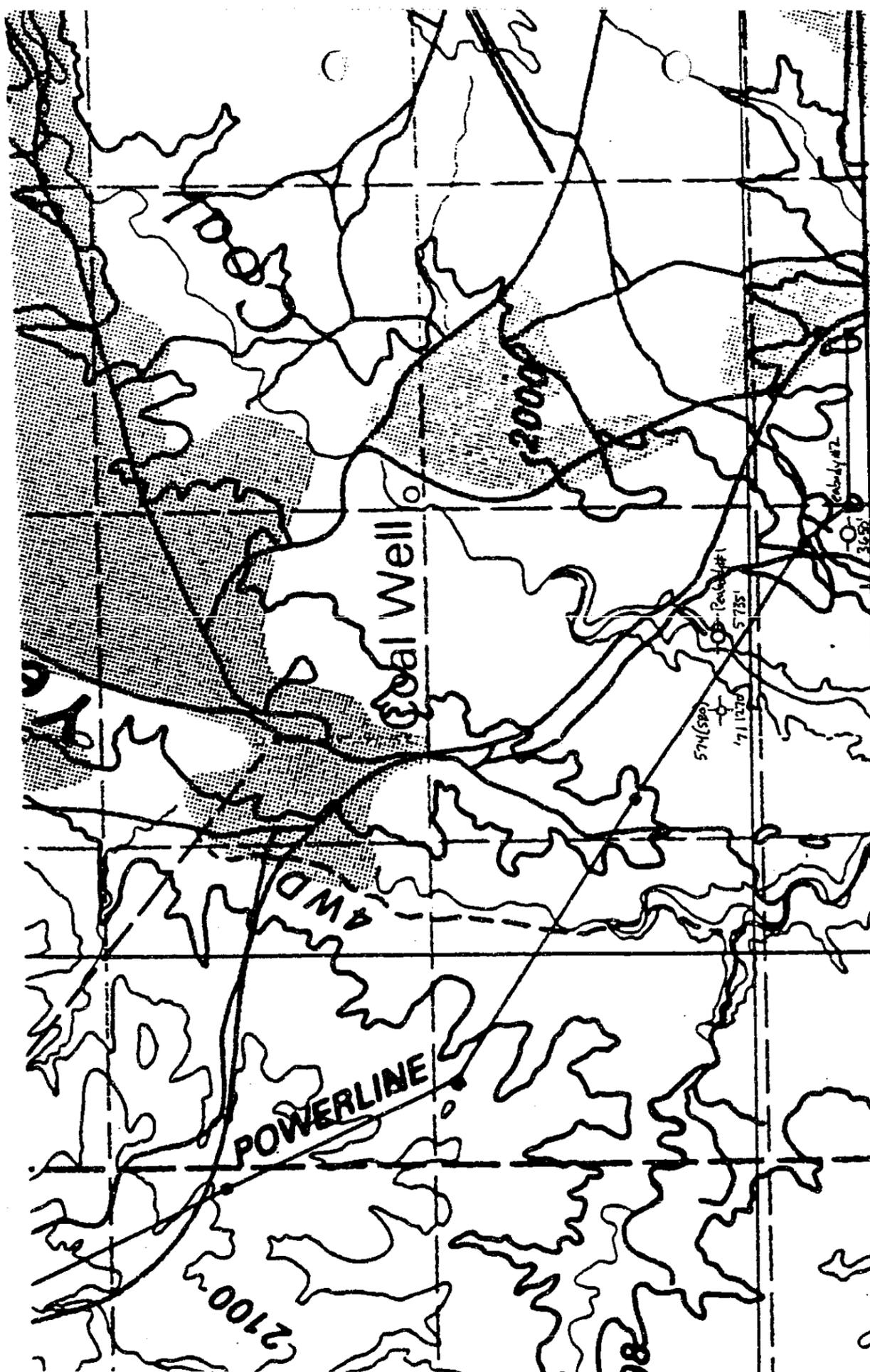
	Depth Interval	Lithologic Description
	2380 - 2400 ²³⁹⁰	Sandstone, pink, very fine grained (90%) and 10% reddish brown siltstone.
Carmel	2400 - 2440	Same as above with white bentonitic mudstone.
	2440 - 2460	Same as above with 50% white bentonitic mudstone.
	2460 - 2530	Mudstone, red-light pink (90%).
	2530 - 2550 ²⁵⁵⁰	Sandstone, pink-red, very fine grained.
	2550 - 2570	Same as above with light green mudstone.
	2570 - 2580	Sandstone, pink-red, very fine grained with 20% red-brown siltstone. (cave?)
	2580 - 2640	Same as above with 40% siltstone.
	2640 - 2670	Sandstone, pink-reddish brown, very fine grained (80%) and 20% reddish brown siltstone. (cave?)
	2670 - 2770	Same as above; the sand grains are subrounded to rounded.
	2770 - 2970	Sandstone, pink-reddish brown, very fine grained with subrounded grains.
Navajo	2970 - 3100	Same as above with abundant reddish brown siltstone. (cave?)
	3100 - 3150	Sandstone, pink-reddish brown, very fine grained with 30% reddish brown siltstone and shale. (cave?)
	3150 - 3170 ³²⁸⁵	Same as above with 40% reddish brown shale. (cave?)
	3170 - 3290	Same sandstone as above with 10% reddish brown shale.
	3290 - 3310	Sandstone, very fine grained with 30% soft reddish brown shale and a trace of chalk.
	3310 - 3320	Shale, reddish brown, verigated color.
	3320 - 3330	Shale, soft reddish brown with sticky claystone and some very fine grain sandstone.
Kayenta	3330 - 3340	Same as above with some light green shale and claystone.
	3340 - 3370	Same as above with very fine grained sandstone.
	3370 - 3380	Shale, reddish brown and fine grained sandstone with some white sandstone. Free of sticky clay.
	3380 - 3400	Shale-claystone reddish brown, sticky.
	3400 - 3420	Same as above with trace of hard fine grain sandstone.
	3420 - 3440 ³⁴³⁵	Same as above with some green shale.
	3440 - 3490	Claystone, reddish brown, sticky with shale and sandstone.
Wingate	3490 - 3500	Sandstone, dark orange, well cemented, fine grain and dark reddish brown shale.
	3500 - 3510	Sandstone, claystone, shale, reddish brown.
	3510 - 3520	Shale and claystone.
	3520 - 3530	Claystone, brick red.
	3530 - 3570	Shale, claystone and sandstone. All reddish brown with a trace of white claystone or CaCO ₃ .

Navajo No. 2 Well (continued)

<u>Depth Interval</u>	<u>Lithologic Description</u>
3570 - 3590	Sandstone, white, fine grained and orange brown shale, cave (?) - claystone.
3590 - 3630	Sandstone, medium grained weakly cemented, well rounded grains and fair sorting.
3630 - 3650	Sandstone, fine grained poor sorting, tight and siltstone.



27'30" 549 550 (GREAT SPRING) 551 552 25' 553
 sec Kayenta 1:100,000 3956 IV NW



R 18 E

425

55

Kayenta 1:100,000



OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
ROOM 202
1624 WEST ADAMS
Phoenix, Arizona 85007
PHONE: 271-5161

October 8, 1969

Gentlemen:

There has been some misunderstanding expressed concerning my letter to you of September 24, 1969 referring to the wells drilled in the Black Mesa area of Navajo County, Arizona, by Peabody Coal Company.

This information was released for you should you wish to publish same.

Yours truly,

John Bannister
John Bannister
Executive Secretary

Western Oil Reporter
Oil & Gas Journal
P.I.
Utah Oil Report
Munger Oilgram
SW Oil & Gas News
Ariz Natl Resource Serv

September 29, 1969

Mr. Guido Zecca
Gallup Blueprint & Engineering Corp.
303 South 2nd Street
Gallup, New Mexico 87301

Dear Mr. Zecca:

The Arizona Oil and Gas Conservation Commission is releasing all logs and related information concerning six deep water wells drilled by Peabody Coal Company at Black Mesa, Arizona, on the Navajo Reservation.

Under separate cover we are sending you the sepias of the well logs, and a location plat, on a loan basis.

Our release to industry states that interested individuals may obtain a copy of this material from Gallup Blueprint and Engineering Corporation, 303 South 2nd Street, Gallup, New Mexico, Telephone no. (505) 863-9396.

It is our understanding that you have complete responsibility for the handling and sale of this material, and are prepared to render prompt service.

Very truly yours,

John Bannister
Executive Secretary

/vb

Prabury Seal

September 24, 1969

Mr. Paul Lewis
Pan American Oil Co.
501 Airport Drive
Farmington, New Mexico 87401

Dear Paul:

I attempted to call you earlier today and failed to get through. I would appreciate it if you would release the attached information at your next scout check.

The Commission does have logs on the wells and, as you noted, we made arrangements for the commercial purchase of this information.

Hope to see you soon.

Sincerely,

John Bannister
Executive Secretary

/vb

Enc.

OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
ROOM 202
1624 WEST ADAMS
Phoenix, Arizona 85007
PHONE: 271-5161

September 24, 1969

Gentlemen:

The Arizona Oil and Gas Conservation Commission has released all available information concerning six deep water wells drilled since 1965 in the Black Mesa area, Navajo County, Arizona, on the Navajo Reservation, by Peabody Coal Company.

Shows of oil and gas were encountered in the Dakota during the drilling of one well which had 43 feet of indicated log porosity. A heavy oil scum covered the mud pits, and gas bubbles were visible in the flow line. No shows were reported in the other five wells. All of the wells exhibit considerable structural deformation, and all penetrated the Coconino formation.

A packet of information containing logs and a location plat is available from Gallup Blueprint & Engineering Corp., 303 South 2nd St., Gallup, New Mexico 87301, Telephone No. (505) 863-9396.

Yours truly,

John Bannister
Executive Secretary

/vb

SAMPLE

Mr. Guido Zecca
Gallup Blueprint & Engineering Corp.
303 South 2nd Street
Gallup, New Mexico 87301

Dear Mr. Zecca:

The Arizona Oil and Gas Conservation Commission is releasing all logs and related information concerning six deep water wells drilled by Peabody Coal Company at Black Mesa, Arizona, on the Navajo Reservation.

Under separate cover we are sending you the sepias of the well logs, and a location plat, on a loan basis.

Our release to industry states that interested individuals may obtain a copy of this material from Gallup Blueprint and Engineering Corp., 303 South 2nd Street, Gallup, New Mexico, Telephone No. (505) 863-9396.

It is our understanding that you have complete responsibility for the handling and sale of this material, and are prepared to render prompt service.

Very truly yours,

John Bannister

MINERALS DEPARTMENT

September 22, 1969

Mr. Guido Zecca
Gallup Blueprint & Engineering Corp.
303 South 2nd Street
Gallup, New Mexico 87301

Dear Mr. Zecca:

Delivered herewith are sepias of six wells drilled by Peabody Coal Co., at Black Mesa, in Navajo County, Arizona.

This material has been released by Peabody Coal Co., through the Arizona Oil and Gas Conservation Commission, of Phoenix, Arizona. They are preparing a letter of verification to you.

Interested operators may contact you for copies of this material. This office is not interested whatever in the selling or handling of copies purchased by interested persons, operators, companies, etc.

The following sepias have been loaned to you this date:

Well #1	6 sepias
Well #2	1 sepia
Well #3	1 sepia
Well #4	1 sepia
Well #5	1 sepia
Well #6	1 sepia
<u>TOTAL</u>	<u>11 sepias.</u>

Very truly yours,

/S/ PERRY K. HURLBUT

Perry K. Hurlbut
Minerals Supervisor

Bannister
Attachments
cc: Chrono
File
PKH:bjm:9/22/69

Memo to Mr. Bannister

September 22, 1969

Memo from J. Lambert

P. K. Hurlbut called today. He is mailing material on the #1 well. Same cover he is furnishing you a letter for the public release for P. I. and many others. He requests that you release the letter as nearly as he has written it as possible. He says that he has labored hard over the text of this letter and hopes that you will see fit to let it go as is. He also has included a letter that he would like for you to send to blue print company at Gallup. He has no druthers on this particular letter.

He has furnished them sepias of the logs on the #1, 2, 3, 4, 5, and 6 wells on a loan basis and apparently this letter is just the Commission's verification of this situation.

He would like for you to release these letters Wednesday if you have the time and inclination. He will talk to you on Monday the 29th or Tuesday the 30th.

94

THE NAVAJO TRIBE
WINDOW ROCK, ARIZONA
MINERALS DEPARTMENT



RAYMOND NAKAI
CHAIRMAN, Navajo Tribal Council

NELSON DAMON
VICE CHAIRMAN, Navajo Tribal Council

September 22, 1969

Mr. John Bannister
Arizona Oil and Gas Conservation Commission
1624 West Adams, Room 202
Phoenix, Arizona 85007

Dear John:

The following is a suggested release to P.I. and other agencies concerning the Peabody water wells at Black Mesa:

OIL AND GAS SHOWS REPORTED

The Arizona Oil and Gas Conservation Commission has released all ^{available} information concerning six deep water wells drilled since 1965 in the Black Mesa area, Navajo County, Arizona, on the Navajo Reservation, by Peabody Coal Co.

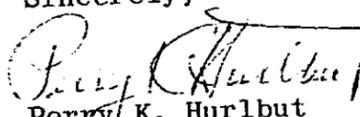
Shows of oil and gas were encountered in the Dakota during the drilling of one well which had 43 feet of indicated log porosity. A heavy oil scum covered the mud pits, and gas bubbles were visible in the flow line. No shows were reported in the other five wells. All of the wells exhibit considerable structural deformation, and all penetrated the Coconino formation.

A packet of information containing logs and a location plat is available from Gallup Blueprint & Engineering Corp., 303 South 2nd St., Gallup, New Mexico 87301. Telephone No. (505) 863-9396.

We have this date loaned the sepias of these logs, and a location plat, to Gallup Blueprint. The packet of material they will supply includes one copy each of all logs and the location plat.

We certainly appreciate your assistance in this matter.

Sincerely,


Perry K. Hurlbut
Minerals Supervisor

9-16-69

Jaham — a
letter will follow.

Just stick these
in your files.

Mum's the word
until I get the rest of
the facts to you.

about 1 week

PKH

THE NAVAJO TRIBE
WINDOW ROCK, ARIZONA
MINERALS DEPARTMENT

RAYMOND NAKAI
CHAIRMAN, Navajo Tribal Council

NELSON DAMON
VICE CHAIRMAN, Navajo Tribal Council



August 8, 1969

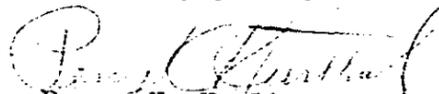
Mr. James Scurlock
Arizona Oil and Gas Conservation Commission
1624 West Adams, Room 202
Phoenix, Arizona 85007

Dear Mr. Scurlock:

The correct log top for the Pdc in the Peabody #1 water well at Black Mesa is 4963. Measured from the KB of 6403, this results in a datum of + 1440.

The other five wells did not penetrate the Pdc. However, if you are interested I can give you the Kd datums.

Sincerely yours,


Perry K. Hurlbut
Minerals Supervisor



Peabody

- ? #1 C-20-36N-18E
- ? 2, SE SE ~~SE~~ " "
- 3, SWNW 14-35N-18E
- 4. NE NW 16-35N-18E
- 5. NE SW 34-36N-18E
- 6. C-N $\frac{1}{2}$ N $\frac{1}{2}$ 26-36N-18E

Elev:

- 1 6403 KB
 - 2 6552 KB
 - 3 6458 KB
 - 4 6241 KB
 - 5 6606 KB
 - ~~6 6606 KB~~
6. 6686 KB
- PKA

T.D.

- 1- 5149
- 2. 3642
- 3. ~~3742~~ 3607
- 4. 3527
- 5. 3742
- 6. 3564