



CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
416 W. Congress St., Suite 100
Tucson, Arizona 85701
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

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MEMO

from
Kelsey Boltz

March 7, 1979

Dear Mr. Rubin:

Enclosed is the material which you sent Mr. Boltz with your letter of February 20 regarding Centennial Wash Uranium Property.

Thank you.

Sincerely,



Sue Matteson
Secretary to Mr. Boltz

Enclosures



GPU Service Corporation
Executive Plaza — Building E
4165 Montgomery Blvd., N.E.
Albuquerque, New Mexico 87109
505 881-9600

Home Office:
260 Cherry Hill Road
Parsippany, New Jersey 07054
201 263-4900

February 20, 1979

Kelsey Boltz, Executive Vice-President
Nuclear Dynamics Corporation
2871 Sky Harbor Blvd.
Phoenix, Arizona 85034

Dear Mr. Boltz:

Cherry Hill Fuels Corporation, a subsidiary of GPU Service Corporation, is offering for sale their mining lease in the Centennial Wash Uranium Property. The property underlies a large, contiguous block of claims and a lease in the Aguila Basin, adjacent to the Date Creek Basin, the new, major uranium district in western Arizona.

I would request that your office hold the enclosed material pertaining to the property in strictest confidence and that you return it to this office if your interest is less than earnest.

Respectfully,



Bruce Rubin
Regional Geologist-Western Division
Cherry Hill Fuels Corporation
Albuquerque

BR/sh

Encl.

RECEIVED

FEB 23 1979



GPU Service Corporation
Executive Plaza — Building E
4165 Montgomery Blvd., N.E.
Albuquerque, New Mexico 87109
505 881-9600

Home Office:
260 Cherry Hill Road
Parsippany, New Jersey 07054
201 263-4900

February 20, 1979

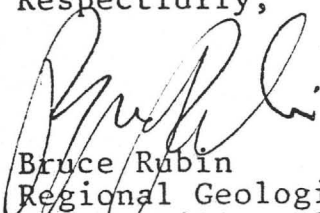
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Respectfully,



Bruce Ruben
Regional Geologist-Western Division
Cherry Hill Fuels Corporation
Albuquerque

BR/sh

Encl.

RECEIVED

FEB 23 1979

CENTENNIAL WASH URANIUM PROPERTY

Location

The Centennial Wash Uranium Prospect underlies 301 contiguous, unpatented mining claims and a 540 acre State of Arizona Prospecting Permit, a total of 6000 acres, about six miles north of the town of Aquila, Yavapai County, Arizona (map attached). The surface of the property is essentially flat and is easily accessible for exploration activities.

Validation and Assessment Work

Validation work has been completed on all 301 claims. Assessment work has been completed through August 31, 1980, and assessment work has been completed on the Prospecting Permit through July 18, 1979.

Geology, Geophysical Survey, and Drilling

The geologic section at Centennial Wash consists of gravels, conglomerates, sandstones, shales, and interbedded volcanics ranging in age from early Tertiary to Recent, within a geologic setting comparable to the adjacent Date Creek Basin, in which several operators report substantial uranium discoveries. Prior to drilling at Centennial Wash, a gravity/magnetometer survey was performed across the Aguila Valley in order to more fully understand the structural geology of the basement and the extent of the basin fill, a target for uranium mineralization. The geophysical survey indicated a major fault zone on the northern and eastern portions of the property (see claim map), and defined relative sediment thickness.

Drilling was designed to test the sediments on the upthrown side of the fault for radioactivity and then to use that information as a guide for continued shallow drilling on the upthrown block and for deeper drilling on the down-thrown block. Sixteen (16) exploratory drill holes were completed (average depth 631'), intersecting minor amounts of radioactivity at eight of the sixteen locations (see drill hole listing, lithology logs, and claim map). The drilling further defined the fault zone by indicating several minor displacements within the major zone, as schematically depicted on the cross section.

Due to the residual mineralization in sediments at eight drill locations in the main fault zone, it is believed that the major uranium potential at Centennial Wash lies at depth to the south and west of the main displacements..

Mining Lease

On April 28, 1978, GPU Service Corporation entered into a twelve (12) year renewable Mining Agreement with Sierra del Rio Nuclear, Inc., of Lakewood, Colorado, for the purpose of the exploration and development of unidentified uranium resources at the Centennial Wash Uranium Prospect. The Agreement was later assigned to Cherry Hill Fuels Corporation, a GPU subsidiary. The ongoing commitments to that lease agreement are:

<u>Commitment</u>	<u>Dollars</u>	<u>Due Date</u>
Advance Royalty to Sierra del Rio	\$16,400.00	April 28, 1979
Prospecting Permit		
- Assessment Work	5,400.00	July 19, 1979
- Annual Rental at \$1/acre	540.00	July 19, 1979
Advance Royalty to Waling and Rath (Prospecting Permit Assignors)	3,000.00	August 25, 1979
Sub Total for 1979	<u>\$25,340.00</u>	
Claim Assessment Work	<u>\$30,100.00</u>	September 1, 1980
Typical Annual Holding Cost	\$55,140.00	

These commitments recur annually during the term of the lease and the life of the prospecting permit.

Royalties

Sierra del Rio holds the following:

- a 10% gross value production royalty on sold raw crude ore produced from the premises;
- a 5% production royalty on sold leachates, slurries, or pregnant liquors;
- a 5% production royalty on sold yellowcake;
- a 10% net returns royalty on sold non-uranium minerals;
- an overriding royalty of 1% on the State of Arizona Prospecting Permit.

Waling and Rath hold a 2% production royalty on the Arizona Prospecting Permit, limited to a \$1,000,000 maximum.

The State of Arizona holds a royalty position on the Prospecting Permit, should a Mining lease be developed thereon.

Terms of Sale

Cherry Hill Fuels Corporation offers for sale all of its rights and responsibilities, as defined by the Mining Agreement of April 28, 1978, under the following terms:

- Buyer pays CHFC \$125,000 upon signing of a mutually acceptable contract.
- Buyer assumes all of CHFC's rights and responsibilities as defined by the April 28, 1978, Mining Agreement.
- CHFC retains a 2% yellowcake in kind royalty.

NOTE: Any sale of Cherry Hill Fuels interest in this property may require regulatory approval.

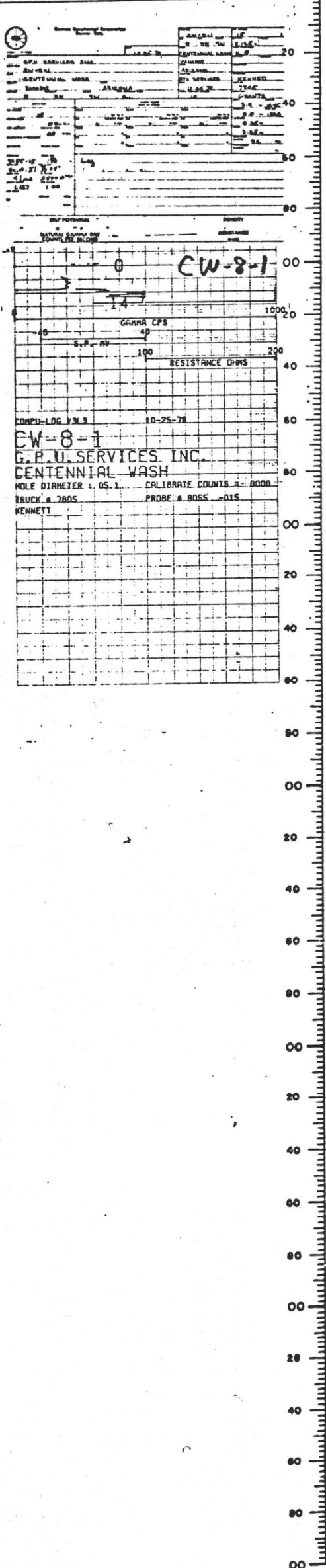
CENTENNIAL WASH DRILL HOLE INFORMATION

<u>Hole #</u>	<u>Location</u>	<u>Depth Drilled</u>	<u>Mineralization</u>
CW 8-1	Sec. 8 CENT # 52	15'	Barren
CW 8-2	Sec. 8 CENT # 67	16'	Barren
CW 8-3	Sec. 8 CENT # 66	110'	Barren
CW 8-4	Sec. 8 CENT # 64	65'	Barren
CW 9-1	Sec. 9 CENT # 182	55'	Barren
CW 9-2	Sec. 9 CENT # 184	210'	163'-3'/.0069
CW 9-3	Sec. 9 CENT # 212	229'	193.5'-2'/.0062
CW 10-1	Sec. 10 CENT # 253	360'	185'-4'/.004
CW 14-1	Sec. 14 CENT # 337	640'	301'-2'/.0053 552.5'-3'/.0053
CW 14-2	Sec. 14 CENT # 339	625'	385'-2'/.006
CW 14-3	Sec. 14 CENT # 340	430'	Barren
CW 14-4	Sec. 14 CENT # 337	1265'	719'-1'/.0072 724'-2'/.006 731'-2'/.0057 1083'-11.5'/.0039
CW 15-1	Sec. 15 CENT # 232	1240'	1121'-1'/.0074 1136'-3'/.0053 1141'-3'/.005
CW 15-2	Sec. 15 CENT # 232	1300'	761'-7'/.0041
CW 15-3	Sec. 15 CENT # 214	1020'	802.5'-2'/.0056
CW 1	Sec. 15 CENT # 213	2510'	Barren

NOTE: K-factor used was 5.58×10^{-6}

PROJECT Centennial Wash HOLE SIZE 5 1/8" AIR WATER HOLE NO. 8-1
 ELEVATION _____ NORTH 4700'N SWC Sec EAST 1500'E SWC Sec LOGGED BY P. Daw DATE 12-5-78
 SECTION 8 TOWNSHIP 8N RANGE 9W T.D. 15' P.D. 14'

ELECTRIC LOG DEPTH STRIP LOG **LITHOLOGY LOG**



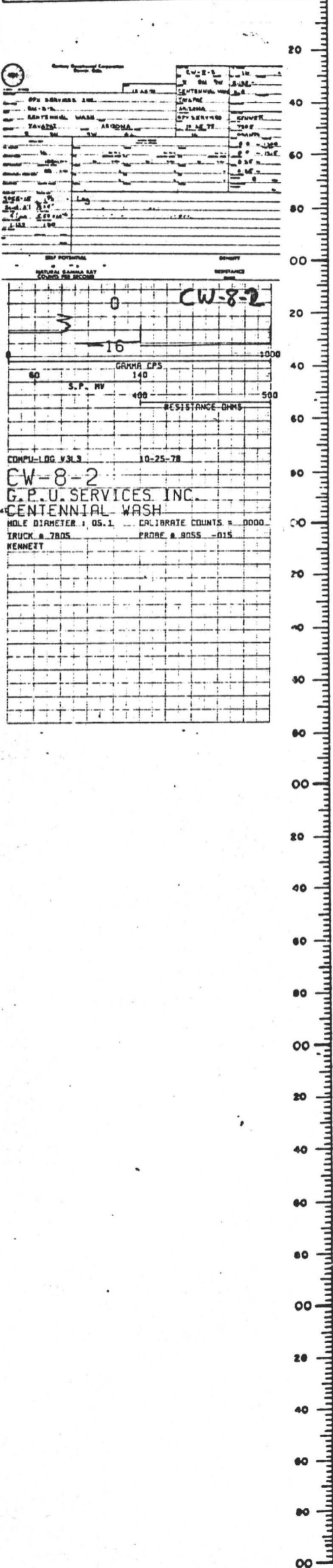
0'-5' Qal & gravel. 10R 7/4-N9-10R 6/2-N6;
 coarse-cobble sized grains; poorly sorted;
 rounded; qtz-10%, Hbd-5%, volcanic chips-2%.
 Dominant color is pale red.

5'-20' granite. 10R 5/4-N9-10R 6/6-10R 4/2-N4-5Y 8/1;
 med-cobble sized grains; subangular-angular;
 fair sorting; qtz-65%, Hbd-15%, mica-15%, andesite chips-2%.
 Dominant color is light-med red.

Samples not corrected for lag.

PROJECT Centennial Wash HOLE SIZE 5 1/8" AIR WATER HOLE NO. 8-2
 ELEVATION _____ NORTH 3900'N SWCSec EAST 3200'E SWCSec LOGGED BY P. Daw DATE 12-7-78
 SECTION 8 TOWNSHIP 8N RANGE 9W T.D. 16' P.D. 16'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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0'-16' granite. 10R 7/4-10R 5/4- 5R 8/2-
 5YR 8/4-N7-5YR 6/1; med-cobble sized grains;
 fairly sorted; subangular-angular; qtz-65%,
 Hbd-5%, mica-5%. Dominant color is pale reddish brown.

Samples not corrected for lag.

PROJECT Centennial Wash

HOLE SIZE 5 1/8" AIR WATER

HOLE NO. 8-3

ELEVATION _____

NORTH 3200'N SWC Sec EAST 4100'E SWC Sec LOGGED BY P. Daw DATE 11-27-78

SECTION 8

TOWNSHIP 8N

RANGE 9W

T.D. 110'

P.D. 102'

ELECTRIC LOG	DEPTH STRIP LOG	LITHOLOGY LOG
	0	0'-40' gravel. 5YR 5/6-10YR 8/2-10Y 6/2-
	20	5P 4/2-N5-5RP 6/2; gravel chips; angular-
	40	subrounded; poorly sorted; mica-5%, qtz-10%;
	60	andesite chips; cobble to very coarse grained
	80	varying with depth; some Hbd starts @ 25'-30';
	100	up to 5% Hbd with depth; granitic grains.
	120	Dominant color is <u>pale olive-gray</u> .
	140	40'-55' gravel & ss. 10R 6/6-N2-5P 4/2-
	160	-N9-
	180	10YR 8/2-10Y 8/2-10Y 7/4; very coarse to
200	cobble sized grains; gravel subrounded-angular;	
220	most grains are 10R 6/6-10R 5/4; mica-5%, Hbd-5%;	
240	andesite chips increasing with depth-2%;	
260	volcanic chips increasing with depth-5%.	
280	Dominant color is <u>moderate reddish orange</u> .	
300	55'-95' ss. 10YR 6/2 (80%)-N2-5Y 8/1-10R 6/2;	
320	ss subrounded; very coarse to cobble grain	
340	gravel; mica (biotite)-10%, Hbd-5%, andesite	
360	chips-2%, granite chips-3%. Dominant color is	
380	<u>pale red</u> .	
400	95'-110' granite. 5R 8/2-10R 6/2-10R 5/4-	
420	5Y 6/4-N4-N9-N3; angular-subangular; qtz-60%;	
440	very coarse to cobble sized grain mica-5%;	
460	Hbd-10%. Dominant color is <u>white-pale</u>	
480	<u>reddish brown</u> .	
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980		
1000		

VERTICAL SCALE: 1" = 50'

PROJECT Centennial Wash

HOLE SIZE 5 1/8" AIR WATER

HOLE NO. 8-4

ELEVATION _____

NORTH 2800'N SWC Sec EAST 4100'E SWC Sec LOGGED BY P. Daw DATE 11-28-78

SECTION 8

TOWNSHIP 8N

RANGE 9W

T.D. 65'

P.D. 65'

ELECTRIC LOG

DEPTH STRIP LOG

LITHOLOGY LOG

0'-20' Qal & gravel. 10R 6/2-5RP 8/2-5P 4/2-

10YR 8/2-5YR 8/1; subrounded; poorly sorted;

med-coarse-cobble sized grains andesite chips-5%

Dominant color is pinkish gray-very pale orange

20'-55' gravel & ss. N3-5YR 8/1(80%)-5R 6/6-

5RP 6/2-5P 4/2-N9; pyrite(?) -1%, Hbd-7%,

mica-5%, qtz-5%, volcanic chips-5%, andesite

chips-2%; subrounded; poorly sorted; med-coarse

cobble size grains. Dominant color is pinkish

gray.

55'-60' granite. 10G 8/2-10R 7/4-10R 8/2-

N2-N9; pyrite(?) -2%, Hbd-10%, qtz-40%; angular;

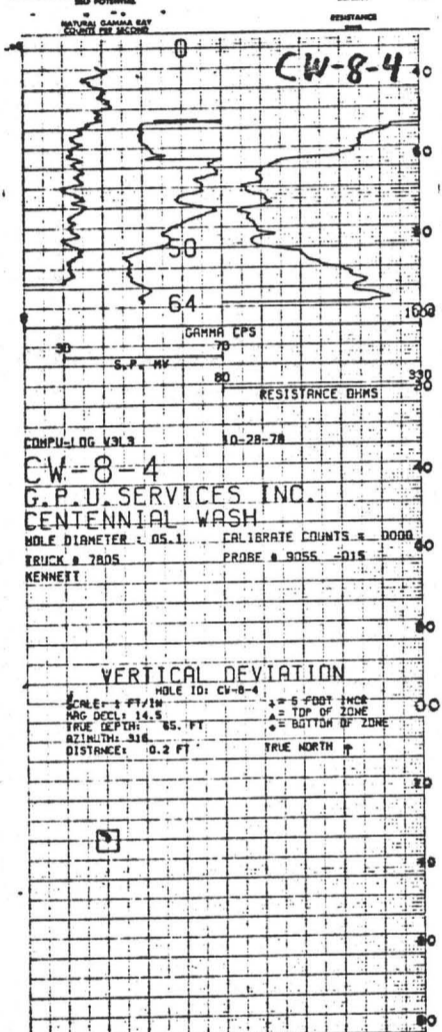
poorly sorted; very coarse-cobble sized grains;

andesite chips-2%. Dominant color is

grayish orange pink.

Samples not corrected for lag.

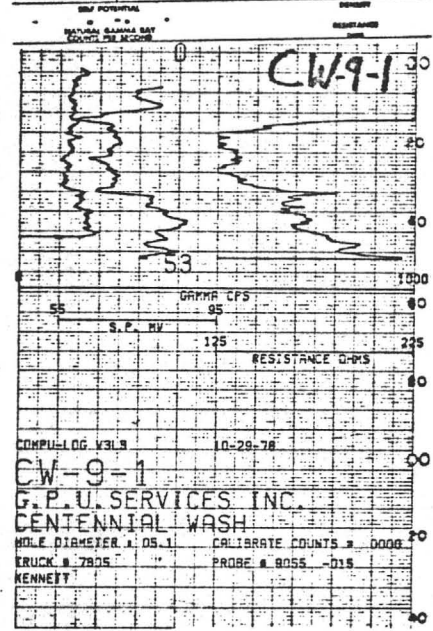
DATE	11-28-78
LOG NO.	CW-8-4
LOGGERS	P. Daw
SECTION	8
TOWNSHIP	8N
RANGE	9W
HOLE NO.	8-4
DEPTH	65'
LOG TYPE	Electric Log
LOGGING METHOD	Gamma Ray
LOGGING SPEED	1000 CPS
LOGGING TIME	10-28-78
LOGGING LOCATION	Centennial Wash
LOGGING OPERATOR	G.P.U. Services Inc.
LOGGING ASSISTANT	
LOGGING EQUIPMENT	TRUCK # 7805 PROBE # 9055-D15
LOGGING LOGIC	KENNETT



PROJECT Centennial Wash HOLE SIZE 5 1/8" AIR WATER HOLE NO. 9-1
 ELEVATION _____ NORTH 3650'N SWC Sec EAST 1600'E SWC Sec LOGGED BY P. Daw DATE 11-28-78
 SECTION 9 TOWNSHIP 8N RANGE 9W T.D. 55' P.D. 53'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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G.P.U. SERVICES INC. CENTENNIAL WASH HOLE NO. 9-1 DATE 11-28-78 LOGGED BY P. Daw	STRIP LOG DEPTH RESISTANCE GRAIN SIZE S.P. RV CALIBRATE COUNTS PROBE # BOSS-015 KENNETH
--	--



COMPUTED LOG V31.9 10-28-78
 CW-9-1
 G.P.U. SERVICES INC.
 CENTENNIAL WASH
 HOLE DIAMETER 5.125" CALIBRATE COUNTS 0000
 ERUCK # 7805 PROBE # BOSS-015
 KENNETH

0'-10' Qal & gravel. 5GY 2/1-10YR 8/2-5RP 6/2;
 andesite chips-2%, qtz-2%, mica-2%; poorly
 sorted; med-cobble size grains; subrounded-
 angular. Dominant color is pale reddish brown.

10'-20' gravel. N9-10YR 8/2-5RP 6/2-N5;
 angular-subrounded; cobble sized grains--very
 coarse grained; fairly sorted; andesite chips-
 2%, pyrite-1%, Hbd-5%. Dominant color is
pale yellowish brown.

20'-40' gravel. 5R 7/4-5YR 8/1-N9-10YR 8/2-N4;
 poorly sorted; very coarse-cobble sized grains;
 subrounded; qtz-15%, Hbd-5%, andesite chips-2%,
 granite chips-5%. Dominant color is
yellowish gray.

40'-55' granite. 10R 8/2-10R 7/4-10R 5/4-
 5P 6/2; angular-subangular; very coarse
 grained; qtz-60%, mica-2%, Hbd-2%, andesite
 chips-2%; fairly sorted; approx. 2% cobble
 sized grains. Dominant color is pale red.

Samples not corrected for lag.

VERTICAL SCALE: 1" = 50'

PROJECT Centennial Wash

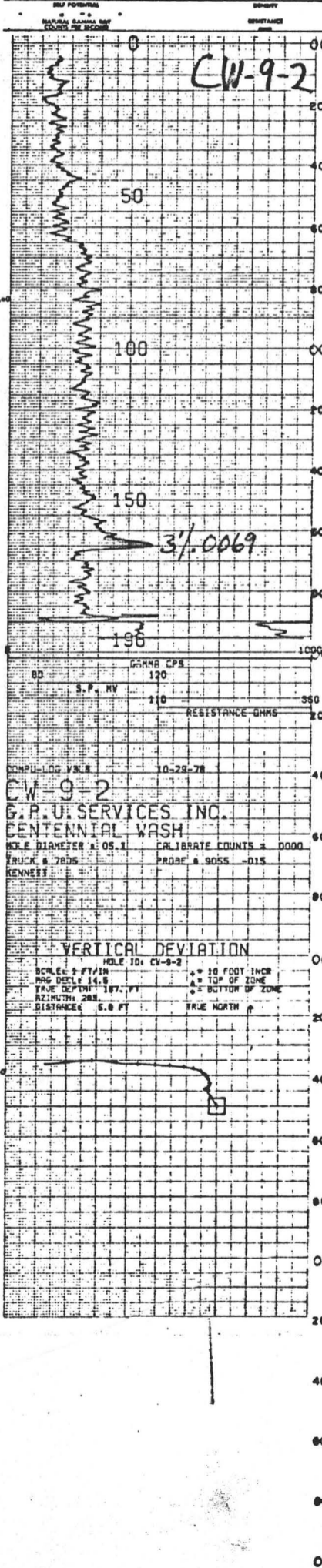
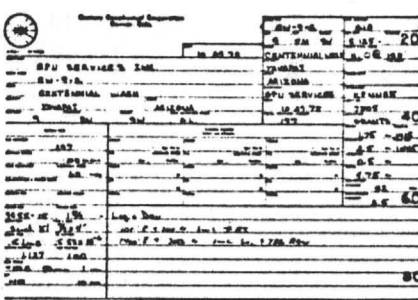
MOLE SIZE 5 1/8" AIR WATER

HOLE NO. 9-2

ELEVATION NORTH 3050'N SWC Sec EAST 1400'E SWC Sec LOGGED BY P. Daw DATE 11-29-78

SECTION 9 TOWNSHIP 8N RANGE 9W T.D. 210' P.D. 197'

ELECTRIC LOG DEPTH STRIP LOG LITHOLOGY LOG



0'-20' Qal & gravel. 5R 5/4(float)-5P 6/2-N4-N5-10R 8/2; poorly sorted; subrounded; mica-5%, Hbd-5%, qtz-5%, andesite chips-5%; medium-cobble sized grains. Dominant color is light-med red.

20'-70' ss. 10R 7/4-5RP 8/2-N6-N3-5GY 6/1; med-cobble sized grain; rounded-subrounded; poorly sorted; Hbd-5%, qtz-60%, mica-5%, andesite chips. Dominant color is light olive gray.

70'-80' granitic ss. 10R 6/6-10R 8/2-5P 6/2-5Y 6/1-N9; med-cobble sized grains; fairly sorted; rounded-subrounded; qtz-40%, mica-5%, andesite chips-2%, Hbd-2%. Dominant color is moderate reddish orange.

80'-140' granitic ss. 10R 5/4-10R 7/4-5YR 8/1-N7; med-cobble sized grains; fairly sorted; rounded to subrounded; qtz-60%, mica-5%, Hbd-5%. Dominant color is moderate orange pink.

140'-190' ss. 5R 4/6-10R 6/6-N9-5YR 4/1-N4-5P 4/2; med-cobble sized grains; poorly sorted; rounded-subrounded; volcanic chips-2%, Hbd-5%, qtz-50%, mica-5%, andesite chips-2%. Dominant color is olive gray-light brown.

190'-210' granite. 10R 4/6-10R 7/4-10YR 6/6-5YR 5/6-N3-N9; coarse-cobble sized grains; poorly sorted; angular-subangular; qtz-60%, Hbd-10%, mica-5%, volcanic chips-2%. Dominant color is dark yellowish orange-light red.

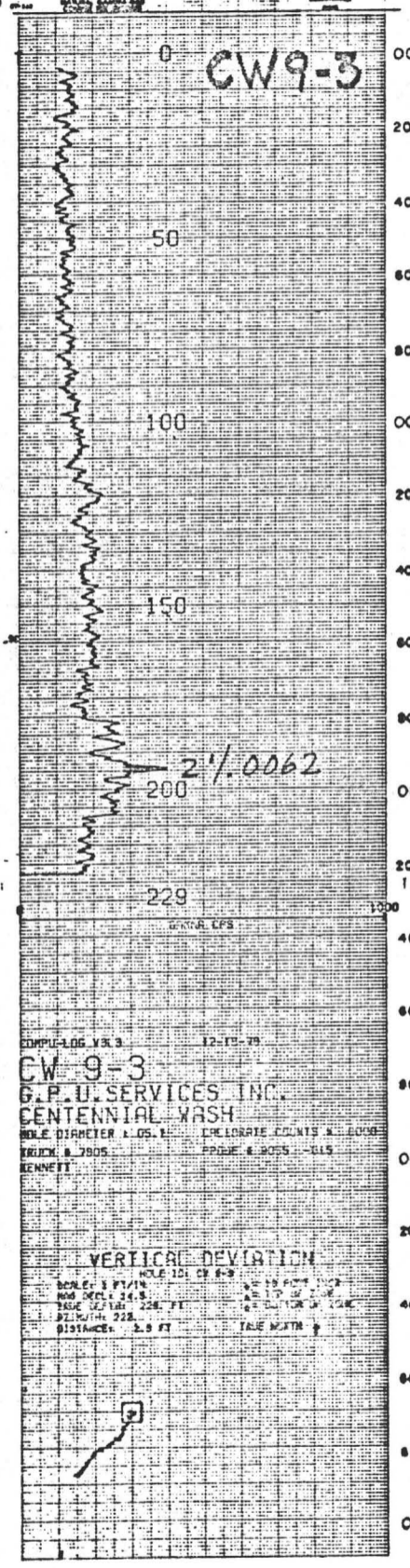
Samples not corrected for lag.

VERTICAL SCALE: 1" = 50'

PROJECT Centennial Wash HOLE SIZE 5 5/8" AIR WATER HOLE NO. CW 9-3
 ELEVATION _____ NORTH 1000'N SWCSE EAST 5200'E SWCSE LOGGED BY P. Daw DATE 1-12-79
 SECTION 9 TOWNSHIP 8N RANGE 9W T.D. 230' P.D. 223'-gamma on l

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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DATE	TIME	LOG NO.	HOLE NO.	DEPTH	CORRECTION
1-12-79	10:00	100	CW 9-3	230	0



0'-35' gravel & ss, grayish orange brown (10YR 7/4-5YR 4/4); med-cobble sized grains; rounded-subrounded; poorly sorted; ss poorly cemented; qtz-45%, mica-5%, clay-5%, hbd-7%, feldspars-10%.

35'-90' ss, pale yellowish brown (10YR 6/2-N8-N9); rounded-subrounded; med-cobble sized grains fairly sorted; poorly cemented; qtz-50%, hbd-7%, mica-5%, black frag-5%, feldspars-5%.

90'-100' no samples.

100'-135' ss & volcanics, gray reddish orange, (5R 4/2-10YR 7/4-5RP 6/2); coarse-cobble sized grains; subangular-rounded; fairly sorted; poorly cemented; qtz-55%, volcanic chips-20%, biotite-5%, mica-5%, feldspar-7%, black frag-5%.

135'-140' volcanics, med red orange-light brown (10R 6/6-5YR 5/6-5RP 4/2); very coarse-cobble sized grains; subangular-rounded; fairly sorted; qtz-30%, volcanic chips-45%, biotite-5%, mica-5%, black frag-10%, hbd-5%.

140'-180' volcanics & ss, moderate reddish orange (10R 6/6-5Y 5/2); very coarse-cobble sized grains; subrounded-rounded; fairly sorted; poorly cemented ss; qtz-60%, biotite-5%, mica-5%, volcanic chips-10%, clay-2%, hbd-5%, feldspars-5%.

180'-200' ss & volcanics, yellowish gray (5Y 7/); fine-cobble sized grains; rounded-subrounded; fairly sorted; well cemented ss; qtz-45%, biotite-2%, hbd-7%, clay-2%, volcanic chips-5%.

PROJECT _____

HOLE SIZE _____

AIR WATER

HOLE NO. CW 9-3

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

SECTION _____

TOWNSHIP _____

RANGE _____

T.D. _____ P.D. _____

ELECTRIC LOG

DEPTH

STRIP LOG

LITHOLOGY LOG

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200'-220' volcanics & ss, pale olive yellowish gray (10R 4/2-10Y 6/2-5Y 8/1); fine-very coarse grained; rounded-subrounded; well sorted; well cemented ss; qtz-50%, hbd-5%, biotite-5%, volcanic chips-10%, clay-2%.

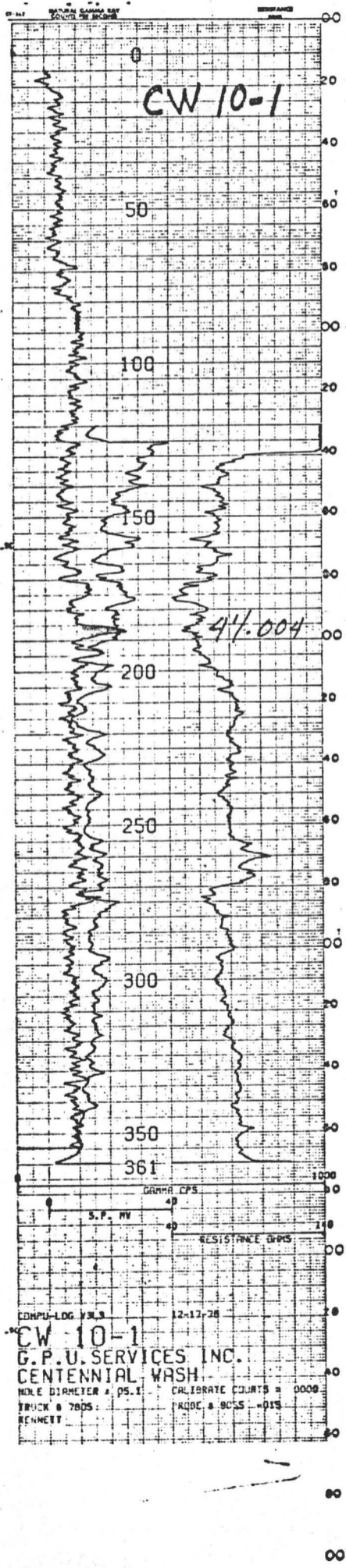
220'-230' granite, light reddish brown (10R 5/4-5YR 6/4); med-cobble sized grains; angular-subangular; well sorted; qtz-70%, hbd-5%, black frag-10%, clay-2%.

Samples not corrected for lag.

PROJECT Centennial Wash HOLE SIZE 5 5/8" AIR WATER HOLE NO. CW 10-1
 ELEVATION _____ NORTH 1300'N SWCSE EAST 600'E SWCSE LOGGED BY P. Daw DATE 1-11-79
 SECTION 10 TOWNSHIP 8N RANGE 9W T.D. 360' P.D. 360'

ELECTRIC LOG **DEPTH** **STRIP LOG** **LITHOLOGY LOG**

CW 10-1
 G.P.U. SERVICES INC.
 CENTENNIAL WASH
 HOLE NO. CW 10-1
 LOGGED BY P. Daw
 DATE 1-11-79
 TOWNSHIP 8N
 RANGE 9W
 SECTION 10
 T.D. 360'
 P.D. 360'



(Not a complete suite of samples, rig ran over most samples trying to get out of the mud. Footages are estimated.)

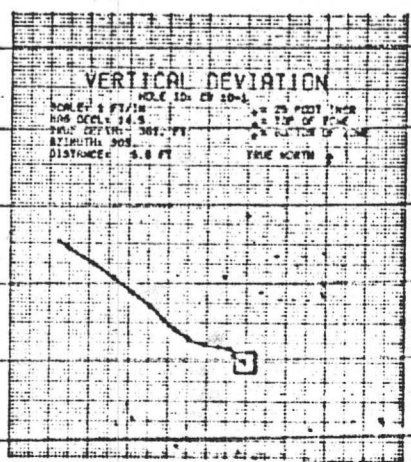
0'-100' Qal & gravel, grayish yellowish orange (10YR 7/4-5Y 8/1); rounded-subangular; coarse-cobble sized grains; poorly sorted; poorly cemented; qtz-70%, carbonaceous trash(?) -10%, clays-5%, feldspars-5%, hbd-2%, some red staining

100'-150' ss, moderate reddish brown (10R 4/6); rounded-subrounded; med-very coarse grained; fairly sorted; fairly cemented; qtz-75%, carbonaceous trash(?) -5%, feldspars-5%.

150'-200' sh & ss, grayish red-olive (10R 4/2-10Y 4/2); very fine-cobble sized grains; sub-rounded-rounded; poorly sorted; ss is well cemented; qtz-30%, hbd-10%, mica-5%, sh chips-45%, red staining.

200'-350' ss & congl, moderate reddish orange (10R 6/6); subrounded; med-cobble sized grains; fairly sorted; fairly cemented; qtz-75%, black frag-10%, granitic chips-2%, feldspars-5%, hbd-5%.

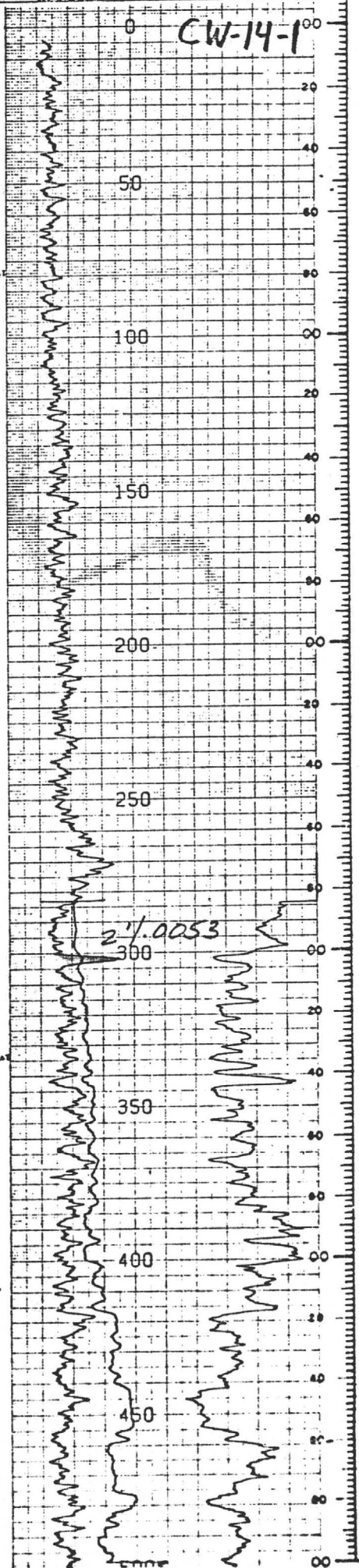
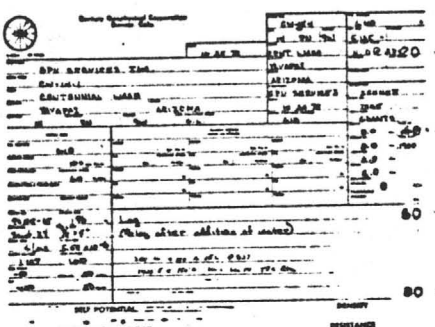
Samples not corrected for lag.



VERTICAL SCALE: 1" = 50'

PROJECT Centennial Wash HOLE SIZE 5 1/8" AIR WATER HOLE NO. 14-1
 ELEVATION _____ NORTH 150'N SWC Sec EAST 1400'E SWC Sec CLOGGED BY P. Daw DATE 11-30-78
 SECTION 14 TOWNSHIP 8N RANGE 9W T.D. 640' P.D. 610'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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0'-40' Qal & float. N9-10R 6/6-5RP 4/2-5P 6/2-N6
 very coarse to cobble sized grains; subangular-subrounded; poorly sorted; qtz-5%, Hbd-5%, volcanic chips-5%. Dominant color is light yellowish brown.

40'-55' gravel. 5R 6/2-N9-N4-N5; coarse-cobble sized grains; subrounded; poorly sorted; qtz-5%, Hbd-5%, volcanic chips-5%. Dominant color is pale red.

55'-110' gravel & ss. 10R 4/2-N9-5P 6/2-5RP 4/2; coarse-cobble sized grains; subrounded; poorly sorted; qtz-10%, mica-5%, volcanic chips-5%, Hbd-5%. Dominant color is pale red.

110'-125' ss & gravel. N9-5RP 6/2-5P 6/2-N4; med-cobble sized grains; poorly sorted; subrounded-rounded; qtz-20%, Hbd-10%, volcanic chips-5%. Dominant color is light brown.

125'-180' ss & volcanics. N9-10R 4/2-5RP 6/2-N6-5GY 6/1; coarse-cobble sized grains; subrounded-subangular; poorly sorted; qtz-40%, volcanic chips-50%, Hbd-5%. Dominant color is light brown grayish red.

180'-280' volcanics. 5R 5/4-10R 6/2-5R 6/2-5R 2/2-5Y 3/2-10YR 8/2-5P 6/2-5GY 6/1; very coarse-cobble sized grains; angular-subrounded; fairly sorted; volcanic chips-60%, qtz-20%, andesite chips-5%, Hbd-10%. Dominant color is pale red.

280'-365' volcanics & ss. N9-5R 3/4-10R 5/4-5P 6/2-N2-5GY 6/1; med-cobble sized grains;

VERTICAL SCALE: 1" = 50'

PROJECT _____

HOLE SIZE _____

AIR WATER

HOLE NO. 14-1

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

SECTION _____

TOWNSHIP _____

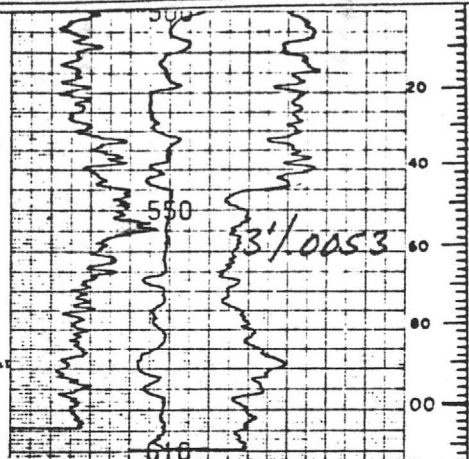
RANGE _____

T.D. _____ P.D. _____

ELECTRIC LOG

DEPTH STRIP LOG

LITHOLOGY LOG



angular-subrounded; poorly sorted; qtz-40%, volcanic chips-40%, Hbd-10%. Dominant color is greenish gray.

365'-435' ss & volcanics. 10R 6/2-10R 7/4-N5-5Y 6/1; rounded-subrounded; fine-cobble sized grain poorly sorted; arkosic(?) ss well cemented; qtz-40%, volcanic chips-25%, mica-10%, Hbd-15%. Dominant color is pale red.

435'-510' ss & sh. 5R 6/2-10R 6/2-5Y 7/2-5Y 6/1; fine-cobble sized grains; poor-fairly well cemented ss; arkosic(?); subangular-rounded; poorly sorted; qtz-40%, volcanic chips-15%, Hbd-15%. Dominant color is yellowish gray-light olive gray.

510'-560' ss. 10R 6/2-5R 6/2-5YR 6/1-5Y 6/1; fine-cobble sized grains; subrounded-rounded; poorly sorted; fairly-well cemented; arkosic(?); qtz-40%, mica-5%, volcanic chips-5%, Hbd-10%. Dominant color, light brownish gray-light olive gray.

560'-635' granitic ss. 10R 6/2-5R 4/2-5Y 7/2-5Y 6/1; med-cobble sized grains; subangular-rounded; poorly sorted; poor-well cemented ss; qtz-50%, sh-5%, Hbd-15%, mica-10%. Dominant color is pale red-yellowish gray.

635'-640' granite. 5R 6/2-5R 4/2-10R 6/6-10YR 8/2-5YR 6/1; med-cobble sized grains; angular-subangular; poorly sorted; qtz-60%, Hbd-15%, mica-15%, volcanic chips-2%. Dominant color is light brownish gray.

Samples not corrected for lag.

PROJECT Centennial Wash HOLE SIZE 5 1/8" AIR WATER HOLE NO. 14-2
 ELEVATION _____ NORTH 150'N SWC Sec EAST 2900'E SWC Sec CLOGGED BY P. Daw DATE 11-29-78
 SECTION 14 TOWNSHIP 8N RANGE 9W T.D. 625' P.D. 590'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
	0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600		<p><u>0'-90'</u> Qal & gravel (float). 10R 4/2-5YR 8/1-5YR 4/1; medium-cobble sized grains; poorly sorted; rounded-subrounded; qtz-30%, mica 5%. Dominant color is <u>grayish red-brownish red</u>.</p> <p><u>90'-120'</u> ss. 10R 4/2-10R 3/4-10YR 7/4-5RP 6/2-5RP 4/2-N3; coarse-cobble sized grains; poorly sorted; rounded-subrounded; qtz-30%, Hbd-5%, volcanic chips-5%. Dominant color is <u>grayish red-dark reddish brown</u>.</p> <p><u>120'-160'</u> ss. 5RP 6/2-5P 6/2-5R 6/6-10R 8/2; angular-rounded; poorly sorted; med-cobble sized grains; volcanic chips-10%, Hbd-2%, qtz-30%. Dominant color is <u>grayish orange pink</u>.</p> <p><u>160'-205'</u> volcanics? 5RP 6/2-5P 4/2-5PB 5/2-5YR 8/1; very coarse-cobble sized grains; poorly sorted; rounded-subrounded; volcanic chips-50%, Hbd-5%. Dominant color is <u>pale red purple</u>.</p> <p><u>205'-275'</u> volcanics. 10R 4/2-10R 2/2-5RP 6/2-5RP 4/2-5YR 6/1; very coarse-cobble sized grains poorly sorted; angular-subrounded; plag(?) -10%, qtz-5%, Hbd-5%. Dominant color is <u>very dusky red-grayish red purple</u>.</p> <p><u>275'-300'</u> volcanics & ss. N9-5R 4/6-5R 5/4-10YR 7/4-5RP 6/2-N8-10R 4/2; med-cobble sized grains; poorly sorted; rounded-subrounded; volcanic chips-50%, qtz-30%, Hbd-5%, plag-5%. Dominant color is <u>pale red</u>.</p>

VERTICAL SCALE: 1" = 50'

PROJECT _____

HOLE SIZE _____

AIR WATER

HOLE NO. 14-2

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

SECTION _____

TOWNSHIP _____

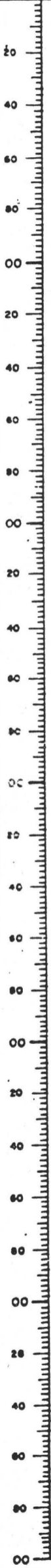
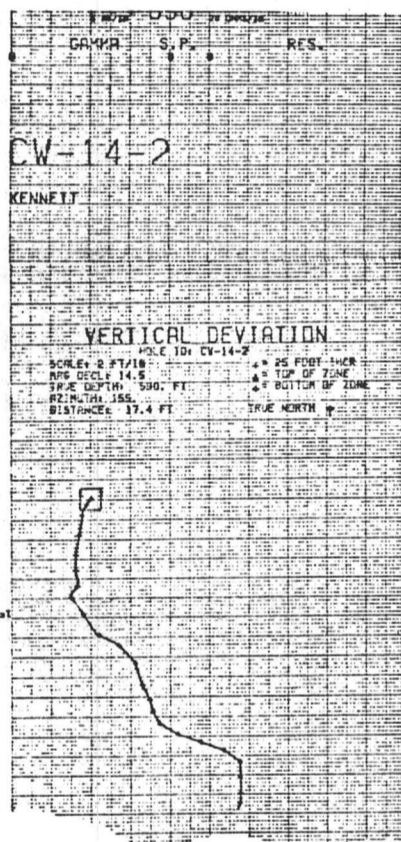
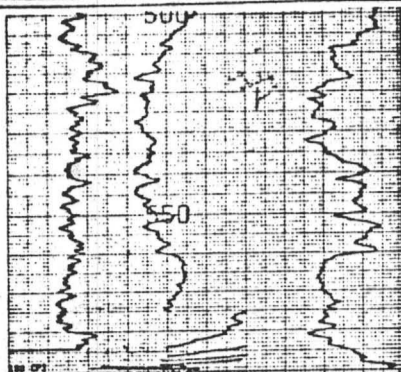
RANGE _____

T.D. _____ P.D. _____

ELECTRIC LOG

DEPTH STRIP LOG

LITHOLOGY LOG



300'-350' volcanics & ss. 10R 4/2-10R 3/4-10R 5/4-5Y 3/2(80%)-5YR 6/1-N9; med-cobble sized grains; poorly sorted; rounded-subrounded; volcanic chips-40%, qtz-15%. Dominant color is olive gray.

350'-425' volcanics. 5R 4/2-5YR 4/1- 5Y 4/1; coarse-cobble sized grains; poorly sorted; rounded-subrounded; volcanic chips-40%, qtz-10% Hbd-5%. Dominant color is grayish red.

425'-490' ss arkosic(?). N9-10R 4/2-10YR 6/2-5RP 4/2-5YR 4/1; med-very coarse grained; rounded-subrounded; fairly sorted; qtz-50%, plag-15%, mica-5%, volcanic chips-5%. Dominant color is brownish gray-dark greenish gray.

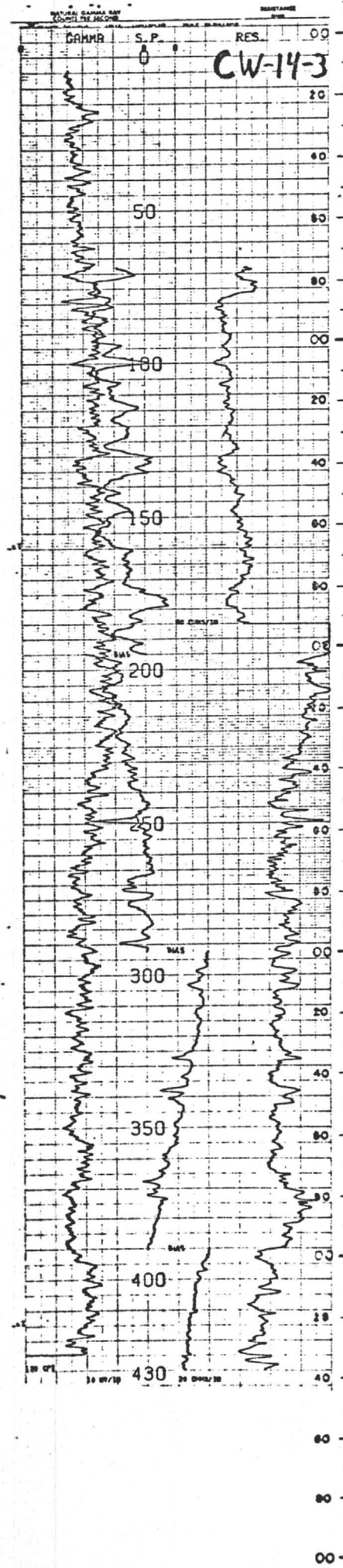
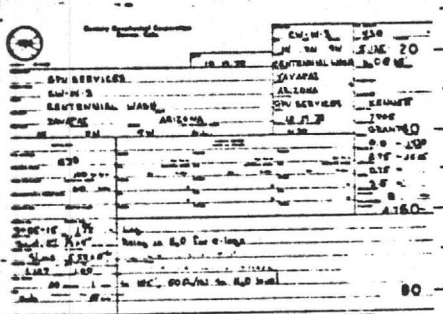
490'-582' ss arkosic(?). 10R 4/2-N9-5Y 7/2-5YR 4/1; med-very coarse grained; fairly sorted rounded; qtz-70%, plag-10%, mica-5%. Dominant color is grayish orange pink.

582'-620' granitic. 5RP 6/2-10R 4/2-5P 6/2-5Y 6/1; coarse-cobble sized grains; poorly sorted; angular-subangular; plag-5%, qtz-15%, volcanic chips-5%. Dominant color is light olive gray.

Samples not corrected for lag.

PROJECT Centennial Wash HOLE SIZE 5 1/8" AIR WATER HOLE NO. 14-3
 ELEVATION _____ NORTH 150'N SWCSec EAST 4300'E SWCSec CLOGGED BY P. Daw DATE 12-6-78
 SECTION 14 TOWNSHIP 8N RANGE 9W T.D. 430' P.D. 430'

ELECTRIC LOG **DEPTH** **STRIP LOG** **LITHOLOGY LOG**



0'-25' float. N9-5RP 6/2-N3-5Y 6/1; very coarse cobble sized grains; angular-subrounded; fairly sorted; volcanic chips-5%, Hbd-5%, qtz-5%. Dominant color is very pale purple.

25'-45' Qal(?). 5R 5/4-5RP 4/2-N5; med-cobble sized grains; subrounded-rounded; poorly sorted; volcanic chips-2%, Hbd-5%, qtz-5%. Dominant color is grayish red purple-light brown.

45'-95' gravel. 5R 6/2-5Y 7/2-5P 6/2-5RP 4/2; subangular-subrounded; very coarse-cobble sized grains; fairly sorted; volcanic chips-10%, Hbd-10%, qtz-5%. Dominant color is yellowish gray.

95'-100' ss with some gravel. 5R 6/2-5P 4/2-5RP 8/2-5YR 6/1; angular-subrounded; med-cobble sized grains; poorly sorted; qtz-20%, volcanic chips-5%, Hbd-5%. Dominant color is light olive gray.

100'-140' volcanics. 5RP 6/2-5YR 6/1-5P 4/2-5YR 8/1; very coarse-cobble sized grains; angular-subangular; fairly sorted; volcanic chips-55%, qtz-5%, Hbd-10%, mica-5%. Dominant color is pinkish gray-light brownish gray.

140'-160' volcanics. 5R 6/2-10R 5/4-10YR 8/2-5RP 4/2-5RP 6/2; very coarse-cobble sized grain angular-subrounded; fairly sorted; Hbd-10%, volcanic chips-60%, qtz-10%, plag(?). Dominant color is very pale red.

VERTICAL SCALE: 1" = 50'

PROJECT _____

HOLE SIZE _____ AIR WATER

HOLE NO. 14-3

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

SECTION _____

TOWNSHIP _____

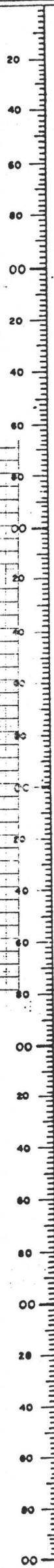
RANGE _____

T.D. _____ P.D. _____

ELECTRIC LOG

DEPTH STRIP LOG

LITHOLOGY LOG

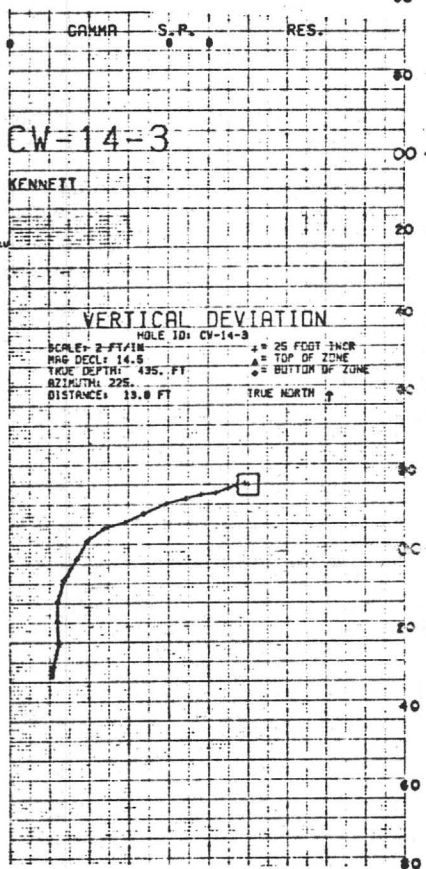


160'-250' volcanics. 5R 6/2-5R 5/4-10R 4/2-5R 8/2-5RP 6/2-5RP 4/2; very coarse-cobble sized grains; angular-subangular; fairly sorted; volcanic chips-60%, Hbd-10%, qtz-15%. Dominant color is pale red purple.

250'-375' volcanics & ss. 5R 4/6-5R 6/2-10YR 6/2-5G 5/2-5RP 6/2-N5; coarse-cobble sized grain rounded-subrounded; fairly sorted; volcanic chips-45%, qtz-35%, Hbd-5%, mica-5%. Dominant color is pale red.

375'-430' granitic ss & volcanics. 10R 4/2-10R 6/2-5BG 5/2-5BG 6/6-N9-5G 6/1-5YR 4/1; med-cobble sized grains; angular-subangular; fairly sorted; qtz-60%, volcanic chips-35%, mica-10%, Hbd-5%. Dominant color is greenish gray-grayish red.

Samples not corrected for lag.



PROJECT Centennial Wash HOLE SIZE 5 5/8" □ AIR WATER HOLE NO. 14-4

ELEVATION _____ NORTH 150'N SWC Sec EAST 800'E SWC Sec LOGGED BY P. Daw DATE 12-6-78

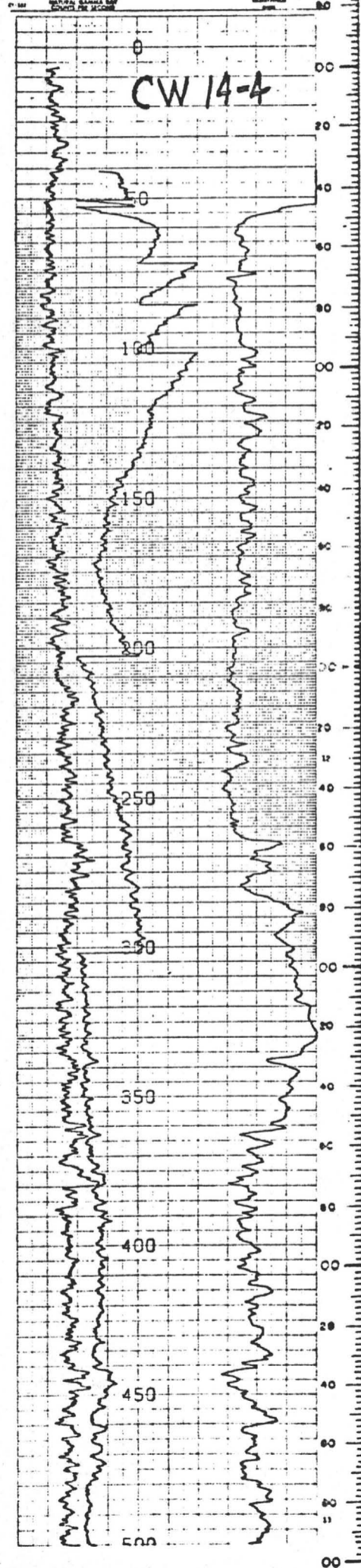
SECTION 14 TOWNSHIP 8N RANGE 9W T.D. 800' P.D. 773'

Later deepened to 1265',

logged 1-11-79

ELECTRIC LOG DEPTH STRIP LOG LITHOLOGY LOG

Log header information including company name (CPU SERVICE CORPORATION), location (CENTENNIAL WASH, ARIZONA), and well details (HOLE NO. 14-4, DATE 12-6-78).



0'-5' Qal. 10R 6/6-10R 4/2-10YR 7/4-N7; med-very coarse grained; rounded-subrounded; fairly sorted; qtz-35%, Hbd-5%. Dominant color is grayish orange.

5'-65' gravel. 10R 4/2-5R 6/2-5R 5/4-10YR 8/2-5P 6/2-5Y 8/1; very coarse-cobble sized grains; rounded-subrounded; poorly sorted; qtz-10%, volcanic chips-15%, Hbd-10%. Dominant color is yellowish gray.

65'-140' gravel & ss. 10R 4/2-5R 5/4-10YR 8/2-5RP 8/2-5RP 6/2-N2; coarse-cobble sized grains; poorly sorted; rounded-subrounded; mica-10%, qtz-20%, Hbd-10%, volcanic chips-5%, poorly cemented ss. Dominant color is light yellowish brown.

140'-180' ss & volcanics. 5R 5/4-5R 4/2-10R 6/1-10YR 5/4-10YR 8/2-5Y 5/2-5RP 4/2-5P 6/2; coarse-cobble sized grains; poorly sorted; subangular-rounded; mica-15%, qtz-25%, volcanic chips-5%, Hbd-10%, some type of green alteration. Dominant color is yellowish brown.

180'-240' volcanics. 10R 4/2-5R 5/4-5R 4/6-5Y 8/4-10Y 7/4-N5; some yellowgreen alteration; very coarse-cobble sized grains; angular-subrounded; fairly sorted; volcanic chips-70%; Hbd-15%, qtz-5%. Dominant color is grayish red.

240'-290' volcanics & ss. 5YR 6/4-5YR 7/2-5R 6/2-5G 7/2-5YR 8/1-N5; med-cobble sized grains; subangular-rounded; fairly sorted; qtz-50%,

volcanic chips-40%, Hbd-5%, poorly cemented ss. Dominant color is yellowish gray.

VERTICAL SCALE: 1"=50'

PROJECT _____

HOLE SIZE _____

AIR WATER

HOLE NO. 14-4

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____

DATE _____

SECTION _____

TOWNSHIP _____

RANGE _____

T.D. _____

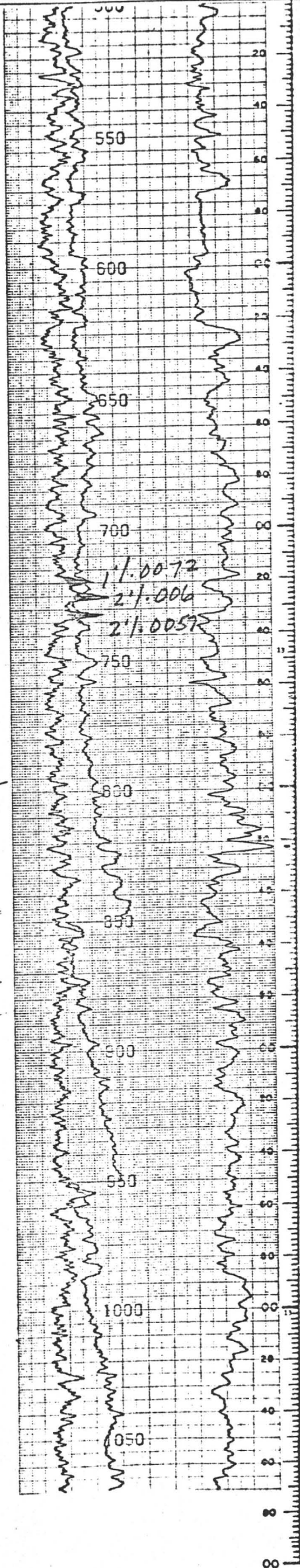
P.D. _____

ELECTRIC LOG

DEPTH

STRIP LOG

LITHOLOGY LOG



290'-350' ss. 5R 6/2-10R 5/4-5R 8/2-5Y 8/1-N2-5B 6/2; poor-fairly cemented ss; med-cobble size grains; subrounded-rounded; fairly sorted; qtz-65%, volcanic chips-10%, mica-10%, Hbd-10%. Dominant color is pale red.

350'-380' volcanics & ss arkosic(?). 5R 4/6-5YR 6/4-5R 4/2-5YR 4/4-5Y 6/4-5Y 7/2-5RP 4/2; med-cobble sized grains; subangular-subrounded; poorly sorted; volcanic chips-50%, qtz-40%, mica-10%, Hbd-15%; poorly cemented ss. Dominant color is yellowish gray.

380'-595' arkosic(?) ss & volcanics. 5YR 5/2-10R 6/6-10Y 6/2-5Y 7/2-5RP 6/2-N4-N9; very coarse-cobble sized grains; fairly sorted; rounded-subrounded; fairly cemented ss; qtz-60%, volcanic chips-30%, mica-10%, Hbd-20%. Cominant color is grayish red.

595'-645' ss. 10R 5/4-5R 6/2-5R 4/2-10YR 8/2-10GY 7/2-5Y 7/2-5RP 4/2; med-cobble sized grains poorly sorted; rounded-subrounded; poorly-fairly cemented ss; qtz-70%, volcanic chips-5%, mica-10% Hbd-15%; arkosic(?). Dominant color is yellowish gray-yellowish green.

645'-700' volcanics & ss (arkosic?). 10R 4/2-5R 6/2-10R 5/4-5YR 7/2-5PB 7/2-N4; med-cobble sized grains; poorly sorted; subangular-rounded; well cemented ss; volcanic chips-40%, qtz-40%, Hbd-15%, mica-5%. Dominant color is yellowish gray.

PROJECT _____

HOLE SIZE _____

AIR WATER

HOLE NO. 14-4

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

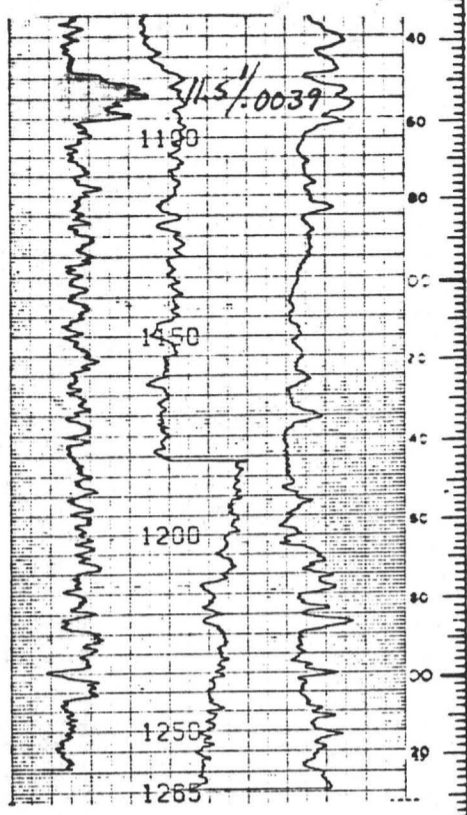
SECTION _____

TOWNSHIP _____

RANGE _____

T.D. _____ P.D. _____

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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700'-800' ss with 10' layer of volcanics

(755'-765'). 5R 5/4-10R 5/4-5YR 5/6-10YR 6/2-5YR 7/2-10Y 6/2-10Y 8/2-5P 6/2-5YR 4/1-N4; med-cobble sized grains; fairly sorted; subrounded-rounded; poorly cemented ss; qtz-65%, volcanic chips-5%, andesite chips-5%, Hbd-10%, mica-5%. Dominant color is light brown-pale yellowish brw. CW14-4 DEEPENED TO 1265', LOGGED 1-11-79:

800'-880' ss & congl. 10R 3/4-10R 6/6-5Y 7/2-5RP 4/2-N9-N7; coarse-cobble sized grains; subrounded-angular; poorly sorted; poorly cemented; qtz-45%, Hbd-10%, volcanic chips-5%, red staining-Fe(?). Dominant color is yellowish gray-dark reddish brown.

880'-1065' arkosic ss. 5R 5/4-10R 6/6-N9-N5-N3 med-coarse grained; rounded-subrounded; fairly sorted; poorly cemented; qtz-70%, biotite-2%, mica-5%, carbonaceous material(?) -10%, volcanic chips-2%, feldspars-20%. Dominant color is grayish orange.

1065'-1245' arkosic ss & sh. 10R 6/6-5R 5/4-10YR 7/4-10Y 6/2-N9-5G 7/2-N6-5P 6/2; med-cobble sized grains; rounded-subangular; fairly sorted; poorly cemented; qtz-60%, sh chips-15%, feldspar-5%, mica-5%, biotite-2%, carbonaceous material(?) -5%. Dominant color is med gray-med red.

NO SAMPLES, 1245'-1265'.

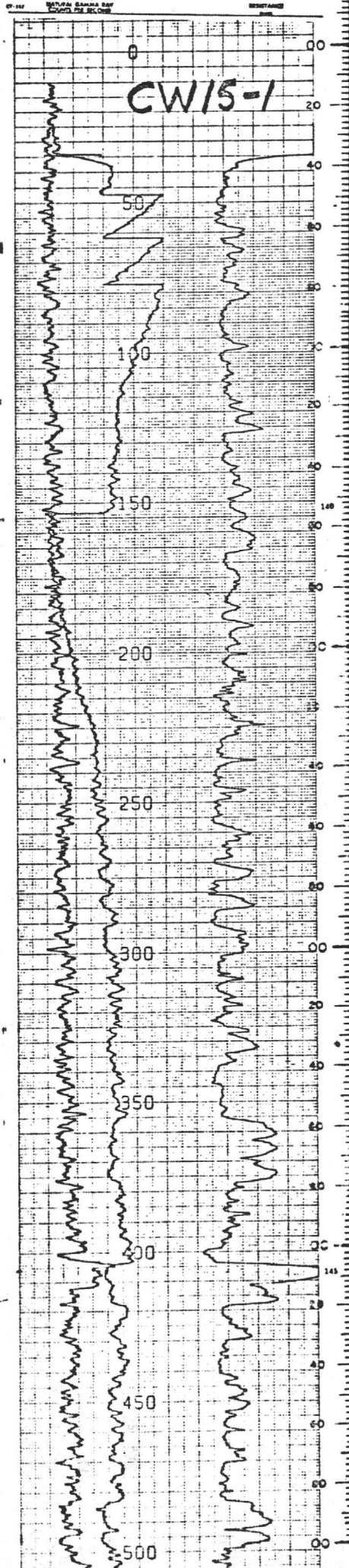
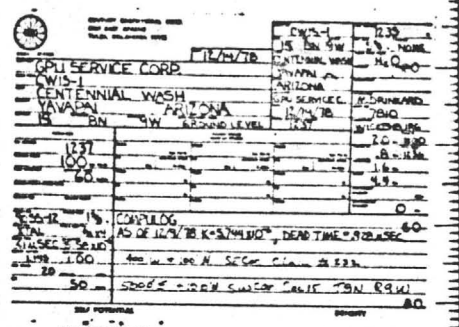
Samples not corrected for lag.

PROJECT Centennial Wash HOLE SIZE 5 5/8" AIR WATER HOLE NO. CW 15-1

ELEVATION _____ NORTH 100'N SWC Sec EAST 5000'E SWC Sec LOGGED BY P. Daw DATE 1-12-79

SECTION 15 TOWNSHIP 8N RANGE 9W T.D. 1240' P.D. 1237'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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0'-40' gravel & Qal, pale brown (5YR 5/2-5R 4/2) fine-cobble sized grains; rounded-subrounded; fairly sorted; fairly cemented; some Mg coating; qtz-45%, clay-2%, feldspars-2%, hbd-5%.

40'-160' arkosic ss, light yellowish brown (10YR 6/2); coarse-cobble sized grains; rounded-subrounded; fairly sorted; poorly cemented; qtz-60%, feldspars-15%, hbd-7%, biotite-2%, mica-2% clay-2%.

160'-300' volcanics & ss, light yellowish grayish brown (10YR 6/2-5P 4/2); coarse-cobble sized grains; subangular-subrounded; fairly sorted, poorly cemented ss; qtz-40%, volcanic chips-40% hbd-5%.

300'-510' arkosic ss, yellowish gray (5Y 7/2-10YR 8/2); med-cobble sized grains; rounded-subrounded; well sorted; poorly cemented; qtz-65%, hbd-10%, volcanic chips-7%, feldspars-10%.

510'-560' ss & tuff with amount of tuff decreasing with depth, light yellowish brown-olive gray (5Y 5/2-10YR 6/2); fine-cobble sized grains; rounded-angular; poorly sorted; fairly cemented tuff chips-30%, volcanic chips-7%, sh chips-5%, qtz-40%, clay-2%, feldspars-5%, biotite-10%, red staining-5% of sample.

560'-610' ss, light-moderate yellowish brown (10YR 5/4-10YR 6/2); coarse-cobble sized grains rounded-subrounded; well sorted; poorly cemented qtz-65%, hbd-5%, carbonaceous material-3%, volcanic chips-5%, biotite-5%, feldspars-5%.

VERTICAL SCALE: 1" = 50'

PROJECT _____

MOLE SIZE _____

AIR WATER

HOLE NO. CW 15-1

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

SECTION _____

TOWNSHIP _____

RANGE _____

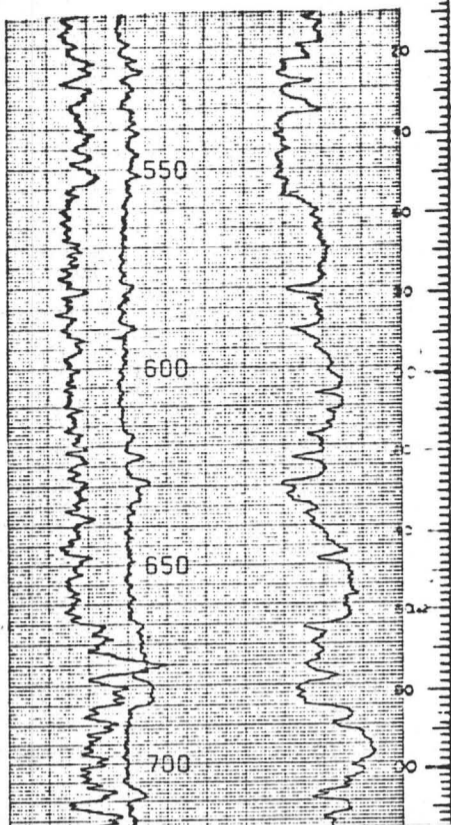
T.D. _____ P.D. _____

ELECTRIC LOG

DEPTH

STRIP LOG

LITHOLOGY LOG



610'-650' ss & volcanics, light olive gray (5Y 5/2); med-cobble sized grains; rounded-subangular; fairly sorted; poorly cemented; volcanic chips (mostly tuffs)-20%, qtz-55%, mica-5%, hbd-5%, biotite-5%, black frag-5%, red staining-2% of samples, feldspars-5%.

650'-710' ss & sh, light-med olive gray (10YR 8/-5Y 3/2-10Y 7/4); fine-very coarse grained; rounded-subangular; well sorted; fairly cemented sh chips-20%, qtz-55%, volcanic chips-2%, feldspars-3%, biotite-7%, black frag-3%.

710'-760' ss & volcanics, dark reddish brown (10R 3/4-5YR 7/2); med-cobble sized grains; rounded-subangular; well sorted; fairly cemented volcanic chips-30%, qtz-40%, biotite-7%, black frag-5%, feldspars-6%, red staining-5%.

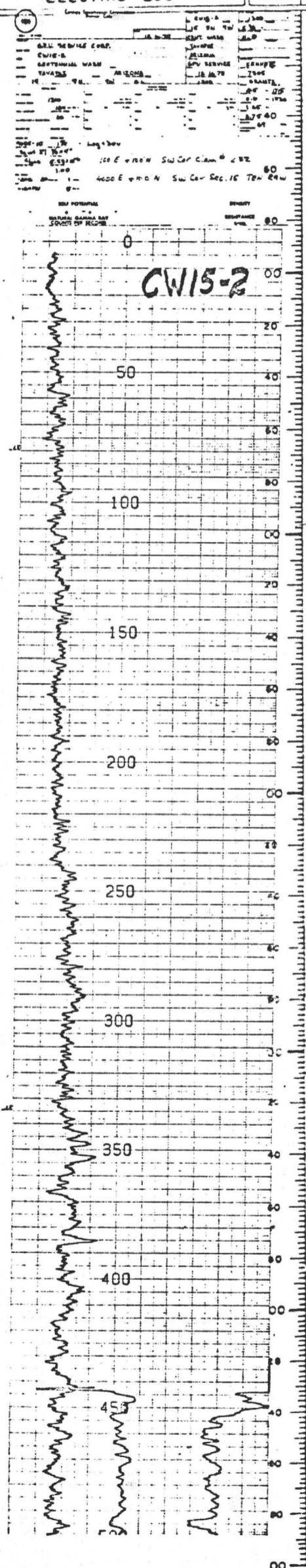
760'-1220' arkosic ss with feldspars increasing (10-50%) with depth; light-dark olive gray (10YR 4/2-5Y 6/1); med-very coarse grained; well rounded subrounded; well sorted; fairly cemented; qtz-65%, feldspars-10%(-50%), hbd-7%, volcanic chips-8%, clays-2%, mica-3%, black frag-5%, some red staining.

1220'-1235' granite, yellowish gray-gravish red (5R 4/2-5Y 7/2-N9); med-cobble sized grains; angular-subangular; well sorted; qtz-70%, black frag-10%, feldspars-2%, volcanic chips-5%, hbd-5%

Samples not corrected for lag.

PROJECT Centennial Wash HOLE SIZE 5 5/8" AIR WATER HOLE NO. CW 15-2
 ELEVATION _____ NORTH 100'N SWC Sec EAST 4000'E SWC Sec LOGGED BY P. Daw DATE 1-15-79
 SECTION 15 TOWNSHIP 8N RANGE 9W T.D. 1300' P.D. 1299'

ELECTRIC LOG **DEPTH** **STRIP LOG** **LITHOLOGY LOG**



0'-120' Qal & gravel, light-med brown (5YR 4/4-5YR 6/4-10Y 6/2); med-cobble sized grains; rounded-subrounded; poorly sorted; fairly cemented; qtz-40%, hbd-5%, black frag-7%, feldspars-10%, mica-5%, biotite-5%.

120'-280' ss & volcanics, grayish red-brown (10R 4/2-5YR 6/4); med-cobble size grains; rounded-subangular; poorly sorted; poorly cemented; qtz-40%, volcanic chips-20%, biotite-10%, feldspars-5%, clay-2%, black frag-5%.

280'-300' volcanics & ss, grayish red (10R 4/2) fine-cobble size grains; rounded-angular; fairly sorted; well cemented; red staining; qtz-25%, volcanic chips-40%, biotite-10%, mica-5%, black frag-5%, hbd-5%, feldspars-5%.

300'-480' ss & volcanics, light reddish brown (10R 5/4-5YR 5/2); med-cobble size grains; rounded-subrounded; fairly sorted; poorly cemented; qtz-65%, volcanic chips-15-20%, biotite-7%, mica-3% feldspars-7%, clay-2%.

480'-620' ss, pale yellowish brown (10YR 6/2); med-very coarse grained; rounded-subrounded; well sorted; poorly cemented; qtz-70%, biotite-7%, volcanic chips-5%, feldspars-5%, some red staining.

620'-640' ss & sh & volcanics, light olive-light yellowish brown (10YR 6/2-10Y 6/2); fine-cobble sized grains; angular-subrounded; fairly sorted; fairly cemented; volcanic chips(tuffs)-45%, sh chips-10%, qtz-20%, biotite-7%, mica-5%.

VERTICAL SCALE: 1" = 50'

PROJECT _____

HOLE SIZE _____

 AIR WATER

HOLE NO. CW 15-2

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____

DATE _____

SECTION _____

TOWNSHIP _____

RANGE _____

T.D. _____

P.D. _____

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
	20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740 760 780 800 820 840 860 880 900 920 940 960 980 1000 1020 1040 1060 1080 1100 1120 1140 1160 1180 1200 1220 1240 1260 1280 1300		<p>640'-660' ss & volcanics, grayish red-yellowish gray (10R 4/2-5Y 7/2-10Y 6/2); med-cobble sized grains; angular-rounded; fairly sorted; poorly cemented; volcanic chips-20%, qtz-45%, biotite-10%, clay-5%, feldspars-10%, mica-5%.</p> <p>660'-810' ss, grayish orange-yellowish gray (10Y 7/4-5Y 7/2); coarse-cobble sized grains; rounded subrounded; well sorted; poorly cemented; qtz-70% volcanic chips-5%, biotite-5%, feldspars-10%, clay-2%, hbd-3%, some red staining.</p> <p>810'-830' ss & volcanics, med brown-grayish red (5YR 3/4-5R 4/2-10YR 7/4); fine-cobble sized grains; subangular-subrounded; fairly sorted; fairly cemented; volcanic chips-25%, qtz-50%, biotite-7%, mica-5%, feldspars-8%, black frag-5%, clay-5%, some red staining.</p> <p>830'-1270' arkosic ss, grayish orange (10YR 7/4) med-cobble sized grains; subrounded-well rounded well sorted; poorly cemented; qtz-75%, biotite-5%, black frag-10%, volcanic chips-2-8%, feldspars-10-25%(increase with depth), carbonaceous material(?); 2-10% some red staining.</p> <p>1270'-1300' granite, light grayish brown (5YR 5/2-N4); med-cobble sized grains; angular-subangular; well sorted; qtz-70%, biotite-3%, hbd-7%, feldspars-5%, black frags-5%, volcanic chips-5%.</p> <p>Samples not corrected for lag.</p>

1" = 50'

PROJECT

Centennial Wash

HOLE SIZE 5 5/8" AIR WATER

HOLE NO. CW 15-3

ELEVATION

NORTH 20'N SWC Sec. EAST 2400'E SWC Sec. CLOGGED BY P. Daw DATE 1-16-79

SECTION

15

TOWNSHIP 8N

RANGE 9W

T.D. 1020'

P.D. 1020'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG
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No samples from 20'-60', 100'-140'

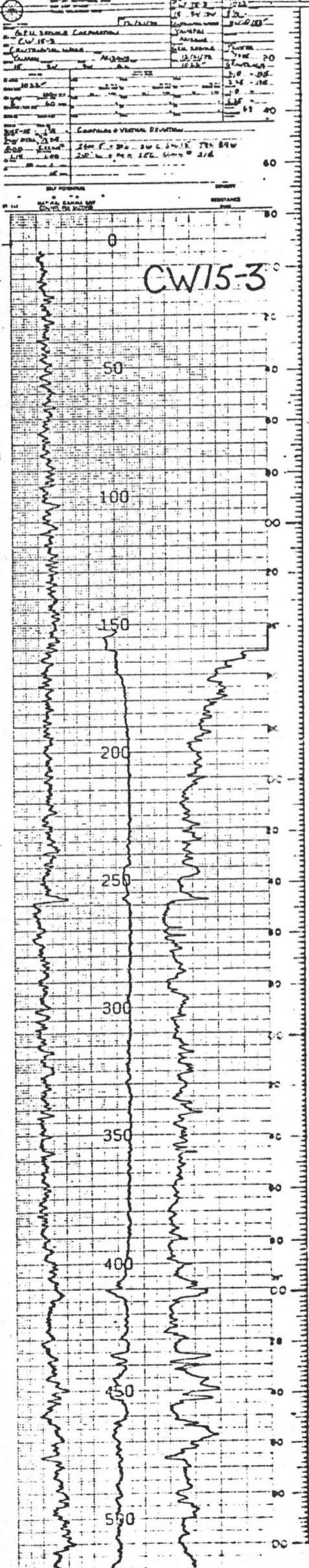
0'-80' Qal & gravel, light-medium brown (5YR 4/4-5YR 5/6); med-cobble sized grains; subrounded-rounded; poorly sorted; fairly cemented; qtz-40%, volcanic chips-15%, hbd-5%, mica-10%, feldspars-5%, black frag-5%.

80'-100' ss, light-medium brown (5YR 7/2-5YR 4/4); med-cobble sized grains; subangular-rounded; fairly sorted; poorly cemented; qtz-60%, hbd-5%, mica-5%, volcanic chips-8%, biotite-5%, feldspars-7%, black frag-5%, clay-3%.

100'-140', No samples

140'-400' volcanics & ss, yellowish gray-light brown (5YR 5/6-5YR 7/2-5Y 8/1); med-cobble sized grains; rounded-subangular; poorly sorted; poorly cemented; volcanic chips (mostly tuffs)-30-55% (increases with depth), qtz-25%, biotite-10%, mica-5%, clays-5%, black frag-8%, feldspars-10%, some red staining.

400'-530' ss & volcanics, yellowish gray-gravish red (10R 4/2-10YR 7/4-5YR 8/1); med-cobble sized grains; rounded-angular; poorly sorted; poorly cemented; volcanic chips-15%, qtz-55%, hbd-5%, biotite-7%, black frag-8%, feldspars-5%, clay-3%, some red staining.



VERTICAL SCALE: 1" = 50'

PROJECT _____

HOLE SIZE _____

AIR WATER

HOLE NO. CW 15-3

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____ DATE _____

SECTION _____

TOWNSHIP _____

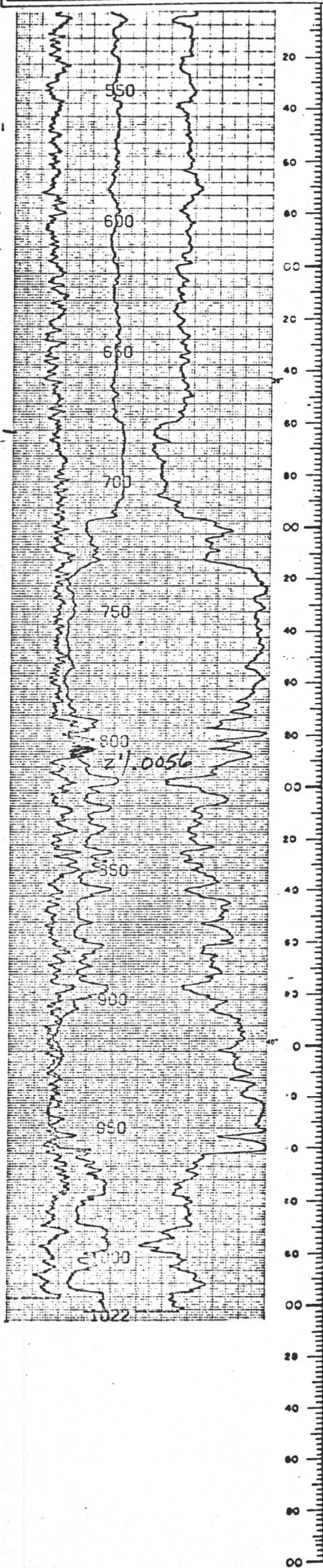
RANGE _____

T.D. _____ P.D. _____

ELECTRIC LOG

DEPTH STRIP LOG

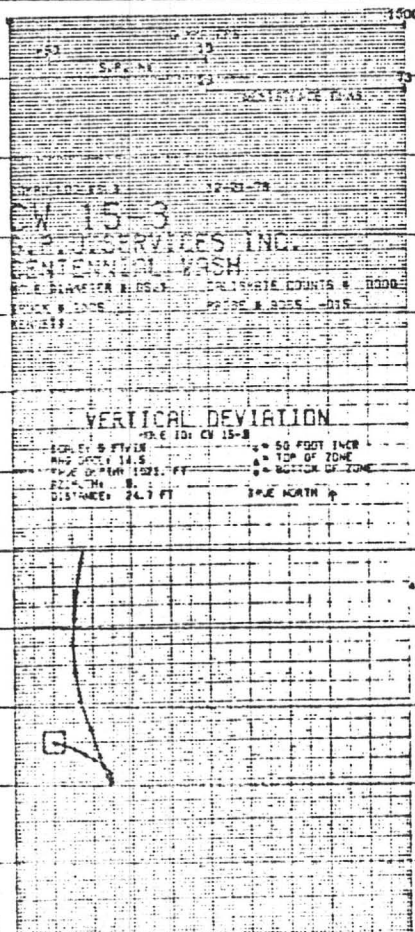
LITHOLOGY LOG



530'-1000' ss, very light orange-med yellowish brown (10YR 5/4-10YR 8/2); fine-cobble sized grains; subrounded-rounded; fairly sorted; well cemented; qtz-70%, volcanic chips-7%, biotite-5%, black frag-5%, feldspars-5-20% (increase with depth), matrix-8%, some red staining.

1000'-1020' granite, very light orange-light yellowish brown (10YR 8/2-10YR 6/2); med-very coarse grained; angular-subangular; well sorted; qtz-70%, biotite-10%, black frag-5%(carbonaceous(?)), feldspars-5%, clays-3%, hbd-5%.

Samples not corrected for lag.



VERTICAL SCALE: 1" = 50'

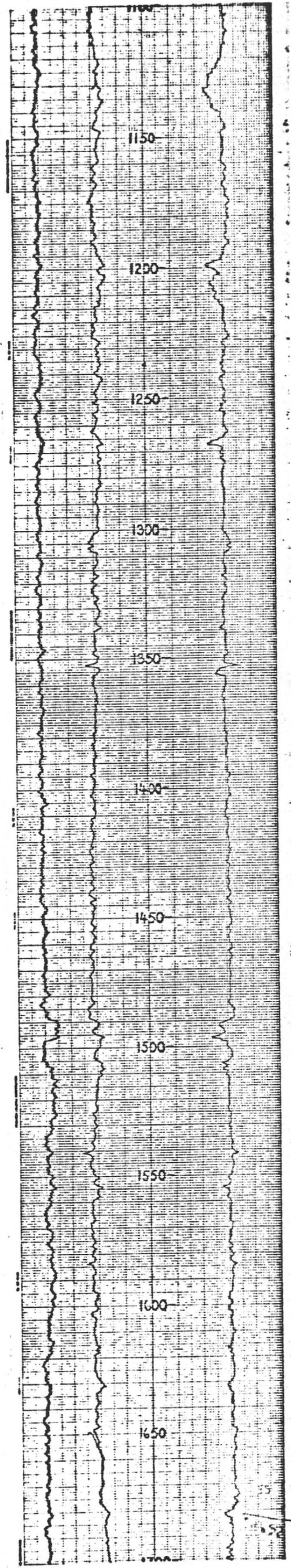
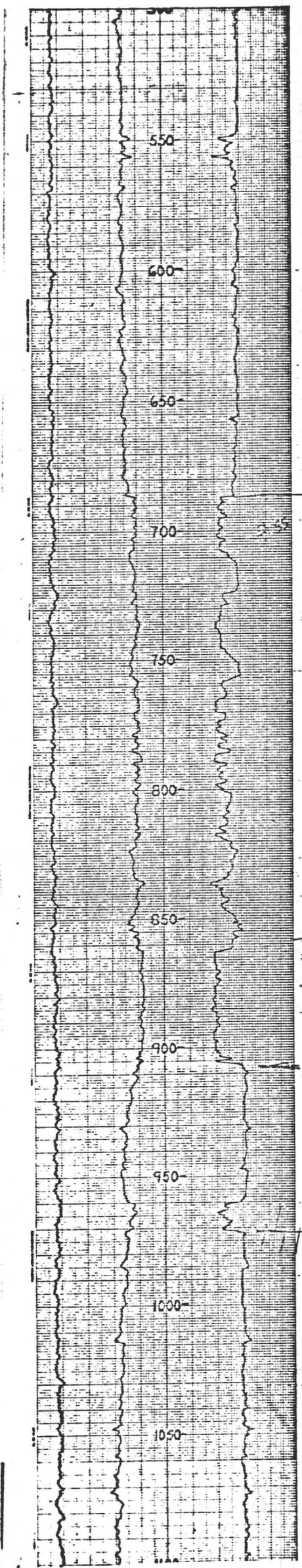
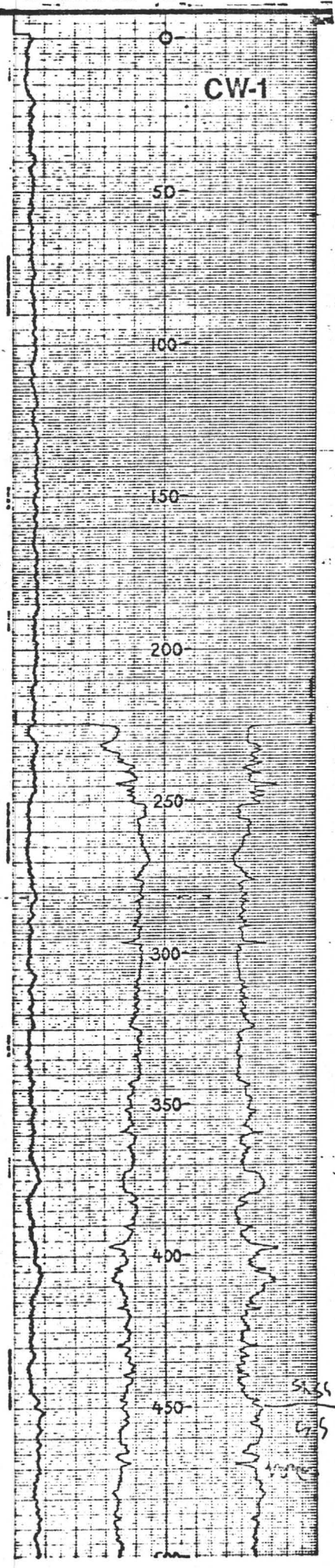
Summary of lithologic log - CW-1:

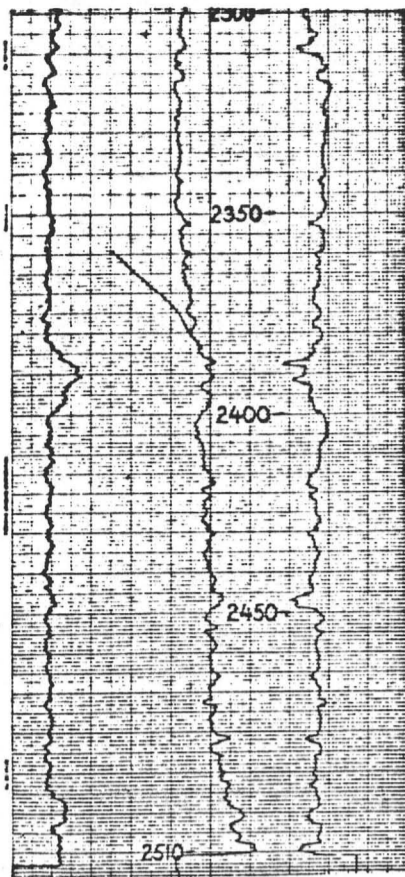
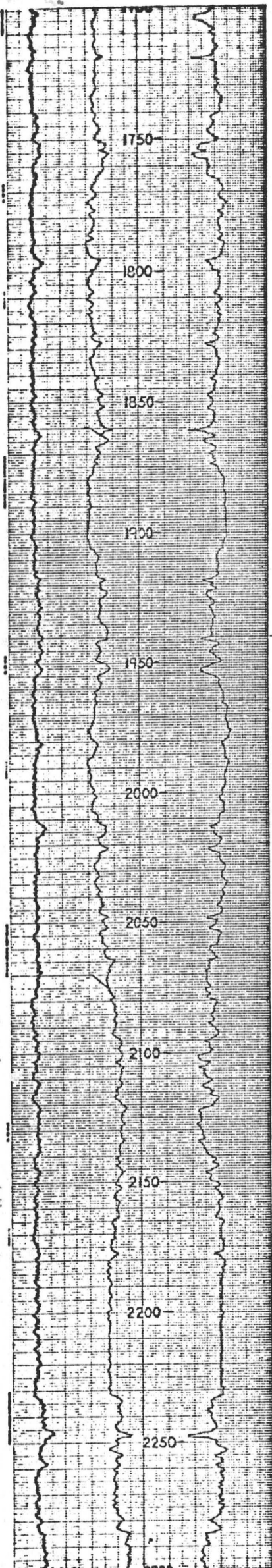
- 0-1,300 Reddish-brown, coarse-grained arkosic sands with rhyolite and granite boulder beds at 250 feet and 470 feet respectively. Clay content is dominantly reddish-brown interstitial with some very thin beds.
- 1,300-1,560 Brown clayey sand, medium-to-coarse grained angular fragments of quartz, feldspar, granite fragments, andesite fragments, biotite, and muscovite. Three different clays are present: 1. red-brown clay in very thin beds; 2. greenish-gray tuffaceous clay chips which probably represent thin beds; 3. white tuffaceous clay fragments.
- 1,560-1,640 Brown sand. Medium-to-fine grained angular arkosic sand with andesite fragments, sub-round fine sand in brown clay balls and fresh biotites. Scattered chips of greenish-gray and white tuffaceous clays. 1,625 to 1,630 contained a ball of dark gray carbonaceous clay.
- 1,640-1,815 Brown clayey sand, same as above with increased content of red-brown clay.
- 1,815-1,885 Brown clayey sand. Red-brown clay with fine-to-coarse grains of angular quartz, feldspar, granite and andesite. Contains chips of greenish-gray tuffaceous clay.
- 1,885-1,915 Brown sand.
- 1,915-1,940 Clayey sand.
- 1,940-2,500 Brown sand, very fine-to-medium grained angular to sub-rounded grains of quartz, feldspar, granite, andesite, biotite and muscovite. A few chips of greenish gray tuffaceous clay in the upper part of the section.

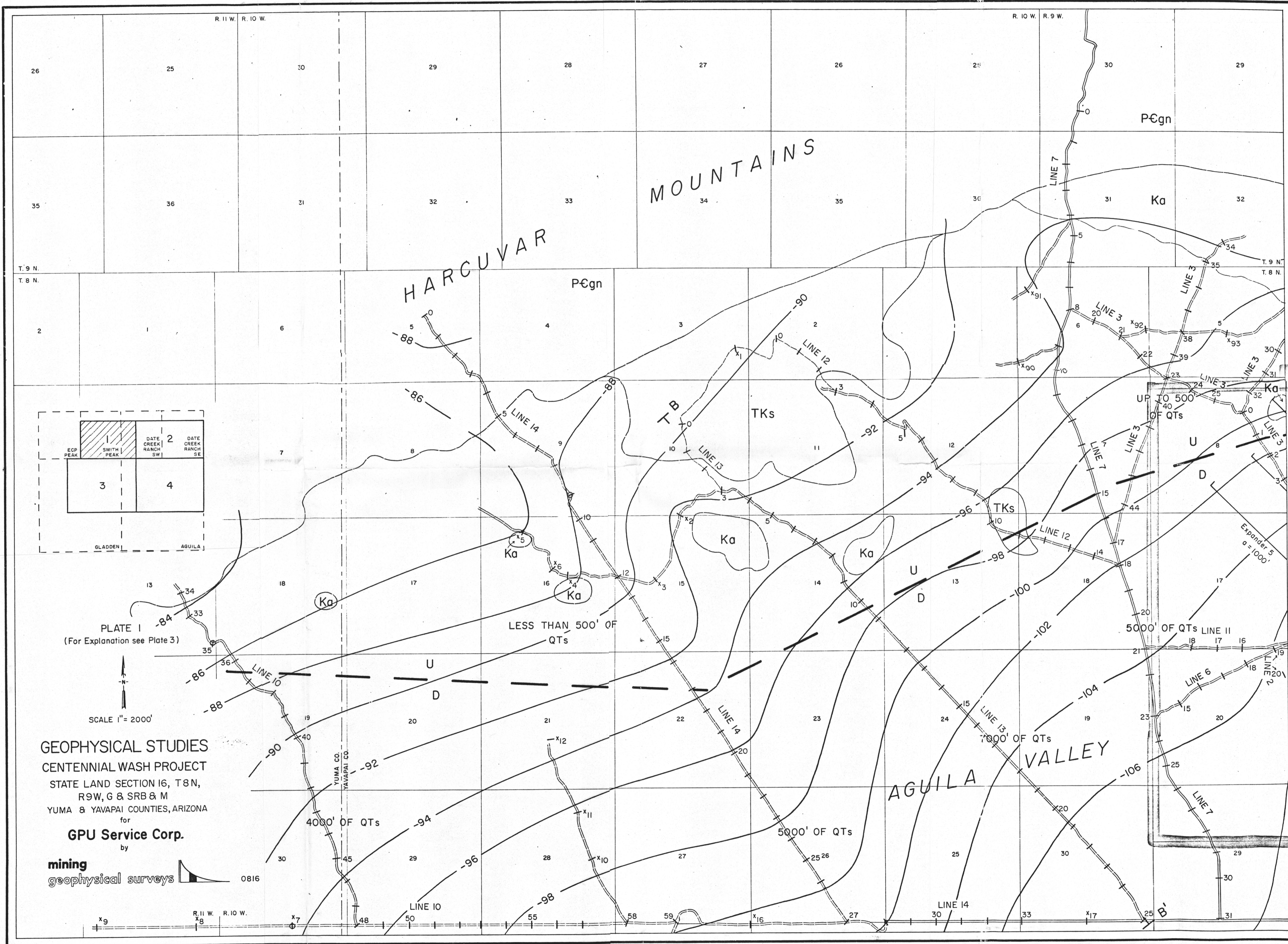
Summary of the electric logs - CW-1:

- 0-225 No log.
- 225-450 Shaly sandstone - 30 c.p.s.
- 450-685 Sandstone - 35-40 c.p.s.
- 685-908 Shaly sandstone - 40 c.p.s.
- 908-1,680 Sandstone with some shaly layers - 50 c.p.s.
One shaly zone to 75 c.p.s. (1,490-96)
- 1,680-2,510 Shaly sandstone, average 50 c.p.s.
Shaly bed 2,247' to 75 c.p.s.
Shaly bed 2,385-2,397' to 85 c.p.s.

READER		
CALIBRATION		
SPECIAL		
NO. 1		
NO. 2		
NO. 3		
NO. 4		
NO. 5		
NO. 6		
NO. 7		
NO. 8		
NO. 9		
NO. 10		
NO. 11		
NO. 12		
NO. 13		
NO. 14		
NO. 15		
NO. 16		
NO. 17		
NO. 18		
NO. 19		
NO. 20		







GEOPHYSICAL STUDIES
CENTENNIAL WASH PROJECT
 STATE LAND SECTION 16, T. 8 N.,
 R. 9 W., G & SRB & M
 YUMA & YAVAPAI COUNTIES, ARIZONA
 for
GPU Service Corp.
 by
mining
 geophysical surveys

0816

Expander 5
a = 1000'



SCALE 1"=1000'

JULY, 1977

SURVEY OF 'CENT' GROUP OF UNPATENTED LODE-MINING CLAIMS, LOCATED IN THE HARCUIVAR MINING DISTRICT, T 8 N, R 9 W, 6 & 8 RB & M, YAVAPAI COUNTY, ARIZONA.

by

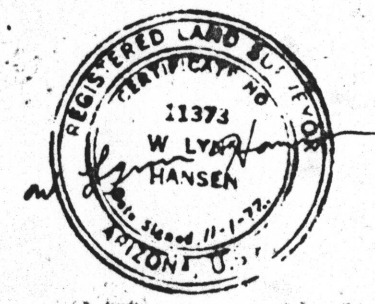
GPU Service / Cherry Hill Fuels
Albuquerque

- Location Notice posted on 2"x2"x5' wood stake 20' from End Center.
- All Corners and End Centers monumented with 2"x2"x5' wood stakes.
- Found Public Land Survey Monument (G.L.O. brass capped pipe)

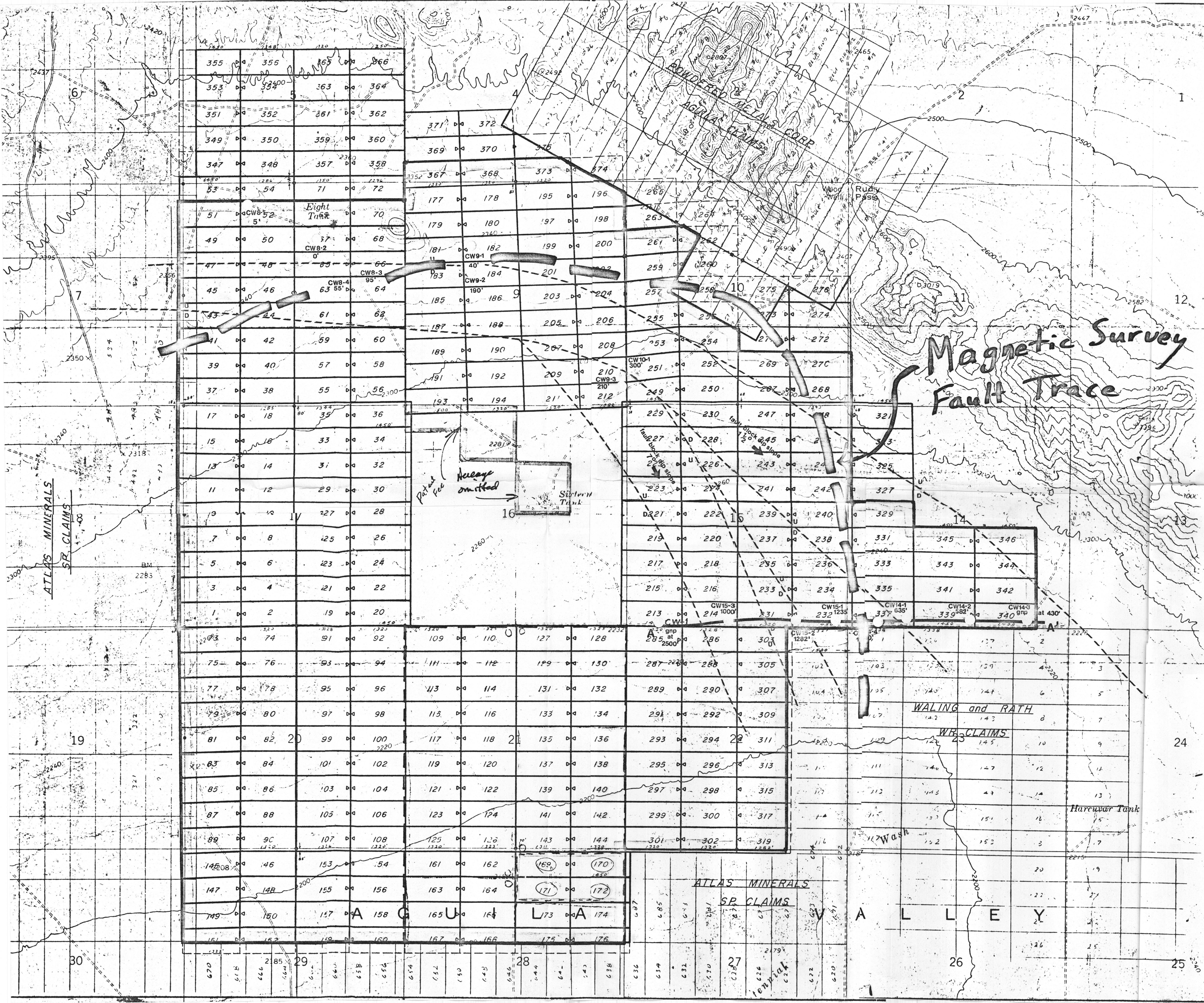
Hole Location
Hole Number
Depth to Granite
gnp
Granite not penetrated

Up
Down

HANSEN SURVEYING CO.
P.O. BOX 7261
TUCSON, ARIZONA 85725
PHONE (602) 623-3321.



Revised 2-79



ATLAS MINERALS
SP. CLAIMS

ATLAS MINERALS
SP. CLAIMS

WALING and RATH

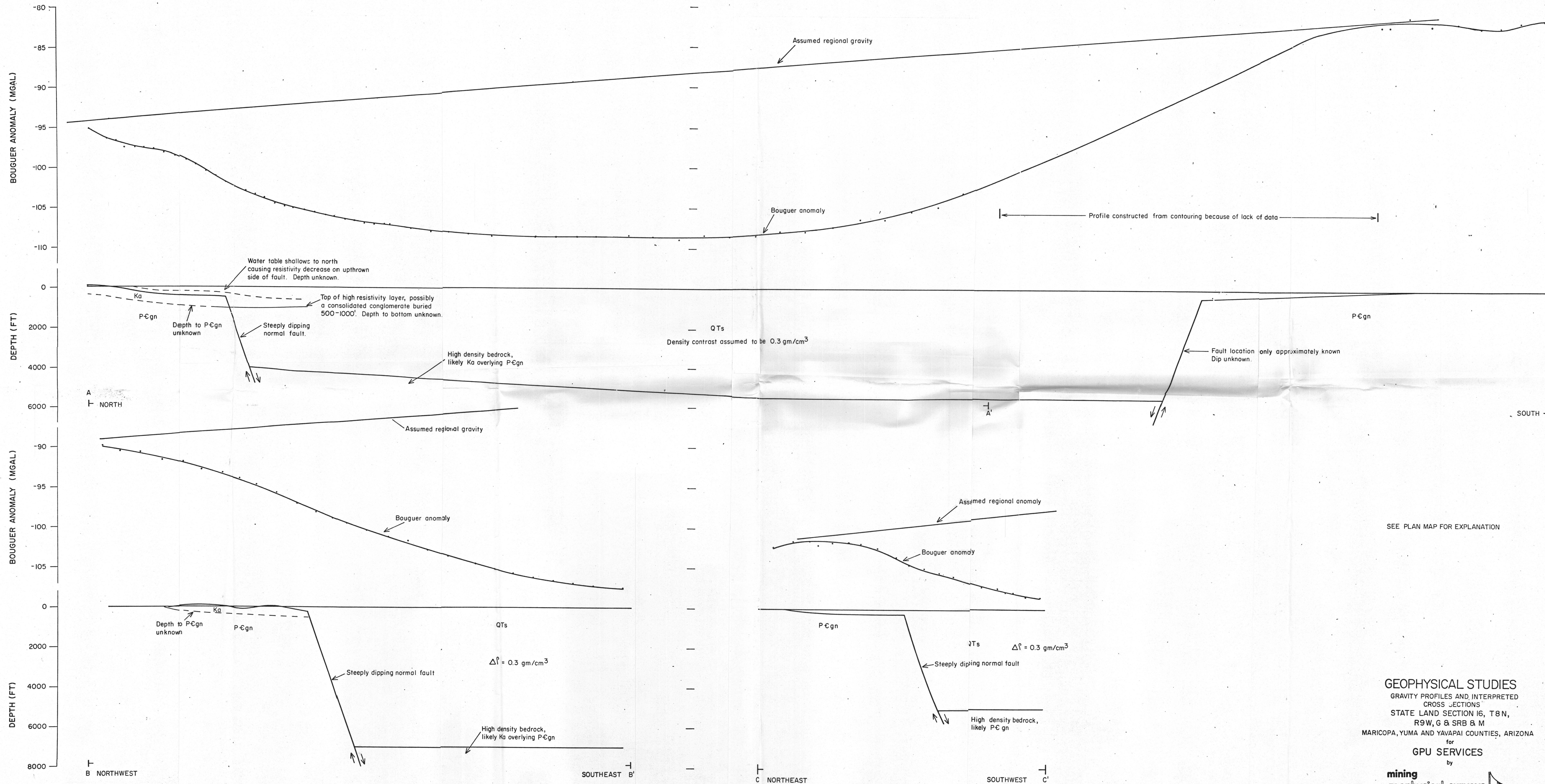
WB CLAIMS

HARCUIVAR TANK

HAWASH

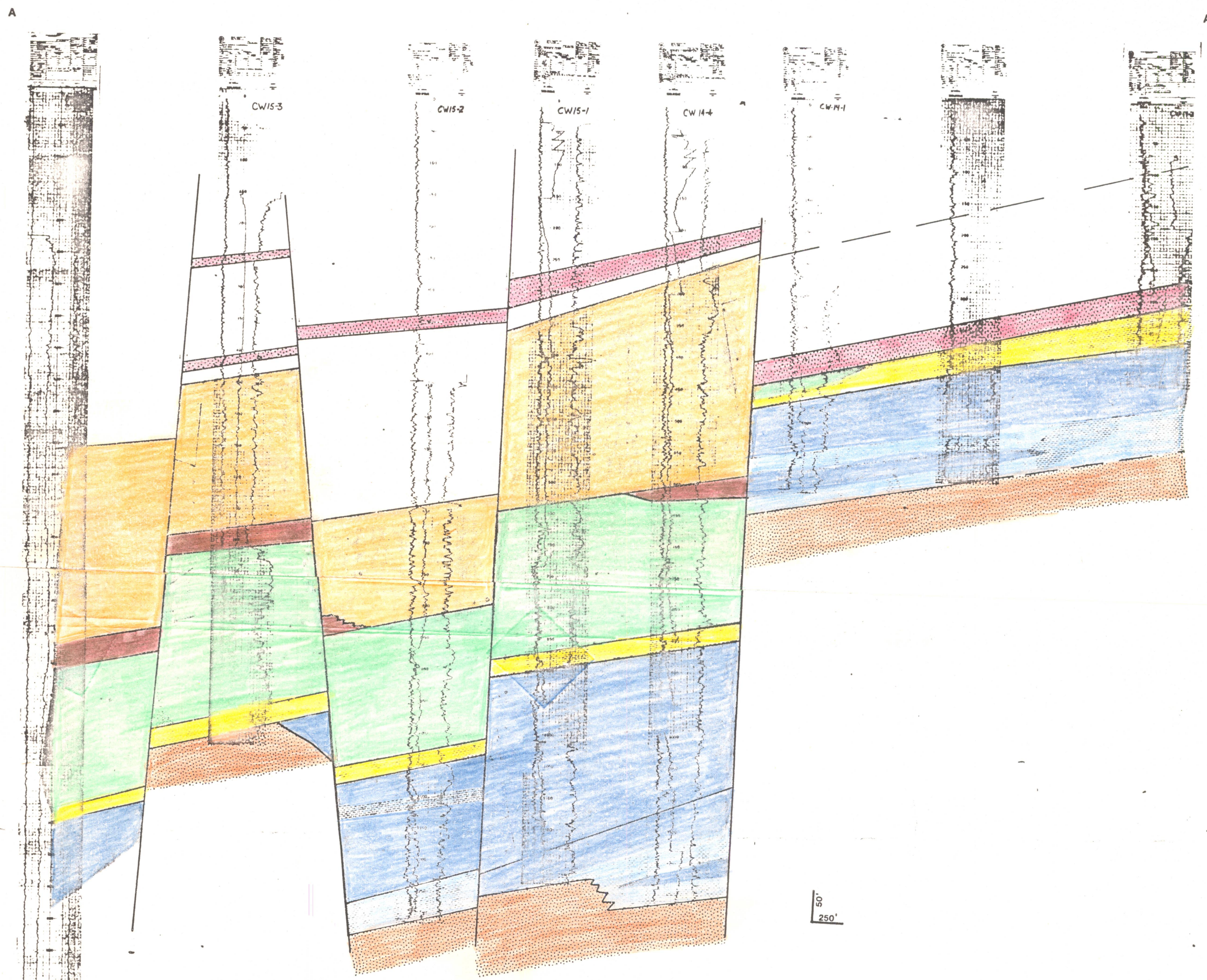
ALLEY

355	355	365	366	371	372	375	374	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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SEE PLAN MAP FOR EXPLANATION

GEOPHYSICAL STUDIES
 GRAVITY PROFILES AND INTERPRETED
 CROSS SECTIONS
 STATE LAND SECTION 16, T8N,
 R9W, G & SRB & M
 MARICOPA, YUMA AND YAVAPAI COUNTIES, ARIZONA
 for
GPU SERVICES
 by
mining
 geophysical surveys



- sandstones & cgl's
- shales
- volcanics
- granite basement

Centennial Wash Uranium Project

Aguila, Arizona

Service / **Cherry Hill Fuels**
Albuquerque

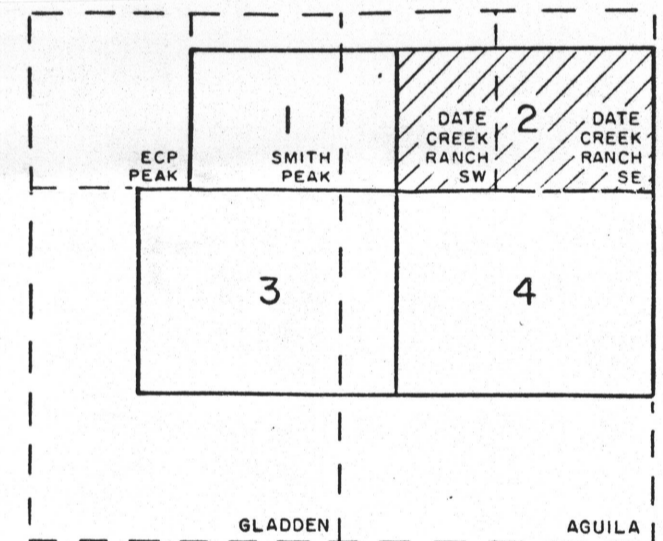
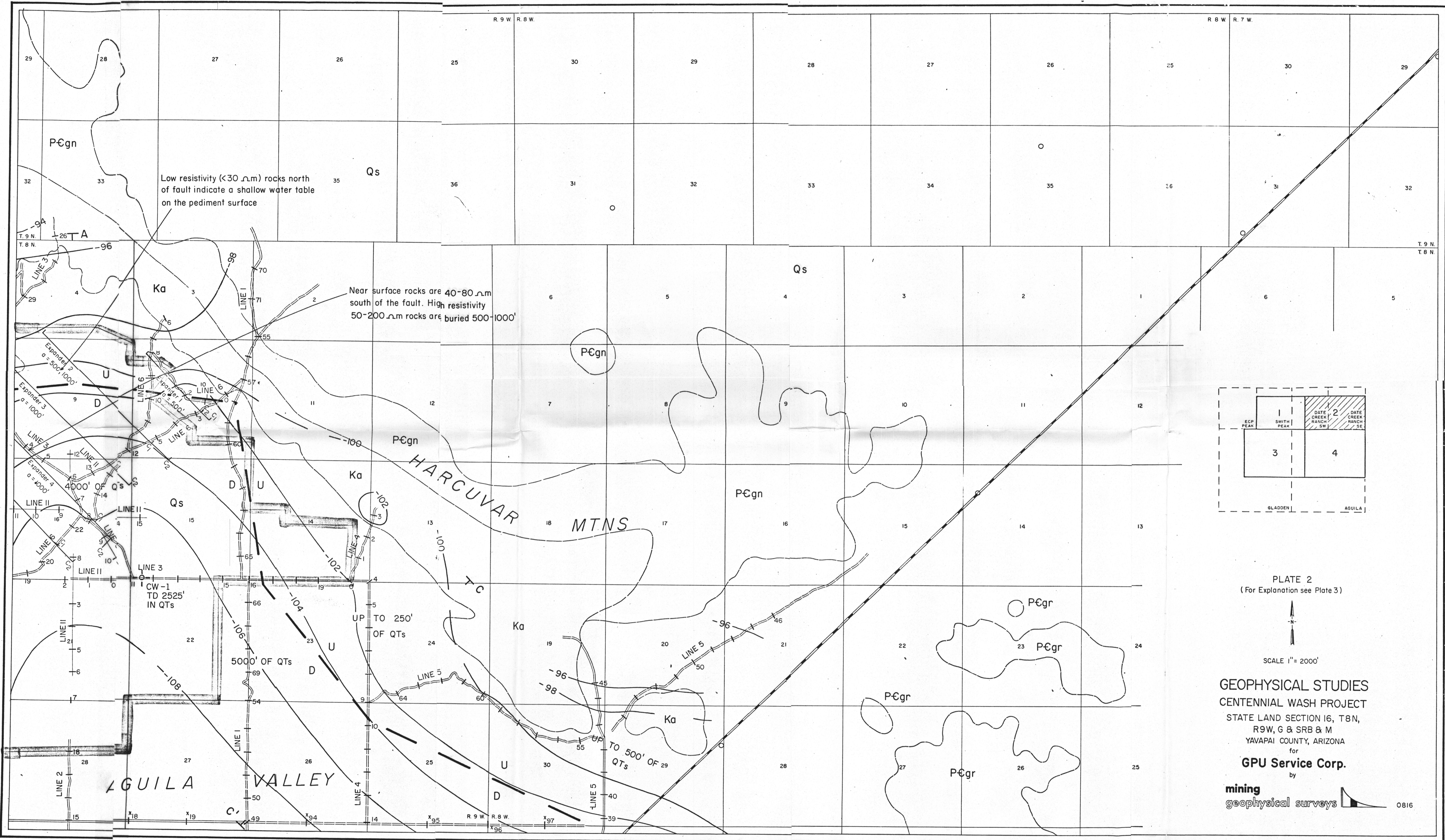
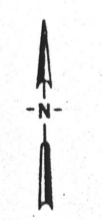


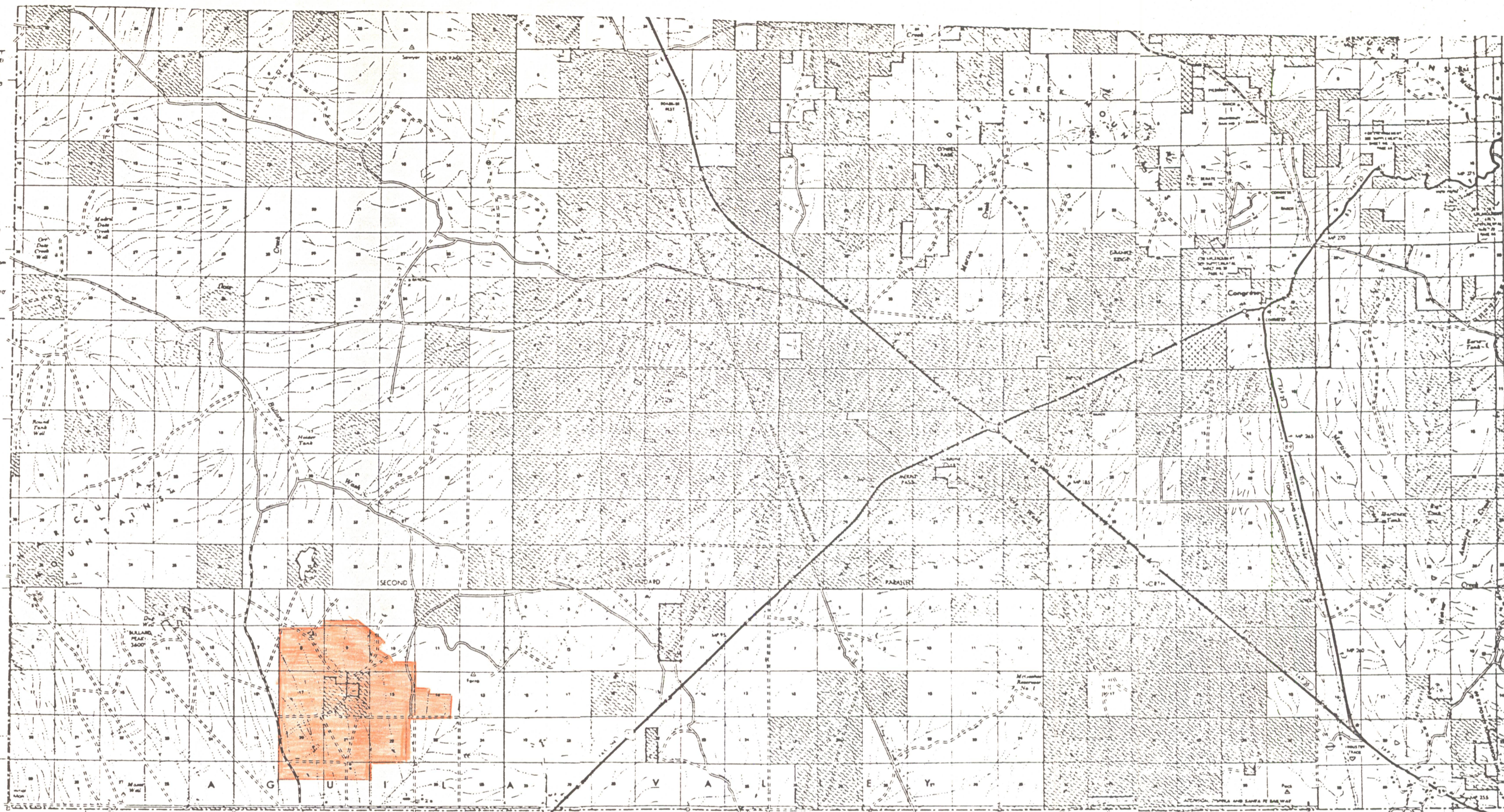
PLATE 2
(For Explanation see Plate 3)



SCALE 1" = 2000'

GEOPHYSICAL STUDIES
CENTENNIAL WASH PROJECT
 STATE LAND SECTION 16, T8N,
 R9W, G & SRB & M
 YAVAPAI COUNTY, ARIZONA
 for
GPU Service Corp.
 by

mining
 geophysical surveys 0816



T. 10 N.
T. 11 N.
T. 12 N.
T. 13 N.
T. 14 N.

R. 10 W.
R. 9 W.
R. 8 W.
R. 7 W.
R. 6 W.
R. 5 W.

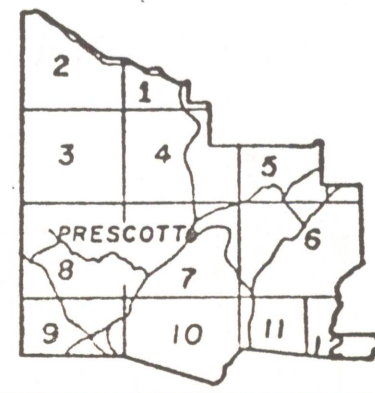
M A R I C O P A C O U N T Y



COMPILED BY PHOTOGRAMMETRIC METHODS PHOTOGRAPHY 1968
CONTROL BY USGS AND USGS
TRANSVERSE MERCATOR PROJECTION 1983 NORTH AMERICAN DATUM
NAD 83/84 COORDINATE SYSTEM CENTRAL ZONE
NAD 83/84 TRANSVERSE MERCATOR SYSTEM ZONE 12

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GENERAL HIGHWAY MAP
YAVAPAI COUNTY, ARIZONA
ARIZONA HIGHWAY DEPARTMENT
PHOTOGRAMMETRY AND MAPPING DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
1967



REVISION DATE
3-13-73

ARIZONA STATE LAND
MINERAL TRUST L
YAVAPAI COUNTY
12 SHEETS, SHEET

CAHO