

APPENDIX 6-E

WELLS ON AND NEAR THE PERMIT AREA

(Updated from the 1989 Permit Appendix 12D)

Updated
September 2011

Navajo Mine Permit Application Package

This appendix contains information pertaining to wells and springs that exist in and adjacent to the mine permit area. The original data was collected in 1985 by Billings and Associates, Inc. (BAI) for Utah International Inc. (UII) for the Navajo Mine permit. Norwest Corporation (Norwest) supplemented the previous information with data summarized by the New Mexico Office of the State Engineer (NMOSE) (2010) as part of the Navajo Nation Water Rights Settlement Agreement, which enumerated the extent of known existing and historic water uses on Navajo Nation Lands. The latter document identified 30 wells located within a two-mile radius of the mine operation. Many of these sites have not been visited and verification of the wells' existence and specific information about well depths, depths to water or water quality have not been verified. Several of the wells identified in the original Appendix 6-E, Addendum 12-D-A could not be found at the locations identified. However, many of the wells identified in the NMOSE (2010) Navajo Settlement Agreement were also identified in the "Groundwater Operations Manual and Well Survey for Navajo Mine and Vicinity" that was completed by Metric Corporation (1991).

Table 6-E-1 includes eight springs and 52 wells or windmills. Thirty-two are alluvial wells. Another 30 wells were present, and one is completed in the Kirtland and 4 are completed in the Pictured Cliffs sandstone (PCS), and 15 are of unknown provenance. Five of the 52 wells used windmills to pump water. Thirty-two wells are used for stock water, two include a domestic use, one well may have had other use(s), and 18 had unknown uses. Monitoring wells were excluded from this tabulation.

Location, identifier, type, and amount of water, depth of water, usage, well completion zone(s), well depth, and water quality information were collected and enumerated where available in Table 6-E-1 and Addendum to Appendix 12-D-A. Information was compiled using an approximate border of the coal seam outcrops on the west to two miles east of the permit boundary extending north to the San Juan River. Generally, five data sources were examined; UII record (Chapter 12, permit NM-0003C), Navajo Nation files, United States Geological Survey computer database WATSTORE, NMOSE files, and scientific publications. Due to stratigraphy in the area and the geologic units that could potentially be affected (Chapter 12, permit NM-0003C); investigated wells were completed in the Alluvium, Kirtland Shale, Fruitland Formation, and Pictured Cliffs Sandstone. A database was developed from an area larger than that defined above to facilitate collection, tabulation, and presentation. Development of these types of databases typically require triangulation coordinates which include, but extend beyond the area of concern. Consequently, many of the wells/springs presented herein, lie outside the region defined above.

Tabulation of collected information is given in Table 6-E-1. The sites are plotted on Figure 6-E-1. Labels for the sites are named initially by the Navajo Nation Settlement Agreement identification labels, with a prefix of W- signifying well, and a prefix of S- meaning spring. Wells preceded by GM- or 13- were derived from the Metric Corporation (1991) study. In the event that a site was also identified in Addendum 12-D-A, the BAI number is shown in parenthesis below the label on Figures 6-E-1. Refer to Addendum 12-D-A, for additional information on any particular well identified with a BAI number (e.g., BAI #11).

None of the wells or springs have been ground truthed. It is not known whether the wells/springs presented here are still in existence, or have been abandoned, plugged, or mined out. It has been our experience that it is not uncommon for wells to become plugged and/or abandoned, particularly within alluvial environments such as the Chaco River.

Navajo Mine Permit Application Package

REFERENCES

- Arizona State Land Department, Water Resources Report Number Twelve-A, April 1963.
- Metric Corporation, 1991. Groundwater Operations Manual and Well Survey for Navajo Mine and Vicinity, San Juan County, New Mexico. Prepared for BHP-Utah International, Inc. Fruitland, New Mexico. Prepared by Metric Corporation, Albuquerque, NM.
- Myers, Robert G. and E.D. Villanueva. 1986. *Geohydrology of the aquifers that may be affected by the surface mining of coal in the Fruitland Formation in the San Juan Basin, Northwestern New Mexico*. USGS Water-Resources Investigations Report 85-4251. Prepared in cooperation with the US Bureau of Land Management. Albuquerque, NM. 41 pgs.
- New Mexico Institute of Mining & Technology, Hydrologic Report 6, New Mexico Bureau of Mines and Mineral Resources, 1983.
- New Mexico Office of the State Engineer. 2010. *Notice of Navajo Nation Expedited Inter Se Proceeding*. Hydrographic Survey, Appendix M. <http://www.ose.state.nm.us/water-info/NavajoSettlement/Notice2010/AppendixM.pdf> (Accessed 20 September 2011).
- New Mexico Office of State Engineer Well Records.
- Stone, W.J.; Lyford, F.P.; Frenzel, P.F.; Mizell, N.H.; and Padgett, E.T. 1983. *Hydrogeology and Water Resources of San Juan Basin, New Mexico*; New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6; 1983; 11 pgs.
- Thorn, C.R., 1993, *Water-quality data from the San Juan and Chaco Rivers and selected alluvial aquifers, San Juan County, New Mexico*: U.S. Geological Survey Open-File Report 93-84, 41 p.
- Utah International Incorporated, Navajo Mine NM-0003C Permit Application Package - Chapter 12.
- U.S. Geological Survey, Computer Database, WATSTORE.

Navajo Mine Permit Application Package

Table 6-E-1: Water Wells and Springs Adjacent to the Navajo Mine

<i>Well Name</i>	<i>WQ</i>	<i>Type</i>	<i>Status</i>	<i>Completion</i>	<i>Stream</i>	<i>Primary Use</i>	<i>Depth to Water (ft)</i>	<i>Total Depth (ft)</i>
52	Available	Spring			Cottonwood	Unknown	Unknown	NA - Spring
53	NA	Spring			Cottonwood	Unknown	Unknown	NA - Spring
54	Available	Spring				Unknown	Unknown	NA - Spring
S-0127 (13R-103)	NA	Spring		Improved Spring	Cottonwood Springs	Stock Water	Unknown	NA - Spring
S-0767	NA	Spring		Improved Spring		Stock Water	Unknown	NA - Spring
56	NA	Spring		PCS	San Juan	Unknown	Unknown	NA - Spring
13R-104	NA	Spring			Cottonwood Springs	Unknown	Unknown	NA - Spring
Little Geyser Spring (G9)	Available	Spring			Chaco	Unknown	Unknown	NA - Spring
W-0202	NA	Well		Alluvium	Chaco	Stock Water	Unknown	7
W-0346 (13R-37, 13-8-4)	NA	Well	Unpermitted	Alluvium	Pinabete	Stock Water, Use Unknown	6	8
45	NA	Well		Alluvium	Pinabete/Chaco	Unknown	8	8
51	NA	Well	Dry	Alluvium	Unknown	Unknown	Unknown	8
W-0203 (13-15-5)	NA	Well	Unpermitted	Alluvium	Chaco	Stock Water	Unknown	8
46	Available	Well		Alluvium	Unknown	Unknown	70	9
70	Available	Well		Alluvium		Unknown	7	9
W-0344	Available	Well		Alluvium	Pinabete	Stock Water	7	9
GM-32 (13-15-7)	NA	Well	Unpermitted	Alluvium	Chaco	Monitoring/Livestock	8	9
W-0345 (13R-48, 13-15-3)	NA	Well	Permitted	Alluvium	Pinabete	Stock Water	7	10
13-15-4	NA	Well	Unpermitted	Alluvium	Chaco	Unknown	8	11
W-0348 (13-8-1)	NA	Well	Unpermitted	Alluvium	Pinabete	Stock Water	9	13
W-0204 (13-15-6)	NA	Well	Unpermitted	Alluvium	Chaco	Stock Water	Unknown	14

Navajo Mine Permit Application Package

<i>Well Name</i>	<i>WQ</i>	<i>Type</i>	<i>Status</i>	<i>Completion</i>	<i>Stream</i>	<i>Primary Use</i>	<i>Depth to Water (ft)</i>	<i>Total Depth (ft)</i>
W-0645 (13R-29)	Available	Well	Permitted	Alluvium	Chaco	Stock Water	12	16
W-0519 (13R-31 #17, G4)	Available	Well	Unpermitted	Alluvium	Chaco	Stock Water	16	16
W-0644 (13R-28A, QACW-2B, CWAP-1)	Available	Well		Alluvium	Cottonwood	Stock Water	Unknown	22
57	Available	Well		Alluvium	San Juan	Unknown	7	27
SJ 00248 (G7)	Available	Well		Alluvium	San Juan	DOM	10	35
SJ 00264	NA	Well		Alluvium	San Juan	Stock Water	10	35
GM-22 (13R-38)	NA	Well	Permitted	Alluvium	Pinabete	Monitoring/Livestock	11	47
13-5-1 (Stevenson, 13-15-2)	NA	Well	Permitted	Alluvium		Unknown	Unknown	Unknown
G5	Available	Well		Alluvium	Chaco	Unknown	Unknown	Unknown
W-0343	NA	Well	Unpermitted	Alluvium		Stock Water	Unknown	Unknown
W-0691 (13-15-8)	NA	Well	Unpermitted	Alluvium	Chaco	Stock Water	Unknown	Unknown
W-0695 (G-2)	Available	Well		Alluvium	San Juan	Stock Water	Unknown	Unknown
13-AW (13T-513)	Available	Well	Unpermitted	Alluvium - Artesian		OG well converted to Livestock	11	530
USGS SJ-3	Available	Well		Qal	San Juan	Unknown	3	8
146	Available	Well		Qal	San Juan	Unknown	3	9
Wesleyan Navajo Mission	Available	Well		Qal	San Juan	Unknown	9	19
R.A. French	Available	Well		Qal	San Juan	Unknown	Unknown	37
W-0607	NA	Well		Windmill-Alluvial	Chaco	Stock Water	18	25
46 (W-0618,13R-28)	NA	Well - Permitted	Destroyed	Alluvium	Cottonwood	Stock Water	5	16
41	NA	Well		Kirtland (Farmington.)	NA	Unknown	40	60
90	NA	Well		PCS		Stock, Domestic	Unknown	131
44	Available	Well		PCS	NA	Unknown	475	804
38	Available	Well		PCS	NA	Unknown	470	1505

Navajo Mine Permit Application Package

<i>Well Name</i>	<i>WQ</i>	<i>Type</i>	<i>Status</i>	<i>Completion</i>	<i>Stream</i>	<i>Primary Use</i>	<i>Depth to Water (ft)</i>	<i>Total Depth (ft)</i>
13-7-2	NA	Well	Abandoned	PCS		Unknown	Unknown	Unknown
W-0520 (G-3)	Available	Well		Well	Chaco	Stock Water	Unknown	Unknown
13-7-4	NA	Well	Permitted	Well	Brimhall	Unknown	Unknown	Unknown
GM-35	NA	Well	Unpermitted	Well	Brimhall	Unknown	Unknown	Unknown
GM-36 (13-7-5)	NA	Well	Unpermitted	Well	Brimhall	Unknown	Unknown	Unknown
W-0146	NA	Well		Well		Stock Water	Unknown	Unknown
W-0147	NA	Well		Well		Stock Water	Unknown	Unknown
W-0148	NA	Well		Well		Stock Water	Unknown	Unknown
W-0313	NA	Well		Well		Stock Water	Unknown	Unknown
W-0342	NA	Well		Well	Chaco	Stock Water	Unknown	Unknown
W-0517	NA	Well		Well		Stock Water	Unknown	Unknown
W-0593	NA	Well		Windmill	San Juan	Stock Water	Unknown	Unknown
W-0603	NA	Well		Windmill		Stock Water	Unknown	Unknown
W-0606 (13-15-1)	NA	Well	Unpermitted	Windmill		Stock Water	Unknown	Unknown
W-0686	NA	Well		Windmill		Stock Water	Unknown	Unknown
W-0768 (#10)	NA	Well		Windmill		Stock Water	Unknown	Unknown

NA - Not Available
PCS - Pictured Cliffs Sandstone
Qal - Quaternary Alluvium
NA-Spring- Not applicable,
Spring
OG - Oil & Gas

Navajo Mine Permit Application Package

Addendum 12-D-A
BHP-Utah International Well/Spring Data Base

Prepared by:
Billings & Associates, Inc. (1985)
As part of the 1985 permit reorganization
ICR Response 01/89

ADDENDUM 12-D-A

BHP-Utah Internation Well/Spring Data Base

KEY

BAI Well #: Billings & Associates, Inc. selected well number identification on Figure 12-D2.

Location: Well/Spring location based on 1) township range, 2) latitude-longitude, 3) Navajo Nation system, 4) UII name-extrapolated from maps presented in Chapter 12 (PAP).

Ownership: Well/Spring owner.

Source: Source of information collected (see References), 1) Stone=Stone et. al., 2) LEO=State Engineer files, 3) WRI 35-425i (see references), 4) AILD #12-C=Arizona State Land Department (Navajo Nation files (see References), 5) UII=Utah International files (Chapter 12-PAP), 6) USGS=United States Geological Survey WATSTORE.

Type of Water: Well or Spring.

Depth of Water: Depth to water from measuring point in given units or feet.

Usage: Use of water, 1) D=domestic, 2) S=stock, 3) Irr=irrigation, 4) M=monitoring.

Aquifer: Geologic source of water, 1) Qal=Alluvium, Kpc=Pictured Cliffs, or as given.

Well Yield: Information on production capabilities of well/spring.

Well Depth: Depth of well in feet or units as given.

Plotted: Whether location could be identified and plotted on Figure 2.

Water Quality: Most recent or only water quality information available. Temp=temperature (°F), pH=units, Specific Conductivity=umhos/cm, all other units in mg/l.

Remarks: Miscellaneous information pertaining to location.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 1
LOCATION 29.15.11.111
OWNERSHIP ALAN CLINE
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 25 FT
USAGE
AQUIFER WATER SAND (SHALLOW)
WELL YIELD 20 GPM
WELL DEPTH 40 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 2
LOCATION 29.15.12.211
OWNERSHIP JOHN LEO KENNEDY
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 32 FT
USAGE
AQUIFER WATER BEARING SAND & GRAVEL
WELL YIELD 15 GPM
WELL DEPTH 51 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 3
LOCATION 29.15.12.211
OWNERSHIP DAN BOOTH
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 30 FT
USAGE
AQUIFER WATER BEARING SAND & GRAVEL
WELL YIELD 15 GPM
WELL DEPTH 30 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 4
LOCATION 29.16.3.2422
OWNERSHIP DECA INC.
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 20 FT
USAGE
AQUIFER SAND & RIVER GRAVEL
WELL YIELD 6 GPM
WELL DEPTH 34 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 5
LOCATION 29.16.3.4322
OWNERSHIP DECA INC.
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 20 FT
USAGE
AQUIFER SAND & GRAVEL
WELL YIELD 4 GPM
WELL DEPTH 32 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 6
LOCATION 29.16.4.343
OWNERSHIP TOM WHEELER
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 10 FT
USAGE
AQUIFER SAND & GRAVEL
WELL YIELD 20 GPM
WELL DEPTH 35 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 7
LOCATION 29.16.9
OWNERSHIP LLOYD WHEELER
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 10 FT
USAGE
AQUIFER SAND & GRAVEL
WELL YIELD 20 GPM
WELL DEPTH 35 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 8
LOCATION 29.16.4.42
OWNERSHIP JIM ROGERS
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 30 FT
USAGE
AQUIFER GRAVEL & SAND
WELL YIELD 15 GPM
WELL DEPTH 55 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 9
LOCATION 29.15.12.412
OWNERSHIP DAVID R. KNOLL
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 110 FT
USAGE
AQUIFER GRAVEL
WELL YIELD 15 GPM
WELL DEPTH
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 10
LOCATION 29.15.11.21
OWNERSHIP INTERSTATE GATHERING CORP
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 45 FT
USAGE
AQUIFER RIVER ROCK
WELL YIELD 40 GPM
WELL DEPTH 60 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 11
LOCATION 29.15.4.143
OWNERSHIP HAL D. BENSON
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 22 FT
USAGE
AQUIFER GRAVEL
WELL YIELD 20 GPM
WELL DEPTH 44 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 12
LOCATION 29.15.11.131
OWNERSHIP ALVIN HILT
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER WATER BEARING SAND & GRAVEL
WELL YIELD 15 GPM
WELL DEPTH 26 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 13
LOCATION 29.15.11.131
OWNERSHIP LENORA M. HOGUE
SOURCE SEO
TYPE OF WATER WELL
DEPTH OF WATER 9 FT
USAGE
AQUIFER WATER BEARING SAND & GRAVEL
WELL YIELD 15 GPM
WELL DEPTH 25 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 28**LOCATION** 362208.108341201**OWNERSHIP****SOURCE** WRI 85-4251**TYPE OF WATER** WELL**DEPTH OF WATER** 12.88**USAGE****AQUIFER** ALLUVIAL**WELL YIELD****WELL DEPTH** 38 FT**PLOTTED** Y**WATER QUALITY****REMARKS**

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 29
LOCATION 362210.108341001
OWNERSHIP
SOURCE WRI 85-4251
TYPE OF WATER WELL
DEPTH OF WATER 7.55
USAGE
AQUIFER ALLUVIAL
WELL YIELD
WELL DEPTH 70 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 30**LOCATION** 362211.108340601**OWNERSHIP****SOURCE** WRI 85-4251**TYPE OF WATER** WELL**DEPTH OF WATER** 5.15**USAGE****AQUIFER** ALLUVIAL**WELL YIELD****WELL DEPTH** 47 FT**PLOTTED** Y**WATER QUALITY****REMARKS**

BHP- UTAH INTERNATIONAL WELL SPRING DATA BASE**BAI WELL #** 31**LOCATION** 362212.108340701**OWNERSHIP****SOURCE** WRI 85-4251**TYPE OF WATER** WELL**DEPTH OF WATER** 7.50**USAGE****AQUIFER** ALLUVIAL**WELL YIELD****WELL DEPTH** 8 FT**PLOTTED** Y

WATER QUALITY TC=1290, PH=8.3, TEMP.=13.0, TDS=120, Ca=40, Mg=5.2,
 HCO3=2, P=3.1, CO3=0, NO3=0, ALKA=404,
 SO4=350, CL=11, F=1.5, SiO2=15, TDS=931, STD=960,
 NO2+NO3=.100, NH3=.290 N=1.3, P=0.480, FE=80

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-24}

BAI WELL # 32

LOCATION 362213.108340501

OWNERSHIP

SOURCE WRI 85-4251

TYPE OF WATER WELL

DEPTH OF WATER 9.59

USAGE

AQUIFER ALLUVIAL

WELL YIELD

WELL DEPTH 13 FT

PLOTTED Y

WATER QUALITY

SC=1040, PH=8.0, TEMP.=13.0, CaCO3=130, Ca=42, Mg=5.2,
Na=210, S+R=8, K=3.5, HCO3=330, CO3=.00, ALKA=274,
SC4=200, CL=9.3, F=1.4, BR=1.2, TDS=738, STD=750,
NO3=.030, NO2+NO3=.030, NH3=.460, N=1.0, P=0.080, FE=1800

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-25}

BAI WELL # 33

LOCATION 362217.108335701

OWNERSHIP

SOURCE WRI 85-4251

TYPE OF WATER WELL

DEPTH OF WATER 18.00

USAGE

AQUIFER ALLUVIAL

WELL YIELD

WELL DEPTH 47 FT

PLOTTED Y

WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 34**LOCATION** 362902.108334801**OWNERSHIP****SOURCE** WRI 85-4251**TYPE OF WATER** WELL**DEPTH OF WATER** 7.82**USAGE****AQUIFER** ALLUVIAL**WELL YIELD****WELL DEPTH** 8 FT**PLOTTED** Y**WATER QUALITY****REMARKS**

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 35
LOCATION 363113.108333501
OWNERSHIP
SOURCE WRI 85-4251
TYPE OF WATER WELL
DEPTH OF WATER 5.29
USAGE
AQUIFER ALLOVIAL
WELL YIELD
WELL DEPTH 11 FT
PLOTTED Y
WATER QUALITY SO=2700, PH=7.6, TEMP.=11.0, CaCO3=290, Ca=91, Mg=15,
 Na+K=1213, Cl=45, CO3=0, HCO3=00, ALKAL=15,
 SO4=1100, CL=36, F=1.6, SiO2=12, TDS=1950, STD=2000, NO3=
 1.90, NO2+NO3=1.90, NH3=.020, N=2.1, P=0.110, FE=20, C=2.5

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 37**LOCATION** 364325.108353001**OWNERSHIP****SOURCE** WRI 85-4251**TYPE OF WATER** WELL**DEPTH OF WATER** 3.87**USAGE****AQUIFER** ALLUVIAL**WELL YIELD****WELL DEPTH** 13 FT**PLOTTED** Y**WATER QUALITY**

SO=3580 PH=8.3, TEMP.=22, T_{CO3}=110, Ca=19, Mg=15, Na=750,
 FAP=22, Cl=27, K=0.1, N=0.40, C₁₀=0.1, ALKA=197, SO₄=100,
 CL=180 F=2.2, SiO₂=3.0, TDS=1410, STD=2400, NO₂+NO₃=.100,
 NH₃=1.50, N=1.9, P=0.130, FE=.20, C=4.1

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 38
LOCATION 31:8.25-9.40
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER 470 FT
USAGE UN
AQUIFER PICTURED CLIFFS, CLIFF HOUSE
WELL YIELD
WELL DEPTH 1505 FT
PLOTTED Y
WATER QUALITY SIC2=5.6 Ca=113, Mg=69, Na+K=8890, HCO3=271, CO2=0,
 CD4=15, DU=1, DS=1, DZ=5, D, T=15300, C, DO3=778, SAR=107,
 SPECIFIC CONDUCTANCE=25900

REMARKS ABANDONED, POOR QUALITY

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 39
LOCATION 31:4.65-13.75
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE UN
AQUIFER KIRTLAND (FARMINGTON)
WELL YIELD
WELL DEPTH 105 FT
PLOTTED Y
WATER QUALITY

REMARKS ABANDONED

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 40
LOCATION 31:4.80-13.90
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE UN
AQUIFER KIRTLAND AND FRUITLAND
WELL YIELD
WELL DEPTH 915 FT
PLOTTED Y
WATER QUALITY

REMARKS ABANDONED

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 41
LOCATION 31:9.0-7.7A
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER 40 FT
USAGE UN
AQUIFER KIRTLAND (FARMINGTON)
WELL YIELD
WELL DEPTH 60 FT
PLOTTED Y
WATER QUALITY

REMARKS ABANDONED

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 42
LOCATION 31:5.75-11.10
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER 180
USAGE UN
AQUIFER PASTURELAND AND FRUITLAND
WELL YIELD 3-4
WELL DEPTH 448 FT
PLOTTED Y
WATER QUALITY

REMARKS ORIGINALLY DRILLED TO 521 FEET; ANALYSIS MADE IN
1941, ABANDONED

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 44
LOCATION 31:8.20-9.35
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER 475
USAGE S
AQUIFER PICTURED CLIFFS
WELL YIELD 2-3
WELL DEPTH 804 FT
PLOTTED Y
WATER QUALITY HCO3=799, CO3=0, CL=9160, SPECIFIC CONDUCTANCE=25600

REMARKS UNFIT FOR HUMAN CONSUMPTION

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 45
LOCATION 31:5.20-1.85
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER WELL
DEPTH OF WATER 25.2
USAGE D,S
AQUIFER ALLOVIUM
WELL YIELD 3-4
WELL DEPTH 65 FT
PLOTTED Y
WATER QUALITY TEMP=58, SIO2=19, Ca=69, Mg=17, Na+K=364, HCO3=598,
CO3=0, SO4=466, CL=48, F=1.0, NO3=105, TDS=1270, CaCO3=240,
SAR=10, SPECIFIC CONDUCTANCE=1870, PH=7.9

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 46
LOCATION 31:10.35-10.00
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 7.3
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 9 FT
PLOTTED Y
WATER QUALITY TEMP=65, SIO2=19, Ca=134, Mg=105, Na+K=521, HCO3=342,
CO3=0, SO4=1370, CL=12, F=0, NO3=23, TDS=2780,
CaCO3=1020, SAR=7.1, SPECIFIC CONDUCTANCE=3500, PH=7.9

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 49
LOCATION 31:4.10-5.45
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 5.8
USAGE S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 6 FT
PLOTTED Y
WATER QUALITY TEMP=69, SIO2=12, Ca=107, Mg=29, Na+K=189, HCO3=285,
CO3=0, SO4=28, CL=02, F=0, NO3=0, TDS=1001,
CaCO3=1382, SAR=4.2, SPECIFIC CONDUCTANCE=1390

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 50
LOCATION 31:4.55-5.45
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER DRY
USAGE UN
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY

REMARKS FILLED WITH SAND AND ABANDONED

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 51
LOCATION 31:9.15-7.55
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER DRY
USAGE UN
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 8 FT
PLOTTED Y
WATER QUALITY

REMARKS ABANDONED

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 52
LOCATION 31:8.70-15.25
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE D S
AQUIFER KARTLAND (FARMINGTON)
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY TEMP=54, SIO2=12, Ca=18, Mg=3.7, Na+K=320, HCO3=104,
 CO3=6, SO4=203, CL=39, F=0.3, NO3=0, TDS=610, CEC=1.2,
 SAR=17, SPECIFIC CONDUCTANCE=1460, PH=8.3

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 53
LOCATION 31:8.65-15.15
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE D,S
AQUIFER KIRTLAND (FARM WGT)
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 54
LOCATION 31:9.65-1.05
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE D,S,IRR
AQUIFER TERRACE
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY TEMP=55, SiO₂=27, Ca=110, Mg=35, Na+K=74, HCO₃=222,
SO₄=0.9, Cl=0.1, CO₃=10, NO₃=12, TDS=7.3, CaCO₃=418
SAR=1.6, SPECIFIC CONDUCTANCE=1020, PH=7.4

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 55
LOCATION 31:3.10-2.35
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY

REMARKS DUG OUT BY INDIANS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 56
LOCATION 31:9.55-0.85
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE D,S
AQUIFER PICTURED CLIFFS
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY TEMP=62, SiO2=28, Ca=1.0, Mg=28, Na+K=77, HCO3=392,
Cl=0, SO4=102, F=0, Fe=0, NO3=0.1, TDS=624, CaCO3=384,
SAR=1.8, SPECIFIC CONDUCTANCE=937

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 57
LOCATION 32:0.30-0.20
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DRILLED WELL
DEPTH OF WATER 6.7
USAGE S
AQUIFER ALLUVIUM
WELL YIELD 3-4
WELL DEPTH 27 FT
PLOTTED ✓
WATER QUALITY TEMP=60, SIG=13, Ca=476, Mg=378, Na+K=530, HCO3=417,
 CO3=304, SO4=306, CL=202, F=6, NO3=99, P=3=370
 CaCO3=2740, SAR=4.4, PH=7.4

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 58
LOCATION 32:3.35-16.20
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 11.4
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 12.5 FT
PLOTTED Y
WATER QUALITY TEMP=54, SIO2=12, Ca=167, Mg=27, Na+K=494, HCO3=268,
CO3=0, SO4=1280, CL=32, F=1.1, NO3=2.2, TDS=2150,
CaCO3=528, SAR=9.3, PH=7.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 59
LOCATION 32:1.85-16.60
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 4.9
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 6.5 FT
PLOTTED Y
WATER QUALITY TEMP=54, HCO3=411, CO3=0, CL=55, CACO3=392, SPECIFIC
CONDUCTANCE=3420, PH=7.5

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 60
LOCATION 32:3.85-14.90
OWNERSHIP NAVAJO
SOURCE ADSLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 7.5
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 10.5 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 61
LOCATION 32:3.50-12.45
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 12.2
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 16 FT
PLOTTED Y
WATER QUALITY TEMP=60, SiO2=14, Ca=151, Mg=37, Na+K=827, HCO3=473,
CO3=0, NO4=1700, CL=45, F=1.0, NH3=7.0, TDS=2110,
CaCO3=528, SAR=16, SPECIFIC CONDUCTANCE=4000, PH=7.1

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 67
LOCATION 48:13.65-4.15
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 6.2
USAGE UN
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 7.5 FT
PLOTTED Y
WATER QUALITY

REMARKS TEMPORARY

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 68
LOCATION 48:11.25-4.85
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 9
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 11 FT
PLOTTED Y
WATER QUALITY TEMP=63, SiO2=16, Ca=145, Mg=15, Na+K=689, HCO3=284,
CO3=0, SO4=1980, CL=24, F=2.4, NO2=0.9, TDS=2627
CaCO3=424, SAR=15, SPECIFIC CONDUCTANCE=3410

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 69
LOCATION 48:10.45-4.80
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 6.4
USAGE D.S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 8.5 FT
PLOTTED Y
WATER QUALITY TEMP=62. HCO3=280, CI=21. SPECIFIC CONDUCTANCE=3830

REMARKS WELL ENCLOSED BY FENCE

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 70
LOCATION 48:13.40-0.65
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 6.8
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 9 FT
PLOTTED Y
WATER QUALITY TEMP=62, SiO2=14, Ca=62, Mg=8.5, Na+K=674, HCO3=465,
NO3=0, SO4=170, CL=30, F=17, NO2=15, COC=10, P=0,
CaCO3=1908, SAR=20, SPECIFIC CONDUCTANCE=2780

REMARKS TROUGH BURIED BY SAND

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 85
LOCATION 48:4.40-2.00
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE S
AQUIFER KIRTLAND (FARMINGTON)
WELL YIELD 2
WELL DEPTH
PLOTTED Y
WATER QUALITY TEMP=53, ClO2=11, Ca=476, Mg=86, Na+K=402, HCO3=110,
 SO4=10, NH4=0.45, F=0.1, NO3=2, TDS=113,
 CaCO3=1540, SAR=4.5, SPECIFIC CONDUCTANCE=3670, PH=7.1

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-55}

BAI WELL # 88
LOCATION 48:2.95-3.90
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE S
AQUIFER ALLEUVIUM
WELL YIELD 1.5
WELL DEPTH
PLOTTED Y
WATER QUALITY TEMP=58, SIO2=20, Ca=484, Mg=62, Na+K=167, HCO3=220,
CO3=150, PH=7.5, NCO=1, TDS=1040,
CaCO3=1410, SAR=1.9, SPECIFIC CONDUCTANCE=2650,
PH=7.5

REMARKS WASH COVERED WITH SEEPS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 90
LOCATION 49:4.8-6.0 A
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER GULF OIL CO. SHOT HOLD
DEPTH OF WATER FLOW
USAGE D,S
AQUIFER PICTURED CLIFFS
WELL YIELD 2 E
WELL DEPTH 131 FT
PLOTTED Y
WATER QUALITY

REMARKS FLOWING SEISMOGRAPH SHOT HOLE

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-57}

BAI WELL # 90
LOCATION 49:4.8-6.0 A
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER GULF OIL CO. SHOT HOLD
DEPTH OF WATER FLOW
USAGE D,S
AQUIFER FRACTURED CLIFFS
WELL YIELD 2 E
WELL DEPTH 131 FT
PLOTTED Y
WATER QUALITY

REMARKS FLOWING SEISMOGRAPH SHOT HOLE

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 91
LOCATION 49:0.80-2.70
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 7
USAGE D
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 8 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-59}

BAI WELL # 93
LOCATION 49:0.45-2.35
OWNERSHIP NAVAJO
SOURCE ASLD #12-C
TYPE OF WATER DUG WELL
DEPTH OF WATER 7.4
USAGE D,S
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 8.5
PLOTTED Y
WATER QUALITY TEMP=62, HCO₃=260, Cl=23, SPECIFIC CONDUCTANCE=110

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 95
LOCATION WATSON PIT (EAST) Kf-1
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND/RTLAND
WELL YIELD
WELL DEPTH 145 FT
PLOTTED N
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-61}

BAI WELL # 96
LOCATION CUSTER PIT K1-2
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND
WELL YIELD NOTE: NO WATER
WELL DEPTH 172.0 FT
PLOTTED N
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 97
LOCATION DOBY PIT K1-3
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 149 FT
PLOTTED N
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 98
LOCATION YAZZIE PIT K1-4
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER - IITLAND
WELL YIELD AFTER 7 DAYS <1 GAL/MIN
WELL DEPTH 138 FT
PLOTTED N
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 99
LOCATION AREA III K1-9A
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 183 FT
PLOTTED N
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 100
LOCATION AREA III Kf-9B
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 213 FT
PLOTTED N
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 101
LOCATION AREA III Kf-9C
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER ?
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 233 FT
PLOTTED N
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 102
LOCATION AREA III SOUTH K1-10A
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH ?
PLOTTED N
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 103
LOCATION NORTH END YWATSON Kf-11
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER KIRTLAND/FRUITLAND
WELL YIELD
WELL DEPTH 100 FT
LOTTED N
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 104
LOCATION SJKF 84 NO 3
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 9.34
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 120 FT
PLOTTED Y
WATER QUALITY Al=0.1, As=0.001, Ba=169.0, B=1.43, Cd=0.005, Ca=700,
Cr=0.012, Co=0.004, Cu=0.002, Fe=1019, Pb=0.014, Mg=278.0,
Mn=0.71, Hg=0.001, Mo=0.001, Ni=0.098, K=61.0, Se=0.001,
Ag=0.002, Na=15632.0, V=0.1, Zn=0.05, HCO3=552, CO3=0,
Cl=28200.0, CN=0.05, F=.97, N=581.0, PHENOLS=0.007, P=0.67,
SO4=10.0, SO3=0.05, SAR=126.48 TOC-IR=6, OH=0,
CONDUCTIVITY=53000 PH=7.29, TDS=50810.0

REMARKS

12-D-70

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 105
LOCATION SJKF 84 NO 2
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 20.27
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 144.0 FT
PLOTTED Y
WATER QUALITY Al=0.01, As=0.001, Ba=111, B=0.03, Br=0.012, Ca=515, Cr=0.006,
Cu=0.129, Cl=0.003, Fe=0.003, Pb=0.007, Mg=222, Mn=0.002,
Hg=0.001, Mo=0.01, Ni=0.06, K=56.0, Se=0.001, Ag=0.002,
Na=13456.0, V=0.102, Zn=0.08, HCO3=774, CO3=0, C=23800.0,
CN=0.05, F=92, N=554.0, PHENOLS=0.001, P=0.77, SO4=10.0,
SO3=0.05, SAR=124.84, TOC=10, OH=0,
CONDUCTIVITY=46500, PH=7.03, TDS=43035.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 106
LOCATION SJKF 84 NO 1
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 140.0
PLOTTED Y
WATER QUALITY

REMARKS

12-D-72

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 107
LOCATION Kf8422 NO 8
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 77.57
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 125 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 108
LOCATION Kf8422 NO 7
OWNERSHIP Ull
SOURCE Ull
TYPE OF WATER WELL
DEPTH OF WATER 79.06
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 140 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 109
LOCATION Kf 8422 NO 4
OWNERSHIP UH
SOURCE UH
TYPE OF WATER WELL
DEPTH OF WATER 89.42
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 202 FT
PLOTTED Y
WATER QUALITY Mn=0.035, As=0.001, Ba=4.10, B=0.50, Cd=0.001, Ca=27.4,
 Cr=0.003, Co=0.023, Cu=0.006, Fe=0.008, Pb=0.107, Mg=18.7,
 Mn=0.16, Hg=0.002, Mo=0.01, Ni=0.01, K=15.3, Se=0.001,
 Ag=0.001, Na=2866.0, V=0.05, Zn=0.05, HCO3=680, CO3=78,
 Cl=3420, CN=0.01, F=1.28, N=77.4, PHENOL=0.001, P=0.15,
 SO4=10.0, SO3=0.025, SAR=103.65, TOC=11.6, OH=0,
 CONDUCTIVITY=13000, PH=7.94, TDS=2610.0

REMARKS

12-D-75

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 110
LOCATION Kf 8422 NO 3
OWNERSHIP Ull
SOURCE Ull
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER FRU LAND
WELL YIELD
WELL DEPTH 220 FT
PLOTTED Y

WATER QUALITY Al=0.033, As=0.001, Ba=2.86, B=0.46, Cd=0.002, Ca=44.4
Cr=0.003, Cu=0.025, Co=0.008, Fe=0.005, Pb=0.007, Mg=16.6,
Mn=0.14, Ni=0.001, Mo=0.01, Ni=0.01, K=15.8, Se=0.001,
Ag=0.01, N=2716.0, V=0.05, Zn=0.05, HCO3=553, CO3=62,
Cl=4070, Cl=0.09, F=1.01, N=153.0, PHENOLS=0.001, P=0.15,
SO4=10.0, SO3=0.025, S=18.18, TOC-IR=14, CH=0,
CONDUCTIVITY=12000, PH=7.86, TDS=8035.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-76}

BAI WELL # 111
LOCATION Kf 8422 NO 2
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 98.18
USAGE M
AQUIFER FT TIL D
WELL YIELD
WELL DEPTH 237
PLOTTED Y

WATER QUALITY Al=0.05, As=0.001, Ba=1.32, B=0.2, Cd=0.001, Ca=45.8,
Cr=0.013, Co=0.123, Cu=0.005, Fe=0.07, H=0.112, Hg=0.118,
Mn=0.32, Hg=0.002, Mo=0.01, Ni=0.01, K=13.9, Se=0.001,
Ag=0.001, Na=2064.0, V=0.05, Zn=0.05, HCO3=620, CO3=48,
Cl=3220, CN=0.01, F=1.11, N=75.7, PHE=CLS=0.001, P=0.15,
SO4=19.0, SO3=0.025, SAR=68.76, TOC=11, OH=0,
CONDUCTIVITY=9700, PH=8.05, TDS=6125

REMARKS

12-D-77

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 112
LOCATION K18421 NO 7
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 36.02
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 75 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 113
LOCATION Kf 84 21 NO 4
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER 45.48
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 95.5 FT (170.0)
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 114
LOCATION Kf 8421 NO 2- NO 3
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 49.74
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 118 FT
PLOTTED Y
WATER QUALITY Al=1.067, As=0.001, Ba=3.45, B=0.13, Cd=0.001, Ca=460.0,
 Cr=0.22, Co=0.017, Cu=0.107, Fe=0.014, Pb=0.069, Mg=0.2,
 Mn=0.002, Hg=0.001, Mo=0.021, Ni=0.013, K=70.7, Se=0.001,
 Ag=0.001, Na=2307.0, V=0.05, Zn=0.05, HCO3=0, CO3=0,
 Cl=2360, ClF=0.043, F=0.91, N=81.0, PHENOLS=0.042, P=0.15,
 SO4=10.0, SO3=0.025, SAR=25.61, TOC-IR=18, OH=2460,
 CONDUCTIVITY=16000, PH=7.20, TDS=11925

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 115
LOCATION Kf8420 NO 4
OWNERSHIP UH
SOURCE UH
TYPE OF WATER WELL
DEPTH OF WATER 91.77
USAGE M
AQUIFER FRUHLAND
WELL YIELD
WELL DEPTH 215.5
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 116
LOCATION Kf8420 NO 3
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 154.47
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 240 FT
PLOTTED Y
WATER QUALITY

REMARKS

12-D-82

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 117
LOCATION K184 18 NO 8
OWNERSHIP U11
SOURCE U11
TYPE OF WATER WELL
DEPTH OF WATER 112.25
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 133.0 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

12-D-83

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 118
LOCATION K18418 NO 6
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 105
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 181 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 119
LOCATION Kf 8420 NO 7
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER 140.05
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 190 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 120
LOCATION Kf 84 NO 17
OWNERSHIP UM
SOURCE UM
TYPE OF WATER WELL
DEPTH OF WATER 242
USAGE M
AQUIFER FRUITLAND
WELL YIELD
WELL DEPTH 310 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 121
LOCATION CP-1
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 6.6 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 122
LOCATION CP-2
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER 14.7
USAGE M
AQUIFER ALLOVIUM
WELL YIELD
WELL DEPTH 25.8 FT
PLOTTED Y
WATER QUALITY PH=7.3 SPECIFIC CONDUCTIVITY=4400

REMARKS

12-D-88

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 123
LOCATION CP-3
OWNERSHIP UM
SOURCE UM
TYPE OF WATER WELL
DEPTH OF WATER 14.0
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 24.0 FT
PLOTTED Y
WATER QUALITY PH=8.5. SPECIFIC CONDUCTIVITY=6600

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 124
LOCATION CP-3A
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER 12.0 FT
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 12.1 FT
PLOTTED N
WATER QUALITY

REMARKS

12-D-90

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 125
LOCATION CP-4
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 4.8 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-91}

BAI WELL # 126
LOCATION CWAP-1
OWNERSHIP UH
SOURCE UH
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 21.6 FT
PLOTTED Y
WATER QUALITY PH=9.0, SPECIFIC CONDUCTIVITY=2500

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 127
LOCATION CWAP-2
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 22.0 FT
PLOTTED Y
WATER QUALITY

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 128
LOCATION CWAP-3
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 8.5 FT
PLOTTED Y
WATER QUALITY

REMARKS

12-D-94

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 129
LOCATION CWAP-4
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER DRY
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH 16.2 FT
PLOTTED Y
WATER QUALITY

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 130
LOCATION GM-18
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER ?
USAGE M
AQUIFER ALLUVIUM
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY NO=0.2, CO=0.10, Cl=0.1, F=0.02, AL=0.16, As=0.0002,
 B=0.0001, Br=0.0001, Cd=0.0001, Cr=0.0001, Cu=0.0001,
 Fe=0.04, Pb=0.01, Mn=0.02, Ni=0.0001, P=0.0001, Se=0.0001,
 Ag=<0.01, Zn=<0.02, N=0.02, UG08=0.008, Fe=0.02, Mn=0.02,
 Hg=<0.0001

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE



BAI WELL # 131
LOCATION GM-9
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER UNKN
WELL YIELD
WELL DEPTH 20 FT
PLOTTED Y
WATER QUALITY Mg=44, SO4=440, Cl=213, TDS=330, Al=0.09, As=0.0018, Ba=0.14,
 Be=0.0001, B=0.01, Br=0.0004, Co=0.0001, Cr=0.0001,
 Fe=46, Pb=0.014, Mn=0.19, Mo=0.03, Ni=<0.01, Se=0.0006,
 Ag=<0.01, Zn=3.0, N=1.5, PO4=0.24, U3O8=0.0019, Fe=0.01,
 Hg=0.00004

REMARKS



BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE



BAI WELL # 132

LOCATION GM-17

OWNERSHIP UII

SOURCE UII

TYPE OF WATER WELL

DEPTH OF WATER

USAGE M

AQUIFER ALL W/OUT

WELL YIELD

WELL DEPTH 20 FT

PLOTTED Y



WATER QUALITY

Mp=12.004, Cl=1.00, SO4=15000, Al=0.03, Ag=0.0005,
F=0.05, Fe=18.0, Pb=0.22, Mn=2.0, Mo=0.14, Ni=0.02, Se=0.0028,
Ag=<0.01, Zn=0.57, N=0.7, PO4=0.01, U3O8=0.021, Fe=0.25,
Hg=<0.005

REMARKS



BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 133
LOCATION GM-10
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE M
AQUIFER ALLIUM
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY PH=8.15, Na=3490, Ca=790, Mg=250, SO4=4011, Cl=4190,
 TDS=11005, HCO3=1000, F=0.01, Br=0.01, NO3=0.001,
 Cr=0.05, Cu=<0.01, Co=0.030, Pb=0.7, Fe=0.07, Al=15, Mn=0.01,
 Mn=.92, Mo=<.01, Ni=<0.01, Se=<0.0001, Ag=<0.002, Zn=4.06,
 Ni=10, PO4=<.01, U3O8=0.00005, Fe=0.24, Mn=0.94,
 Hg=<0.000014, TEMP=07.4, DO=18.6 CONDUCTIVITY=18.6

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 134
LOCATION K1 8422 NO 5
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY Al=0.056, As=0.001, Ba=4.37, B=0.56, Cd=0.001, Ca=28.9,
 Cr=0.003, Co=0.023, Cu=0.006, Fe=0.17, Hg=0.001, K=12.2,
 Mn=0.13, Mo=0.012, Ni=0.01, Pb=0.001, Se=0.001,
 Ag=0.001, Na=2890.0, V=0.05, Zn=0.05, HCO3=781, CO3=114,
 Cl=4300, CN=0.01, F=1.43, N=58.5, PHENOLS=0.001, P=0.15,
 SO4=44.0, SO3=0.025, SAR=105.31, TDS=6275.0,
 CONDUCTIVITY=12800, PH=8.10, TDS=6275.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 135**LOCATION** Kf 8422 NO 1**OWNERSHIP** UI**SOURCE** UI**TYPE OF WATER** WELL**DEPTH OF WATER****USAGE****AQUIFER****WELL YIELD****WELL DEPTH****PLOTTED** Y**WATER QUALITY**

Al=0.185, As=0.006, Ba=0.5, B=0.43, Cd=0.001, Ca=11.9,
 Cl=0.003, Co=0.01, Cu=0.002, Fe=1.009, Pb=0.001, Mg=4.55,
 Mn=0.28, Hg=0.001, Mo=0.012, Ni=0.01, K=7.4, Se=0.001,
 Ag=0.002, Na=1247.0, V=0.05, Zn=0.05, HCO3=919, CO3=102,
 Cl=320.0, CN=0.083, F=2.03, N=0.53, PHENOLS=0.004, P=0.15,
 SO4=2050, SO3=1.4, SAR=78.29, TOC-IR=11, OH=0,
 CONDUCTIVITY=5500, PH=8.41, TDS=4210.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-101}

BAI WELL # 136
LOCATION Kf 8421 NO 1
OWNERSHIP UI
SOURCE UI
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER
WELL YIELD
WELL DEPTH
PLOTTED Y

WATER QUALITY Al=0.115, As=0.001, Ba=1.32, B=0.36, Cd=0.001, Ca=34.1,
Cr=0.003, Co=0.021, Cu=0.009, Fe=0.007, Pb=0.022, Mg=1.0,
Mn=0.097, Hg=0.001, Mo=0.01, Ni=0.01, K=12.1, Se=0.001,
Ag=0.001, Na=1901.0, V=0.05, Zn=0.05, HCO3=609, CO3=56.0,
Cl=2860, CN=0.062, F=34, N=85.8, PHENOLS=0.001, P=0.15,
SO4=10.0, SO3=0.025, SAR=72.52, TOC-IR=11, OH=0,
CONDUCTIVITY=9050, PH=8.23, TDS=5730.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 137
LOCATION SJKF 84 NO 4
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY Al=0.176, As=0.001, Ba=4.53, B=1.57, Cd=1.001, Ca=26.5,
 Cr=0.003, Cu=0.017, Cl=10.0, Fe=1.0, Li=0.01, Mg=913.0,
 Mn=0.11, Hg=0.002, Mo=0.01, Ni=0.01, K=13.5, Se=0.001,
 Ag=0.001, Na=2642.0, V=0.05, Zn=0.05, HCO3=2649, CO3=276,
 Cl=2210.0, CN=0.054, F=1.08, N=114.0, PHENOLS=0.001, P=0.15,
 SO4=10.0, SO3=0.025, SAR=112.0, TOC=17, OH=0,
 CONDUCTIVITY=10400, PH=8.06, TDS=7370.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

12-D-103



BAI WELL # 138
LOCATION SJKF 84 NO 5
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER
WELL YIELD
WELL DEPTH
PLOTTED Y



WATER QUALITY

Al=0.082, As=0.001, Ba=.99, B=1.23, Cd=0.001, Ca=5.57,
Cr=0.003, Cu=0.01, Cl=0.107, Co=0.008, Fe=0.11, Hg=2.77,
Mn=0.17, mg=0.001, Mo=0.01, Ni=0.01, K=11.1, Se=0.001,
Ag=0.002, Na=16680, V=0.1, Zn=0.05, HCO3=3090, CO3=230,
Cl=360.0, CN=0.03, F=1.07, N=0.02, PHENOLS=0.016, P=0.15,
SC4=10.0, SO3=0.02, SAR=143.67, TOC-IR=25, CH=0,
CONDUCTIVITY=5900, PH=8.12, TDS=4470.0

REMARKS



BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE



BAI WELL # 139

LOCATION KF 84 16

OWNERSHIP UI

SOURCE UI

TYPE OF WATER WELL

DEPTH OF WATER

USAGE

AQUIFER

WELL YIELD

WELL DEPTH

PLOTTED Y



WATER QUALITY

Al=0.017, As=0.001, Ba=3.08, B=1.37, Cd=0.001, Ca=35.0,
 Cr=0.003, Co=0.006, Cu=0.005, Fe=0.014, Pb=0.013, Mg=13.66,
 Mn=0.42, Hg=0.001, Mo=0.001, Ni=0.01, K=20.4, Se=0.001,
 Ag=0.002, Na=3496.0, V=0.1, Zn=0.05, HCO3=2084.0, CO3=106,
 Cl=4500.0, CN=0.01, F=0.88, N=97.8, PHENOLS=0.006, P=0.15,
 SO4=10.0, SC3=5.75, SAR=126.95, TOC=1.14, TSP=0,
 CONDUCTIVITY=13800.0, PH=7.74, TDS=13800.0

REMARKS



BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-105}

BAI WELL # 140

LOCATION KF 84 18 NO 1

OWNERSHIP UII

SOURCE UII

TYPE OF WATER WELL

DEPTH OF WATER

USAGE

AQUIFER

WELL YIELD

WELL DEPTH

PLOTTED Y

WATER QUALITY

Al=0.117, As=0.001, Br=0.5, B=0.056, Cd=0.001, Ca=55.0,
Cr=0.003, Fe=0.021, H=0.007, Hg=0.007, Pb=0.014, Mg=1.02,
Mn=0.20, Mo=0.001, Ni=0.01, K=18.0, Se=0.001,
Ag=0.002, Na=2546.0, V=0.1, Zn=0.005, HCO3=813.0, CO3=36,
Cl=3740.0, CN=0.05, F=0.66, N=106.0, PHENOLS=0.03, P=0.15,
SO4=274.0, SO3=0.025, SAR=75.05, TCC-IR=14, OH=0,
CONDUCTIVITY=11500.0, PH=7.73, TDS=7410.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE ^{12-D-106}

BAI WELL # 141

LOCATION KF 84 18 NO 2

OWNERSHIP UH

SOURCE UH

TYPE OF WATER WELL

DEPTH OF WATER

USAGE

AQUIFER

WELL YIELD

WELL DEPTH

PLOTTED Y

WATER QUALITY

Al=0.052, As=0.001, Ba=4.18, B=0.63, Cd=0.003, Ca=144.0,
Cr=0.005, Cu=0.001, Fe=1.03, F=1.03, Hg=0.001, HCO3=263.0, Mn=0.60,
Mo=0.027, Ni=0.01, K=28.4, Se=0.001,
Ag=0.002, Na=4019.0, V=0.1, Zn=0.05, HCO3=263.0, CO3=35,
Cl=6050.0, CN=0.03, F=1.03, N=1.00, PHENCLS=0.014, P=0.15,
SC4=27.0, SCC=0.025, SAR=74.34, TOC-IR=6, CH=0,
CONDUCTIVITY=18500.0, PH=7.85, TDS=12410.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 142
LOCATION KF 84 20 NO 1
OWNERSHIP UII
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY Al=0.748, As=0.002, Ba=0.49, B=0.49, Cd=0.001, Ca=4.93,
Cr=0.003, Cs=0.001, Cu=0.001, Fe=0.033, Pb=0.002, Mg=2.5,
Mn=0.007, Hg=0.001, Mo=0.017, Ni=0.013, K=10.4, Se=0.002,
Ag=0.002, Na=992.0, V=0.101, Zn=0.05, HCO3=911.0, CO3=320,
Cl=700.0, CN=0.035, F=1.93, N=1.01, PHENOLS=0.070, P=0.15,
SC4=10.0, SC3=0.025, SAR=89.97, TCC-IR=37.0, Cl=0,
CONDUCTIVITY=4240.0, PH=8.80, TDS=2775.0

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 143
LOCATION KF 84 20 NO 2
OWNERSHIP UI
SOURCE UII
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY A=2.013, As=0.001, Ba=0.5, B=0.53, Cd=0.001, Ca=1.05,
 Cu=0.001, Fe=0.015, Pb=0.017, Tg=0.0
 Mn=0.001, Hg=0.001, Mo=0.001, Ni=0.01, K=16.8, La=0.001,
 Ag=0.001, Na=1577.0, V=0.5, Zn=0.065, HCO3=0, CO3=180,
 Cl=1380.0, CN=0.012, F=1.54, N=1.36, PHENOLS=0.023, P=1.32,
 SPM=10.0, SO3=0.025, SAR=366.68, TOC-TP=12.0, OH=1214.0,
 CONDUCTIVITY=10000, PH=12.06, TDS=7515

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 144
LOCATION 29.15.04.2422
OWNERSHIP WESTERN COAL
SOURCE STONE
TYPE OF WATER WELL
DEPTH OF WATER
USAGE
AQUIFER Kpp
WELL YIELD
WELL DEPTH 300 FT
PLOTTED Y
WATER QUALITY

REMARKS DRILLED 1975

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 145
LOCATION 29.15.06.1133
OWNERSHIP R.V.NICHOLS
SOURCE STONE
TYPE OF WATER
DEPTH OF WATER 13.4
USAGE
AQUIFER Q3f
WELL YIELD
WELL DEPTH 33
PLOTTED Y
WATER QUALITY

REMARKS DRIVEN WELL

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 146
LOCATION 29.15.10.3112
OWNERSHIP ?
SOURCE STONE
TYPE OF WATER WELL
DEPTH OF WATER 3.1
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH 9M
PLOTTED Y
WATER QUALITY

REMARKS SAN JUAN WINDMILL,Q31-8.88X0.57

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 147
LOCATION 29.15.10.414
OWNERSHIP WESLEYAN NAVAJO MISSION
SOURCE STONE
TYPE OF WATER
DEPTH OF WATER 9
USAGE
AQUIFER Qal
WELL YIELD .
WELL DEPTH 19 FT
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=1210, PH=7.3, CaCO3=460, CA=140,
MG=25 NA=110, HC03=390, SO4=310, CL=38, F= 3, SI02=20,
TDS=842, NO3=.30, PO4=.30

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 148
LOCATION 29.15.10.424
OWNERSHIP FRUITLAND TRADING COMPANY
SOURCE STONE
TYPE OF WATER
DEPTH OF WATER 5
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH 30 FT
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=825, PH=7.5, CACO3=318, CA=84,
MG=18, NA=60, HC03=286, CO3=0, SO4=174, CL=21, F=.9,
SI02=16, TDS=528, NO3=.10

REMARKS DRIVEN WELL

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 149
LOCATION 29.15.36.1433
OWNERSHIP PNM GT-2
SOURCE STONE
TYPE OF WATER
DEPTH OF WATER
USAGE
AQUIFER Kf
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY

REMARKS PUMP TEST ONLY

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 150
LOCATION 29.16.02.4
OWNERSHIP R.A. FRENCH
SOURCE STONE
TYPE OF WATER
DEPTH OF WATER
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH 37 FT
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=6460, PH=7.3, CAC03=2300, CA=460,
MG=280, NA=1000, HCO3=710, CO3=0, SO4=3600, CL=110,
F=1.0, SI02=25, TDS=5880, NO3=12

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 151
LOCATION 29.16.04.244
OWNERSHIP W. WHEELER
SOURCE STONE
TYPE OF WATER
DEPTH OF WATER
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH 50 FT
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=2580, PH=7.9, CAC03=1580, CA=435,
MG=120, NA=96, K=4.0, HCO3=331, CO3=0, SO4=1300, CL=24,
F=.9, SIO2=26, TDS=2140, NO3=3.6

REMARKS

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 152
LOCATION 29.16.04.433
OWNERSHIP W. A WHEELER
SOURCE STONE
TYPE OF WATER SPRING
DEPTH OF WATER
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=2440, PH=7.7, CA=1450, CA=455,
MG=77, NA=90, K=4.0, HC03=331, C03=0, SO4=1300, CL=24,
F=.9, SI02=26, TDS=2140, NO3=3.6

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 153
LOCATION 29.16.04.443A
OWNERSHIP USGS SJ-1
SOURCE STONE
TYPE OF WATER WELL
DEPTH OF WATER 5.0
USAGE
AQUIFER Cal
WELL YIELD
WELL DEPTH 28 FT
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=2960, PH=8.0, CACO3=1760,
CACO3=1480, CA=515, MG=116, NA=150, K=5.4, HCO3=344,
CO3=0, SO4=1700, CL=28, F=.6, SIO2=23, TDS=2710, N03=1.9

REMARKS**BILLINGS & ASSOCIATES, INC.**

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 154
LOCATION 29.16.09.221
OWNERSHIP USGS SJ-4
SOURCE STONE
TYPE OF WATER WELL
DEPTH OF WATER 1
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH 7 FT
PLOTTED Y
WATER QUALITY S/C-2960

REMARKS

BILLINGS & ASSOCIATES, INC.

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE

BAI WELL # 155
LOCATION 29.16.09.223
OWNERSHIP USGS SJ-3
SOURCE STONE
TYPE OF WATER WELL
DEPTH OF WATER 3.0
USAGE
AQUIFER Qal
WELL YIELD
WELL DEPTH 8 FT
PLOTTED Y
WATER QUALITY SPECIFIC CONDUCTIVITY=3200, PH=.8, CAC03=1780,
CAC03=1570, CA=425, MG=175, NA=239, K=7.8, HCO3=261,
CO3=0, SO4=1860, CL=50, F=.6, SIO2=20, TDS=2910, NO3=4.5

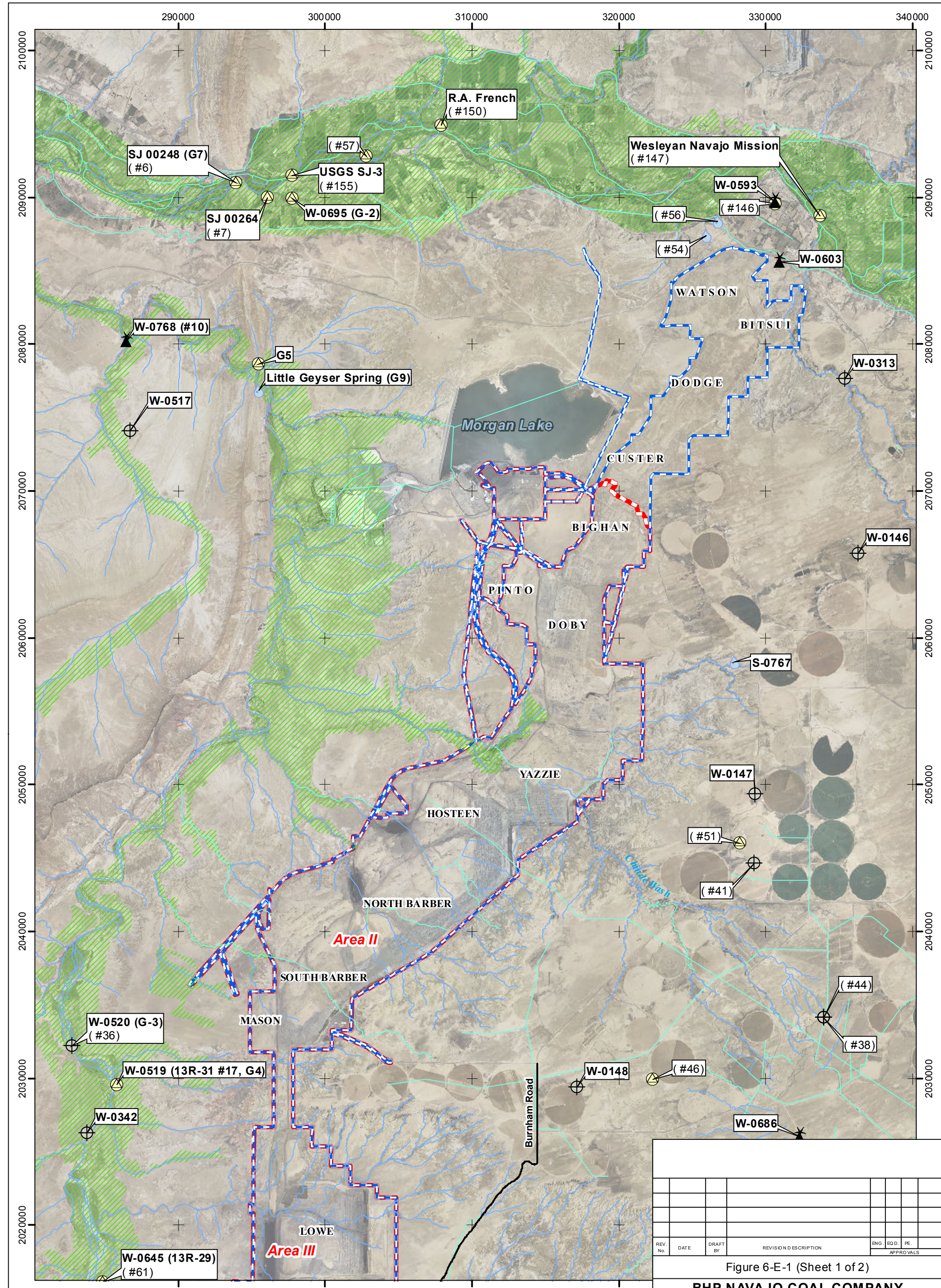
REMARKS**BILLINGS & ASSOCIATES, INC.**

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 156**LOCATION** 29.16.09.221**OWNERSHIP****SOURCE** STONE**TYPE OF WATER****DEPTH OF WATER****USAGE****AQUIFER** ALLUVIUM**WELL YIELD****WELL DEPTH****PLOTTED** Y**WATER QUALITY**SPECIFIC CONDUCTIVITY=2960, PH=8.0, CAC03=1760,
CAC03=1480, CA=515, MG=116, NA=150, K=5.4, HC03=344,
C03=0, SO4=1700, CL=28, F=.6, SIO2=23, TDS=2710, NO3=1.9**REMARKS****BILLINGS & ASSOCIATES, INC.**

BHP- UTAH INTERNATIONAL WELL/SPRING DATA BASE**BAI WELL #** 157**LOCATION** KF84-21 NO 3**OWNERSHIP****SOURCE****TYPE OF WATER****DEPTH OF WATER****USAGE****AQUIFER****WELL YIELD****WELL DEPTH****PLOTTED** Y**WATER QUALITY**

Al=0.068, As=0.007, Ba=0.66, B0.63, Cd=0.001, Ca=14.6,
 Cr=0.003, Co=0.027, Cu=0.003, Fe=0.015, Pb=0.007, Mg=14.9,
 Mn=0.38, Hg=0.001, Mo=0.01, Ni=0.01, K=15, Se=0.001, Ag=0.001,
 Na=2858.0, V=0.05, Zn=0.05, HCO3=753.0, CO3=114, Cl=3980,
 CN=0.03, F=1.79, N=3940.0, PHENOLS=0.001, P=0.15,
 SO4=184.0, SO3=36.8, SAR=127.57, TOC-IR=5, OH=0,
 CONDUCTIVITY=12600.0, PH=8.08, TDS=8505.0

REMARKS**BILLINGS & ASSOCIATES, INC.**



REV. No.	DATE	DRAFT BY	REVISION DESCRIPTION	ENG.	EQ.D.	PE.	APPROVALS

Figure 6-E-1 (Sheet 1 of 2)

BHP NAVAJO COAL COMPANY



P.O. BOX 1717 FRUITLAND, NEW MEXICO 87416 PHONE 505-598-5861/FAX 505-598-3361

Navajo Mine Area

Water Wells & Springs

PREPARED BY: MD	DRAWN BY: MD	PAPER SIZE: 11"x17"
APPROVED BY: APO	DATE: 9/24/2011	

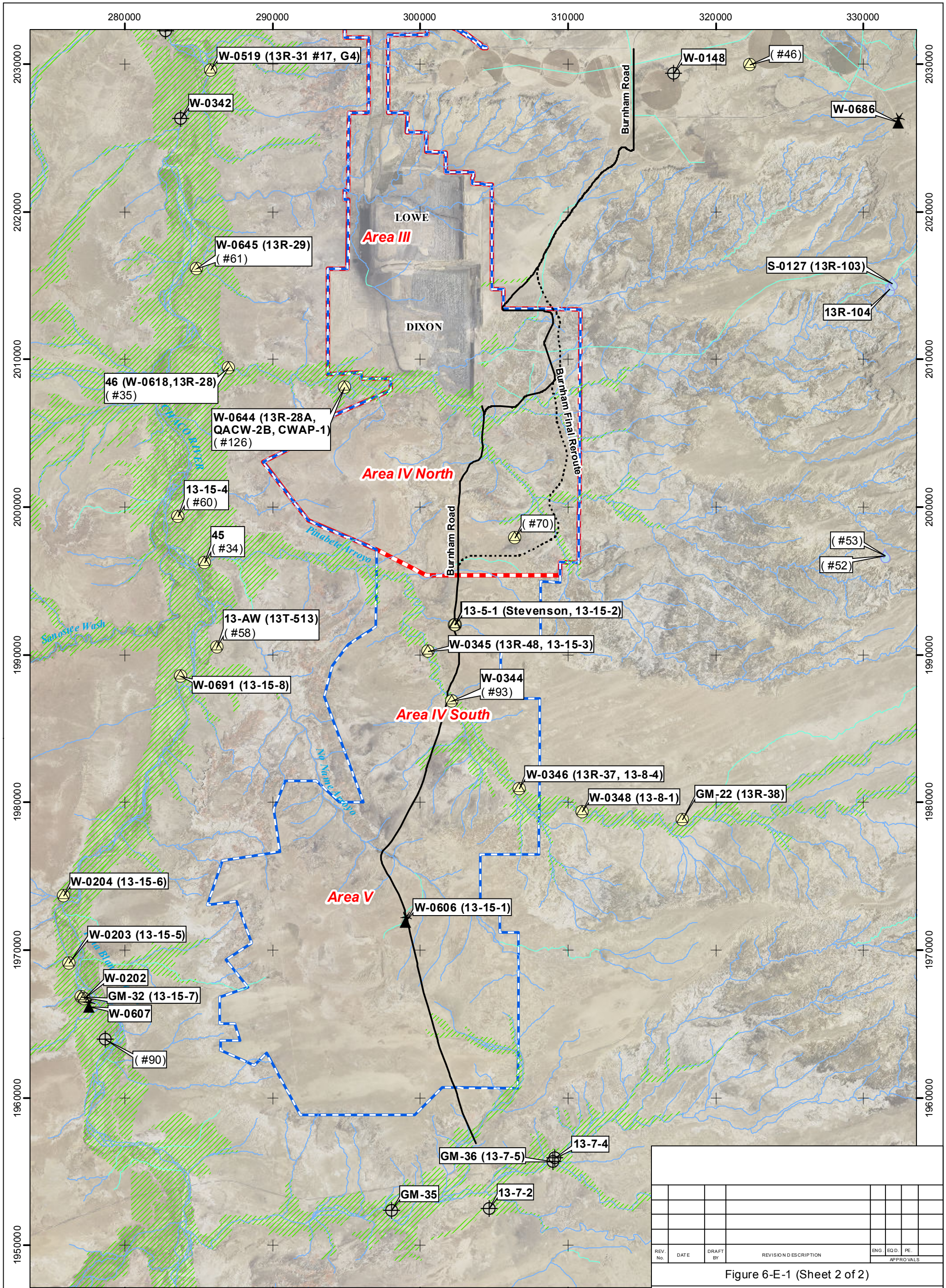
Data Sources:
 Aerial Photography (San Juan County) 2009
 Navajo Nation Hydrographic Survey (2010)
http://www.ose.state.nm.us/legal_cse_proposed_settlements_sj_notice2010.html
 * USGS Geology Maps: MF-1026, MF-1076, MF-1077, MF-1080, MF-1092, MF-1093 & I-1978

Projection Information:
 State Plane New Mexico West
 North American Datum 1927
 FIPS 3003
 feet

1:72,000
 1 inch = 6,000 feet

0 3,200 6,400 12,800 Feet

- Water Wells & Springs--**
 (#BAI Number)
- Spring & Seep
 - Alluvial Well
 - Well
 - Windmill
 - Natural Stream
 - Artificial Path/Ditch
- Alluvium***
 Alluvium*
- BNCC Lease Area**
 BNCC Lease Area
- BNCC Permit Area**
 BNCC Permit Area
- Burnham Road**
 Existing
 Proposed Realignment
- PIT NAMES**
- ~ Water wells and springs information is summarized in Appendix 6-E, Table 6-E-1



REV. No.	DATE	DRAFT BY	REVISION DESCRIPTION	ENG.	EQ.D.	PE.	APPROVALS

Figure 6-E-1 (Sheet 2 of 2)

BHP NAVAJO COAL COMPANY



P.O. BOX 1717 FRUITLAND, NEW MEXICO 87416 PHONE 505-598-5861/FAX 505-598-3361

Navajo Mine Area

Water Wells & Springs

PREPARED BY: MD	DRAWN BY: MD	PAPER SIZE: 11"x17"
APPROVED BY: APO	DATE: 9/24/2011	

Data Sources:
 Aerial Photography (San Juan County) 2009
 Navajo Nation Hydrographic Survey (2010)
http://www.ose.state.nm.us/legal_ose_proposed_settlements_sj_notice2010.html
 * USGS Geology Maps: MF-1026, MF-1076, MF-1077, MF-1080, MF-1092, MF-1093 & I-1978

Projection Information:
 State Plane New Mexico West
 North American Datum 1927
 FIPS 3003
 feet

1:72,000
 1 inch = 6,000 feet

0 3,200 6,400 12,800 Feet

- Water Wells & Springs--**
 (#BAI Number)
- Spring & Seep
 - Alluvial Well
 - Well
 - Windmill
 - Natural Stream
 - Artificial Path/Ditch
- Legend:**
- Alluvium*
 - BNCC Lease Area
 - BNCC Permit Area
 - Burnham Road Existing
 - Burnham Road Proposed Realignment
- PIT NAMES**
- * Water wells and springs information is summarized in Appendix 6-E, Table 6-E-1