



WATER-RIGHT DOCKET

Fort Bowie National Historic Site

Docket No: 1

APACHE SPRINGS WELL HEADQUARTERS

State Water Rights Documentation

07-23-1991: note to docket: preliminary assessment for adjudication

7/23/91

NOTE TO DOCKET: FOBO-0001, HEADQUARTERS WELL

1. 7/22/91. Telephone conversation between Dan McGlothlin (WRD) and Dick Anderson, Natural Resource Specialist, Fort Bowie NHS on the need to address water rights for the Headquarters Well. Anderson explained that the park was moving ahead with plans to conduct a pump test and analyze water quality for the purpose of determining the if the well is able to serve park administrative needs. The well was drilled in 1966 and has remained capped and unused. The park is now interested in resurrecting the well to accomodate an increased water need. He asked McGlothlin if any work was needed to secure water rights for these uses. McGlothlin replied he needed to check the status of the right and get back with him.

2. 7/22/91. McGlothlin examined the docket for the Headquarters Well and found a well registration was completed for this well in 1982. He called the Arizona Department of Water Resources, Groundwater Section (Rosemary) to discuss the status of the well. According to DWR, the record indicates the well is completed and in operation. The only document required to update the State's records is a change of well information form when the NPS completes its pump test and equipment installation.

3. 7/23/91. McGlothlin and Hansen examined the adjudication file for the Upper Gila Watershed for a Statement of Claimant for the Headquarters Well and found no information about a claim filed for the well. It was determined that at such time when the well became operational and water uses are documented, WRD would prepare a Statement of Claimant for New Use in the Upper Gila Watershed and file the Change of Well Information form with the state.

4. 7/23/91. McGlothlin contacted Anderson to inform him of the water right situation for the well.

cc: Adjudication File, Upper Gila Watershed, Arizona

KMR



IN REPLY REFER TO:

L54 (WR-RNW)

June 4, 1982

Mr. Wesley E. Steiner, Director
 Department of Water Resources
 99 E. Virginia Avenue
 Phoenix, Arizona 85004

Reference: Arizona Groundwater Management Act
 (1980), A.R.S. 45-593

Dear Mr. Steiner:

Enclosed are the completed well registration forms for existing wells within the State of Arizona owned by the United States Government, Department of the Interior, National Park Service, Western Region. These forms have been completed for the following areas: Casa Grande National Monument (1 well), Chiricahua National Monument (8 wells), Coronado National Memorial (6 wells), Fort Bowie National Historic Site (1 well), Grand Canyon National Park (no wells), Lake Mead National Recreation Area (14 wells), Montezuma Castle National Monument (3 wells), Organ Pipe Cactus National Monument (21 wells), Petrified Forest National Park (3 wells), Saguaro National Monument (14 wells), Tonto National Monument (1 well), Tumacacori National Monument (3 wells), Tuzigoot National Monument (1 well), and Walnut Canyon National Monument (1 well). The location of these National Park Service areas are shown on the enclosed map (in red).

Of the total 77 wells being registered, 12 wells have a pump capacity exceeding 35 gallons per minute and therefore payment in the amount of \$120.00 (\$10.00 X 12) will be forwarded to your office by the U.S. Treasury Department under separate cover as the registration fee for these non-exempt wells.

If there are any questions with regards to this matter, or if we can be of further assistance, please contact Gerard S. Witucki, Chief, Division of Water Resources, (415) 556-8660, of this Office.

Sincerely yours,

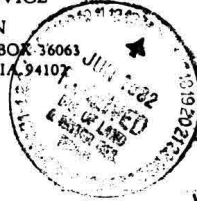
FOR **John D. Chapman**

Howard H. Chapman
 Regional Director, Western Region

Enclosures

See attached sheet for bcc's

NATIONAL PARK SERVICE
 WESTERN REGION
 450 GOLDEN GATE AVENUE, BOX 36063
 SAN FRANCISCO, CALIFORNIA 94107



JUN 9 '82

Rocky Mountain Regional Office	Initial & Date
Regional Director	ML 6/10
Deputy Regional Director	
Administration	
Park Operations	ML
Plant & Resource Pres.	
Coop Prog.	
Communications & P.A.	
EEG	
Oper Eval	
Action Taken	

bcc's sent to:

Superintendent, Casa Grande, w/respective encls., w/blank form & w/o map
Superintendent, Chiricahua/Fort Bowie, w/respective encls., w/blank form & w/o map
Superintendent, Coronado, w/respective encls., w/blank form & w/o map
Superintendent, Grand Canyon, w/o encls.
Superintendent, Lake Mead, w/respective encls., w/blank form & w/o map
Superintendent, Montezuma Castle/Tuzigoot, w/respective encls., w/blank form & w/o map
Superintendent, Organ Pipe Cactus, w/respective encls., w/blank form & w/o map
Superintendent, Petrified Forest, w/respective encls., w/blank form & w/o map
Superintendent, Saguaro, w/respective encls., w/blank form & w/o map
Superintendent, Tonto, w/respective encls., w/blank form & w/o map
Superintendent, Tumacacori, w/respective encls., w/blank form & w/o map
Superintendent, Walnut Canyon, w/respective encls., w/blank form & w/o map
General Superintendent, Southern Arizona Group, w/respective encls., w/blank form & w/o map
Field Solicitor, San Francisco Office - Attn: J. Burke, w/encls. & w/blank form
Field Solicitor, Phoenix Office - Attn: W. Swan, w/map, w/blank form & w/example of
completed form
Regional Director, Rocky Mountain Region - Attn: W. McKeel, w/map, w/blank form &
w/example of completed form
Regional Director, Southwest Region - Attn: G. Moore, w/map, w/blank form & w/example
of completed form
(WR)AF, w/SF 1034, w/o encls.

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

Declaration: The United States gives this
jurisdiction to the State in the interest
of equity, and does not concede that the
State has power to regulate the rights of
the United States to the use of water.

REGISTRATION FEE (CHECK ONE)

EXEMPT WELL (NO CHARGE) ☒

NON-EXEMPT WELL - \$10.00 ☐

FOR OFFICE USE ONLY

REGISTRATION NO. 55- 629136

FILE NO. D(15-28)12 adc

FILED 6-9-82 AT 1:30

(DATE) (TIME)

INA _____

AMA _____

- Name of Registrant:
National Park Service, Western Region, Division of Water Resources
450 Golden Gate Ave., Box 36063, San Francisco, CA 94102
(Address) (City) (State) (Zip)
- File and/or Control Number under previous groundwater law:
(File Number) _____ (Control Number) 35-
- The well is located within the SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 12,
of Township 15 S N/S, Range 28 E E/W, G & SRB & M, in the
County of Cochise.
 - If in a subdivision: Name of subdivision _____
Lot No. _____, Address _____
- The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
unused
- If for irrigation use, number of acres irrigated from well _____
- Owner of land on which well is located. If same as Item 1, check this box ☒

(Address) (City) (State) (Zip)
- Well data (If data not available, write N/A)
 - Depth of Well 102 feet
 - Diameter of casing 6 inches
 - Depth of casing 102 feet
 - Type of casing steel, perforated from 22-92 ft below land surface datum
 - Maximum pump capacity N/A gallons per minute.
 - Depth to water 19 feet below land surface.
 - Date well completed February 1966
(Month) (Day) (Year)
- The place(s) of use of water. If same as Item 3, check this box ☐

Fort Bowie National Historic Site
Attach additional sheet if necessary.
- DATE JUN 3 1982 SIGNATURE OF REGISTRANT (Sgd) Gerard S. Witucki

GERARD S. WITUCKI
CHIEF, DIVISION OF WATER RESOURCES

CHANGE OF WELL INFORMATION

Registration Number 55 629136I request the following information be changed in Well File Number D(15-28)/12adc

Date _____, 19____ Signature of Well Owner _____

STATEMENT OF CHANGE OF WELL OWNERSHIP

I, _____, state that I am (no longer) the (new) owner of the well described below:

Township _____ Range _____ Section _____, _____ $\frac{1}{4}$ _____ $\frac{1}{4}$ _____ $\frac{1}{4}$

Registration #55-_____ File NO. _____

Previous Owner _____ New Owner _____

Address _____ Address _____

City _____ State _____ Zip _____ City _____ State _____ Zip _____

NOTE: ARS 45-593 requires that the Department be notified of change of well ownership and that the well owner is required to keep the Department's Well Registration records current and accurate. Well data and ownership changes must be submitted within 30 days after changes take place.

NOTE: SAVE THIS FORM TO REPORT FUTURE
CHANGES IN OWNERSHIP OR WELL
DATA SUCH AS PUMP CAPACITY, ETC.

PERRY & FAAST DRILLING CO.

486 - 32 ROAD
GRAND JUNCTION, COLORADO

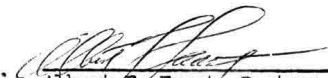
February 20, 1966

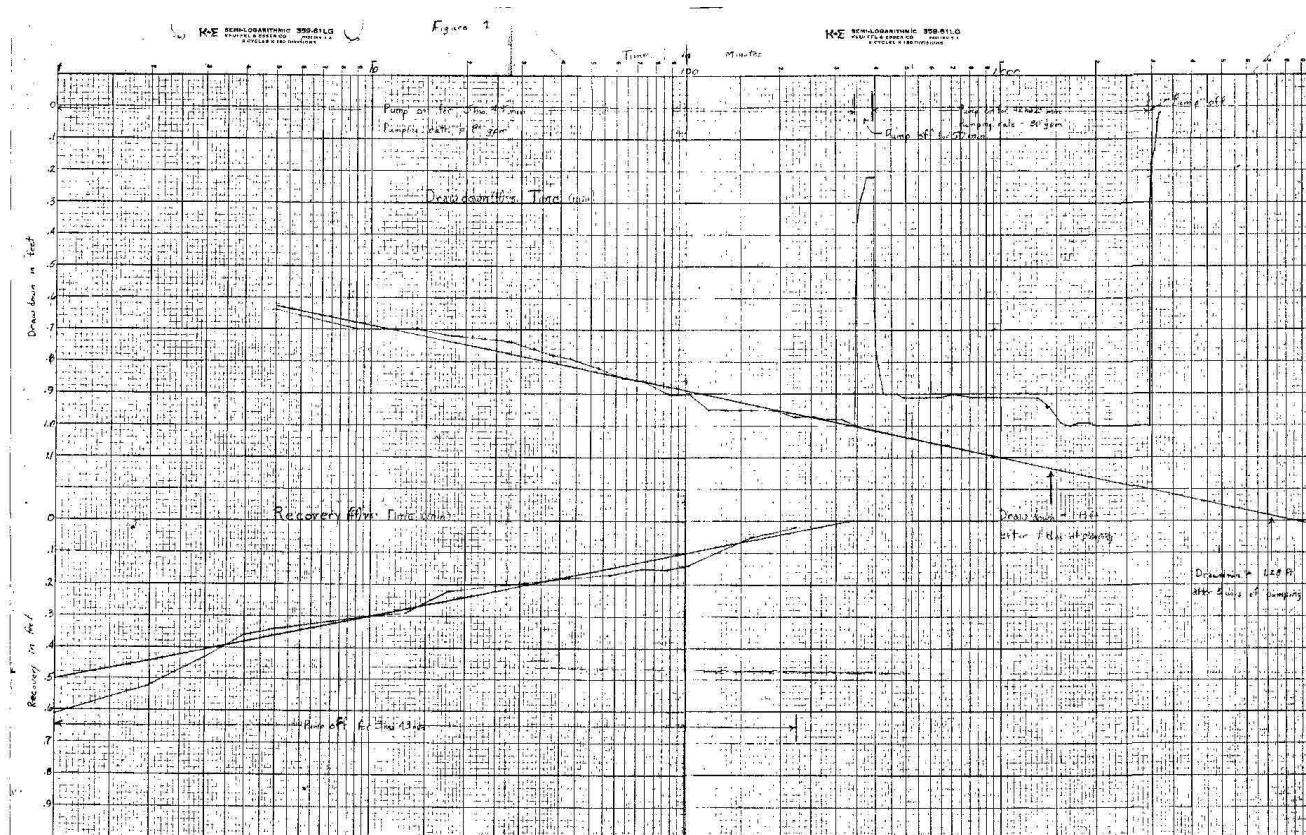
Log of Well
Fort Bowie National Historic Site

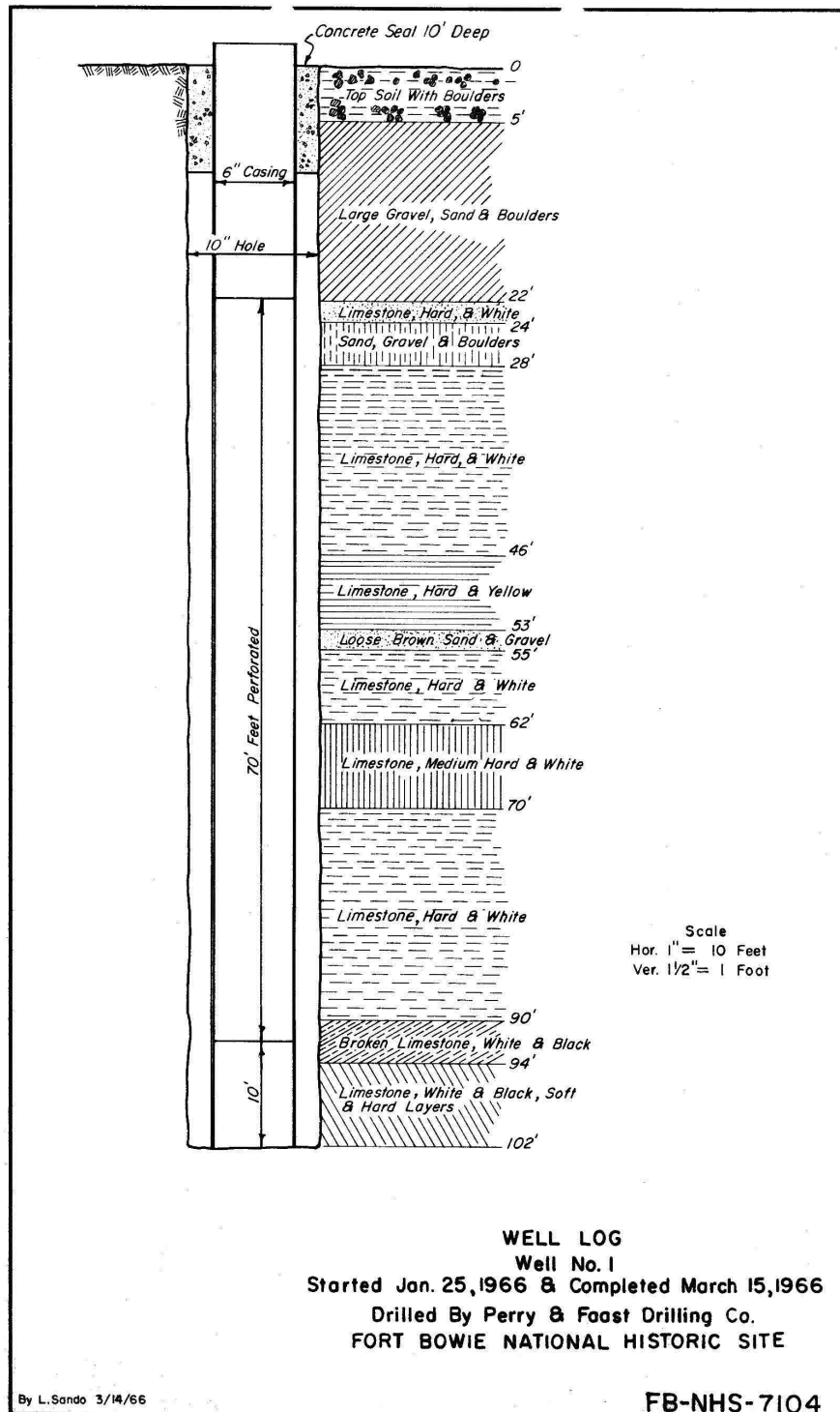
0' to 5'	Top Soil with Boulders
5' to 22'	Large Gravel, Sand and Boulders
22' to 24'	Limestone, hard, white
24' to 28'	Sand, Gravel and Boulders
28' to 46'	Limestone, hard, white
46' to 53'	Limestone, hard, yellow
53' to 55'	Loose brown Sand and Gravel
55' to 62'	Limestone, hard white
62' to 70'	Limestone, medium hard, white
70' to 90'	Limestone, hard, white
90' to 94'	Broken Limestone, white and black
94' to 102'	Limestone, white and black, soft and hard layers

Average rate of penetration was 1.27 feet per hour drilling time.

First water was encountered at 25 feet. This water raised to 19 feet and 24 hours later the static level raised to 18 feet. Possible water encountered at the 53 to 55 foot zone and the 90 to 94 foot zone. Water level stayed at 18 feet throughout the drilling program.


Albert E. Faast Partner
PERRY and FAAST DRILLING CO.
486 32nd Road
Grand Junction, Colorado





Other Supporting Information

Summary Report

Water-Supply Investigation
of the Fort Bowie National Historic Site,
Cochise County, Arizona

by

D. E. Click

Introduction: This report is a summary of the activities of the U.S. Geological Survey in the development of a water supply for the Fort Bowie National Historic Site, Cochise County, Arizona.

Well site selection: An administrative report (Davidson, August 1965) that was submitted to the National Park Service described the location of two possible water well sites. Well site No. 1 was believed to have the best probability for water, therefore it was drilled first and proved an adequate water supply.

Well location: Lat $32^{\circ}09'05''$, long $109^{\circ}26'30''$, in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ of sec.12, T.15 S., R.28 E., Gila and Salt River Base Line and Meridian. On Cochise Head 15' quadrangle, Arizona system well number is (D-15-28)12baa. Well is 12.4 areal miles south of Bowie, Arizona, in Cochise County. Well may be reached by driving south from Bowie on the Bowie-Dos Cabezas road, leaving the road at the base of the mountains and driving up Siphon Canyon about 1 mile. Well is located on south bank of Siphon Canyon about 100 feet south of the fence along the section line.

Drilling Contractor: Perry and Faast, Grand Junction, Colorado.

Date of work: The well was drilled during the first three weeks of February 1966.

Water level: Water was first encountered at 20 feet below top of casing; rose to 19 feet as the well was deepened, and remained at this level for the remainder of drilling time.

Well data: The well was drilled with a cable tool drill with a 10 inch tool bit for the entire 102-foot depth. A short length of 12 inch casing about 22 feet long was placed as a guide for the tool. This pipe was left after the well was completed as a sealing casing with the top projecting about 18 inches above the land surface.

The well was cased with a 6 inch black steel pipe for the entire depth of the well. The casing was perforated with a cutting torch from 20 to 90 feet. The perforations are slots about 12 inches long and $\frac{1}{4}$ inch wide. The slots were cut in a spiral pattern along the pipe with 4 slots per turn around the pipe.

After the casing was set the well was developed by surging with the bailer for about 48 hours.

Bailing test: A bailing test was performed on February 14, 1966, after the casing was set and the well had been developed. The well was bailed for about 8 hours at an average rate of about 45 gpm (gallons per minute). The drawdown over the 8-hour test time was 0.2 foot.

Pump test: The well was tested at a pumping rate of 80 gpm. After 5 hours and 45 minutes of pumping the pump was turned off for 50 minutes for inspection of the powerplant. The pump was started again and ran for 42 hours and 25 minutes. Drawdown plotted against time is shown in figure 1. The rate of drawdown before the pump was stopped for inspection and the recovery curve after the pump was stopped are the best data for this well, as the drawdown for the long period of pumping indicates that some of the pumped water was probably getting back into the well.

A transmissibility of 100,000 gpd/ft of aquifer was computed using the formula

$T = \frac{264 Q}{S}$ where T = transmissibility, gallon per day per foot; Q = discharge, gpm; and S = change in drawdown or recovery over one log cycle.

Based on existing data, the drawdown under continuous pumping would be approximately 1.13 ft after one day and 1.28 ft after 5 days of pumping.

Chemical analysis: Four water samples were taken for chemical analysis. Two samples were taken during drilling, one at 46 feet and one at 60 feet. The third sample was taken at the beginning of pumping and the fourth at the end of 5 hours and 45 minutes of pumping. The samples were analyzed for total hardness, specific conductance, calcium, bicarbonate, carbonate, sulfate, chloride, and fluoride. The results of these analyses (Table 1) show the water to be generally good for public use with the possible exception that the fluoride is somewhat higher than recommended by the Public Health Service. Presence of fluoride in average concentrations greater than 1.6 mg/l shall constitute grounds for rejection of the supply (Public Health Service, Drinking Water Standards Revised 1962, p. 8). Recommended optimum average concentrations of fluoride for the Ft. Bowie area is 0.8 mg/l. Parts per million given in table 1 and milligram per liter listed by Public Health Service may be used as analogous terms for comparing fluoride concentrations.

Geologic summary: The analysis of the formation samples that were collected shows that the uppermost 55 feet is alluvium, and from 55 feet to 102 feet is fractured limestone. The samples indicate that the gouge zone and the mudstone under the limestone, as described by Davidson, were probably not reached. Therefore, it is believed this well could be deepened if it were ever necessary.

The well taps ground water mainly in the alluvium. Some of the pumped water that was dumped into the stream channel during the pump test probably returned to the well during the long period of pumping indicating that flow in the channel will quickly recharge the alluvial aquifer. Therefore it is recommended that the drainage basin upstream from the well be kept free from waste disposal, eliminating the possibility of contamination of the well.

Conclusions and suggestions: This well produced 80 gpm for two days with only 1 foot of drawdown; however there may have been more drawdown if all the pumped water was transported away from the well. This is more production than the 20 gpm called for in the specifications. The water level measured during February, when the well was completed, is probably near a maximum level, as the preceding few months had heavy amounts of precipitation. The water level will probably have a seasonal variation, and it is recommended that the water levels be measured periodically. This well did not bottom out in the impermeable shaly siltstone that was described by Davidson in the August 1965 report; in the event that water level falls so low that the well is unusable, this well could be deepened and probably would encounter more water. The water is chemically suited for public use, with the exception that the fluoride is somewhat higher than Public Health Service standards.

Transmissibility of about 100,000 gal. per day per ft was determined for the aquifer. The well should be protected from contamination by keeping the watershed upstream from the well free of waste disposal areas.

Southwest Region
P.O. Box 728
Santa Fe, New Mexico
87501

L54

MAR 11 1966



Memorandum

To: Superintendent, Chiricahua
From: Acting Regional Chief of Lands and Water Rights
Subject: Pump Test, Water Well, Fort Bowie NHS

Following is some data from the well test at Fort Bowie which you might use in your completion report:

We pumped for 54 hours at a rate of 80 gpm; the static water level from the top of the casing was 19.6' and total draw-down was to 20.6'; the temperature of the water was 68° and it is of good chemical quality.

Here are the results of the analysis made with the Field Testing Kit:

Specific Conductance	570
Hardness	188 ppm
Clorides	75 ppm
pH	7.9
Iron	0.1 ppm

These all meet public health standards.

(SIGNED)

William E. Fields

cc: Supervisory Hydraulic Engineer, SSC

DATE: July 16, 1979

DOCKET (FILE) TITLE _____

REGION Western AREA Fort Bowie National Historic Site

SITE Headquarters Water System

STATE Arizona COUNTY Cochise DOCKET NO. WR #1

LOCATION SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec.12 T15S R28E

REGIONAL BASIN _____ LOCAL BASIN _____

ACQUIRED BY _____

APPLICATION _____ PERMIT _____ CERTIFICATE _____

ACTION DUE _____ PRIORITY _____ RESERVATION _____

QUANTITY _____ USE Public Supply

STATUS Active SOURCE Surface Water - Spring

REMARKS Hydrologic Unit #15040006

NARRATIVE:

In 1966 a well was drilled in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec.12 T15S R28E to supply the headquarters area of Fort Bowie NHS. However this well was capped soon after it was completed due to insufficient yield. A secondary system, existing at Upper and Lower Mine Tunnel Springs, was reactivated after the well was capped. A pipeline runs from Upper Mine Tunnel Spring to a chlorinator and then to a concrete box. A second line runs directly from Lower Mine Tunnel Spring to the box. Together the springs supply the entire amount of water needed to operate the site.

See FOBO AWR #1 for a synopsis of the other producing spring in the area.

Compiled by T. Kern

Approved by _____

Maps and Miscellaneous Information

Number of Documents in Docket	14		
Documents Dated from	2/20/1966	to	7/23/1991
Docket Compiled:	3/21/2011		