



WATER-RIGHT DOCKET

Pea Ridge National Military Park

Docket No: 1

MAIN PARK WATER SUPPLY.

Supporting Hydro Data

08-23-1962: finding of fact; change order no. 4, contract no. 14-10-0131-249



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Pea Ridge National Military Park
Pea Ridge, Arkansas

L5A

August 23, 1962

FINDINGS OF FACT

PEA RIDGE

WRG/2/14

R. E. Lett
- 9.10.62
P. Miller

Change Order No. 4, Contract No. 14-10-0131-249

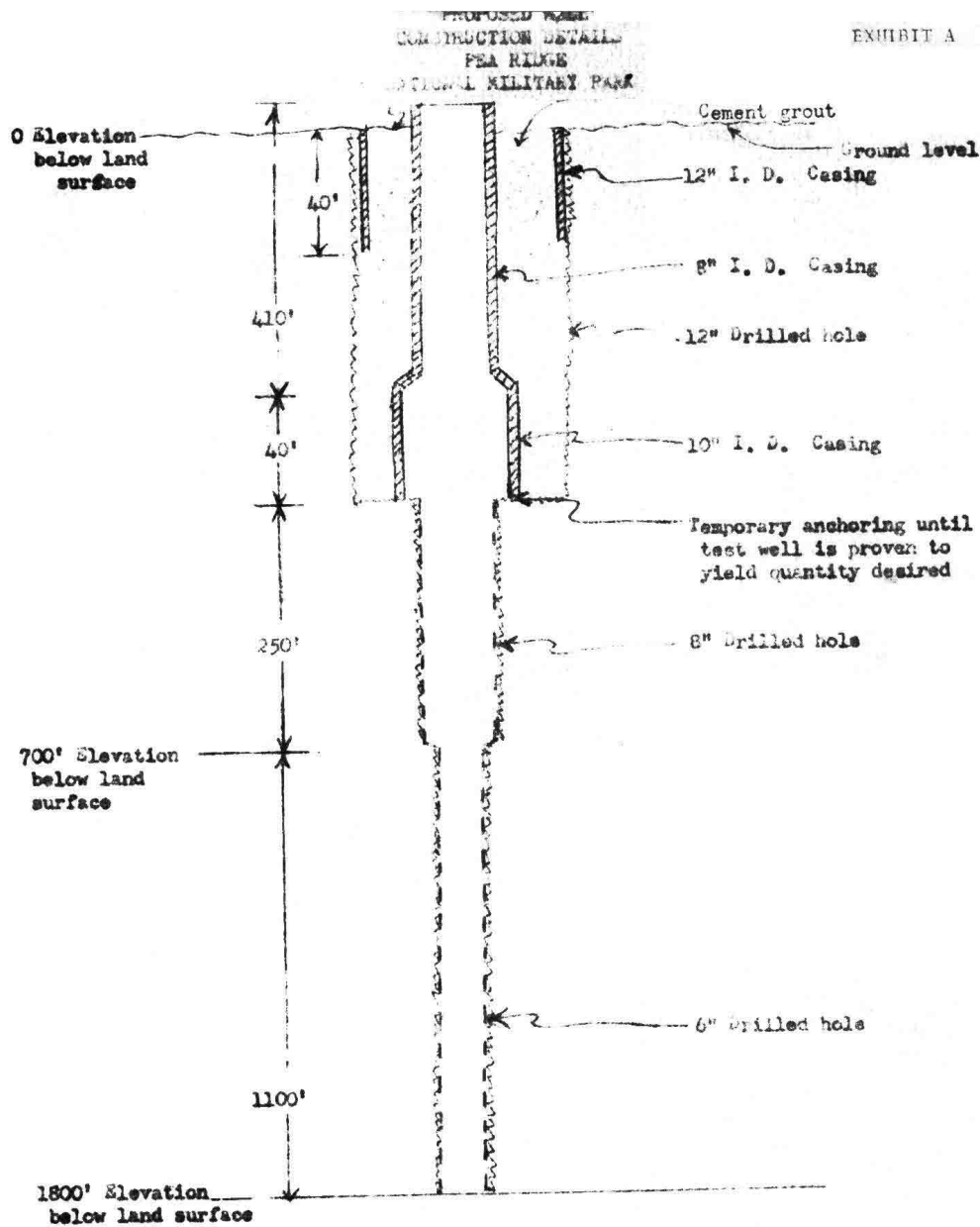
The Woodie Drilling Company completed drilling the area's test well to a depth of 1,400 feet. It was expected that the Acubidown Formation found at this depth would produce an adequate supply of water. It was test pumped and found to produce less than 10 g.p.m.. U. S. Geologist Raymond Flebuech recommended we drill an additional maximum 400 feet in order to reach the Gunter Sand at the base of the Van Buren Formation. There is no record of this formation having failed to produce large quantities of potable water in Benton County. A Change Order was issued to complete this work.

On July 12, at a depth of 1,429 feet the drill bit broke in half and lodged at the bottom of the hole. Mr. Woodrow Pettit got hold of the bit with a "fishing tool" and this tool broke. Thinking he had not gotten hold of the bit he continued dropping the "fishing tool" and bradded the broken part in the bottom of the well to the extent it is impossible to remove it. As a result, the Contractor will have to drill another hole at his expense.

Before collecting the formation samples during the drilling of the test hole abandoned by the contractor, there was absolutely no geological information available about sub-surface conditions in this general locality. While drilling this test well it was learned that surface contamination from the Boone Formation occurs down as deep as 450 feet below the ground surface which is the bottom of the Chattanooga Shale Formation. Also, the static water level is much lower than originally anticipated. This will, perhaps, result in us having to install a larger pump in order to get the water from a greater depth. Based on these findings the Ground Water Branch of the U. S. Geological Survey has recommended that we case the well below the Chattanooga Shale Formation which will completely seal off surface contaminated water from the Boone Formation. Also, the recommended enlarging the casing to eight inches in order to accommodate a larger pump capable of drawing water from a greater depth should it be necessary. This automatically makes it necessary to drill a twelve inch hole to the casing depth to provide room for grouting the casing. Therefore, I am issuing Change Order No. 4 in order to accomplish the necessary work on this well as shown in the sketch attached to the Change Order.

John T. Willett
John T. Willett
Superintendent

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Sketch not to scale. All measurements are approximate.



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Pea Ridge National Military Park
Pea Ridge, Arkansas

IN REPLY REFER TO:

D-54

November 5, 1962

Memorandum

To: Regional Director, Southeast Region
From: Superintendent, Pea Ridge NMP
Subject: Area's Developed Well Specifications

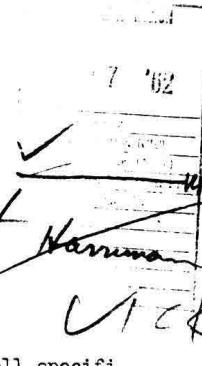
The following are the items of interest about the area's well specifications we finished test pumping November 2. The well was drilled by the Woodie Drilling Company, Hartman, Arkansas.

1. The well will be cased to a depth of 416' below ground level using 8" casing. This casing will be placed in a 12" hole and grouted the full length of the casing.
2. The well is an 8" hole from 416' to 700' and from 700' to 1769' it is a 6 1/2" hole. We will pay only to 1760' since that is where we asked the driller to stop the hole.
3. The static water level of the well is 299.3' below the ground level.
4. The well was pump tested at 85 gallons per minute for 21 hours and the draw down was 37' below the static water level.
5. The well was pump tested at 195 gallons per minute for 3 hours and the draw down was 86' below the static water level.
6. The specific capacity of the well is approximately 3 gallons per minute per foot of draw down.

The following figures were given by the Ground Water Division, U. S. Geological Survey, Little Rock, Arkansas. They are projected and based on continuous pumping for one year (24 hours per day).

1. Pumping 25 gallons per minute, the draw down from the static water level at 299.3' will not exceed 20'.
2. Pumping 50 gallons per minute, the draw down from the static water level at 299.3' will not exceed 40'.

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3. Pumping 75 gallons per minute, the draw down from the static water level at 299.3' will not exceed 60'.

4. Pumping 100 gallons per minute, the draw down from the static water level at 299.3' will not exceed 80'.

We should add 10' to all draw down figures for seasonal ^{fluctuations} ~~situations~~.

John T. Willett
John T. Willett
Superintendent

Copy To: EODC

The reservoir is 164 feet higher than the well.

*Top of the
The reservoir is 1569 feet above sea level.
(ground surface) the well is 1405 feet above sea level*

*There is 4,780 feet of 4 inch ~~water~~ main
from the well to the reservoir*

*It will require approximately 202 feet of electrical
underground cable to carry three phase power
from the well to the power pole.*

LITHOLOGIC Log

Well number: 21N-29W-35ddb (composite log test holes 1 and 2)
 Owner: National Park Service (Pea Ridge National Military Park)
 Location: NW¹/₄SE¹/₄ sec. 35, T. 21 N., R. 29 W., Benton County, Ark.
 Elevation: 1,406 feet
 Driller: Woodie Drilling Co.
 Date Drilled: 1962

FORMATION TOPS

	Depth (feet) At surface
Boone Formation	
Chattanooga Shale	370
Powell-Cotter-Jefferson City Dolomites undifferentiated	405
Roubidoux Formation	1,235
Gasconade-Van Buren Formations	1,400(?)
Gunter Sandstone Member	1,665
Potosi-Eminence Dolomites	1,695

Depth
in feet

Sample description

0-	27	Residual chert mantle
27-	30	Limestone, light-gray, iron-oxide stained, finely crystalline; light-gray chert and crinoids
30-	40	Limestone, light-gray, iron-oxide stained, finely crystalline; light-gray chert
40-	45	Limestone, light-gray, iron-oxide stained, finely crystalline; light-gray chert and crinoids
45-	55	Limestone, light-gray, iron-oxide stained, finely crystalline; light-gray chert
55-	60	Limestone, light-to medium-gray, finely granular; white chert
60-	65	Limestone, light-gray, finely crystalline

Depth in feet	Sample description
65- 70	Limestone, light-gray, finely granular to finely crystalline
70- 75	Limestone, light-gray, finely crystalline
75- 80	Limestone, light-gray, finely granular
80- 95	Limestone, light-gray, finely granular; light-gray chert
95- 100	Limestone, light-gray, finely granular; brown and gray chert
100- 120	Limestone, light-gray, finely granular; light-gray chert
120- 125	Limestone, light-gray, finely granular
125- 135	Limestone, light-gray, finely granular; white smooth chert
135- 140	Limestone, light-gray, silty, finely granular
140- 145	Limestone, light-gray, silty, finely granular; pyrite
145- 150	Limestone, light-gray, finely granular; pyrite
150- 155	Limestone, light-gray, silty, finely granular
155- 160	Limestone, light-gray, finely granular, light-gray chert; trace pyrite
160- 165	Limestone, light-gray, finely granular; light-gray chert and trace of yellowish chert
165- 170	Limestone, light-to medium-gray, silty, finely granular to crystalline; yellowish-white chert
170- 175	Limestone, light-to medium-gray, silty in part; light-gray chert; trace pyrite
175- 185	Limestone, light-gray, silty; medium-gray chert; trace pyrite
185- 190	Limestone, light-gray, silty; cream-colored chert
190- 195	Limestone, white, finely granular
195- 200	Limestone, white to light-gray, finely granular; cream-colored chert

Depth in feet	Sample description
200- 210	Limestone, light-gray, finely granular
210- 215	Limestone, light-to medium-gray, finely granular; pyrite
215- 225	Limestone, light-gray, finely granular; pyrite
225- 230	Limestone as above and smooth white chert
230- 235	Limestone, light-gray, finely granular; buff chert and pyrite
235- 240	Limestone as above and light-gray chert; pyrite
240- 245	Limestone, light-gray, finely granular
245- 250	Limestone, light-gray, finely granular; gray and buff chert, pyrite and limonite
250- 255	Limestone as above; gray chert, pyrite and limonite
255- 260	Limestone, light-gray, finely granular; gray and buff chert, pyrite and limonite
260- 265	Limestone, light-to medium-gray, finely granular; gray chert, pyrite and limonite
265- 280	Limestone, medium-gray, fossiliferous, finely granular; gray and buff chert, pyrite and limonite
280- 305	Limestone, medium-gray, finely granular; light-to medium-gray chert
305- 325	Limestone as above, very cherty; light-to dark-gray chert
325- 330	Limestone, light-to medium-gray, finely granular; light-to medium-gray chert
330- 360	Limestone and chert as above; pyrite and limonite
360- 365	Limestone, light-gray, sandy, finely granular; white chert and dark-gray chert; pyrite and limonite
365- 370	Limestone, light-gray, silty, finely granular; light-and dark- gray chert; fragments of black shale
370- 405	Shale, black, micaceous; pyrite
405- 415	Dolomite, light-to medium-gray, finely granular to crystalline; white chert and greenish dolomitic shale

Depth in feet	Sample description
415- 425	Dolomite, light-to dark-gray, finely granular to crystalline; chert and dolomitic green shale
425- 430	Dolomite, light-to medium-gray, finely granular; some dolomitic green shale
430- 440	Dolomite, light-gray, finely granular; pyrite and trace of dolomitic green shale
440- 450	Dolomite, light-to medium-gray, finely granular; pyrite and trace of dolomitic green shale
450- 455	Dolomite, light-gray, finely granular; pyrite and trace of dolomitic green shale
455- 460	Dolomite, light-gray, finely granular; white chert and pyrite
460- 470	Dolomite, light-gray, finely granular
470- 480	Dolomite as above; chert and pyrite
480- 485	Dolomite, light-to medium-gray, finely granular; chert and pyrite
485- 495	Dolomite, light-gray, finely granular to finely crystalline; pyrite
495- 500	Dolomite and pyrite as above; white chert
500- 510	Dolomite, light-to medium-gray, finely granular to finely crystalline; white and gray chert
510- 515	Dolomite and chert as above; pyrite
515- 530	Dolomite, light-to medium-gray, finely granular to finely crystalline; white chert
530- 540	Dolomite, light-gray, finely granular to finely crystalline; light-gray dolomitic shale, pyrite and white chert
540- 550	Dolomite, light-gray, in part silty, finely granular to finely crystalline
550- 555	Dolomite, light-gray, finely granular to finely crystalline; pyrite and white chert
555- 560	Dolomite and pyrite as above; white oolitic chert

Depth in feet	Sample description
560- 565	Dolomite, light-gray, silty; white chert
565- 570	Dolomite, light-to medium-gray, finely granular to crystalline; pyrite and white chert
570- 580	Dolomite, light-gray, very slightly sandy, finely granular to finely crystalline; pyrite and white chert
580- 595	Dolomite, light-gray, finely granular to crystalline; pyrite
595- 665	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline; white chert and pyrite
665- 670	Dolomite and pyrite as above; sandy chert
670- 675	Dolomite, light-gray to olive-gray, finely granular to finely crystalline; white chert and sandy chert
675- 705	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline; white chert
705- 720	Dolomite and chert as above; pyrite
720- 725	Dolomite and chert as above
725- 790	Dolomite and chert as above; pyrite

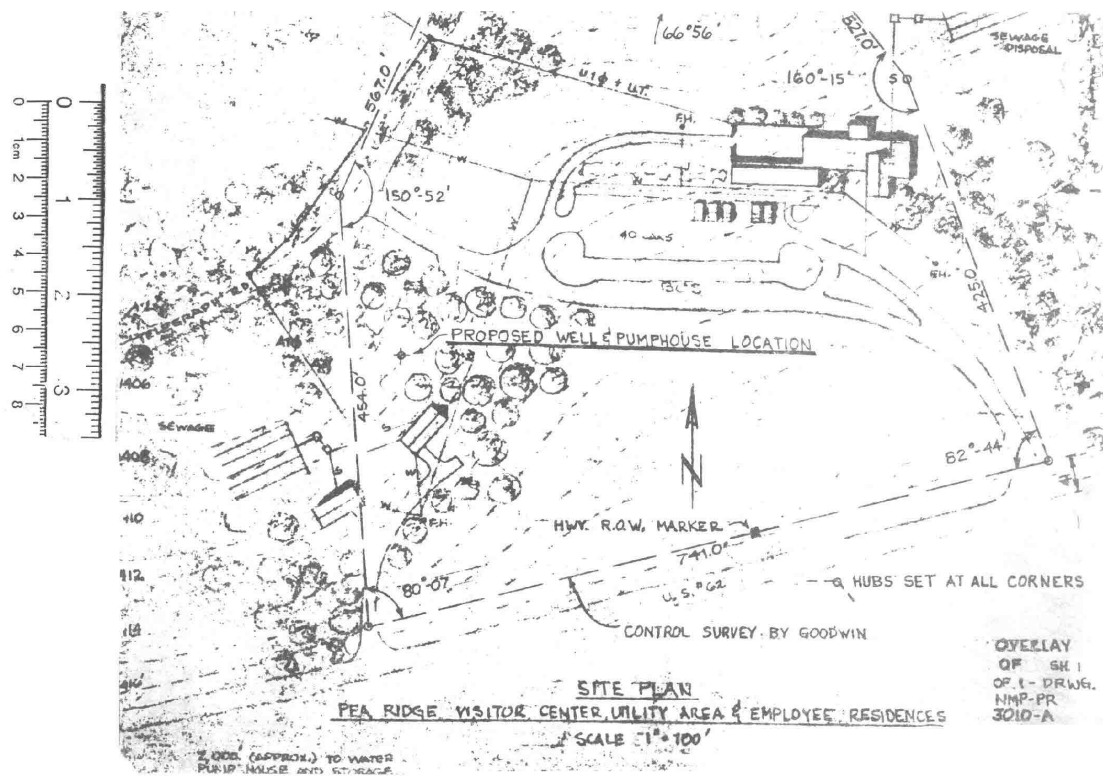
Depth in feet	Sample description
790- 815	Dolomite, light-to medium-gray, finely granular to finely crystalline; pyrite
815- 820	Dolomite and pyrite as above; translucent chert
820- 830	Dolomite as above; white and translucent chert
830- 840	Dolomite as above; white opaque chert
840- 845	Dolomite, medium-gray, finely granular to finely crystalline; white and gray chert
845- 860	Dolomite and chert as above; oolitic chert
860- 875	Dolomite, medium-gray, finely granular to finely crystalline; white chert and oolitic chert; trace of black dolomite or dolomitic black shale
875- 885	Dolomite, medium-gray, finely granular to finely crystalline; white chert and oolitic chert
885- 890	Dolomite, medium-gray, finely granular to finely crystalline; white chert
890- 895	Dolomite, light-to dark-gray, finely granular to finely crystalline; gray and white chert and pyrite
895- 905	Dolomite and chert as above
905- 910	Dolomite, medium-gray, finely granular to finely crystalline; gray chert and pyrite
910- 915	Dolomite, medium-gray to yellowish-gray, finely granular to finely crystalline; white chert
915- 925	Dolomite and chert as above; pyrite
925- 955	Dolomite as above; gray and white chert
955- 970	Dolomite, light-to medium-gray, finely granular to finely crystalline; gray and white chert
970- 980	Dolomite, light-gray, finely granular to finely crystalline; white chert
980- 985	Dolomite as above and pyrite
985- 990	Dolomite and pyrite as above; some gray chert

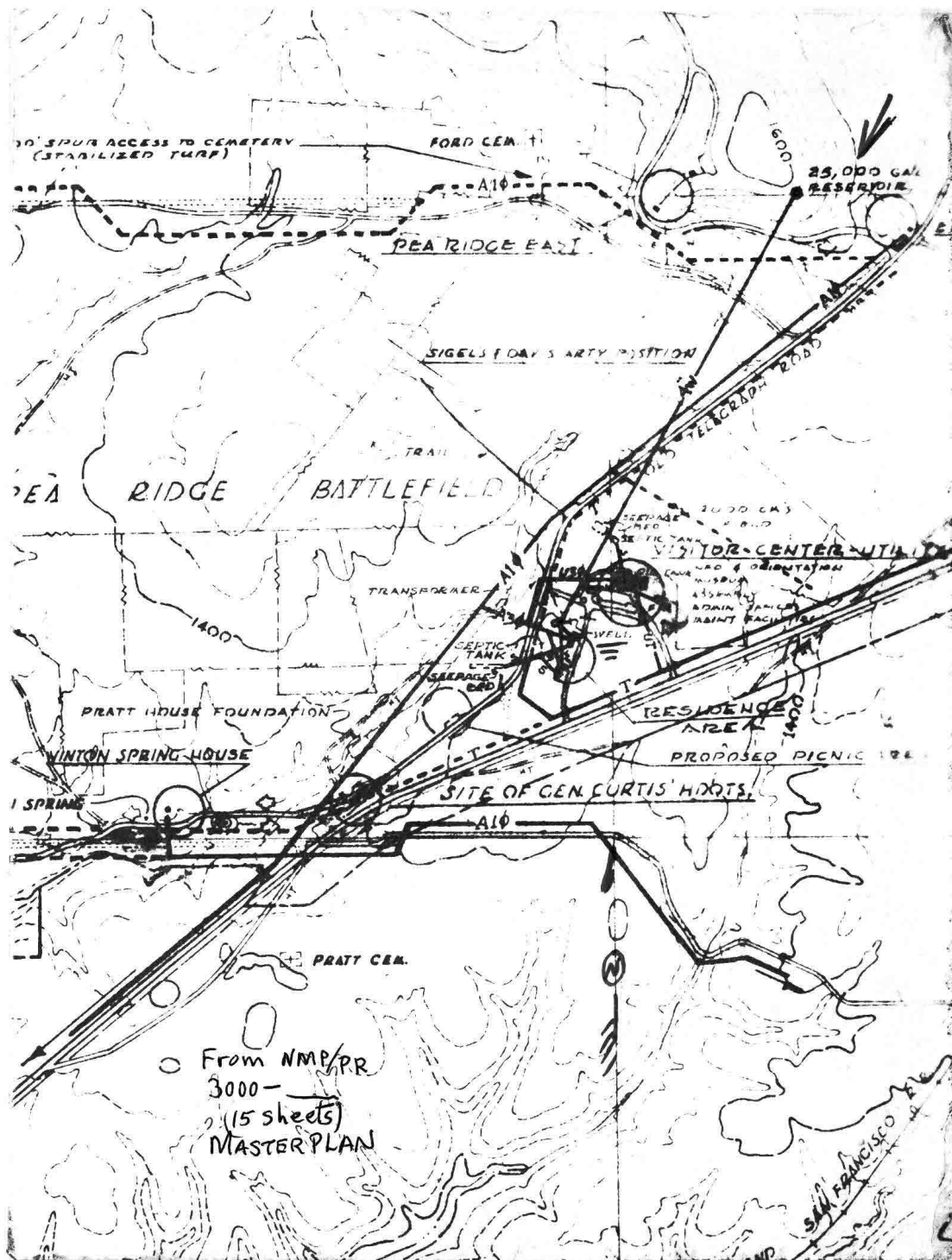
Depth in feet	Sample description
990-1,005	Dolomite, light-gray, finely granular to finely crystalline; some white chert and pyrite
1,005-1,015	Dolomite, medium-gray, finely granular to finely crystalline; white chert
1,015-1,030	Dolomite, light-to dark-gray, finely crystalline; much white oolitic chert and gray chert
1,030-1,045	Dolomite, light-gray, finely granular to finely crystalline; white oolitic chert and gray chert
1,045-1,055	Dolomite, light-gray, finely granular to finely crystalline; gray and white chert and sandy chert
1,055-1,110	Dolomite and gray and white chert as above
1,110-1,135	Dolomite, light-gray, iron-oxide stained, finely granular to finely crystalline; gray and white chert and pyrite
1,135-1,155	Dolomite, light-to medium-gray, iron-oxide stained, finely granular to finely crystalline; white and gray chert and pyrite
1,155-1,165	Dolomite, medium-gray, iron-oxide stained, finely granular to finely crystalline; white to gray chert and pyrite
1,165-1,185	Dolomite, medium-gray, some iron-oxide stain, finely granular to finely crystalline; white to gray chert
1,185-1,195	Dolomite and chert as above; pyrite
1,195-1,200	Dolomite, light-to medium-gray, finely granular to finely crystalline; white to gray chert
1,200-1,210	Dolomite, light-to medium-gray, finely granular to finely crystalline; gray slightly sandy chert; pyrite
1,210-1,215	Dolomite, medium-gray, finely granular to finely crystalline; white to gray chert and pyrite
1,215-1,220	Dolomite and chert as above
1,220-1,235	Dolomite and chert as above; pyrite
1,235-1,240	Dolomite, light-to medium-gray, slightly sandy, finely granular to finely crystalline; white to gray chert

Depth in feet	Sample description
1,240-1,250	Dolomite, light-to medium-gray, sandy, oolitic, finely granular to finely crystalline; white to gray chert
1,250-1,265	Sandstone, tan, iron-oxide stained, fine-grained, well-cemented
1,265-1,280	Sandstone, tan, iron-oxide stained, dolomitic, or very sandy dolomite
1,280-1,285	Dolomite, light brownish-gray, iron-oxide stained, very sandy, finely granular to finely crystalline
1,285-1,290	Dolomite, light brownish-gray, iron-oxide stained, finely granular to finely crystalline; gray sandy chert and pyrite
1,290-1,305	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline; white to gray chert and sandy chert; pyrite
1,305-1,310	Dolomite, chert, and pyrite as above; trace of green shale
1,310-1,365	Dolomite, light-gray to yellowish-gray, sandy, finely granular to finely crystalline; white to gray chert and pyrite
1,365-1,375	Dolomite, light-gray, sandy, finely granular to finely crystalline; white to gray chert
1,375-1,385	Dolomite, light-gray to yellowish-gray, sandy, finely granular to finely crystalline; white to gray chert; blue-gray mottled chert
1,385-1,390	Dolomite, light-gray to yellowish-gray, sandy, finely granular to finely crystalline; white to gray chert; quartz crystals
1,390-1,400	Dolomite and chert as above
1,400-1,405	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline; gray chert and pyrite; trace of green shale
1,405-1,410	Dolomite, light-gray to yellowish-gray, finely granular to medium crystalline; gray pyritic chert
1,410-1,420	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline
1,420-1,430	Dolomite and chert as above; pyrite

Depth in feet	Sample description
1,430-1,435	No sample
1,435-1,440	Dolomite, light-gray, finely granular to finely crystalline; white chert and a trace of pyrite
1,440-1,445	Dolomite as above; white to gray chert
1,445-1,450	No sample
1,450-1,460	Dolomite, light-gray, finely granular to finely crystalline; white to gray chert
1,460-1,480	Dolomite as above; much white chert
1,480-1,490	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline; white to light-gray chert
1,490-1,505	Dolomite, light-gray, finely granular to finely crystalline; white chert
1,505-1,510	Dolomite, very light-gray, finely granular to finely crystalline; white chert
1,510-1,530	Dolomite, light-gray, finely granular to finely crystalline; white to light-gray chert
1,530-1,540	Dolomite, medium-gray, finely granular to finely crystalline; white to light-gray chert
1,540-1,580	Dolomite, light-gray, finely granular to finely crystalline; white to light-gray chert
1,580-1,585	Dolomite and chert as above; trace of pyrite
1,585-1,595	No samples
1,595-1,615	Dolomite, light-gray, finely granular to finely crystalline; white to light-gray chert
1,615-1,630	Dolomite, medium-gray, finely granular to finely crystalline; white to gray chert
1,630-1,635	Dolomite, light-gray to yellowish-gray, finely granular to finely crystalline; white to gray chert
1,635-1,645	Dolomite, medium-gray to yellowish-gray, finely granular to medium crystalline; white to gray chert

Depth in feet	Sample description
1,645-1,665	Dolomite, medium-gray, finely granular to medium crystalline; white to gray chert
1,665-1,675	Dolomite, light-gray to medium-gray, very sandy, finely granular to finely crystalline; white to gray chert; trace of pyrite
1,675-1,685	Sandstone, light-gray, dolomitic, fine-to medium-grained; white chert; trace of pyrite
1,685-1,690	Sandstone, light-gray, fine-to medium-grained
1,690-1,695	Sandstone, light-gray, iron-oxide stained, fine-to medium- grained
1,695-1,705	Dolomite, light-gray, finely granular to finely crystalline; many quartz grains; white to gray chert
1,705-1,710	Dolomite, light-gray, iron-oxide stained, sandy, finely granular to finely crystalline; white chert
1,710-1,715	Dolomite, light-gray, iron-oxide stained, finely granular to finely crystalline; many quartz grains; white chert; trace of green shale
1,715-1,740	No samples
1,740-1,760	Dolomite, light-gray, finely granular to finely crystalline; white chert; trace of pyrite





Docket Information

Number of Documents in Docket 16

Documents Dated from 8/23/1962 to 11/5/1962

Docket Compiled: 6/7/2011