



WATER-RIGHT DOCKET

Lake Mead National Recreation Area

Docket No: 10

WELL - KATHERINE AREA #1.

Preliminary Docket Information

05-19-1976: water right/source docket information

WATER RESOURCES/WATER RIGHT

DATE: May 19, 1976

WATER RIGHT/SOURCE DOCKET INFORMATION:

REGION Western Region AREA Lake Mead National Recreation Area
 SITE Katherine Area (Lake Mohave)
 STATE Arizona COUNTY Mohave DOCKET NO WR #10
 LOCATION SE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 7, T21N, R21W, G&SRB&M
 REGIONAL BASIN Colorado River LOCAL BASIN _____
 ACQUIRED BY _____
 APPLICATION _____ PERMIT _____ CERTIFICATE _____
 ACTION DUE _____ PRIORITY _____ RESERVATION _____
 QUANTITY 275,000 GPD USE Domestic and irrigation
 STATUS Active SOURCE Lake Mohave

REMARKS

Hydrologic Unit #15010005

NARRATIVE:

During 1956, the National Park Service contracted with the Effinger Brothers to drill a well in the Katherine Area of Lake Mead National Recreation Area. The well was drilled to a depth of 90 feet with the principal water bed eight feet below land surface datum. The well was pump tested for 16 hours at approximately 75 gallons per minute.

On October 22, 1958, Mr. A. van V. Dunn sent a memo accompanying Water Right Dockets 9, 10, and 11 for Lake Mead NRA to the Regional Director of Region Three. As a result of Mr. Dunn's testimony in *Arizona v. California*, he felt it was necessary to expedite the filing of water claims for sources within National Parks, Monuments, etc. Included in the dockets were irrigation studies of Boulder Beach, the Katherine Area, and the Temple Bar Area of Lake Mead NRA. Drawing No. NRA-IM 6980, the irrigation study for the Katherine Area, shows a variety of developments with ~~total~~ net irrigation area of 27.98 acres. The entire water system depicted in the drawing appeared to be supplied from a single point shown as a pump house adjacent to the shoreline of Lake Mohave near the NPS dock. The drawing is dated August of 1958 and showed an existing 25,000 gallon water tank and a proposed 50,000 gallon reservoir for storage.

On March 23, 1976, Bill Shepard, Maintenance Supervisor of the area, reported that the above well was capped. He reports that the well was never used. Another well was drilled in 1964 or 1965, but is also unused. He reports that wells are not used because of insufficient well yield. The present area consists of 175 campsites, concessionaire, 40 overnight campsites and a motel of 75 rooms. Water usage for 1974 was 101,000,000 gallons. Water is presently taken from the lake by 2 separate intakes, one intake to supply the Katherine Area proper and another intake to supply the Katherine Vacation cabin sites.

Mr. Shepard offered the following information regarding the nearby "Katherine Mines" area. This area is composed of land from patented mining claims. Mining ceased around 1945 when the shafts became flooded. Water is now pumped from the shafts for irrigation and domestic use - the land having now been subdivided and homes built. The amount of water usage is unknown.

Regarding NPS well and/or lake water usage, there is no evidence of any state water right filings.

See also WR Docket #20.

Compiled by Kevin Kidder

Approved by W. Werrell

Page 1 of 1

RMR



United States Department of the Interior

NATIONAL PARK SERVICE

WESTERN REGION

450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

JUN 9 '82

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 E. Cherry

Howard H. Chapman
Regional Director, Western Region

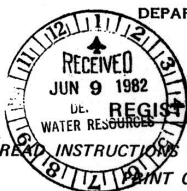
Enclosures

See attached sheet for bcc's

Rocky Mountain	
Regional Office	Inset 8/7/67
Regional Director	-1067
Deputy Regional Director	
Administration	
Public Operations	M/L
Plan & Research Dept.	
Cargo Pass	
Communications Div.	
E&S	
Other Eval	
Aaron Tahan	

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

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

Declaration: The United States gives
jurisdiction to the State in the interest
of public health, safety and 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-	629131
FILE NO.	8(21-21)7 bds
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 $\frac{1}{4}$ NW $\frac{1}{4}$, Section 7, of Township 21 N N/S, Range 21 W E/W, G & SRB & M, in the County of Mohave.
 - 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 90 feet
 - Diameter of casing 8 1/2 inches
 - Depth of casing 70 feet
 - Type of casing steel
 - Maximum pump capacity N/A gallons per minute.
 - Depth to water 8 feet below land surface.
 - Date well completed 1956
(Month) (Day) (Year)
- The place(s) of use of water. If same as Item 3, check this box ☐

Lake Mead National Recreation Area - Katherine Well #1
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 629131

I request the following information be changed in Well File Number B(21-21)7 bdc

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.

99 E. Virginia Avenue, Phoenix, Arizona 85004

RECEIVED
DEPT. SECRETARY OF REGIONAL OFFICE
STATE OF THE STATE OF NEW YORK
JAN 23 1982
BRUCE BABBITT, Governor
EILEEN STEINER, Director
JAN 23 1982
PA
L
L
that all
Department

Administration 255-1550, Water Resources and Flood Control Planning 255-1566, Dam Safety 255-1541, Flood Warning Office 255-1548, Water Rights Administration 255-1581, Hydrology 255-1586.

D5029 Suk

Supporting Hydro Data

Well No. (B-21-21) 7 bdc

U. S. DEPT. OF THE INTERIOR

GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

MASTER CARD

Record by C. Bentley Source of data Mr. Pukse v. fobs. Date 5-26-69 Map Davis Dam 1' 62500

State Ariz. 02 County (or town) Mohave 08

Latitude: 3 5 1 3 1 3 N S
deg min sec

Longitude: 1 1 4 3 3 4 9
deg min sec

Sequential number:

Lat-long accuracy: 1 T. 21 S. R 21 Sec 7, SW 4, SE 4, NW 4 Gilbert 1R

Local well number: 21 21 20 Other number: Katherine well No. 1 B & M

Local use: _____ Owner or name: *National Park Service*

Owner or name: Address: Likiep National Reg. Area

(C) (F) (M) (N) (P) (S) (W) F

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist _____ 67 5

(A) (B) (C) (D) (E) (F) (H) (I) (M) (N) (P) (R)

Use of water: Air cond, Bottling, Comm, Dewater, Power, Fire, Dom, Irr, Med, Ind, F S, Rec,

(S)	(T)	(U)	(V)	(W)	(X)	(Y)	(Z)

Stock, Instit, Unused, Repressure, Recharge, Desal-P S, Desal-other, Other _____

Use of (A) (D) (G) (H) (P) (R) (T) (U) (W) (X) (B) 4
well: Anode, Drain, Seismic, Heat Res, Obs, Oil-gas, Recharge, Test, Unused, Withdraw, Waste, Destroyed

DATA AVAILABLE: Well data ☒ Freq. W/L meas.: *Reported only* ☐ Field aquifer char. ☐ 73 ☐

DATA AVAILABLE:

Well	Cstd	Freq.	N/L	MMS..	APPROXIMATE	DATE ACQUIRED	TIME
	70						

Und. Tab. desc:

71

Hyd. lab. data: _____

Qual. water desc: _____

74

Qual. water data; type: _____

Egg samples: ☐ yes
Bumpage inventory: ☐ period: 76 ☐

Freq. sampling: 73 Rampage inventory: no, period: yes 77

Aperture cards: _____

Log data: Drillers log

WELL-DESCRIPTION CARD

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 90 ft 9:0 meas. 3
repp accuracy

Depth cased; (first perf.) 70 ft

25	26	27	28
----	----	----	----

 Casing type: steel; Diam. 8 7/8 in

29	30
----	----

Finish: (C) porous (F) gravel w. (G) gravel w. (H) horiz. (O) open (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Y) _____

Method (A) (B) (C) (D) (H) (J) (P) (R) (T) (V) (W) (X)
Drilled, air bored, cable, dug, hyd jetted, air reverse trenching, driven, drive

Drilled: rot, rot., percussion, rotary, wash, other 32
Date 1956 9 5 6 none

Drilled: 1936 1 5 6 Pump intake setting: None ft 36 38

Driller: Effinger Brothers, 235 Vegas Nevada

(type): air, bucket, cent, jet, multiple, multiple, (none), piston, rot, submerg, turb, other ☒ Shallow ☐

Power (type): diesel, elec, gas, gasoline, hand, gas, wind; H.P. 41 Trans. or meter no.

Descrip. MP _____ ft ^{above} LSD, Alt. MP _____ _{below}

Alt. LSD: 960 960 Accuracy: (source) Topo-Ho ft. Cont. Int. " 4

Water Level 8 ft. above MP; Ft. below LSD

		8
--	--	---

 Accuracy: Driller's Rpt. 7 D

Date: 1956 56 Yield: 75-sept 75 Method: determined

Drawdown: _____ ft Accuracy: _____ Pumping period 16 hrs

QUALITY OF WATER DATA: Iron Sulfate Chloride Hard.

ppm 69 ppm 70 ppm 71 ppm

Sp. Conduct K x 10⁶ [] Temp. 65 °F [] 6.5 Date sampled []

	73	74	75	76	77	78
Taste, color, etc.						

Well No

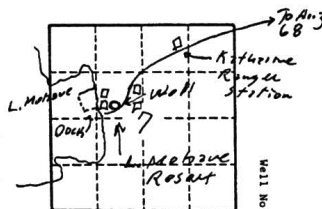
(B-21-21). 7 bdc

Well No. (B-21-21) 7 bdcLatitude-longitude 35.13.13^N 114.33.49^W

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD
 Physiographic Province: Basin & Range Section: Mexican
 Drainage Basin: Highland Bill Williams Subbasin: Colo. Adv. Bouse W.
 Topo of well site: (D) depression, (C) stream channel, (E) dunes, flat, hilltop, sink, swamp, (F) offshore, pediment, hillside, terrace, undulating, valley flat
 MAJOR AQUIFER: Test-Quikney, Plio-Pleistocene A.R. Alluvium OA
 Lithology: Decomp. granite & gravel U.R. Origin: fluvial 2 Thickness: 33 ft
 Length of well open to: none (?) ft Depth to top of: 8 ft
 MINOR AQUIFER: _____
 Lithology: _____ Origin: _____ Thickness: _____ ft
 Length of well open to: _____ ft Depth to top of: _____ ft
 Intervals Screened: Perforation data not shown on driller's log, assume blank casing 0-70 ft; open below
 Depth to consolidated rock: _____ ft Source of data: _____
 Depth to basement: 41 ft 41 Source of data: Driller's log
 Surficial material: Decomp. granite & gravel U.R. Infiltration characteristics: Probably good
 Coefficient Trans: _____ gpd/ft Coefficient Storage: _____
 Coefficient Perm: _____ gpd/ft² Spec cap: _____ gpd/ft; Number of geologic cards: _____

Well abandoned - too small yield
 Pump removed - well copped
 Driller's log attached.



Well No.

(B-21-21) 7 bdc

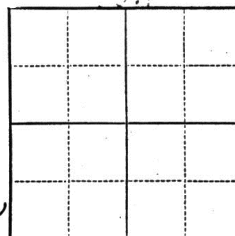
LOG OF WELL

[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

RECORD OF WELL

1. Location: State Arizona County Mohave
Nearest P. O. _____ Direction from P. O. _____
Distance from P. O. _____ miles; $\frac{1}{4}$ sec. 7, T. 21 N, R. 21 W
If in city, give street and number Katherine



Locate well on plat of section.

2. ~~National Park Service~~ Address Resador City, Nevada
Hemingway Bros. Address 509, Las Vegas, Nevada

3. Situation: Is well on upland, in valley, or on hillside? _____

4. Elevation of top of well: _____ ft. _____ the level of _____

5. Type of well Drilled (Above or below) _____; kind of drilling rig used Cable Tools (Gas, depot, lake, or stream)
(Dug, driven, bored, or drilled) _____ (Solid tool, jetting, rotary, etc.)

6. Depth of well 90 ft.; year in which well was finished 1956

Does well enter rock; if so, at what depth? 41 ft.; kind of rock Granite

7. Diameter: At top 8 5/8 inches; at bottom 8 1/2 inches.

8. Principal water bed: _____ (Gravel, sand, clay, or rock. If rock, state kind)

Depth to principal water bed _____ ft.; thickness of bed _____ ft.

If other water supplies were found, give depth to each _____

9. Casings: Steel size 8 5/8; length _____ ft.; between depths of _____ and _____ ft.

Kind _____; size _____; length _____ ft.; between depths of _____ and _____ ft.

Kind _____; size _____; length _____ ft.; between depths of _____ and _____ ft.

Packers (if any): Depth at which packers were used None; kind _____

Screen or Strainer: Was well finished with screen? None; kind of screen _____

length of screen _____ ft.; diameter _____ inches; size of openings _____

10. Head: Does well at present overflow without pumping? No; did it overflow when new? No

if flowing, give pressure _____ lb. per sq. inch; or height water will rise in pipe _____ ft. above surface;

original pressure or head _____; if not flowing, give water level in well _____ ft. below surface.

11. Pump: Is the well pumped? Tested; kind of pump Deepoloy rito angle turbine

size or capacity of pump _____; kind of power Electric

12. Yield: Natural flow at present (if any) None gallons per minute; original flow _____ gallons per minute;

well has been pumped at Approx. 75 gallons per minute continuously for 16 hours;

quantity of water ordinarily obtained from well _____ gallons per day.

13. Use: For what purpose is the water used? Domestic

14. Quality of the water: Hard; is there an analysis? Yes

15. Cost of well, not including pump: 5353.00 (Hard or soft, fresh or salty, etc.) Temperature of water 65 ° F.

Name of person filling blank A. F. Heminger

Date July 9, 1956 Address Box 509 Las Vegas, Nevada

On the back of this sheet give the record of the beds through which the well passes and any other facts not given above.

6-5042

Geological Experiment		Lake Mead Rec. Area		UNITED STATES DEPARTMENT OF THE INTERIOR		Surface Water Analysis		A-1 - Tot. Fe - Fe Soln		Water Resources Division	
River basin	Colorado	Sta. Ident. No.	1	Date of collection	Jan. 11, 1966	Frequency	M D Y	0	1	1	6
Location	Katherine - Lake Mohave, Ariz.	County	Mohave	Discharge (cfs)	15	Time	21				
Collected by		Lab. No.	58961	Project No.	NPS	Appearance	Wc	Wa	Gage height (ft)		
SiO ₂	f 51.2 ml 22 24	ppm	111	HCO ₃	50 ml 58 61	ppm	158	B	142 f 1 ml Abs. 182	0.26	
Al	f 211	25 27		CO ₂	50 ml 62 63	ppm	0	Dissolved solids	50 ml 51.5491 (834)	8.34	
Abs (Al + Fe)				SO ₄	50 ml 64 68	ppm	337	Residue at 180°C	51.5074	24	
Fe	f 1.044	28 31	0.03	Cl	25 ml 69 74	ppm	112	Dish No.	11-20 00417	25	
Total	ml Abs. 0.14			Mg · AgNO	2.5	ppm	5.70	Calculated	794	79.4	
Dissolved	ml			F	10 ml 75 77	ppm	0.3	Hardness	14.20		
Abs				Sample No.	79			Ca, Mg	4.90 25 ml (372)	3.72	
Mn	f			Card No.	1			TH	7.44		
Total	Abs			NO ₃	10 ml 15 17	ppm	1.8	Noncarbonate	(242)	2.42	
Dissolved	ml Abs.			PO ₄	f	ppm		Acidity H+1	ml		
Ca	25 ml 4.91 35 38	ppm	98	Abs	1.419	ppm	0.3	SAR	(2.7)	2.7	
Mg	ml 31 39 42	ppm	31	Card No.	1			Kx10 ⁶	23.0T 35.2 R KCl 28.5 R	1.240	
Sr	ml			Na	25 ml 47 51	ppm	119	pH	7.8	7.8	
Na	25 ml 47 51	ppm	119	Reading	6.78			Color	0		
K	ml 52 54	ppm	5.5	Reading	54.6			Oxygen cons. filtered or DO			
Li	ml 55 57	ppm		Reading				Oxygen cons. unfiltered or BOD			
Total cations			12.76	Reading				Organics: Phenol			
				Reading				Organics: MBAS			
				Reading				Temperature °F	77-78		
				Reading				Sample No.	79	Card No.	2
				Reading				Chemist	JOE O'NEILL	E. F. WILLIAMS	
				Reading				Date began		Completed	
				Reading				Punched by		Verified by	
				Reading				Remarks and explanation	(other side)		

Provisional records, subject to revision.

Exp. form: qw-sw (7/66)

Geological Survey

UNITED STATES DEPARTMENT OF THE INTERIOR
Surface Water AnalysisA-1
NO Fe soln.

Water Resources Division

Lat. 36 00 00 N Long. 114 00 00 W

River basin

Sta. Ident. No. 1

Date of collection

Frequency A
April 25, 1967M D Y
04 25 67

Stream and location

Katherine, Lake Mead Nat'l. Recreation Area, Arizona

County

Mohave

Discharge (cfs)

15

Collected by

Cal L. Keele

Lab. No.

61651

Project No.

20-NPS

Appearance Wc

Wa

Cage height (ft)

Time

	ppm	epm
SiO ₂ f <u>50.5</u> ml <u>10</u> ml <u>9.0</u> <u>9.0</u>		
Al f <u>1.78</u> ml <u>1.1</u> <u>1.1</u>		
Abs (Al + Fe) <u>0.02</u> ml <u>0.02</u>		
Fe f <u>1.9</u> ml <u>0.02</u> <u>0.02</u>		
Total <u>0.12</u> ml <u>0.12</u>		
Dissolved <u>1.1</u> ml <u>1.1</u>		
Abs <u>1.1</u> ml <u>1.1</u>		
Mn f <u>1.1</u> ml <u>1.1</u>		
Total <u>1.1</u> ml <u>1.1</u>		
Dissolved <u>1.1</u> ml <u>1.1</u>		
Abs <u>1.1</u> ml <u>1.1</u>		
Ca <u>1.0</u> ml <u>9.2</u> <u>4.57</u>		
Mg <u>1.0</u> ml <u>2.5</u> <u>2.09</u>		
Sr <u>1.0</u> ml <u>1.1</u> <u>1.1</u>		
Na <u>1.0</u> ml <u>10.5</u> <u>4.57</u>		
Reading <u>6.14</u> <u>105</u> <u>4.57</u>		
K <u>1.0</u> ml <u>4.9</u> <u>0.13</u>		
Reading <u>49.4</u> <u>4.7</u> <u>0.13</u>		
Li <u>1.0</u> ml <u>1.1</u> <u>1.1</u>		
Reading <u>1.1</u> <u>55</u> <u>57</u>		
Total cations <u>11.38</u>		

	ppm	epm
HCO ₃ <u>50</u> ml <u>17.70</u> <u>10.00</u> <u>7.70</u>		
CO ₂ <u>50</u> ml <u>1.54</u> <u>2.52</u>		
SO ₄ <u>25-100-10</u> ml <u>3.00</u> <u>6.25</u>		
Cl <u>25</u> ml <u>9.4</u> <u>2.65</u>		
Mg · AgNO ₃ <u>6.5</u> <u>4.80</u> <u>0.00</u> <u>0.07</u> <u>3.75</u>		
F <u>1.0</u> ml <u>0.2</u> <u>0.01</u>		
Sample No. <u>79</u>		
Card No. <u>1</u>		
NO ₃ <u>11.7</u> ml <u>1.4</u> <u>0.02</u>		
PO ₄ <u>1.0</u> ml <u>1.1</u> <u>1.1</u>		
Abs <u>1.1</u> ml <u>1.1</u>		
HPO ₄ <u>1.1</u> ml <u>1.1</u>		
H ₂ PO ₄ <u>1.1</u> ml <u>1.1</u>		
Total anions <u>11.45</u>		

B <u>1.28</u> ml <u>1.0</u> ml <u>1.86</u> <u>0.24</u> <u>0.24</u>		
Dissolved solids: <u>7.16</u>		
Residue at 180°C <u>100</u> <u>7.16</u>		
Dish No. <u>X-89</u>		
Calculated <u>54.9548</u> <u>7.08</u> <u>7.08</u>		
Hardness: <u>33.4</u>		
Ca, Mg <u>25</u> ml <u>18.35</u> <u>33.4</u>		
Noncarbonate <u>10.00</u> <u>2.08</u>		
Acidity H+1 <u>1.1</u> ml <u>1.1</u>		
SAR <u>2.5</u> <u>2.5</u>		
Kx10 ⁶ <u>22.3</u> T <u>35.7</u> R <u>1100</u> <u>1.100</u>		
pH <u>8.0</u> Color <u>3</u>		
Oxygen cons. filtered or DO <u>1.1</u>		
Oxygen cons. unfiltered or BOD <u>1.1</u>		
Organics: Phenol <u>1.1</u>		
Organics: MBAS <u>1.1</u>		
Temperature °F <u>77-78</u>		
Sample No. <u>79</u> Card No. <u>2</u>		
Chemist <u>Richard L. Lee</u> Checked by <u>E. J. Williams</u>		
Date began <u>4/25/67</u> Completed <u>4/25/67</u>		
Punched by <u>Richard L. Lee</u> Verified by <u>E. J. Williams</u>		
Remarks and explanation (other side)		

Additional records subject to review

61651

Card 3 Duplicate 1-14 (card 1)				Sta. Ident. No.	Date ^b	Discharge
Date	Time	Temp.	K x 10 ⁶	Cr	NH ₄	
				15 18	51 52	
				Ni 19 21	NO ₂ 53 54	
				Cu 22 25	CN 56 58	
				Pb 26 29	Dissolved oxygen: ppm 59 60	
				Zn 30 33	% Saturation 62 63	
				Co 34 36	OH 65 66	
				Ba 37 40	Alk. as CaCO ₃ 68 69	
				Br 41 44	Turbidity 72 73	
				I 45 48	Density at 20°C (gm/ml) 75 76	
				% Na 49 50	Sample No. 79 Card No. 3 80	
Remarks:				Punched by _____ Verified by _____		

Source: Pumped from Lake Mohave
 Owner: NPS, Boulder City, Nev.
 Use: Dom., Ps

~~Additional records, subject to revision.~~

a Frequency: Daily, monthly, intermittent, miscellaneous, additional, etc.
 b Daily sampling: Number of days in composite sample. Monthly, weekly, miscellaneous or additional samples. Actual date.
 c Composite samples numbered in sequence within each month; Oct., 1, 2, 3, etc.; Nov., 1, 2, 3, etc. Enter "M" for monthly, weekly, or miscellaneous samples. "X" for additional samples.

FORM 9-1367 (9-)
U. S. DEPT. OF IN
GEOLOGICAL SURVEY

ANALYTICAL STATEMENT.

COUNTY Mohave (Ariz) 79783

NPS

LAB NO. 54728

(11)

Location 35 miles West of
Kingman, Ariz.
SW 1/4 sec. 7 T29N R21W
Source (type of well) GSRM Lake infiltration
Owner NPS - Box 127
Boulder City, Nev.
Date drd 7/56 Cased to _____ ft
Depth 90' Diam _____
Wm Decomposed granite
Water level varies ft
Sampled after pumping hrs
Yield 50 GPM (max op) xxx pump
Pt of coll Katherine concession
Appearance Clear area.
Temp (°F) 65 Use Dom., Ps., Irr.
Collector _____
Chemist KO
Date completed Aug. 3, 1964
Checked by JON
Date transmitted _____

Date of collection Recd. July 20, 1964
Ignition Loss _____ Color 2
Dissolved Solids: 706
Turbidity at 180°C _____
Calculated (Sum) 699
Solids per Acre Foot 0.95
Hardness as CaCO₃ 334
Non-carbonate Hardness 212
T. No. 40 SAR 2.4 pH 7.7
Specific Conductance
(micromhos at 25°C) 1,090

	epm	ppm
SiO ₂		<u>11</u>
Fe (total)		<u>0.06</u>
Ca	<u>4.34</u>	<u>87</u>
Mg	<u>2.34</u>	<u>28</u>
Na	<u>4.48</u>	<u>103</u>
K	<u>0.12</u>	<u>4.8</u>
	<u>11.28</u>	
Na + K		
HCO ₃	<u>2.43</u>	<u>148</u>
CO ₃	<u>0.00</u>	<u>0</u>
SO ₄	<u>6.18</u>	<u>297</u>
Cl	<u>2.65</u>	<u>94</u>
F	<u>0.02</u>	<u>0.4</u>
NO ₃	<u>0.02</u>	<u>1.0</u>
	<u>11.30</u>	<u>B 0.14</u>

Producing intervals
from 10 to 41

Provisional records, subject to revision.

9-255
(Jan. 1959)UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

DE SET NO. 10

See file 5-20-59

RECORD OF WELL

1. Location: State ARIZONA County MOHAVE
 Nearest P. O. _____ Direction from P. O. _____
 Distance from P. O. _____ miles; $\frac{1}{4}$ sec. 7, T. 21N, R. 21W
 If in city, give street and number KATHERINE
2. Owner: National Park Service Address Boulder City, Nevada
 Driller: Effinger Bros. Address Box 589, Las Vegas, Nevada
3. Situation: Is well on upland, in valley, or on hillside? _____
4. Elevation of top of well: _____ ft. _____ the level of _____
(Above or below) (Sea, depot, lake, or stream)
5. Type of well: Drilled ; kind of drilling rig used Cable Tools
(Dug, driven, bored, or drilled) (Solid tool, jetting, rotary, etc.)
6. Depth of well: 90 ft.; year in which well was finished 1956
 Does well enter rock? yes; if so, at what depth? 41 ft.; kind of rock Granite
7. Diameter: At top 8 5/8"OD inches; at bottom 8"ID inches.
8. Principal water bed: Rock
(Gravel, sand, clay, or rock. If rock, state kind.)
 Depth to principal water bed 8 ft.; thickness of bed 33 ft.
 If other water supplies were found, give depth to each _____
9. Casings: Kind Steel ; size 8 5/8" ; length 70 ft.; between depths of 0 and 70 ft.
 Kind _____ ; size _____ ; length _____ ft.; between depths of _____ and _____ ft.
 Kind _____ ; size _____ ; length _____ ft.; between depths of _____ and _____ ft.
- Packers (if any): Depth at which packers were used None ; kind _____
- Screen or Strainer: Was well finished with screen? None ; kind of screen _____
 length of screen _____ ft.; diameter _____ inches; size of openings _____
10. Head: Does well at present overflow without pumping? No ; did it overflow when new? No ;
 if flowing, give pressure X lb. per sq. inch; or height water will rise in a pipe X ft. above surface;
 original pressure or head _____ ; if not flowing, give water level in well 8 ft. below surface.
11. Pump: Is the well pumped Tested ; kind of pump Berkeley rite angle turbine ;
 size or capacity of pump _____ ; kind of power Desil
12. Yield: Natural flow at present (if any) None gallons per minute; original flow _____ gallons per minute;
 well has been pumped at Approx. 75 gallons per minute continuously for 16 hours;
 quantity of water ordinarily obtained from well _____ gallons per day.
13. Use: For what purpose is the water used? Domestic
14. Quality of the water: Hard ; is there an analysis? Yes
(Hard or soft, fresh or salty, etc.)
15. Cost of well, not including pump: \$1308.00 Temperature of water 65 °F.
 Name of person filling blank A. F. Effinger
- Date July 9, 1956 Address Box 589 Las Vegas, Nevada

On the back of this sheet give the record of the beds through which the well passes and any other facts not given above.

5-10642

U. S. GOVERNMENT PRINTING OFFICE 6-9642

SOCKET NO. 10

Analysis, Water Sample from Katherine Wash Well

June 19, 1956

P -- (Alkalinity to Phenolphthalien) -----	0 - P.P.M.
M -- (Alkalinity to Methyl Orange)Carb.Hard.) -	108 - "
pH --(Hydrogen Ion) -----	7.3 -
Chlorides -----	98 - "
Calcium -----	98 - "
Magnesium -----	25 - "
Sulphates -----	316 - "
Non-Carb. Hardness (Permanent) due to calcium & magnesium sulphates, chlorides & nitrates----	242 - "
Total Hardness -----	350 - "
Dissolved Solids -----	1050 - "
CO ₂ (Carbon Dioxide(Free) -----	11.0 - "

Water of this sample is in close agreement with analysis of Lake Mead water used in Boulder City, and with the exception, it is more corrosive, the same water as this sample should not be objectionable for human consumption.

Other Supporting Information



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

WESTERN REGION

450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

L54 (RNW)

April 20, 1982

Memorandum

To: All Superintendents, Arizona Areas, Western Region

From: ~~ACTING~~ Regional Director, Western Region

Subject: Arizona Groundwater Management Act, required filings

In compliance with the Arizona Groundwater Management Act of 1980, we are required to register all existing wells within the State on or before June 12, 1982, see enclosure.

The Field Solicitor's Office has advised us that registration of existing wells on National Park Service lands should be made either as a matter of comity, in the case of Federal reserved water rights, or as a matter of compliance with Arizona State law, in the case of Federal non-reserved water rights.

The Division of Water Resources has begun to compile the necessary information for the filings, and in the process may be contacting your offices for further information. They will submit this material to the State.

Information which you feel the Division of Water Resources may not have, concerning recently changed well conditions, pump capacities, etc., should be relayed as soon as possible to the Division of Water Resources at 556-8660.

If you have any questions concerning the well registration requirements, please do not hesitate to contact Mr. Witucki and his staff.

W. Bruce White

Enclosure

cc:
General Superintendent, SOAR

L54

(WR)RNW

September 21, 1981

Witucki
Mills
Kilgore
9/21/81

Davis
Reg. Dir.
9/22

Memorandum

To: Field Solicitor, San Francisco
ACTING
From: Regional Director, Western Region
Subject: Arizona Groundwater Management Act: Registration of Inactive Wells;
Filing for "Grandfathered Rights"

The Division of Water Resources has received inquiries from the affected National Park Service areas concerning certain provisions of the Arizona Groundwater Management Act of 1980, and we are still awaiting a response from your Office regarding our June 11, 1981 memorandum to you. As required by the Act, all wells in the State must be registered with the Arizona Department of Water Resources by June 12, 1982. However, it is not clear whether it is appropriate to register the inactive wells located in the parks within the State of Arizona. Since registration of these inactive wells may have a bearing on the Service's right to drill new or replacement wells in the future, we have tentatively planned to register all wells located within the affected parks. With these concerns in mind, we would appreciate a legal determination and your recommendations as to the registration of inactive wells pursuant to the Arizona Groundwater Management Act.

Through field investigations conducted by the Division of Water Resources staff, telephone conversations with the field areas, and communication with your staff, we determined that it was not necessary to file for "Grandfathered Rights" for any of the wells located in the parks within the designated Active Management Areas since none of the wells in question has a pumping capacity greater than 35 gallons per minute. Under the provisions of the Act, such wells were exempt from filing for "Grandfathered Rights."

Your assistance and cooperation in this matter is appreciated.

(SGD) JOHN H. DAVIS

cc:
General Supt., SOAR
Supts., Saguaro, Tumacacori, & Casa Grande

(WR)RNW:Reed:Werrell:Witucki;ms 9/21/81

L54-CBL

September 22, 1960

Memorandum

To: Regional Director, Region Three

From: Chief, Water Resources Section

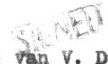
Subject: Sale of Katherine Mine Properties (Sections 5 and 6)
T 21 N, R 21 W, G&SRM, Lake Mead

We have reviewed Mr. Miller's memorandum to the Director, dated September 2, subject as above, with copy of District Park Ranger Wenger's memorandum to Superintendent, dated August 23, reporting on the subject sale and copy of Drawing LM-NRA-7103. The following supplemental observations are for the record.

The attached sketch has been prepared in order to show the relative location of the Katherine Mine property to the Katherine developed area and Katherine cabin site area in the event a conflict should arise. It appears from the sketch that the Katherine Mill site has been submerged in Lake Mohave, and is no longer of value.

The subdivision and sale of the patented mining claims as 80 cabin sites would create the need for a pump site on the Lake shore and pipeline right-of-way to those sites. An approach road also seems necessary. There would also be the one group of vacation home sites under Federal lease, and the 80 cabin sites to which the occupants would have fee simple title. These observations and the sketch, are only offered for consideration.

The potential pollution problem also appears to be very real and important. I assume that most of the claims drain toward the Katherine developed area, and contribute to the flood flows which Mr. Richey was attempting to divert to the south before they reached the Parking area, when I was there last. The quality of those sediment laden flows might become much more objectionable with either the uncontrolled cabin developments or more active mining.


A. Van V. Dunn
Chief, Water Resources Section

Attachment

Copy to: Superintendent, Lake Mead, w/identical attachment
Chief, WODC, w/identical attachment

W O D C	
SEP 26 '60	
CHF	
ADM	
PERS	
P & P	
1101	
SPECS	
CONT	
STY	
AX	
DATE 9/28	
NAME	

L-94

Region Three
Santa Fe, New Mexico

MAY 20 1959

Memorandum

To: Director
From: Acting Regional Chief of Operations
Subject: Water Rights Dockets 12, 13, 14, 15, 16, 17 and 18, Lake Head

Mr. Dunn's memorandum of April 10 transmitting the above numbered dockets arrived while Mr. Fields and Mr. Kell were enroute to Lake Head and for some reason did not arrive in the Regional Office until April 29.

By memorandum of April 24 Park Engineer Blair transmitted copies of the Well Drilling Logs for:

- (a) Katherine, Docket No. 10
- (b) Temple Bar, Docket No. 11
- (c) Willow Beach, Docket No. 14
- (d) Cottonwood Cove, Campground, Docket No. 16

Also supplied was a chemical analysis of the water from each of the above wells.

Copies of each log and analysis have been made and placed in our respective dockets. We have attached copies of each log and analysis for your Washington Office dockets and copies are being supplied to the Western Office of Design and Construction for insertion into the proper dockets.

Messrs. Fields and Kell are at Carlsbad Caverns to initiate installations of weirs and recording devices at Rattlesnake Springs. Any additional comments needed in further reply to Mr. Dunn's memorandum of April 10 must wait their return May 25.

Jerome C. Miller
Acting Regional Chief of Operations

In duplicate w/4 sets attachments

Copy to: Supt., Lake Head w/o attachments
WODC (2) w/4 sets attachments

WESTERN OFFICE DESIGN & CONSTRUCTION	
MAY 25 1959 A.M.	
CHIEF	
ADMIN. ASSIST.	
PLANNING	
DESIGN & CONSTRUCTION	
ARCHITECT	
ENGINEER	
INSPECTION	
LABORATORY	
TRAINING	
RECORDS	
COMMUNICATIONS	
GENERAL	
DATE TAKEN	DATE

August 1958

LAKE MEAD - KATHERINE AREA - IRRIGATION STUDY					
Location	Gross Area	Net Irrigation Area	% of Gross Area to be Irrigated	@ 5 AF/A/an	@ 8 AF/A/an
A. Lecture, picnic & parking area	12.19 acres	7.30 acres	60%	36.50	58.40
B. Concessioner trailer area	8.13 acres	3.70 acres	46%	18.50	29.60
C. Public Camp-ground	8.60 acres	6.45 acres	75%	32.25	51.60
D. Multiple guest units	3.98 acres	1.66 acres	42%	8.30	13.28
E. NPS & Concessioner residence area	3.94 acres	2.90 acres	74%	14.50	23.20
F. NPS Utility area	1.36 acres	1.21 acres	88%	6.05	9.68
G. Lodge site	2.67 acres	1.84 acres	69%	9.20	14.72
H. Overnight units	4.04 acres	2.92 acres	72%	14.60	23.36
TOTAL	44.91 acres	27.98 acres	62%	139.90 AF	223.84 AF

L54-CBL

WRG
C

October 22, 1958

Memorandum

To: Regional Director, Region Three
From: Chief, Water Resources Section
Subject: Water Rights, Dockets 9, 10 and 11, Lake Mead

With copies of this memorandum we are distributing folders for the subject dockets as follows:

Docket No. 9 Boulder Beach

PART I - Domestic Supply
No contents

PART II - Irrigation System
1. Drawing 6979 - Irrigation Study
2. Table with gross and net areas of irrigation and water demand at 5 and 8 AF/Acre/annum

Docket No. 10 Katherine Area

1. Drawing 6980 - Irrigation Study
2. Table with gross and net areas of irrigation and water demand at 5 and 8 AF/Acre/annum
3. Water System Completion Report of 1/24/58

Docket No. 11 Temple Bar Area

1. Drawing 6981 - Irrigation Study
2. Table with gross and net areas of irrigation and water demand at 5 and 8 AF/Acre/annum

Also attached are three extra prints of Drawing 6979, 6980, and 6981. The drawings have been prepared for interim record and study purposes. The extra prints are for you to refer to the office which can supply the corrections and extras needed for water right applications, of which a part will be either in narrative form, or preferably on the standard forms which should be obtained from the State Engineer of Nevada, and Water Division of Arizona Land Department.

As a result of my testimony in Arizona vs. California, we should expedite the filing of water claims. I am also interested in determining the extent to which the ultimate water demand for all areas in each state may agree with or exceed the estimates to which I testified. An unnumbered and undated work order under Account 14X1035 (0343), General Ledger Account 102.4 should be prepared and submitted for approval as soon as engineering personnel can be provided by one of the three offices to whom the dockets are sent.

The first problem is to get the areas located by sections, with ties to section corners, and complete the plans and descriptions of the existing and proposed one or more water systems. These descriptions should include pump units, pump lifts and gradients, and sizes and capacities of the pipelines and any ditches.

We also need the estimated ultimate water demands for domestic, irrigation, and other purposes, with justifications based on permanent and transient population, net irrigated areas and water demand per acres per year of irrigation, and demands for any other purposes which are not included under those two purposes.

The irrigated areas are given by units A, B, C, etc., and the net areas has been determined by deducting roads, buildings and such spaces from the gross outlined areas. I visited the Boulder Beach area just after testifying in May, and decided that I may have been unduly conservative in the irrigation estimates I gave for 1966 and 1975, because I did not realize how much the irrigated area had been developed since my last previous trip. However, the thriving trees also give a deceptive idea of possibly excessive irrigated areas because they hang over the paved areas. If possible, we should tabulate the annual amount of water which has actually been used on the areas which are now under irrigation, and divide the amounts by the portions of net areas which have already been irrigated, to obtain a unit value for the other areas which are not yet developed.

It may be well to have a preliminary exchange of ideas on this program before estimates are completed as work orders. I shall appreciate comments on any other features which come to your mind.

We do not have to consider the municipal supply at Boulder Beach except as the records can supplement the shorter records for the irrigation well.

SIGNED

A. van V. Dunn
Chief, Water Resources Section

Attachments 12

Copy to: Superintendent, Lake Mead, with 3 attachments
Chief, WDC, with 3 attachments

AvVDunn:lct

~~Mr. Dunn~~

10/25

Gordon
what is source
on drawing 2215-A?

(u)
Pumped directly
from L. Mohave
(Davis Dam's Res.)
11/4 LeWR



RECEIVED
Park's Office
NATIONAL PARK SERVICE

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Region Three
Santa Fe, New Mexico

In reply refer to:
L54-L

W R File

1954 OCT 1 AM 8:10

October 1, 1954

Pitts
Dunn

Memorandum

To: Director
From: Regional Engineer
Subject: Proposed Developments, Katherine Area, Lake Mead

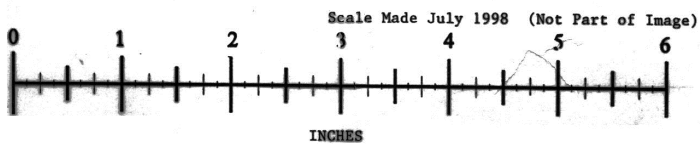
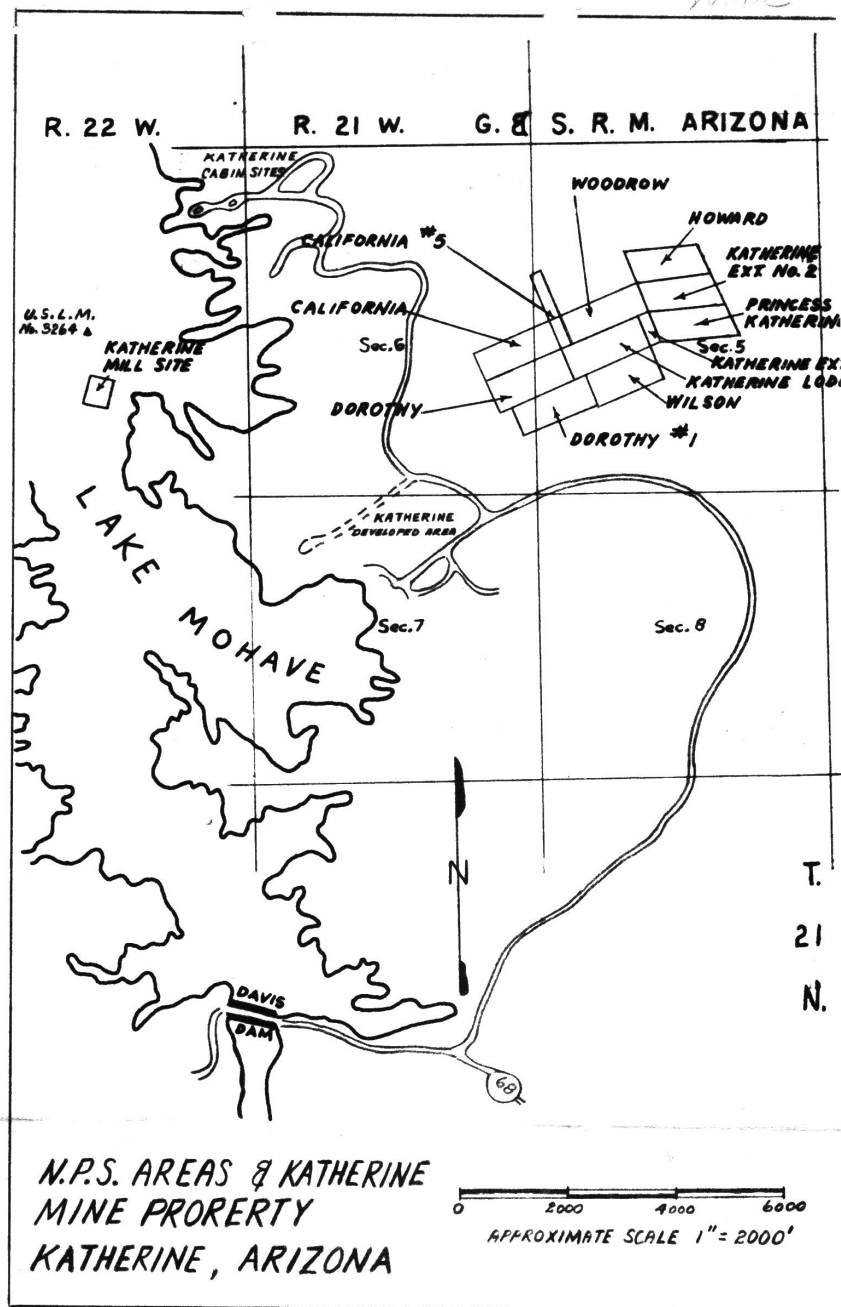
Mr. Dunn's memorandum of September 8 requests information as to the source of water to be used by the concessioner at Katherine Wash for the proposed lodge. Water source for this development will be as shown on Drawing No. 2215-A, Domestic Water System, Katherine Wash.

We will request the superintendent at Lake Mead to advise of any water developments by the cabin site lessees on the Katherine homesite area.

J. R. Lassiter
J. R. Lassiter
Regional Engineer

Copy to: Supt., Lake Mead,
with copy of
Dunn's memo.

LA ME



Docket Information

Number of Documents in Docket 29

Documents Dated from 5/5/1926 to 6/4/1982

Docket Compiled: 6/2/2016