



WATER-RIGHT DOCKET

Mammoth Cave National Park

Docket No: 14

STYX RIVER

Land History

00-00-0000: fixed property record

Form 10-552
(Nov. 1958)

U. S. DEPARTMENT OF THE INTERIOR - NATIONAL PARK SERVICE

FIXED PROPERTY RECORD

DESCRIPTION OF PROPERTY (Include reference to the location within the Park; how the asset was acquired, name of contractor, etc.)

1. Water System: Utility No. 23. Water Storage and Pump House; 10,000 gallons capacity tank. Spring. 262 sq. ft. 350 Lin. Ft. pipe. Located MCNP, Ky. (North District). Acquired and constructed by CCC.
2. Water System: Utility No. 24. Pump House, electric pump, masonry structure, concrete floors. 420 sq. ft. Located Three Springs, Ky. Acquired and constructed by CCC. Utility No. 25. Pump House, electric pump. 420 sq. ft. 280 ft. well, 6" pipe, masonry structure of native sandstone, concrete floors. Springs. Located Bransford Springs, Ky. Acquired and constructed by NPS. (Three Springs and Bransford Springs, altogether - length of pipe 29,340 feet.)
3. Water System: 30,290 ft. of 8, 6, 2" lines. Two 50,000 gallon Reservoirs, concrete; Two 50,000 gallons catch basins, concrete. Located Kentucky. Original system by NPS and CCC.
4. Water System: Snowball Dining Room. 4650 Lin. Ft. 4" Water Line; 255 Lin. Ft. 2" Water Line; 200 Lin. Ft. 1" Water Line. Contractor Clarke Stewart and Wood Co. Contract No. 14-10-121-144. Construction.
5. Water System: Construction: 110 Lin. Ft. of 4" cast iron pipe; 60 Lin. Ft. of 1" plastic pipe; two 4" fire hydrants, two 4" Gate Valves w/boxes; 3 1" Gate Valves w/boxes; 3 1" Corporation Stops. Located Residence Area. Contractor Stuart Construction Company. Cont. No. 14-10-131-411.
6. Water System: 395 Lin. Ft. 2" pipe. Construction. Contractor Clarke, Stewart and Wood, Inc. Unnumbered Contract.
7. Water System: 310 Lin. Ft. of water lines with two fire hydrants added to water system located at residential area. W.O. No. 331.4
8. Water connection at Visitor Center consisting of 120' of 2 1/2" water line, three 3/4" street washers and three outside wall hydrants attached to Visitor Center Building-Glasgow Construction Co., Contract No. 14-10-131-435. And 2 wall type fire hydrants.. one located in the auditorium and the other in the Exhibit Room..each is 1 1/2", no.S-41 seim-automatic hose rack, manufactured by Elkhart Brass Manuf. Co.
9. One water system acquired with Crystal Cave consisting of Fairbanks-Morse plunger type pump, 15 gal. per minute capacity. Depth of well approximately 440' with a 6 7/8" casing. Pump house is of concrete block, concrete floor and steps. House is below ground, and measures 8' x 9' x 8'. 533' of 1" metal pipe to residence and office building, 904' of 3/4" plastic pipe to cook house and bunkhouse and 259' of metal pipe to cookhouse and residence. Located at Flint Ridge Section. *System - Crystal Cave*

*drilled 1948 for early 49,
by Dillingham*

Supporting Hydro Data

3

Statement of Progress on Mammoth Cave Project
July 1-31, 1962

The two recording bubble gages on Green River and in the Cave were maintained in operation as were the staff gages in the Cave and at outlet streams. Monthly water-level recorders were continued in operation on 4 wells; weekly water-level recorders were continued at 8 wells and at the end of Gardner and Little Sinking Creeks. The operation of the weekly chemical quality stations on Green River and Echo River outlet was continued.

Discharge measurements were made on a number of perennial streams tributary to Green River during July. The measurements are as follows:

<u>Stream</u>	<u>Date</u>	<u>Discharge</u> (Cubic feet per second)
Styx River outlet.....	July 24	0.13
Echo River outlet.....	July 24	1.37
Wet Prong Buffalo Creek at Chicken Hollow.....	July 26	1.53
Dog Creek 0.1 mile below Pine Branch.....	July 26	3.10
Dog Creek 0.6 mile below Little Dog Creek.....	July 26	7.42
Bylew Creek 0.1 mile below Jones Branch.....	July 25	1.77
Beaverdam Creek at Rhoda....	July 25	.76

Measurements of flow of The, Bransford, Blair, Adwell, and Cooper Springs were continued in July. Venturi flumes were installed at Blair, Adwell, and Cooper Springs. Measurements were begun in July at Collins and CCC #1 Springs and a flume was installed at Collins Spring on July 10. The following flow measurements were taken:

<u>Spring</u>	<u>Discharge in gallons per minute</u>			
	<u>Date</u>			
	<u>7-3-62</u>	<u>7-10-62</u>	<u>7-18-62</u>	<u>7-25-62</u>
Three Springs.....	20	21	21	18
Bransford.....	1/	1/	1/	1/
Blair.....	13	9	8	2/
Adwell.....	34	26	23	23
Cooper.....	26	18	16	16
Collins.....	--	23	23	23
CCC #1.....	--	4	--	4

1/ Could not measure because well was being pumped into reservoir which also was being pumped.

2/ Pumping from spring to augment supply at Bransford Spring.

Measurements of flow of two streams in Great Onyx Cave on July 25, 1962 were as follows:

Stream on third level..... 0.9 gpm
 Stream cascading into pool on lower level. 2.9 gpm

Profiles obtained from the June survey of the sediment range lines in the cave have been prepared for planimetry. The suspended-sediment concentration of Echo River ranged from 150 to 600 ppm during the March 1 flood. Samples collected by the automatic samplers indicated that the concentration increased as the stage increased during this flood.

Mount 222.1B - Water Systems

Source of Supply	Location	Type of System	Treatment	Length of Pipe Maint. by NPS All sizes-Feet	Annual Consumption M. Gal.	
					NPS	Other
Spring	Three Springs					
Deep Well	Bransford Springs 426 Ft. Bransford Well	Pumped	Chlorinated	33,105	4,665	6,000
Spring	Maple Spring	Pumped	Chlorinated	960	72	
Well	Crystal Cave	Pumped		1,470	150	
Spring	Brooks Knob	Cistern		---	9	
Spring	Hickory Cabin	Cistern		---	9	
Total As of 10/26/61 - 5 Systems				35,535	4,905	6,000

* Includes Four(4) spring intake structures, deep well (426'), two (2) 50,000 Gal. supply reservoirs at springs and two (2) 50,000 gal. storage reservoirs.

Includes-

Pump House - Three Springs 420 Sq. Ft.

Pump House - Bransford Spring 420 Sq. Ft.

Pump House - Maple Spring 265 Sq. Ft.

Water Systems

222.1B

ADDITIONAL RECORDS, SUBJECT TO REVISION

 UNITED STATES DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY
 WATER ANALYSIS

 2GW
 Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
 Source Styx River Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
 Owner National Park Service
 Treatment _____ Use _____
 WBF Ste. Genevieve limestone WL _____ Yield _____
 Temp (°F) 55 Appear. when coll. Clear
 Collected October 18, 1961 By D. V. Whitesides & J. A. Van Couvering
 Remarks Discharge measured.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	156	2.56
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.16	--			
Iron (Fe)			Sulfate (SO ₄)	14	.29
			Chloride (Cl)	9.0	.25
			Fluoride (F)	.2	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	2.8	.04
Sodium (Na)					
Potassium (K)					
Total			Total		3.15

	ppm		
		Specific conductance (micromhos at 25° C)	297
Dissolved solids:		pH	7.4
Sum		Color	
Residue on evaporation at 180°C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	141		
Noncarbonate	13		
			2

Lab. No. Col 25366

Field No. S-1,895.5-311.0

Project

KY GS Q GW

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

26W
Dec. 1953

PROVISIONAL RECORDS, SUBJECT TO REVIEW

Location Mammoth Cave, Kentucky County Edmonson
Source Styx River Depth (ft) _____ Diam (in.) _____
Cased to (ft) _____ Date drilled _____ Point of coll. Outlet
Owner National Park Service
Treatment _____ Use _____
WBF Limestone WL GH: 3.08 Yield 200 GPM flow estimate
Temp (°F) 56 Appear. when coll. Clear
Collected September 27, 1961, 3:40 PM By D. V. Whitesides
Remarks Field chloride 5 ppm.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	153	2.51
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.19	--			
Iron (Fe)			Sulfate (SO ₄)	11	.23
			Chloride (Cl)	8.0	.22
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	4.0	.06
Sodium (Na)					
Potassium (K)					
Total			Total		3.03

	ppm		
		Specific conductance (micromhos at 25° C)	286
Dissolved solids:		pH	7.8
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	139		
Noncarbonate	14		

Lab No. Col 25119 Field No. S-1,895.5-311.0 Project KY GS Q GW

PROVISIONAL RECORDS, SUBJECT TO REVISION

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

2GW

Location Mammoth Cave, Kentucky County Edmonson
 Source River Styx Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
 Owner National Park Service Use _____
 Treatment _____
 WBF Edmonson WL OH: 3.08 Yield _____
 Temp (°F) 57 Appear. when coll. Clear
 Collected August 30, 1961 By R. A. Escher
 Remarks Field chloride 20 ppm

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	152	2.49
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.33	--			
			Sulfate (SO ₄)	11	.23
			Chloride (Cl)	16	.45
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)			Nitrate (NO ₃)	3.5	.06
Sodium (Na)					
Potassium (K)					
Total			Total		3.24

	ppm		
Dissolved solids:		Specific conductance (micromhos at 25° C)	115
Calculated		pH	7.5
Residue on evaporation at 180° C		Color	
Hardness as CaCO ₃	110		
Noncarbonate	16		

Lab. No. Col 24922 Field No. 8-1,895.5-311.0 Project KY MAMMOTH CAVE Q GW

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEYPUBLISHED BY THE GEOLOGICAL SURVEY
SUBJECT TO REVIEW

26W

WATER ANALYSIS

Location Mammoth Cave, Kentucky County Kenton
 Source Styx River Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of coll Outlet
 Owner National Park Service
 Treatment _____ Use Not used
 WBF _____ WL GB: 3.90 Yield _____
 Temp (°F) 53 Appear. when coll. Clear
 Collected July 25, 1961, 5:00 PM By D. V. Whitesides and R. A. Eicher
 Remarks Field chloride 15 ppm. Outflow

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	<u>144</u>	<u>2.3</u>
Aluminum (Al)			Carbonate (CO ₃)	<u>0</u>	<u>.0</u>
Iron (Fe)	<u>0.33</u>	<u>--</u>	Sulfate (SO ₄)	<u>10</u>	<u>.2</u>
			Chloride (Cl)	<u>14</u>	<u>.3</u>
			Fluoride (F)	<u>.1</u>	<u>.01</u>
Calcium (Ca)					
Magnesium (Mg)			Nitrate (NO ₃)	<u>4.8</u>	<u>.08</u>
Sodium (Na)					
Potassium (K)					
Total			Total		

	ppm		
Dissolved solids:		Specific conductance (micromhos at 25° C)	<u>297</u>
Calculated		pH	<u>7.1</u>
Residue on evaporation at 180° C		Color	
Hardness as CaCO ₃	<u>138</u>		
Noncarbonate	<u>20</u>		

Lab. No. Col 24634Field No S-1,895.5-311.0

Project

Ky. Mammoth Cave Q GW

PROVISIONAL REPORT
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

2GW

Location Hammoth Cave, Kentucky County Edmonson
 Source Styx River Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of collection At outlet
 Owner National Park Service
 Treatment _____ Use _____
 WBF Minerals WL GM: 3.60 Yield _____
 Temp (°F) 57 Appear when coli. Clear
 Collected June 26, 1961, 6:40 PM By R. A. Escher
 Remarks Field chloride 15 ppm. Outflow.

	ppm	epm		ppm	epm
<u>Silica (SiO₂)</u>			<u>Bicarbonate (HCO₃)</u>	<u>140</u>	<u>2.29</u>
<u>Aluminum (Al)</u>			<u>Carbonate (CO₃)</u>	<u>0</u>	<u>.00</u>
<u>Iron (Fe)</u>	<u>0.19</u>	<u>--</u>	<u>Sulfate (SO₄)</u>	<u>9.2</u>	<u>.19</u>
			<u>Chloride (Cl)</u>	<u>12</u>	<u>.34</u>
			<u>Fluoride (F)</u>	<u>.0</u>	<u>.00</u>
<u>Calcium (Ca)</u>					
<u>Magnesium (Mg)</u>			<u>Nitrate (NO₃)</u>	<u>2.2</u>	<u>.04</u>
<u>Sodium (Na)</u>					
<u>Potassium (K)</u>					
<u>Total</u>			<u>Total</u>		

	ppm		
<u>Dissolved solids:</u>		<u>Specific conductance</u>	
<u>Calculated</u>		<u>(micro mhos at 25° C)</u>	<u>278</u>
<u>Residue on evaporation at 180° C</u>		<u>pH</u>	<u>7.3</u>
<u>Hardness as CaCO₃</u>		<u>Color</u>	
<u>Noncarbonate</u>	<u>131</u>		
	<u>16</u>		

Lab. No. Col 24630 Field No. 8-1,895.5-311.0 Project Edmonson Cave

PROVISIONAL RECORDS, SUBJECT TO REVIEW

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

2GW
Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
Source Styx River Depth (ft) _____ Diam (in.) _____
Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
Owner National Park Service
Treatment _____ Use _____
WBF Limestone WL GH: 3.34 Yield 300 GPM flow estimate
Temp (°F) 57 Appear. when coll. Clear
Collected May 31, 1961, 6:10 PM By D. V. Whitesides
Remarks Field chloride 35 ppm. Flowing out of cave.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	144	2.36
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.18	—			
Iron (Fe)			Sulfate (SO ₄)	12	.25
			Chloride (Cl)	30	.85
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	2.1	.03
Sodium (Na)					
Potassium (K)					
Total			Total		3.50

	ppm		
		Specific conductance (micromhos at 25° C)	345
Dissolved solids:		pH	7.2
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	138		
Noncarbonate	20		

Lab. No. Col 24401 Field No. SI, 895.5-311.0 Project KY GS Q GW

PROVISIONAL RECORDS, SUBJECT TO REVISION

 UNITED STATES DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY
 WATER ANALYSIS

 2GW
 Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
 Source Styx River Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
 Owner National Park Service
 Treatment _____ Use _____
 WBF Limestone WL GH 13.24 Yield _____
 Temp (°F) 59 ° Appear. when coll. Turbid
 Collected May 4, 1961, 2:30 PM By D. V. Whitesides
 Remarks Field chloride 20 ppm. No flow or possibly flowing into cave very slowly.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	96	1.57
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.16				
Iron (Fe)			Sulfate (SO ₄)	11	.23
			Chloride (Cl)	17	.48
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	2.3	.04
Sodium (Na)					
Potassium (K)					
Total			Total		2.33

	ppm		
		Specific conductance (micromhos at 25° C)	234
Dissolved solids:		pH	7.3
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	107		
Noncarbonate	28		

 Lab. No. Col 24167 Field No. S-1,895.5-311.0 Project KY GS Q GW

PROVISIONAL RECORDS, SUBJECT TO REVISION
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

2GW
Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
Source Styx River Depth (ft) _____ Diam (in.) _____
Cased to (ft) _____ Date drilled _____ Point of coll. Exit of cave
Owner _____
Treatment _____ Use _____
WBF _____ WL _____ Yield _____
Temp (°F) 55 Appear. when coll. slightly turbid
Collected April 13, 1961, 4:00 PM EST By Klingler
Remarks Flow was out of cave

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	124	2.03
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe) a/	0.07	--			
Iron (Fe)			Sulfate (SO ₄)	10	.21
			Chloride (Cl)	2.0	.06
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	3.2	.05
Sodium (Na)					
Potassium (K)					
Total			Total		2.36

	ppm		
		Specific conductance (micromhos at 25° C)	220
Dissolved solids:		pH	8.0
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	113		
Noncarbonate	12		

Lab. No. Col 24040 Field No. _____ Project KY GS Q GW
a/ In solution when analysed.

SIGNAL RECORDS, SUBJECT TO REVISION
26W
Dec. 1953

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

Location Mammoth Cave, Kentucky County Edmonson
 Source Styx River Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
 Owner National Park Service Use None
 Treatment _____
 WBF Limestone WL 14.00 (gage) Yield _____
 Temp (°F) 56 Appear. when coll. Turbid
 Collected April 4, 1961, 1:30 PM By D. V. Whitesides
 Remarks Field chloride 25 ppm. Flowing out of cave very slowly.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	84	1.38
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)					
Iron (Fe)			Sulfate (SO ₄)	14	.29
Total iron (Fe)	0.50	--	Chloride (Cl)	27	.76
			Fluoride (F)	.1	.01
Calcium (Ca)	27	1.35			
Magnesium (Mg)	4.8	.40			
			Nitrate (NO ₃)	1.9	.03
Sodium (Na)					
Potassium (K)					
Total			Total		2.47

	ppm		
		Specific conductance (micromhos at 25° C)	229
Dissolved solids:		pH	7.3
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	88		
Noncarbonate	19		

Lab. No. Col 24214 Field No. S1,895.5-311.0 Project KY GS Q GW

VISIONAL RECORDS, SUBJECT TO REVISION

 UNITED STATES DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY
 WATER ANALYSIS

 2GW
 Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
 Source Styx River spring Depth (ft) _____ Diam (in.) _____
 Cased to (ft) _____ Date drilled _____ Point of coll. Outlet
 Owner National Park Service
 Treatment _____ Use _____
 WBF _____ WL 24.10 ft. Yield _____
 Temp (°F) 55 Appear. when coll. Turbid
 Collected March 9, 1961, 11:30 AM By J. A. Van Couvering
 Remarks River flooding at spring. Flowing out slowly. Field chloride 5 ppm.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	128	2.10
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.14	--			
Iron (Fe)			Sulfate (SO ₄)	7.4	.15
			Chloride (Cl)	2.0	.06
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	4.7	.08
Sodium (Na)					
Potassium (K)					
Total			Total		2.40

	ppm		
		Specific conductance (micromhos at 25° C)	231
Dissolved solids:		pH	7.2
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	115		
Noncarbonate	10		

Lab. No. Col 23820 Field No. S-1,895.5-311.0 Project KY GS Q GW

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

PROVISIONAL RECORDS, SUBJECT TO REVISION

2GW
Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
Source Styx River Depth (ft) _____ Diam (in.) _____
Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
Owner National Park Service
Treatment _____ Use _____
WBF Limestone WL GH 3.38 Yield _____
Temp (°F) 45 Appear. when coll. Clear
Collected February 6, 1961, 1:45 PM By DYW and JAVC
Remarks Field chloride 20 ppm. Flow out, 500 GPM estimated.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	136	2.23
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.06	---			
Iron (Fe)			Sulfate (SO ₄)	11	.23
			Chloride (Cl)	22	.62
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	1.6	.03
Sodium (Na)					
Potassium (K)					
Total			Total		3.12

	ppm		
		Specific conductance (micromhos at 25° C)	311
Dissolved solids:		pH	7.2
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	141		
Noncarbonate	30		

Lab. No. Col 23574 Field No. S-1,895.5-311.0 Project KY GS Q GW

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER ANALYSIS

DIVISIONAL RECORDS, SUBJECT TO REVIEW
26W
Dec. 1953

Location Mammoth Cave, Kentucky County Edmonson
Source Styx River Depth (ft) _____ Diam (in.) _____
Cased to (ft) _____ Date drilled _____ Point of coll. At outlet
Owner National Park Service
Treatment _____ Use _____
WBF Limestone WL GH: 3.62 Yield _____
Temp (°F) 38 Appear. when coll. Clear
Collected January 11, 1961, 9:25 AM By D. V. Whitesides
Remarks Field chloride 75 ppm. No flow. Water surging in and out. 4 es. bottle frozen and broken on arrival.

	ppm	epm		ppm	epm
Silica (SiO ₂)			Bicarbonate (HCO ₃)	124	2.03
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	0.24	—			
Iron (Fe)			Sulfate (SO ₄)	17	.35
			Chloride (Cl)	90	2.54
			Fluoride (F)	.1	.01
Calcium (Ca)					
Magnesium (Mg)					
			Nitrate (NO ₃)	3.0	.05
Sodium (Na)					
Potassium (K)					
Total			Total		4.98

	ppm		
		Specific conductance (micromhos at 25° C)	551
Dissolved solids:		pH	7.5
Sum		Color	
Residue on evaporation at 180° C			
Suspended solids			
Hardness as CaCO ₃ :			
Calcium, magnesium	160		
Noncarbonate	58		

Lab. No. Col 23482 Field No. S-1,895.5-311.0 Project KY GS Q GW

Docket Information

Number of Documents in Docket 16

Documents Dated from 1/11/1961 to 7/15/1962

Docket Compiled: 4/27/2011