



# WATER-RIGHT DOCKET

## Blue Ridge Parkway

Docket No: 40

CUMBERLAND KNOB.

Supporting Hydro Data

00-00-0000: cumberland knob

### Cumberland Knob

The Cumberland Knob (Fig. 8) area is underlain by mica schist, usually well foliated and containing small garnets. The schistose structure strikes about N 40° E and dips to the southeast at an average angle of about 50°. Most exposures of rock in the immediate area are moderately to intensely weathered. Intense weathering predominates, there being few outcrops exposed except in road cuts.

Well foliated schistose rocks are usually excellent aquifers if wells are located either along strike or down dip from extensive areas of ground-water recharge and storage (Ex. in a valley or on a slope where wells may intercept water down dip or along strike from surrounding mountains). Information obtained from 2 local well drillers verify that the rocks underlying the Cumberland Knob area constitute a productive aquifer. Interpretation of well information obtained from these drillers indicates that wells drilled along N. C. highway 18 near the parkway yield upwards of 5 gpm from a maximum depth of less than 150 feet. The wells in the area that approach the above mentioned maximum depth are usually drilled on small hills or ridges. Yields of more than 10 gpm from depths of 50 to 70 feet are reported for wells located in valleys and near the bottom of slopes.

Accordingly, the writer suggests that 1 well, less than 150 feet deep, should yield the required 7½ gpm at Cumberland Knob. A specific well location was not chosen in the area; instead, the general area (Fig. 8) near the bottom of the slope where the parkway crosses N. C. highway 18 is considered a potential test drilling area wherein a well may be located to best serve the proposed facilities.

tank respectively on Wildcat Rock; both are in open pasture and easily accessible. ST-3 and ST-4 are located near the head of draw on the fringe of the compound, drilling at these 2 locations would require access roads to be built. It is the writer's opinion that either ST-1 or ST-2, or both, will supply the desired amount of water if drilled to a maximum depth of less than 200 feet.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
WATER RESOURCES DIVISION

## WATER ANALYSIS

W.R. Lab. No. NC 34472

|                                                                                                      |                        |                                                   |    |
|------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------|----|
| Location <u>Cumberland Knob, Blue Ridge Parkway, N. C. - Allegheny County</u>                        |                        |                                                   |    |
| Field No. <u>CK-1; NC-C-01 (Rev.)</u>                                                                |                        |                                                   |    |
| Drilled well. Depth: <u>115 ft.</u> Diam: <u>5 in.</u> Cased to: <u>17 ft.</u> Drilled: <u>10/61</u> |                        |                                                   |    |
| Source <u>Collected about 105 ft. Owner: NPS. Use: Public supply. WEF: Mica Schist.</u>              |                        |                                                   |    |
| Yield: <u>6 gm.</u> Upper zone cased off after <u>  </u> ple taken.                                  |                        |                                                   |    |
| Date of collection <u>Oct. 19, 1961</u>                                                              |                        |                                                   |    |
| Gage height(ft.) <u>  </u> Discharge(sec. ft.) <u>  </u> Temp.(°F) <u>55</u>                         |                        |                                                   |    |
| (Parts per million)                                                                                  |                        |                                                   |    |
| Silica (SiO <sub>2</sub> ).....                                                                      | 14                     | Carbonate (CO <sub>3</sub> ).....                 | 0  |
| Iron (Fe).....                                                                                       | .02 <u>y</u>           | Bicarbonate (HCO <sub>3</sub> ).....              | 18 |
| Manganese (Mn).....                                                                                  | .05 <u>y</u>           | Sulfate (SO <sub>4</sub> ).....                   | .4 |
| Calcium (Ca).....                                                                                    | 1.9                    | Chloride (Cl).....                                | .6 |
| Magnesium (Mg).....                                                                                  | 1.0                    | Fluoride (F).....                                 | .3 |
| Sodium (Na).....                                                                                     | 2.6                    | Nitrate (NO <sub>3</sub> ).....                   | .2 |
| Potassium (K).....                                                                                   | 1.1                    | Phosphate (PO <sub>4</sub> ).....                 | .0 |
| Aluminum (Al)                                                                                        | .0                     |                                                   |    |
| Lithium (Li)                                                                                         | .0 (parts per million) |                                                   |    |
| Dissolved solids:                                                                                    |                        | Color.....                                        | 5  |
| Sum.....                                                                                             | 31                     | Oxygen consumed:                                  |    |
| Residue upon evapo-<br>ration @ 180°C.....                                                           | 27                     | Unfiltered.....                                   |    |
| Hardness as CaCO <sub>3</sub> .....                                                                  | 3 <u>y</u>             | Filtered.....                                     |    |
| Noncarbonate.....                                                                                    | 0                      |                                                   |    |
| pH.....                                                                                              | 6.3                    | Specific conductance<br>(micromhos at 25 C.)..... | 33 |

y In solution when analyzed.y Includes hardness of all polyvalent cations reported.

Other Supporting Information

BLUE RIDGE PARKWAY

## WATER SYSTEM DATA

AREA Blue Ridge Parkway DATE COLLECTED \_\_\_\_\_ COLLECTED BY \_\_\_\_\_)

1. Name of System: Cumberland Knob
2. Location: State North Carolina County Alleghany General Area HP 217.4  
Reference to permanent landmark \_\_\_\_\_
3. Source of Supply: Well Capacity 6 gpm  
(Well, spring, stream, impoundment, etc.)
4. Type of System: Pumped to storage - Gravity distribution  
(Pumped, gravity, etc.)
5. Treatment: none  
(Filtration, Chlorination, Airation, etc.)
6. Distribution Mains: Size 4" Length 3032'; Size 1" Length 655'  
Size 3" Length 1650'; Size \_\_\_\_\_ Length \_\_\_\_\_  
Size 2" Length 1241'; Size \_\_\_\_\_ Length \_\_\_\_\_
7. Pump Unit: Make Jacuzzi; Type Submersible; Model No. 734A  
Serial No. \_\_\_\_\_; Outlet 2 in.; Inlet 2-1/2 in.  
(Size) (Size)
8. Power Source: Electric Motor: Make Jacuzzi; HP 3/4;  
(Elec., gas, generator)  
Serial No. \_\_\_\_\_; Voltage 230; Amps 6.45;  
RPM 3450; Type \_\_\_\_\_; Phase Single;  
Cycles 60; Others \_\_\_\_\_; Stages \_\_\_\_\_
9. Control: Automatic Time; Manual \_\_\_\_\_;  
(Float, Electrode, Pressure, Time)  
Other \_\_\_\_\_  
(Explain)

New

10. Pump Design: Capacity 322 (Actual)          (Design) gpm  
Head          (Actual)          (Design) ft.  
Monitor Pitless

11. Pump Housing: Type Const.         ;         ; Size           
Underground (Walls)          (Roof)

12. Storage:         ; Type Const. Concrete  
(Pneumatic, elevated, underground, etc.) (concrete, wood, steel)  
Size         ; Capacity 15,000 gal.; Inlet 2850.0 ft. 4 in.  
(Elev.) (Size)  
Outlet 2850.0 ft. 4 in.; Pressure Setting           
(Elev.) (Size) (if pneumatic)

13. Distribution: Water Closets 5; Lavatory 5; Urinal 1;  
Drinking Fountain 5; Hose Bibs 2; Residences         ;  
Other Maint Area         ;  
Nonmetered

14. Metered or nonmetered:         ; No.         ; Size           
        ; No.         ; Size           
        ; No.         ; Size           
1

15. Fire Protection: Fire Hydrants         ; Yard Hydrants         

16. Water Analysis: Temp 55°; SiO<sub>2</sub> 14; Fe .02; Mn .05; Ca 1.9; Mg 1.0;  
Na 2.6; K 1.1; HCO<sub>3</sub> 18; SO<sub>4</sub> .4; Cl .6; NO<sub>3</sub> .2; Dissolved Solids: Sum 31;  
Residue 27; Hardness 9; Color 5; pH 6.3; Specific Conductance 33  
          
          
          
        

17. Condition of System: Good  
(Repairs needed itemize)  
          
          
          
        

Docket Information

Number of Documents in Docket 6

Documents Dated from 10/19/1961 to 10/19/1961

Docket Compiled: 2/8/2011