

September 17, 1975

John F. Wolf, Esq., Chairman
3409 Shepherd Street
Chevy Chase, Maryland 20015

Dr. Richard F. Cole
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. A. Dixon Callihan
Union Carbide Corporation
P. O. Box Y
Oak Ridge, Tennessee 37830

In the Matter of
Carolina Power and Light Company
(H. B. Robinson, Unit No. 2)
Docket No. 50-261

Gentlemen:

Enclosed is the Staff Supplemental Testimony of Singh Bajwa dated September 17, 1975. It consists of one package containing a cover sheet, five pages of question and answer format testimony and 13 pages of attachments numbered 1 through 4B.

Sincerely,

L. Dow Davis
Counsel for NRC Staff

Enclosure

cc (w/ encl.):
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DATE ➤	9/17/75	9/17/75				

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

CAROLINA POWER AND LIGHT COMPANY

(H. B. Robinson, Unit No. 2)

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Docket No. 50-261

SUPPLEMENTAL TESTIMONY BY
SINGH BAJWA, NRC STAFF
ENVIRONMENTAL PROJECT MANAGER

September 17, 1975

TESTIMONY OF SINGH BAJWA

Q. Will you state your name and qualifications?

A. My name is Singh Bajwa, the Environmental Project Manager for the H. B. Robinson Plant. My qualifications are as listed in Attachment 1 to this testimony.

Q. What information have you been able to gather about meteorological conditions in the South Carolina area?

A. I contacted the National Weather Service in Knoxville, Tennessee, which gave me surface weather observations for Florence, S.C. for three years, 1972 through 1974, for the months of June, July and August. These will be introduced as Staff Exhibit 4. With these figures one may judge whether the temperature recordings made by CP&L were taken on days which are representative of the weather generally in that area.

I determined the maximum temperature for each month from 1972 through 1974 and the averages of the maximum and minimum daily temperatures for the same months. My calculations revealed that the maximum temperatures for the Florence, South Carolina area occurred in July of each year. The average maximum temperatures were as follows:

1972

	<u>June</u>	<u>July</u>	<u>August</u>
Max. Daily Temperature	91°F	97°F	95°F
Min. Daily Temperature	50°F	62°F	64°F
Max. Daily Average Temperature	85°F	89°F	88°F
Min. Daily Average Temperature	63°F	70°F	70°F

1973

	<u>June</u>	<u>July</u>	<u>August</u>
Max. Daily Temperature	91°F	97°F	95°F
Min. Daily Temperature	58°F	62°F	63°F
Max. Daily Average Temperature	86°F	89°F	88°F
Min. Daily Average Temperature	68°F	70°F	71°F

1974

	<u>June</u>	<u>July</u>	<u>August</u>
Max. Daily Temperature	102°F	98°F	95°F
Min. Daily Temperature	62°F	65°F	69°F
Max. Daily Average Temperature	88°F	91°F	89°F
Min. Daily Average Temperature	69°F	73°F	74°F

My data on the maximum and minimum daily temperatures for the area revealed that the highest maximum temperature during 1972 through 1974 for the area was recorded on July 22, 1975.

Q. What information do you have on the value of outdoor recreation?

A. One method of evaluation of recreational values is to assign a cost per unit day to a particular activity. The Water Resources Council, in its Establishment of Principles and Standards for Planning contained in 38 Fed. Reg. 24804, September 10, 1973 (Attachment 2), set the value of a recreational day at \$0.75 to \$2.25 per individual.

Q. What information do you have on preferred water temperatures for fish?

A. The Report of the Committee on Water Quality Criteria (April 1, 1968) states on page 42 that:

"a water organism might be able to endure a temperature of 92 to 95 degrees for a few hours but would not be able to do so for a period of days."

Thus, while fish may be occasionally found around the discharge point in Lake Robinson, they would not be able to live there permanently.

Attachment 3 is a list of maximum temperatures not to be exceeded for certain species of fish.

Q. What information do you have on water temperature as it affects recreational use by humans?

A. The Water Encyclopedia published by the Water Information Center in 1970, states on page 338 in table 6-29 the noticeable threshold of water temperature for human beings is 30°C (86°F). That would be the temperature a person starts noticing the warmth of heated water.

That table also states that the limiting temperature threshold (the maximum tolerable temperature for humans) is 50°C (122°F).

Q. Do you have any information on recreational reservoirs in the area?

A. Attachments 4A and 4B are Federal Power Commission reports on cooling reservoirs on the Pee Dee and the Broad Rivers. Each are close to cities with populations of 5,852 to 9,218 people. Each reservoir is approximately the size of Lake Robinson, about 2,250 acres. We believe that the figures contained in these reports would not substantially be in excess of the recreational figures for Lake Robinson had they been compiled.

Q. Do you have any information on the amount of swimming done by citizens of South Carolina or visitors to that state?

A. In the publication "South Carolina Private Outdoor Recreation Systems Plant" dated April 1970, in Table 3-70 on page 3-70, Appendix 3

states that Average Participation Rate for the individuals residing in the state of South Carolina is 10.52 swimming actions per person per year. It also states that Average Participation Rate for the individuals visiting the state of South Carolina is 1.56 swimming actions per person per year.

S. SINGH BAJWAOFFICE OF NUCLEAR REACTOR REGULATIONU. S. NUCLEAR REGULATORY COMMISSIONPROFESSIONAL QUALIFICATIONS

My name is Satwant Singh Bajwa. I am an Environmental Project Manager on the technical staff of Environmental Projects Branch No. 4, Division of Reactor Licensing, Office of Nuclear Reactor Regulation, United States Nuclear Regulatory Commission. In this position, I am responsible for the review, analysis, and evaluation of environmental reports and preparation of NRC Environmental Statements pursuant to 10 CFR Part 51.

I hold a Bachelor of Science degree in Mechanical Engineering from the Howard University, Washington, D. C. (1965), and completed my graduate work for a Master of Science degree, Engineering Administration in 1972 at the George Washington University, Washington, D. C. Completed Faculty of Arts, Punjab University, India, in 1960.

I accepted my present position with the Nuclear Regulatory Commission in February 1975.

From 1973 to February 1975 I was employed as a Supervisory Engineer, Deputy Bureau Chief, Bureau of Air and Water Quality Control, where I was responsible for administering air and water quality control programs, including surveys and studies related to the effect, extent, prevention and control of air and water pollution in the District of Columbia. Programs included investigating air and water pollution discharges; enforcing applicable control regulations, and developing and reviewing environmental impact statements for new pollution sources.

From 1972 to 1973 I worked as Chief, Engineering and Planning Division for the Government of the District of Columbia. I was responsible for planning, developing, directing and coordinating a comprehensive engineering and planning program to control and reduce levels of air and water pollution in the District of Columbia, as required by public laws and regulations.

From 1968 to 1972 I was employed as a Sanitary Engineer, responsible for assisting in developing and administering engineering projects directly related to air pollution control and solid waste management programs for the District of Columbia.

From 1965 to 1967 I was employed as a Mechanical Engineer, responsible for designing small mechanical parts, machine tools and testing equipment. Also worked as a consulting engineer for preparing layouts of industrial buildings.

I am a member of the National Air Pollution Control Association.

may well be looked upon as a freight factor, taking into account projections of the economic growth of the area.

(e) Recreation. As national living standards continue to rise, the average person, with basic needs provided for, uses an increasing percentage of rising real income to satisfy a demand for leisure time and outdoor recreational activities such as swimming, picnicking, boating, hunting, and fishing. With general ownership of automobiles and improvement in highways, travel to distant public recreational areas has become commonplace. Consequently, a large and increasing portion of recreational demand, especially that portion which is water-oriented, is accommodated by development of Federal lands and multi-purpose reservoirs which include specific provision for enhancing recreation activities. This is consistent with the requirements of the Federal Water Projects Recreation Act of 1965 (Public Law 89-72), providing for recreation and fish and wildlife as full and equal partners with all other purposes in Federal water projects.

Where data are available for estimating the value at which various increments of the new traffic could be moved economically, the difference between such values and the charges for transportation by the waterway provides a measure of the estimated beneficial effects attributable to the plan.

For the most part, outdoor recreation is produced publicly and distributed in the absence of a viable market mechanism. While the private provision of recreation opportunities has been increasing in recent years, analysis of recreation needs is conducted in the absence of any substantial amount of feedback from effectively functioning markets to guide the evaluation of publicly produced recreation goods and services. Under these conditions--and based on a with and without analysis--the increase in recreation provided by a plan, since it represents a direct consumption good, may be measured or valued on the basis of simulated willingness to pay. In computing the projected recreation demand, however, the analysis should take explicit account of competition from recreation opportunities within the area of influence of the proposed plan.

There are in existence a number of methods, or approaches, to approximating demand and what people are willing

50

to pay for outdoor recreation. A generalized methodology encompassing the travel-distance approach is set forth below.

(1) An analytical approach relating travel cost to distance. Using marginal travel costs (i.e., variable costs of automobile operation directly related to the number of miles driven) taken as a measure of what people are willing to pay for water-oriented recreation and how price affects use, the relationship between price and per capita attendance can be established for recreation sites and market areas. This relationship, the conventional demand curve having a negative slope, sums up the response of users' demand to alternative prices of the recreational product (or experience). Separate demand curves are constructed to reflect each kind of recreation use, whether day-use travel, camping-use travel, or other. If there is no entrance charge at the project, per capita rates for each distance or travel cost would be consistent with the constructed demand curves.

If a fee is charged, however, the cost to the recreationist would then be equal to the fee plus his travel cost, thus diminishing the per capita use rate. Applying a range of reasonable entrance fee charges to the constructed demand schedules, additional separate day-use and camping-use demand curves for sites are constructed to determine respective attendance which may be expected under such conditions. Following this, initial project year day-use and camping-use values are computed by measuring the area under their respective demand curves. These values can be compared with market projections and existing capacities to determine if actual site demand will materialize. The initial year values are then projected throughout the life of the project consistent with the calculated recreational use predictions. The resultant figures, total values for day-use and camping-use over the life of the project, are separately discounted at the prevailing discount rate established by these standards to obtain average annual equivalent values.

(2) Other approaches. A variety of other approaches may be taken toward the evaluation of recreation goods and services. In general, however, no one method is completely satisfactory to the exclusion of all others. The applicable rule to follow, taking cognizance of the unique circumstances of a particular setting, including the availability of actual market data and experience, is to use that procedure which appears to provide the best measure or expression of willingness to pay by the actual consumer of the recreation good or service provided by the plan.

dology is being further developed, the following schedule of monetary unit values may be used in the preparation of plans.

(3) Simulated prices per recreation day. A single unit value will be assigned per recreation day regardless of whether the user engages in one activity or several. The unit value, however, may reflect both the quality of activity and the degree to which opportunities to engage in a number of activities are provided.

<u>Type of Outdoor Recreation Day</u>	<u>Range of Unit Day Values</u>
General.....	\$0.75-\$2.25
(A recreation day involving primarily those activities attractive to the majority of outdoor recreationists and which generally require the development and maintenance of convenient access and adequate facilities.)	
Specialized.....	3.00- 9.00
(A recreation day involving primarily those activities for which opportunities, in general, are limited, intensity of use is low, and often may involve a large personal expense by the user.)	

Two classes of outdoor recreation days, general and specialized, are differentiated for evaluation purposes. Estimates of total recreation days of use for both categories, when applicable, will be developed.

The general class, constituting the great majority of all recreation activities associated with water projects, embraces the more usual activities, such as swimming, picnicking, boating, and most warm water fishing.

In view of the fewer alternatives available and the likelihood that higher total costs are generally incurred by those engaged in hunting and fishing activities compared with those engaged in other types of outdoor recreation, it may be anticipated that the monetary unit values applicable to fish and wildlife recreation will ordinarily be larger than those applied to other types of recreation.

of a heated effluent into the hypolimnion will be desirable, such practice is not recommended and water for cooling should not be pumped from the hypolimnion to be discharged to the same body of water.

(2) The normal daily and seasonal temperature variations that were present before the addition of heat due to other than natural causes should be maintained.

(3) The recommended maximum temperatures that are not to be exceeded for various species of warm-water fish are given in table III-1.

Cold Water Biota: Because of the large number of trout and salmon waters which have been destroyed, made marginal, or nonproductive, remaining trout and salmon waters must be protected if this resource is to be preserved.

Inland trout streams, headwaters of salmon streams, trout and salmon lakes, and the hypolimnion of lakes and reservoirs containing salmonids and other cold water forms should not be warmed or used for cooling water. No heated effluents should be discharged in the vicinity of spawning areas.

For other types and reaches of cold-water streams, reservoirs and lakes, the following restrictions are recommended:

(1) During any month of the year heat should not be added to a stream in excess of the amount that will raise the temperature of the water more than 5 F (based on the minimum expected flow for that month). In lakes, the temperature of the epilimnion should not be raised more than 3 F by the addition of heat of artificial origin.

(2) The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes should be maintained.

TABLE III-1

[Provisional maximum temperatures recommended as compatible with the well-being of various species of fish and their associated biota]

93 F:	Growth of catfish, gar, white or yellow bass, spotted bass, buffalo, carpsucker, threadfin shad, and gizzard shad.
90 F:	Growth of largemouth bass, drum, bluegill, and crappie.
84 F:	Growth of pike, perch, walleye, smallmouth bass, and sauger.
80 F:	Spawning and egg development of catfish, buffalo, threadfin shad, and gizzard shad.
75 F:	Spawning and egg development of largemouth bass, white and yellow bass, and spotted bass.
68 F:	Growth or migration routes of salmonids and for egg development of perch and smallmouth bass.
55 F:	Spawning and egg development of salmon and trout (other than lake trout).
48 F:	Spawning and egg development of lake trout, walleye, northern pike, sauger, and Atlantic salmon.

Note.—Recommended temperatures for other species, not listed above, may be established if and when necessary information becomes available.

(3) The recommended maximum temperatures that are not to be exceeded for various species of cold-water fish are given in table III-1.

Dissolved Oxygen

The following environmental conditions are considered essential for maintaining native populations of fish and other aquatic life.

(1) For a diversified warm-water biota, including game fish, DO concentration should be above 5 mg/l, assuming normal seasonal and daily variations are above this concentration. Under extreme conditions, however, they may range between 5 and 4 mg/l for short periods during any 24-hour period, provided that the water quality is favorable in all other respects. In stratified lakes, the DO requirements may not apply to the hypolimnion. In shallow unstratified lakes, they should apply to the entire circulation water mass.

These requirements should apply to all waters except administratively established mixing zones. In lakes, such zones must be restricted so as to limit the effect on the biota. In streams, there must be adequate and safe passageways for migrating forms. These must be extensive enough so that the majority of plankton and other drifting organisms are protected (see section on zones of passage).

(2) For the cold-water biota, it is desirable that DO concentrations be at or near saturation. This is especially important in spawning areas where DO levels must not be below 7 mg/l at any time. For good growth and the general well-being of trout, salmon, and their associated biota, DO concentrations should not be below 6 mg/l. Under extreme conditions, they may range between 6 and 5 mg/l for short periods provided the water quality is favorable in all other respects and normal daily and seasonal fluctuations occur. In large streams that have some stratification or that serve principally as migratory routes, DO levels may range between 4 and 5 mg/l for periods up to 6 hours, but should never be below 4 mg/l at any time or place.

(3) DO levels in the hypolimnion of oligotrophic small inland lakes and in large lakes should not be lowered below 6 mg/l at any time due to the addition of oxygen-demanding waste or other materials.

Carbon Dioxide

According to our present knowledge of the subject, it is recommended that the "free" carbon dioxide concentration should not exceed 25 mg/l.

Oil

Oil or petrochemicals should not be added in such quantities to the receiving waters that they will—

FEDERAL POWER COMMISSION
Washington D.C., 20426Form Approved
OMB No. 54-26093

LICENSED PROJECTS RECREATION REPORT

INSTRUCTIONS - Licensee shall complete this form in triplicate for each development of each project as applicable. Submit the original and two copies, together with maps of project area and copies of agreements on recreation, to the appropriate Regional Office. If this is an initial filing, fill in all items. If this is a second or later filing, complete the form only as necessary to identify the project (Part I) on each page and to correct or update the information supplied in a previous filing and sign. NOTE: Read attached instructions before completing this form.

FOR FPC USE ONLY		B. DATE OF SUBMISSION
A. DEVELOPMENT SYMBOL		4-4-74
C. FPC PROJECT NO.	D. TYPE (Check one)	
2206	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	
E. REPORT NUMBER		F. REGIONAL OFFICE
4		Atlanta, Ga.

PART 1 - IDENTIFICATION

G. PROJECT NAME	H. DEVELOPMENT NAME
Yadkin - Pee Dee River	Blewett Hydroelectric Development
I. NAME OF OWNER(S)	
Carolina Power & Light Company	

PART 2 - LOCATION AND POPULATION (ZONES OF PROJECT DEVELOPMENT INFLUENCE)

A. MAJOR STREAM ON WHICH PROJECT IS LOCATED.		D. DIRECTION: (1) SE AND	
Pee Dee River		AIR MILES: (2) 8 TO	
B. STATE(S)	C. NAME & POP. OF NEAREST CITY (Over 2,500)	NEAREST CITY; (3) OR CHECK <input type="checkbox"/> IF PROJECT IS IN OR ADJUTS CITY.	
North Carolina 37	Rockingham, N.C. 5,852 (1970)		
E. NAME AND POP. OF NEAREST LARGE CITY (Over 10,000)	F. EST. POP. WITHIN 50 AIR MILES OF DEVELOPMENT	G. EST. POP. WITHIN 100 AIR MILES OF DEVELOPMENT	
Albemarle NC 11,126 (1970)	575,000 (1970)	3,670,000 (1970)	
H. LOCATION OF CENTER OF PROJECT DEVELOPMENT			
NORTH LATITUDE		WEST LONGITUDE	
(1) Degrees 35	(2) Minutes 01	(3) Degrees 79	(4) Minutes 54

PART 3 - FEATURES AFFECTING RECREATIONAL USE

A. RESERVOIR SIZE (In Acres)	B. SHORELINE (In Miles)	C. PERCENT OF SHORELINE SUITABLE FOR ACCESS & USE
2,560	27	50% (see part 9-A)
D. RECREATION SEASON POOL ELEVATION (In Feet, Msl)		E. MAXIMUM ANNUAL POOL FLUCTUATION (In Feet, Msl)
(1) Normal 178'	(2) High 180'	(1) From 180'
(3) Low 172		(2) Down to 172'
F. WATER QUALITY (Check appropriate box and describe)		
<input checked="" type="checkbox"/> (1) Unpolluted and suitable for all recreational uses. <input type="checkbox"/> (2) Polluted but suitable for some recreational uses. <input type="checkbox"/> (3) Polluted and unsuitable for any recreational uses.		
Description: No known appreciable industrial or sewage pollution, only normal soil erosion. Suitable for swimming. Fish: Bream, Bass, crappie catfish, gar and other fresh water species.		
G. TYPES OF LAND AND TERRAIN: (Enter in below boxes code numbers 1, 2 or 3 as per attached instructions)		
(1) LAND (Rank up to 3)		(2) TERRAIN (Rank up to 2)
(a) <input type="checkbox"/> Beach (d) <input checked="" type="checkbox"/> 2 Brushy (f) <input type="checkbox"/> Swampy (i) <input checked="" type="checkbox"/> 3 Cropland	(a) <input type="checkbox"/> Flat (c) <input checked="" type="checkbox"/> 1 Hilly	
(b) <input type="checkbox"/> Cleared (e) <input checked="" type="checkbox"/> 1 Wooded (g) <input type="checkbox"/> Desert (j) <input type="checkbox"/> Residential	(b) <input checked="" type="checkbox"/> 2 Rolling (d) <input type="checkbox"/> Mountainous	
(c) <input type="checkbox"/> Other: (Describe)	(h) <input type="checkbox"/> Grassland (k) <input type="checkbox"/> Commercial	

H. DESCRIBE BELOW IF APPLICABLE, (1) THE RESERVOIR OPERATION DURING THE RECREATION SEASON; (2) THE ACCESSIBILITY OF PROJECT DEVELOPMENT; (3) THE AREA CLIMATE; AND (4) OTHER NEARBY RECREATION AREAS AVAILABLE.

- Dam has uncontrolled spillway. Normally the lake level is within about three feet of full.
- Access available. See Exhibit No. 1 map.
- Normal area climate is temperate and permits full seasonal use.
- Reservoirs: Tillery, Falls, Narrows, Tuckertown, High Rock, Lake Norman, and mountain Lake; land areas: Uwharrie National Forest, N. C. Sandhills Recreational Area, Town Creek Indian Mound, Gaddy's Goose Refuge, Cheraw State Park, Pee Dee National Wildlife Refuge.

J. LENGTH OF RECREATION SEASONS (In days):	
(1) SUMMER	200
(2) WINTER	0
(3) TOTAL	200

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LICENSED PROJECTS RECREATION REPORT (Cont'd)		PAGE 2	
FOR FPC USE ONLY		PROJECT NUMBER 2206	DATE OF SUBMISSION 4-4-74
DEVELOPMENT SYMBOL A	PROJECT NAME Yadkin Pee Dee River	DEVELOPMENT NAME Blewett Hydro. Dev.	REPORT NO. 4

PART 4 - PROJECT LAND AND WATER, CONTROL AND MANAGEMENT

A. TYPE OF SHORELINE CONTROL (List acreage of project development above normal pool elevation by type)

(1) Fee Simple 600 ± acres	(2) Easement Flood only. No access	(3) Lease	(4) Other (Specify)
-------------------------------	---------------------------------------	-----------	---------------------

(5) Land and Water Control on 500 acres
Licensee owns in fee 82% of the reservoir maintenance strip, the outside boundary line of which is 11.0 feet in elevation above the normal operating elevation of the reservoir. Owners of adjoining lots or larger parcels of land may use the adjacent strip for access to the reservoir at no cost. No permits are required, or charges made, for hunting, fishing or boating.

B. GIVE NAMES AND ADDRESSES OF COOPERATING AGENCIES.
(Check (✓) type of agency and nature of cooperation in appropriate columns and attach sample copies (if available) of each type of cooperative agreement or lease). NAMES AND ADDRESSES OF AGENCIES

	TYPE OF AGENCY							COOPERATION		
	Federal	State	County	Township	Municipality	Private	Others	Planning	Development	Management
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
(1) N. C. Wildlife Resources Commission Raleigh, N.C. (see Exhibit No. 2)		X						X	X +	X
(2) Two leases to individuals for lots (see Ex. No. 3)						X				
(3) One lease to Anson County Law Enforcement Association							X	X	X	X
(4)										
(5)										

C. GIVE HERE TOTAL NUMBER OF PERMITS, LEASES AND DEEDS ISSUED FOR: (1) YEAR AROUND HOMES ____; (2) SEASONAL COTTAGES 3; (3) CAMPSITES ____; AND (4) TOTAL 3. (Attach sample of each type.)

D. TYPES OF RECREATION FEES AND RANGE OF CHARGES IN PROJECT. (Check appropriate box(es). For Additional space use separate sheets.)

☐ (1) Admission or Entrance Fees ☒ (2) User Fees (for land) ☒ (3) No Fees charged

List type of service, activity or facility and the amount (or range) charged user (or groups), per unit of time: 50¢ per foot per year for lots (\$50.00 minimum per year) for private use, see Exhibit No. 3. This is full size lots including water front. No charges made to Governmental Agencies. No charges made or permits required for hunting, fishing, or boating.

PART 5 - PUBLIC USE (See page 4 attached instructions)

ESTIMATED USE OF EXISTING OR INITIAL AND ULTIMATE RECREATION AREAS AND FACILITIES AT DEVELOPMENT

NUMBER OF ANNUAL VISITATIONS (In Thousands)						NUMBER OF VISITORS ON AVG. PEAK WEEKEND DAY (In Hundreds)					
A. PRESENT OR B. INITIAL				C. ULTIMATE		D. PRESENT OR E. INITIAL				F. ULTIMATE	
Day	Overnight	Day	Overnight	Day	Overnight	Day	Overnight	Day	Overnight	Day	Overnight
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
25	None			50	none	10	0			20	0

PART 6 - ECONOMICS

TOTAL RECREATION COSTS IN THIS DEVELOPMENT		E. TOTAL DEVELOPMENT INVESTMENT (Incl. Recreation) (301 - 399)
A. LAND AND LAND RIGHTS (330) None purchased nor \$ used for recreation initially	B. STRUCTURES, IMPROVEMENTS AND EQUIPMENT (331, 332, 335) \$.00	\$ 3,818,483
C. GROSS RECREATION INVESTMENT (A+B) \$.00	D. ANNUAL OPERATING EXPENSES (537, 545) \$.00	F. TOTAL ANNUAL REVENUES FROM ALL RECREATIONAL USES (456) \$ 145.00

LICENSED PROJECTS RECREATION REPORT (Cont'd)		PAGE 3	
FOR FPC USE ONLY	FPC PROJECT NUMBER 2206	DATE OF SUBMISSION 4-4-74	REPORT NO.
DEVELOPMENT SYMBOL A	PROJECT NAME Yakin-Pee Dee River	DEVELOPMENT NAME Blewett Hydro. Dev.	4

PART 7 - RECREATION FACILITIES IN THE PROJECT PROVIDED OR PLANNED (Locate on map to be attached)
(See page 5 attached instructions)

TYPE	USE: CAPACITY (+ or -) Percent	NUMBER OF FACILITIES						TOTALS (By Unit of Measurement)		
		EXISTING OR INITIAL				ULTIMATE		EXISTING OR INITIAL	ULTIMATE	UNITS
		Free	User Fee	Free	User Fee	Free	User Fee			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A. RESERVOIR ACCESS FACILITIES AND AREAS	+10%	5				5				
B. ROAT RAMPS	-10%	2				2				
C. CANOE PORTAGES	*									Canoe Trail Water Miles
D. FISHING PIERS & BARGES	-100%									
E. BATHING AREAS	*									Acres
F. MARINAS	-100%									
G. HIKING & RIDING TRAILS	*									Miles
H. PLAYGROUND AREAS	*									Acres
I. PICNIC AREAS	-100%									Acres
J. TABLES	*									
K. CAMPING AREAS	-100%									Acres
L. GROUP CAMPS	*									
M. TENT SITES	-100%									
N. TRAILER SPACES	-100%									
O. VISITOR CENTERS	*									
P. OTHER (Specify)										
Q. Water front jobs		8								* No apparent demand

R. LIST HERE, ANY RECREATION DEVELOPMENT OR FACILITIES LISTED IN COLUMNS (5), (6), OR (8) ABOVE, WHICH ARE PLANNED FOR COMPLETION WITHIN THE NEXT TWO YEARS, TOGETHER WITH THE NAMES OF COOPERATING AGENCIES.

LICENSED PROJECTS RECREATION REPORT (Cont'd)		PAGE 4
FOR FPC USE ONLY	FPC PROJECT NUMBER 2206	DATE OF SUBMISSION 4-4-74
DEVELOPMENT SYMBOL A	PROJECT NAME Yadkin-Pee Dee River	REPORT NO. 4
		DEVELOPMENT NAME Blewett Hydro. Dev.

PART 8 - SAFETY AND SANITATION (Check either a Yes or No box for each question)

A. ARE THERE CONDITIONS ON PROJECT LANDS OR WATERS THAT MAKE THEIR USE FOR RECREATION HAZARDOUS ?

☒ YES ☐ NO (If Yes, Describe)

Danger Zone: near spillway - also near intake to plant. Stumps were not removed when reservoir was cleaned and are a hazard in shallow water and other low water

B. ARE COMFORT STATIONS (REST ROOMS) PROVIDED ?

☐ YES ☒ NO (If No, give reason) periods

DO THEY MEET LOCAL STANDARDS?

☐ YES ☐ NO (If No, give reason)

No facilities provided by licensee that require comfort stations.

C. ARE WASTE AND SANITARY DISPOSAL FEATURES PROVIDED ? ☐ YES ☒ NO (If No, give reason)

No facilities provided by licensee that require waste and sanitary disposal systems

IF YES, DO THEY MEET LOCAL REQUIREMENTS? ☐ YES ☐ NO (If No, give reason)

DO THESE INCLUDE FACILITIES FOR RECEIVING SEWAGE WASTES FROM BOATS? ☐ YES ☒ NO (If No, give reason)

D. IS DRINKING WATER PROVIDED ? ☐ YES ☒ NO (If No, give reason)

No facilities provided by licensee that require drinking water.

PART 9 - LAND BASED FACILITIES ADJOINING PROJECT LANDS, OWNED AND OPERATED BY OTHERS, WHICH PROVIDE A PUBLIC SERVICE OR INVOLVE ACCESS TO, OR RECREATIONAL USE OF, DEVELOPMENT LANDS AND WATER.

TYPE	NUMBER	TYPE	NUMBER
A. MOTELS OR RENTAL CABINS	0	B. LODGES OR HOTELS	0
C. TRAILER PARKS	0	D. FISHING CAMPS	0
E. ORGANIZATIONAL CAMPS	0	F. RESIDENCES (Year-round use)	0
G. COTTAGES (Seasonal use)	2	H. PRIVATE CLUBS (Related to outdoor recreation)	0
I. PARKS (Specify Type)	0	K. GUEST RANCHES	0
J. WILDLIFE REFUGES OR HUNTING PRESERVES	0	L. AIRFIELDS	0
L. MARINAS	0	O. HIKING AND RIDING TRAILS	0
N. BATHING AREAS	0	Q. PICNIC AREAS	0
P. BOAT RAMPS	1	S. VISITOR CENTERS	0
R. CAMPING AREAS	0	U. FOOD SERVICE	0
T. GOLF COURSES	0	W.	
V. OTHER (Specify)			

PART 9 - OTHER FEATURES

A. DO PROJECT WATERS PROVIDE TROUT(1)☐; WARMWATER(2)☒; OR OTHER(3)☒ FISHING? (Check one or more. If none is checked it is assumed that project waters do not support any sport fishing).

B. DOES THE PROJECT PROVIDE OPPORTUNITY FOR HUNTING?(1)☒ YES;(2)☐ NO. IF YES, IS THIS FOR WATERFOWL(3)☒; UPLAND GAME BIRDS(4)☒; OTHER SMALL GAME(5)☒; OR BIG GAME(6)☒. (Check one or more.)

C. OTHER

SIGNATURE OF PERSON MAKING REPORT	TITLE	DATE
	Executive Vice President	April 4, 1974

LICENSED PROJECTS RECREATION REPORT

INSTRUCTIONS - Licensee shall complete this form in triplicate for each development of each project as applicable. Submit the original and two copies, together with maps of project area and copies of agreements on recreation, to the appropriate Regional Office. If this is an initial filing, fill in all items. If this is a second or later filing, complete the form only as necessary to identify the project (Part I) on each page and to correct or update the information supplied in a previous filing and sign. NOTE: Read attached instructions before completing this form.		FOR FPC USE ONLY		D. DATE OF SUBMISSION	
		A. DEVELOPMENT SYMBOL		Nov. 1973	
		C. FPC PROJECT NO.		D. TYPE (Check one)	
		1894		<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	
E. REPORT NUMBER		F. REGIONAL OFFICE			
4		Atlanta			
PART 1 - IDENTIFICATION					
G. PROJECT NAME		H. DEVELOPMENT NAME			
Parr Hydro					
J. NAME OF OWNER(S)					
South Carolina Electric and Gas Company 7460 P					
PART 2 - LOCATION AND POPULATION (ZONES OF PROJECT DEVELOPMENT INFLUENCE)					
A. MAJOR STREAM ON WHICH PROJECT IS LOCATED.		D. DIRECTION: (1) WNW AND AIR MILES: (2) 16 TO			
Broad River		NEAREST CITY; (3) OR CHECK <input type="checkbox"/> IF PROJECT IS IN OR ADJUTS CITY.			
B. STATE(S)		C. NAME & POP. OF NEAREST CITY (Over 2,500)			
South Carolina 45		Newberry 9,218			
E. NAME AND POP. OF NEAREST LARGE CITY (Over 10,000)		F. EST. POP. WITHIN 50 AIR MILES OF DEVELOPMENT			
Cola. 122,000		695,000			
G. EST. POP. WITHIN 100 AIR MILES OF DEVELOPMENT		2,715,000			
H. LOCATION OF CENTER OF PROJECT DEVELOPMENT					
NORTH LATITUDE		WEST LONGITUDE			
(1) Degrees 33°	(2) Minutes 16'	(3) Degrees 81°	(4) Minutes 20'		
PART 3 - FEATURES AFFECTING RECREATIONAL USE					
A. RESERVOIR SIZE (In Acres)		B. SHORELINE (In Miles)		C. PERCENT OF SHORELINE SUITABLE FOR ACCESS & USE	
2925		48		20	
D. RECREATION SEASON POOL ELEVATION (In Feet, Msl)			E. MAXIMUM ANNUAL POOL FLUCTUATION (In Feet, Msl)		
(1) Normal 257.2	(2) High 258.2	(3) Low 256.2	(1) From 264.0	(2) Down to 256.0	
F. WATER QUALITY (Check appropriate box and describe)			Description:		
<input checked="" type="checkbox"/> (1) Unpolluted <input type="checkbox"/> (2) Polluted but suitable for some recreational uses. <input type="checkbox"/> (3) Polluted and unsuitable for any recreational uses.			Water is muddy - not suitable for swimming or skiing - some game fish.		
G. TYPES OF LAND AND TERRAIN: (Enter in below boxes code numbers 1, 2 or 3 as per attached instructions)					
(1) LAND (Rank up to 3)			(2) TERRAIN (Rank up to 2)		
(a) <input type="checkbox"/> Beach	(d) <input checked="" type="checkbox"/> 2 Brushy	(f) <input type="checkbox"/> Swampy	(i) <input type="checkbox"/> Cropland	(a) <input type="checkbox"/> Flat	(c) <input checked="" type="checkbox"/> 1 Hilly
(b) <input checked="" type="checkbox"/> 3 Cleared	(e) <input checked="" type="checkbox"/> 1 Wooded	(g) <input type="checkbox"/> Desert	(j) <input type="checkbox"/> Residential	(b) <input checked="" type="checkbox"/> 2 Rolling	(d) <input type="checkbox"/> Mountainous
(c) <input type="checkbox"/> Other: (Describe)	(h) <input type="checkbox"/> Grassland	(k) <input type="checkbox"/> Commercial			
H. DESCRIBE BELOW IF APPLICABLE, (1) THE RESERVOIR OPERATION DURING THE RECREATION SEASON; (2) THE ACCESSIBILITY OF PROJECT DEVELOPMENT; (3) THE AREA CLIMATE; AND (4) OTHER NEARBY RECREATION AREAS AVAILABLE.					
1. Operated as run-of-river plant. Plant loaded during peak hour if needed. Reservoir normally pulled one foot during adverse water periods.					
2. See Map					
3. No element of climate adversely affects recreation during period May-September.					
4. Lake Murray, Lake Greenwood, Lake Wateree.					
J. LENGTH OF RECREATION SEASONS (In days):					
(1) SUMMER 150					
(2) WINTER 50					
(3) TOTAL 200					

LICENSED PROJECTS RECREATION REPORT (Continued)		PAGE 2	
FOR FPC USE ONLY		PROJECT NUMBER 1894	DATE OF SUBMISSION Nov. 1973
DEVELOPMENT SYMBOL A	PROJECT NAME Parr Hydro	DEVELOPMENT NAME	REPORT NO. 4

PART 4 - PROJECT LAND AND WATER, CONTROL AND MANAGEMENT

A. TYPE OF SHORELINE CONTROL (List acreage of project development above normal pool elevation by type)

(1) Fee Simple 119	(2) Easement 0	(3) Lease 0	(4) Other (Specify) 0
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(5) Land and Water Control policy:

Land open to public.

B. GIVE NAMES AND ADDRESSES OF COOPERATING AGENCIES. (Check (✓) type of agency and nature of cooperation in appropriate columns and attach sample copies (if available) of each type of cooperative agreement or lease). NAMES AND ADDRESSES OF AGENCIES

- (1) S. C. Wildlife & Marine Resources Dept.
Columbia, S. C.
- (2) U. S. Forest Service
- (3)
- (4)
- (5)

TYPE OF AGENCY

COOPERATION

	Federal	State	County	Town-ship	Municipality	Private	Others	Planning	Development	Management
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
(1)		X						X		X
(2)	X							X		
(3)										
(4)										
(5)										

C. GIVE HERE TOTAL NUMBER OF PERMITS, LEASES AND DEEDS ISSUED FOR: (1) YEAR AROUND HOMES 0; (2) SEASONAL COTTAGES 0; (3) CAMPSITES 0; AND (4) TOTAL 0. (Attach sample of each type.)

D. TYPES OF RECREATION FEES AND RANGE OF CHARGES IN PROJECT. (Check appropriate box(es). For Additional space use separate sheets.)

☐ (1) Admission or Entrance Fees ☐ (2) User Fees ☒ (3) No Fees charged

List type of service, activity or facility and the amount (or range) charged user (or groups), per unit of time:

PART 5 - PUBLIC USE (See page 4 attached instructions)

ESTIMATED USE OF EXISTING OR INITIAL AND ULTIMATE RECREATION AREAS AND FACILITIES AT DEVELOPMENT

NUMBER OF ANNUAL VISITATIONS (In Thousands)						NUMBER OF VISITORS ON AVG. PEAK WEEKEND DAY (In Hundreds)					
A. PRESENT OR B. INITIAL				C. ULTIMATE		D. PRESENT OR E. INITIAL				F. ULTIMATE	
Day	Over-night	Day	Over-night	Day	Overnight	Day	Over-night	Day	Over-night	Day	Overnight
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
.510	0			.5	0	1	0			1	0

PART 6 - ECONOMICS

TOTAL RECREATION COSTS IN THIS DEVELOPMENT		E. TOTAL DEVELOPMENT INVESTMENT (Incl. Recreation) (301 - 399)
A. LAND AND LAND RIGHTS (330) \$ None	B. STRUCTURES, IMPROVEMENTS AND EQUIPMENT (331, 332, 335) \$ 1,400	\$ 2,872,855
C. GROSS RECREATION INVESTMENT (A+B) \$ 1,400	D. ANNUAL OPERATING EXPENSES (337, 345) \$ None	F. TOTAL ANNUAL REVENUES FROM ALL RECREATIONAL USES (456) \$ None

LICENSED PROJECTS RECREATION REPORT (Cont'd)		PAGE 3	
FOR FPC USE ONLY		FPC PROJECT NUMBER	DATE OF SUBMISSION
		1894	Nov. 1973
DEVELOPMENT SYMBOL	PROJECT NAME	DEVELOPMENT NAME	
A	Parr Hydro		
REPORT NO. 4			

PART 7 - RECREATION FACILITIES IN THE PROJECT PROVIDED OR PLANNED (Locate on map to be attached)
(See page 5 attached instructions)

TYPE	USE: CAPACITY (+ or -) Percent	NUMBER OF FACILITIES						TOTALS (By Unit of Measurement)		
		EXISTING OR INITIAL				ULTIMATE		EXISTING OR INITIAL	ULTIMATE	UNITS
		Free	User Fee	Free	User Fee	Free	User-Fee			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A. RESERVOIR ACCESS FACILITIES AND AREAS	+10	1	0			1	0			
B. BOAT RAMPS	-10	0	0			1	0			
C. CANOE PORTAGES		0	0			0	0	0	0	Canoe Trail Water Miles
D. FISHING PIERS & BARGES		0	0			0	0			
E. BATHING AREAS		0	0			0	0	0	0	Acres
F. MARINAS		0	0			0	0			
G. HIKING & RIDING TRAILS		0	0			0	0	0	0	Miles
H. PLAYGROUND AREAS		0	0			0	0	0	0	Acres
I. PICNIC AREAS		0	0			1	0	0	1	Acres
J. TABLES		0	0			15	0			
K. CAMPING AREAS		0	0			0	0	0	0	Acres
L. GROUP CAMPS		0	0			0	0			
M. TENT SITES		0	0			0	0			
N. TRAILER SPACES		0	0			0	0			
O. VISITOR CENTERS		0	0			0	0			
P. OTHER (Specify)										
Q.										

R. LIST HERE, ANY RECREATION DEVELOPMENT OR FACILITIES LISTED IN COLUMNS (5), (6), OR (8) ABOVE, WHICH ARE PLANNED FOR COMPLETION WITHIN THE NEXT TWO YEARS, TOGETHER WITH THE NAMES OF COOPERATING AGENCIES.

At present, an application has been filed with the FPC for a License to Construct a Pumped Storage Facility on the Parr Reservoir. If application is approved, this Report will be void. The Parr Project is presently operating on an annual license.

