APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

Project Name: Smith Mountain Project

FERC NO.: 2210

A. APPLICATION

1. Application Type: Application for Amendment of Order Approving Non-Project Use of Project Lands and Waters: Water Withdraw Increase Issued October 10, 2008

2. Applicant: Appalachian Power Company

3. Water Body: Smith Mountain Lake

4. Nearest Town: Bedford

5. County: Bedford

6. State: Virginia

B. PURPOSE AND NEED

Appalachian Power Company (Appalachian), licensee for the Smith Mountain Project (Project), seeks to obtain authorization from the Federal Energy Regulatory Commission (Commission) to grant permission to Bedford Regional Water Authority (BRWA) to increase its withdrawals of water from Smith Mountain Lake for domestic purposes from the current approved maximum daily rate of 2.999 MGD to a maximum daily rate of 12 MGD. Under the conditions of Order Approving Non-Project Use of Project Lands and Waters: Water Withdraw Increase issued October 10, 2008 for the Smith Mountain Project by the Commission, Appalachian granted permission for the Bedford County Public Service Authority (BCPSA) to withdraw water at aforementioned rates from Smith Mountain Lake. Since the issuance of the October 10, 2008 Order, the BCPSA has been replaced by the BRWA due to the city designation for Bedford, Virginia being changed to a town. That change in designation resulted in the water supply systems for the former city and that for Bedford County being combined to form the BRWA. All

agreements between Appalachian and BCPSA regarding the withdrawal of water for domestic purposes from Smith Mountain Lake remain in effect and have been transferred to BRWA. Growth in the area serviced by BRWA has resulted in the identification of the need to expand water withdrawal capabilities for BRWA. The additional withdrawal of water by BRWA will be accomplished under the conditions of the existing agreements between BRWA and Appalachian as modified to accommodate the expanded rates of water withdrawal.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Proposed Action

Appalachian proposes to grant permission to BRWA to install two thirty inch diameter raw water intake pipes and associated forty-eight inch diameter intake screens within the project boundary for the Smith Mountain Project. The proposed intake pipes will replace the existing twelve inch diameter intake pipe and intake screen located in the same vicinity. The proposed intake pipes will provide raw water to a pump station located adjacent to the location for the intake pipes and outside of the project boundary. The raw water pump station, as well as the proposed intake pipes, are to be located on Lakewood Drive, south of High Point Road and west of State Route 654 in Bedford County, Virginia which is the same location for the existing intake pipe and structure. The location for the proposed intake is shown on the figures attached to this Environmental Assessment (EA).

A preliminary plan and cross-section of the proposed intake pipes is presented on Figure No.2 attached as part of this EA. As depicted, the proposed intake pipes are to be located within approximately seventy-five feet of the existing intake pipe and are planned to extend from the 800 foot contour approximately 100 to 125 feet into Smith Mountain Lake. The upper intake is to be at elevation 780 feet NGVD while the lower intake is to be at elevation 772 NGVD. The intake screens are to be designed so the screen openings are not wider than one millimeter, are to be located in excess of four feet above the lake bottom, and have a minimum through screen intake velocity equal or less than 0.50 feet per second.

2. Action Alternatives

As stated in the "Fact Sheet" included in the attachments to this EA and prepared as part of the Draft Modification of Virginia Water Protection (VWP) Individual Permit 96-0707 for the proposed work (also attached to this EA), various alternatives to the installation of the proposed intake pipes were considered. From the assessments made, the determination of the Virginia Department of Environmental Quality (VDEQ) is that the proposed action presents the best option.

3. No-Action Alternative

Should the Commission choose to deny the request, BRWA would be required to obtain water from other sources that have been identified as being less attractive.

D. CONSULTATION

1. Agency Consultation

As part of the review process related to the application for the Modified VWP Individual Permit, comments were requested by VDEQ from the following State agencies: Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Department of Conservation and Recreation (VDCR), Virginia Department of Health (VDH), and Virginia Marine Resources Commission (VMRC). The comments received by VDEQ from the listed agencies are summarized in the draft VWP Individual Permit "Fact Sheet" included as part of this EA.

Information was requested by the U.S. Army Corps of Engineers (USCOE) from BRWA. Responses to the questions raised by USCOE prepared on behalf of BRWA are included also in the Draft Modification of VWP Individual Permit "Fact Sheet".

As part of the filing to the Commission for approval of BRWA's proposal, consultations with agencies and other stakeholders will be expanded to include the U.S. Fish and Wildlife Service (FWS), local governments representing both project and downstream interests, and non-governmental organizations also representing project and downstream interests.

2. Public Notice

As part of the requirements for obtaining the Modification of VWP Individual Permit 96-0707, owners of adjacent properties as well as the local governments were provided notification of the proposed work. Those notifications were accomplished in accordance with VDEQ guidelines. In addition, a public meeting was held regarding the project on February 15, 2011. Summaries of the notifications, comments received, and the public meeting, are included in the Draft Modification of VWP Individual Permit "Fact Sheet".

Also attached to this EA are copies of the press release issued by BRWA on July 16, 2013 regarding the issuance of the Draft Modification to VWP Individual Permit 96-0707. That notice was published in local newspapers including the Bedford Bulletin, the Lynchburg News Advance and the Smith Mountain Eagle. Copies of the related articles as well as excerpts from televised coverage regarding the notice are attached to this EA.

E. AFFECTED ENVIRONMENT

1. General Project Description

The Smith Mountain Development contains an upper pumped storage development (Smith Mountain) and a lower conventional development (Leesville) and is located on the Roanoke River in south-central Virginia. The proposed raw water intake is to be located within the Smith Mountain Development that includes a reservoir encompassing 20,260 acres and 500 miles of shorelines at an operating elevation of 795 feet NGVD. At elevation 795 feet NGVD, the reservoir for the Smith Mountain Development has a total storage volume of 1,082,480 acre-feet. The project boundary for the Smith Mountain Development is the 800 foot contour elevation.

The terrain around the Smith Mountain Development is rolling to hilly and contains primarily forestland with some grasslands and croplands. Pine and hardwood species are mixed with a secondary growth forest along the reservoir shoreline. The area supports a population of wild turkey, whitetail deer, and upland game species, including rabbit and squirrel. Smith Mountain Lake is surrounded by a variety of recreation facilities that support numerous activities including boating, fishing, swimming, picnicking, camping, and golfing. The Smith Mountain Lake State Park lies along the east side of the reservoir and the Smith Mountain Wildlife Management Area lies along the south side of the reservoir.

2. Proposed Raw Water Intake Site Area

Approximately fifty feet north of the location of the proposed water intake pipes exists a 12-inch diameter HDPE raw water intake pipe that extends approximately 100 feet into Smith Mountain Lake from the shoreline at the normal operating level of 795.0 NGVD. Connected to the pipeline is a 42-inch diameter by 48-inch long wedgewire intake screen suspended by a buoy that keeps the intake screen a minimum 5 feet below the reservoir surface. The existing raw water intake connects to a raw water pump station located outside of the Project Boundary for the Smith Mountain Project. The pump station delivers water to the BRWA water treatment facility located approximately 0.3 miles from the site. Above the normal operating level for the Smith Mountain Development (795.0 ft. NGVD) in the vicinity of the water intake facilities are a number of single family residences. The shoreline has been developed and erosion protection provided consisting primarily of rip-rap. The depth of the water in the area of the existing and proposed intakes is approximately 30 feet. The bottom of the lake has a deep slope that begins immediately at the shoreline and extends out to a depth of approximately 100 feet at the deepest point. According to the Shoreline Management Plan (SMP) for the Smith Mountain Project, the related shoreline is designated for "Low Density Use" which allows for facilities provided for public benefit.

3. Fish and Aquatic Resources

The fish assemblage for Smith Mountain Lake includes more that forty indigenous and introduced species. Native sports species utilizing primarily littoral zone habitats include largemouth bass

(*Micropterus salmoides*), smallmouth bass (*M. dolumieui*), sunfish (*Lepomis* sp.), crappie (*Pomoxis* sp.), and catfish (*Ictalurus* sp.) Multiple tournaments are held each year for a number of the aforementioned species. A number of sport fish taken in 2007 resulted in excess of 170 trophy fish citations for 15 species. Forage fish are dominated by gizzard shad (*Dorosoma cepedianum*) and the introduced anadromous clupeid, alewife (*Alosa pseudoharengus*). Other forage species include the young of the above listed native sports species as well as various cyprinids.

The Smith Mountain Development contains approximately 20,260 acres and 500 miles of shoreline. The total littoral habitat at full pond to 9 feet of depth is approximately 2,898 acres with an average width of 53.4 feet. Based upon surveys taken in 2006, the dominant littoral substrate is sand, followed by bedrock, clay and silt. Small cobbles and detritus were the primary sub-dominant substrates. Softer substrates were found in association with submerged aquatic vegetation (SAV), primarily in the back of coves.

A survey of SAV on Smith Mountain Lake was performed in 2006. A total of 29 SAV beds comprising 33.56 acres of Smith Mountain Lake were found. Most of the beds found were patchy with an average size of 1.16 acres with an areal coverage of approximately 46%. Submerged aquatic vegetation documented included the native species Nitella, Slender Pondweed, Chara, Sago Pondweed, and Water lily as well as non-native species such as Brittle Naiad, Brazilian Elodea and Curly Leaf Pondweed. The non-native Hydrilla was also documented within Smith Mountain Lake in 2007.

The shoreline of Smith Mountain Lake is extensively developed with primarily privately developed residential homes and condominiums. This development has resulted in the shoreline for the lake to have approximately 220.4 miles of riprap protection, 134.5 miles of undercut bank, and 51.2 miles of natural bank. Wetland and woody debris areas occur on approximately 31.2 miles of shoreline for Smith Mountain Lake.

4. Water Resources

The total drainage area into Smith Mountain Lake is 1,029 square miles. Water use within the drainage basin varies as it moves through urban, agricultural, and rural areas. The primary use of water with the Smith Mountain Project is primarily for power generation. Other uses include agricultural and domestic water purposes by individuals residing along Smith Mountain Lake, as well as golf courses, and other commercial operations. Individual use can be associated with watering lawns and gardens and other minor uses.

Presently, one domestic water intake is located within Smith Mountain Lake. That is the 2.99 MGD intake located at the proposed raw water intake site described in this EA. The referenced water withdrawal is accomplished in accordance with Order Approving Non-Project Use of Project Lands and Waters: Water Withdraw Increase issued October 10, 2008 by the Commission and existing VWP Individual Permit No. 96-0707 issued to BRWA. Water from the existing intake is treated at the existing BRWA treatment facility for domestic and commercial use. The counties surrounding the Smith Mountain Project (Bedford, Franklin, Pittsylvania, Roanoke, and Campbell, Virginia) along with the City

of Roanoke, Virginia are in the process of completing or have completed water system development plans for their jurisdictions. Within those plans, the Smith Mountain Project has been identified as a potential resource for raw water withdrawals. The average annual daily inflow to Smith Mountain Lake is estimated at 976 cfs. That estimate is based upon data collected from the following USGS gauging stations that monitor inflows to Smith Mountain Lake:

Roanoke River at Roanoke	Gage No. 02055000
Back Creek near Dundee	Gage No. 02056650
Blackwater River near Rocky Mount	Gage No. 02056900
Blackwater River near Union Hall	Gage No. 02057000

Historic average daily inflow values by month for Smith Mountain Lake are as follows:

Month	**Average Daily Inflow (MGD/cfs)**
January	790/1,222
February	952/1,473
March	1,116/1,727
April	1,024/1,585
May	700/1,083
June	505/782
July	332/514
August	375/580
September	342/529
October	429/663
November	462/715
December	564/872
Annual Average	**631/976**
Max. Mean Daily	**33,170/51,322**
Min. Mean Daily	**33/51**

VDEQ collects water quality information from various sites at Smith Mountain Lake. Assessment of the collected data determines the use attainment (support or nonsupport) for aquatic life, wildlife, public water supply, and recreational use. Six fish tissue collection sites provide data for determining attainment of fish consumption use. Virginia's Water Quality Standards (9 VAC 25-260-450 Roanoke River Basin, Roanoke Sub-basin) classify Smith Mountain Lake and its tributaries within five miles of the 795 feet NGVD operating pool as Class IV (Mountainous Zone) with public water supply designation. An additional special standard (9 VAC 25-260-350) designates Smith Mountain Lake and its tributaries (except the Roanoke River) as 'Nutrient Enriched Waters'. In addition, other tributary classifications upstream of the five-mile range are Class III (Non-tidal), Class V (Stockable Trout) or Class VI (Natural Trout) waters. Exceedances of the 0.05 mg/L total phosphorus threshold for reservoirs led to Smith Mountain Lake being designated a "Waters of Concern" for nutrient enrichment. VDEQ has indicated that this nutrient enrichment is primarily due to upstream urban nonpoint source contributions, sewage overflows, and agricultural activities in the upper reaches of Smith Mountain Lake. The bottom stratification layer of the reservoir between the Blackwater River confluence and Smith Mountain Dam, and extending up the Roanoke River arms of the reservoir, is considered by VDEQ to be impaired due to low dissolved oxygen levels < 4 mg/L. Those exceedances are considered by VDEQ to be a natural occurrence associated with stratification.

Under the conditions of Article 404 of Order Issuing New License issued December 15, 2009 by the Commission for the Smith Mountain Project and Order Modifying and Approving Water Management Plan Under Article 404 issued April 19, 2011, Appalachian utilizes an operation model to forecast future Smith Mountain Lake levels and adjust downstream flow releases based upon the probability of levels for Smith Mountain Lake elevations reaching certain levels in the future. Releases for the project are based upon the model and follow the flow release protocol as defined under Virginia Water Protection (VWP) Individual Permit No. 08-0572 which became effective April 1, 2010. A copy of the referenced VWP individual permit is included as an attachment to this EA.

5. Terrestrial Resources

Portions of the shoreline for Smith Mountain Lake are steep, and exposed bedrock is present in some of the steeper areas. Lawns and croplands are present along the portions of the shorelines that have been modified by the landowners. Approximately 61 percent of the total shoreline for Smith Mountain Lake is artificially protected primarily with riprap. In general, where development has taken place, significant portions of the riparian vegetation have been removed. However, relatively large areas of undisturbed forestland still exist in those areas where development has not taken place.

Wetlands are limited due to the steep topography, the extensive development along the shoreline, and bedrock geology of the area. Most wetlands are located at the end of coves where development has been limited as well as recreational boating. Some wetland areas have formed in the upper reaches of Smith Mountain Lake due to sediment inputs that have created shallow water areas with nutrient rich soils. No wetland communities have been identified in the vicinity of the proposed intakes.

6. Rare, Threatened and Endangered Species

Except for occasional transient individuals such as migratory birds, no federally listed or proposed terrestrial rare, threatened, or endangered species are known to exist within the project boundary for the Smith Mountain Project. However, the federally endangered Roanoke logperch has been documented in the Roanoke River drainage. Typical habitats for this darter species are riffles, runs and pools with sand to boulder-strewn bottoms within warm and clear medium-sized streams. No critical habitat for this species has been identified within Smith Mountain Lake and the existence of the species in Smith Mountain Lake is unlikely.

During sampling associated with the ongoing study downstream of the Leesville Development for the Smith Mountain Project to assess the effects of discharges downstream of that development, Roanoke logperch have been found in the area immediately downstream of the Leesville dam and powerhouse. The referenced study is being accomplished in accordance with Article 401 of the license for the Smith Mountain Project and associated VWP Individual Permit No. 08-0572. Appalachian is currently consulting with the U.S. Fish and Wildlife Service (FWS), VDEQ, and VDGIF to determine the potential impacts that find may have on the ongoing study.

7. Recreation

A wide variety of regionally and locally important recreational opportunities are available at sites within the project boundary for the Smith Mountain Development. Nine public recreation sites and numerous commercial operations provide access to Smith Mountain Lake. Smith Mountain Lake provides six public boat launches, four picnic areas, one beach, and one campground. All but one of the sites provide boating access, fishing piers, and/or shoreline angling access to the lake.

The annual recreation use estimates for Smith Mountain Lake are as follows:

Source	Recreation Days
Public Access Sites	577,840
Commercial Operators	1,744,721
Shoreline Property Owners	2,777,000
Total	5,099,561

A recreation day is defined as each visit by a person to a development for recreational purposes during any portion of a 24-hour period.

Boating, in particular motor-boating, is a prime recreation activity for Smith Mountain Lake. Counts of boats on Smith Mountain Lake were made during the summer of 2006. Those counts occurred on

holidays, weekdays, and weekends in order to ascertain usage at different times. Boating densities were greatest in the areas between Smith Mountain Lake State Park and the new Franklin County Park, and the open water areas near the confluence of the Roanoke and Blackwater rivers. The 2006 counts resulted in an observed 10-20 acres of open water per boat in Smith Mountain Lake. The conclusion of the counts suggests that the suite of boating activities could be accommodated at existing use levels based upon the ranges developed by the Bureau of Outdoor Recreation (Urban Research and Development Corporation, 1977). Essentially, even on the most crowded days in the most crowded areas, there is sufficient space for all boaters to recreate safely without compromising their overall safety or enjoyment.

8. Socioeconomics

The Smith Mountain Project lies primarily within Bedford, Campbell, Franklin and Pittsylvania counties, Virginia. The four-county region experienced a sizable population growth from 2000 through 2005, with an overall increase of 22 percent. During that same period, the four county region exhibited a slower growth in the labor force and a higher growth in unemployment than the state average. In 2005, the sectors with the largest employment included construction, manufacturing, and retail trade.

The additional raw water intake will provide the opportunity for expansion of the public water supplies for both Bedford and Franklin counties in Virginia. Estimates of population growth in these areas and the providing of water to previously self-supplied users substantiate the need for expanding the capabilities of the public water supply for the Bedford and Franklin counties areas. A description of the project demands and how they were determined is provided in the "Fact Sheet" for Draft Modification of VWP Individual Permit No. 96-0707 which is provided as an attachment to this EA.

The Smith Mountain Project provides a significant contribution to the regional economy indirectly through revenues generated by businesses, an increased tax base, and the establishment of many jobs throughout the project area. It is recognized that drinking water obtained from the Smith Mountain Project will have a significant impact on the growth of the surrounding areas as well as associated economic implications.

9. Cultural Resources

During the process of developing the Shoreline Management Plan (SMP) for the Smith Mountain Project, the Federal Energy Regulatory Commission (Commission), in consultation with the Virginia State Historic Preservation Office (SHPO) for the Commonwealth of Virginia developed a Programmatic Agreement (PA) for historic properties potentially affected by the Smith Mountain Project. The PA defined the Area of Potential Effect (APE) for the SMP as it relates to cultural resources, defined studies to be conducted, and recommended development of a Historic Properties Management Plan (HPMP). The HPMP for the Smith Mountain Project was approved under Order Approving Historic Management Plan Pursuant to Article 414 issued February 4, 2013 by the Commission. The HPMP identifies how implementation of the HPMP would work in conjunction with other plans for the Smith Mountain Project including shoreline management along the project reservoir.

According to the PA, the APE for the SMP for the Smith Mountain Development is the 800-feet contour elevation. The APE includes those lands permanently inundated by Smith Mountain Lake. Within the SMP areas are designated 'Impact Minimization Zone'. The 'Impact Minimization Zone' includes areas within 100 feet of a known cultural resource site contained in the Virginia SHPO files. Those areas are protected, thus any development within those areas can only be accomplished after approval by the Commission after consultation with the SHPO.

F. ENVIRONMENTAL IMPACTS

I. Proposed Action

Installation of the proposed raw water intake line at the location described above includes: (1) installation of two parallel thirty-inch diameter pipelines partially below the bottom of Smith Mountain Lake and partially supported on foundations maintaining the pipelines above the lake bottom, each pipeline extending approximately 120 feet into the lake; (2) connecting 48-inch diameter wedgewire intake screens to the intake pipelines; and (3) placing riprap having a minimum size of 18 inches over filter fabric to protect the shoreline where the pipelines are to be placed in trenches. Construction will take place both on the water and along the shoreline.

1. Temporary Construction Impacts

The Draft Modification of VWP Individual Permit No. 96-0707 authorizes the total permanent impact to 0.69 acres of open water to allow for installation of the intake pipes and screens. Potential temporary construction related impacts include scattered debris in the area if not properly managed. Some fish and wildlife species in the area may also be temporarily displaced during the proposed work. The conditions of "Order Amending Shoreline Management Plan" issued February 23, 2007 by the Commission for the Smith Mountain Project read as follows:

"All in-water construction, within areas identified as "Conservation/Environmental" or "Impact Minimization Zone" within the Shoreline Management Plan as currently exists or as modified in the future shall be prohibited from February 15 through June 15. In-water construction will be permitted in all other areas identified within the Shoreline Management Plan. During the period April 15 through June 15, the licensee shall ensure that prior to the work taking place, the locations of the proposed work be inspected for the presence of largemouth bass nests. If a largemouth bass nest is detected where the work is to take place, the work shall be modified to not disturb the nest or the work delayed until after June 15."

Restrictions identified in the Draft Modification of VWP Individual Permit No. 96-0707 restricts in-water activities to between June 16 and February 14 which is consistent with the above described limitations related to the Shoreline Management Plan for the Smith Mountain Project. Other limitations established under the referenced draft permit include: (1) allowing no activities that cause more than a minimal effect on navigation; (2) all excavation, dredging, or filling of surface waters being accomplished in a manner that minimizes bottom disturbance and turbidity; (3) minimizing the introduction of

construction materials or waste materials from entering surface waters; (4) all fill material place in surface waters being clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations; (5) employing measures to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters; and (6) temporary in-stream construction features such as cofferdams being made of non-erodible materials.

The additional noise, vehicular traffic, and other activities associated with the construction of the proposed facilities may have a temporary, minor adverse impact on some nearby residents. Compliance with the various the various Federal, State, and local requirements and permits for the work should minimize these construction impacts.

2. Fish and Aquatic Resources

Under the conditions of the Draft Modification of VWP Individual Permit No. 96-0707, the maximum through screen intake velocity shall not exceed 0.5 feet per second, unless the intake screens are constructed less than 4 feet from the bottom of the lake. In the latter case, the maximum through screen intake velocity shall not exceed 0.25 feet per second. In all cases, the intake screens shall be designed so that the screen openings are not wider than one millimeter. Those conditions are stipulated in order to minimize the potential for impingement and entrainment of fish eggs, larvae and other aquatic life.

From the results of the surveys completed in 2006, there are no SAV beds, wetlands, or debris areas that would be affected by the proposed work.

3. Water Resources

Under the conditions of the Draft Modification of VWP Individual Permit No. 96-0707, the maximum annual water withdrawals from Smith Mountain Lake resulting from the increase proposed by BRWA shall not exceed 12 MGD. Attachment-A to the "Fact Sheet" provides information regarding the estimated effects on water levels resulting from the proposed increase in water withdrawals from Smith Mountain Lake. The overall effect of the proposed increase in domestic water withdrawal is estimated to result in an additional drop of 2.73 to 3.23 inches in the reservoir elevation for Smith Mountain Reservoir during an extended drought period. This is consistent with the sensitivity analysis of total net withdrawals conducted as part of the process for obtaining the new license issued December 15, 2009 by the Commission for the Smith Mountain Project. Within Attachment-A to the "Fact Sheet", reference is made to a graph on page 433 of "P-2210 Flood & Drought Management Low Flow Operating Protocol Report" which presents the effects of a 12.5 MGD withdrawal for domestic purposes. The referenced graph is provided as an attachment to this EA. As part of the relicensing effort for the Smith Mountain Project, an analysis was done to determine at what total withdrawal rate would no impact to water resources including minimum flow requirements, be experienced. The results of that study indicate that at a minimum, once a total withdrawal in excess of 12.5 MGD is experienced, there potentially could be an impact. Being that the withdrawal by BRWA at the site referenced in this EA represents the only

domestic withdrawal from Smith Mountain Lake, Appalachian does not believe that there should be any impact from the BRWA's proposal.

The Water Management Plan for the Smith Mountain Project establishes "trigger" events for determining under various inflow conditions the releases required from the Leesville Development. Under the conditions of the Draft Modification of VWP Individual Permit 96-0707 for the water withdrawals proposed by BRWA, a "Trigger 3" drought event as declared by Appalachian in accordance with the Water Management Plan will require that BRWA implement certain conservation measures. Based upon the proposed withdrawal by BRWA resulting in less than 12.5 MGD being withdrawn from the Smith Mountain Project, the results of the assessment performed by BRWA for Draft Modification of VWP Individual Permit No. 96-0707, and the limitations established by that permit, the proposal made by BRWA would not be expected to impact water resources for the project including minimum flow requirements.

4. Terrestrial Resources

The shoreline at the location of the proposed work has been disturbed previously and consists primarily of riprap. Therefore, there are no expected impacts to terrestrial resources from the proposed work. Should there be any disturbance of vegetation along the shoreline associated with the work, mitigation will be required.

5. Rare, Threatened and Endangered Species

There are no impacts to rare, threatened or endangered species that are expected from the proposed work. As noted previously, no rare, threatened or endangered species are known to exist within the project boundary for the Smith Mountain Project. Activities proposed by BRWA will also not impact water releases downstream from the Leesville Development and thus would not be expected to effect the Roanoke logperch.

According to the VDCR in its letter dated September 4 2012, there is no information currently in their files documenting natural heritage resources in the project area.

6. Recreation

There have been no reports of any effects on recreation activities, including boating related to the existing water intake facilities in the same area where the installation of the new intake lines is to take place. The existing intake structures maintain a minimum of five feet between the reservoir level and the top of any part of the structures. As shown on the drawings provided by BRWA, the centerline elevation for the upper intake is 780 NGVD which is seven feet below what is considered the minimum operating level for Smith Mountain Reservoir. To ensure that the proposed intake facilities do not create a safety concern for boaters, it will be required that no part of the intake structures protrude above elevation 782.0 NGVD which is 5 feet below elevation 787.0 NGVD. It should be noted that the

lowest recorded water surface elevation recorded for Smith Mountain Reservoir was 787.60 NGVD which occurred in January 1970.

7. Socioeconomics

The proposed raw water intake would contribute to the amount of treated domestic water to both Bedford County and Franklin County, Virginia. The distribution of treated water in these areas is expected to contribute to growth thereby creating much needed jobs. Construction activities related to the installation of the proposed raw water intake will also result in the creation of jobs, albeit short term. Overall, the proposed raw water intake should be an economic benefit to the area.

8. Cultural Resources

According to the maps for the SMP, the area where the proposed work is to take place is designated as "Low Density Use". Not being designated "Impact Minimization Zone", no known cultural resource site as contained in the Virginia SHPO files is has been identified in the work area. In addition, the area of the proposed work has been disturbed and the potential for the existence of cultural resources is minimal. However, in the event that any known or unknown cultural resource materials are discovered, all work will be stopped and Appalachian notified. At that time, the Virginia SHPO will be consulted and those consultations completed before the work is allowed to continue. In addition:

A. BRWA may be required to employ an archaeologist who meets or exceeds the qualifications described in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) to assess the eligibility of the resource for inclusion in the National Register.

B. If the resource is determined to be eligible for inclusion in the National Register, and BRWA desires to continue with the work, BRWA shall ensure that an archaeologist who meets or exceeds the qualifications described in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) shall prepare a plan for its avoidance, protection, or recovery of information. The Virginia SHPO shall approve such plan, prior to implementation.

C. Work in the affected area shall not proceed until either: (a) appropriate data recovery or other approved mitigation procedures are developed and implemented; or (b) the determination is made that the located resources are not eligible for inclusion on the National Register.

II. No-Action Alternative

The BRWA would be required to find another location for a raw water intake. It is likely that another location would require the disturbance of areas that have not been previously disturbed resulting in potential impacts to vegetation, recreation, etc. that are not associated with the proposed installation site.

G. CONCLUSION

The construction and operation of the proposed facilities under the conditions described by this EA should not have any significant impacts on environmental resources or properties in the area. Based upon this analysis, approving the proposed action would not constitute a major Federal action significantly affecting the quality of the human environment.

H. LIST OF PREPARERS

American Electric Power Service Corporation

REFERENCES

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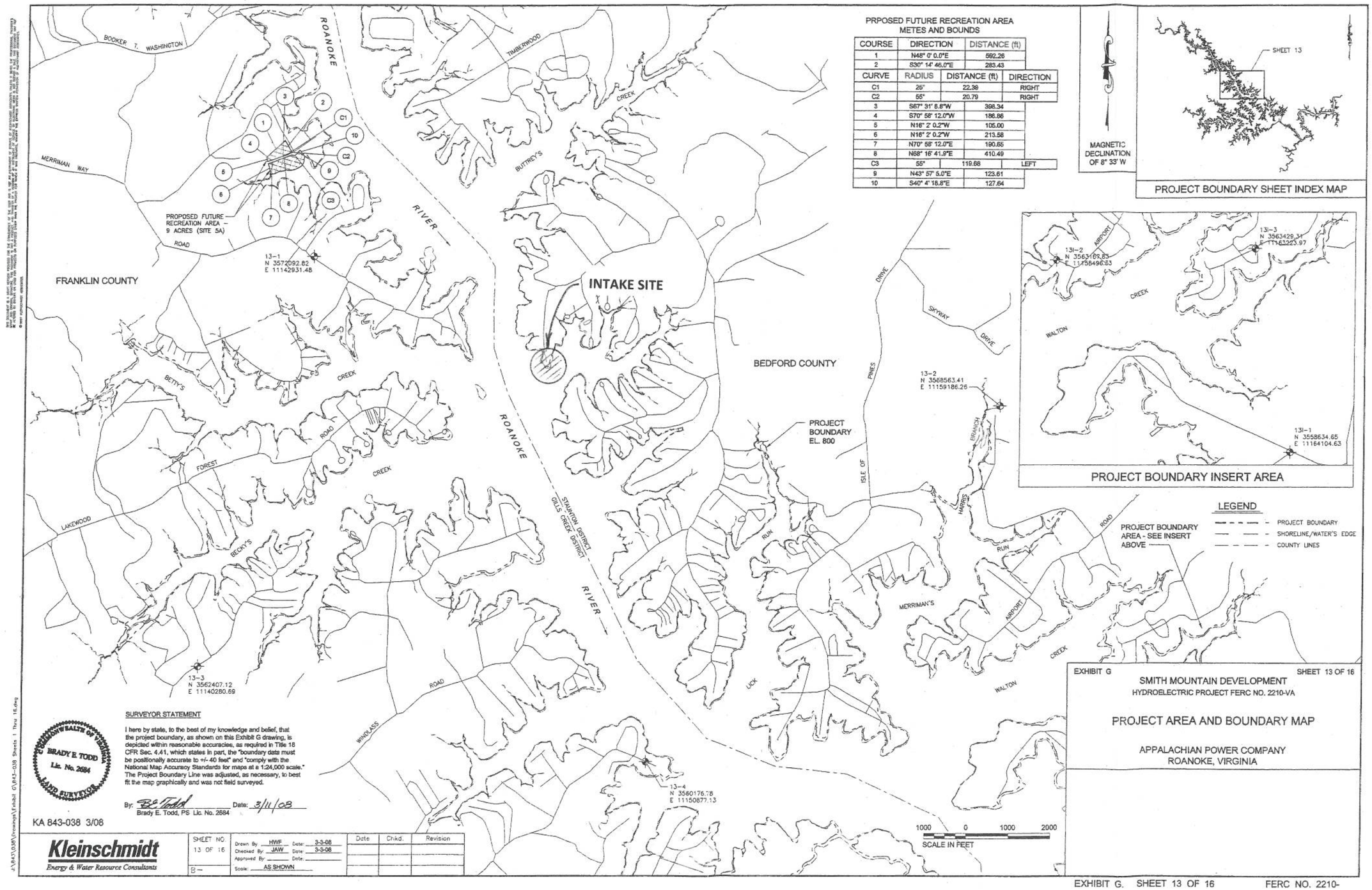
ATTACHMENT NO. 1
FIGURES

Number	Title
1	Smith Mountain Project No. 2210 – Exhibit G (Sheet 13 of 16)
2	Preliminary Intake Options
3	Shoreline Classification (From Smith Mountain Shoreline Management Plan)
4	Bathymetry at Intake Site (From 2006 Survey)
5	Shoreline Protection Classification (From Erosion Study – Kleinschmidt, August 2007)
6	Submerged Aquatic Vegetation Bed Locations (From Aquatic Vegetation Study – Devine Tarbell, December 2007)
7	Littoral Zone (From Littoral Zone Habitat and Fish Spawning and Rearing Assessment Study – Devine Tarbell, December 2007)



PRPOSED FUTURE RECREATION AREA
METES AND BOUNDS

COURSE	DIRECTION	DISTANCE (ft)	
1	N48° 0' 0.0"E	592.26	
2	S30° 14' 46.0"E	283.43	
CURVE	RADIUS	DISTANCE (ft)	DIRECTION
C1	25°	22.38	RIGHT
C2	55°	20.79	RIGHT
3	S67° 31' 8.8"W	398.34	
4	S70° 58' 12.0"W	186.86	
5	N16° 2' 0.2"W	105.00	
6	N16° 2' 0.2"W	213.58	
7	N70° 58' 12.0"E	190.65	
8	N68° 16' 41.9"E	410.49	
C3	55°	119.68	LEFT
9	N43° 57' 5.0"E	123.61	
10	S40° 4' 18.8"E	127.64	

MAGNETIC DECLINATION OF 8° 33' W

PROJECT BOUNDARY SHEET INDEX MAP

PROJECT BOUNDARY INSERT AREA

LEGEND

PROJECT BOUNDARY AREA - SEE INSERT ABOVE

PROJECT BOUNDARY
SHORELINE/WATER'S EDGE
COUNTY LINES

SURVEYOR STATEMENT

I here by state, to the best of my knowledge and belief, that the project boundary, as shown on this Exhibit G drawing, is depicted within reasonable accuracies, as required in Title 18 CFR Sec. 4.41, which states in part, the "boundary data must be positionally accurate to +/- 40 feet" and "comply with the National Map Accuracy Standards for maps at a 1:24,000 scale." The Project Boundary Line was adjusted, as necessary, to best fit the map graphically and was not field surveyed.

COMMONWEALTH OF VIRGINIA
BRADY E. TODD
Lic. No. 2684
LAND SURVEYOR

By: B E Todd Date: 3/11/08
Brady E. Todd, PS Lic. No. 2684

KA 843-038 3/08

Kleinschmidt	SHEET NO. 13 OF 16	Drawn By HWF Date: 3-3-08	Date	Chkd.	Revision
Energy & Water Resource Consultants	B–	Checked By JAW Date: 3-3-08			
		Approved By Date:			
		Scale: AS SHOWN			

EXHIBIT G SHEET 13 OF 16

SMITH MOUNTAIN DEVELOPMENT
HYDROELECTRIC PROJECT FERC NO. 2210-VA

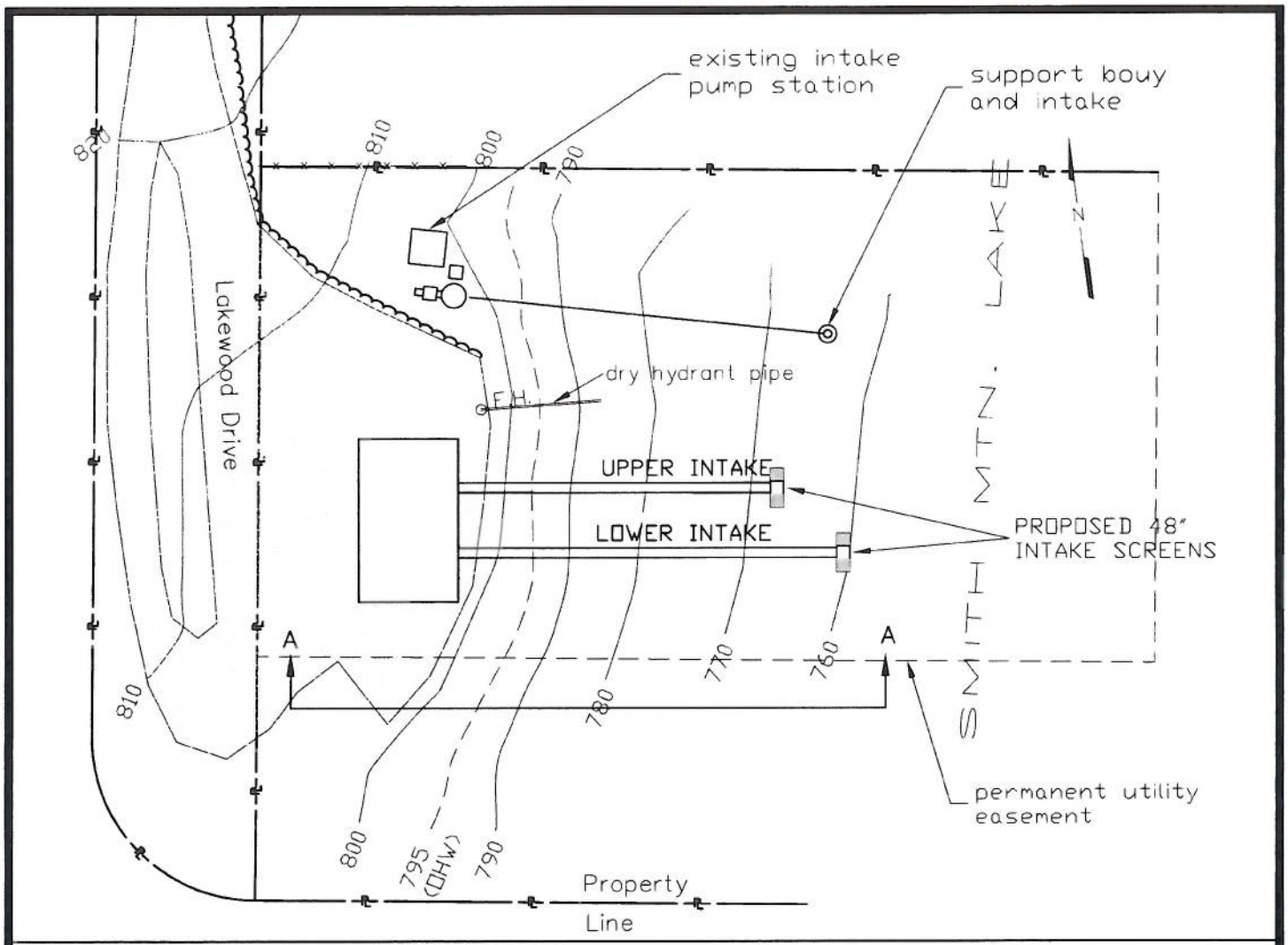
PROJECT AREA AND BOUNDARY MAP

APPALACHIAN POWER COMPANY
ROANOKE, VIRGINIA

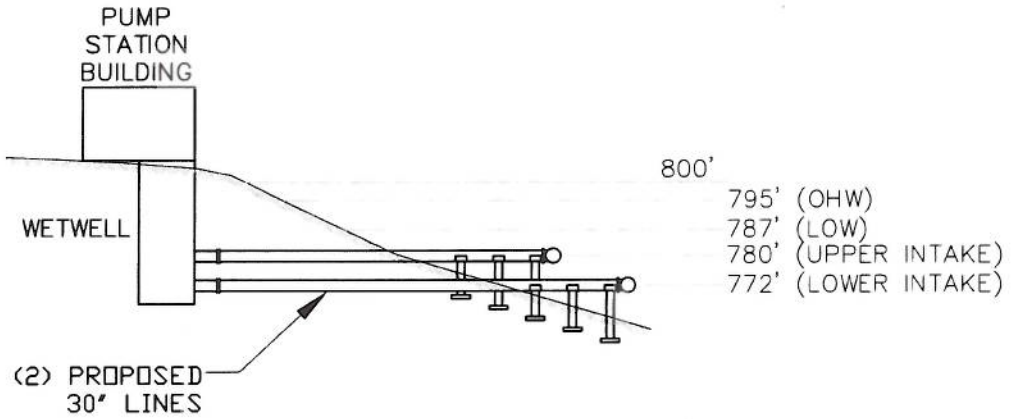
J:\843\038\Drawings\Exhibit G\843-038 Sheets 1 Thru 16.dwg

EXHIBIT G. SHEET 13 OF 16 FERC NO. 2210-

FIGURE NO. 1



CROSS SECTION A–A



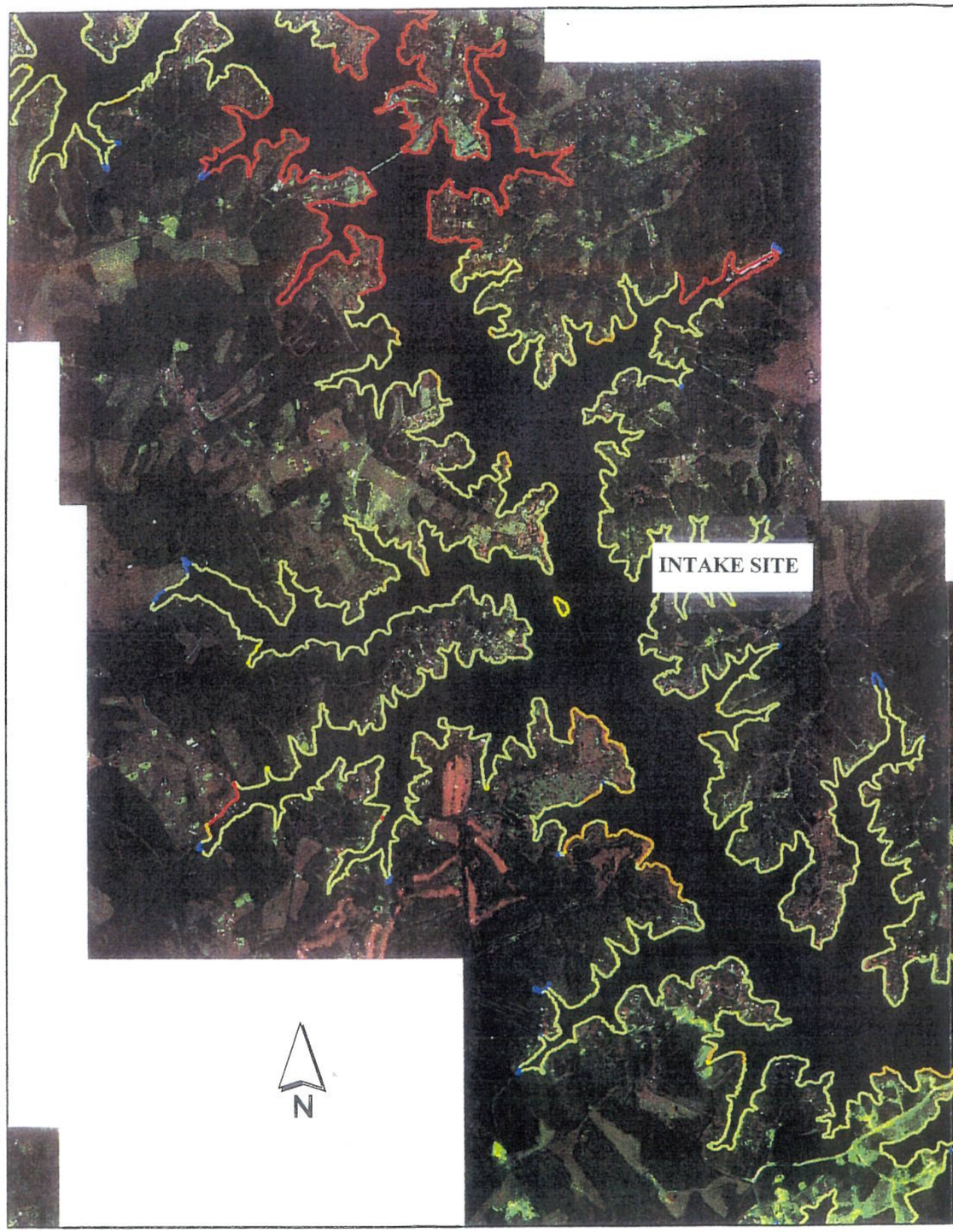
PRELIMINARY INTAKE OPTIONS
HIGH POINT WATER INTAKE SITE
FIGURE 2 - PLAN AND CROSS SECTION

ANDERSON & ASSOCIATES, INC.
Professional Design Services
www.andassoc.com
Virginia - North Carolina - Tennessee
100 Ardmore St.
Blacksburg, Va. 24060
540-552-5592

DRAWN	SCALE	DATE	DOCUMENT NO.
DCI	1"=50'	11 MAR 13	28883-102

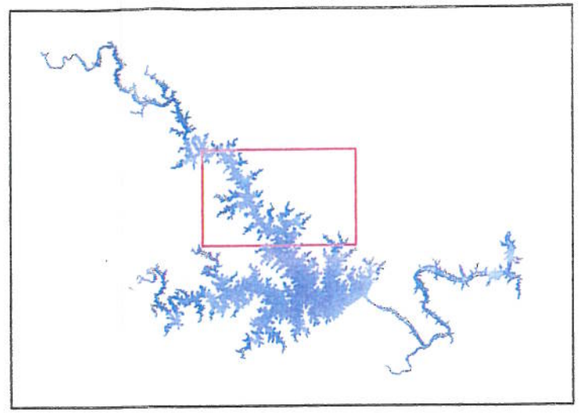
Inman, David / 3/12/2013 5:32 PM / \\aaprojects\projects\29\29701\29701_engineering\design\plans\29701_rawwaterintake_prelimdesign.dwg

FIGURE NO. 2



Classification

- High Density Commercial
- High Density Multi-Use
- Public Use
- Low Density Use
- Impact Minimization Zone
- Conservation / Environmental



1 inch equals 0.5 miles

Tile 3 of 8

FIGURE NO. 3

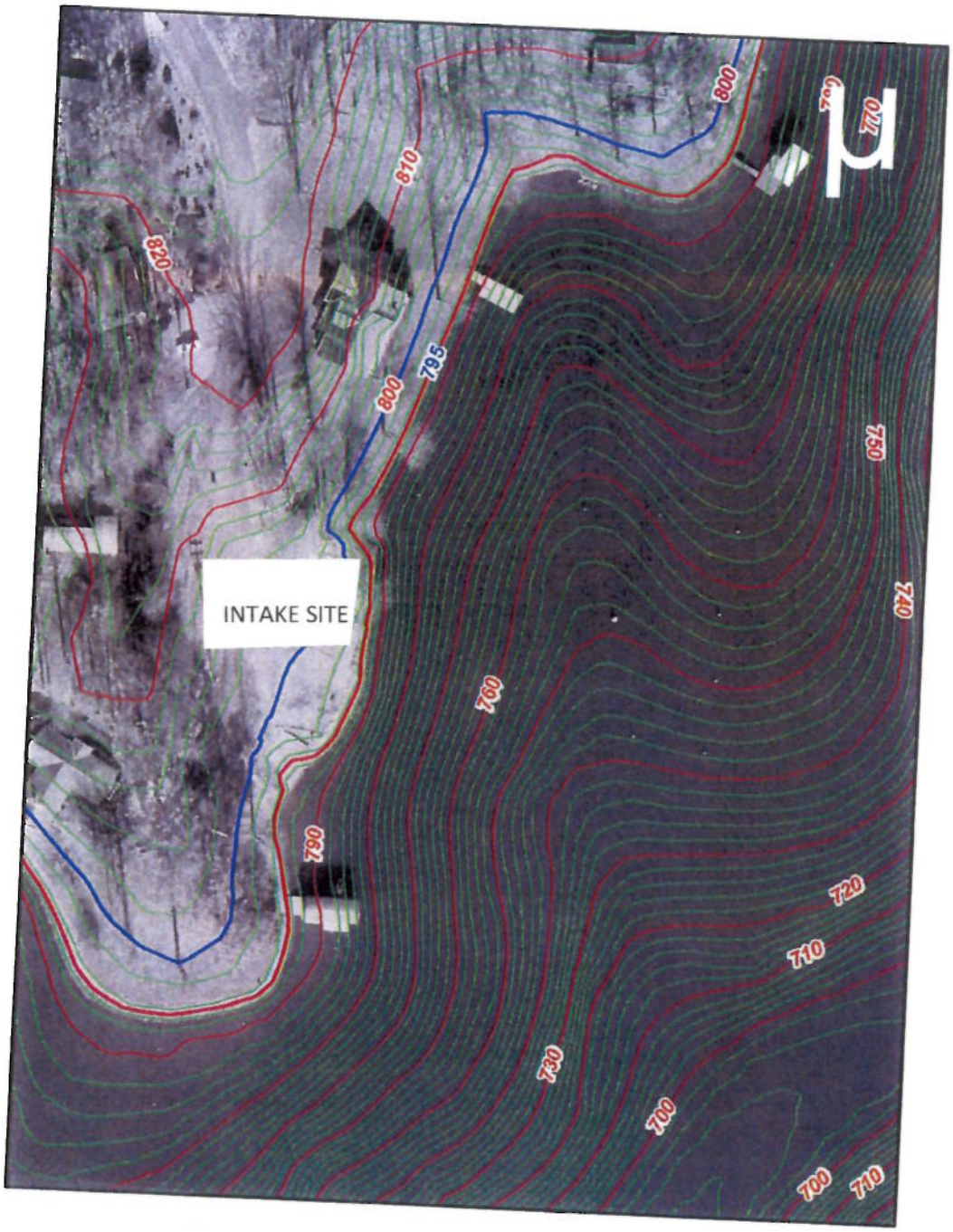
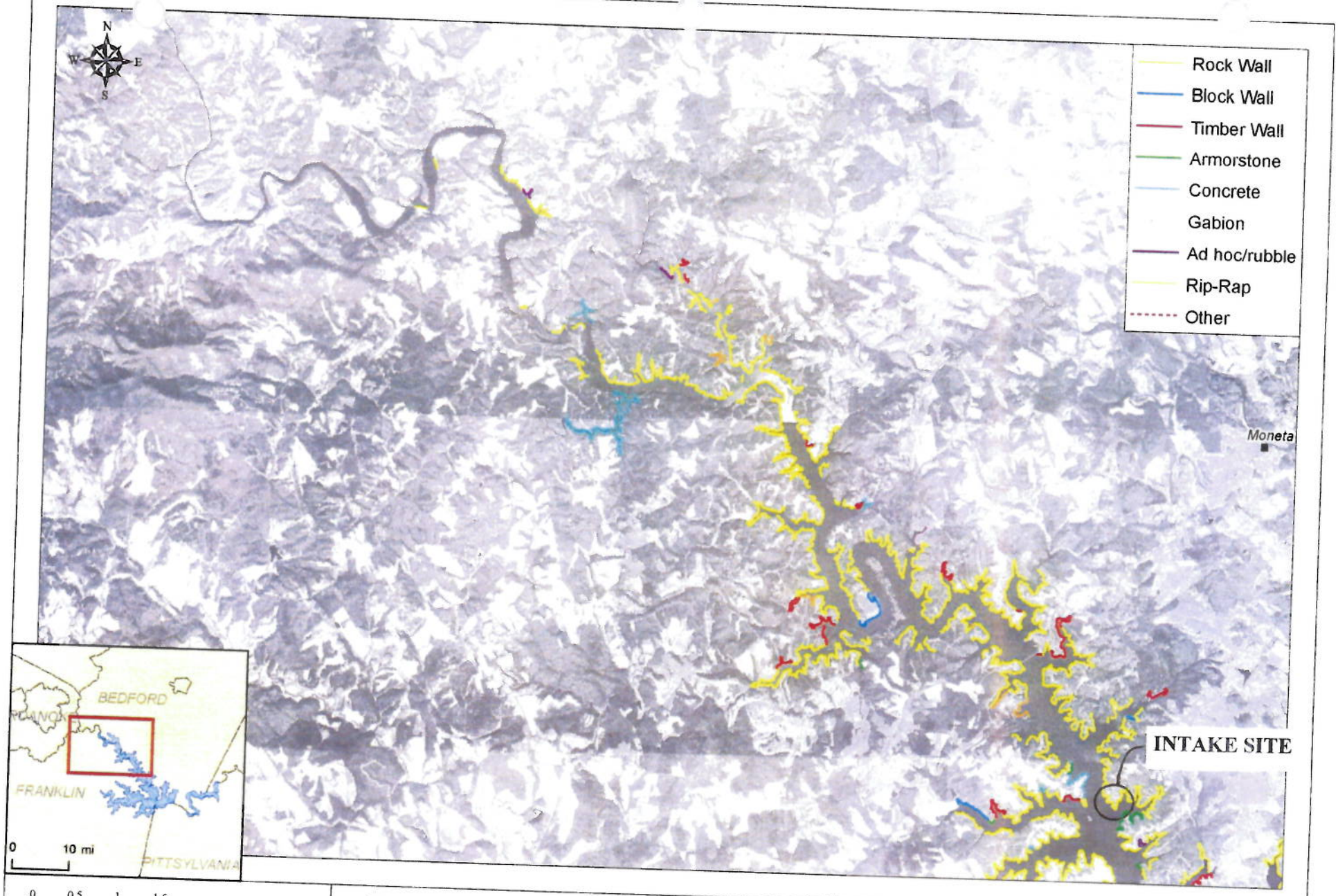

INTAKE SITE
820
810
800
795
800
790
760
750
740
730
720
710
700
700
710
770

FIGURE NO. 4



Shore Protection Classification - Smith Mountain Lake, VA

Background Image: USGS Digital Ortho Quarter Quad

Spatial Reference: UTM 17N NAD 1983

FIGURE NO. 5

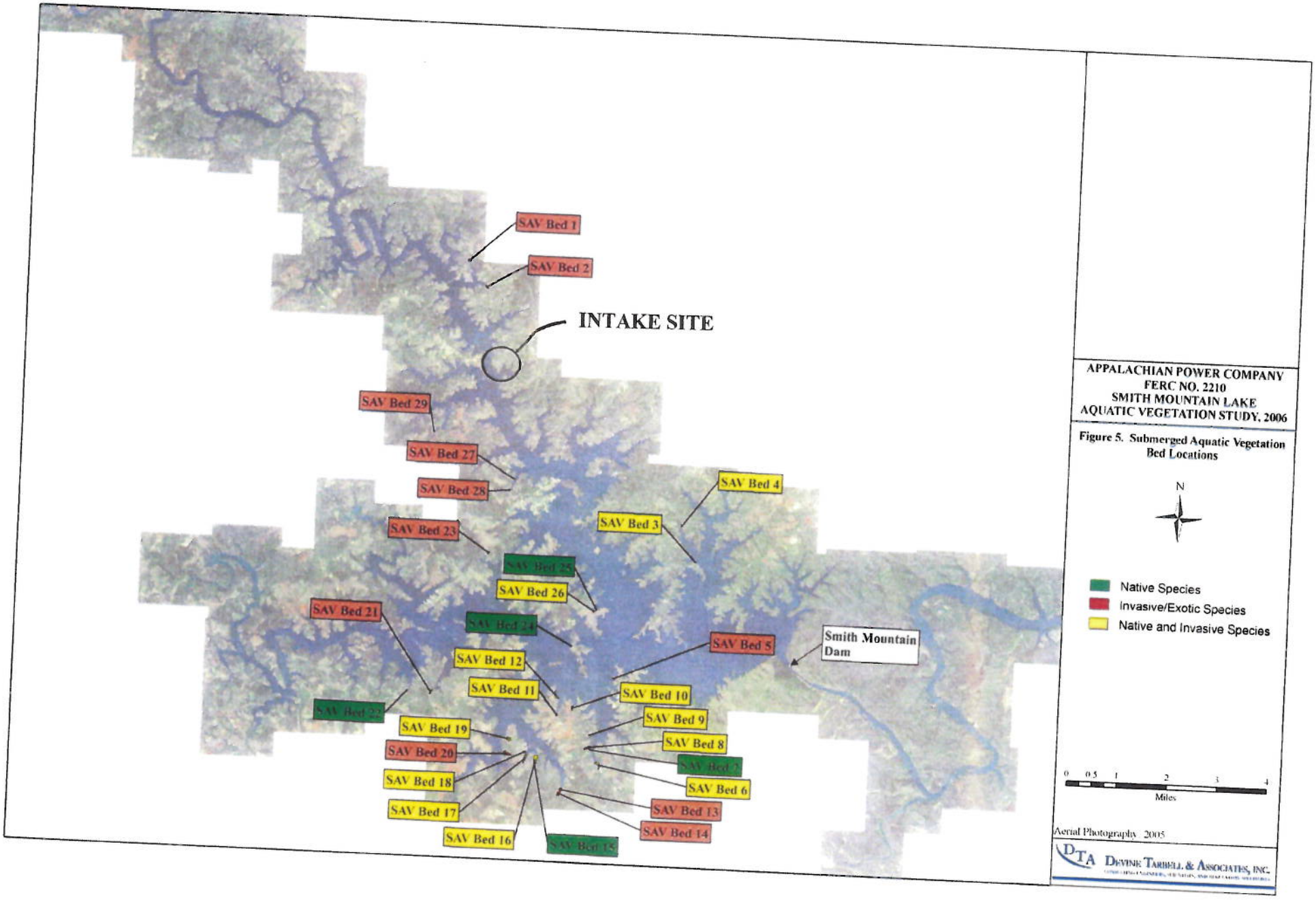

SAV Bed 1
SAV Bed 2
INTAKE SITE
SAV Bed 29
SAV Bed 27
SAV Bed 28
SAV Bed 23
SAV Bed 25
SAV Bed 26
SAV Bed 21
SAV Bed 24
SAV Bed 12
SAV Bed 11
SAV Bed 22
SAV Bed 19
SAV Bed 20
SAV Bed 18
SAV Bed 17
SAV Bed 16
SAV Bed 15
SAV Bed 4
SAV Bed 3
SAV Bed 5
Smith Mountain Dam
SAV Bed 10
SAV Bed 9
SAV Bed 8
SAV Bed 7
SAV Bed 6
SAV Bed 13
SAV Bed 14
APPALACHIAN POWER COMPANY
FERC NO. 2210
SMITH MOUNTAIN LAKE
AQUATIC VEGETATION STUDY, 2006
Figure 5. Submerged Aquatic Vegetation Bed Locations
N
Native Species
Invasive/Exotic Species
Native and Invasive Species
0 0.5 1 2 3 4
Miles
Aerial Photography 2005
DTA Devine Tarbell & Associates, Inc.

FIGURE NO. 6

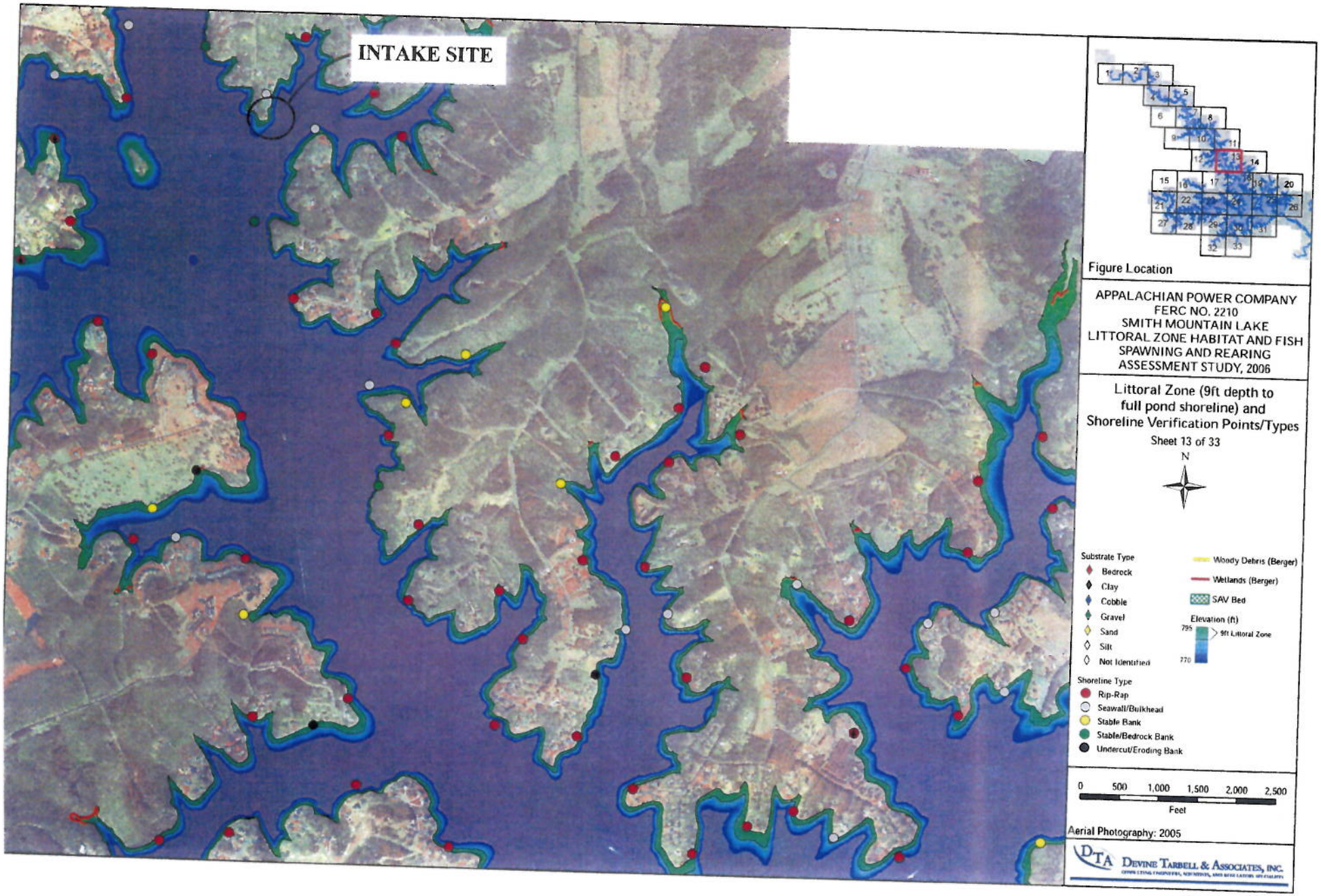

INTAKE SITE
Figure Location
APPALACHIAN POWER COMPANY
FERC NO. 2210
SMITH MOUNTAIN LAKE
LITTORAL ZONE HABITAT AND FISH
SPAWNING AND REARING
ASSESSMENT STUDY, 2006
Littoral Zone (9ft depth to full pond shoreline) and Shoreline Verification Points/Types
Sheet 13 of 33
N
Substrate Type
Bedrock
Clay
Cobble
Gravel
Sand
Silt
Not Identified
Woody Debris (Berger)
Wetlands (Berger)
SAV Bed
Elevation (ft)
795
770
9ft Littoral Zone
Shoreline Type
Rip-Rap
Seawall/Bulkhead
Stable Bank
Stable/Bedrock Bank
Undercut/Eroding Bank
0 500 1,000 1,500 2,000 2,500
Feet
Aerial Photography: 2005
DTA Devine Tarbell & Associates, Inc.

FIGURE NO. 7

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

ATTACHMENT NO. 2
MODIFICATION OF VIRGINIA WATER PROTECTION PERMIT 96-0707
BEDFORD COUNTY, VIRGINIA

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

July 11, 2013

Mr. Brian M. Key, P.E.
Executive Director
Bedford Regional Water Authority
1723 Falling Creek Road
Bedford, VA 24523

VIA EMAIL

Re: Modification of Virginia Water Protection Permit 96-0707, Bedford County, Virginia
JPA No. 11-0359
Draft Permit and Public Notice

Dear Mr. Key:

Enclosed for your review are the Virginia Department of Environmental Quality (DEQ) Public Notice and draft Virginia Water Protection (VWP) individual permit to be issued for the above-referenced project. If you have any questions, comments, or objections concerning the Public Notice or draft permit, please contact me within 14 calendar days of the date of this letter. Once the Public Notice is published, changes cannot be made to the permit unless public comments warrant a change.

Acceptance of the permit is evidenced by publishing the enclosed Public Notice, which must be done once at your (the applicant's) expense in a newspaper of general circulation in the area of the project. Publication of the Public Notice initiates the required 30-calendar day comment period. Day 1 of the comment period begins the day following its publication. It is your responsibility to ensure that the comment period stated on the public notice is for a full 30-calendar day period and that the final day of the comment period ends on a state business day. DEQ requires proof of publication of the Public Notice. Please instruct the publisher to complete the attached sworn verification statement and forward the statement to my attention at the address on this letterhead.

Please notify me via email when the public notice is published in the paper. If the Public Notice is not published within **14 calendar days**, DEQ will suspend processing of your permit application until evidence of publication is received. The processing clock will resume on the date of publication.

Should you have any questions, please contact me at (804)-698-4180, at Brian.McGurk@deq.virginia.gov, or at the above address. Thank you for your cooperation in this matter.

Respectfully,

Brian McGurk
Water Resource Modeler
Office of Water Supply

Enclosures: Public Notice, Public Notice Verification Form, Permit Cover Page, Part I - Special Conditions, Part II - General Conditions, Attachment A – Water Conservation

cc: Mr. David Inman, Anderson & Associates, Inc. – VIA EMAIL
Ms. Jeanne Richardson, U.S. Army Corps of Engineers, Field Office – VIA EMAIL
Ms. Juliette Giordano, Virginia Marine Resources Commission – VIA EMAIL
Mr. Mitchell R. Childrey, Virginia Department of Health – VIA EMAIL

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the modification of an existing intake and withdrawal from Smith Mountain Lake, Bedford County, Virginia.

PUBLIC COMMENT PERIOD: For 30 days, starting from the day after the notice is in the newspaper: **MONTH DAY, YEAR** to **MONTH DAY, YEAR}** at 5:00 p.m.

PERMIT NAME: Virginia Water Protection Permit issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Bedford Regional Water Authority, 17123 Falling Creek Road, Bedford, VA 24523; VWPP No. 96-0707.

PROJECT DESCRIPTION: The Bedford Regional Water Authority (BRWA) proposes to expand the existing intake structure at the High Point water intake site on Smith Mountain Lake in Bedford County from its currently permitted, maximum daily rate of 2.99 million gallons to a maximum daily rate of 12 million gallons. The intake is located on Lakewood Drive, south of High Point Road and west of State Route 654 in Bedford County. The permit will allow the applicant to impact 0.69 acres of open water associated with the expansion of the surface water intake structure. Compensatory mitigation is not recommended because there will be no loss of surface water area and a minimal amount of open water impacts. The draft permit proposes a maximum allowable daily withdrawal of 12 million gallons per day (mgd) and a maximum allowable annual withdrawal of 2306 million gallons. The permit contains limits on the withdrawal rates that depend upon completion of waterline extensions to service areas within Bedford County, and additional limits that depend upon either completion of a waterline extension in Franklin County or an amendment to an existing water purchase agreement between the applicant and the Western Virginia Water Authority. The activity proposed in the permit will affect Smith Mountain Lake in the Roanoke River watershed. A watershed is the land area drained by a river and its incoming streams. DEQ's preliminary decision is to issue the permit.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: Brian McGurk; Department of Environmental Quality, Office of Water Supply, 609 East Main Street, Richmond VA 23218; Phone: (804)-698-4180; E-mail: Brian.McGurk@deq.virginia.gov; Fax: (804) 698-4132. The public may review the draft permit and application at the DEQ office named above by appointment or may request copies of the documents from the contact person listed.

Public Notice Verification Form

Complete this form for the documentation of publication of the Public Notice for VWP Individual Permit Number 96-0707. Please return original to: Brian McGurk, Department of Environmental Quality, P.O. Box 1105, Richmond, VA 23218.

ATTACH PRINTED COPY OF NOTICE IN THIS SPACE OR ATTACH TO BACK OF THIS STATEMENT

I hereby certify that the notice attached hereto in the space above appeared in

_____ on _____.
Name of Paper Date

_____
Signature

_____
Title

_____
Date

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

VWP Individual Permit Number 96-0707
Effective Date:
Expiration Date:

VIRGINIA WATER PROTECTION PERMIT ISSUED PURSUANT TO THE STATE WATER CONTROL LAW AND SECTION 401 OF THE CLEAN WATER ACT

Based upon an examination of the information submitted by the owner, and in compliance with § 401 of the Clean Water Act as amended (33 USC 1341 et seq.) and the State Water Control Law and regulations adopted pursuant thereto, the State Water Control Board (board) has determined that there is a reasonable assurance that the activity authorized by this permit, if conducted in accordance with the conditions set forth herein, will protect instream beneficial uses and will not violate applicable water quality standards. The board finds that the effect of the impact, together with other existing or proposed impacts to surface waters, will not cause or contribute to a significant impairment to state waters or fish and wildlife resources.

Permittee: Bedford Regional Water Authority

Address: 1723 Falling Creek Road, Bedford, Virginia 24523

Activity Location: The raw water intake located on Smith Mountain Lake, Bedford County, Virginia.

Activity Description: This permit authorizes the expansion of an existing intake structure and the operation of a surface water withdrawal from the intake located on Smith Mountain Lake.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, and Part II - General Conditions.

_____ _____

Director, Division of Land Protection and Revitalization Date

Part I – Special Conditions

A. Authorized Activities

1. This permit authorizes the withdrawal of surface water from Smith Mountain Lake in Bedford County.

2. This permit authorizes the total permanent impact to 0.69 acres of open water, resulting from the construction of a new pump station. The authorized impact area shall be as depicted on "Figure 2 – Plan and Cross Section" dated and received on June 11, 2011.

3. Authorized activities shall be conducted as described in the Joint Permit Application (JPA) dated March 11, 2011 and received by DEQ on March 16, 2011, and supplemental materials, revisions and clarifications received through November 14, 2012. The permit authorization and conditions are also based on additional submittals approved by DEQ.

B. Permit Term

1. This permit is valid for **fifteen (15) years** from the date of issuance. A new permit may be necessary for the continuance of the authorized activities, including water withdrawals, or any permit requirement that has not been completed, including compensation provisions. The permit term, including any granted extensions, shall not exceed 15 years.

2. The permittee shall notify DEQ in writing at least 270 calendar days prior to the expiration of this permit if an extension of the permit term is required.

C. Standard Project Conditions

1. The activities authorized by this permit shall be executed in such a manner that any impacts to beneficial uses are minimized. As defined in § 62.1-10(b) of the Code, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Public water supply uses for human consumption shall be considered the highest priority.

2. No maintenance activity shall cause more than minimal adverse effect on navigation.

3. Construction of the new intake structures, or any alterations of the existing intake structure or any appurtenant pilings and supports must take place between June 16 and February 14.

4. All excavation, dredging, or filling in surface waters shall be accomplished in a manner that minimizes bottom disturbance and turbidity.

5. Any construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by this permit. Wet, excess, or waste concrete shall be prohibited from entering surface waters.

6. Any fill material placed in surface waters shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

7. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters.

8. Temporary in-stream construction features such as cofferdams shall be made of non-erodible materials.

9. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

10. All required notifications and submittals shall be submitted to the DEQ office stated below, to the attention of the VWP permit manager, unless directed in writing by DEQ subsequent to the issuance of this permit:

    Office of Water Supply
    P.O. Box 1105
    Richmond, Virginia 23218

11. All reports required by this permit and other information requested by DEQ shall be signed by the permittee or a person acting in the permittee's behalf, with the authority to bind the permittee. A person is a duly authorized representative only if both criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to DEQ.

    a. The authorization is made in writing by the permittee.

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

12. All submittals shall contain the following signed certification statement:

    "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate,

and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

13. Any fish kills or spills of fuels or oils shall be reported to DEQ immediately upon discovery at (540) 562-6814. If DEQ cannot be reached, the spill shall be reported to the Virginia Department of Emergency Management (DEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802.

14. DEQ shall be notified in writing within 24 hours or as soon as possible on the next business day when potential environmentally threatening conditions are encountered which require debris removal or involve potentially toxic substances. Measures to remove the obstruction, material, or toxic substance or to change the location of any structure are prohibited until approved by DEQ.

15. The permittee shall notify the DEQ of any of any modifications of the intake structure. Any additional impacts, modifications, or changes shall be subject to individual permit review and/or modification of this permit.

D. Water Withdrawal, Water Intake, Water Conservation, Monitoring and Reporting Conditions

1. The maximum allowable withdrawal rates from Smith Mountain Lake are as follows (see table defining Tiers 1, 2 and 3 below):

Tiered Water Withdrawal Allocations based upon the previous year's reported water withdrawals:

Tier	Reported Annual Withdrawal (MG/year)[1]	AADF (mgd)[2]	Maximum Daily Withdrawal (mgd)[3]	Maximum Annual Withdrawal (MG)[4]	Maximum Monthly Withdrawal (MG)[5]
1	≤ 1282	4.17	8.67	1603	200
2	>1282 and ≤ 1690	5.50	11.43	2113	264
3[6]	>1690 and ≤ 2306	6.00	12.00	2306	288

1: Sum of all monthly withdrawals from the previous calendar year reported to DEQ by January 31st of each year (1282 and 1690 equal 80% of the tier 1 and tier 2 maximum annual withdrawal limits, respectively)
2: Average annual daily flow
3: ((AADF +5% for plant losses) * 1.8 peak day factor) + 10% margin of safety
4: (AADF + 5% for plant losses) * 366 days per year
5: ((AADF + 5% for plant losses) * 1.5 peak month factor) * 30.5 days per month
6: Tier 3 allocations contain the additional restriction described by condition I. D. 4 below.

2. If the permittee has completed construction of the Route 122 South Waterline (Moneta to Bedford) Extension by December 31, 2017, but has not completed construction of the Route 460 East Waterline (New London to Bedford) Extension by December 31, 2017, then the maximum allowable withdrawal rates in Part I.D.1 will automatically be reduced. For the purposes of this permit, the maximum allowable withdrawal rates will be as listed in Schedule A, Case B below.

Schedule A applies as long as Tier 1 applies (the sum of all monthly withdrawals from the previous calendar year reported to DEQ by January 31st of each year is less than or equal to 1282 million gallons per year).

3. If the permittee has not completed construction of the Route 122 South Waterline (Moneta to Bedford) and the Route 460 East Waterline (New London to Bedford) Extensions by December 31, 2017, then the maximum allowable withdrawal rates in Part I.D.1 will automatically be reduced. For the purposes of this permit, the maximum allowable withdrawal rates will be as listed in Schedule A, Case C below. Schedule A applies as long as Tier 1 applies (the sum of all monthly withdrawals from the previous calendar year reported to DEQ by January 31st of each year is less than or equal to 1282 million gallons per year).

4. If, by June 30, 2020, the permittee or Western Virginia Water Authority (WVWA) has not completed construction of a waterline extension from the WVWA-Westlake service area to Rte 220 North in Franklin County, or, if BCPSA and WVWA have not amended their existing Water Sale and Purchase Agreement to stipulate that WVWA will own at least 0.6 mgd of the capacity of the proposed Smith Mountain Lake Regional Water Treatment Plant, the maximum allowable withdrawals will be equal to those listed as Tier 2 in condition I. D. 1. If the Water Sale and Purchase Agreement is amended prior to June 30, 2020, the permittee shall submit the revised agreement to DEQ for review to ensure that the allocation of capacity meets the goals of the Smith Mountain Project Water Management Plan.

Schedule A: Maximum Allowable Tier 1 Withdrawal Rates from Smith Mountain Lake based upon completion of waterline extensions within Bedford County.

Case[1]	AADF[2] (mgd)	Maximum Daily Withdrawal (mgd)[2]	Maximum Annual Withdrawal (MG)[2]	Maximum Monthly Withdrawal[2] (MG)
A[3]	4.17	8.67	1603	200
B[4]	2.03	4.22	780	98
C[5]	2.00	2.99	730	91.25

1: Definition of each case follows:

A. Prior to December 31, 2017 and/or the Route 122 South (Moneta to Bedford) & Route 460 East (New London to Bedford) Waterline Extensions have both been completed.

B. After December 31, 2017, if the Route 122 South (Moneta to Bedford) Waterline Extension has been completed, but the Route 460 East (New London to Bedford) Waterline Extension has not been completed.

C. After December 31, 2017, if the Route 122 South (Moneta to Bedford) Waterline Extension has not been completed, and the Route 460 East (New London to Bedford) Waterline Extension has not been completed.

2: Allocations are defined as in condition I. D. 1.

3: Tier 1 maximum withdrawals as listed in condition I. D. 1.

4: Combined Lakes-High Point, Central service areas projected demands and WVWA-Westlake service area current demand

5: Maximum allowable withdrawals from permit reissuance dated November 30, 2007

5. To minimize the impingement and entrainment of fish eggs, larvae and other aquatic life, the maximum through screen intake velocity shall not exceed 0.50 feet per second, unless the intake

screens are constructed less than 4 feet from the bottom of the lake. In the latter case the maximum through screen intake velocity shall not exceed 0.25 feet per second. In either case the intake screens shall be designed so that the screen openings are not wider than one millimeter.

6. Should the intake screens or other intake structures be located above the water or less than 5 feet below the record low water elevation in Smith Mountain Lake of 787.00 ft, then the location of the intake structure shall be clearly marked to avoid a hazard to boaters and other recreational users of Smith Mountain Lake.

7. The permittee shall submit as-built drawings of each intake within 90 days after construction that document the location of the intake screens relative to the lakebed and shoreline. This will serve as the basis to confirm which velocity requirements apply.

8. The permittee shall meter withdrawals from Smith Mountain Lake on a daily basis using flow totalizer technology to confirm that the withdrawals are in compliance with special conditions of this permit. Such meters shall produce volume determinations within plus or minus 10% of actual flows. A defective meter or other device must be repaired or replaced within 30 days. A defective meter is not grounds for not reporting the withdrawals. During any period when a meter is defective, generally accepted engineering practice shall be used to estimate withdrawals and the period during which the meter was defective must be clearly identified in the report.

9. The permittee shall monitor the bi-monthly flow of water sent from Smith Mountain Lake to the Central service area (in and around the Town of Bedford) as soon as the Route 122 South Waterline (Moneta to Bedford) Extension is constructed and operational. Every other month, the permittee shall record the cumulative volume of water used in the Central service area. The permittee shall provide this information annually along with their annual reporting of calculated monthly water withdrawals required by 9VAC25-200 et seq and shall make the records available to DEQ within 96 hours of receiving a request for those records. When the reported annual total flow from Smith Mountain Lake to the Central service area reaches or exceeds 50% of the projected end-of-permit annual demand for that service area (240 MG), then monitoring shall be performed monthly, rather than bi-monthly, for the duration of the permit period.

10. The permittee shall monitor the bi-monthly flow of water sent from Smith Mountain Lake to the Forest service area as soon as the Route 460 East Waterline (New London to Bedford) Extension is constructed and operational. Every other month, the permittee shall record the cumulative volume of water used in to the Forest service area. The permittee shall provide this information annually along with their annual reporting of calculated monthly water withdrawals required by 9VAC25-200 et seq and shall make the records available to DEQ within 96 hours of receiving a request for those records. When the reported annual total flow from Smith Mountain Lake to the Forest service area reaches or exceeds 50% of the projected end-of-permit annual demand for that service area (390 MG), then monitoring shall be performed monthly, rather than bi-monthly, for the duration of the permit period.

11. The permittee shall monitor the monthly flow of water sent from Smith Mountain Lake to Franklin County (the WVWA-Westlake service area or for use within the WVWA-220 North or WVWA-Boones Mill). For each month that water is sent, the permittee shall record the cumulative volume

of water sent to the Franklin County service areas. The permittee shall provide this information annually along with their annual reporting of monthly water withdrawals required by 9VAC25-200 et seq and shall make the records available to DEQ within 96 hours of receiving a request for those records.

12. The permittee shall monitor the monthly flow of water purchased from the City of Lynchburg for use within the Forest service area or for use within the Bedford City service area. For each month that water is purchased, the permittee shall record the cumulative volume of water purchased. The permittee shall provide this information annually along with their annual reporting of monthly water withdrawals required by 9VAC25-200 et seq and shall make the records available to DEQ within 96 hours of receiving a request for those records.
13. The permittee shall prepare and submit for DEQ approval a plan for monitoring and reporting water withdrawals and transfers to the Central, Forest, and Franklin County service areas. This plan must be submitted to DEQ within 120 days of this permit modification and should describe the methodology or methodologies to be used to monitor and report monthly flows from Smith Mountain Lake to each service area. The plan shall include, at a minimum, the following:
    a. Method(s) to calculate and/or estimate monthly flows sent to each service area from Smith Mountain Lake
    b. Method(s) proposed to calculate and/or estimate monthly flow of water from the City of Lynchburg to each of BCPSA's service areas
    c. An alternative procedure to be used whenever the primary monitoring method is not functioning or available
    d. The method(s) proposed to calculate and/or estimate monthly flows shall be capable of producing volume determinations within plus or minus 10% of actual flows. A defective meter or other device must be repaired or replaced within 30 days. A defective meter is not grounds for not reporting flows. During any period when a meter is defective, generally accepted engineering practice shall be used to estimate flows and the period during which the meter was defective must be clearly identified in the annual report.

14. When a drought emergency is declared by the Commonwealth of Virginia in the Bedford or Franklin County portion of the Roanoke River Drought Evaluation Region, or by Bedford or Franklin Counties in accordance with either County's Drought Management Ordinance, the permittee shall implement either the provisions directed by the Commonwealth, the declaring County's Drought Management Ordinance or the mandatory conservation measures detailed in Attachment A of this permit, whichever is most restrictive. The permittee shall be responsible for determining when drought emergencies are declared. DEQ may require documentation that mandatory conservation measures were implemented during declared drought emergencies.

15. Water withdrawal monitoring and reporting activities shall comply with this section, Part I.C, and Part II. All records and information that result from the monitoring and reporting activities required by this permit, including any records of maintenance activities to the withdrawal system, shall be retained for the life of the permit. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or as requested by the State Water Control Board.

16. For each day that water is withdrawn, the permittee shall monitor and record the date and the volume of water withdrawn that day. The permittee shall retain those records in accordance with

General Condition G.3. For all permittees whose average daily withdrawal during any single month exceeds 10,000 gallons per day, the water withdrawals shall be reported to DEQ by January 31st of the next year, as required under State Water Control Board (SWCB) Water Withdrawal Reporting Regulation (9 VAC 25-200 et seq.). The annual monitoring report shall contain the following information:

a. the permittee's name and address,
b. the sources and locations of water withdrawal,
c. the cumulative volume of water withdrawn each month and for the calendar year,
d. the average daily volume (million gallons per day) of water withdrawn as calculated the last day of the monitoring period,
e. the largest single day withdrawal volume (million gallons) that occurred in the year and the month in which it occurred,
f. the method of withdrawal measurement,
g. the information listed in Parts I. D. 9 through 12.

17. Whenever a Trigger 3 drought event is declared at Appalachian Power Company's Smith Mountain Project, as defined within the Water Management Plan portion of that Project's Federal Energy Regulatory Commission (FERC) license P-2210, the permittee must initiate conservation measures as listed below:
    a. Review and be prepared to implement Drought Response and Contingency Plans at the appropriate time.
    b. Participate, as appropriate, in regional and local coordination for the management of water resources.
    c. Stay informed on drought conditions and advisories
    d. Participate, as appropriate, in regional and local coordination for the management of water resources.
    e. Stay informed on drought conditions and advisories
    f. Project water needs and available water supply for a ninety-day period from the declaration of the Trigger 3 event
    g. Assess vulnerability to the drought conditions and adjust water usage to prolong available supply.
    h. Inspect water delivery system components
    i. It is the permittee's responsibility to coordinate with Appalachian Power Company regarding the initiation and cessation of Trigger 3 drought events.

Part II – General Conditions

A. Duty to Comply

The permittee shall comply with all conditions of the VWP permit. Nothing in the VWP permit regulations shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations and prohibitions. Any VWP permit violation is a violation of the law, and is grounds for enforcement action, VWP permit termination, revocation, modification, or denial of an application for a VWP permit extension or reissuance.

B. Duty to Cease or Confine Activity

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

C. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the permit which may have a reasonable likelihood of adversely affecting human health or the environment.

D. VWP Permit Action

1. A VWP permit may be modified, revoked and reissued, or terminated as set forth in 9 VAC 25-210 et seq.

2. If a permittee files a request for VWP permit modification, revocation, or termination, or files a notification of planned changes, or anticipated noncompliance, the VWP permit terms and conditions shall remain effective until the request is acted upon by the board. This provision shall not be used to extend the expiration date of the effective VWP permit. If the permittee wishes to continue an activity regulated by the VWP permit after the expiration date of the VWP permit, the permittee must apply for and obtain a new VWP permit or comply with the provisions of 9 VAC 25-210-185 (VWP Permit Extension).

VWP permits may be modified, revoked and reissued or terminated upon the request of the permittee or other person at the board's discretion, or upon board initiative to reflect the requirements of any changes in the statutes or regulations, or as a result of VWP permit noncompliance as indicated in the Duty to Comply subsection above, or for other reasons listed in 9 VAC 25-210-180 (Rules for Modification, Revocation and Reissuance, and Termination of VWP permits).

E. Inspection and Entry

Upon presentation of credentials, any duly authorized agent of the board may, at reasonable times and under reasonable circumstances:

1. Enter upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;

2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit; and

3. Sample or monitor any substance, parameter or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

F. Duty to Provide Information

1. The permittee shall furnish to the board any information which the board may request to determine whether cause exists for modifying, revoking, reissuing or terminating the VWP permit, or to determine compliance with the VWP permit. The permittee shall also furnish to the board, upon request, copies of records required to be kept by the permittee.

2. Plans, specifications, maps, conceptual reports and other relevant information shall be submitted as required by the board prior to commencing construction.

G. Monitoring and Records Requirements

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 (2000), Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of the expiration of a granted VWP permit. This period may be extended by request of the board at any time.

4. Records of monitoring information shall include:

   a. The date, exact place and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

H. Transferability

This VWP permit may be transferred to a new permittee only by modification to reflect the transfer, by revoking and reissuing the permit, or by automatic transfer. Automatic transfer to a new permittee shall occur if:

1. The current permittee notifies the board within 30 days of the proposed transfer of the title to the facility or property;

2. The notice to the board includes a written agreement between the existing and proposed permittee containing a specific date of transfer of VWP permit responsibility, coverage and liability to the new permittee, or that the existing permittee will retain such responsibility, coverage, or liability, including liability for compliance with the requirements of any enforcement activities related to the permitted activity; and

3. The board does not within the 30-day time period notify the existing permittee and the new permittee of its intent to modify or revoke and reissue the VWP permit.

I. Property rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize injury to private property or any invasion of personal rights or any infringement of federal, state or local law or regulation.

J. Reopener

Each VWP permit shall have a condition allowing the reopening of the VWP permit for the purpose of modifying the conditions of the VWP permit to meet new regulatory standards duly adopted by the board. Cause for reopening VWP permits includes, but is not limited to when the circumstances on which the previous VWP permit was based have materially and substantially changed, or special

studies conducted by the board or the permittee show material and substantial change, since the time the VWP permit was issued and thereby constitute cause for VWP permit modification or revocation and reissuance.

K. Compliance with State and Federal Law

Compliance with this VWP permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

L. Severability

The provisions of this VWP permit are severable.

M. Permit Modification

A VWP permit may be modified, but not revoked and reissued except when the permittee agrees or requests, when any of the following developments occur:

1. When additions or alterations have been made to the affected facility or activity which require the application of VWP permit conditions that differ from those of the existing VWP permit or are absent from it;

2. When new information becomes available about the operation or activity covered by the VWP permit which was not available at VWP permit issuance and would have justified the application of different VWP permit conditions at the time of VWP permit issuance;

3. When a change is made in the promulgated standards or regulations on which the VWP permit was based;

4. When it becomes necessary to change final dates in schedules due to circumstances over which the permittee has little or no control such as acts of God, materials shortages, etc. However, in no case may a compliance schedule be modified to extend beyond any applicable statutory deadline of the Act;

5. When changes occur which are subject to "reopener clauses" in the VWP permit; or

6. When the board determines that minimum instream flow levels resulting from the permittee's withdrawal of water are detrimental to the instream beneficial use and the withdrawal of water should be subject to further net limitations or when an area is declared a Surface Water Management Area pursuant to §§ 62.1-242 through 62.1-253 of the Code of Virginia, during the term of the VWP permit.

N. Permit Termination

After notice and opportunity for a formal hearing pursuant to Procedural Rule No. 1 (9 VAC 25-230-100) a VWP permit can be terminated for cause. Causes for termination are as follows:

1. Noncompliance by the permittee with any condition of the VWP permit;

2. The permittee's failure in the application or during the VWP permit issuance process to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

3. The permittee's violation of a special or judicial order;

4. A determination by the board that the permitted activity endangers human health or the environment and can be regulated to acceptable levels by VWP permit modification or termination;

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP permit; and

6. A determination that the permitted activity has ceased and that the compensatory mitigation for unavoidable adverse impacts has been successfully completed.

O. Civil and Criminal Liability

Nothing in this VWP permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and Hazardous Substance Liability

Nothing in this VWP permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

Q. Unauthorized Discharge of Pollutants

Except in compliance with this VWP permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;

2. Excavate in a wetland;

3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses;

4. On or after October 1, 2001 conduct the following activities in a wetland:

   a. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

   b. Filling or dumping;

   c. Permanent flooding or impounding;

   d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

R. Permit Extension

Any permittee with an effective VWP permit for an activity that is expected to continue after the expiration date of the VWP permit, without any change in the activity authorized by the VWP permit, shall submit written notification requesting an extension. The permittee must file the request prior to the expiration date of the VWP permit. Under no circumstances will the extension be granted for more than 15 years beyond the original effective date of the VWP permit. If the request for extension is denied, the VWP permit will still expire on its original date and, therefore, care should be taken to allow for sufficient time for the board to evaluate the extension request and to process a full VWP permit modification, if required.

Attachment A- Water Conservation

Mandatory Non-essential Water Use Restrictions

The following non-essential water uses will be prohibited during periods of declared drought emergencies. Please note the exceptions that follow each prohibited use. These prohibitions and exceptions will apply to uses from all sources of water and will only be effective when the Governor of Virginia or the Virginia Drought coordinator declares a Drought Emergency. Water use restrictions shall not apply to the agricultural production of food or fiber, the maintenance of livestock including poultry, nor the commercial production of plant materials, *provided that best management practices are applied to assure the minimum amount of water is utilized.*

1. ***Unrestricted irrigation of lawns is prohibited.***

   - Newly sodded and seeded areas may be irrigated to establish cover on bare ground at the minimum rate necessary for no more than a period of 60 days. Irrigation rates may not exceed one inch of applied water in any 7-day period.

   - Gardens, bedding plants, trees, shrubs and other landscape materials may be watered with hand held containers, hand held hoses equipped with an automatic shutoff device, sprinklers or other automated watering devices at the minimum rate necessary but in no case more frequently than twice per week. Irrigation should not occur during the heat of the day.

   - All allowed lawn irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.

   - Irrigation systems may be tested after installation, routine maintenance or repair for no more than ten minutes per zone.

2. ***Unrestricted irrigation of golf courses is prohibited.***

   - Tees and greens may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.

   - Localized dry areas may be irrigated with a hand held container or hand held hose equipped with an automatic shutoff device at the minimum rate necessary.

   - Greens may be cooled by syringing or by the application of water with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.

   - Fairways may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary not to exceed one inch of applied water in any ten-day period.

- Fairways, tees and greens may be irrigated during necessary overseeding or resodding operations in September and October at the minimum rate necessary. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day period.

- Newly constructed fairways, tees and greens and areas that are re-established by sprigging or sodding may be irrigated at the minimum rate necessary not to exceed one inch of applied water in any seven-day period for a total period that does not exceed 60 days.

- Fairways, tees and greens may be irrigated without regard to the restrictions listed above so long as:

    - The only water sources utilized are water features whose primary purpose is stormwater management;

    - Any water features utilized do not impound permanent streams;

    - During declared Drought Emergencies these water features receive no recharge from other water sources such as ground water wells, surface water intakes, or sources of public water supply; and,

    - All irrigation occurs between 9:00 p.m. and 10:00 a.m.

- All allowed golf course irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.

- Rough areas may not be irrigated.

3. ***Unrestricted irrigation of athletic fields is prohibited.***

    - Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at a rate not to exceed one inch per application or more than a total of one inch in multiple applications during any ten-day period. All irrigation water must fall on playing surfaces with no outlying areas receiving irrigation water directly from irrigation heads.

    - Localized dry areas that show signs of drought stress and wilt (curled leaves, foot-printing, purpling) may be syringed by the application of water for a cumulative time not to exceed fifteen minutes during any twenty four hour period. Syringing may be accomplished with an automated irrigation system or with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.

    - Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. during necessary overseeding, sprigging or resodding operations at the minimum rate necessary for a period that does not exceed 60 days. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day period. Syringing is permitted during signs of drought stress and wilt (curled leaves, foot-printing, purpling).

- All allowed athletic field irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.

- Irrigation is prohibited on athletic fields that are not scheduled for use within the next 120-day period.

- Water may be used for the daily maintenance of pitching mounds, home plate areas and base areas with the use of hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary.

- Skinned infield areas may utilize water to control dust and improve playing surface conditions utilizing hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary no earlier than two hours prior to official game time.

4. ***Washing paved surfaces such as streets, roads, sidewalks, driveways, garages, parking areas, tennis courts, and patios is prohibited.***

   - Driveways and roadways may be pre-washed in preparation for recoating and sealing.

   - Tennis courts composed of clay or similar materials may be wetted by means of a hand-held hose equipped with an automatic shutoff device at the minimum rate necessary for maintenance. Automatic wetting systems may be used between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.

   - Public eating and drinking areas may be washed using the minimum amount of water required to assure sanitation and public health.

   - Water may be used at the minimum rate necessary to maintain effective dust control during the construction of highways and roads.

5. ***Use of water for washing or cleaning of mobile equipment including automobiles, trucks, trailers and boats is prohibited.***

   - Mobile equipment may be washed using hand held containers or hand held hoses equipped with automatic shutoff devices provided that no mobile equipment is washed more than once per calendar month and the minimum amount of water is utilized.

   - Construction, emergency or public transportation vehicles may be washed as necessary to preserve the proper functioning and safe operation of the vehicle.

   - Mobile equipment may be washed at car washes that utilize reclaimed water as part of the wash process or reduce water consumption by at least 10% when compared to a similar period when water use restrictions were not in effect.

- Automobile dealers may wash cars that are in inventory no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.

- Automobile rental agencies may wash cars no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.

- Marine engines may be flushed with water for a period that does not exceed 5 minutes after each use.

6. ***Use of water for the operation of ornamental fountains, artificial waterfalls, misting machines, and reflecting pools is prohibited.***

   - Fountains and other means of aeration necessary to support aquatic life are permitted.

7. ***Use of water to fill and top off outdoor swimming pools is prohibited.***

   - Newly built or repaired pools may be filled to protect their structural integrity.

   - Outdoor pools operated by commercial ventures, community associations, recreation associations, and similar institutions open to the public may be refilled as long as:

     - Levels are maintained at mid-skimmer depth or lower;

     - Any visible leaks are immediately repaired;

     - Backwashing occurs only when necessary to assure proper filter operation;

     - Deck areas are washed no more than once per calendar month (except where chemical spills or other health hazards occur);

     - All water features (other than slides) that increase losses due to evaporation are eliminated; and

     - Slides are turned off when the pool is not in operation.

   - Swimming pools operated by health care facilities used in relation to patient care and rehabilitation may be filled or topped off.

- Indoor pools may be filled or topped off.

- Residential swimming pools may be filled only to protect structural integrity, public welfare, safety and health and may not be filled to allow the continued operation of such pools.

8. ***Water may be served in restaurants, clubs, or eating-places only at the request of customers.***

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

ATTACHMENT NO. 3
FACT SHEET
MODIFICATION OF VIRGINIA WATER PROTECTION PERMIT 96-0707
BEDFORD REGIONAL WATER AUTHORITY
SMITH MOUNTAIN LAKE WATER TREATMENT PLANT WITHDRAWAL PROJECT
BEDFORD COUNTY, VIRGINIA

July 11, 2013

FACT SHEET
Modification of Virginia Water Protection Individual Permit No. 96-0707
Bedford Regional Water Authority, Smith Mountain Lake Water Treatment Plant Withdrawal Project, Bedford County, VA

DEQ has reviewed the application for a modification to Virginia Water Protection (VWP) Individual Permit Number 96-0707 and has determined that the project qualifies for major permit modification. Based on the information provided in the application and in compliance with § 401 of the Clean Water Act as amended (33 USC 1341 et seq.) and the State Water Control Law and regulations, DEQ has determined that there is a reasonable assurance that the activity authorized by this permit will protect in-stream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to significant impairment of state waters or fish and wildlife resources, provided the permittee complies with all permit conditions.

Surface water impacts have been avoided and minimized to the maximum extent practicable. The proposed permit also addresses protection of in-stream beneficial uses via flow monitoring and reporting and implementation of operating procedures that promote conservation.

The following details the application review process and summarizes relevant information for developing the Part I - Special Conditions for permit issuance.

1. Contact Information:

Permittee Legal Name and Address:

Bedford Regional Water Authority
Attn: Mr. Brian Key, PE
1723 Falling Creek Road
Bedford, VA 24523
540-586-7679
Email: b.key@bcpsa.com

Owner Legal Name and Address:

American Electric Power (dba Appalachian Power Company)
P. O. Box 2021
Roanoke VA 240022-2121
Attn: Mr. Frank M. Simms

Agent Legal Name and Address:

Anderson & Associates, Inc
100 Ardmore Street
Blacksburg VA 24060
Attn: Mr. David Inman
540-552-5592
800-763-5596

2. Joint Permit Application (JPA) Processing Dates:

Received Application:	3/16/11
Joint Publication with VMRC of Received JPA:	did not post*
SPGP Determination letter sent to USACE:	3/25/11
Notice from VMRC re: no permit required:	3/28/11*
1st Request for Additional Information Sent:	5/10/11
Response to 1st Request for Additional Information Received:	6/24/11
2nd Request for Additional Information Sent:	5/4/12
Response to 2nd Request for Additional Information Received:	5/24/12
Letter sent to Bedford County Commissioner of Revenue:	7/11/12
Letter sent to Franklin County Commissioner of Revenue:	not applicable (used county website)
Letters sent to VDH, VDGIF, VDCR:	7/24/12
Letters sent to VMRC:	3/25/11 & 9/26/12
Letters sent to Riparian Land Owners:	8/17/12
3rd Request for Additional Information Sent:	8/28/12
Letter(s) sent to Local Government(s):	9/4/12
Response to 3rd Request for Additional Information Received:	9/13/12
Application Complete:	9/13/12
Processing Deadline (120 days from Complete Application):	1/13/13
Permit Fee request sent to BCPSA:	10/9/12
Permit Fee Deposited by Accounting:	10/23/12
Draft Permit Package Issued:	7/11/13
Copy of Public Notice sent to DEQ Central Office:	
Copy of Public Notice sent to Admin. Board. Planning:	
Public Notice Published:	
End of 30-Day Public Comment Period:	
Received Verification of Publication:	
Public Meeting or Hearing (if applicable):	

*: VMRC notified staff via email on 3/28/11 that because the new intake structures would not encroach upon the historic channel, VMRC would not require a permit.

3. Project Location:

County:	Bedford
Waterbody:	Smith Mountain Lake
Basin:	Roanoke River
Subbasin:	Upper Roanoke River
HUC:	03010101
Section/Class/Sp Stds:	6i / IV / PWS; designated as nutrient rich waters under 9VAC25-260-350.
Latitude & Longitude:	Existing Raw Water Intake: 37°07'16" N -79°38'46" W
U.S.G.S. Quadrangle:	Moneta SW
State Watershed No.:	03010101RU19
TMDL Status:	No TMDL segments exist at the reservoir or intake sites.

4. Project Description:

The Bedford Regional Water Authority (BRWA) proposes to expand the existing intake structure at the High Point water intake site on Smith Mountain Lake (SML) in Bedford County from its currently permitted, maximum daily rate of 2.99 million gallons to a maximum daily rate of 12 million gallons. The intake is located on Lakewood Drive, south of High Point Road and west of State Route 654 in Bedford County. The intake supplies the nearby High Point Water Treatment Plant (WTP), which has a current VDH waterworks operation permit allowing a treatment capacity up to 0.770 mgd. The JPA states that the expansion is needed to provide a reliable source of water to growing communities in both Bedford and Franklin Counties. This includes growth in both the amount of water used within the current Lakes-High Point service area and expansion to additional service areas by waterline extensions. The new waterlines would allow water withdrawn in the Lakes-High Point area to be sent to the Forest and Bedford City water systems. BRWA currently provides water to the Forest water system via a purchase agreement with the City of Lynchburg that is in effect until 6/30/2022. The JPA states that the purchase agreement between Lynchburg and BRWA does not have a limit on the volume that is sent to BRWA.

BRWA sells water withdrawn from the High Point water intake to the Western Virginia Water Authority (WVWA) via a purchase agreement for up to 0.4 mgd. The WVWA provides water to the Westlake service area on the Franklin County side of Smith Mountain Lake. The applicant states that new waterline extensions in Franklin County would provide service between the Westlake system and Route 220 North. However, the Franklin County Summary of Capital Improvement Projects contained within its FY 2011-2012 Capital Improvement Program does not list any planned waterline extensions through FY2015-2016.

Future proposed demands for the City of Bedford were not originally included in the JPA. However, the City is in the process of reverting to a Town within Bedford County as of July 1, 2013. The Bedford County Board of Supervisors approved an amended reversion agreement in August, 2012 and, according to a response to a request for additional information received September 13, 2012, the reversion process was expected to be complete within the next year. The reversion agreement required the formation of a new joint water and sewer authority to consolidate the services provided separately by the City and Bedford County (via the Bedford County Public Service Authority (BCPSA)), provided that the two entities enter into a Utility Consolidation Agreement by November 30, 2012. Both the City and Bedford County ratified the agreement and the new BRWA Governing Board has since approved a new rate structure needed due to the consolidation with the City of Bedford. The reversion agreement also includes a provision that an interconnection between the City and County (BRWA) water systems must be in place by December, 2016. BRWA views the interconnection initially as serving as an emergency water supply for the City and that it may become the permanent supply if the City's existing infrastructure requires significant upgrades or repairs. The addition of the City of Bedford's future demands did not, however, increase the volume of the proposed withdrawals that were originally included within the JPA. As of July 1, 2013, the BCPSA ceased to exist and was replaced by the BRWA. The City of Bedford's service area is now referred to by the BRWA as the Central Service Area.

5. Major Modification Description

This action is a major modification to the permit originally issued on September 12, 1997 and reissued on November 30, 2007. This major modification is predicated on the proposed increase in maximum daily withdrawal rate from the current value of 2.99 million gallons to 12 million gallons per day (mgd), with a proposed average annual daily flow (AADF) of 6.0 mgd. A Preliminary Engineering Report (PER) provided with the JPA that analyzes various water supply alternatives recommends expansion of the

current Lakes-High Point WTP capacity to 1.0 mgd and construction of a new, regional WTP near the existing Lakes-High Point WTP with a 5.0 mgd capacity. A more recent PER dated February 15, 2013 recommends decommissioning the High Point WTP and construction of a 6.0 mgd regional WTP with ultimate expansion of capacity to 12 mgd. Staff reviewed the proposed withdrawal increase for the demand anticipated over a 30-year planning period and over the 15-year permit term to 2028.

This modification is intended for the expansion of the existing intake only. Any potential impacts related to future waterline extensions and/or water treatment plant expansion or construction are not part of this modification and would be permitted separately.

6. Water Withdrawal Use, Need and Demand:

Purpose of Water Uses
The proposed system is a public water supply for parts of Bedford County and Franklin County near Smith Mountain Lake. The predominant types of water use are residential and commercial.

Basis of Need
The applicant statement of need is to support expected future growth in several service areas within both Bedford County and Franklin County. The application provided projected future demand estimates taken from several consultant studies to support water supply needs:

- A Preliminary Engineering Report (PER) by Thompson & Litton (2003) for the Burnt Chimney/SML area that provided projected use rates near SML in Franklin County.
- U. S. Rte 220 North Water System Evaluation by Thompson & Litton (2004) that provided projected use rates for areas west of SML in Franklin County.
- A PER by Anderson & Associates (2011) that provided projected use rates for the Lakes-SML and Forest service areas in Bedford County. This report contains an alternatives analysis to for expanding water service across Bedford County.
- Water and Sewer Master Plan for BCPSA (2009) by Draper-Aden Associates
- Two regional water supply plans: 1) Region 2000 (2009) by Draper-Aden Assoc & Malcolm Pirnie; and 2) Roanoke Valley-Alleghany Regional Commission Regional Water Supply Plan (2010) by Draper-Aden Assoc.

The projected future Bedford County demands in the JPA and associated add-info responses for 15 to 30-year periods derived from the above consultant reports generally agree with demands listed in the water supply plans. In Section 27 of the JPA, the applicant reported a statistical population (growth) trend for Bedford County as currently 4% and in the future as 1.1%; and for Franklin County as currently 0.9%. The Documentation of Need in the JPA (Tab 7) refers to the BCPSA Water and Sewer Master Plan (2009) as its source for population growth trends. That document, however, reports population projections only for 2010, 2020 & 2030 as reported by VEC (Table 3 of BCPSA Water and Sewer Master Plan (2009). The VEC projections indicate population growth of approximately 1.7% per year from 2006 to 2010, followed by approximately 1% per year from 2010 to 2030. The same document then goes on to present BCPSA water demand projections that equal 4% per year for 2008-2018 and 1.1% per year for 2018 to 2028 (Table 5 of same document). (The same annual breakdown of residential demand projections is included in Appendix D-3 of the Region 2000 Water Supply Plan.) These projections were based on the assumption that "…water infrastructure will inevitably be expanded to provide service to

many of the existing residents currently on individual wells or within privately supplied systems". Therefore, staff could not find support in the application for a current Bedford County population growth trend of 4% per year.

Staff compared the projected future population growth rates that were supplied for the proposed BRWA and WVWA service areas with separate estimates of 2010 and future (2028) population estimates determined by interpolation of the VEC population projections. The two projected population estimates were similar. Projected residential demand rates for 2028 based on the interpolated VEC population estimate (using a 75 gpd per capita use rate) were, however, less than the requested average annual daily flows (AADF) for the six BRWA and WVWA service areas (5.59 mgd vs. 6.62 mgd). Most of the difference between the population-based projected 2028 residential demand of 5.59 mgd and the applicant's total projected demand is due to projected commercial, institutional, industrial and un-accounted uses for the City of Bedford that total 0.89 mgd (Region 2000 Water Supply Plan, Appendix D-3).

Water Demand Projection

A major assumption supporting the projected future demand is that both BRWA and the Western Virginia Water Authority (WVWA) will extend service to a significant number of previously self-supplied users within their projected service areas by the end of the 15-year permit term, especially within Franklin County. The table below lists recent and projected AADF by service area:

Table 1: Water Withdrawals and Projected Demands in BRWA and WVWA in Franklin County:

County	Service Area	2009 ADF mgd [1]	2010 ADF mgd [1]	2011 ADF mgd [1]	AADF projected over permit (mgd) [2]	AADF 20-35 year projection (mgd) [3]
Bedford	Bedford City/Central	1.01	0.93	0.89	1.31	1.95
Bedford	BRWA Forest	1.56	1.50	1.38	2.14	2.71
Bedford	BRWA Lakes-High Point (used in Bedford County)	0.28	0.39	0.30	0.54	0.74
	Bedford County use/demand subtotals	2.85	2.82	2.57	3.99	5.40
Franklin	WVWA-Westlake (Purchased by WVWA from BRWA Lakes-High Point)	0.11	0.17	0.18	1.65	1.6
Franklin	WVWA 220 North	n/a [4]	n/a [4]	0.03	0.85	0.83
Franklin	WVWA Boones Mill	0.07	0.08	0.07	0.13	0.13
	Franklin County WVWA use/demand subtotals	0.18	0.25	0.28	2.63	2.56
	Totals (BRWA + WVWA)	**3.03**	**3.08**	**2.85**	**6.62**	**7.96**

Notes:

1. reported 2009-2011 flows: VWUDS and add info responses 5/2012 & 9/2012
2. projected flows for permit duration: add info responses 6/2011 & 9/13/12
3. projected 20-35 yr demands:
    - Bedford service areas: (2048) Table 1 from Anderson & Assoc., (1/2011, JPA, Tab 7)
    - Franklin 220 North & Boones Mill service areas: from PER for U.S. 220 North Water System Evaluation (Thompson & Litton, 2004; JPA Tab 7)
    - Franklin WVWA-Westlake service area: from PER for SR 122/Burnt Chimney/Smith Mountain Lake Water Distribution System (Thompson & Litton, 2003; JPA Tab 7)
4. n/a = not reported by WVWA

Approximately 40% (2.63 mgd) of the projected AADF of 6.62 mgd total demand over the permit duration would be needed for service areas within Franklin County. Recent (2011) reported AADF demand for water within WVWA service areas supplied by BCPSA was approximately 0.18 mgd. Therefore, future service area expansions and connections that would provide approximately 2.63 mgd (44%) of the requested 6.0 mgd AADF are required by an entity that is not party to the permit application. Within Section 3 (Project Purpose) of the JPA it was stated that the expansion of the surface water intake is "... needed to provide a reliable source of water to the growing communities in both Bedford and Franklin Counties (WVWA)." In Section 27 of the JPA (Water Withdrawal Use, Need, and Alternatives) the project was identified as a "...continued regional effort between the BCPSA and the WVWA."

DEQ has had a number of recent "regional" permit applications involving demand from multiple parties that were not firmed up prior to issuance of the permit. In these instances the parties failed to reach agreement and the permit ultimately allocated more water than justified during the permit term. Therefore, DEQ believes that allocation of additional water from Smith Mountain Lake to supply portions of Franklin County will require completion of capital projects that will make service to those areas possible within the term of the permit. Expansion of service throughout most of the BRWA-Lakes-SML service area is planned for completion within the next few years. The BRWA Summary of Projects table submitted with the May 2012 response to DEQ's request for additional information indicates that the planned 6.0 mgd WTP and waterline extensions to near Bedford City and the Forest service area may potentially be completed within the term of the permit. Expansion of service to new areas outside of Bedford County (within WVWA service areas) would presumably depend upon expenditures by WVWA.

The JPA contains peak day factors (projected peak day to AADF ratio) of 2.0 for each service area. Reported metered information regarding peak day and peak month flows is very limited. The reported BRWA Lakes-High Point service area peak day factor ranged from 1.8 to 3.5 for 2007 and 2009-2011 (2008 peak day flow wasn't reported). Reported peak day factors for 2007 -2011 for the City of Bedford ranged from 1.7 to 2.1 and averaged 1.8. Neither Lynchburg nor BRWA has reported peak day flows for the water delivered by Lynchburg to BRWA for the Forest service area. Peak day flows for water sold to 1) WVWA's SML-Westlake service area from the BRWA Lakes/SML service area and 2) BRWA from the City of Lynchburg are not measured daily (meters read on a monthly basis only). For the BRWA Lakes-High Point WTP service area the peak month factor (ratio of average flow during the peak month to the AADF) reported to DEQ ranged from 1.3 to 1.8 since 2007 and averaged 1.6. Peak month factors for the Forest Service area for the same period ranged from 1.2 to 1.4, and those for Bedford City were similar.

Table 2: Peak Day/AADF and Peak Month Average/AADF factors for BRWA Service Areas

Service Area	Minimum Peak Day Factor	Maximum Peak Day Factor	Average Peak Day Factor (2007-2011)	Minimum Peak Month Factor	Maximum Peak Month Factor	Average Peak Month Factor (2007-2011)
Lakes-(High Point WTP)	1.8	3.5	2.8	1.3	1.8	1.6
Forest	nd	nd	nd	1.2	1.4	1.2
Bedford City /Central	1.7	2.1	1.8	1.1	1.3	1.2
WVWA - Westlake	nd	nd	nd	1.3	2.6	1.8

nd: not determined (daily flows not measured)

The relatively high reported peak day and peak month factors for the BRWA Lakes (High Point WTP) service area may be due to the large percentage of water transferred to the WVWA-SML service area for seasonal and holiday use. The smaller peak day and peak month factors representing demands from the Bedford City and Forest service areas may indicate smaller seasonal/holiday fluctuations due to a higher percentage of permanent residents. Because the majority of the future AADF demand would represent the Forest and Bedford City/Central service areas, the overall peak day factor should reflect demands from these areas. Because the 2007-2011 peak month factors for both Bedford City/Central and Forest are very similar, it is reasonable to assume that the peak day factors for these service areas may also be similar. Given the range of reported data on peak day factors from recent years, use of a peak day factor of 2.0 for the Lakes-High Point and WVWA-Westlake service areas and 1.8 for all other service areas was considered reasonable.

Demands confirmed for this permit are listed below for the Bedford County and Franklin County service areas. These projected demands exceed the applicant's requested volumetric withdrawal rates by 0.62 mgd (AADF) and 0.35 mgd (peak day demand). Meeting the projected demands for the Bedford Forest, Bedford City, and Franklin County service areas, however, depends upon the completion of capital improvements (pipeline extensions) during the term of the permit. The differences in projected and requested demands are evidence of the uncertainty regarding whether these demands can be met by extension of the regional water supply system within the term of the permit.

Table 3: Projected Demands Justified for BRWA

Service Area	End of Permit AADF Demand (mgd)	End of Permit Peak Day Demand (mgd)
BRWA-Forest	2.14	3.85
BRWA Lakes-High Point	0.54	1.08
BRWA-Bedford City/Central	1.31	2.36
WVWA-Westlake	1.65	3.30
WVWA-Rte 220 North	0.85	1.53
WVWA-Boones Mill	0.13	0.23
Total:	**6.62**	**12.35**

7. Alternatives Reviewed:
BRWA included a Preliminary Engineering Report entitled "Lakes-Bedford-Forest Water Supply Evaluation, Bedford County, Virginia" by Anderson & Associates (January 13, 2011) within Tab 7 of the JPA (Documentation of Need) that analyzed the technical and financial feasibility of several alternative approaches to providing water service throughout all of BRWA's service areas. The alternatives that were evaluated included two approaches to providing service to the Forest service area and three alternatives to providing service to Bedford City.

Table 4: Alternatives Considered by BRWA for Providing Water to the Forest and Bedford City areas

Alternative	Purpose	Description
A1	Service to Forest	Continue to purchase from City of Lynchburg
A2	Service to Forest	Deliver water from the Lakes service area along Rtes 122 and 460
B1	Service to Bedford City	Bedford City continues to supply & maintain its own system
B2	Service to Bedford City	Deliver water from the Lakes service area along Rte 122
B3	Service to Bedford City	Purchase water from City of Lynchburg and deliver along Rte 460

The report recommended implementation of alternatives A2 and B2 as the most cost effective approach to a regional water system in the long term.

BRWA also included a site selection study for an expanded water treatment plant in the Lakes-High Point service area within Tab 6 of the JPA entitled "Smith Mountain Lake, Withdrawal Site Selection Study,"

for Bedford County Public Service Authority & Western Virginia Water Authority, dated December 13, 2010, by Anderson & Associates, Inc. This study compared five potential locations and ranked them based on six primary criteria; environmental, site availability, site access, site development, water quality, and zoning. Sites 1, 2, and 3 were located on the Franklin County side of Smith Mountain Lake and would have required construction of new intakes and water treatment plants. Site 4 includes the existing intake location with a proposed treatment plant site on currently private property. Site 5 includes the existing intake location with a proposed treatment plant site on Bedford County property. Sites 4 and 5 (existing intake location) scored the highest in the environmental category and Site 5 was ranked the highest among all categories. The report recommended that Site 5 should be used for the intake and plant expansion project.

Both the Region 2000 and Roanoke Valley Alleghany Regional Commission (RVARC) Water Supply Plans contained recommendations for expansion of the current Smith Mountain Lake intake and water treatment plant capacity in the Lakes-High Point service area in a fashion similar to the Site 5 alternative.

Based upon staff's review of the alternatives analysis and site selection study conducted by the applicant, use of the existing intake site is the least environmentally damaging, practicable alternative in light of the overall project purpose.

8. Water Withdrawal Volumes:

Water Withdrawal Volumes Requested in JPA

The applicant requested authorization of the following withdrawal volumes based upon the water demand projected for the Year 2028:

- Proposed maximum instantaneous withdrawal: 12,500 gpm (2*average daily*(24/16))
- Proposed average daily withdrawal: 6 mgd
- Proposed maximum daily withdrawal: 12 mgd (2*average daily)
- Proposed maximum monthly withdrawal: 270 MG (1.5*average daily*30)
- Proposed maximum annual withdrawal: 2190 MG (average daily*365)

Return Flow / Consumptive Use

A significant portion of the BRWA Lakes-High Point service area and all of the WVWA service areas are located within the drainage area of Smith Mountain Lake. However, all of the wastewater associated with the proposed demand would serve areas with either septic tanks or non-discharging wastewater plants. Although a significant percentage of this wastewater would ultimately discharge as ground water baseflow to the lake or to streams that drain to the lake, the time lag between withdrawal, recharge and ultimate discharge to surface water would be very large. It is not likely that water withdrawn from the lake during the summer dry season or a significant drought period would return to the lake as ground water baseflow during the same season or drought period.

The remaining portion of the BRWA Lakes-High Point service area, all of the Bedford City/Central service area and approximately two-thirds of the Forest service areas are located in the Goose Creek or Big Otter River drainage basins, which discharge to the Roanoke River downstream of Smith Mountain

Lake. The Bedford City wastewater system, which covers most of the Bedford City/Central BRWA service area, discharges to the Big Otter River. The Bedford City wastewater service area generally coincides with the area covered by the Bedford City/Central water service area.

Approximately one-third of the Forest service area is located within the James River basin. Water supplied from SML to the Forest service area would presumably end the purchase of water from Lynchburg, which withdraws from the James River. This could result in a net decrease of water withdrawn from the James River basin. Wastewater within the Forest service area is discharged via septic systems or, in some areas, via sewers to Lynchburg's wastewater system and ultimately to the James River.

Therefore, except for the amount of flow sent to the City of Bedford's wastewater discharge, the proposed BRWA withdrawals (as well as other withdrawals from the lake) should be considered 100% consumptive for the purposes of evaluating the effects of the water withdrawal during the drought of record period.

The water sent from SML to the portion of the Forest service area located within the James River basin represents an inter-basin transfer pursuant to § 62.1-44.15 because 1) it involves the transfer of water out of the Roanoke River basin, which flows to another state (North Carolina), and 2) all of the transferred water represents an expanded withdrawal from SML. In the case of inter-basin transfers, the statute requires the applicant to supply the following information in support of the transfer:

1. an analysis of alternatives to such a transfer
2. a comprehensive analysis of the impacts that would occur in the source and receiving basins
3. a description of measures to mitigate any adverse impacts that may arise
4. a description of how notice shall be provided to interested parties

BRWA provided a description of the alternatives considered (see above).

Smith Mountain Lake is part of the Smith Mountain Hydroelectric Project (Smith Mountain Project). The Smith Mountain Project (SMP) is currently licensed by the Federal Energy Regulatory Commission (FERC) as a hydropower generation facility owned by American Electric Power (dba Appalachian Power Company, or APCO). A cumulative impact analysis of the potential effects of water withdrawals upon Smith Mountain lake levels and SMP release rates (and therefore downstream flows) was conducted as part of the SMP FERC relicensing effort. The current FERC license was issued on December 15, 2009 (FERC No P-2210). The SMP also has a current VWP permit (VWP #08-0572) that has special conditions that are consistent with the conditions of the FERC license. It was determined during the relicensing and repermitting process that consumptive public supply withdrawals from the project (Smith Mountain and Leesville lakes) totaling 12.5 mgd would not have a significant effect upon the operation of the SMP. Because approximately two-thirds of the Forest service area lies within the Roanoke River basin, the portion of the 2.14 mgd AADF justified for the Forest service area that would be effectively transferred to the James River basin would probably be less than the 2.0 mgd criterion for a North Carolina Interbasin Transfer Certificate.

The effects upon the receiving basin (James River) would consist of a decrease in direct withdrawals by the City of Lynchburg to supply the Forest service area. Because there would be no overall change to the wastewater flow within the sewered areas within this water service area, the existing WWTP discharge to the James River would presumably remain the same, causing a net benefit to the receiving basin. Therefore, no adverse impacts are anticipated to either basin. Notice to interested parties will be incorporated into the public noticing for the application.

There is a concern regarding flow sent to the Central SA because all of this flow is taken out of the SMP drainage area (Roanoke River above Leesville Dam) and is therefore all consumptive with respect to the SMP. If one assumes that 1) a linear increase in withdrawals for service areas within the SMP drainage between reported 2011 data and the projected end-of-permit demands, & 2) that the Rte 220 waterline extension is not built until the later years of the 15-year permit term, then during approximately 2019 50% of the Central service area demand (0.66 mgd, or ~30 MG during a peak month) ends up being roughly one-third of the total Roanoke Basin BRWA withdrawals (2 mgd). Of course how flows to the Central service area will increase is unknown, but it seems very possible that once the pipe is there, the SML intake may supply a lot of the Town of Bedford (Central service area) demand, at least during short term periods like droughts.

As mentioned above, about one-third of the Forest service area is within the James River basin and therefore some of the water transferred to this service area represents an inter-basin transfer. However, this one-third appears (from photoimagery) to be the most developed (next to Lynchburg), suggesting that more than one-third of the water transferred to the Forest service area would go to the James Basin. The threshold for a North Carolina Interbasin Transfer Certificate is 2.0 mgd. It's unlikely that over 90% (2.0 mgd/2.14 mgd) of the water sent to Forest would go to the James Basin, but it could be close. With the same assumptions as above, 50% of the Forest end-of-permit average annual demand of 2.14 mgd is approximately equal to one-third of the total withdrawals. As with the Central service area, once the pipeline is there, it's possible that a large portion of the SML withdrawals would be going to the James Basin, at least for short periods. Therefore, monitoring of the flows to the Central and Forest service areas should ultimately be carried out at a monthly frequency.

Table 5: Comparison of BRWA water withdrawals from Smith Mt. Lake for service areas within and outside of SMP area

Service Area	2011 AADF withdrawals from SML mgd	2011 Max Monthly[2] (MG)	"2019" AADF mgd [1]	"2019" Max Monthly[2] (MG)	AADF end-of-permit (mgd)	End of Permit Max Monthly[2] (MG)
Sum of WVWA & Lakes-High Pt (total demand within SMP)	0.48	21.96	1.34	61.31	3.17	145.03
Central	0.00	0.00	0.66	30.20	1.31	59.93
Subtotal of Withdrawals within Roanoke Basin	**0.48**	**21.96**	**2.00**	**91.50**	**4.48**	**204.96**
Forest	0.00	0.00	1.07	48.95	2.14	97.91
TOTAL WD	**0.48**	**21.96**	**3.07**	**140.45**	**6.62**	**302.87**

1: linear increase in WD assumed between 2011 and end of permit (RT 220 extension not yet built)

2: AADF * 1.5 * 30.5

Conservation/drought operations

During the last BCPSA permit reissuance cycle, staff noted that Part I.D.11 in current permit 96-0707 is a condition that would allow DEQ to reopen the permit to require implementation of specific conservation measures when minimum releases from the SMP are reduced. The triggers that reduce downstream releases to the Roanoke River during drought conditions were finalized in the reissued FERC license for the SMP. At the time of reissuance, it was premature to assume that the same triggers would be appropriate for implementing conservation. The reopener condition would allow DEQ to revisit the issue after the FERC license was issued, if necessary.

The Region 2000 Water Supply Plan includes a description of the Bedford County Drought Response and Water Conservation Plan. The purpose of the plan is to provide for the declaration of the official stages of water supply shortages and for the implementation of voluntary and mandatory water conservation measures by BRWA. The BCPSA Drought Response and Water Conservation Plan was approved on December 16, 2008 (from BCPSA website, accessed October 26, 2012).

Cumulative Impact Analysis

The applicant stated in the JPA that the proposed withdrawal rate would comprise a small percentage of both the summer monthly median and annual average daily stream flow rates (as measured prior to installation of the SMP at gauging station 02057500 just downstream of Smith Mountain dam on the Roanoke River). The estimated one-day averaged, adjusted low flow rate at this site (using the same data), with a 200 year return period, is 51.7 cfs (Austin, Samuel H, et al, *Low-Flow Characteristics of Virginia Streams*, USGS SIR 2011-5143). Therefore, the accepted end-of-permit peak day flow demand of 12.35 mgd (19 cfs) is about 36% of the lowest estimated flow rate for the basin.

A cumulative impact analysis of the potential effects of water withdrawals upon Smith Mountain lake levels and SMP release rates (and therefore downstream flows) was conducted as part of the SMP FERC relicensing effort. The current FERC license was issued on December 15, 2009 (FERC No P-2210). The SMP also has a current VWP permit (VWP #08-0572) that has special conditions that are consistent with the conditions of the FERC license. It was determined during the relicensing and repermitting process that consumptive public water supply withdrawals from the project (Smith Mountain and Leesville lakes) totaling 12.5 mgd would not have a significant effect upon the operation of the SMP according to the new FERC license.

The Water Management Plan developed during relicensing by APCO for the SMP was based upon a hydrologic model that forecasts SML lake levels based upon the historic record of inflows, as well as other inputs, including withdrawals. The model input was set up so that the input daily withdrawal rate was unchanged throughout the simulation period of more than 40 years. The same withdrawal rate was used for each season through both wet and dry (drought) years and therefore no adjustment for seasonal variations in withdrawal rates was made. The effects of water withdrawals upon lake levels and downstream flows were examined during this process by determining the number of "trigger events" that occurred during a group of simulations with withdrawal inputs that varied from zero to 25 mgd. All of the water withdrawn was considered to be for consumptive and for public supply uses. A "trigger event" is a low SML lake level condition that represents drought periods. Increases in total net withdrawals did not result in significant differences in lake elevations in simulated normal and wet periods, but did cause noticeable lake elevation differences during dry periods (see graph on page 433 of P-2210 Flood & Drought Management Low Flow Operating Protocol Report). The evaluation process resulted in a modeling protocol (HL-8) that allowed for a net withdrawal from the project waters (Smith Mountain Lake and Leesville Lake) of 12.5 mgd. Because the evaluation process determined that a total net

withdrawal of 12.5 mgd was protective of lake levels and ultimately downstream flows during drought periods, this total net withdrawal rate must be considered to represent the lake withdrawal that would occur during a drought. Staff believe that actual lake withdrawal rates will fluctuate between wet, normal and dry conditions and that withdrawal rates during dry periods will be greater than normal. Therefore the SMP allowable total net withdrawal rate of 12.5 mgd represents the total net (peak) withdrawal rate during drought conditions and is not an average annual rate.

The total reported and permitted maximum daily withdrawals from the SMP lakes (Smith Mountain and Leesville) are currently less than 12.5 mgd (Table 6). Applying a peak month factor of 1.5 to the requested BRWA AADF of 6.0 mgd (plus 5% for plant losses) and assuming that the other existing or permitted SML withdrawals would operate at maximum daily rates results in a potential total withdrawal from the SMP of 11.59 mgd during a drought period, which is less than the 12.5 mgd net withdrawal limit.

Therefore the cumulative impact analysis that was conducted for the SMP relicensing process was considered to be sufficient to estimate the potential cumulative impacts to existing beneficial uses and existing water users. However, staff conducted a simplified analysis of the potential effects of total net withdrawals during a drought period upon SMP lake levels. Staff included withdrawals from two unpermitted golf course facilities (Waterfront and Mariners Landing) because much of their withdrawals are used to irrigate and promote consumptive transpiration of turf grass, particularly during dry periods. The staff modeling analysis is attached to this fact sheet (Attachment A).

Table 6: Recent reported and current permitted maximum daily withdrawals from SMP lakes (Smith Mountain and Leesville)

Facility	Highest Recent (2007-2011) Max Daily Flow (mgd)	Highest Recent (2007-2011) Max Monthly Flow (MG)	Avg over Highest Recent Max Month (mgd)	Permitted Max Daily Flow (mgd)	Potential Max Daily Flow during a Drought (mgd)
BRWA Lakes-High Point	0.84	14.85	0.48	2.99	9.45
Waterfront GC	1.00	8.00	0.26	Not permitted	1.00
Mariners Landing	0.24	3.10	0.10	Not permitted	0.24
Pittsylvania County-Leesville intake (not yet installed)	0.00	0.00	0.00	0.90	0.90
Total:	**2.08**	**25.95**	**0.84**	**3.89**	**11.59**

Based upon the results of the analysis, staff determined the proposed project as limited in the draft permit, will protect existing beneficial uses while meeting the applicant's statement of need.

Permit Withdrawal Limitations

The permit limits surface water withdrawals to the requested average and maximum daily rates, which are less than the corresponding projected demands justified for the permit term. Capital improvements in the form of 1) a new regional WTP and 2) new waterline extensions are required in order to provide the demand for the requested withdrawals. Therefore, the permit contains limits on the withdrawal rates that depend upon completion of the capital improvements. Table 7 lists three withdrawal limit tiers based upon the previous year's reported withdrawals, following the assumption that demands higher than 1282 MG/year (tiers 2 and 3) during the term of the permit will come primarily from expansion by WVWA in Franklin County. Tier 1 represents the allocation serving demands in Bedford County, plus the current WVWA demand in the WVWA-Westlake service area. Tier 2 represents the inclusion of 60% of the end-of-permit demand projected for the WVWA-Westlake service area. Finally, tier 3 represents the addition of projected demands from the WVWA 220-North and Boones Mill service areas. Tier 3 withdrawal allocations require either the completion of a waterline extension from the WVWA-Westlake service area to Rte 220 North or an amendment to the existing BCPSA-WVWA Water Sale and Purchase Agreement to stipulate that WVWA will own at least 0.6 mgd of the capacity of the proposed Smith Mountain Lake Regional Water Treatment Plant by June 30, 2020 (which is the ending date of the Water Purchase Agreement).

Tier 1 withdrawals are further limited (Table 8) by completion of the required waterline extensions in Bedford County along Rte 122 (Moneta to Bedford), and along Rte 460 (Bedford to the Forest service area).

Table 7: Tiered Water Withdrawal Allocations based upon the previous year's reported water withdrawals:

Tier	Reported Annual Withdrawal (MG/year)[1]	AADF (mgd)[2]	Maximum Daily Withdrawal (mgd)[3]	Maximum Annual Withdrawal (MG)[4]	Maximum Monthly Withdrawal (MG)[5]
1	≤ 1282	4.17	8.67	1603	200
2	>1282 and ≤ 1690	5.50	11.43	2113	264
3[6]	>1537 and ≤ 2306	6.00	12.00	2306	288

1: Sum of all monthly withdrawals from the previous calendar year reported to DEQ by January 31st of each year (1282 and 1690 equal 80% of the tier 1 and tier 2 maximum annual withdrawal limits, respectively)
2: Average annual daily flow
3: ((AADF +5% for plant losses) * 1.8 peak day factor) + 10% margin of safety
4: (AADF + 5% for plant losses) * 366 days per year
5: ((AADF + 5% for plant losses) * 1.5 peak month factor) * 30.5 days per month
6: Tier 3 allocations contain the additional restriction described by condition I. D. 4

Table 8: Maximum allowable Tier 1 withdrawal rates based upon completion of waterline extensions within Bedford County:

Case[1]	AADF[2] (mgd)	Maximum Daily Withdrawal (mgd)[2]	Maximum Annual Withdrawal (MG)[2]	Maximum Monthly Withdrawal[2] (MG)
A[3]	4.17	8.67	1603	200
B[4]	2.03	4.22	780	98
C[5]	1.90	2.99	730	91.25

1: Definition of each case follows:

A. Prior to December 31, 2017 and/or the Route 122 South (Moneta to Bedford) & Route 460 East (New London to Bedford) Waterline Extensions have both been completed.

B. After December 31, 2017, if the Route 122 South (Moneta to Bedford) Waterline Extension has been completed, but the Route 460 East (New London to Bedford) Waterline Extension has not been completed.

C. After December 31, 2017, if the Route 122 South (Moneta to Bedford) Waterline Extension has not been completed, and the Route 460 East (New London to Bedford) Waterline Extension has not been completed.

2: Allocations are defined as in Table 7.

3: Tier 1 maximum withdrawals as in Table 7.

4: Combined Lakes-High Point, Bedford City/Central projected demands and WVWA-Westlake current demand

5: Maximum withdrawals from permit reissuance dated November 30, 2007

9. Water Supply Plan Review:

The JPA was coordinated with Water Supply Planning staff on October 24, 2012, who responded on the same day. The project is located within the area covered by both the RVARC and the Region 2000 Water Supply Plans. Both of these plans were developed in accordance with the Local and Regional Water Supply Planning Regulation 9VAC25-780.

The proposed project was identified as the preferred alternative for Bedford County, the City of Bedford and Franklin County in the RVARC Water Supply Plan. The Region 2000 Water Supply Plan also considered expansion of the BRWA intake and water treatment capacity as a preferred alternative for Bedford County. The information submitted in the JPA is consistent with these plans. The applicable sections of the plans were considered in staff's evaluation of the proposed project.

10. Surface Water Impacts:

Impacts associated with the major modification

The permit authorizes a permanent impact to 30,000 square ft (0.69 acre) of open water due to the construction of two new surface water intakes within the existing easement. Any potential impacts related to the construction of the planned new regional water treatment plant were not considered in the application and are not authorized as part of this permit.

Water quality impacts are expected to be temporary and minimal provided the permittee abides by the conditions of the permit. A loss of state waters shall occur. However, the impacts have been avoided and minimized to the greatest extent practicable.

11. Compensation for Unavoidable Impacts:

Because there will be no loss of surface water area, and a minimal amount of anticipated open water impacts, and considering all avoidance and minimization measures provided, staff does not recommend requiring compensatory mitigation for such impacts in the VWP permit.

12. Site Inspection:

A site visit was conducted for this project on September 14, 2012. A summary of the site inspection is located in VWP Permit File No. 97-0707.

13. Relevant Regulatory Agency Comments:

As part of the application review process, DEQ contacted the appropriate state regulatory agencies. Any relevant agency comments were addressed in the VWP individual permit Part I - Special Conditions. Therefore, the staff anticipates no adverse effect on water quality or fish and wildlife resources provided the applicant adheres to the permit conditions.

Summary of State Agency Comments and Actions
By email dated July 24, 2012 and September 26, 2012, comments were requested from the following state agencies: Virginia Department of Game and Inland Fisheries (DGIF), Virginia Department of Conservation and Recreation (DCR), Virginia Department of Health (VDH) and the Virginia Marine Resources Commission (VMRC). Failure to provide comments within 45 calendar days of the DEQ request for comments infers that the agency has no comments on the project activities.

VDH: The Office of Drinking Water responded on August 20, 2012 with no comments.

VMRC: VMRC responded on November 1, 2012 that the intake location is located over a man-made area of Smith Mountain lake and does not fall within their jurisdiction.

DGIF: DGIF responded on September 24, 2012 with several comments. No listed wildlife species or resources are currently documented under DGIF jurisdiction from the project area. Therefore, no adverse impacts upon such species or resources are expected. DGIF supports the proposal to install a 1mm mesh screen on the intake. However, DGIF recommended that in order to best protect aquatic residents from impingement and entrainment associated with the intake, that the intake velocities not exceed 0.25 fps. Modeling data concerning the potential impacts upon flows downstream of SMP were initially requested. However this request was rescinded via email on October 24, 2012 after it was documented that the modeling during SMP FERC relicensing was sufficient as long as total project consumptive withdrawals remain less than 12.5 mgd.

DCR: DCR responded on September 4, 2012 with comments from the DCR Divisions of Natural Heritage and Stormwater Management.

The Division of Natural Heritage searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the

habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in DCR's files, natural heritage resources have not been documented in the project area. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The Division commented that the current activity will not affect any documented state-listed plants or insects and that there are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

The Division of Stormwater Management commented that projects involving land-disturbing activities equal to or greater than 10,000 square feet must comply with the Virginia Erosion and Sediment Control Law and all applicable regulations adopted in accordance with that law.

Staff coordinated the comments from DGIF and DCR with the applicant and the applicant's consultant via email on October 9, 2012.

Summary of Federal Agency Comments and Actions

U.S. Army Corps of Engineers (USACE):

The USACE requested additional information from the applicant via an email dated March 31, 2011 to Anderson & Associates, Inc (copy to DEQ). Information regarding wetlands and streams along proposed waterline extensions was requested, along with color exhibits of JPA figures 1 and 3. This information was also requested by DEQ via letter to Anderson & Associates, Inc on May 10, 2011. The applicant responded that the waterline extensions are not being requested as part of this JPA and therefore the only surface water area that will be affected is that within the existing intake buoy area (150 ft by 300 ft).

The USACE issued a Preliminary Jurisdictional Determination for the project on February 22nd, 2013. The USACE also issued a Nationwide Permit 7 verification on February 22nd, 2013, with the condition that no work is to be performed between February 15 and June 15 of any year, as per the AEP-FERC Shoreline Management Plan for the SMP.

Federal Energy Regulatory Commission (FERC):
Smith Mountain Lake is part of the Smith Mountain Hydroelectric Project (Smith Mountain Project). The Smith Mountain Project (SMP) is currently licensed by FERC as a hydropower generation facility owned by APCO. FERC must approve any request made by BRWA to utilize project waters for non-project activities (e.g., public water supply). APCO leads the process of requesting such approval from FERC. On October 3rd, 2012 staff met with APCO and BCPSA representatives to discuss BCPSA's application to FERC through APCO to utilize project waters. During this meeting Appalachian Power staff expressed their opinion that FERC will require inclusion of all interested stakeholders in their approval process. The FERC approval process can be concurrent with the VWP permitting process.

14. Public Involvement during Application Process:

Pre-Application

In accordance with 9 VAC 25-210-75.B.3 of the VWP Permit Program regulations, those who intend on submitting an application for a new or expanded major surface water withdrawal provide an opportunity for public comment on the proposed project, and shall assist in identifying public concerns or issues prior to filing a VWP individual permit application. The regulation also says that if the potential applicant receives a request for a public information meeting, at least one meeting must be held.

The applicant published a public notice regarding the application in February 2011, sent letters describing the project to 18 adjacent landowners, and held a public meeting regarding the project on February 15, 2011. A summary of the public comments received during this hearing was provided in the JPA (Tab 3). Several responses from adjacent landowners were also included in the JPA.

Riparian/Adjacent Landowner and Local Government Notification
Tab 5A of the JPA dated September 12, 2011, and revised October 11, 2011, provides information parcels, ownership, and mailing address for the properties on which the project falls. Staff verified the information provided for landowners and concurred that the information provided meets the requirements for obtaining landowner information from the local government tax roles.

Staff obtained information regarding approximately 200 riparian landowners located adjacent to the impact area and within one-half mile downstream of the proposed intake expansion from the Bedford County GIS Coordinator and from the Franklin County Commissioner of Revenue GIS website during August, 2012. Staff notified these landowners by letter dated August 17, 2012. Local governments (Bedford County and Franklin County) were notified by letter dated September 4, 2012.

Notifications of riparian and adjacent landowners and local governments were conducted in accordance with DEQ's Guidance Memorandum No. 11-2005 (Revised Local Government, Riparian Property Owner, Adjacent Property Owner or Resident, and General Public Notification Procedures for VPDES, VPSA and VWP Permit Applications and Draft Permits).

Staff received responses to the notification letter from 12 individuals between August 22, 2012 and October 6, 2012. Staff returned calls and emails to all respondents as soon as possible after receipt. Most of those who responded were concerned about future opportunities for public input. Several commented on their concern regarding the effect of more withdrawals upon already low lake levels. One respondent requested that staff visit the site and their property with them. Staff accepted and included the location into the site visit that was conducted on September 14, 2012.

Staff received 7 letters returned by the U.S. Postal Service that were marked undeliverable.

Public Meetings

15. Public Comments received during Comment Period: AND/OR
15. Changes in Permit Part I - Special Conditions Due to Public Comments:

The public notice was published in XXX on XXX. The public comment period ran from XXX to XXX.

[No public comments were received during the public comment period. Therefore, no changes have been made to the permit conditions.]

XX. State Water Control Board Meeting Summary:

The project was presented before the State Water Control Board (SWCB) on XXX…..

16. Special Conditions:

The following conditions were developed to protect instream beneficial uses, to ensure compliance with applicable water quality standards, to prevent significant impairment of state waters or fish and wildlife resources, and to provide for no net loss of wetland acreage and function through compensatory mitigation and success monitoring and reporting.

Section A Authorized Activities

Nos. 1 through 3 address the activities authorized by this permit, including impact types and limits.

Section B Permit Term

Nos. 1 and 2 address the permit term and reissuance process to ensure that all permit conditions are completed.

Section C Standard Project Conditions

No. 1 addresses the requirement for the minimization of adverse impacts to in-stream and off-stream beneficial uses.
No. 2 addresses the minimization of adverse effects on navigation.
No. 3 is a time of year condition recommended by DGIF to minimize potential adverse impacts to fish during spawning season.
No. 4 ensures that dredging and filling operations during intake expansion will minimize stream bottom disturbances and turbidity.
No. 5 through 7 provide requirements and limitations on the entry of various materials (including concrete, fill, fuels, lubricants, and untreated stormwater runoff) into state waters.
No. 8 requires temporary disturbances to surface waters during construction to be avoided and minimized to the maximum extent practicable and the restoration of such temporary disturbances.
No. 9 prohibits the violation of Water Quality Standards in surface waters as a result of project activities
Nos. 10 through 15 set forth all reporting requirements concerning construction, monitoring, compensation, and restoration as required by current law and regulations.

Section D Water Withdrawal, Water Intake, Water Conservation, Monitoring and Reporting Conditions

No. 1 establishes the maximum allowable withdrawal rates to protect instream and offstream beneficial uses. The maximum allowable withdrawals area scaled, with 3 separate tiered limits that depend upon completion of the capital improvements required for overall demand to increase.
Nos. 2 and 3 assign reduced allocations if the waterline extensions are not completed by a designated time period to ensure that the allocations are used for their stated purposes during the time period of the permit. Completion of the Rte 122 South waterline extension is required in order for the permittee to supply the Bedford City service area with water from SML. Completion of both the Rte 122 South waterline extension and the Rte 460 East waterline extension is required for the permittee to supply the Forest service area with water from SML. The date of December 31, 2017 was chosen as the

deadline for completion of waterline extensions because the reversion agreement between the City of Bedford and Bedford County requires that the City and County complete an interconnection of their water systems by December, 2016 (allowing for a one-year "grace period"). If the Rte 460 East extension is not completed by the December, 2017 deadline (Case B), the allocations are reduced by the amount equal to the Forest service area allocation. If neither waterline extension is completed by the December, 2017 deadline (Case C), the maximum allowable withdrawals are reduced to levels equal to those in the permit issued on November 30, 2007.

No. 4 requires either the completion of a waterline extension within Franklin County, or an amendment to the BRWA-WVWA purchase agreement (with DEQ review) stipulating that WVWA will own at least 0.6 mgd of capacity in the new Smith Mountain Lake regional water treatment plant in order to increase the maximum allowable withdrawal rates to include demands from the WVWA Rte 220 North and Boones Mill service areas.

No. 5 contains the screen size and intake velocity limits which reduce impingement and entrainment of aquatic organisms.

No. 6 requires the permittee to mark the intake location to avoid a hazard to boats.

No. 7 requires as-built drawings of the completed intake structure(s).

Nos. 8 through 12, 15 and 16 require monitoring and reporting to protect all beneficial uses and to monitor water use within each service area.

No. 13 requires the submittal of a monitoring and reporting plan for approval by DEQ to record water withdrawals and transfers to each of the separate service areas from the Smith Mountain Lake intake and from Lynchburg to BRWA's service areas.

No. 14 requires conservation measures to protect minimum instream flows during declared drought emergencies.

No. 17 requires specific conservation measures to be taken during Trigger 3 drought conditions that affect the operation of the Smith Mountain Project.

16. General Conditions:

General Conditions are applied to all VWP individual permits, as stated in the VWP Permit Program regulation.

17. General Standard:

This project may result in minimal, temporary impacts to beneficial uses related to the propagation and growth of aquatic life as defined in the General Standard. Provided the permittee abides by the conditions of the permit, no substances shall enter state waters in concentrations, amounts or combinations that would contravene established standards or interfere with beneficial uses or are inimical or harmful to human, animal, plant, or aquatic life.

18. Staff Findings and Recommendations:

- The proposed activity is consistent with the provisions of the Clean Water Act and State Water Control Law, and will protect beneficial uses.
- The proposed permit addresses avoidance and minimization of wetland impacts to the maximum extent practicable.
- The effect of the impact will not cause or contribute to significant impairment of state waters or fish and wildlife resources.
- The proposed permit conditions address no net loss of wetland acreage and function through compensatory mitigation.

- This permit is proposed to prevent unpermitted impacts.
- The draft permit reflects the required consultation with and full consideration of the written recommendations of VMRC, VDH, DCR and DGIF.

Staff recommends VWP Individual Permit Number 96-0707 be modified as proposed.

Approved:

_____
Director, Water Division

_____
Date

Attachment A

Virginia DEQ Modeling Support Summary

Request to Modify VWP Permit 96-0707

JPA 11-0359 Bedford County PSA Smith Mountain Lake Project

Background and Summary

The Bedford Regional Water Authority (BRWA) proposes to expand the existing intake structure at the High Point Water Intake site on Smith Mountain Lake (SML) in Bedford County from its currently permitted, maximum daily rate of 2.99 million gallons to a maximum daily rate of 12 million gallons. Smith Mountain Lake is part of the Smith Mountain Hydroelectric Project (Smith Mountain Project). The Smith Mountain Project (SMP) is currently licensed by the Federal Energy Regulatory Commission (FERC) as a hydropower generation facility owned by American Electric Power (dba Appalachian Power Company). A cumulative impact analysis of the potential effects of water withdrawals upon Smith Mountain lake levels and SMP release rates (and therefore downstream flows) was conducted during 2008 as part of the SMP FERC re-licensing effort. It was determined during the re-licensing process (concluded in 2009) that consumptive withdrawals from the lake totaling 12.5 mgd would not have a significant effect upon operation of the SMP according to the new FERC license. SMP operations in accordance with the current FERC license and VWP permit conditions are therefore protective of downstream beneficial uses.

The modeling conducted during this process demonstrated that lake withdrawals up to 25 mgd did not significantly affect SMP operations during normal and wet conditions, but did have some effect during drought conditions. The available information indicates that the model input was set up so that the daily withdrawal rate was unchanged throughout the simulation period of more than 40 years. The same withdrawal rate was used for each season through both wet and dry (drought) years and therefore no adjustment for seasonal variations in withdrawal rates was made. It is a reasonable assumption that actual lake withdrawal rates would fluctuate between wet, normal and dry conditions and that withdrawal rates during dry periods would be greater than normal. Therefore the SMP allowable total net withdrawal rate of 12.5 mgd represents the total net withdrawal rate during drought conditions and is not an average annual rate.

The total reported and permitted maximum daily withdrawals from the SMP lakes (Smith Mountain and Leesville) are currently less than 12.5 mgd (Table 1). The SMP modeling analysis included only public water supply withdrawals. However, withdrawals from two unpermitted golf course facilities (Waterfront and Mariners Landing) were included in this analysis because much of their withdrawals are used to irrigate and promote consumptive transpiration of turf grass, particularly during dry periods.

This analysis consisted of a simplified, conservative conceptualization of the SMP lakes and estimated the potential drop in elevation of Smith Mountain Lake due to net withdrawals for 4 different scenarios over a 120-day hypothetical drought period. Based on this analysis, current facilities have the potential to drop lake levels between 0.45 to 0.54 inches (approximately 0.05 ft) over an extended drought period. If the total net withdrawals reached 12.5 mgd over the same drought period, the affect upon lake levels could be between 2.73 and 3.23 inches (approximately 0.25 ft).

Table 1: Recent reported and current permitted maximum daily withdrawals from SMP lakes (Smith Mountain and Leesville)

Facility	Highest Recent (2007-2011) Max Daily Flow (mgd)	Highest Recent (2007-2011) Max Monthly Flow (MG)	Average over Highest Recent Max Month (mgd)	Permitted Max Daily Flow (mgd)
BRWA Lakes-High Point	0.84	14.85	0.48	2.99
Waterfront GC	1.00	8.00	0.26	Not permitted
Mariners Landing	0.24	3.10	0.10	Not permitted
Pittsylvania County-Leesville intake (not yet installed)	0.00	0.00	0.00	0.90
Total:	**2.08**	**25.95**	**0.84**	**3.89**

Analysis

Staff conducted a simplified analysis of the potential effects of total net consumptive withdrawals upon Smith Mountain Lake elevations during a severe drought period. Assumptions made for the analysis were:

- SML and Leesville Lake act as a single "run of river" impoundment, without pump-back from Leesville Lake to SML
- releases equal inflows
- a four month (120-day) drought period
- the stage-storage data provided by AEP for the SMP provides an acceptably accurate estimate of lake area for each foot of lake elevation

The drop in lake elevation due solely to net withdrawals was estimated for each of a series of starting lake elevations using the following equation:

X*Y*{3.07ac-ft/million gallons} / {Z}*{12 inches/ft}; where

- X = the number of days during the drought period
- Y = the total net withdrawal rate in million gallons per day
- Z = the surface area of the lake that corresponds to the starting elevation based upon the stage-storage relationship (acres)

This equation was solved for each one-foot increment in SML pool elevation (and therefore lake surface area) between a maximum of 795 ft NGVD and a minimum of 785 ft NGVD, using the available stage-storage relationship. The calculation was carried out for several withdrawal scenarios. The scenarios and results are listed in Table 2.

Table 2: Smith Mt Lake elevation drops due to direct lake withdrawals during a 120-day drought period.

Scenario	Total Net Withdrawals (mgd)	Minimum Drop (inches)	Maximum Drop (inches)
1: Highest Reported Recent Max Daily Withdrawals	2.08	0.45	0.54
2: Current Permitted / Reported Max Daily Withdrawals	5.13	1.12	1.33
3: Potential Max Monthly Allocations + Reported Max Daily Withdrawals	11.59	2.53	3.00
4: Total Allowable Net Withdrawals	12.50	2.73	3.23

Description of scenarios:

Scenario 1: Highest Reported Recent Maximum Daily withdrawals from 2007-2011:

- BRWA: 0.835mgd
- Waterfront golf course (non-permitted): 1.0 mgd
- Mariners Landing (non-permitted): 0.24 mgd
- Pittsylvania Leesville intake: 0.00 mgd
- Total = 2.08 mgd.

Scenario 2: Current Permitted Max Daily withdrawals+ Highest Reported Recent Maximum Daily withdrawals from 2007-2011 for non-permitted facilities:

- BRWA: 2.99 mgd
- Pittsylvania Leesville intake: 0.90 mgd
- Waterfront golf course (non-permitted): 1.00 mgd
- Mariners Landing (non-permitted): 0.24 mgd
- Total = 5.13 mgd.

Scenario 3: Potential Maximum Monthly allocated withdrawals + Highest Reported Recent Maximum Daily withdrawals from 2007-2011 for non-permitted facilities:

- BRWA: Max monthly allocation of 288 MG/month / 30.5 days/month = 9.45 mgd
- Pittsylvania Leesville intake: 0.90 mgd
- Waterfront golf course (non-permitted): 1.00 mgd
- Mariners Landing (non-permitted): 0.24 mgd
- Total = 11.59 mgd

Scenario 4: Total SML project withdrawals due to consumptive use incorporated into SML Project Water Management Plan over period of FERC license: 12.5 mgd

The maximum drop of 3.23 inches (0.27 ft) would occur due to a total net withdrawal rate of 12.5 mgd if the 120-day drought period began when the SML lake level was already at an extremely low (and previously unreached) elevation of 785 ft NGVD (see appendix below containing all calculations). If the SML elevation was at full pool (795 ft NGVD) at the beginning of the 120-day drought period, the drop due to a 12.5 mgd total net withdrawal rate would be 2.73 inches (about 0.23 ft).

Based on this analysis, current facilities have the potential to drop lake levels between 0.45 to 0.54 inches (approximately 0.05 ft) over an extended drought period. If the total net withdrawals reached 12.5 mgd over the same drought period, the affect upon lake levels could be between 2.73 and 3.23 inches (approximately 0.25 ft). These results are consistent with those from the sensitivity analysis of total net

withdrawals conducted by AEP during the SMP FERC relicensing process (see graph on page 433 of P-2210 Flood & Drought Management Low Flow Operating Protocol Report).

If the same analysis is conducted assuming a constant net evaporation rate from the lake of 7 inches/month (0.23 inches/day) over the same 120 day period, the following ranges of lake elevation drop due to both evaporation and net withdrawals would be, not surprisingly, significantly greater.

Table 3: Smith Mt Lake elevation drops due to both lake evaporation at a constant rate of 7 inches/month and direct lake withdrawals during a 120-day drought period.

Scenario	Total Net Withdrawals (mgd)	Minimum Drop (inches)	Maximum Drop (inches)
Highest Reported Recent Max Daily Withdrawals	2.08	28.05	28.14
Current Permitted / Reported Max Daily Withdrawals	5.13	28.72	28.93
Potential Max Monthly Allocations + Reported Max Daily Withdrawals	11.59	30.13	30.60
Total Allowable Net Withdrawals	12.5	30.33	30.83

Appendix: Calculations to estimate potential SMP lake elevation drop due to total net consumptive withdrawals and estimated evaporation:

Equation:

X*Y*{3.07ac-ft/million gallons} / {Z}*{12 inches/ft}; where

- X = the number of days during the drought period
- Y = the total net withdrawal rate in million gallons per day
- Z = the surface area of the lake that corresponds to the starting elevation based upon the stage-storage relationship (acres)

Calculations:

A. Drop due only to lake withdrawals (inches):

Beginning Elevation (ft NGVD)	Beginning Lake Area (ac)	Scenario 1	Scenario 2	Scenario 3	Scenario 4
795	20260	0.45	1.12	2.53	2.73
794	19803	0.46	1.15	2.59	2.79
793	19514	0.47	1.16	2.63	2.83
792	19229	0.48	1.18	2.66	2.87
791.5	19087	0.48	1.19	2.68	2.90
791	18945	0.49	1.20	2.70	2.92
790	18540	0.50	1.22	2.76	2.98
789	18387	0.50	1.23	2.79	3.01
788	18112	0.51	1.25	2.83	3.05
787	17640	0.52	1.29	2.90	3.13
786	17570	0.52	1.29	2.92	3.15
785	17100	0.54	1.33	3.00	3.23

B. Drop due to both lake evaporation at constant rate of 0.23 inches/day plus lake withdrawals (inches):

Beginning Elevation (ft NGVD)	Beginning Lake Area (ac)	Scenario 1	Scenario 2	Scenario 3	Scenario 4
795	20260	28.05	28.72	30.13	30.33
794	19803	28.06	28.75	30.19	30.39
793	19514	28.07	28.76	30.23	30.43
792	19229	28.08	28.78	30.26	30.47
791.5	19087	28.08	28.79	30.28	30.50
791	18945	28.09	28.80	30.30	30.52
790	18540	28.10	28.82	30.36	30.58
789	18387	28.10	28.83	30.39	30.61
788	18112	28.11	28.85	30.43	30.65
787	17640	28.12	28.89	30.50	30.73
786	17570	28.12	28.89	30.52	30.75
785	17100	28.14	28.93	30.60	30.83

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

ATTACHMENT NO. 4
VWP INDIVIDUAL PERMIT NUMBER 08-0572

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

VWP Individual Permit Number 08-0572
Effective Date: April 1, 2010
Expiration Date: March 31, 2025

VIRGINIA WATER PROTECTION PERMIT
ISSUED PURSUANT TO THE STATE WATER CONTROL LAW
AND SECTION 401 OF THE CLEAN WATER ACT

Based upon an examination of the information submitted by the owner, and in compliance with § 401 of the Clean Water Act as amended (33 USC 1341) and the State Water Control Law and regulations adopted pursuant thereto, the State Water Control Board (board) has determined that there is a reasonable assurance that the activity authorized by this permit, if conducted in accordance with the conditions set forth herein, will protect instream beneficial uses and will not violate applicable water quality standards. The board finds that the effect of the impact, together with other existing or proposed impacts to surface waters, will not cause or contribute to a significant impairment to state waters or fish and wildlife resources.

Permittee: Appalachian Power Company

Address: P.O. Box 2021, Roanoke, Virginia 24022

Activity Locations: Smith Mountain Dam on the Roanoke River between Bedford and Pittsylvania Counties and Leesville Dam on the Staunton River between Campbell and Pittsylvania Counties

Activity Description: The discharge of water through hydroelectric turbines at Smith Mountain and Leesville Dams

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, and Part II - General Conditions.

Director, Water Division

January 14, 2010
Date

A. *Authorized Activities*

This permit authorizes the following impacts as indicated in the application dated March 25, 2008, received by DEQ on March 27, 2008, and deemed complete by DEQ on May 2, 2008. The permit authorization and conditions are also based on additional submittals approved by DEQ.

1. The discharge of water from Leesville Lake to the Staunton River for the production of hydroelectricity.

2. The discharge of water from Smith Mountain Lake to Leesville Lake for the production of hydroelectricity.

3. The discharge of pumped water from Leesville Lake to Smith Mountain Lake for the purpose of storing the potential energy of the pumped water.

B. *Permit Term*

This permit is valid for 15 years from the effective date.

C. *Standard Project Conditions*

1. The activities authorized by this permit shall be executed in such a manner that any impacts to stream beneficial uses are minimized. As defined in § 62.1-10(b) of the Code, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Public water supply uses for human consumption shall be considered the highest priority.

2. Flows downstream of the project area shall be maintained to protect all uses.

3. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters.

4. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

5. All required notifications and submittals shall be submitted to the DEQ office stated below, to the attention of the VWP permit manager, unless directed in writing by DEQ subsequent to the issuance of this permit:

Department of Environmental Quality
Office of Wetlands and Water Protection
P. O. Box 1105
Richmond, VA 23218

6. All reports required by this permit and other information requested by DEQ shall be signed by the permittee or a person acting in the permittee's behalf, with the authority to bind the permittee. A person is a duly authorized representative only if *both* criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to DEQ.

   a. The authorization is made in writing by the permittee.

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

7. All submittals shall contain the following signed certification statement:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

8. Any fish kills or spills of fuels or oils into Smith Mountain Lake by the permittee shall be reported to DEQ immediately upon discovery to the West Central Regional Office Pollution Response Program at (540) 562-6723. Any fish kills or spills of fuels or oils by the permittee into Leesville Lake or the Staunton River shall be reported to DEQ immediately upon discovery to the South Central Regional Office Pollution Response Program at (434) 582-6236. If DEQ cannot be reached, the spill shall be reported to the Virginia Department of Emergency Management (DEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802

9. The permittee shall notify DEQ of any additional impacts to surface waters, including wetlands; of any modifications to the discharge works; and of any change to the type of surface water impacts associated with this project. Any additional impacts, modifications, or changes shall be subject to individual permit review and/or modification of this permit.

D. *Instream Flow Conditions*

1. The following instream flow conditions become effective April 1, 2010.

2. The minimum release from Leesville Lake shall not be less than 375 cubic feet per second in terms of average hourly flow from November 1st through February 29th and 400 cfs in terms of average hourly flow from March 1st through October 31st.

3. The permittee shall conduct a study to determine the relative impact of providing streamflows through hourly auto-cycling compared to continuous releases. The study plan shall be developed in consultation with the Department of Game and Inland Fisheries, the Department of Environmental Quality, the Citizens for the Preservation of the River, and the Tri-County Re-licensing Committee. This study plan shall be submitted to the Board no later than March 1, 2009 for approval. The study shall be conducted in the reach of the Staunton River beginning at the base of the Leesville Dam and extending to the confluence with Goose Creek. The study shall be conducted for no less than one year with the final study schedule to be approved by the Board. The study plan shall be designed to investigate the potential effects of hourly auto-cycling releases on bank erosion, water quality, and fishery and benthic habitat, recreation, public safety, or other factors determined by the Board. The results of this study shall be submitted to the Board for making a final determination on the method of downstream releases. Should the determination of the Board, after it reviews the study, be that the permittee shall implement continuous flow releases, that will be deemed as mitigation. Should the determination of the Board, after it reviews the study, be that hourly auto-cycling continue by the permittee, the Board may require the permittee to implement other forms of mitigation, including stream restoration for those portions of the reach studied. If any of these mitigation actions are required, such actions shall be implemented by the permittee in accordance with a schedule approved by the Board.

4. Until the initiation of, and during, the study called for in D.3 above, a generating unit at Leesville Lake shall be operated on a one hour auto-cycling basis to provide the required flows. In case the generating units are out of service, the release may be made by spillway gate or other alternative methods available to the permittee.

5. The permittee shall run a forecast based simulation model at least once every three days and evaluate the probability of being at a certain elevation in the future. Trigger

1 will activate when there is a 20% chance of dropping below 790.5' (adjusted) in 16 weeks. Trigger 2 will activate when there is a 2% chance of dropping below 790' (adjusted) in 10 weeks. Trigger 3 will activate if Trigger 2 is in effect and the reservoir is less than 795' (adjusted) between December 1 and March 31, or anytime the adjusted elevation drops below 791.0' after September 30. All triggers are lifted if the elevation has reached 795'(adjusted) and there is less than a 2% chance of dropping below 790.5' (adjusted) sixteen weeks from that time.

6. To the extent that inflows allow, the permittee shall store additional water in Leesville Lake so that the adjusted storage shall be equal to 795.3 feet adjusted by April 15th of each year. The extra 0.3 feet of storage is intended to be used to ensure the success of the striped bass spawning run and need not be retained past the end of that run unless the permittee chooses to do so, while still complying with minimum instream flowby requirements.

7. The permittee shall release water at Leesville in an attempt to meet the target flows listed in the table below. Target flows are measured at the Brookneal gage, USGS number 02062500 and expressed in units of cubic feet per second. The permittee shall estimate tributary flows between Leesville and Brookneal when running the forecasting model and use such estimates in determining releases from Leesville when attempting to meet the target flows at Brookneal. The permittee will work with the Department of Game and Inland Fisheries to study the effect of the maximum releases identified in notes 5, 6, and 7 on the health of the fishery and provide a report to DEQ as part of the adaptive management condition E.2.

	Normal	Trigger 1	Trigger 2	Trigger 3
January	1100	990	990	770
February	1100	990	990	770
March	1100	935	825	770
April	1500	1275	1200	1050
May	1500[4]	1275	1200	1050
June	900[1,5]	765[2,6]	765[3,6]	630[3]
July	700[1]	595[2,7]	560[3,7]	490[3]
August	See note 1	570[2,7]	570[3,7]	420[3]
September	550	550[7]	550[7]	385
October	600	570[7]	570[7]	420
November	700	595[7]	560[7]	490
December	800	720	720	560

Notes:

1. Minimum release at Leesville of 650 cfs, in terms of an average hourly flow.
2. The minimum release of 650 cfs at Leesville will be made on Saturdays and Sundays and on Memorial Day, July 4th and on Labor Day for recreation. Appalachian shall time the release in an attempt to make it arrive at Long Island at 8 AM on Saturday and to subside at Brookneal at 8 PM on Sunday
3. A minimum release of 650 cfs will be made at Leesville for 12 hours timed to arrive at approximately sunrise at Long Island on Saturdays and on Memorial Day, July 4th and on Labor Day.
4. Upon notification by the Department of Game and Inland Fisheries that striped bass spawning is complete, the permittee may reduce releases and only be required to make release for the June normal target flow of 900 cfs
5. The maximum release that the permittee is required to release in attempting to hit the target flow at Brookneal is 700 cfs.
6. The maximum release that the permittee is required to release in attempting to hit the target flow at Brookneal is 650 cfs
7. The maximum release that the permittee is required to release in attempting to hit the target flow at Brookneal is 480 cfs

E. *Adaptive Management*

1 If required by operating emergencies beyond the control of the permittee, or when Trigger 3 events occur during drought or low inflow conditions, flows can be temporarily modified from those described in Section D upon mutual agreement between the licensee and DEQ, in consultation with the Virginia Department of Game and Inland Fisheries, following appropriate public input as determined by DEQ.

2. Within five years after the date that the instream flow conditions become effective, the permittee shall hold a public meeting in the vicinity of the project and accept comments on the performance of the project in maintaining lake levels and in providing flows necessary to protect instream beneficial uses. The permittee shall summarize the comments and provide them to DEQ along with any recommendations that the permittee might have. DEQ may, at its discretion, and depending on the comments, elect to exercise its right to reopen the permit pursuant to State Law and Regulation.

F. *Dissolved Oxygen Conditions, Monitoring and Reporting*

1. The permittee shall operate the turbines at Smith Mountain Dam from July1st through September 30th in a fashion that will minimize or eliminate violations of water quality standards for dissolved oxygen in the tail waters below Smith Mountain Dam. During this time period, the permittee will dispatch the turbines with intakes that are highest in the water column first and take those turbines off line last when generating.

2. Within 120 days of the effective date of the permit, the permit shall provide for DEQ approval a monitoring plan designed to determine the timing and extent of potential contraventions of the water quality standards for dissolved oxygen in Leesville Lake caused by late summer and fall hydroelectric generation from discharges from Smith Mountain Lake. The monitoring plan shall include but not be limited to the location of monitoring stations and the frequency of monitoring.

3. Within five years of the effective date of this permit, the permittee shall provide DEQ a report on Summer and Fall Dissolved Oxygen Monitoring in Leesville Lake during Generation at Smith Mountain Dam. The report shall summarize the effects of power generation on Leesville lake dissolved oxygen levels.

4. If the first on, last off generation practices required by condition F.1, are not successful in eliminating dissolved oxygen contraventions of water quality standards caused by turbine discharge, the permittee shall submit a feasibility study and plan for physical or mechanical alterations of water release procedures that will eliminate violations of water quality standards for dissolved oxygen caused by turbine discharge from Smith Mountain Lake. The feasibility study will be due by December 31, 2015 unless the operational changes alone are sufficient to eliminate contraventions of the dissolved oxygen standard.

G. *Instream Flow Monitoring and Reporting Conditions*

1. The permittee shall monitor on a daily basis, adjusted storage levels in the project lakes, inflow to the project, downstream side flows between Leesville Dam and Brookneal and releases from the project to the Staunton River.

2. The permittee shall file an annual report with DEQ that tabulates by date, the status of the project in terms of the trigger condition in effect, the adjusted elevation, the mean daily release at Leesville and the target flow required by the table in condition D.5. The report shall be submitted by January 31st for the previous calendar year.

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

ATTACHMENT NO. 5
MODIFICATION OF VIRGINIA WATER PROTECTION PERMIT 96-0707
BEDFORD REGIONAL WATER AUTHORITY
SMITH MOUNTAIN LAKE WATER TREATMENT PLANT WITHDRAWAL PROJECT
BEDFORD COUNTY, VIRGINIA
PRESS RELEASES

Date	Description
07/16/2013	BRWA Press Release – Draft Permit Received from DEQ
07/16/2013	WSET Television – Bedford County to Pull More Water from Smith Mountain Lake (SML)
07/17/2013	WSET Television - Lynchburg Customers Angry Over Potential Water Rate Hike
07/17/2013	Lynchburg News Advance – Bedford a Step Closer to Water Self-Reliance
07/17/2013	Smith Mountain Eagle – Lake Water Withdrawal Gets 'Draft' Approval

Bedford Regional Water Authority
1723 Falling Creek Road
Bedford, Virginia 24523
Phone: 540-586-7679, ext. 121
Fax: 540-586-5805
Email: m.rapp@bcpsa.com

PRESS RELEASE

July 16, 2013
FOR IMMEDIATE RELEASE

Smith Mountain Lake Water Treatment Plant Project
Draft Permit Received from DEQ

The draft permit from the Department of Environmental Quality ("DEQ") has been issued to the Bedford Regional Water Authority ("Authority"). The permit grants the Authority the ability to increase the withdrawal intake from the current Smith Mountain Lake intake valve from 2.99 million gallons per day to 12 million gallons per day. The permit is not official until after an advertisement has been issued in the local paper (running July 17th) and citizens have the chance to make comments and/or request a public hearing through DEQ about the permit.

The Authority proposes to expand the existing intake structure at the High Point water intake site on Smith Mountain Lake in Bedford County from its currently permitted, maximum daily rate of 2.99 million gallons to a maximum daily rate of 12 million gallons. The permit contains limits on the withdrawal rates that depend upon completion of waterline extensions to service areas within Bedford County, and additional limits that depend upon either completion of a waterline extension in Franklin County or an amendment to an existing water purchase agreement between the applicant and the Western Virginia Water Authority. DEQ's preliminary decision is to issue the permit.

The issuance of this draft permit is one step in the new Smith Mountain Lake Water Treatment Plant project. Past steps to get the project to this step include:

- June 2011: Feasibility study completed analyzing the options for bringing water to Forest from Smith Mountain Lake.
- August 2010: Western Virginia Water Authority agrees to contribute to the costs of permitting.
- December 2010: A site selection study was completed identifying the Camp24 property in Bedford County as the best site for the new plant while using the existing intake location for the withdrawal.
- May 2011: Withdrawal permit application filed with DEQ.
- December 2011: Financial report completed that included a detailed study on the financial aspects of funding the project, including a detailed evaluation of the capability of the Authority to fund the project through debt service. It concluded that over the long term, the Smith Mountain Lake water treatment plant project is more cost effective than continuing to purchase water from Lynchburg. The money saved from not paying Lynchburg for water purchases offsets the debt service expense of the project.

- February 2012: Consulting engineer hired to perform the detailed analysis of the proposed project. The Authority is still awaiting approval from the health department.
- April 2013: Owners Representative contract awarded to William P. Johnson to facilitate the design-build process.

The steps still needed to complete the project by December 2016 (the deadline per the reversion agreement) include:

- Bedford County comprehensive plan review: September 2013
- Obtain land for the plant (Estimated completion October 2013)
- Hire Design Build Contractor (Estimated completion December 2013)
- Obtain withdrawal permit from AEP/FERC (Estimated completion December 2013)
- Secure funding (Estimated completion April 2014)
- Obtain land for the Intake Pump Station (Estimated completion: TBD)

Completing this project would create many positive effects for the Authority customers and the community. These include a $28 million dollar savings over 50 years, more efficient water production, a backup source of water to the Town of Bedford, ability to provide additional service to previous and future requests from customers, increased fire safety, and saving $8 million by not having to update the current Smith Mountain Lake Treatment Plant. This project is not about fulfilling just one objective or satisfying one group of customers; this project is about supporting public health, strengthening the system, ensuring fire safety, and long range planning. It is about building a stronger, more resilient community while also help adjoining water authorities in times of need.

About the Bedford Regional Water Authority:
The Bedford Regional Water Authority ("Authority") was created pursuant to the Water and Sewer Authorities Act Chapter 28, Title 15.1 code of Virginia of 1950, as amended. In accordance with the Reversion Agreement executed in August, 2012, the Authority was created by the Bedford County Board of Supervisors ("Supervisors") by resolution dated November 14, 2012 and the Bedford City Council ("Council") by resolution dated November 27, 2012. The Authority is authorized to acquire, finance, contract, operate, and maintain water systems, sewer systems, sewage disposal and treatment systems.

For information contact:
Megan Rapp
Communications Coordinator
Bedford County Regional Water Authority
540-586-7679 ext. 121
m.rapp@bcpsa.com
www.brwa.com

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The Heart of Virginia
WSET TV Lynchburg Danville Roanoke

Bedford Co. to Pull More Water From SML

Posted: Jul 16, 2013 5:50 PM EDT

By Angela Hatcher - bio | email

Bedford Co., VA - A lot more drinking water could soon be coming out of Smith Mountain Lake.

The Bedford Regional Water Authority has been issued a permit from the state to pull up to 12 million gallons per day from the lake.

The authority thinks only 6 million gallons a day will be needed to eventually provide water to Forest and New London.

The county currently buys water from Lynchburg for those areas.

The plan won't be a done deal until citizens have the chance to comment or request a public hearing with the Department of Environmental Quality.

This could affect water rates in Lynchburg.

Stay tuned for more on that tonight on ABC 13 News at 11.

The Heart of Virginia
WSET TV Lynchburg Danville/Roanoke

Lynchburg Customers Angry Over Potential Water Rate Hike

Posted: Jul 17, 2013 9:27 PM EDT

By James Gherardi - bio | email

Lynchburg, VA - It's the news that's putting a damper on the people that pay Lynchburg for their water. They could be facing up to a 15% rate hike for that city service.

Lynchburg officials say the hike would stem from a loss of 15% of their customer base, from parts of Bedford County moving to another source. Lynchburg would produce the same amount of water, just without the same number of people to purchase it.

But those that pay for that city service are saying they don't want to foot the bill.

"It's the elixir of life as well as the elixir of our business" said Jim Dudley as he pours a glass of water.

Dudley owns Jimmy's on the James in Lynchburg. Like most restaurants, his uses a lot of water.

"You need a lot of water for ice, got to make all your drinks, water for the customers, water for our dishes" he said.

His city water bill averages around $100-150 every month. On top of all the other bills, taxes, and fees he's forced to pay, he doesn't want to pay potentially 15% more for his water.

"It's incumbent upon anything from government to run as efficiently as it can, and as cheaply as it can so that John Q. Citizen has more of his own money in his pocket" said Dudley.

But in comparison, a recent city study showed Lynchburg's average monthly water bill comes in at around $18, well under the state average of more than $27. Bedford County came in at $37.

But a 15% hike for Lynchburg customers could take that $18 to $21, a cost that could add up quick.

"Things that we're looking at are phasing in rates over a number of years" said Tim Mitchell, Lynchburg's Director for the Department of Water Resources.

Mitchell says the city will likely slowly increase the rate. Or consider other options, like delaying city capital projects.

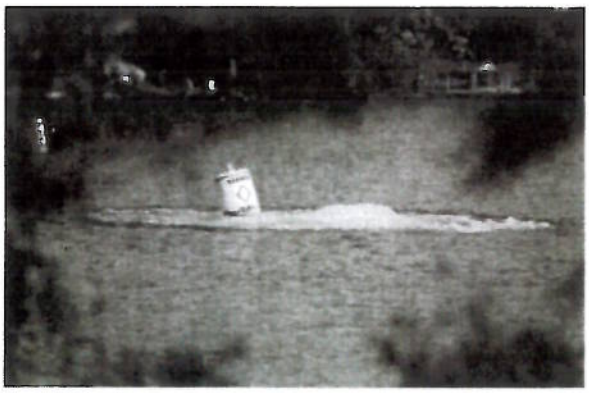
"There might be ways that we can operate our system a little more efficiently internally as well to save some money" said Mitchell.

"It's a deal so far, it should remain a deal" said Dudley.

Lynchburg supplies water to parts of Amherst, Campbell, and Bedford Counties. All those customers could see a rate hike.

This is still only a possibility. Bedford County has to hold a public hearing on the switch, something that'll likely happen in the coming months.

Bedford a step closer to water self-reliance



Sam O'Keefe

In this May file photo, bubbles rise in Smith Mountain Lake as the screen on an intake pipe is cleared of debris by a brief backwash cycle. Water from the lake serves about 1,000 Franklin County customers but that may expand to thousands more in Bedford and Forest.

Posted: Wednesday, July 17, 2013 2:00 am | Updated: 5:39 am, Wed Jul 17, 2013

Justin Faulconer

State environmental regulators have issued a draft permit to the Bedford Regional Water Authority to draw four times more water from Smith Mountain Lake, a key step in plans to build a 26-mile pipeline from the lake to Forest.

The permit would allow the authority to increase withdrawal from the current lake-intake valve from just under 3 million gallons per day to 12 million gallons. It is not official until after it has been advertised and residents have had a chance to comment or request a public hearing through the Virginia Department of Environmental Quality.

The permit fits into the water authority's plans to build a new Smith Mountain Lake Water Treatment Plant and position Bedford County to better use the lake as a water source. The authority, which serves the county and the town of Bedford, has proposed a near $34 million project that would bring water from the lake to the town along Virginia 122, and then on to Forest along U.S. 460.

Authority Director Brian Key has said it is more cost-effective to use the lake than continue to purchase water from Lynchburg to serve Forest customers.

The project has a targeted completion date of December 2016, a deadline set in an agreement to provide a backup waterline to the town, which reverted from a city two weeks ago. The reversion led to the merger of water and sewer systems in the county and town.

Officials say the project likely will save the county $28 million over 50 years, compared to continuing to buying water from Lynchburg for the Forest area. They also say the plan would lead to more efficient water production, a stronger ability to meet customer requests and increased fire safety.

It also would keep the county from having to spend $8 million to update the current lake treatment plant, according to a news release from the authority on Tuesday.

"This project is not about fulfilling just one objective or satisfying one group of customers; this project is about supporting public health, strengthening the system, ensuring fire safety, and long-range planning," the release said. "It's about building a stronger, more resilient community while also help adjoining water authorities in times of need."

The waterline could cost Lynchburg up to 20 percent of its customer base — a more than $1 million hit. City Manager Kimball Payne has said the city system has many "fixed" costs so operating expenses could not be cut by 20 percent; he is concerned with the potential the project would have for city rate payers, and has advocated for a different solution.

Megan Rapp, an authority spokeswoman, said in email Tuesday the two sides are at a stage where, if a compromise is reached, the authority could choose to buy water from the city rather than build a new plant.

"Through all of our talks we have not come up with a solution where they are able to sell water at low enough rates that would make it a more financially feasible option than building the new plant," Rapp said in the email.

The draft permit is a milestone in the process and shows a tremendous amount of work and collaboration between the authority and DEQ, she said.

Further steps in the project include hiring a design-build contractor, securing funding, obtaining land and obtaining a permit from American Electric Power and the Federal Energy Regulatory Commission to use the lake. County officials have to review and approve the land-use components; Director of Community Development Tim Wilson said recently a special-use permit is needed.

The authority anticipates reaching completion in those steps within the next year.

Contact Justin Faulconer at (434) 385-5556 or jfaulconer@newsadvance.com.

Posted in Local on Wednesday, July 17, 2013 2:00 am. *Updated 5:38 am*

Submit You

Submit y

Obituaries

Cabell, Imogene I

Imogene Liggon Cabell Ir Heights, entered into eter Baptist Hospital. She...

Chewning, Nettie

Nettie Smith Chewning N passed away on Wednes the late Alfred B...

Harris, Robert Ea

Robert Earl "Fatman" Har 54, of Rustburg, passed a parent's home. Born...

Hash, Mary Grace

Mary Grace Hash Mary G into eternal life on Thursd N.C., November 23...

Lee, Gladys Ann

Deaconess Gladys Ann L Amherst, Va., found peac Tuesday, July 16, 2013, a

Randolph, Herbe

Herbert "Jim" McKinley R Randolph, 77, of Red Hou 2013, in Lynchburg. He ...

Lake water withdrawal gets 'draft' approval

Posted: Wednesday, July 17, 2013 5:01 pm

A "draft" permit from the Virginia Department of Environmental Quality (DEQ) has been issued to the Bedford Regional Water Authority.

The permit grants the Authority the ability to increase the withdrawal intake from the current Smith Mountain Lake intake valve from 2.99 million gallons per day to 12 million gallons per day.

The permit is not official until after an advertisement has been issued in the local paper (running July 17) and citizens have the chance to make comments and/or request a public hearing through DEQ about the permit.

The Authority proposes to expand the existing intake structure at the High Point water intake site on Smith Mountain Lake in Bedford County from its currently permitted, maximum daily rate of 2.99 million gallons to a maximum daily rate of 12 million gallons.

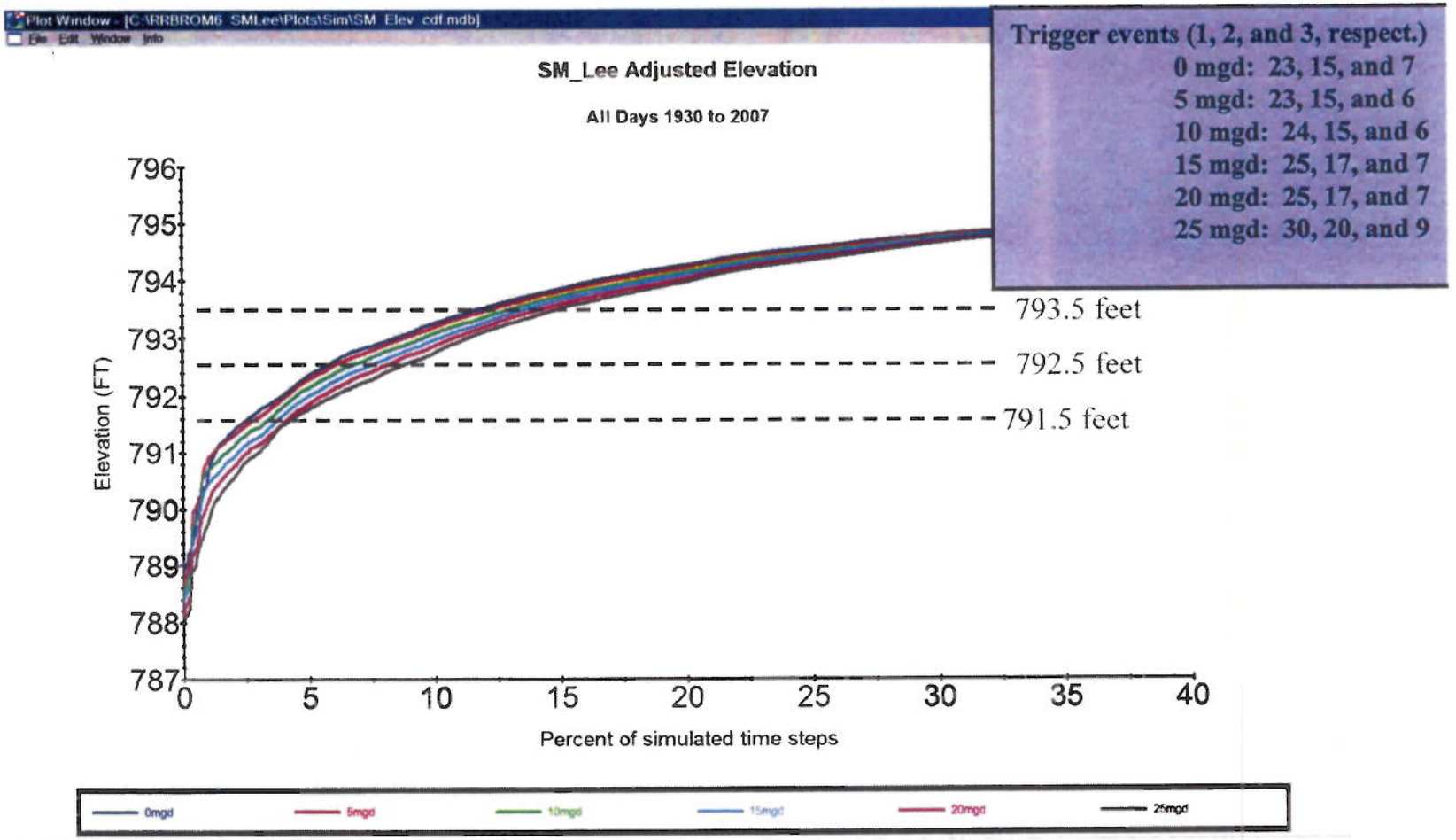
APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
APPLICATION FOR AMENDMENT OF
ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS
AND WATERS: WATER WITHDRAW INCREASE
ISSUED October 10, 2008
APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT (DRAFT)

ATTACHMENT NO. 6

GRAPH OF IMPACT OF WATER WITHDRAWALS ON LAKE LEVELS
FROM
Hydrologics, Inc. March 2008. Flood and Drought Management Low Flow Operating Protocol Report

Impact of Water Withdrawals on Lake Levels

(Negligible Impact on Downstream Flows Except In Extreme Droughts)



Note: HL_8, which uses 12.5 mgd withdrawal, has 25, 17, and 7 trigger events