	Question	Answer
1	Drought is a cyclic process. Why doesn't the Corps anticipate the drought periods and take action before drought occurs?	Although there are numerous theories about drought cycles, based on historic data, there is no reliable method for forecasting drought.
2	What is a CFS?	CFS stands for Cubic Feet Per Second. This is a measurement of flow rate. One cfs is equal to 450 gallons per minute.
3	What determines how much water is discharged from the dam through generation?	The amount of water to be released is based on conditions throughout the Savannah River Basin. The Corps projects are operated as multipurpose projects with consideration given to all authorized purposes (navigation, hydropower, flood control, recreation, fish & wildlife, and water supply/quality). Corps Hydrologists must balance these competing needs, while also considering power contract commitments, expectant rainfall runoff, hydrologic and climatologic factors, downstream lake conditions, and present lake levels. The number of turbine units utilized at a given time determines how long it takes the water to be released. Specific times for releases are scheduled according to peak power demands.
4	What is the Savannah River Basin Drought Contingency Plan?	This is a plan developed by the Corps in coordination with the states of Georgia and South Carolina to identify and manage drought conditions based on the drought experienced throughout the Savannah River Basin in the late 1980s. Various action levels were identified based on lake elevations.
5	What are the action levels identified in the Savannah River Basin Drought Contingency Plan?	During the summer recreation season, level 1 is reached at the Hartwell Project when the lake elevation drops to 656' msl and at the Thurmond Project when the lake elevation drops to 326' msl. This begins the District's effort to disseminate public safety information. Level 2 is activated when Hartwell drops to 654' msl and Thurmond to 324' msl. Upon reaching level 2, discharges from Thurmond will be reduced to an average weekly discharge of 4500 cfs with the discharge from Hartwell being reduced as appropriate to maintain balanced pools. Level 3 is reached when Hartwell reaches 646' msl and Thurmond 316' msl at which time the average weekly discharge from Thurmond is reduced to 3600 cfs and Hartwell's discharge is reduced as appropriate to maintain balanced pools. During level 4, Hartwell at 625' msl and Thurmond at 312' msl, discharges will equal inflow.
6	During the drought in the late 1980s, what were the minimum releases from Hartwell and Thurmond?	Hartwell averaged 2100 cfs discharge per week. Thurmond released 3600 cfs on average per week, the minimum discharge as required under agreement with the States to meet water quality and water supply objectives and requirements on the Savannah River below Augusta, GA, specifically for Augusta, GA; Beaufort, SC; and Savannah, GA. For example, the 3600 cfs release from Thurmond could be accomplished by releasing 30,000 cfs for roughly 20 hours during the week, or by releasing 10,000 cfs for 60 hours during the week. The minimum discharges were enforced once action level 3 of the Savannah River Drought Contingency Plan is reached (646' msl for Hartwell Lake and 316' msl for Thurmond Lake).

7	What are the sizes of the drainage areas for the Corps projects on the Savannah River?	Hartwell's drainage area is 2,088 square miles. It is mountainous and characterized by periods of high runoff. Russell's local drainage area is the smallest of the 3 projects at 749 square miles. Thurmond's drainage area is 3,307 square miles and is primarily in the Piedmont region that has a flatter topography. Cumulative drainage basin totals are 2,088 square miles for Hartwell; 2,837 square miles for Russell; and 6,144 square miles for Thurmond.
8	After a drought when rainfall returns to normal or above normal, why do lakes continue to drop?	After severe drought conditions, there exists a significant deficit in soil moisture that must be satisfied before rainfall can become runoff. In fall 1988 when rainfall returned to near normal, inflow rates into the lakes were still less than half of normal. In essence, the ground is so dry it acts like a sponge and absorbs rainfall before it can become runoff.
9	How does GA Power Company keep their lakes full while the Corps lake elevations are down?	Georgia Power Company's North Georgia Development consists of six hydroelectric generating projects on the Tallulah and Tugaloo Rivers upstream of Hartwell Lake. Only the uppermost of these projects, Lake Burton, is designed with usable storage that can be drawn down. The remaining projects operate at full pool, simply passing through their inflow as outflow, in order to maintain constant headwater-tailwater relationships necessary for the efficient operation of the generating equipment installed.
10	What are the authorized purposes of the Corps projects?	Corps' projects on the Savannah River are "multi-purpose." Specific purposes include: water supply, water quality, hydropower, flood control, navigation, recreation, and fish and wildlife management. During periods of severe drought, water supply and water quality are the Corps' foremost priorities, both at the lakes and downstream.
11	How can recreation be made a higher priority?	Project authorization mandates us to achieve a balance between project purposes. In order for any specific project purpose to be designated as a "higher" priority, legislation to amend or change the existing authorizations would have to be initiated and passed by Congress. It may not be feasible to legislate a recreation priority over water supply and water quality.
12	Why doesn't the Corps remove the stumps sticking out at low water?	Our policy is to remove or mark all stumps or other navigational hazards located within marked navigational channels. During extreme low water conditions, thousands of small trees, sand bars, and stumps are exposed, creating hazards for recreational boaters. The vast majority of these hazards are away from the marked channels. Our public safety programs are reminding users to use care and caution during these low water periods. If one should encounter a hazard within the channel, notify the Project Office and it will be checked as soon as possible. We do not presently have the resources to mark or remove all stumps exposed by unpredictable and constantly changing water conditions.
13	What ramps are usable during these low water conditions?	Information is available from the Project Offices (Hartwell: (888)893-0678 or (706)856-0300, Russell: (800)944-7207 or (706)213-3400, Thurmond: (800)533-3478 or (864)333-1100) or on the internet at: www.sas.usace.army.mil.
14	During droughts, why not have outflow equal to inflow? Downstream users would get the amount of water "nature intended."	All three Savannah River projects are multipurpose projects designed with "conservation storage" of 35', 5', and 18', respectively at Hartwell, Russell, and Thurmond lakes. Conservation storage is that portion of storage designed to conserve, or store, water during normal and high flow periods for use during low flow periods. Failure to use it to support authorized purposes would be contrary to congressional intent in the authorizing legislation. At level 4 of the Drought Plan, outflow is restricted to inflow.

15	Why are the three projects on the Savannah River designed as they are with so little storage at Russell, and such large amounts at Hartwell and Thurmond? Why is Russell Lake always full? Why can you draw Hartwell down so far, and Thurmond only half that?	Thurmond Dam was completed in 1954 as the first major storage project on the Savannah River. The completion of Hartwell Dam in 1962 lessened the conservation storage demands on Thurmond Lake and led to the designation of the Thurmond conservation pool from 330' to 312' msl. The determination of the design drawdown at Hartwell was made based on economic calculations and the need for stored water during droughts of record. The topography at Hartwell Lake is steeper than at Thurmond; therefore, there is less mud bottom exposed for each vertical foot of drawdown. Russell Dam was designed after Thurmond and Hartwell had essentially satisfied the need for conservation storage on the Savannah River. It could be designed to operate more efficiently by minimizing the drawdown, and satisfied the national cost benefit analysis with only a 5' fluctuation. The Corps attempts to draw Hartwell and Thurmond Lakes down equally for the first 10 feet. Below this point, Hartwell and Thurmond lakes are drawn down evenly based on the percentage of water remaining in each lake. Although there is more storage available at Hartwell, it is much harder to refill after a drought, due to its smaller drainage area from which to accumulate runoff. Since Russell Lake has only 5 feet of conservation storage it cannot be drawn down equally with the other two lakes beyond 5 feet. This leads people to believe Russell is always full.
16	Is 3600 cfs the "absolute minimum" that must be released from Thurmond for downstream water supply requirements?	Yes. Based on low flow tests conducted during the 1980-81 drought, 3600 cfs is the minimum required flow to meet water supply requirements for industry, primarily Plant Vogtle and the Savannah River Site. There may be short periods of high inflow downstream of the dam due to heavy localized rainfall, when Thurmond Dam releases would not be necessary to satisfy water supply requirements. However, there is generally not enough "lead time' and the inflow not dependable enough to allow modification of project operations.
17	During drought conditions, is power generation reduced? Can water be released in other ways so that power is not produced?	During drought conditions, power generation is reduced in accordance to the reduced discharge amounts specified in the Savannah River Basin Drought Contingency Plan. Water will always be released through the turbines when they are available for use. Water released through the turbines can be controlled and monitored, and utilized to produce power, which is an added benefit. In extreme conditions, water may be released through the floodgates (also called tainter gates) to meet downstream release requirements. However, the tainter gates are designed to operate under flood conditions when a large volume of water needs to be released quickly. Water may also be released from the bottom of the dam, through the sluice gates. However, the water being released would be of questionable quality, as it is from the "dead storage" portion of the lake and may contain low levels of dissolved oxygen, heavy siltation, and other deposits. The generation of hydropower is strictly incidental to the release of water for other purposes once action level 3 of the Savannah River Basin Drought Contingency Plan is reached.