January 28, 2011

Mr. Preston Gillespie
Site Vice President
Oconee Nuclear Station
Duke Energy Carolinas, LLC
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: STAFF ASSESSMENT OF DUKE'S RESPONSE TO CONFIRMATORY ACTION LETTER REGARDING DUKE'S COMMITMENTS TO ADDRESS EXTERNAL FLOODING CONCERNS AT THE OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (ONS) (TAC NOS. ME3065, ME3066, AND ME3067)

Dear Mr. Gillespie:

By letter dated June 22, 2010, the U.S. Nuclear Regulatory Commission (NRC) issued a confirmatory action letter (CAL) to Duke Energy Carolinas, LLC (Duke, the licensee), associated with the mitigation of external flooding hazards at the Oconee Nuclear Station, Units 1, 2, and 3 (ONS) site, resulting from a postulated failure of the Jocassee Dam. The CAL confirmed your commitment to submit to the NRC by August 2, 2010, all documentation necessary to demonstrate to the NRC that the parameters and analysis used to evaluate the inundation of the ONS site resulting from the postulated failure of the Jocassee Dam was bounded.

Use of the term "bounded," in this case, refers to conditions that bound the random sunny-day failure of the Jocassee Dam. The random sunny-day failure scenario was selected after evaluation of the failure modes determined that the potential failure of the Jocassee Dam from either an overtopping event or seismic event was not credible. Bounding reservoir levels were taken at the Federal Energy Regulatory Commission maximum allowable operating levels, not the absolute worst case.

By letter dated August 2, 2010, you provided the required information to the NRC. The NRC staff reviewed the information provided, and found that the documentation provided sufficient justification that the parameters chosen by the licensee and the analysis performed bound the inundation of the ONS site resulting from a potential failure of the Jocassee Dam and therefore providing reasonable assurance for the overall flooding scenario at the site. Enclosed is the staff's evaluation of the licensee's documentation.

The Office of Nuclear Reactor Regulation (NRR) staff conducted the evaluation of this matter at the request of Region II since the NRC's technical expertise in this area is in NRR. In its evaluation, the NRC staff determined that the licensee provided the documentation necessary to demonstrate to the staff that the inundation of the ONS site resulting from the postulated failure of the Jocassee Dam was bounded. Therefore, the staff considers the CAL action associated with this issue to be closed. The NRC staff's assessment is based on the information that Duke provided to the staff by letter dated August 2, 2010.

If you have any questions, please call John Stang at 301-415-1345.

Sincerely,

/RA by JGrobe for/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

Enclosure:
Safety Evaluation

Outside of Scope

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

DUKE ENERGY CAROLINAS, LLC

CONFIRMATORY ACTION LETTER - COMMITMENTS TO ADDRESS

EXTERNAL FLOODING CONCERNS

CLOSURE OF INUNDATION SITE RESULTS

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (ONS)

DOCKET NOS. 50-269, 50-270, AND 50-287

1.0 BACKGROUND

Duke Energy Carolinas, LLC (Duke or the licensee), performed an inundation study in 1992 to meet a Federal Energy Regulatory Commission (FERC) requirement for formulating an emergency action plan in the event that the Jocassee Dam failed. This study showed that

(b)(7)(F) [redacted]

In April 2006, the U.S. Nuclear Regulatory Commission (NRC) staff questioned the flood protection barrier for the SSF. The NRC identified that the licensee had incorrectly calculated the Jocassee Dam failure frequency and had not adequately addressed the potential consequences of flood heights predicted at the ONS site, based on the information provided by the 1992 inundation study.

Based on concerns raised by the NRC, by letter dated August 15, 2008 (Agencywide Documents Access and Managements System (ADAMS) Accession No. ML081640244), the NRC requested information from the licensee pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.54(f). By letter dated September 26, 2008, ADAMS Accession No. ML082750106), the licensee responded to the request. The NRC staff reviewed the information and based on the review, the NRC staff found that the information provided by the licensee did not demonstrate that the ONS site would be adequately protected from external flooding events. Specifically, the licensee did not (1) provide an adequate inundation study, (2) provide a deterministic resolution of this matter, or (3) provide a schedule to resolve the external flooding issue in a timely manner.

Enclosure

By letter dated April 30, 2009 (ADAMS Accession No. ML090570779), the NRC requested the following additional information:

(1) a deterministic resolution of external flooding at the ONS site, and

(2) a schedule to resolve the external flooding issue in a timely manner.

The NRC staff met with and had several telephone conversations with the licensee concerning the external flooding issue at the ONS site. By letter dated November 30, 2009 (ADAMS Accession No. ML093380701), the licensee provided its technical response to the NRC's April 30, 2009, letter. The NRC staff reviewed the licensee's response and determined that although the licensee provided a more accurate estimate of the flooding caused by a failure of the Jocassee Dam, the NRC staff found that additional information was needed. By letter dated January 29, 2010 (ADAMS Accession No. ML100271591), the NRC requested additional information requiring that the licensee provide analyses to demonstrate, for the entire Jocassee earthen works, that the ONS site will be adequately protected from external flooding events. By letter dated March 5, 2010 (ADAMS Accession No. ML103430047), the licensee provided a partial response to the NRC's January 29, 2010, request for additional information (RAI).

On June 22, 2010, the staff issued a confirmatory action letter (CAL) to the licensee, requesting the following: the licensee to submit to the NRC all documentation necessary to demonstrate that the inundation of the ONS site from the postulated failure of the Jocassee Dam has been bounded; the licensee to submit a list of all necessary modifications to mitigate the inundation by November 30, 2010; and the licensee to make all necessary modifications by November 30, 2011. The staff also requested that the compensatory measures (CMs) listed in the CAL remain in place until final resolution has been agreed upon between the licensee and the NRC staff.

By letter dated August 2, 2010, Duke provided its response to the remaining questions and its response to the CAL action requiring submittal of all documentation for the inundation of the ONS site from the postulated failure of the Jocassee Dam. The NRC staff's technical assessment of the information is provided below.

2.0 PURPOSE

The purpose of this assessment is to verify that the licensee has provided adequate justification that the parameters chosen and the analysis performed bound the inundation of the ONS site resulting from a postulated random sunny-day failure of the Jocassee Dam. More specifically, the NRC staff's assessment includes the confirmation that the licensee's parameters, used in the unmitigated Case 2 analysis, as discussed below, are conservative and provide reasonable assurance that the inundation of the ONS site from a random sunny-day failure of the Jocassee Dam will not exceed the levels predicted by the licensee. This Case 2 scenario will be the new flooding basis for the site. Results of the hypothetical dam failures provide inputs to surface water flow models used to simulate floodwater levels at the ONS site, specifically the water levels at locations that could have an effect on

(b)(7)(F)

The dam breach parameters used for the Jocassee Dam and the earthen structures at the ONS site, as discussed below, were evaluated to ensure that they provide reasonable assurance for the flooding levels that the ONS site would see with a random sunny-day failure of the Jocassee Dam. The probable failure mode analysis (PFMA) stated that the [redacted] (b)(7)(F) The last flooding inundation study performed had the starting reservoir level of the Jocassee Dam at 1110 feet, which is greater than the maximum power pool level during the hurricane season (1108 ft.). At 1110 ft., there is an additional 2 ft. above the normal pool level, and this is also the point where water also starts overtopping the flood control gates, therefore, the staff determined that there is sufficient conservatism at this reservoir level. In addition, the staff agrees that these parameters were appropriately used to start the hypothetical failure scenario associated with the Jocassee Dam.

The other parameters evaluated were breach dimensions, breach position, breach time, peak discharge flow rates, and Manning's n-values. The evaluation for these values is discussed later in this assessment. The main structures that were evaluated in the flooding scenario were the Jocassee Dam, the Hartwell Reservoir, and the structures around the ONS, which include the Keowee Dam, Little River Dam, ONS Intake Canal Dike, and the West Saddle Dam.

3.0 NRC STAFF'S EVALUATION

3.1 HEC-RAS Modeling

To accurately determine water levels over the ONS site resulting from a random sunny-day failure of the Jocassee Dam, unsteady (time varying) flow over approximately 44 miles of the river system had to be simulated by the licensee. The licensee's simulation model included the Jocassee, Keowee, and Hartwell reservoir systems and incorporated the failure of the Jocassee, Keowee, and Little River Dams. The Hartwell Dam, which could also fail, was conservatively used as a downstream control and limited the size of the model. The model also incorporated flow bifurcation around the ONS site to the north and reunification of flows below the Little River Dam. To perform this river system modeling, the licensee chose the HEC-RAS program for this purpose. The HEC-RAS program was developed by the U.S. Army Hydrologic Engineering Center and it is one of the standards for flooding inundation studies.

The HEC-RAS simulations allowed for the efficient calculation of flow hydrographs and water elevations at various points of interest around the plant under various conditions of failure of the Jocassee Dam, as well as the failure of downstream structures such as the Keowee Dam, West Saddle Dam, Little River Dam, and the intake canal dike. Also included in the sensitivity studies was the effect of Manning's n-value variation for both the main channel and overbank for various reaches. Once the failure parameters for the Jocassee Dam were established, additional sensitivity studies were performed for additional failure modes for Keowee Dam. These cases included evaluation of breach geometries for the various earthen works (widths, bottom elevation, side slopes) and failure progression characteristics of the breaches (time to failure, linear or sine wave progression).

3.2 Jocassee Dam, Oconee Site Dams, and Dike Breach Parameters and HEC-RAS Modeling

The HEC-RAS computation was used to assess flooding at the ONS site for all three case scenarios. The three different case scenarios, provided by the licensee, were assessed with differing breaching parameters, such as time-to-failure and breach size. After analyzing the licensee's case scenarios, the staff determined that Case 2 was acceptable based on the conservatisms included in the parameters used in the case study. The licensee's parameter values, provided in Table 1, represent Case 2 for a "random sunny-day" failure of the Jocassee Dam:

Table 1

Reservoir Elevation	1110 ft. msl
Bottom Breach Elevation	800 ft. msl
Bottom Breach Width	425 ft.
Side Slopes	West slope (1.55:1) East slope (0.7:1)
Time-to-- Failure	2.8 hours
Piping Elevation	1020 ft. msl.
Failure Progression	Sine Wave

Figure 1 below visually shows the breach dimensions of the Jocassee Dam.

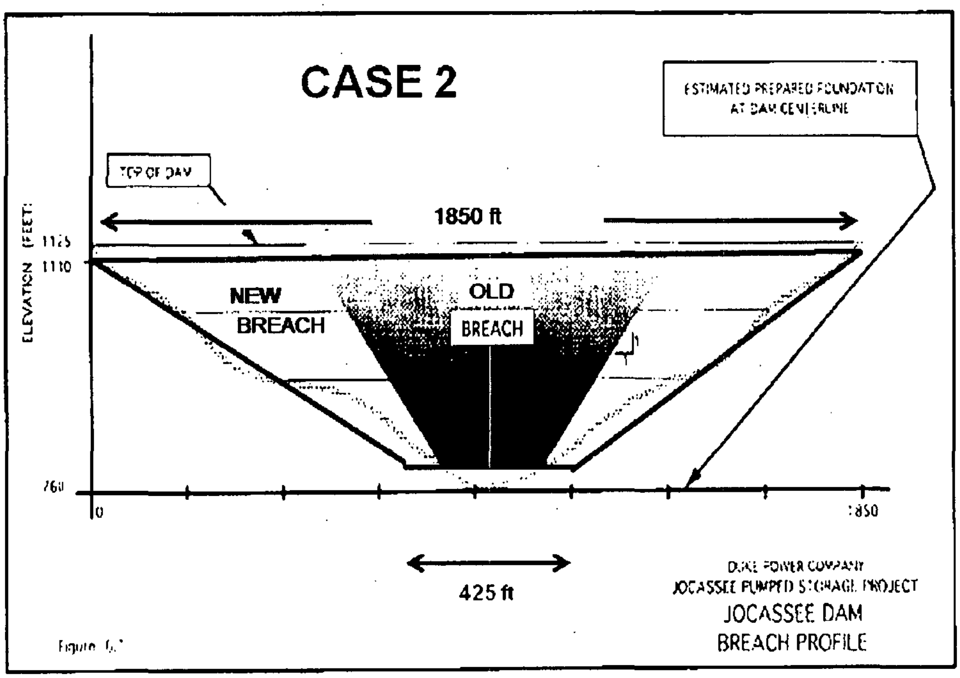


Figure 1: Jocassee Dam Breach Dimensions

The staff determined that the Jocassee Dam starting reservoir level of 1110 ft., as described above, is conservative.

Based on the breaching parameters of the Jocassee Dam, the peak outflow was computed. The Jocassee Dam breach peak outflow was computed using the HEC-RAS model. The peak outflow was determined to be 5,440,000 cubic feet per second (cfs), which was greater than the empirically determined peak outflows, using several available models, as listed in Table 2, below.

Table 2: Empirical Equations for Predicting Peak Flows for a Jocassee Dam Breach
Lake volume at stage = 1110 ft = 1,418,869,244 m^3 – volume of water (vw)
Depth of water above invert at failure = 94.5 m – height of water (hw)
Peak Flow Equations:

Model	**Peak Outflow (m^3/s)**	**Peak Outflow (ft^3/s)**
MacDonald & Langridge-Monopolis, 1984	44328.60	1566381
MacDonald & Langridge-Monopolis, 1984	144148.96	5093603 (upper envelope)
Costa, 1985	46255.80	1634480
Bureau of Reclamation, 1982	86214.88	3046462
Evans, 1986	51034.28	1803331
SCS, 1981	74930.21	2647711

Equations embedded in this table are from Table 1 of Wahl, 2004

Based on a comparison with the values determined from empirical models (Table 2), the staff determined that the HEC-RAS model results for peak outflow are conservative.

The Jocassee Dam overall breach dimension assumes the entire loss of the dam embankment and massive erosion of bedrock at the dam base. The biotite gneiss which comprises the bedrock type at the base of the dam would be extremely resistant to erosion, so a large degree of conservatism was added to the breach size. The average width of the assumed dam breach (~1137 ft) is one of the overall breaching parameters. This is larger than the average width estimated using Froehlich's 2008 methods (i.e., ~900 ft).

The Jocassee Dam breach hypothetical failure time of 2.8 hrs. is very short for a dam with the quality of construction, basal rock type, and degree of monitoring of the Jocassee Dam, so the staff determined that adequate conservatism was added to the breach size. The licensee used Froehlich's 2008 methods in their estimation. It is important to note that the breach dimensions and breach times are related.

As part of the model verification process, the licensee compared the volume of the outflow hydrograph from the Jocassee Dam failure with the total volumes of the flow hydrographs, through the connecting canal and over the Keowee Dam. This demonstrated that volume was properly being conserved in the flow routing by the model. The ability of the HEC-RAS geometric input to model the volumes of Lake Keowee and Lake Hartwell was also verified by comparing the volumes at normal pool level, as calculated by the model with the known volumes. Both lake volumes agreed within five percent, which is an indication of model alignment.

Failure parameters for the downstream dams are provided in Table 3, below.

Table 3

Parameter	Keowee Dam	West Saddle Dam	ONS Intake Canal Dike	Little River Dam
Breach Bottom Elevation	670 ft. msl	795 ft.	715.5 ft. msl	670 ft. msl
Breach Bottom Width	500 ft.	1680 ft.	200 ft.	290 ft.
Side Slopes	1:1	1:0	1:1	1:1
Overtopping Trigger	817 ft. msl	817 ft. msl	817 ft. msl	817 ft. msl
Main Dam Failure Time	2.8 hrs.	0.5 hrs.	0.9 hrs.	1.9 hrs.

Failure parameters for the dams and structures in Table 3 were developed based on Froehlich's 2008 methods. The bottom breach width for Keowee using Froehlich's 2008 methods was determined to be 1028 ft. with a failure time of 5 hrs. The physical size of the dam, however, limits the bottom breach width to 500 ft. Because the breach size and failure time are related, the failure time was reduced to 2.8 hrs., based on proportions. The breach widths and failure times of the Oconee Intake Dike, West Saddle Dam, and Little River Dam were determined in a similar manner. The staff concludes that the dam failure parameters for the other structures in Table 3 are conservative based on the physical constraints of the structures. Further information is provided in Attachment 1 of Duke's letter to the NRC dated January 15, 2010 (ADAMS Accession No. ML100210199).

The staff agreed that the overtopping trigger of two feet over the crest of the dam was found to be conservative based on the assumption that the slower (and/or later) the breach of the Keowee and West Saddle Dams. [redacted] (b)(7)(F)

[redacted] (b)(7)(F) The Manning's n-values assumed for the Case 2 study (run number 100), are provided in Table 4, below.

Table 4

Structure	Manning's n-values
Jocassee Tailrace	0.07
Keowee Reservoir and Little River Channels	0.025
Keowee Reservoir and Little River Overbank	0.08
Keowee Reservoir Tributaries	0.035
Keowee, Intake and Little River Tailraces	0.07
Hartwell Reservoir Channel	0.025
Hartwell Reservoir Overbank	0.08

A 60-foot threshold was chosen by the licensee to identify the change from stream to deep reservoir flow conditions. A deep water flow condition was modeled with a Manning's n-value of

0.025. The modeled reservoir tributaries were considered for the streams, and their n-values remained at 0.035.

A Manning's n-value of 0.07 was used in the respective tailrace reaches below the Jocassee Dam, Keowee Dam, ONS Intake Canal Dike, and the Little River Dam to account for roughness associated with displaced dam breach material (suspended material and bed load). The affected reach lengths below each dam, where the higher roughness values were assigned, were assumed as the base length (upstream-downstream) dimension of each dam, followed by a second base length dimension to allow transition from 0.07 to the reservoir roughness coefficients of 0.025 in a linear fashion.

Based on its review, the NRC staff determined that the n-values chosen by the licensee are appropriate, as discussed below. Table 5-6 of Open Channel Hydraulics (Chow, 1959) tabulates the n-values for various conditions. A range of 0.025 to 0.060, which corresponds to a main channel that has no boulders or brush bracketing, bounds the values of 0.025 and 0.035 used by the licensee. Figure 5-4 in Chow (1959) shows a definite decrease in n-value with an increasing stage for 3 different rivers. This supports the reduction of the n-value with depth assumed by the licensee. Also, according to Chow (1959), a value of 0.08 corresponds to flood plains of cleared land, as might be expected after being swept with high velocity water from the tailrace of a breached dam. A comparison of the reaches with pictures and n-values in the U.S. Geological Survey (USGS) Water Supply Paper (1849) also assisted in narrowing the acceptable range of n-values by the staff. In addition, the sensitivity studies performed by the licensee showed a decrease in sensitivity to the downstream main channel n-values at higher flows.

Preliminary results from the licensee presented in October 2009 and again in August 2, 2010, showed a double peaked elevation hydrograph occurring (b)(7)(F) From the timing of the peaks, it was determined that the first peak was primarily due to overtopping and breaching of the ONS intake canal dike. The second peak appeared to be primarily from the Keowee tailrace with flow from the Keowee Dam failure combined with flow over the site from the West Saddle Dam and the ONS intake dike failure.

At the request of the staff, the licensee further investigated the effects of a more rapid failure of the Keowee Dam to produce a greater Keowee tailrace contribution to the site flooding. The licensee added 6 more HEC-RAS runs and then selected two of the runs (100B and 100F) for more detailed 2-D modeling. HEC-RAS Case 2 study (run number 100) was used to set the 2-D boundary conditions. The additional HEC-RAS runs evaluated are provided in Table 5, below.

Table 5

100A	Rapid failure (0.5 hrs) for Keowee Main dam
100B	Median failure (1.65 hrs) for Keowee Main Dam
100C	Rapid failure (0.5 hrs) for ONS Intake Canal east dike
100D	Rapid failure (0.5 hrs) of additional breach (bottom width 400ft.) at ONS Intake Canal Dike
100E	Rapid failure (0.5 hrs) of both east and north portions at ONS Intake Canal Dike
100F	Rapid failure (0.5 hrs) for all Keowee structures, ONS Intake Canal Dike, and Little River Dam

3.3 Additional Conservatisms in the HEC-RAS for Jocassee Breach Modeling

The tailwater effect of the convoluted flood pathway below the Jocassee Dam was not considered. A limit on the depth of hypothetical breach cutting at Jocassee (and, therefore, on the peak discharge) is provided by the tailwater elevation of 800 ft, which represents the Keowee normal pool level. This is the base elevation that was assumed for the hypothetical breach at Jocassee. The staff agreed that it is conservative to not include the tailwater effect of the convoluted flow pathway below the Jocassee Dam, because excluding it would shorten the time required to empty the reservoir.

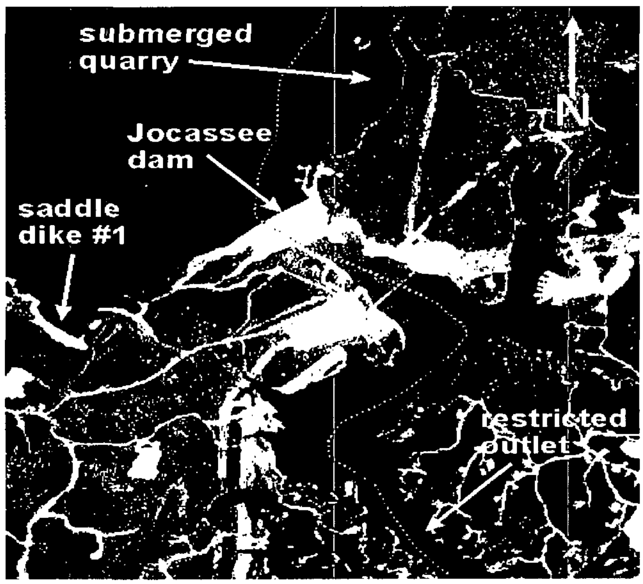
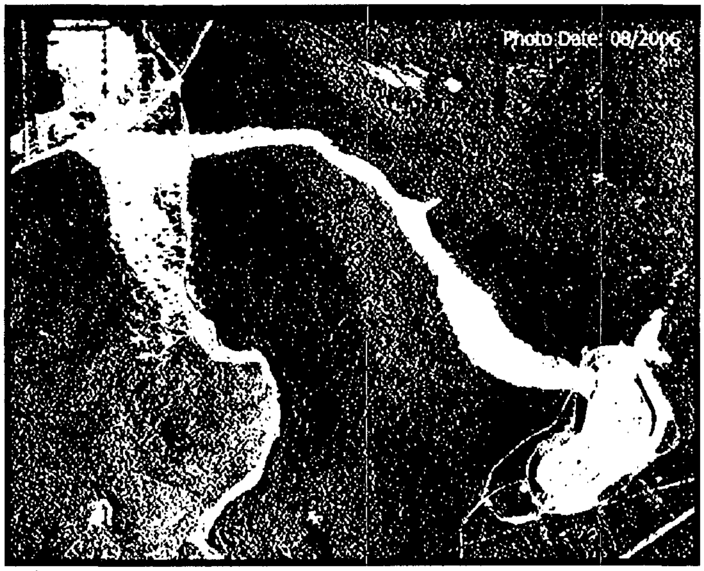


Figure 2: Satellite image of Jocassee Dam showing submerged quarry site and embayment area below the dam which has a restricted outlet connection to the rest of Keowee Lake

The scouring effects of the flood waters were not considered. The effect of this scour would be to enlarge the channel system (compared to its present width and depth) and accelerate the transport of floodwaters southward away from the site. Therefore, conservatisms were added by the additional water levels at the site, since the licensee did not utilize this effect. Mapping of flood scouring effects has been documented by various authors, including the recent work of Krizanich (2010) downstream from the Taum Sauk reservoir. See the scoured flood path in Figure 3, below.



Flood path from the Taum Sauk dam breach.

Figure 3: Taum Sauk Breach

3.4 Two-Dimensional Modeling

Early in the review, there was a concern about the ability of a one-dimensional (1-D) model to effectively simulate the flow regime immediately upstream of the canal to the north of the plant (connecting the Keowee River Basin to the Little River Basin), where the downstream velocity vector makes a 90-degree change in direction. Also, the potential for inundation of the site comes from many potential sources and is likely to flow in different directions without channelization. Such overland flow may involve eddy patterns, flow recirculation, and spill over barriers. Alternate wetting and drying of area elements may also be required depending on the overland flow patterns. For these reasons, a two-dimensional (2-D) model was coupled with the HEC-RAS simulations at boundaries, sufficiently remote, where the hydraulic parameters of flow and depth would be relatively unaffected by flow over the site.

The 2-D model chosen was developed by the U.S. Department of Interior, Bureau of Reclamation, entitled "Sedimentation and River Hydraulics–Two Dimensional River Flow Modeling (SRH-2D)." For the modeling effort, a 2-D mesh of triangular and quadrilateral elements was constructed of the area surrounding the station. The mesh size was selected to model the desired area, while keeping the computational array to a manageable size. The final computational mesh has approximately 57,500 unstructured elements. The mesh is coarser in areas that are farther away from ONS and finer in areas where more detail is required. The upstream boundary is about 6,200 feet wide and the upstream boundary condition consists of an inflow hydrograph. The downstream boundary conditions consist of stage hydrographs.

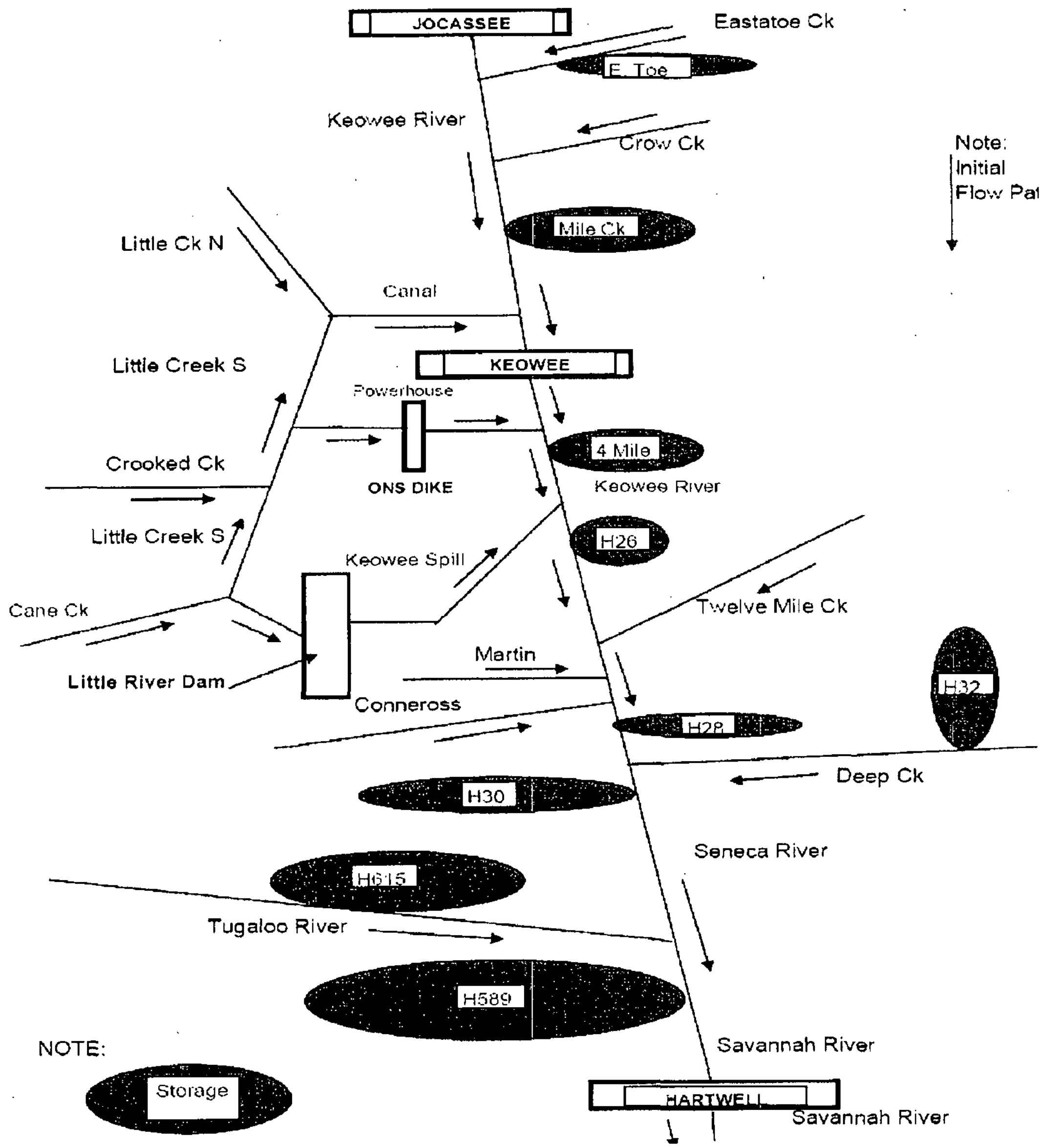


Figure 4: FLOW MODEL SCHEMATIC (Duke, 2009)

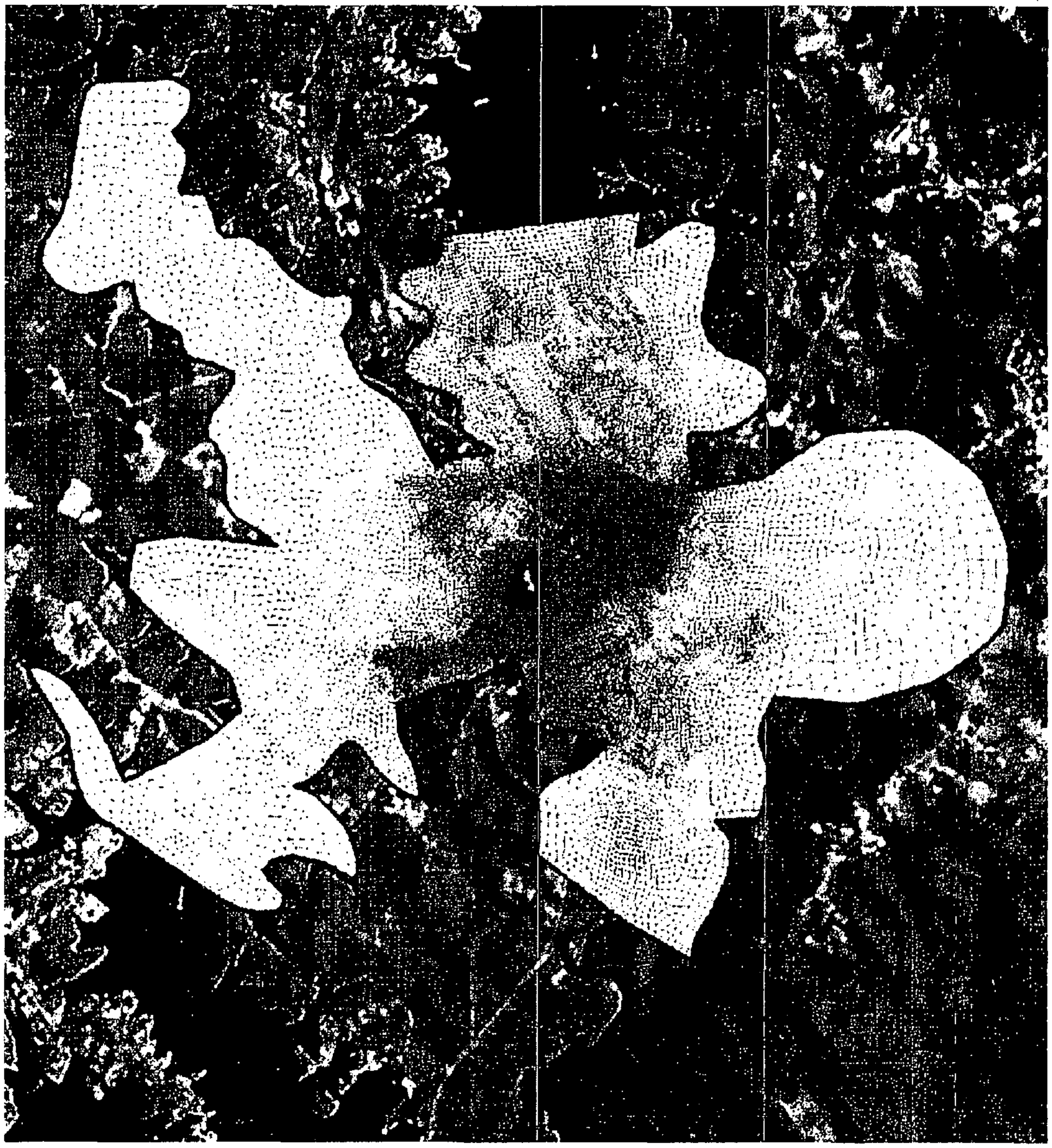


Figure 5: TWO-DIMENSIONAL MODEL BOUNDARY DEFINITIONS (Duke, 2010)

3.5 2-D Model Computations

The one-dimensional HEC-RAS and two-dimensional SRH-2D models are not dynamically coupled; and mass and momentum between the two models cannot be conserved. Hence, potential backflow between the inflow and outflow boundaries cannot be incorporated into the model. Also, the simulations represent an extreme and unobserved scenario, and parameters such as roughness coefficients over the site cannot be calibrated, requiring the selection of conservative values. The lack of coupling resulted in higher water levels from the 2-D simulations at the upstream boundaries than from the HEC-RAS runs (Wilson, 2010 and Young, 2009). The

peak of the higher values at the upstream boundary after a short dip, as plotted by Wilson, appeared about 20 minutes later than the peak at the Keowee Dam. This indicated a possible reflection of the flood wave at the Keowee Dam intensified by the rigid (no backflow) upstream boundary condition. This intensified reflection may have resulted in greater flow through the Keowee tailrace. The ONS peak appeared to occur earlier and was probably unaffected, although it was still about a foot higher than the HEC-RAS simulation.

Model runs 100B and 100F were selected for the more detailed 2-D assessment of the downstream Keowee tailrace area. Evaluation of these runs showed that faster failure times (b)(7)(F) [redacted]

(b)(7)(F) [redacted]

The licensee confirmed that case 100M (original case) resulted in the highest 2-D water levels, and case 100W was formulated to incorporate improvements utilizing new boundary conditions and became the record model run. Based on its assessment, the staff agreed with the licensee's approach, utilizing case 100W.

The final maximum water surface levels, determined from this updated computational mesh and the parameters listed earlier are:

(b)(7)(F) [redacted]

The model showed that there are key points that control the water level at the ONS site, which are discussed below.

The Keowee Dam (upstream) is the primary control on the water level upstream of the canal, which allows flow from the Keowee River Basin into the Little River Basin and eventually into the intake canal. The crest elevation of the Keowee Dam is 815 ft msl. The water level above Keowee Dam also controls the amount of water, which could flow through the swale near the World of Energy. The staff agreed that upstream of the Keowee Dam is a convenient location to compare water levels computed with HEC-RAS with those computed by the 2-D model showing the relative adequacy of boundary conditions.

The Keowee Dam tailwater is a possible source of flooding from the east side of the plant site across the switchyard. (b)(7)(F) [redacted] (b)(7)(F) [redacted] It was noted that the 2-D simulation resulted in a higher second peak than the 1-D simulation at the tailwater. This was caused by retention of flow from the Oconee intake canal in the plant yard and delayed release into the tailrace, a result of simultaneous forward and lateral flow which could not be modeled in the 1-D simulation. The bounding scenario will be that which results in a higher water level.

The intake dike, which has a top elevation of 815 ft. msl, will allow flooding of the plant upon overtopping, independent of the breach location(s). Breaching to the east, however, will result in flow to the south east of the power block and eventually flow to the Keowee Dam tailrace. However, breaching to the north does not appear to result in higher water levels (b)(7)(F) [redacted]

The "swale" is a low lying pathway from the north of the plant to the World of Energy. Flooding from the swale would have an impact on the inundation levels at the ONS site. The swale has an invert or bottom elevation of 827 ft. msl. The licensee's Case 2 scenario provided flow through the swale.

4.0 CONCLUSION

The NRC staff evaluated the information provided by Duke in their August 2, 2010, letter. The unmitigated Case 2 dam breach parameters that were used in the flooding models, provided by Duke for the ONS site, demonstrated that the licensee has included conservatisms of the parameters utilized in the dam breach scenario. These conservatisms provide the staff with additional assurance that the above Case 2 scenario will bound the inundation at ONS, therefore providing reasonable assurance for the overall flooding scenario at the site. This new flooding scenario is based on a random sunny-day failure of the Jocassee Dam. This Case 2 scenario will be the new flooding basis for the site.

The licensee has submitted to the NRC all documentation necessary to demonstrate that the inundation of the ONS site from the failure of the Jocassee Dam has been bounded. In addition, the licensee has committed to keep the compensatory measures in place until final resolution has been agreed upon between the licensee and the NRC staff. Therefore, this technical assessment officially closes the CAL action which stated, "The licensee to submit to the NRC all documentation necessary to demonstrate that the inundation of the Oconee site from the failure of the Jocassee Dam has been bounded."

5.0 REFERENCES

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