January 23, 2020

**VIA CERTIFIED MAIL**

**9214 8969 0099 9790 1416 7862 33**

CONESTEE FOUNDATION INC.
C/O DR. DAVID HARGETT
PO BOX 9111
GREENVILLE, SC 29604

**Subject: Inspection of CONESTEE LAKE DAM, D2876, Greenville County, Significant Hazard Class**

Dear Dr. Hargett:

The South Carolina Department of Health and Environmental Control (the Department/DHEC) inspected your dam on December 11, 2019 and the report of that inspection is enclosed. Please review it closely. Dam Safety Program staff are available to discuss the results of the inspection with you. A summary of the inspection report is as follows:

## Inspection Summary

**Overall Rating**: Poor

**Repair Activities Requiring a Permit**

- The previous SCDHEC inspections on December18, 2014, December 1, 2016 and the inspection on December 11, 2019, noted numerous active seeps and deterioration of the masonry joints throughout the downstream face on the both the left and right side. A recent engineering study was submitted to the Department on April 19, 2019 by Kleinschmidt and the report noted "Numerous active seeps were observed along the entire length of the downstream face of the dam. Most of these seeps appear to be transporting fine sediment (silt and clay) resulting in an ochre coloration to the seeps and the accumulated materials where the seeps flow across the bedrock at the base of the dam. These accumulated translocated materials have been analyzed and documented to contain high concentrations of heavy metals previously detailed in this report." Due to the movement of fine sediments containing hazardous constituents, a repair plan should be developed to address and control the seepage through the dam.
- A temporary replacement plate was added on the penstock orifice in 2001. The Kleinschmidt report stated: "The timber plate installed in 2001 against an existing timber frame to stop uncontrolled river flow through the penstock orifice allows flow through the orifice estimated at less than 3-5 cfs. The plate was intentionally designed to allow this discharge so as to provide a minimum flow in the river after the repair in June 2001. These existing timber frame, believed to be at least 110 years old, is in an undetermined condition.

The flow of water around the temporary plate will continue to erode the timber seals. Once these wooden seals fail, there will be an increase in flow. The volume of flow could transport sediment and contaminants downstream of the dam. If the flow is great enough or if the bulkhead plate were to fail or be displaced, then there could be a repeat of the loss of the impoundment and release of sediment that occurred from June 2000 to June 2001, when the lake reservoir drained, and the river eroded a "canyon" through the lakebed." Due to the concerns associated with the previous repairs and the potential for an uncontrolled release of water and sediment, a repair plan should be developed to permanently seal the 8 ft diameter penstock orifice.

**Maintenance Activities NOT Requiring a Permit**

- At the time of the inspection, a large area of trash and heavy woody debris had accumulated behind the dam. The mass of debris and large woody vegetation has the potential to cause stability issues when flows increase during above normal rain events. This area behind the dam should be cleared of all debris.
- Continue to keep the dam free of vegetation.
- Repair the delaminated concrete veneer along the crest of the structure.

**Monitoring Activities**

- Continue to monitor the seepage on the downstream face of the dam for any changes in flow. The Department recommends developing a plan or system to routinely measure the amount of seepage through the dam.
- Monitor trash and large woody debris behind the dam and remove as needed.

**Emergency Action Plan**

- The last Emergency Action Plan that was received by the Department was submitted on May 26, 2015. Provide an updated Emergency Action Plan on or before **July 1, 2020.**

Your dam is currently a Significant-hazard (i.e., a Class 2) dam and its overall condition was assessed as **"Poor"**. This rating, as established by the U.S. Army Corps of Engineers for federal reporting and utilized by DHEC's Dam Safety Program, reflects "A dam safety deficiency is recognized for loading conditions, which may realistically occur. Remedial action is necessary. This condition is used when uncertainties exist as to critical analysis parameters, which identify a potential dam safety deficiency. Further investigations and studies are necessary."

Repair activities denote significant deficiencies with the dam and require the involvement of a Professional Engineer licensed to practice engineering in South Carolina. Although the recent engineering study completed by Kleinschmidt in April of 2019 was a very thorough report, the scope of the study was an Evaluation of Alternatives Report to discuss the alternatives for rehabilitation, repair, or replacement of the dam. The report identifies one Recommended Alternative which meets all design objectives, which is to construct a new cast in place concrete replacement dam ten feet downstream of the existing dam.

The proposed conceptual design and costs associated with this type of project may take many years to become reality and the April 2019 report did not address taking corrective actions to remediate the current deficiencies as noted in this report, or in the previous SCDHEC report dated March 30,

2015 and December 5, 2016.A list of engineers familiar with the design and permitting of dams in South Carolina is enclosed as a courtesy. Your engineer should prepare and submit a permit application to the Department for the proposed repair work. No action can be taken to repair the dam until you have received a Department-issued permit. **The Department requests the submission of a Detailed Inspection by July 1, 2020 and a Permit Application no later than December 1, 2020.**

Maintenance activities should be initiated immediately if you have not already done so and should be completed by **July 1, 2020**. The involvement of a Professional Engineer is not required for maintenance activities. Photographs shall be submitted to the Department as confirmation that these maintenance items have been addressed; alternatively, the Department can be contacted to visit the dam and review the completed maintenance work.

As the owner of a regulated dam, it is your responsibility to routinely monitor the dam for any deterioration of the dam which may lead to dam failure. Monitoring activities should be initiated immediately if you have not already done so and should continue until the Department determines that conditions at the dam no longer pose a threat to life or property. Please notify the Department if you notice any change in the area(s) being monitored. Pay special attention to any areas of seepage, looking for changes in the volume of flow and whether the seepage water is clear or cloudy/muddy. Cloudy/muddy water is an indication that soil is being removed from inside the dam, creating potential voids through the dam that can ultimately lead to dam failure. Involvement of a Professional Engineer may be required if changes or deterioration of the situation is observed.

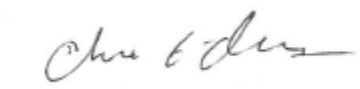
In closing, failure to maintain the dam in a safe condition is a violation of the SC Dams and Reservoirs Safety Act, S.C. Code Ann. 49-11-110, et seq., (2008). Your voluntary cooperation is requested; however, failure to comply with the deadlines set forth in this letter may result in the Department issuing an "Inspection and Repair Order" and/or a "Maintenance Order." The consequences of non-compliance with a Department-issued order may include the assessment of civil penalties pursuant to the S.C. Dams and Reservoir Safety Act, S.C. Code Ann. 49-11-110, et seq. (2008) and Regulation 72-1, et seq. (2012).

Should you have questions regarding the content of this letter, or wish to discuss any of the findings, requirements, schedules, and/or deadlines contained herein, please feel free to contact me at (864) 372-3092, or by email at Owensc2@dhec.sc.gov.

Please submit all documents/correspondence via email or to:

Bureau of Water – Dam Safety Program
Attn: Chuck Owens
2600 Bull Street
Columbia, SC 29201

Sincerely,



Chuck Owens
Dam Safety Regional Engineering Associate

Enclosure: CONESTEE LAKE DAM (D2876) Preliminary Inspection
List of Engineers

cc: File: D2876

# CONESTEE LAKE DAM : D2876

Dams Preliminary Inspection Form

Inspector: Charles Owens

Start Date: 12/11/2019 Completed Date: 01/22/2020

## Inspection Information

*1. Date of Inspection* 12/11/2019

Note: All directions are given looking downstream

Photo Taken: 12/11/2019 9:54:25 AM
GPS Latitude: 34.7709055277778
GPS Longitude: -82.3483805277778
GPS Altitude: 238.029499072356 meters
GPS Azimuth: 344.720672682527 degrees

*2. Inspectors Present* Chuck Owens

*3. Other Persons Attending Inspection*

| Name | Phone | Owner/Engineer/Other |
|---|---|---|
| Dave Hargett | 864-787-8160 | Lake Conestee Foundation |
| Taylor Phillips | | Lake Conestee foundation |

*4. Is this a follow-up inspection?* ☐ Yes ☑ No ☐ NA

## Observation/Instrumentation

*1. Estimate the current level of the water in the reservoir:* Normal Pool

Normal flows were estimated to be around 110 cfs.

*2. Describe the current weather & conditions:* 50 degrees, Sunny

*3. Recent rainfall quantity:* Less than 2"

*4a. Are Piezometers or Observation Wells present?* ☐ Yes ☑ No

*4b. (If Present:) Condition of Piezometers/Observation Wells*

*5a. Is a Staff Gauge or Recorder present?* ☐ Yes ☑ No

*5b. (If Present:) Condition of Staff Gauge or Recorder*

*6a. Are Measurement Weirs Present?* ☐ Yes ☑ No

*6b. (If Present:) Condition of Weirs:*

# CONESTEE LAKE DAM : D2876

Dams Preliminary Inspection Form

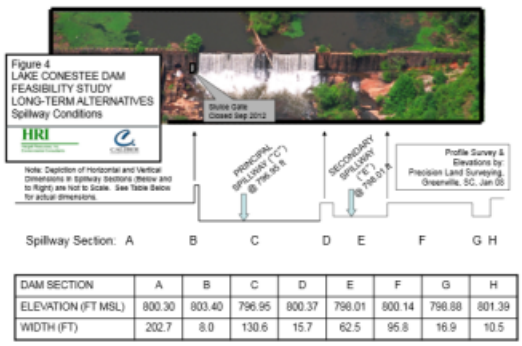
Inspector: Charles Owens

Start Date: 12/11/2019 Completed Date: 01/22/2020

## Observation/Instrumentation

| | |
|---|---|
| *7a. Number of Spillways Present* | 1 |

Photo Taken: 1/9/2020 2:51:55 PM




| DAM SECTION | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| ELEVATION (FT MSL) | 800.30 | 803.40 | 796.95 | 800.37 | 796.01 | 800.14 | 796.88 | 801.39 |
| WIDTH (FT) | 202.7 | 8.0 | 130.6 | 15.7 | 62.5 | 95.8 | 16.9 | 10.5 |

| | |
|---|---|
| *7b. Type of Spillways Present* | Weir (Ogee, Labyrinth, etc) |
| *8. Other:* | |
| *9. Additional Comments (Refer to item number if applicable)* | |

## Embankment: Crest

| | |
|---|---|
| *Is this section applicable for this dam?* | ☐ Yes ☑ No |
| *1. Grass Cover* | |
| *2. Deleterious Vegetation* | |
| *3. Trees* | |
| *4. Animal Activity* | |
| *5. Surface Cracking* | |
| *6. Horizontal Alignment* | |
| *7. Settlement* | |
| *8. Sinkhole* | |
| *9. Erosion* | |
| *10a. Are Alterations/Repairs Present?* | ☐ Yes ☐ No |
| *10b. (If Present:) Alterations/Repairs Condition* | |
| *11. Other:* | |

# CONESTEE LAKE DAM : D2876

Dams Preliminary Inspection Form

Inspector: Charles Owens

Start Date: 12/11/2019 Completed Date: 01/22/2020

## Embankment: Crest

*12. Embankment: Crest Condition*

*13. Additional Comments (Refer to item number if applicable)*

## Concrete/Masonry Dams: Crest

*Is this section applicable for this dam?* ☑ Yes ☐ No

Photo Taken: 12/11/2019 9:30:31 AM
GPS Latitude: 34.770825
GPS Longitude: -82.3486555277778
GPS Altitude: 245.092914438503 meters
GPS Azimuth: 17.9488220154425 degrees

Photo Taken: 12/11/2019 10:14:10 AM
GPS Latitude: 34.7718388611111
GPS Longitude: -82.3482666666667
GPS Altitude: 246.65541452876 meters
GPS Azimuth: 172.475395168506 degrees

| | |
|---|---|
| *1. Surface Conditions* | Monitor, Action Required |
| Repair the delaminated concrete veneer on the dams crest. | |
| *2. Horizontal Alignment* | Monitor |
| *3. Vertical Alignment* | Monitor |
| *4. Condition of Joints* | Monitor |
| *5. Unusual Movement* | No Deficiency |

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Crest

| | |
|---|---|
| *6a. Are Alterations/Repairs Present?* | ☐ Yes ☑ No |
| *6b. (If Present:) Alterations/Repairs Condition* | |
| *7. Other:* | |
| *8. Concrete/Masonry Dam Crest Condition* | Regular Monitoring Necessary, Needs Maintenance |

**Violation Determined: 1/9/2020**
**DAMMAINTREP**

*9. Additional Comments (Refer to item number if applicable)*

## Embankment: Upstream Slope

| | |
|---|---|
| *Is this section applicable for this dam?* | ☐ Yes ☑ No |
| *1. Grass Cover* | |
| *2. Deleterious Vegetation* | |
| *3. Trees* | |
| *4. Animal Activity* | |
| *5. Surface Cracking* | |
| *6. Subsidence, Sinkhole* | |
| *7. Slide, Slough, Scarp* | |
| *8. Groins* | |
| *9. Erosion* | |
| *10a. Slope Protection/Armoring Present?* | ☐ Yes ☐ No |
| *10b. (If Present:) Slope Protection/Armoring* | |
| *11a. Alterations/Repairs Present?* | ☐ Yes ☐ No |
| *11b. (If Present:) Alterations/Repairs Condition* | |
| *12. Other:* | |
| *13. Embankment: Upstream Slope Condition* | |
| *14. Additional Comments (Refer to item number if applicable)* | |

## Concrete/Masonry Dams: Upstream Face

| | |
|---|---|
| *Is this section applicable for this dam?* | ☑ Yes ☐ No |

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Upstream Face

Photo Taken: 12/11/2019 9:38:21 AM
GPS Latitude: 34.7709916666667
GPS Longitude: -82.3486111111111
GPS Altitude: 243.992267608001 meters
GPS Azimuth: 199.001152073733 degrees

Photo Taken: 12/11/2019 10:14:10 AM
GPS Latitude: 34.7718388611111
GPS Longitude: -82.3482666666667
GPS Altitude: 246.65541452876 meters
GPS Azimuth: 172.475395168506 degrees

Photo Taken: 12/11/2019 10:16:45 AM
GPS Latitude: 34.7716360833333
GPS Longitude: -82.3483416666667
GPS Altitude: 245.331500824629 meters
GPS Azimuth: 199.133224578575 degrees

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Upstream Face

Photo Taken: 12/11/2019 10:36:32 AM
GPS Latitude: 34.7719221944444
GPS Longitude: -82.3481666666667
GPS Altitude: 239.075641602882 meters
GPS Azimuth: 199.206131078224 degrees

*1. Surface Conditions*

Could not be inspected due to the build up of sediment behind the dam and the primary spillway section was submerged.

*2. Condition of Joints*

Could not be inspected due to the build up of sediment behind the dam and the primary spillway section was submerged.

*3. Unusual Movement*

Could not be inspected due to the build up of sediment behind the dam and the primary spillway section was submerged.

*4. Abutments*

Could not be inspected due to the build up of sediment behind the dam and the primary spillway section was submerged.

*5a. Alterations/Repairs Present?* ☐ Yes ☐ No

*5b. (If Present:) Alterations/Repairs Condition*

*6. Other:*

*7. Concrete/Masonry Dams: Upstream Face Condition* Regular Monitoring Necessary, Condition Prevented Full Inspection

**Violation Determined: 1/9/2020**
**DAMMAINTREP**

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Upstream Face

*8. Additional Comments (Refer to item number if applicable)*

Could not be inspected due to the build up of sediment behind the dam and the primary spillway section was submerged.

## Embankment: Downstream Slope

| | |
|---|---|
| *Is this section applicable for this dam?* | ☐ Yes ☑ No |
| *1. Grass Cover* | |
| *2. Deleterious Vegetation* | |
| *3. Trees* | |
| *4. Animal Activity* | |
| *5. Surface Cracking* | |
| *6. Subsidence, Sinkhole* | |
| *7. Slide, Slough, Scarp* | |
| *8. Groins* | |
| *9. Erosion* | |
| *10a. Slope Protection/Armoring Present?* | ☐ Yes ☐ No |
| *10b. (If Present:) Slope Protection Condition* | |
| *11. Wet Areas* | |
| *12a. Seepage* | ☐ Yes ☐ No |
| *12b. (If Present): Seepage Flow* | |
| *13a. Drainage System Present?* | ☐ Yes ☐ No |
| *13b. (If Present:) Drainage System Condition* | |
| *14a. Alterations/Repairs Present?* | ☐ Yes ☐ No |
| *14b. (If Present:) Alterations/Repairs Condition* | |
| *15. Other:* | |
| *16. Embankment: Downstream Slope Condition* | |
| *17. Additional Comments (Refer to item number if applicable)* | |

## Concrete/Masonry Dams: Downstream Face

| | |
|---|---|
| *Is this section applicable for this dam?* | ☑ Yes ☐ No |

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Downstream Face

Photo Taken: 12/11/2019 9:47:25 AM
GPS Latitude: 34.7706611111111
GPS Longitude: -82.3486861111111
GPS Altitude: 242.127033307514 meters
GPS Azimuth: 256.892898719441 degrees

Photo Taken: 12/11/2019 9:51:09 AM
GPS Latitude: 34.7706749722222
GPS Longitude: -82.3486472222222
GPS Altitude: 241.82582461786 meters
GPS Azimuth: 1.25582885742188 degrees

Photo Taken: 12/11/2019 10:21:00 AM
GPS Latitude: 34.7718388611111
GPS Longitude: -82.3481972222222
GPS Altitude: 240.472736368184 meters
GPS Azimuth: 222.613052415211 degrees

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Downstream Face

| | |
|---|---|
| Photo Taken: | 12/11/2019 10:26:40 AM |
| GPS Latitude: | 34.7715916388889 |
| GPS Longitude: | -82.3482805277778 |
| GPS Altitude: | 240.885028949545 meters |
| GPS Azimuth: | 255.91853331431 degrees |

*1. Surface Conditions* Monitor

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Downstream Face

*2. Condition of Joints* Action Required

The previous SCDHEC inspections on December 18, 2014, December 1, 2016 and the inspection on December 11, 2019, noted numerous active seeps and deterioration of the masonry joints throughout the downstream face on the both the left and right side

Photo Taken: 12/11/2019 9:47:25 AM
GPS Latitude: 34.7706611111111
GPS Longitude: -82.3486861111111
GPS Altitude: 242.127033307514 meters
GPS Azimuth: 256.892898719441 degrees

Photo Taken: 12/11/2019 10:21:54 AM
GPS Latitude: 34.7718111111111
GPS Longitude: -82.3482138888889
GPS Altitude: 240.43367386128 meters
GPS Azimuth: 265.005340453939 degrees

*3. Unusual Movement* Monitor

*4. Drains*

The dam formerly had two sluice gates, one on either side of the primary spillway. The west sluice gate was closed September 2012 as a part of the present BCRLF-ARRA. A second sluice gate is located on the east side of the primary spillway. This east sluice gate has been grouted closed with concrete, but does have two steel pipes protruding from the face.

*5. Leakage* Action Required

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Downstream Face

•The previous SCDHEC inspections on December 18, 2014, December 1, 2016 and the inspection on December 11, 2019, noted numerous active seeps and deterioration of the masonry joints throughout the downstream face on the both the left and right side. A recent engineering study was submitting on April 19, 2019 by Kleinschmidt and the report noted "Numerous active seeps were observed along the entire length of the downstream face of the dam. Most of these seeps appear to be transporting fine sediment (silt and clay) resulting in an ochre coloration to the seeps and the accumulated materials where the seeps flow across the bedrock at the base of the dam. These accumulated translocated materials have been analyzed and documented to contain high concentrations of heavy metals previously detailed in this report." Due to the movement of fine sediments containing hazardous constituents, a repair plan should be developed to address and control the seepage through the dam.

## Concrete/Masonry Dams: Downstream Face

Photo Taken: 12/11/2019 9:48:09 AM
GPS Latitude: 34.7706611111111
GPS Longitude: -82.3486472222222
GPS Altitude: 240.285358255452 meters
GPS Azimuth: 0.078582763671875 degrees

Photo Taken: 12/11/2019 10:28:16 AM
GPS Latitude: 34.7715610833333
GPS Longitude: -82.34825
GPS Altitude: 240.611896348645 meters
GPS Azimuth: 340.910461397899 degrees

Photo Taken: 12/11/2019 10:34:55 AM
GPS Latitude: 34.7717944444444
GPS Longitude: -82.3483194444444
GPS Altitude: 239.93678665496 meters
GPS Azimuth: 335.537231384308 degrees

*6. Abutments* Monitor

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

| Concrete/Masonry Dams: Downstream Face | |
|---|---|
| *7a. Alterations/Repairs Present?* | ☐ Yes ☑ No |
| *7b. (If Present:) Alterations/Repairs Condition* | |

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Downstream Face

*8. Other:* Action Required

A temporary replacement plate was added on the penstock orifice in 2001. The Kleinschmidt report stated: "The timber plate installed in 2001 against an existing timber frame to stop uncontrolled river flow through the penstock orifice allows flow through the orifice estimated at less than 3-5 cfs. The plate was intentionally designed to allow this discharge so as to provide a minimum flow in the river after the repair in June 2001. These existing timber frame, believed to be at least 110 years old, is in an undetermined condition. The flow of water around the temporary plate will continue to erode the timber seals. Once these wooden seals fail, there will be an increase in flow. The volume of flow could transport sediment and contaminants downstream of the dam. If the flow is great enough or if the bulkhead plate were to fail or be displaced, then there could be a repeat of the loss of the impoundment and release of sediment that occurred from June 2000 to June 2001, when the lake reservoir drained, and the river eroded a "canyon" through the lakebed." Due to the concerns associated with the previous repairs and the potential for an uncontrolled release of water and sediment, a repair plan should be develop to permanently seal the 8 ft diameter penstock orifice.

Photo Taken: 12/11/2019 9:54:45 AM
GPS Latitude: 34.7709110833333
GPS Longitude: -82.3484499722222
GPS Altitude: 237.040729483283 meters
GPS Azimuth: 323.419311276165 degrees

Photo Taken: 12/11/2019 9:58:50 AM
GPS Latitude: 34.7709916666667
GPS Longitude: -82.3485194166667
GPS Altitude: 235.34834663626 meters
GPS Azimuth: 291.754638671875 degrees

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Concrete/Masonry Dams: Downstream Face

*9. Concrete/Masonry Dam: Downstream Face Condition* — Regular Monitoring Necessary, Needs Maintenance, Needs Permitted Repair(s)

**Violation Determined: 1/9/2020**
**DAMMAINTREP**

*10. Additional Comments (Refer to item number if applicable)*

## Downstream Area

*Is this section applicable for this dam?* ☑ Yes ☐ No

*Is Downstream Area clear?* ☑ Yes ☐ No

Photo Taken: 12/11/2019 9:36:52 AM
GPS Latitude: 34.7710416666667
GPS Longitude: -82.3485805555556
GPS Altitude: 242.25996778091 meters
GPS Azimuth: 107.398605299861 degrees

Photo Taken: 12/11/2019 10:27:28 AM
GPS Latitude: 34.7715388611111
GPS Longitude: -82.3482749722222
GPS Altitude: 241.402118839245 meters
GPS Azimuth: 202.416839485691 degrees

*1. Trees*

*2. Deleterious Vegetation*

Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

| | |
|---|---|
| **Downstream Area** | |
| *3. Wet Areas* | |
| *4a. Seepage* | ☐ Yes ☐ No ☐ NA |
| *4b. (If Present): Seepage Flow* | |
| *5a. Boils* | ☐ Yes ☐ No ☐ NA |
| *5b. (If Present): Boil Flow* | |
| *6a. Alterations/Repairs Present* | ☐ Yes ☐ No ☐ NA |
| *6b. (If Present:) Alterations/Repairs Condition* | |
| *7. Other:* | |
| *8. Downstream Area Condition* | |
| *9. Additional Comments (Refer to item number if applicable)* | |
| **Spillways: Erodible Channel** | |
| *Is this section applicable for this dam?* | ☐ Yes ☑ No |
| *1. Location* | |
| *2. Grass Cover* | |
| *3. Deleterious Vegetation* | |
| *4. Trees* | |
| *5. Animal Activity* | |
| *6. Subsidence, Sinkhole* | |
| *7. Slide, Slough, Scarp* | |
| *8. Erosion* | |
| *9. Debris* | |
| *10. Flowing?* | ☐ Yes ☐ No ☐ NA |
| *11a. Alterations/Repairs Present* | ☐ Yes ☐ No ☐ NA |
| *11b. (If Present:) Alterations/Repairs Condition* | |
| *12. Other:* | |
| *13. Spillway: Erodible Channel Condition* | |
| *14. Additional Comments (Refer to item number if applicable)* | |

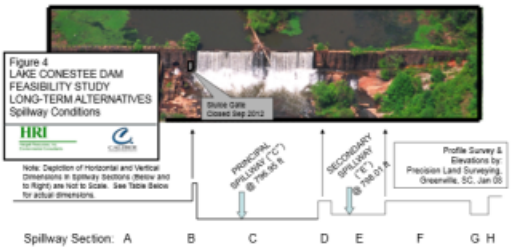
Inspector: Charles Owens
Start Date: 12/11/2019 Completed Date: 01/22/2020

## Spillways: Non-Erodible Channel

*Is this section applicable for this dam?* ☑ Yes ☐ No

From the HRI and Caliber Engineering Report: The dam has a primary spillway 130 ft in length and with an elevation of 796.95 ft msl. The bedrock shelf at the base of the spillway is at roughly 775.64 ft (elevation of invert of penstock) such that the vertical drop to bedrock is roughly 21 feet. However, the bedrock base essentially forms a falls within a few feet of the spillway base such that spillway water cascades another roughly six feet to a pool elevation of approximately 769 ft. Hence, the spillway to pool elevation difference is approximately 27 feet. The secondary spillway is 62.5 ft in length, at an elevation of 798.01 ft msl. Six distinct structural elements of the dam exist at elevations stepping up from 798.88 to 801.39 ft msl. The various spillways are depicted in Figure 4. The primary spillway is sloped upward toward the downstream edge, and as shown in the survey. The primary spillway also has a secondary lip on the downstream side.

Photo Taken: 1/9/2020 2:51:55 PM




| DAM SECTION | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| ELEVATION (FT MSL) | 800.30 | 803.40 | 796.95 | 800.37 | 798.01 | 800.14 | 798.88 | 801.39 |
| WIDTH (FT) | 202.7 | 8.0 | 130.6 | 15.7 | 62.5 | 95.8 | 16.9 | 10.5 |

*1. Location*

*2. Approach Area* Action Required

At the time of the inspection, a large area of trash and heavy woody debris had accumulated behind the dam. The mass of debris and large woody vegetation has the potential to cause stability issues when flows increase during above normal rain events. This area behind the dam should be cleared of all debris.

## Spillways: Non-Erodible Channel

Photo Taken: 12/11/2019 9:30:52 AM
GPS Latitude: 34.7709777777778
GPS Longitude: -82.3485860833333
GPS Altitude: 242.303058387396 meters
GPS Azimuth: 311.2129669386 degrees

Photo Taken: 12/11/2019 9:30:55 AM
GPS Latitude: 34.7709777777778
GPS Longitude: -82.3485860833333
GPS Altitude: 242.359272042673 meters
GPS Azimuth: 323.786178861789 degrees

Photo Taken: 12/11/2019 9:31:25 AM
GPS Latitude: 34.7710833055556
GPS Longitude: -82.3485638888889
GPS Altitude: 242.949543106873 meters
GPS Azimuth: 14.1850891044439 degrees

*3. Weir/Control*

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## Spillways: Non-Erodible Channel

| | |
|---|---|
| *4. Sidewalls* | Monitor |
| Could not be fully inspected due to flows over the primary spillway | |
| *5. Channel Floor* | |
| Could not be fully inspected due to flows over the primary spillway | |
| *6. Condition of Joints* | |
| Could not be fully inspected due to flows over the primary spillway | |
| *7. Surface Condition* | |
| See section on dams crest. | |
| *8. Unusual Movement* | Monitor |
| *9. Discharge Channel* | No Deficiency |
| *10. Debris* | Action Required |
| See Section 2 | |
| *11. Flowing?* | ☑ Yes ☐ No ☐ NA |
| *12a. Boils* | ☐ Yes ☐ No ☑ NA |
| *12b. (If Present): Boils* | |
| *13a. Alterations/Repairs Present* | ☐ Yes ☑ No ☐ NA |
| *13b. (If Present:) Alterations/Repairs Condition* | |
| *14. Other:* | |
| *15. Spillway: Non-Erodible Channel Condition* | Regular Monitoring Necessary, Needs Maintenance |
| **Violation Determined: 1/9/2020 DAMMAINTREP** | |
| *16. Additional Comments (Refer to item number if applicable)* | |
| At the time of the inspection, a large area of trash and heavy woody debris had accumulated on and behind the dam. The mass of debris and large woody vegetation has the potential to cause stability issues when flows increase during above normal rain events. This area behind the dam should be cleared of all debris. | |

## Spillways: Inlet Structure

| | |
|---|---|
| *Is this section applicable for this dam?* | ☐ Yes ☑ No |
| *1. Location* | |

Inspector: Charles Owens
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| Spillways: Inlet Structure | |
|---|---|
| *2a. Intake Structure* | |
| *2b. Intake Structure Types* | |
| *3. Trashrack* | |
| *4a. Low-Level Valve Present?* | ☐ Yes ☐ No ☐ NA |
| *4b. (If Present:) Low-Level Valve Condition* | |
| *5. Debris* | |
| *6a. Repairs/Alterations Present* | ☐ Yes ☐ No ☐ NA |
| *6b. (If Present:) Alterations/Repairs Condition* | |
| *7. Other:* | |
| *8. Spillway: Inlet Structure Condition* | |
| *9. Additional Comments (Refer to item number if applicable)* | |

| Spillways: Outlet Works | |
|---|---|
| *Is this section applicable for this dam?* | ☐ Yes ☑ No |
| *1. Location* | |
| *2a. Outlet Structure* | |
| *2b. Outlet Structure Type* | |
| *3. Outlet Pipe* | |
| *4. Primary Closure/Control* | |
| *5. Secondary Closure/Control (If Applicable)* | |
| *6. Unusual Movement* | |
| *7a. Seepage* | ☐ Yes ☐ No ☐ NA |
| *7b. (If Present): Seepage* | |
| *8. Stilling Basin* | |
| *9. Normal Flow Quantity* | |
| *10. Low-Level Flow Quantity* | |
| *11a. Alterations/Repairs Present* | ☐ Yes ☐ No ☐ NA |
| *11b. (If Present:) Alterations/Repairs* | |

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## Spillways: Outlet Works

*12. Other:*

*13. Outlet Works Condition*

*14. Additional Comments (Refer to item number if applicable)*

## Emergency Action Plan

| | |
|---|---|
| *Is this section applicable for this dam?* | ☑ Yes ☐ No |
| *1. Date of last update of emergency plan:* | 5/26/2105 |
| *2a. EAP provided by owner?* | ☑ Yes ☐ No ☐ NA |
| *2b. (If EAP was not provided, was a copy of the EAP form left with the owner?)* | ☐ Yes ☐ No ☑ NA |
| *3. Does EAP contain emergency alert plan?* | ☑ Yes ☐ No ☐ NA |
| *4. Does EAP contain specific actions to take if the dam has failed or is failing?* | ☑ Yes ☐ No ☐ NA |

*5. Additional Comments (Refer to item number if applicable)*
Provide an updated Emergency Action Plan on or before July 1, 2020.

## Downstream Hazard Check

*1. Satellite Imagery* ☑ Yes ☐ No ☐ NA

Photo Taken: 1/21/2020 9:20:21 AM

*2. Inundation Map* ☑ Yes ☐ No ☐ NA

*3. Structures/Developments* ☑ Yes ☐ No ☐ NA

The former Conestee Mill has the potential to be impacted in the event of a dam failure.

# CONESTEE LAKE DAM : D2876

Dams Preliminary Inspection Form

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## Downstream Hazard Check

*4. Roads/Railways* ☑ Yes ☐ No ☐ NA

The structural integrity of the Reedy River Bridge on Conestee road has the potential to be impacted in the event of a dam failure.

*5. Utilities* ☐ Yes ☑ No ☐ NA

*6. Consider For Reclass?* ☑ Yes ☐ No ☐ NA

Current Hazard Classification is currently under review.

*7. Additional Comments (Refer to item number if applicable)*

## Inspection Summary

*1. Overall Condition (*Per National Inventory of Dams Definition)* Poor

*----------NID Definitions----------*
*(SATISFACTORY) No existing or potential dam safety deficiencies are recognized.*
*Acceptable performance is expected under all loading conditions in accordance with*
*state engineer's rules and regulations for dams or tolerable risk guidelines.*

*(FAIR) No existing dam safety deficiencies are recognized for normal loading*
*conditions. Rare or extreme hydrologic and/or seismic events may result in a dam*
*safety deficiency. Risk may be in the range to take further action.*

*(POOR) A dam safety deficiency is recognized for loading conditions, which may*
*realistically occur. Remedial action is necessary. A POOR condition is used when*
*uncertainties exist as to critical analysis parameters, which identify a potential dam*
*safety deficiency. Further investigations and studies are necessary.*

*(UNSATISFACTORY) A dam safety deficiency is recognized that requires immediate*
*or emergency remedial action for problem resolution.*

*(NOT RATED) This should only be used if it is not possible to assess to dam's*
*condition due to site constraints on visibility on the day of inspection. If vegetation is a*
*problem the owner should be ordered perform maintenance to remove it before the*
*next visit.*

# CONESTEE LAKE DAM : D2876

Dams Preliminary Inspection Form

Inspector: Charles Owens
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## Inspection Summary

*3. Final Comments*

•The previous SCDHEC inspections on December 18, 2014, December 1, 2016 and the inspection on December 11, 2019, noted numerous active seeps and deterioration of the masonry joints throughout the downstream face on the both the left and right side. A recent engineering study was submitting on April 19, 2019 by Kleinschmidt and the report noted "Numerous active seeps were observed along the entire length of the downstream face of the dam. Most of these seeps appear to be transporting fine sediment (silt and clay) resulting in an ochre coloration to the seeps and the accumulated materials where the seeps flow across the bedrock at the base of the dam. These accumulated translocated materials have been analyzed and documented to contain high concentrations of heavy metals previously detailed in this report." Due to the movement of fine sediments containing hazardous constituents, a repair plan should be developed to address and control the seepage through the dam.

•A temporary replacement plate was added on the penstock orifice in 2001. The Kleinschmidt report stated: "The timber plate installed in 2001 against an existing timber frame to stop uncontrolled river flow through the penstock orifice allows flow through the orifice estimated at less than 3-5 cfs. The plate was intentionally designed to allow this discharge so as to provide a minimum flow in the river after the repair in June 2001. These existing timber frame, believed to be at least 110 years old, is in an undetermined condition. The flow of water around the temporary plate will continue to erode the timber seals. Once these wooden seals fail, there will be an increase in flow. The volume of flow could transport sediment and contaminants downstream of the dam. If the flow is great enough or if the bulkhead plate were to fail or be displaced, then there could be a repeat of the loss of the impoundment and release of sediment that occurred from June 2000 to June 2001, when the lake reservoir drained, and the river eroded a "canyon" through the lakebed." Due to the concerns associated with the previous repairs and the potential for an uncontrolled release of water and sediment, a repair plan should be develop to permanently seal the 8 ft diameter penstock orifice.

•At the time of the inspection, a large area of trash and heavy woody debris had accumulated behind the dam. The mass of debris and large woody vegetation has the potential to cause stability issues when flows increase during above normal rain events. This area behind the dam should be cleared of all debris.

•Continue to keep the dam free of vegetation.

•Repair the delaminated concrete veneer on the dams crest.

•Continue to monitor the seepage on the downstream face of the dam for any changes in flow. The Department recommends developing a plan or system to routinely measure the amount of seepage through the dam.

•Monitor trash and large woody debris behind the dam and remove as needed.

# CONESTEE LAKE DAM : D2876

Dams Preliminary Inspection Form

Inspector: Charles Owens
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## Inspection Summary

*Preliminary Dam Inspection Disclaimer:*

*The information contained in the preliminary inspection report is intended as an aid to identify those dams that require maintenance and/or repair actions to reduce their danger to human life or property only. It is not intended as professional engineering or consulting advice for conditions or situations present at individual dams. It is not a substitute for a detailed inspection, nor does it replace the need for services provided by registered professional engineers. If your dam is experiencing an unusual situation consult with engineering professionals to find an appropriate remedy. Preliminary inspections conducted by South Carolina Department of Health and Environmental Control (the Department) are provided "AS IS" and "as available", without warranties of any kind, either express or implied. Preliminary inspections consist only of a visual but technical examination of the dam and its appurtenant works. All findings are based solely on visual observations of the inspector at the time of the inspection. Common law holds that the storage of water is a hazardous activity and the Department does not assume any responsibility or risk for your actions or inactions. Dam owners are responsible for the safe operations and maintenance of their impoundment structures.*

# CONESTEE LAKE DAM (D2876)

## Violation List

| Form | Determined | Description | Sec. # |
|---|---|---|---|
| Dams Preliminary Inspection Form | 1/9/2020 | **Reference: DAMMAINTREP** | |
| Dams Preliminary Inspection Form | 1/9/2020 | **Reference: DAMMAINTREP** | |
| Dams Preliminary Inspection Form | 1/9/2020 | **Reference: DAMMAINTREP** | |
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