

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF LAND RESOURCES



JAMES B. HUNT JR.  
GOVERNOR

WAYNE MCDEVITT  
SECRETARY

CHARLES H. GARDNER  
P.G., P.E., DIRECTOR  
AND STATE GEOLOGIST

March 23, 2000

Mr. Stephen L. Whiteside, P.E.  
GEI Consultants, Inc.  
7721 Six Forks Road, Suite 136  
Raleigh, North Carolina 27615-5014

RE: Lake Lure Dam  
Rutherford County  
RUTHE-003  
Broad River Basin

Dear Mr. Whiteside:

A review has been made of the Emergency Action Plan (EAP) dated November 1999 for the Lake Lure Dam which was transmitted to our office under cover letter dated December 1, 1999. The following comment is offered regarding the EAP:

1. Section 3.3.7(e) (Page 20): The 24-hour telephone number for the Division of Land Resources Asheville Regional Office is (800) 858-0368, instead of (800) 828-0368.

The format and content of this EAP exemplifies that which has been envisioned by this office in our own EAP development. The logistics of communications and cooperation between Lake Lure Dam personnel, local emergency management personnel, and local, state and federal agencies are well documented, as are the roles of these entities in an emergency situation. The inundation maps provide a clear guideline for estimating areas that would likely be impacted in the event of a dam failure.

Please contact Mr. Richard A. Phillips, P.E., Regional Engineer or Mr. Maxwell R. Fowler, P.E., Assistant Regional Engineer at telephone number (828) 251-6208; or Mr. James K. Leumas, P.E., State Dam Safety Engineer, Mr. Robert A. Daniel, P.E., Assistant State Dam Safety Engineer or me at telephone number (919) 733-4574 should you have any questions concerning this matter or if we may be of further assistance.

Sincerely,

A. Scott Harrell, E.I.  
Assistant State Dam Safety Engineer  
Land Quality Section

ASH/

cc: Mr. Richard A. Phillips, P.E.  
Mr. Ronald Morgan

LAND QUALITY SECTION (919) 733-4574 FAX (919) 733-2876  
GEOLOGICAL SURVEY SECTION (919) 733-2423 FAX (919) 733-0900

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
ASHEVILLE REGIONAL OFFICE

RECEIVED  
OCT 13 1999

October 12, 1999

Mr. Chuck Place, III, Town Manager  
Town of Lake Lure  
P. O. Box 255  
Lake Lure, NC 28746

RE: LUKE LURE DAM - RUTHERFORD COUNTY (003)

Dear Mr. Place:

On Wednesday, October 6, the Land Quality Section received a call from Mr. William Grimes, manager of the Hydroelectric Plant, reporting a large flow under the dam that had not previously been observed. He and Max Fowler of this office made an inspection of the dam that evening.

We are relieved the problem does not appear to be as serious as first thought. The flow is emerging from a joint between the base of the arch behind the power house and the concrete block containing the penstock. It is then making its way to the point at which it was first observed and giving the appearance of a boil under the buttress. Flow has been observed behind the power house before. However, the flow observed Wednesday is several times the amount ever observed. A change this drastic in the dam is a concern which should be investigated.

We were pleased to hear from Mr. Grimes on October 8 that you have obtained the services of Duke Engineering and Services to investigate the problem. Mr. Grimes indicated they would be able to make their inspection during the month of October, which will be acceptable. We also ask that you have them do a comprehensive study of the condition of the dam and make recommendations for any repairs that are needed. They should submit the report, along with plans and specifications, to Mr. James K. Leumas, P.E., State Dam Safety Engineer, DIVISION OF LAND RESOURCES, DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, 1612 MAIL SERVICE CENTER, RALEIGH, NC, 27699-1612.

We thank you for your timely response in this matter and look forward to working with you to ensure the safe operation of your dam. You may contact either Max Fowler or me at (828) 251-6208.

Sincerely,

*R. A. Phillips*  
Richard A. Phillips, P.E.  
Regional Engineer

/s/

cc: James K. Leumas, P.E.

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
ASHEVILLE REGIONAL OFFICE

October 12, 1999



JAMES B. HUNT JR.  
GOVERNOR

WAYNE MCDEVITT  
SECRETARY

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Town of Lake Lure  
P. O. Box 255  
Lake Lure, NC 28746

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Sincerely,

Richard A. Phillips, P.E.  
Regional Engineer

/a

cc: James K. Leumas, P.E.



NORTH CAROLINA  
DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES

LAND QUALITY SECTION

59 WOODFIN PLACE  
ASHEVILLE, NORTH CAROLINA 28801  
PHONE: 828/251-6208 FAX: 828/251-6452

TO: Jim Simons

FAX NO.: (919)-733-2876

FROM: Max Fowler

DATE: 10-7-99

Number of pages including cover page 2

COMMENTS: Lake Lure Inspection Report

Please Review

Memo to Lake Lure Dam File

From Max Fowler

October 6, 1999

Copy to Central Office Lake Lure Dam File

This afternoon Mr. William Grimes, the operator of the Lake Lure Hydroelectric Plant called the Land Quality Section at the Asheville Regional Office to report what appeared to be a boil under the buttress to the left of power house. This condition had not previously been observed. I was able to return his call at 3:50 PM and arrived at his residence at 5:25 PM.

We rode to the base of the dam and observed the flow in question from the cat walk that goes from the power house to the sewage sump. This flow could only be observed from a distance of about seventy five feet because the base of the dam is submerged beside this buttress. The apparent boil was blocked from direct view by concrete projecting from the buttress around the tail race opening that is not currently used.

We obtained a flash light and inspected the area around the turbines and behind the power house. The joint between the arch and the concrete block around the penstock had a flow much greater than previously observed at this location. I estimated it to be around ten gallons per minute. The flow was issuing fairly uniformly across the joint, flowing down the block, collecting on the floor, and exiting through a round hole in the wall to the left looking down stream.

Ascending to the road over the crest of the dam, we looked down into the bay to the left of the power house. From this view point, it was clear to us that what appeared to be a boil from below was actually the splash from a flow issuing from the buttress and falling several feet into the pool in the bay. I believe this is the flow from behind the power house noted above.

I asked that the condition be monitored several time each day and an engineer with expertise in concrete dams be contacted as soon as possible to study it. Also, I told Mr. Grimes I would contact him in the morning when I had talked with the State Dam Safety Engineer.

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
ASHEVILLE REGIONAL OFFICE

April 26, 1999

RECEIVED

APR 27 1999

Mr. John Struener  
P. O. Box 255  
Lake Lure, NC 28746

RE: LAKE LURE DAM - RUTHERFORD COUNTY

The Dam Safety Law of 1967 provides for the certification and inspection of dams in the interest of public health, safety, and welfare, in order to reduce the risk of failure of such dams; to prevent injuries to persons, damage to property; and to ensure the maintenance of stream flows. Our records indicate you are the owner of the referenced dam which was inspected by personnel of this office March 16, 1999. The inspection revealed the following maintenance problems which must be addressed:

1. Remove small trees and vegetation growing in the bays on the back slope of the dam.
2. The seepage occurring at bay #7 behind the turbines appears to have decreased since the 3/17/98 inspection. Seepage is also occurring at bays #3, #4, #5, #7, #8, and #9. You should inspect the seepage periodically and notify this office if it increases.
3. Plans should be made to resurface the dam in the next couple of years. Spalling and deteriorating concrete is occurring over most of the dam exposing reinforced metal at several locations.

The potential for property damage and loss of life downstream in the event that your dam fails was also investigated. It was determined that sudden failure of your dam could result in significant property damage and possible loss of life downstream. Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify this office if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color. You are referred to the Dam Operation Maintenance and Inspection Manual (available upon request).

Although the inspections by our staff are relatively infrequent and offer no absolute safety guarantees, we hope that you will use the information provided in this letter as you fulfill your obligation to safely maintain and operate your dam. In order to keep records up-to-date and serve you better, please notify this office concerning any changes in address or ownership. Your cooperation is appreciated. If you have an emergency situation during non-office hours, you should notify the Division of Emergency Management's State Warning Point at 1-800-662-7956. They will notify the appropriate personnel in this office of the situation. Should you have any questions concerning this inspection, please contact me at 828/251-6208 during normal office hours.

Sincerely,

RJARP

Richard A. Phillips, P.E.  
Regional Engineer

TO WILLIAM FAR  
RESPONSE  
4-27-99

RAP:a

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
ASHEVILLE REGIONAL OFFICE

April 26, 1999

Mr. John Strutner  
P. O. Box 255  
Lake Lure, NC 28746

RE: LAKE LURE DAM - RUTHERFORD COUNTY

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Sincerely,



Richard A. Phillips, P.E.  
Regional Engineer

RAP:a

# DAM SAFETY INSPECTION REPORT

|                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| NAME<br><i>LAKE CURVE</i>                                                                                                                                                                                                                                       |  | COUNTY<br><i>RUTHE.</i>                                                                                                                                                                                      | NO.<br><i>003</i> | INSPECTED BY<br><i>CTR, NRE</i>                                                                                                                                                                                                                                                                                                                                                                                                                                              | DATE<br><i>3/10/99</i> |
| OWNER<br><i>TOWNSHIP OF LAKE CURVE</i>                                                                                                                                                                                                                          |  | ADDRESS<br><i>PO BOX 255 LAKE CURVE, NC 28746</i>                                                                                                                                                            |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PHONE                  |
| TYPE DAM<br><input type="checkbox"/> Embankment <input type="checkbox"/> Concrete gravity <input type="checkbox"/> Concrete arch <input type="checkbox"/> Other<br><input checked="" type="checkbox"/> Concrete buttress <input type="checkbox"/> Stone masonry |  | TYPE INSPECTION<br><input type="checkbox"/> Initial <input type="checkbox"/> Followup <input checked="" type="checkbox"/> Periodic <input type="checkbox"/> Other                                            |                   | SITE CONDITIONS<br><input checked="" type="checkbox"/> Dry <input type="checkbox"/> Snowcover <input type="checkbox"/> Wet<br><input type="checkbox"/> Other                                                                                                                                                                                                                                                                                                                 |                        |
| HAZARD DESCRIPTION                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                              |                   | HAZARD CLASS<br><input type="checkbox"/> Low (A) <input type="checkbox"/> Intermediate (B) <input checked="" type="checkbox"/> High (C)                                                                                                                                                                                                                                                                                                                                      |                        |
| REMARKS<br><i>Remove trees growing on the<br/>banks of the dam. Plans should<br/>be made to resurface the dam</i>                                                                                                                                               |  | ACTION<br><input type="checkbox"/> None <input checked="" type="checkbox"/> Maintenance<br><input type="checkbox"/> Monitoring <input type="checkbox"/> Minor repair<br><input type="checkbox"/> Engineering |                   | RECOMMENDATIONS<br><input checked="" type="checkbox"/> Inspection letter <input type="checkbox"/> Inspection by DSE<br><input type="checkbox"/> Deficiency letter <input type="checkbox"/> Dam safety order<br><input type="checkbox"/> RE notice <input type="checkbox"/> Enforcement<br><input type="checkbox"/> Engineering study <input type="checkbox"/> Periodic reinspection<br><input type="checkbox"/> Inspection by RE <input type="checkbox"/> Other reinspection |                        |

| AREA                    | PROBLEMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COMMENTS                                                                                                                                                                                                                                                                                     |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UPSTREAM SLOPE / FACE   | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Displaced rip rap<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Cracks<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Undermining<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Wave erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input type="checkbox"/> 10. Sparse rip rap              | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input type="checkbox"/> Other<br><br><div style="height: 100px;"></div>                                                           |
| TOP OF DAM              | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Cracks<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Spalling<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Deteriorated joints<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Displaced joints<br><input type="checkbox"/> 5. Ruts <input type="checkbox"/> 15. Exposed reinforcement<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Other<br><input type="checkbox"/> 7. Depressions<br><input type="checkbox"/> 8. Uneven<br><input type="checkbox"/> 9. Misalignment<br><input type="checkbox"/> 10. Has overtopped                                                                                                                                | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Asphalt <input type="checkbox"/> Other<br><br><div style="height: 100px;"></div>                                                            |
| DOWNSTREAM SLOPE / FACE | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolls<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input type="checkbox"/> 10. Wetness                                          | COVER: <input checked="" type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other<br><br><div style="height: 100px; text-align: center; vertical-align: middle; font-size: 2em;"> <i>See attached<br/>sheet</i> </div> |
| TOE CONTACT             | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolls<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Undermining<br><input type="checkbox"/> 10. Wetness <input type="checkbox"/> 20. Other | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other<br><br><div style="height: 100px;"></div>                                                                                                       |

3/16/99  
CTK, WRF

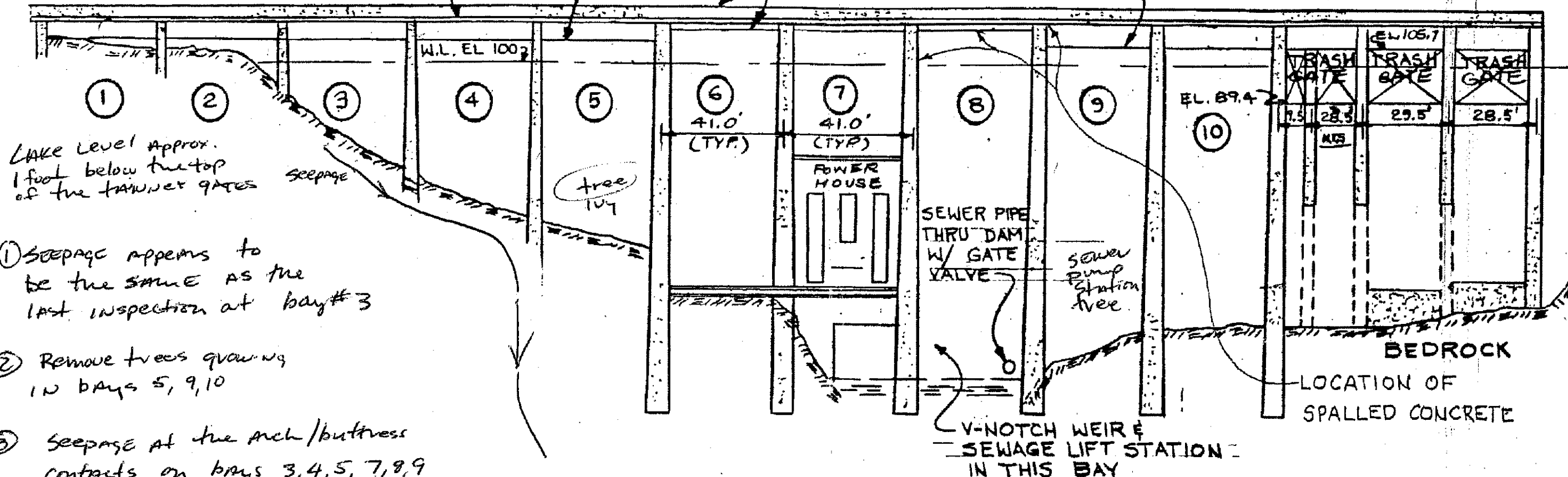
ARCHES 1-5 CREST EL. 107.4

ROAD SURFACE EL. 115.4

STATE HIGHWAY CROSSING OVER TOP OF DAM

ARCHES 6-8 CREST EL. 113.4

ARCHES 9 & 10 CREST EL. 105.4



- ① Seepage appears to be the same as the last inspection at bay #3
- ② Remove trees growing in bays 5, 9, 10
- ③ Seepage at the arch/butress contacts on bays 3, 4, 5, 7, 8, 9
- ④ Seepage at bay #7 behind the turbines appears to have ~~decreased~~ decreased since the last inspection
- ⑤ Spalling has exposed reinforced steel. Concrete is deteriorating over most of the downstream surface

DOWNSTREAM ELEVATION

NOT TO SCALE

N.C. DEPT. OF NAT. RES. & COMM. DEV.

MAIN

LAKE LURE DAM  
RUTHERFORD COUNTY, N. C.

DOWNSTREAM ELEVATION

DRAWN BY  
ACH

DATE  
6-12-81

DWG NO.  
1909-7-7

FIG. 2

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF LAND RESOURCES

March 2, 1999

Mr. James R. Talbot, P.E.  
GEI Consultants, Inc.  
7721 Six Forks Road, Suite 136  
Raleigh, North Carolina 27615-5014

RE: Lake Lure Dam  
Rutherford County  
RUTHE-003

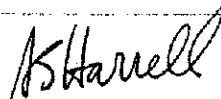
Dear Mr. Talbot:

A review has been made of the draft Emergency Action Plan (EAP) dated November 1998 for the Lake Lure Dam. This document was received in our office on January 20, 1999 under cover letter dated January 18, 1999. The format and content of this EAP exemplifies that which has been envisioned by this office in our own EAP development. The logistics of communications and cooperation between Lake Lure Dam personnel, local emergency management personnel, and local, state and federal agencies are well documented, as are the roles of these entities in an emergency situation. The inundation maps provide a clear guideline for estimating areas that would likely be impacted in the event of a dam failure.

You may wish to confirm the telephone numbers listed in Section 3.3 and Figure 1.1. The telephone number for Mr. Richard Phillips (Division of Land Resources, Asheville Regional Office) is (828) 251-6208. The Polk County Warning Point telephone number is (828) 894-3001. The Cleveland County Warning Point telephone number is (704) 482-4422.

Please contact Mr. James K. Leumas, P.E., State Dam Safety Engineer or me at telephone number (919) 733-4574 should you have any questions concerning this matter or if we may be of further assistance.

Sincerely,



A. Scott Harrell, E.I.T.  
Assistant State Dam Safety Engineer  
Land Quality Section

ASH/

cc: Mr. Richard A. Phillips, P.E.  
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GEOLOGICAL SURVEY SECTION (919) 733-2423 FAX (919) 733-0900

P.O. Box 27687, RALEIGH, NORTH CAROLINA 27611-7687 TELEPHONE (919) 733-3833 FAX (919) 715-8801  
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER



JAMES B. HUNT JR.  
GOVERNOR

WAYNE MCDEVITT  
SECRETARY

CHARLES H. GARDNER  
PG., P.E. DIRECTOR  
AND STATE GEOLOGIST

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
ASHEVILLE REGIONAL OFFICE

May 1, 1998



JAMES B. HUNT JR.  
GOVERNOR

WAYNE McDEVITT  
SECRETARY

Mr. John Strutner  
P. O. Box 255  
Lake Lure, NC 28746

RE: LAKE LURE DAM - RUTHERFORD COUNTY

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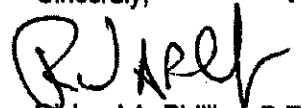
1. Remove small trees and vegetation growing in the bays on the back side of the dam.
2. Seepage not seen before is occurring at bay #7 behind the turbines at the contact between the arch and base of the dam. Also, seepage is occurring at bay #3 and bay #4. Seepage is also occurring at the arch/buttness contacts on bays #3, #4, #5, #7, #8, and #9. You should inspect the seepage periodically and notify this office if it increases.
3. Plans should be made to resurface the dam within a couple of years. Spalling and deteriorating concrete is occurring over most of the dam exposing reinforced metal at several locations.

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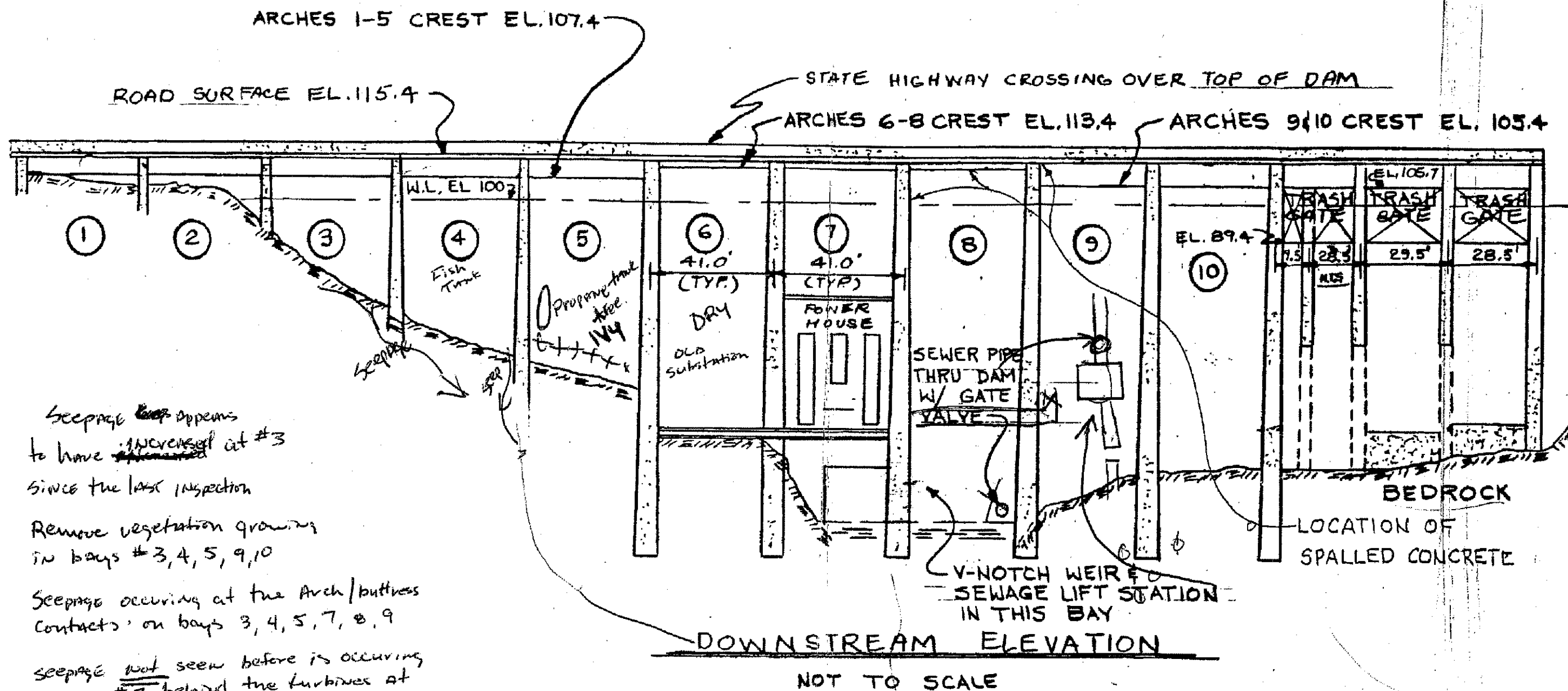
Sincerely,

  
Richard A. Phillips, P.E.  
Regional Engineer

RAP:a

# DAM SAFETY INSPECTION REPORT

| NAME<br><b>LAKE CURE</b>                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | COUNTY<br><b>RUTHE</b>                                                                                                                                            | NO.                                                                                                                                                                                                                                 | INSPECTED BY<br><b>CTK MRF</b>                                                                                                                            | DATE<br><b>3/17/98</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| OWNER<br><b>Town of Lake Cure</b>                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ADDRESS<br><b>255 Lake Cure Rd</b>                                                                                                                                |                                                                                                                                                                                                                                     | PHONE<br><b>28746</b>                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| TYPE DAM <input type="checkbox"/> Concrete gravity <input type="checkbox"/> Concrete arch <input type="checkbox"/> Other<br><input type="checkbox"/> Embankment <input checked="" type="checkbox"/> Concrete buttress <input type="checkbox"/> Stone masonry |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TYPE INSPECTION <input checked="" type="checkbox"/> Periodic<br><input type="checkbox"/> Initial <input type="checkbox"/> Followup <input type="checkbox"/> Other |                                                                                                                                                                                                                                     | SITE CONDITIONS <input checked="" type="checkbox"/> Wet<br><input type="checkbox"/> Dry <input type="checkbox"/> Snowcover <input type="checkbox"/> Other |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| HAZARD DESCRIPTION                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                   |                                                                                                                                                                                                                                     | HAZARD CLASS <input type="checkbox"/> Low (A) <input checked="" type="checkbox"/> Intermediate (B) <input checked="" type="checkbox"/> High (C)           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| REMARKS<br><i>Plan should be made to resurface the dam. Remove trees growing in bays and next to dam seepage opening at arch contacts with buttress</i>                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                   | ACTION<br><input type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor repair <input type="checkbox"/> Engineering                                         |                                                                                                                                                           | RECOMMENDATIONS<br><input checked="" type="checkbox"/> Inspection letter <input type="checkbox"/> Deficiency letter <input type="checkbox"/> RE notice <input type="checkbox"/> Engineering study <input type="checkbox"/> Inspection by RE<br><input type="checkbox"/> Inspection by DSE <input type="checkbox"/> Dam safety order <input type="checkbox"/> Enforcement <input type="checkbox"/> Periodic reinspection <input type="checkbox"/> Other reinspection |  |
| AREA                                                                                                                                                                                                                                                         | PROBLEMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                   | COMMENTS                                                                                                                                                                                                                            |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| UPSTREAM SLOPE / FACE                                                                                                                                                                                                                                        | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Displaced rip rap<br><input type="checkbox"/> 2. Trees <input checked="" type="checkbox"/> 12. Cracks<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Undermining<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Wave erosion <input checked="" type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input type="checkbox"/> 10. Sparse rip rap |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input type="checkbox"/> Other                                            |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| TOP OF DAM                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Cracks<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Spalling<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Deteriorated joints<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Displaced joints<br><input type="checkbox"/> 5. Run <input type="checkbox"/> 15. Exposed reinforcement<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Other<br><input type="checkbox"/> 7. Depressions<br><input type="checkbox"/> 8. Uneven <input type="checkbox"/> 9. Misalignment<br><input type="checkbox"/> 10. Has overtopped                                                                                                                                             |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Concrete <input checked="" type="checkbox"/> Asphalt <input type="checkbox"/> Other<br><br><i>See attached sheet</i> |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| DOWNSTREAM SLOPE / FACE                                                                                                                                                                                                                                      | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Boils<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input type="checkbox"/> 10. Wetness                                                   |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other                                                                                        |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| TOE CONTACT                                                                                                                                                                                                                                                  | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Boils<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Undermining<br><input type="checkbox"/> 10. Wetness <input type="checkbox"/> 20. Other          |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other                                                                                        |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |



Seepage ~~has~~ appears to have ~~increased~~ at #3 since the last inspection

Remove vegetation growing in bays #3, 4, 5, 9, 10

Seepage occurring at the Arch/butress contacts on bays 3, 4, 5, 7, 8, 9

seepage not seen before is occurring at bay #7 behind the turbines at the contact between the arch and base of the dam. approx. 2 gal/min.

Spalling has exposed reinforced steel concrete deteriorating over most of the downstream surface.

N.C. DEPT. OF NAT. RES. & COMM. DEV.

**MAIN**

LAKE LURE DAM  
RUTHERFORD COUNTY, N.C.

DOWNSTREAM ELEVATION

DRAWN BY  
ACH

DATE  
6-12-81

DWG NO.  
1909-7-7

FIG. 2

*Richard Philleps*

NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF LAND RESOURCES

March 23, 1998

James R. Talbot, P. E.  
GEI Consultants, Inc  
7721 Six Forks Road  
Suite 136  
Raleigh, North Carolina 27615-5014

RE: Lake Lure Dam  
Rutherford County  
RUTHE-003

Dear Mr. Talbot:

I wanted to thank you and Messrs. Jim Gallagher, P. E. and Hubert Hawkins, P. E. for discussing the scope of work and schedule for the emergency action plan (EAP) for the Lake Lure Dam today. The scope of work appears to meet what our office anticipates should be incorporated into an EAP for similar dams.

I look forward to working with you and the Town of Lake Lure for this project.

Please contact me at telephone number (919) 733-4574 if I may be of further assistance or to schedule meetings for review of "milestones" for the Lake Lure EAP.

Sincerely,

*James K. Leumas*

James K. Leumas, P. E.  
State Dam Safety Engineer  
Land Quality Section

JKL/

cc: Mr. Ronald J. Morgan

LAND QUALITY SECTION (919) 733-4574 FAX (919) 733-2876  
GEOLOGICAL SURVEY SECTION (919) 733-2423 FAX (919) 733-0900

From: Self <NROAR06/N1SS311>  
To: Phillips Richard  
Subject: Lake Lure Inspection  
Copies to: Koontz Charles  
Send reply to: Max\_Fowler@aro.enr.state.nc.us  
Date sent: Thu, 19 Mar 1998 16:46:16 +1100

Dear Richard:

Charles Koontz and I did the annual inspection on Lake Lure Dam March 17, 1998. Mr. William Grimes, operator of the dam and power plant accompanied us. We noticed deep spalling near the top of arches 3, 4, 5, 9 and 10 at the point where they join the buttresses. In a couple of instances, this spalling has reached reinforcement steel.

Another condition that was noted is a flow of about two gallons between the base of arch 7 and the concrete encasing the penstock. Neither Mr. Koontz nor Mr. Grimes has noticed this flow before.

The seepage appears to Charles to have increased from the third and fourth bays. There is no way to get a clear picture of this seepage because it is not collected in a pipe or weir. I suggest that a system to collect this seepage be installed so it can be monitored.

I believe the owners of the dam should contract with an engineering firm to do a detailed inspection before repairs to the spalling concrete are done. This will lessen the likelihood that repairs will obscure the evidence of a more serious condition.

Sincerely,  
Max Fowler

**State of North Carolina  
Department of Environment  
and Natural Resources  
Division of Land Resources**

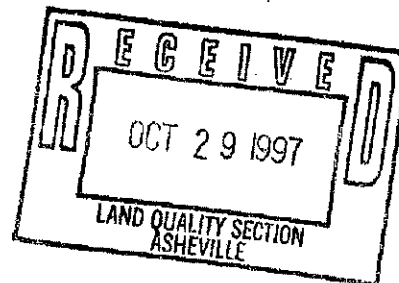


James B. Hunt, Jr., Governor  
Wayne McDevitt, Secretary  
Charles H. Gardner, P.G., P.E.  
Director and State Geologist

October 24, 1997

Mr. Ronald J. Morgan  
Emergency Management Coordinator  
Town of Lake Lure  
Post Office Box 255  
Lake Lure, North Carolina 28756

RE: Lake Lure Dam  
Rutherford County



Dear Mr. Morgan:

I have reviewed your "Request for Proposals" (RFP) for an emergency action plan (EAP) for the referenced dam which you FAXed to me on October 20, 1997. The RFP looks very complete. Per our discussion on October 24, 1997, once the Town of Lake Lure is in a position to negotiate with the selected engineer or engineering firm to develop a definitive scope of services for the EAP, please contact me and I will be happy to assist you and the Town of Lake Lure in this matter.

Also, as requested, please find enclosed two lists of engineers.

Please contact me if I may be of further assistance.

Sincerely,

James K. Leumas, P. E.  
Dam Safety Engineer  
Land Quality Section

JKL/

Enclosures

cc: Mr. Richard A. Phillips, P. E.

Geological Survey Section  
(919) 733-2423  
FAX: (919) 733-0900

Land Quality Section  
(919) 733-4574  
FAX: (919) 733-2876

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Land Resources



James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Charles H. Gardner, P.G., P.E.  
Director and State Geologist

April 29, 1997

Mr. Ron Morgan  
Fire and Emergency Management Coordinator  
Town of Lake Lure  
Post Office Box 255  
Lake Lure, North Carolina 28746  
Telephone Number (704) 625-9983, Extension 100  
FAX Number (704) 625-8371

RE: Lake Lure Dam  
Rutherford County

Dear Mr. Morgan:

Per our discussion today, please be advised that our office will require an Emergency Action Plan (EAP) for the Lake Lure Dam in Rutherford County. We hope to complete our guidelines before December 31, 1997. Per my letter to you dated February 21, 1997, the EAP will require inundation mapping. Upon completion of the EAP guidelines, I will forward one copy to your office.

Please contact me at telephone number (919) 733-4574 if I may answer any questions concerning this matter or if I may be of further assistance. We look forward to receipt of the EAP for the Lake Lure Dam.

Sincerely,

James K. Leumas, P. E.  
Dam Safety Engineer  
Land Quality Section

JKL/

cc: Mr. Richard A. Phillips, P. E.  
Mr. John Strutner  
Mr. Bob Washburn

Geological Survey Section  
(919) 733-2423  
FAX: (919) 733-0900

Land Quality Section  
(919) 733-4574  
FAX: 733-2876

Geodetic Survey Section  
(919) 733-3836  
FAX: 733-4407

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Asheville Regional Office

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary



March 26, 1997

Mr. John Strutner  
Town of Lake Lure  
P. O. Box 255  
Lake Lure, NC 28746

RE: LAKE LURE DAM - RUTHERFORD COUNTY

The Dam Safety Law of 1967 provides for the certification and inspection of dams in the interest of public health, safety, and welfare, in order to reduce the risk of failure of such dams; to prevent injuries to persons, damage to property; and to ensure the maintenance of stream flows.

Our records indicate you are the owner of the referenced dam which was inspected by personnel of this office February 20, 1997. The inspection revealed no problems which require your immediate attention; however, plans should be made to repair concrete that is cracked and spalling over most of the dam's surface in the near future. The potential for property damage and loss of life downstream in the event that your dam fails was also investigated. It was determined that sudden failure of your dam could result in significant property damage and possible loss of life downstream.

Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify this office if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color. You are referred to the Dam Operation Maintenance and Inspection Manual (available upon request).

Although the inspections by our staff are relatively infrequent and offer no absolute safety guarantees, we hope that you will use the information provided in this letter as you fulfill your obligation to safely maintain and operate your dam. In order to keep records up-to-date and serve you better, please notify this office concerning any changes in address or ownership. Your cooperation is appreciated.

If you have an emergency situation during non-office hours, you should notify the Division of Emergency Management's State Warning Point at 1-800-662-7956. They will notify the appropriate personnel in this office of the situation. Should you have any questions concerning this inspection, please contact me at 704/251-6208 during normal office hours.

Sincerely,

Richard A. Phillips, P.E.  
Regional Engineer

RAP:a

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Land Resources



James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Charles H. Gardner, P.G., P.E.  
Director and State Geologist

April 3, 1997

RECEIVED

APR 07 1997

LAND QUALITY SECTION  
ASHEVILLE

Mr. William Grimes  
Town of Lake Lure  
Post Office Box 255  
Lake Lure, North Carolina 28746

RE: Request for Information  
Dam Safety Program

Dear Mr. Grimes:

I recently spoke with Ms. Anita Taylor who requested that I send you a copy of the North Carolina "Dam Operation, Maintenance and Inspection Manual." Please find one copy of this publication enclosed.

Please contact Mr. Richard A. Phillips, P. E., Regional Engineer at telephone number (704) 251-6208 or this office if we can be of further assistance.

Sincerely,

James K. Leumas, P. E.  
Dam Safety Engineer  
Land Quality Section

JKL/

Enclosure

cc: Mr. Richard A. Phillips, P. E.

Geological Survey Section  
(919) 733-2423  
FAX: (919) 733-0900

Land Quality Section  
(919) 733-4574  
FAX: 733-2876

Geodetic Survey Section  
(919) 733-3836  
FAX: 733-4407

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Land Resources



James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Charles Gardner, P.G., P.E.  
Director and State Geologist

February 21, 1997

Mr. Ron Morgan  
Fire and Emergency Management Coordinator  
Town of Lake Lure  
Post Office Box 255  
Lake Lure, North Carolina 28746  
Telephone Number (704) 625-9983, Extension 100  
FAX Number (704) 625-8371

RE: ~~Lake Lure Dam~~  
Rutherford County

Dear Mr. Morgan:

Thank you for discussing with me on February 18, 1997 the requirements for Emergency Action Plans (EAP's) for dams in the State of North Carolina. Per our discussion, this is to advise that our office will be requiring inundation mapping of areas downstream from dams where the extent of downstream damages is not clearly evident. (As I mentioned to you, our office will not require inundation mapping downstream from dams where the impacts of failure are easily identified. For instance, if a trailer is located a short distance downstream from a dam very close to the creek channel, and it is evident that the trailer would be damaged if the dam were to fail, and there are no other structures downstream from the dam, and the breach outflow would then go into a large stream or lake that could easily accommodate the discharge, our office would not require downstream inundation mapping.) We have not, as I mentioned to you, completed our EAP guidelines at this time.

We will likely require inundation mapping for both a "sunny day" breach failure and a failure of the dam during the design storm event. (For the Lake Lure Dam, the design storm event is the full Probable Maximum Precipitation (PMP) storm.) The inundation mapping should be incorporated into the EAP so that emergency management personnel and Dam Safety Program staff can provide necessary response in the event of an emergency at the dam.

Geological Survey Section  
(919) 733-2423  
FAX: (919) 733-0900

Land Quality Section  
(919) 733-4574  
FAX: 733-2876

Geodetic Survey Section  
(919) 733-3836  
FAX: 733-4407

# DAM SAFETY INSPECTION REPORT

✓

|                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| NAME<br><b>LAKE Lure</b>                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | COUNTY<br><b>RUTH</b>                                                                                                                                                                                   | NO.<br><b>003</b>                                                                                                                                                                                                                                                                     | INSPECTED BY<br><b>CTV</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DATE<br><b>2/20/97</b> |
| OWNER<br><b>TOWN of LAKE Lure</b>                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ADDRESS<br><b>PO Box 255 LAKE Lure, NC 28746</b>                                                                                                                                                        |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | PHONE                  |
| TYPE DAM <input type="checkbox"/> Concrete gravity <input type="checkbox"/> Concrete arch <input type="checkbox"/> Other<br><input type="checkbox"/> Embankment <input type="checkbox"/> Concrete buttress <input type="checkbox"/> Stone masonry |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TYPE INSPECTION <input checked="" type="checkbox"/> Periodic <input type="checkbox"/> Initial <input type="checkbox"/> Followup <input type="checkbox"/> Other                                          |                                                                                                                                                                                                                                                                                       | SITE CONDITIONS <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Snowcover <input type="checkbox"/> Other                                                                                                                                                                                                                                                                                                                           |                        |
| HAZARD DESCRIPTION<br><b>unchanged</b>                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       | HAZARD CLASS <input type="checkbox"/> Low (A) <input checked="" type="checkbox"/> Intermediate (B) <input type="checkbox"/> High (C)                                                                                                                                                                                                                                                                                                                                             |                        |
| REMARKS<br><b>LAKE approx. 12' below NP spillway gates were being repaired and bay from spillway gate/seepage at 2nd control joint</b>                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ACTION<br><input type="checkbox"/> None<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Monitoring<br><input type="checkbox"/> Minor repair<br><input type="checkbox"/> Engineering |                                                                                                                                                                                                                                                                                       | RECOMMENDATIONS<br><input type="checkbox"/> Inspection letter<br><input type="checkbox"/> Deficiency letter<br><input type="checkbox"/> RE notice<br><input type="checkbox"/> Engineering study<br><input type="checkbox"/> Inspection by RE<br><input type="checkbox"/> Inspection by DSE<br><input type="checkbox"/> Dam safety order<br><input type="checkbox"/> Enforcement<br><input type="checkbox"/> Periodic reinspection<br><input type="checkbox"/> Other reinspection |                        |
| AREA                                                                                                                                                                                                                                              | PROBLEMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                         | COMMENTS                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
| UPSTREAM SLOPE / FACE                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Displaced rip rap<br><input checked="" type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Cracks<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Undermining<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Wave erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input type="checkbox"/> 10. Sparse rip rap   |                                                                                                                                                                                                         | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input type="checkbox"/> Other<br><b>surface spalling <del>concrete</del> over most of the upstream/downstream surfaces</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
|                                                                                                                                                                                                                                                   | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Cracks<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Spalling<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Deteriorated joints<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Displaced joints<br><input type="checkbox"/> 5. Ruts <input type="checkbox"/> 15. Exposed reinforcement<br><input type="checkbox"/> 6. Livestock damage <input checked="" type="checkbox"/> 16. Other<br><input type="checkbox"/> 7. Depressions<br><input type="checkbox"/> 8. Uneven<br><input type="checkbox"/> 9. Misalignment<br><input type="checkbox"/> 10. Has overtopped                                                                                                                                           |                                                                                                                                                                                                         | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Concrete <input checked="" type="checkbox"/> Asphalt <input type="checkbox"/> Other<br><b>DOT maintenance expansion joint plate knocked off by snow plow</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
| DOWNSTREAM SLOPE / FACE                                                                                                                                                                                                                           | <input type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolls<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input checked="" type="checkbox"/> 10. Wetness                                          |                                                                                                                                                                                                         | COVER: <input checked="" type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Other<br><b>Slight seepage on the 2nd, 3rd &amp; 4th bay from the empty gates</b>                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
|                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolls<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Undermining<br><input type="checkbox"/> 10. Wetness <input type="checkbox"/> 20. Other |                                                                                                                                                                                                         | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Other <b>rock</b>                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
| TOE CONTACT                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |

9/28/95

## ONE PAGE REPORT

Page 1

THE-003 LAKE LURE DAM

ALT DAM NAMES:

HAZ:H STATUS:IMPOUNDING

PHASE I REPORT: Y

LAST APPR. REP./MOD. DATE:

TYPE:CNVA

PURPOSES:H

LAST INSP: 2/13/95 NEXT INSP:

LOW FLOW,CFS:

INSPECTOR(S): CTK,RAP,DGO,JKL

0

QUAD:LAKE LURE NW

RIVER OR STREAM:ROCKY BROAD RIVER

LAT: 35 DEG

25 MIN

30 SEC

LONG: 82 DEG

11 MIN

0 SEC

STRUCT. HEIGHT:

124 HYD. HEIGHT:

122 FREEBOARD:

2

NORM POOL EL:

0 SURF AREA,AC:

740 DRAIN AREA,AC:

60800

CREST LENGTH,FT:

480 CREST WIDTH,FT:

NORM POOL CPCTY,AC-FT:

32295 MAX CPCTY,AC-FT:

44914

U/S SLOPE XH:1V:

D/S SLOPE XH:1V:

PSPWY TYPE:10 ARCHES(SEE FILE)

ESPWY TYPE:3 RADIAL GATES (16'X25')

MAX DISCH FROM ALL SPWYS,CFS:

0 BOTTOM DRAIN:N OPERABLE:N

OWNER:TOWN OF LAKE LURE

P. O. BOX 255

LAKE LURE

, NC 28746

OWNER PH:704-625-9983 ALT. OWNER PH:704-625-9396

ALT. ADDRESS:

CONTACT NAME IF NOT OWNER:

CONTACT NAME PHONE:

NAME/AGENCY FOR EMER. PH 1:

EMER. PH 1:

NAME/AGENCY FOR EMER. PH 2:

EMER. PH 2:

ENGR:

PH:

CONSTRUCTED BY:

YEAR CONSTRUCTION COMPLETED: 1927

NEAREST CITY-TOWN: UREE

DIST. NRST CITY-TOWN, MI.:

1 POP. NRST CITY-TOWN:

100

DIRECTIONS TO DAM:FROM LAKE LURE 64-74 EAST.TAKE SR1306(BUFFALO RD) TO LEFT.

ROAD CROSSES DAM.

HAZARD DESCR:

COMMENT 1:

COMMENT 2:

COMMENT 3:

COMMENT 4:

February 13, 1995

MEMORANDUM

TO: File

FROM: Jim Leumas *JKL*

RE: Lake Lure Dam  
Rutherford County

Inspection on February 13, 1995 by Richard Phillips, Dennis Owenby, Chip Koontz and Jim Leumas. Weather was cloudy, temperature was approximately 25 to 35 degrees. Mr. William Grimes, caretaker for the dam was also present and gave us a tour of the hydroelectric facilities. The dam is not under FERC's jurisdiction. It is under the State's jurisdiction. The lake level was down approximately four feet.

The upstream face of the dam could not be inspected except from either abutment or from the location of the spillway. A structural crack was observed in the concrete arch to the right of the three tainter gates.

The crest of the dam looked in good condition. Mr. Grimes indicated that the NCDOT inspects the bridge and bridge supporting structures that form part of the dam.

The downstream bays of the concrete dam are showing signs of significant spalling at many locations. A small amount of seepage through many construction joints was also observed.

At the right end of the dam where embankment fill/natural ground meets the concrete dam, seepage was observed in some locations. The multiple arches had overtopped in January 1995 which caused flow to discharge along the right groin area of the dam washing out a significant amount of soil. Rock is exposed near the stairs leading to the powerhouse which had been covered with soil prior to this storm event. At the left end of the dam where the spillway sidewall meets backfill near the stilling pool area seepage was observed. There are many drains through this sidewall with seepage flowing through the pipes. Mr. Grimes indicated that for the 12 years that he has been looking over the dam he has noted no changes in its condition other than the damage to the right end of the dam which washed out a significant amount of soil.

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Land Resources

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Charles Gardner, P.G., P.E.  
Director and State Geologist



October 31, 1994

Mr. Bob Washburn  
Post Office Box 100  
Lake Lure, North Carolina 28746

RE: Request for Information  
Dam Safety Program

Lake Lure Dam  
Rutherford County

Dear Mr. Washburn:

As per our telephone conversation today, please find enclosed one copy each of the "Dam Safety Law of 1967" and the "North Carolina Administrative Code, Title 15A, Subchapter 2K - Dam Safety". This information includes statutory requirements and criteria for the design of dams.

Also enclosed is one copy of the North Carolina "Dam Operation, Maintenance & Inspection Manual." This publication should be helpful in preparing an emergency action plan, and an operation and maintenance schedule.

Please contact this office if I can be of further assistance.

Sincerely,

James K. Leumas, P. E.  
Dam Safety Engineer  
Land Quality Section

JKL/

Enclosures

cc: Mr. Richard A. Phillips, P. E.

Geological Survey Section  
(919) 733-2423  
FAX: (919) 733-0900

Land Quality Section  
(919) 733-4574  
FAX: 733-2876

Geodetic Survey Section  
(919) 733-3836  
FAX: 733-4407

Town Mgr

Town of Lake Park

ATTN: W Gaines

John Struttener

625-2983

FAX - TOWN OF LAKE LURE

#

625-8371



DAM INSPECTION

Name of Dam: LAKE LURE <sup>003</sup> 2/13/95 County: Rutherford ✓

COMMENTS: J.K.L., RAP, DGO, CTK. met with William Grimes  
AND MADE AN INSPECTION of LAKE LURE DAM. JKL. Advised  
Mr. Grimes that plans should be made now for  
future repairs of concrete spalling and deterioration.

Date: 2/13/95

Inspected by: JKL, RAP, DGO, CTK

INVENTORY UPDATE

Change in Ownership / / yes / / no

Inventory No.: 003

OTHER: TOWN MANAGER IS NOW JOHN STRUTTENER 625-9983  
DAM MAINTENANCE SUPERVISOR William Grimes 625-9396

CO REC 1 62, 005  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Town of Lake Lure  
Docket No. EL92-8-000  
North Carolina

ORDER RULING ON DECLARATION OF INTENTION  
AND FINDING LICENSING NOT REQUIRED

(Issued July 7, 1992)

On December 27, 1991, the Town of Lake Lure filed a Declaration of Intention (DI) concerning the existing Lake Lure Hydroelectric Project, in Rutherford County, North Carolina. The town questioned whether licensing is required for the project under Part I of the Federal Power Act (FPA).

PROJECT DESCRIPTION

The project, located on the Rocky Broad River, consists of: a reservoir with a storage area of 1,400 acre-feet; (2) an existing 100-foot-high, 630-foot-long concrete dam; (3) a 10-foot-diameter, 100-foot-long penstock; (4) a concrete powerhouse, containing two vertical turbines/generators, producing 1,200 kilowatts (KW) and 2,200 KW; (5) a concrete tailrace; and (6) appurtenant facilities.

Notice of the DI was published January 28, 1992. Protests, comments, and petitions to intervene were to be filed on or before February 27, 1992. Comments were received on February 25, 1992 from the Department of Environment, Health, and Natural Resources, State of North Carolina, concerning water quality and minimum flow requirements. The comments did not address issues of jurisdiction. No other protests or motions to intervene were received by that date.

JURISDICTION

Section 23(b) of the FPA requires that waterpower projects be licensed if they are located on navigable waters of the United States, occupy any part of the public lands or reservations of the United States, use surplus water or waterpower from a Federal Government dam, or, if constructed after August 26, 1935, are located on any part of a non-navigable water subject to Congress' jurisdiction under the Commerce Clause and affect the interests interstate or foreign commerce.

The project is not located on a navigable water of the United States. It does not occupy any public lands or reservations of the United States and does not use surplus water or waterpower from a Federal Government dam. The power generated by the project is fed into an interstate power system through the

DC-A-3

Rutherford County  
RUTHE-003 -2-

JUL 18 1992

Duke Power Company grid and is transported across state lines. The Rocky Broad River is a commerce clause waterway. However, there is no evidence of any post-1935 construction.

Consequently, under Section 23(b) of the FPA, the project does not require licensing. If evidence of jurisdiction is found in the future, however, Section 23(b) would require licensing, and under Section 4(g), the project owner could then be required to apply for a license.

The Director orders:

(A) Pursuant to Section 23(b) of the Federal Power Act, the Lake Lure Hydroelectric Project is not required to be licensed. This order is issued without prejudice to any future determination, upon new or additional evidence, that licensing is required.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

Fred R. Springer  
Director, Office of  
Hydropower Licensing

TO: Richard Phillips

FROM: Jim Levens

1 16 U.S.C. § 797(g) (1982).

Richard,

7/15/92

This one is apparently now  
under our jurisdiction!

— New



State of North Carolina  
Department of Environment, Health, and Natural Resources  
512 North Salisbury Street • Raleigh, North Carolina 27604

James B. Hunt, Jr., Governor

February 8, 1993

Jonathan B. Howes, Secretary

Mr. William Grimes  
Town of Lake Lure  
P. O. Box 255  
Lake Lure, NC 28746

**RE: LAKE LURE DAM - RUTHERFORD COUNTY**

The Dam Safety Law of 1967 provides for the certification and inspection of dams in the public interest. Our records indicate you are the owner of the referenced dam which was inspected by personnel of this office February 2, 1993. The inspection revealed no problems which require your immediate attention. The potential for property damage and loss of life downstream in the event that your dam fails was also investigated. It was determined that sudden failure of your dam could result in serious property damage and possible loss of life.

Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify this office if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color. You are referred to the Dam Operation Maintenance and Inspection Manual (available upon request). Although the inspections by our staff are relatively infrequent and offer no absolute safety guarantees, we hope that you will use the information provided in this letter as you fulfill your obligation to safely maintain and operate your dam. In order to keep records up-to-date and serve you better, please notify this office concerning any changes in address or ownership.

**If you have an emergency situation during non-office hours, please notify the Division of Emergency Management's State Warning Point at 1-800-662-7956. They will notify this office of the situation. Should you have questions, please contact me at 704/251-6208 during normal office hours.**

Sincerely,

Richard A. Phillips, P.E.  
Regional Engineer

RAP:a

# DAM SAFETY INSPECTION REPORT

|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   |                                                                                                                                                                                                                                                  |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--|
| NAME<br><b>LAKE LIVE DAM</b>                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | COUNTY<br><b>Rutherford</b>                                                                                                                                       | NO.<br><b>003</b>                                                                                                                                                                                                                                | INSPECTED BY<br><b>CK, DGO</b>                                                                                                                               | DATE<br><b>2/3/93</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |  |
| OWNER<br><b>TOWN OF LAKE LIVE</b>                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ADDRESS<br><b>P.O. Box 255 LAKE LIVE, NC 28746</b>                                                                                                                |                                                                                                                                                                                                                                                  |                                                                                                                                                              | PHONE<br><b>704 625-9227</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |  |
| TYPE DAM<br><input type="checkbox"/> Embankment <input type="checkbox"/> Concrete gravity <input checked="" type="checkbox"/> Concrete arch <input type="checkbox"/> Other<br><input type="checkbox"/> Concrete buttress <input type="checkbox"/> Stone masonry |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TYPE INSPECTION<br><input type="checkbox"/> Initial <input type="checkbox"/> Followup <input checked="" type="checkbox"/> Periodic <input type="checkbox"/> Other |                                                                                                                                                                                                                                                  | SITE CONDITIONS<br><input checked="" type="checkbox"/> Dry <input type="checkbox"/> Snowcover <input type="checkbox"/> Wet<br><input type="checkbox"/> Other |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
| HAZARD DESCRIPTION<br><b>High</b>                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   |                                                                                                                                                                                                                                                  | HAZARD CLASS<br><input type="checkbox"/> Low (A) <input type="checkbox"/> Intermediate (B) <input checked="" type="checkbox"/> High (C)                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
| REMARKS<br><b>William Grimes plant near of Hydro. Plant</b>                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   | ACTION<br><input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor repair <input type="checkbox"/> Engineering                                           |                                                                                                                                                              | RECOMMENDATIONS<br><input checked="" type="checkbox"/> Inspection letter <input type="checkbox"/> Deficiency letter <input type="checkbox"/> RE notice <input type="checkbox"/> Engineering study <input type="checkbox"/> Inspection by RE<br><input type="checkbox"/> Inspection by DSE <input type="checkbox"/> Dam safety order <input type="checkbox"/> Enforcement <input type="checkbox"/> Periodic reinspection <input type="checkbox"/> Other reinspection |          |  |
| AREA                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PROBLEMS                                                                                                                                                          |                                                                                                                                                                                                                                                  |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | COMMENTS |  |
| UPSTREAM SLOPE / FACE                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Displaced rip rap<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Cracks<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Undermining<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Wave erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input type="checkbox"/> 10. Sparse rip rap              |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input type="checkbox"/> Other                                                         |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   |                                                                                                                                                                                                                                                  |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
| TOP OF DAM                                                                                                                                                                                                                                                      | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Cracks<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Spalling<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Deteriorated joints<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Displaced joints<br><input type="checkbox"/> 5. Ruts <input type="checkbox"/> 15. Exposed reinforcement<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Other<br><input type="checkbox"/> 7. Depressions<br><input type="checkbox"/> 8. Unlevel<br><input type="checkbox"/> 9. Misalignment<br><input type="checkbox"/> 10. Has overtopped                                                                                                                                          |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input checked="" type="checkbox"/> Other ROADWAY<br><br><b>Maintained by D.O.T.</b>    |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   |                                                                                                                                                                                                                                                  |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
| DOWNSTREAM SLOPE / FACE                                                                                                                                                                                                                                         | <input type="checkbox"/> 1. None <input checked="" type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolts<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input checked="" type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Other<br><input checked="" type="checkbox"/> 10. Wetness                    |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other<br><br><b>Slight spalling and efflorescence occurring. Seepage, wetness noted near water level.</b> |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   |                                                                                                                                                                                                                                                  |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
| TOE CONTACT                                                                                                                                                                                                                                                     | <input type="checkbox"/> 1. None <input checked="" type="checkbox"/> 11. Seepage<br><input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolts<br><input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks<br><input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes<br><input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling<br><input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints<br><input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints<br><input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement<br><input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Undermining<br><input type="checkbox"/> 10. Wetness <input type="checkbox"/> 20. Other |                                                                                                                                                                   | COVER: <input type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input checked="" type="checkbox"/> Concrete <input checked="" type="checkbox"/> Other ROCK<br><br><b>Seepage occurring along right abutment</b>                     |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |
|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                   |                                                                                                                                                                                                                                                  |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |  |

60 FERC P 62005 (F.E.R.C.), 1992 WL 152440

FEDERAL ENERGY REGULATORY COMMISSION

\*\*1 Office Director Orders

Town of **Lake Lure**, North Carolina

Docket No. EL92-8-000—North Carolina

**Order Ruling on Declaration of Intention and Finding Licensing Not Required**  
(Issued July 7, 1992)

\*63006 Fred E. Springer, Director, Office of Hydropower Licensing

On December 27, 1991, the Town of **Lake Lure** filed a **Declaration of Intention (DI)** concerning the existing **Lake Lure** Hydroelectric Project, in Rutherford County, North Carolina. The town questioned whether licensing is required for the project under Part I of the Federal Power Act (FPA).

**Project Description**

The project, located on the Rocky Broad River, consists of: (1) a reservoir with a storage area of 1,400 acre-feet; (2) an existing 100-foot-high, 630-foot-long concrete dam; (3) a 10-foot-diameter, 100-foot-long penstock; (4) a concrete powerhouse, containing two vertical turbines/generators, producing 1,200 kilowatts (kW) and 2,200 kW; (5) a concrete tailrace; and (6) appurtenant facilities.

Notice of the DI was published January 28, 1992. Protests, comments, and petitions to intervene were to be filed on or before February 27, 1992. Comments were received on February 25, 1992 from the Department of Environment, Health, and Natural Resources, State of North Carolina, concerning water quality and minimum flow requirements. The comments did not address issues of jurisdiction. No other protests or motions to intervene were received by that date.

**Jurisdiction**

Section 23(b) of the FPA requires that waterpower projects be licensed if they are located on navigable waters of the United States, occupy any part of the public lands or reservations of the United States, use surplus water or waterpower from a federal government dam, or, if constructed after August 26, 1935, are located on any part of a nonnavigable water subject to Congress' jurisdiction under the Commerce Clause and affect the interests of interstate or foreign commerce.

The project is not located on a navigable water of the United States. It does not occupy any public lands or reservations of the United States and does not use surplus water or waterpower from a federal government dam. The power generated by the project is fed into an interstate power system through the Duke Power Company grid and is transported across state lines. The Rocky Broad River is a commerce clause waterway. However, there is no evidence of any post-1935 construction.

Consequently, under section 23(b) of the FPA, the project does **not require** licensing. If evidence of jurisdiction is **found** in the future, however, section 23(b) would require licensing, and under section 4(g), the project owner could then be required to apply for a license.<sup>1</sup>

The Director orders:

(A) Pursuant to section 23(b) of the Federal Power Act, the **Lake Lure** Hydroelectric Project is **not required** to be licensed. This order is issued without prejudice to any future determination, upon new or additional evidence, that licensing is required.

**\*\*2 (B)** This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of