

North Carolina
Department of Environment and Natural Resources

Pat McCrory, Governor
Donald R. van der Vaart, Secretary



WINSTON-SALEM REGIONAL OFFICE

April 2, 2015

NOTICE OF INSPECTION

Mr. William M. Harrison, P.E.
CCP Lead Engineer/System Owner
Belew's Creek Steam Station & Dan River Steam Station
3195 Pine Hall Road
Belew's Creek, NC 27009

RE: Duke Energy Belew's Creek Ash Basin
STOKE-116-H
Stokes County

Dear Mr. Harrison:

The "Dam Safety Law of 1967," as amended, provided 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 insure the maintenance of stream flows.

Our records indicate you are the owner of the referenced dam which was inspected on March 30, 2015, by personnel of the Land Quality Section. This inspection found the conditions outlined below. Please note that references to "right" and "left" in descriptions of the dam structure are conventionally from the perspective of looking in a downstream direction.

1. Areas of wetness were noted on the downstream slope of the dam. Please monitor these areas for any signs of increased seepage rates or flow.
2. Bare and sparsely vegetated areas on the upstream slope of the dam will need to be reseeded with permanent vegetation this spring.
3. There was seepage noted on the downstream slope of the dam from the discharge pipes and around the lower abutments of the structure. Excessive seepage can cause failure of the dam due to internal erosion and/or embankment sliding. You should inspect the seepage periodically and notify this office if there is an increase in the amount of seepage or embankment sliding occurs.
4. The outlet pipe of the decommissioned intake tower has been sealed with a bladder system to prevent further discharge from the abandoned corrugated metal pipe.
5. Clearing for future repairs to the dam at the base of the structure and around the decommissioned intake tower have begun. (These are referred to as projects BC-6 and BC-7). Please continue to follow the approved sediment and erosion control plans as repairs progress in these areas.

Division of Energy, Mineral, and Land Resources
Energy Section, Geological Survey Section, Land Quality Section
450 West Hanes Mill Road, Suite 300, Winston-Salem, NC 27105 / Phone: 336-776-9800 / Fax:
336-776-9798

BELEW'S LAKE ASH BASIN

April 2, 2015

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6. The installation of monitoring well GWA-1S/D was taking place along the alignment of the principle spillway outlet at the time of inspection. Please continue to follow the sediment and erosion control plan that was submitted to this office on March 25, 2015. Also, when drilling activities are completed stabilize all disturbed areas with a permanent ground cover per the submitted plans.

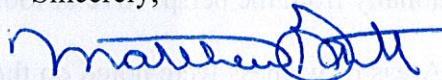
During this inspection we also investigated the potential for property damage and loss of life in the event your dam fails. This investigation determined that failure of your dam could result in severe property damage and/or possible loss of life downstream. Therefore, we are listing your dam in the "High Hazard" category.

Any excavation, modification or major repair of the dam must be approved by the Division of Land Resources. Draining the lake by cutting a notch in the dam, or otherwise breaching the dam, without prior approval, is a violation of State law.

Although we make every reasonable effort to determine the safety of your dam, our resources limit us to a visual inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you should keep a close watch on your dam and notify us if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color.

Your cooperation and consideration in maintaining a safe dam is appreciated. If ownership of the dam has changed, or if you are not responsible for the dam, please notify us so that we can update our records. Should you have any questions concerning our inspection, please contact me at (336) 776-9800.

Sincerely,



Matthew E. Gantt, P.E.
Regional Engineer
Land Quality Section

Cc: Ms. Kim Hutchinson, P.E., Duke Energy
Ms. Melonie Martin, Duke Energy
WSRO File

M SAFETY INSPECTION REPORT

NAME DUKE ENERGY BEAUSIEG ASHBOURNE STOKES		COUNTY STOKES	NO. 116	INSPECTED BY VINSON GANT, LEDNER	DATE 3-30-15
OWNER DUKE ENERGY		ADDRESS			PHONE
TYPE DAM <input type="checkbox"/> Concrete gravity <input type="checkbox"/> Concrete arch <input type="checkbox"/> Other <input checked="" type="checkbox"/> Embankment <input type="checkbox"/> Concrete buttress <input type="checkbox"/> Stone masonry		TYPE INSPECTION <input type="checkbox"/> Periodic <input type="checkbox"/> Initial <input type="checkbox"/> Follow-up <input type="checkbox"/> Other		SITE CONDITIONS <input checked="" type="checkbox"/> Dry <input type="checkbox"/> Snowcover <input type="checkbox"/> Wet <input type="checkbox"/> Other	
HAZARD DESCRIPTION MIDDLETON LOOP RD.				HAZARD CLASS <input type="checkbox"/> Low (A) <input checked="" type="checkbox"/> Intermediate (B) <input checked="" type="checkbox"/> High (C)	
REMARKS PLANS FOR BC-6, AND BC-7 SEDIMENT CONTROL HAVE BEEN APPROVED. TREE CLEARING IS UNDERWAY.		ACTION		RECOMMENDATIONS	
		<input type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor repair <input checked="" type="checkbox"/> Engineering		<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 <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 <input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Cracks <input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Undermining <input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes <input type="checkbox"/> 5. Wave erosion <input type="checkbox"/> 15. Spalling <input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints <input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints <input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement <input type="checkbox"/> 9. Bulges <input checked="" type="checkbox"/> 19. Other <input type="checkbox"/> 10. Sparse rip rap	COVER: <input checked="" type="checkbox"/> Vegetation <input checked="" type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input type="checkbox"/> Other 19) SPARSLEY VEGETATED AREAS NEED TO BE RESEED + MULCHED.			
	<input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Cracks <input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Spalling <input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Deteriorated joints <input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Displaced joints <input type="checkbox"/> 5. Ruts <input type="checkbox"/> 15. Exposed reinforcement <input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Other <input type="checkbox"/> 7. Depressions <input type="checkbox"/> 8. Unlevel <input type="checkbox"/> 9. Misalignment <input type="checkbox"/> 10. Has overtopped	COVER: <input checked="" type="checkbox"/> Vegetation <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Asphalt <input type="checkbox"/> Other			
DOWNSTREAM SLOPE / FACE	<input type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage <input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolls <input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks <input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes <input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling <input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints <input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints <input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement <input type="checkbox"/> 9. Bulges <input checked="" type="checkbox"/> 19. Other <input type="checkbox"/> 10. Wetness	COVER: <input checked="" type="checkbox"/> Vegetation <input checked="" type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other 19) SOME AREAS OF WETNESS NOTED. POSSIBLY FROM SURFACE RUNOFF.			
	<input type="checkbox"/> 1. None <input checked="" type="checkbox"/> 11. Seepage <input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Bolls <input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks <input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes <input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling <input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints <input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints <input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement <input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Undermining <input type="checkbox"/> 10. Wetness <input type="checkbox"/> 20. Other	COVER: <input checked="" type="checkbox"/> Vegetation <input type="checkbox"/> Rip rap <input type="checkbox"/> Concrete <input type="checkbox"/> Other 11) SEEPAGE NOTED ON LOWER BENCH FROM MULTIPLE PIPE DISCHARGES.			
TOE CONTACT					

AREA	PROBLEMS	COMMENTS
ADJUTMENT CONTACTS	<input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 11. Seepage <input type="checkbox"/> 2. Trees <input type="checkbox"/> 12. Boils <input type="checkbox"/> 3. High bushes <input type="checkbox"/> 13. Cracks <input type="checkbox"/> 4. Burrows <input type="checkbox"/> 14. Holes <input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Spalling <input type="checkbox"/> 6. Livestock damage <input type="checkbox"/> 16. Displaced joints <input type="checkbox"/> 7. Slides <input type="checkbox"/> 17. Deteriorated joints <input type="checkbox"/> 8. Depressions <input type="checkbox"/> 18. Exposed reinforcement <input type="checkbox"/> 9. Bulges <input type="checkbox"/> 19. Undermining <input type="checkbox"/> 10. Wetness <input type="checkbox"/> 20. Other	COVER: <input checked="" type="checkbox"/> Vegetation <input checked="" type="checkbox"/> Rip rap <input type="checkbox"/> C <input type="checkbox"/> S <input type="checkbox"/> Other
PRINCIPAL SPILLWAY	<input type="checkbox"/> 1. None <input type="checkbox"/> 11. Joint displacement <input type="checkbox"/> 2. No trashguard <input type="checkbox"/> 12. Undermined <input type="checkbox"/> 3. Obstructed <input type="checkbox"/> 13. Voids <input type="checkbox"/> 4. Plugged <input type="checkbox"/> 14. Erosion <input type="checkbox"/> 5. Rusted <input type="checkbox"/> 15. Holes <input type="checkbox"/> 6. Damaged <input type="checkbox"/> 16. Conduit collapsed <input type="checkbox"/> 7. Gates leaking <input type="checkbox"/> 17. Spalling <input type="checkbox"/> 8. Joints leaking <input type="checkbox"/> 18. Outlet undercutting <input type="checkbox"/> 9. Cracks <input type="checkbox"/> 19. Misalignment <input type="checkbox"/> 10. Joint deterioration <input checked="" type="checkbox"/> 20. Other	TYPE/SIZE: CONCRETE TOWER TO 24" HDPE SDR17 20) TREES HAVE BEEN REMOVED SINCE LAST INSPECTION. MONITORING WELL INSTALLATION TAKING PLACE DURING INSPECTION.
EMERGENCY SPILLWAY	<input type="checkbox"/> 1. None <input type="checkbox"/> 11. Joint displacement <input type="checkbox"/> 2. No ES <input type="checkbox"/> 12. Undermining <input checked="" type="checkbox"/> 3. Same as PS <input type="checkbox"/> 13. Voids <input type="checkbox"/> 4. Obstructed <input type="checkbox"/> 14. Holes <input type="checkbox"/> 5. Erosion <input type="checkbox"/> 15. Exposed reinforcement <input type="checkbox"/> 6. Displaced rip rap <input type="checkbox"/> 16. Spalling <input type="checkbox"/> 7. Sparse rip rap <input type="checkbox"/> 17. Outlet erosion <input type="checkbox"/> 8. Joints leaking <input type="checkbox"/> 18. Misalignment <input type="checkbox"/> 9. Cracks <input type="checkbox"/> 19. Inadequate capacity <input type="checkbox"/> 10. Joint deterioration <input type="checkbox"/> 20. Other	TYPE/SIZE: _____
DRAINS / OTHER OUTLETS	<input type="checkbox"/> 1. None <input type="checkbox"/> 2. No bottom drain <input type="checkbox"/> 3. Bottom drain inoperable <input type="checkbox"/> 4. Subsurface drain dry <input type="checkbox"/> 5. Subsurface drain muddy flow <input type="checkbox"/> 6. Subsurface drain obstructed <input type="checkbox"/> 7. No animal guard <input checked="" type="checkbox"/> 8. Other	TYPE: 8) BLADDER HAS BEEN INSTALLED INSIDE OF OLD CMP BARREL PIPE. STAKE = 116 Below Ash Basin

SKETCHES/COMMENTS

TF2: 21'
 TF1: 28'
 HD 11A: 5 gpm
 4" PVC: Trickle
 HD 7B: 4 gpm
 HD 7: 2 gpm
 HD 7A: 6 gpm
 4" CP: 2
 HD 6: 25 gpm
 HD 5: Trickle

6" PVC: 0
 6" PVC: 0
 HD 4: 25 gpm
 Pipe under bridge: 4 gpm
 Last Flow & weir: 9" depth = .75
 HD 3: 100 gpm
 HD 2: Trickle, 2.1
 HD 1: 1" ST
 4" PVC: Trickle 5/14

Principle outlet Flow: 1.00
 HD 8 - TRICKLE
 HD 19 - 1 gpm
 HD 20 - 0
 HD 21 - 3 gpm
 HD 22 - TK
 HD 23 - TK
 HD 24 - TK
 HD 25 - TK
 HD 26 - TK
 HD 27 - TK
 HD 9 - TK
 HD 10 - TK
 HD 11 - TK
 HD 11A - 0