

# ROUGH RIVER LAKE DAM PUBLIC MEETING

07 March 2023



US Army Corps  
of Engineers®



# RULES OF ENGAGEMENT



- The presentation will last approximately 30 minutes.
- A question and answer session will follow.
  - If you have a question, please raise your hand so the microphone can be brought to you.
- A recording of the meeting will be posted online:  
<https://www.lrl.usace.army.mil/Missions/Civil-Works/Recreation/Lakes/Rough-River-Lake/Rough-River-Dam-Safety-Modification-Project/>  
or scan the QR code here >





# AGENDA



Introductions

Brief Project History

Risk Assessment Update

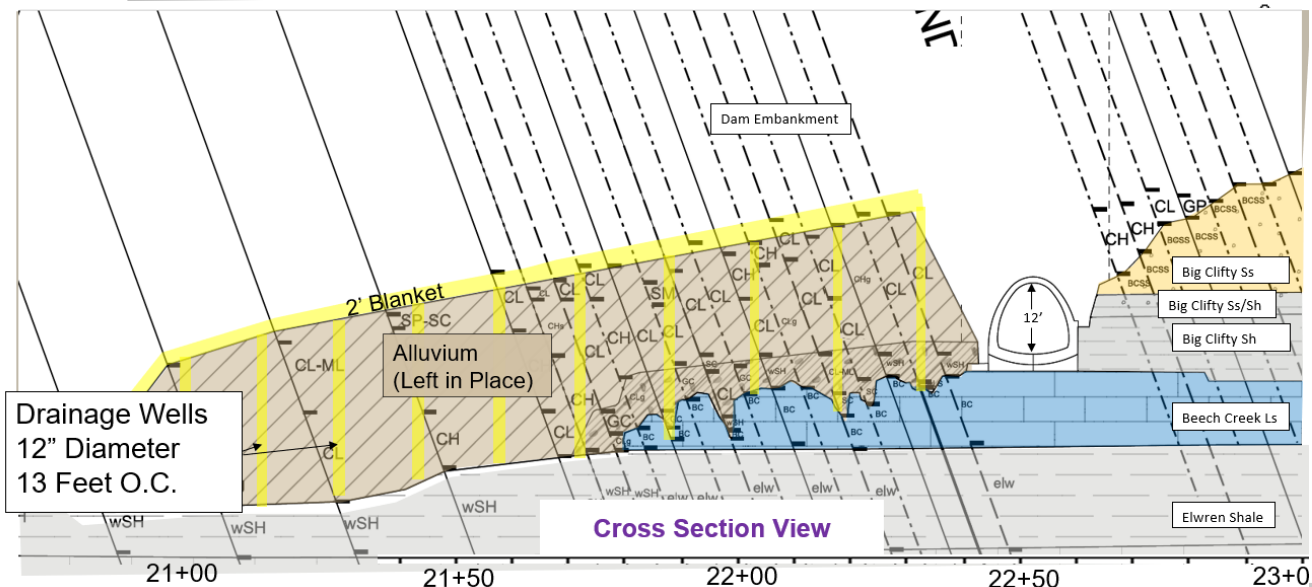
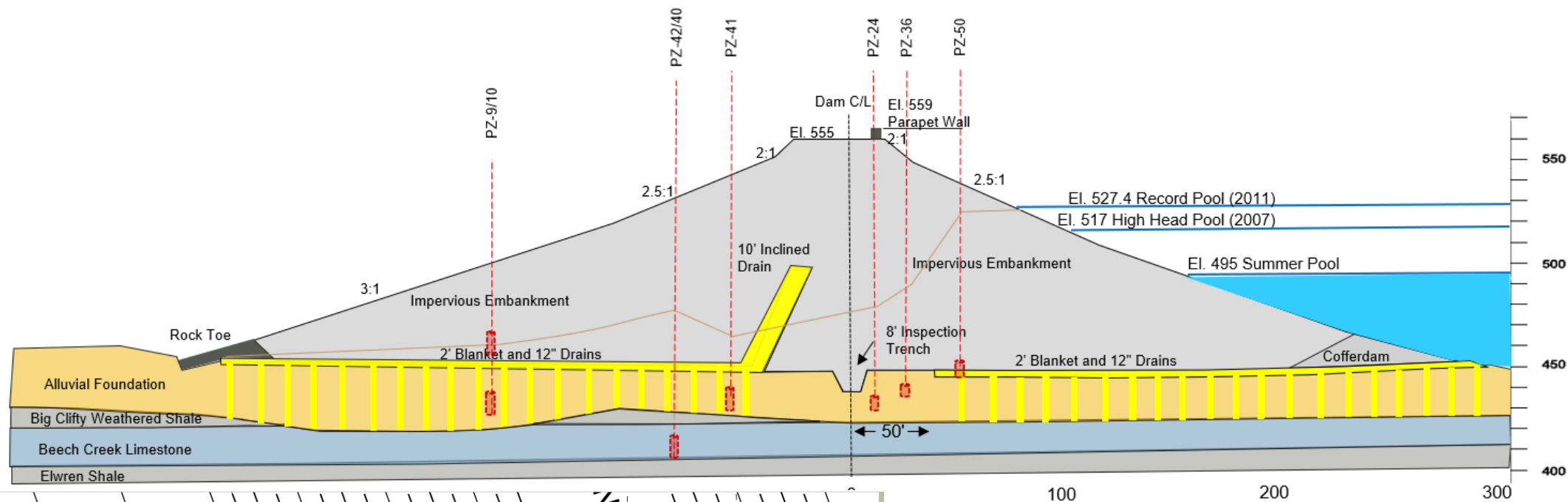
Interim Risk Reduction Measures

Impacts

Questions

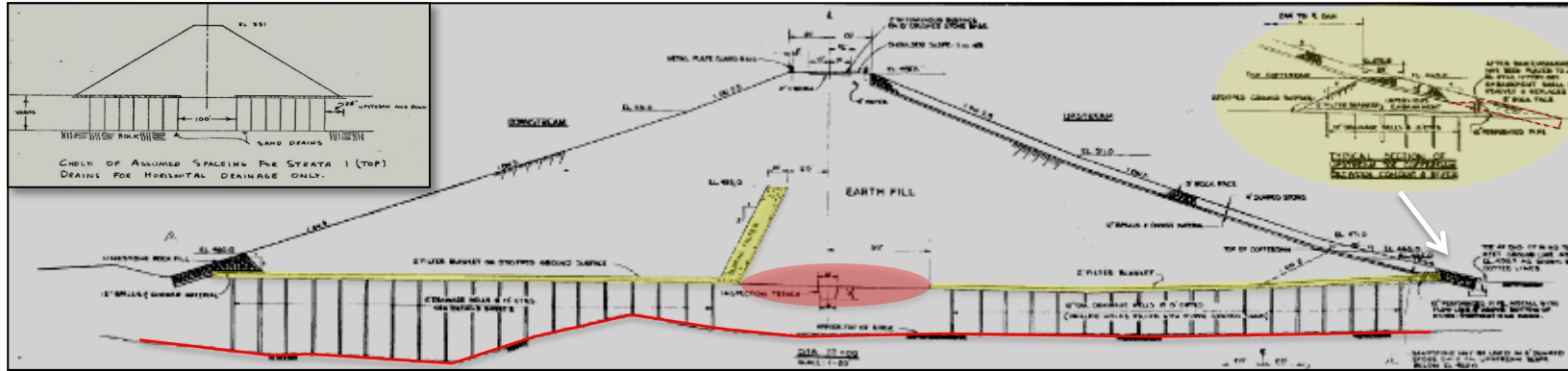


# PROJECT HISTORY





# SIGNIFICANT EVENTS



Poorly designed structure with poorly treated foundation.



2003 sinkhole on the face of the dam resulted in construction of the 2006 Rock Toe Slurry Wall.



2007 extension of stilling basin and crest raise. PZ reactions began in response to 2006 & 2007 activity.



2011 record pool, results in stilling basin repair and new seepage & PZ reactions.



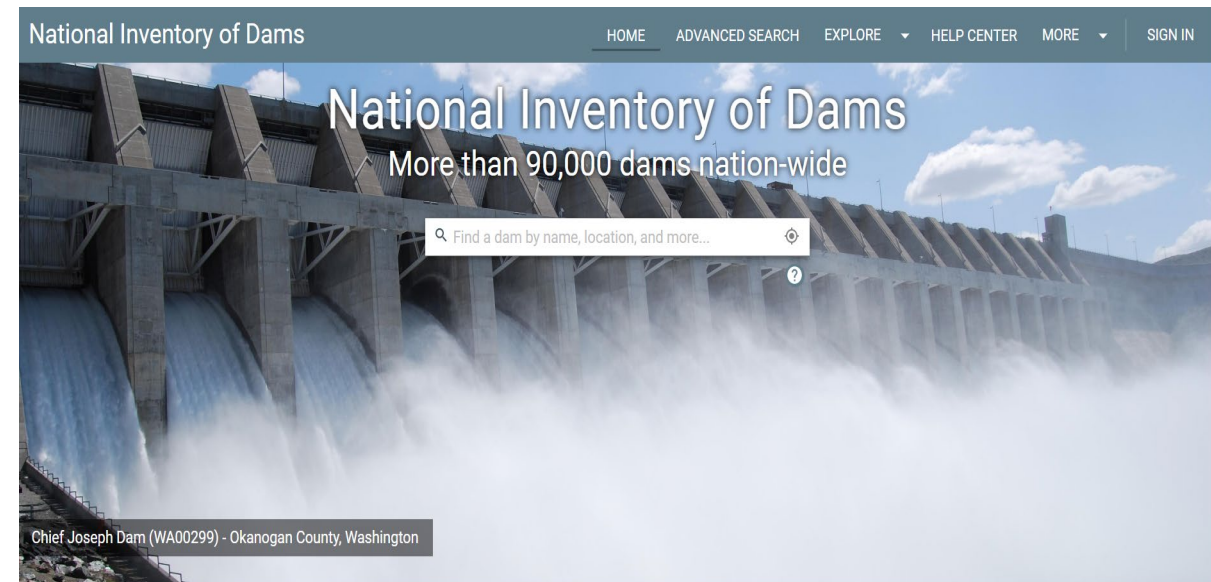
2014 USGS PZ automation. 2015-2017 grout curtain installation, resulting in stilling basin grout show.



# RISK ASSESSMENT UPDATE



- Risk Assessment is substantially complete
- Recommendations from Risk Assessment
  - *Update the Interim Risk Reduction Measures Plan*
  - *Update the Emergency Action Plan*
  - *Conduct an Emergency Exercise*
  - *Increase emergency stockpiles of sand and stone*
  - *Enhance risk communication and increase public awareness with downstream communities*
  - **Implement a Pool Restriction**
  - **Install downstream check dam**
- Now classified as DSAC 2

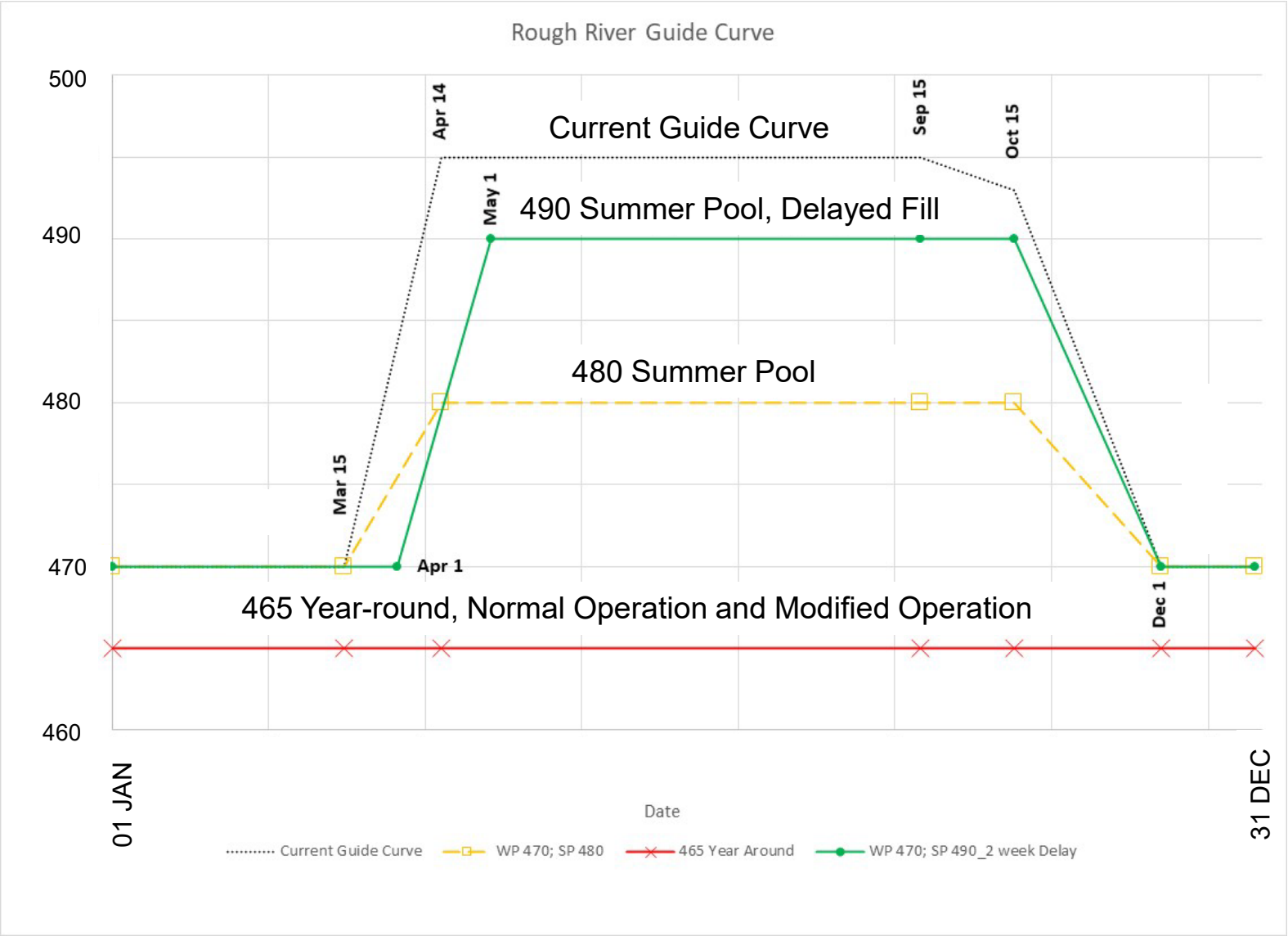




# **INTERIM RISK REDUCTION MEASURES (POOL RESTRICTION)**



# POOL RESTRICTIONS CONSIDERED





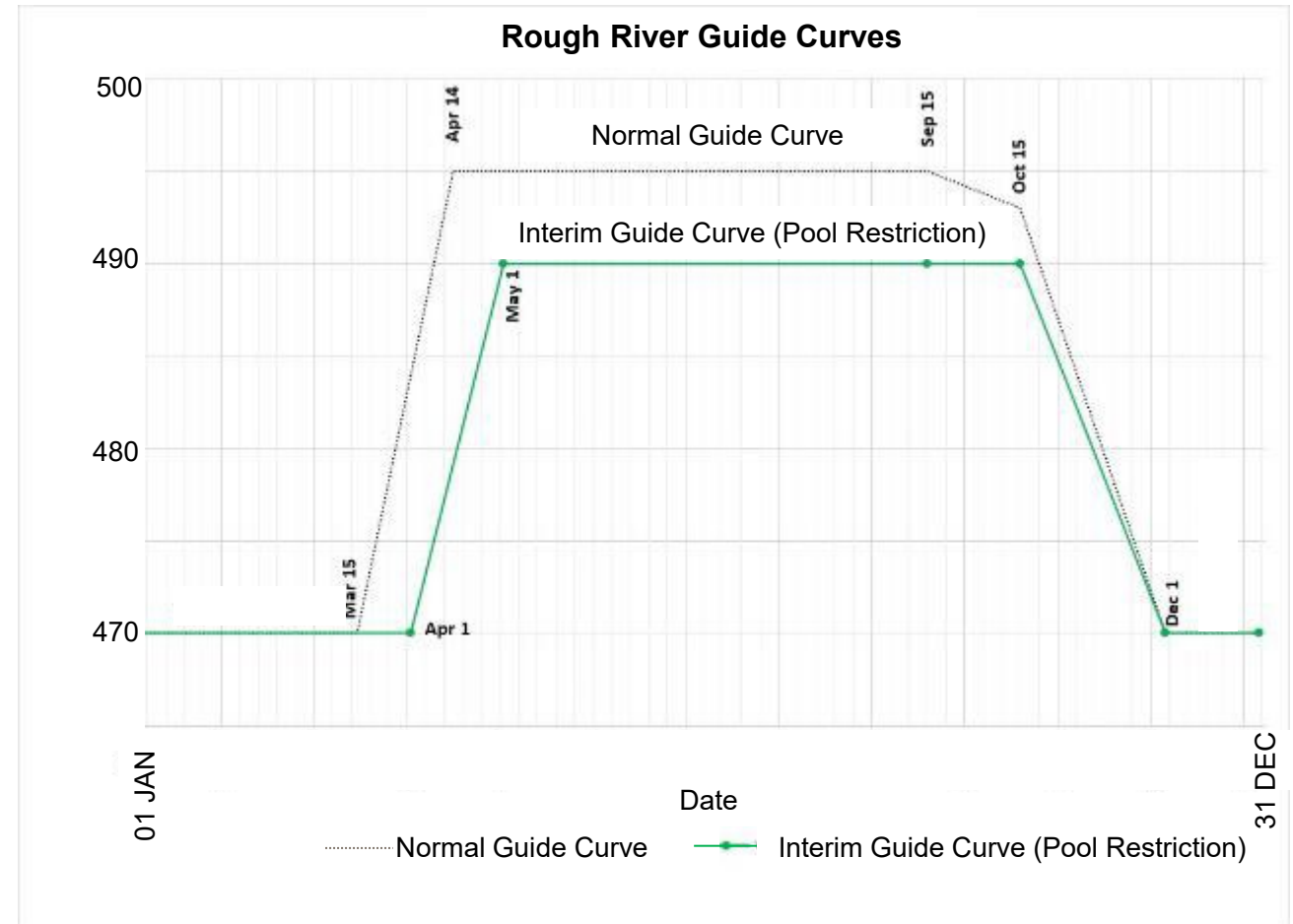


# IMPACTS TO AUTHORIZED PURPOSES

Pool Restriction Scenario	FRM/Downstream Impacts	Water Supply	Water Quality	Recreation
465 year-round, modified operation	High	High	High	High
465 year-round, normal operation	N/A	High	High	High
480 Summer Pool	N/A	Medium	Medium	High
490 Summer Pool, Delayed Fill	N/A	Low	Low	Medium

# POOL RESTRICTION

- New Summer Pool Target – 490 feet
- Start holding water – 01 April
- No Change to Winter Pool
- Annual evaluation of effectiveness of IRRMs





# FREQUENTLY ASKED QUESTIONS



- When will the pool restriction be implemented?

The pool restriction will be implemented this season with a new summer pool target of elevation 490 (5 feet below normal summer pool).

- How long will the pool restriction last?

The pool restriction will last through the end of construction and after a post-construction Risk Assessment has ensured that tolerable risk guidelines are met.



# FREQUENTLY ASKED QUESTIONS

## ■ How does a 5-foot restriction make a difference?

It's not just reducing the pool elevation 5 feet, but the combination of the reduction and the delayed filling period. Reducing the pool 5 feet will result in lower pool elevations when heavy rains occur and delaying the start of the filling time will allow more time for the heavy spring rains to occur when we are at lower pools. The combination of both of these measures was determined to be the best way to lower project risk while still taking all authorized purposes into consideration.





# FREQUENTLY ASKED QUESTIONS

- Why not just fully replace the dam?

This scenario was evaluated as recently as 2020 as part of the Supplemental Dam Safety Modification Study. The study looked at all alternatives including the current plan, removing the dam, and removing and replacing the dam. A DSMS includes a thorough evaluation of all alternatives and includes comparisons of project cost, life safety impacts, and many other criteria. The recommendation of that study was to proceed with the current plan for which the design has been completed. The current plan is the most efficient alternative to reduce the project risk with the least impact to authorized purposes.



# FREQUENTLY ASKED QUESTIONS

- Will water supply intakes be affected?

No, the two water supply intakes for Grayson County and the city of Leitchfield will not be impacted by the pool restriction.

- Why will the pool restriction be evaluated annually? Will the summer pool level change?

The primary purpose of the dam is to provide Flood Risk Management benefits. The dam also has authorizations for Water Supply, Water Quality, and Recreation. The purpose of the pool restriction is to reduce the impacts to those authorized purposes. The performance of the dam is routinely monitored including updating the Interim Risk Reduction Measures (IRRM) Plan annually and the pool restriction is detailed in the IRRM plan.



# FREQUENTLY ASKED QUESTIONS



- What is the current status of funding?

The district currently has some funding on hand, but not enough to advertise and award the Phase 2 project. The district and division regularly request additional funding for Phase 2 through the regular budget process and this project is rated very highly.

- Will there be any downstream impacts?

We do not anticipate any downstream impacts based on the current pool restriction.



# FREQUENTLY ASKED QUESTIONS

- How long will I be able to use my dock when we do get high pools?

We are limited to reducing the lake elevation by two feet per day and will be actively releasing until we reach 490. Daily lake levels can be viewed here: <https://www.lrl-wc.usace.army.mil/reports/lkreport.html>. A 3-day forecast is available here: <https://www.lrl-wc.usace.army.mil/reports/ceorlresfct.txt>

Louisville District Daily Lake Report 7 March 2023 Lake Elevations and Flood Storages													
Basin	Project	Winter Pool Feet	Summer Pool Feet	Flood Pool Feet	Today's Pool Feet	Dev. from Pool Feet	24 Hour Change Feet	24 Hour Precip Inches	24 Hour Avg Inflow	6 A.M. Outflow CFS	Inches R.O. To Flood Pool	Percent Util	Inches R.O. To Guide Curve
Little Miami	CaesarCreek	846.0	849.0	883.0	851.3	5.3	-1.0	0.0	457	2191	10.56	10.08	1.18
	WHHarsha	729.0	733.0	795.0	730.4	1.4	-1.9	0.0	50	2063	10.94	1.40	0.16
Mill Creek	WestFork	675.0	675.0	702.0	679.8	4.8	-1.5	0.0	0	102	5.57	10.39	0.65
Mad River	CJBrown	1009.0	1012.0	1023.0	1009.6	0.6	-0.4	0.0	153	589	7.23	3.71	0.28
Whitewater	Brookville	740.0	748.0	775.0	744.8	4.8	-0.2	0.0	1443	2038	9.51	10.49	1.11
Licking	CaveRun	724.0	730.0	765.0	737.2	13.2	-0.4	0.0	1482	3781	7.44	25.23	2.51
Kentucky	CarrCreek	1017.0	1028.0	1055.0	1017.2	0.2	-0.3	0.0	66	140	9.82	0.43	0.04
	Buckhorn	757.0	782.0	840.0	771.0	14.0	-3.3	0.0	939	2378	7.00	5.49	0.41
Salt River	Taylorsville	545.0	547.0	592.0	550.2	5.2	-0.6	0.0	537	1722	10.37	7.54	0.85
Green River	Green	668.0	675.0	713.0	676.9	8.9	-0.5	0.0	1343	4265	12.70	13.16	1.93
	Nolin	492.0	515.0	560.0	513.0	21.0	0.5	0.0	2307	1101	12.02	16.49	2.37
	Barren	528.0	552.0	590.0	539.7	11.7	0.2	0.0	2097	1705	13.26	9.58	1.40
	Rough	470.0	495.0	524.0	489.9	19.9	-0.3	0.0	735	1774	9.87	21.56	2.71
Mid. Wabash	CMHarden	640.0	662.0	690.0	653.9	11.7	0.5	0.0	545	114	8.42	14.25	1.40
	CaglesMill	636.0	639.5	704.0	650.2	14.2	0.8	0.0	913	106	11.49	11.49	1.49
	Monroe	538.0	538.0	556.0	542.1	4.1	0.1	0.0	1027	216	8.99	18.31	2.01
	Patoka	532.0	536.0	548.0	536.2	4.2	0.0	0.0	248	23	13.12	23.22	3.97

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: CEORLRESFCT
.B COE 0307 Z DH12/DC03071451/DRD+1/HHIFA/QTIFA/DRD+2/HHIFA/QTIFA/DRD+3/HHIFA/QTIFA
: CORPS OF ENGINEERS - RESERVOIR POOL & RELEASE FORECAST - LOUISVILLE
: - Date/Time 07MAR2023 1451 -
: 03/08/2023      03/09/2023      03/10/2023
:   ELEV      Q      ELEV      Q      ELEV      Q
CCL01  850.3/  1.876/  849.4/  1.500/  848.6/  1.500 : CAESAR CR
BHD01  729.9/  0.310/  729.7/  0.310/  729.4/  0.310 : HARSHA
CRLK2  736.7/  3.781/  736.1/  3.781/  735.5/  3.781 : CAVE RUN
WFR01  678.6/  0.150/  677.3/  0.150/  675.9/  0.150 : WEST FORK
CJB01  1009.6/  0.086/  1009.5/  0.200/  1009.4/  0.200 : C J BROWN
BKVI3  744.4/  2.037/  743.9/  2.036/  743.2/  2.036 : BROOKVILLE
CFLK2  1017.2/  0.050/  1017.2/  0.050/  1017.2/  0.050 : CARR FORK
BUCK2  768.0/  1.920/  764.8/  1.650/  761.5/  1.400 : BUCKHORN
TVLK2  549.4/  1.722/  548.5/  1.722/  547.5/  1.722 : TAYLORSVILLE
GRLK2  676.3/  4.265/  675.6/  4.265/  674.8/  4.265 : GREEN RVR
NOLK2  512.3/  4.378/  511.4/  4.378/  510.3/  4.378 : NOLIN RVR
BDDK2  530.2/  4.030/  528.5/  4.030/  527.8/  4.030 : BADDEN RVR
RRLK2  489.0/  2.880/  487.9/  2.880/  486.6/  2.880 : ROUGH RVR
CRLI3  634.1/  0.114/  634.2/  0.114/  634.2/  0.114 : C M HARDEN
CAGI3  650.5/  0.106/  650.6/  0.106/  650.7/  0.106 : CAGLES MILL
MONI3  542.1/  0.216/  542.1/  0.216/  542.1/  0.216 : MONROE
PRLI3  536.2/  0.023/  536.2/  0.320/  536.1/  0.620 : PATOKA
:1. "Q" represents the forecasted release from the dam in thousands of cubic feet per second
:2. Pool elevation and release forecasts are not updated on weekends or federal holidays
:3. Pool elevation and release forecasts DO NOT take future rainfall into account
:4. Release forecasts are subject to change from day to day and do so regularly
.END
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# FREQUENTLY ASKED QUESTIONS



- How many times in the past has the lake been at or below 490 in the summer?

Rough River Lake remained between elevation 490 and 491 from May 2012 through August 2012 and never rose above 490 in 2001. This data has helped us better understand the impacts that are expected to occur at 490.



# FREQUENTLY ASKED QUESTIONS



- Can you bring the pool up to 495 to allow people time to move their docks?

Unfortunately, because the pool restriction is being implemented due to Life-Safety we cannot intentionally allow the pool to raise to 495 to allow people to move docks. This would put the dam at risk of experiencing higher pools if significant rainfall events were to occur during the time at which the pool was at 495. While there have been 2 years in the past where the lake did not reach summer pool due to drought conditions, it is possible that the dam will experience pools higher than 490 due to summer rain events. While this limits the ability to plan the time to move docks, it is possible that there will be a time when docks that are currently affected by the restriction will be floating to assist in moving.



# IMPACTS

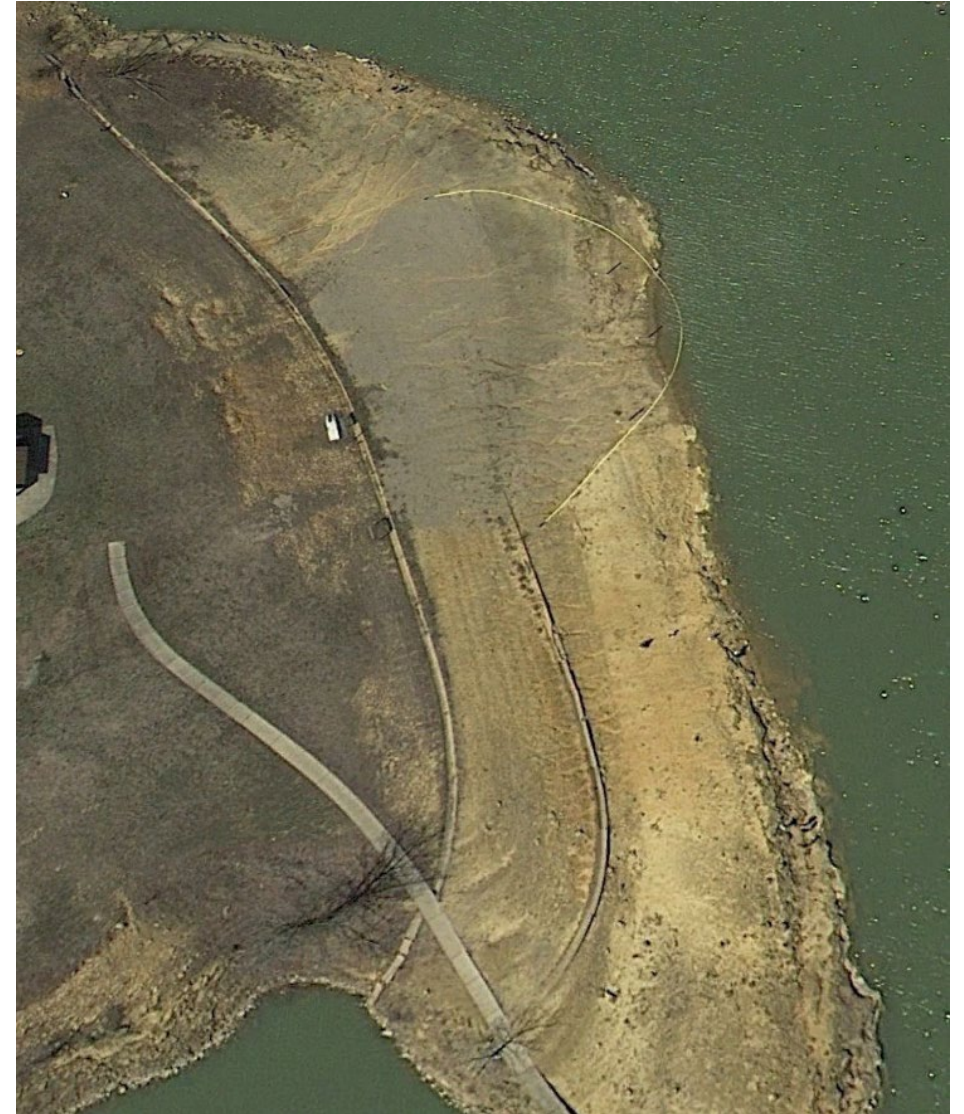
- Boat Ramps
  - 18 of 21 boat ramps still accessible
- Beaches
  - North Fork and the State Park Beach will be impacted
  - Laurel Branch Public Use Beach will be open
  - Axtel (campers only) will be open
- Marinas
  - Limited impacts to Marinas
- Campgrounds – Will open as usual

# BEACH IMAGES

North Fork Beach at approximately 490 ft.



State Park Beach at approximately 490 ft.





# IMPACTS TO PERMITTED DOCKS

- Approximately 60% of docks may be impacted
- Approximately 40%+ of docks may be moved further from shore





# TEMPORARY EXTENSION CRITERIA

- Up to a 10-foot temporary extension is authorized NOW if the extension would not:
  - Obstruct the water way
  - Cause a bottle neck
  - Force boaters into a hazardous/shallow navigation path
  - Cause any other identifiable safety issue
- When the lake returns to normal operations, a dock string would return to its original location.



# APPROVAL FOR GREATER THAN 10 FT. EXTENSION



- Case-by-case basis
- Same requirements as what was stated on the previous slide must be met.
- Shoreline Ranger will meet with the dock string permittee onsite to determine if an extension is possible.
- If an extension is possible, new permits will be approved by the Project Manager and to dock string can then be moved.
- When the lake returns to normal operations, dock strings will return to their original location.



# WALKWAY EXTENSIONS

- Up to a 10 ft. extension of the walkway is authorized
- Walkway must be constructed in accordance with the Shoreline Management Plan.
- Permit holder(s) must notify the Shoreline Ranger of the walkway extension so a permit can be updated.



# TEMPORARY RELOCATION OF DOCK

- Approximately 2% of docks may be able to be relocated up or down the shoreline.





# TEMPORARY RELOCATION OF DOCK CRITERIA



- Case-by-case basis
- Shoreline Ranger will meet with the dock string permittee onsite to determine if an extension is possible
- Dock string relocations or partial relocations may be possible depending upon access for all on the dock string.
- Would only be authorized during the pool restriction period.
- When the lake returns to normal operations, dock strings will return to their original location.



# DOCK STRINGS THAT ARE NOT ABLE TO EXTEND OR RELOCATE



- Dock permit would stay in place unless the permittee wants to cancel the permit and remove the dock.
- Dock permit holder will still be responsible for maintenance of dock.
- A temporary mowing permit to mow a 6 ft path around the entire dock string may be issued. This is highly encouraged to prevent the growth of woody vegetation that could impact the dock once pool operations return to normal.
- Permit fees for these permittees would be suspended until pool operations return to normal.



# TRANSFERS (ISSUANCE) OF PERMITS

- Transfers (issuance) of dock permits will continue as normal.
- New permit holder will be held to the conditions in the Shoreline Management Plan.



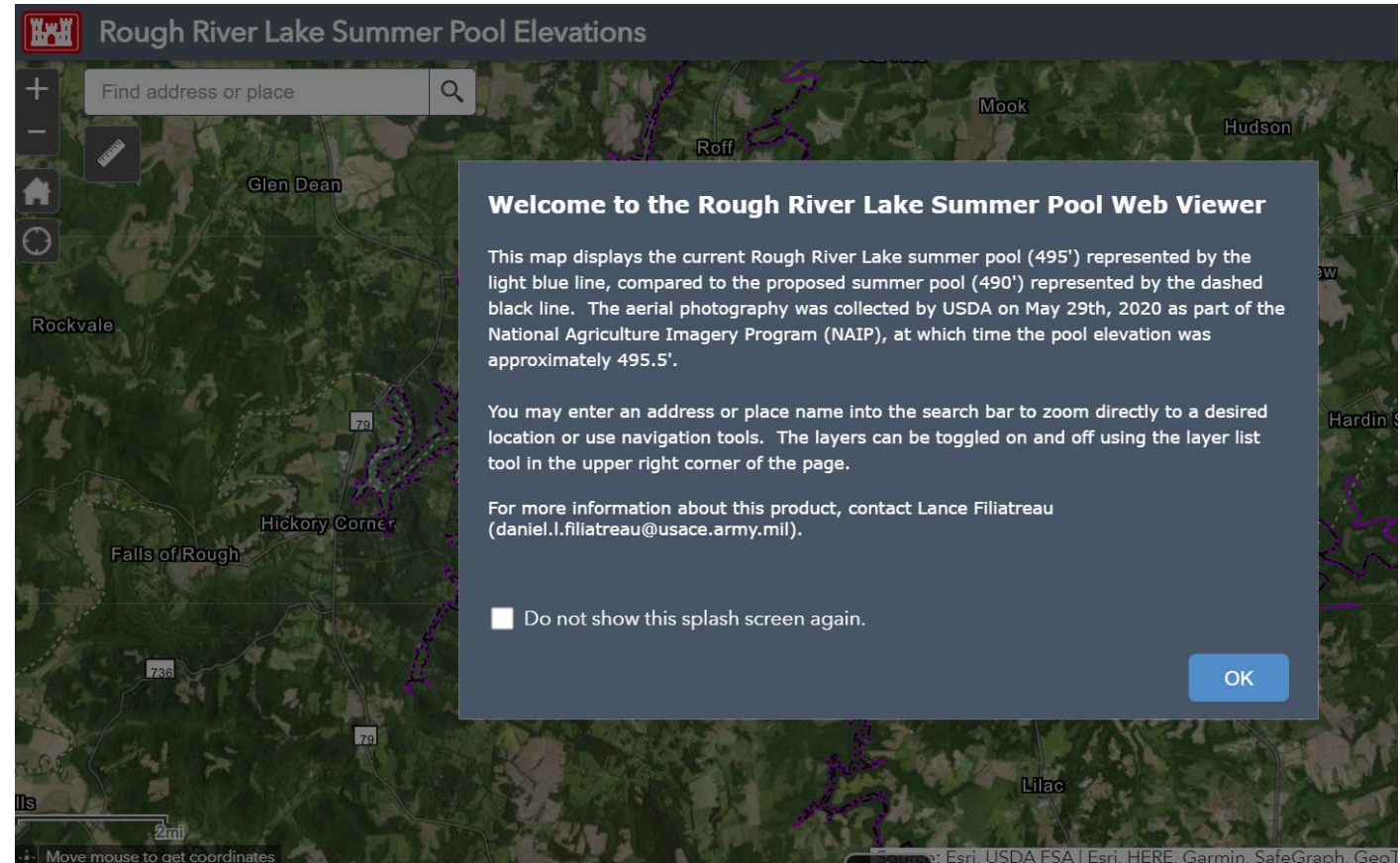
# LICENSES (STAIRS/IMPROVED PATHS/BOAT RAMPS)

- Licenses impacted by the pool restriction will be evaluated on a case-by-case basis.
- Louisville District Real Estate Division will be notified of licenses that have been impacted by the pool restriction.



# GIS VIEWER

- The GIS viewer is for informational purposes only and does not guarantee the right to move your dock.
- If you have questions regarding the ability to move your dock, please contact your Shoreline Ranger.



<https://lrl.maps.arcgis.com/apps/webappviewer/index.html?id=0c713a0f6f5843b5a0de8e70ec701ff7>



# GIS VIEWER



- Purple Line – 495
- Black Line – 490



# GIS VIEWER

- Search Bar

- Measuring Tool







# CONTACT INFORMATION

33



**For project updates visit:**

<https://www.lrl.usace.army.mil/Missions/Civil-Works/Recreation/Lakes/Rough-River-Lake/Rough-River-Dam-Safety-Modification-Project/> or scan the QR code here >

**Louisville District Public Affairs**

[lrl-pao@usace.army.mil](mailto:lrl-pao@usace.army.mil)

or (502) 315-6766

**Rough River Lake Project Office**

(270) 257-2061



US Army Corps of Engineers Louisville District Website

[Missions](#) [Civil Works](#) [Recreation](#) [Lakes](#) [Rough River Lake](#) [Rough River Dam Safety Modification Project](#)

### Upcoming Public Meeting Info

**Public Meeting Info:** The public is invited to join USACE for a public meeting on Tuesday, March 7, from 6 to 7:30 p.m. CST to discuss findings from the risk assessment and plans to implement interim risk reduction measures. USACE officials will provide a brief presentation and be available to answer questions.

**PUBLIC MEETING DETAILS**  
Date: Tuesday, March 7, 2023  
Time: 6:00 to 7:30 p.m. Central Time  
Place: Rough River State Resort Park Lodge, 450 Lodge Road, Falls of Rough, KY 40119  
Room: Grayson and Breckinridge rooms


Frequently Asked Questions are shown below.

### Rough River Dam Safety Modification Project

**General Information**  
USACE has completed an updated risk assessment which evaluated the current project risk as well as ways to reduce risk while Phase II of the Dam Safety Modification Project (construction of the cutoff wall) awaits additional funding. USACE Louisville District is implementing Interim Risk Reduction Measures to ensure life safety and to further protect the integrity of Rough River Dam. Public safety is the main priority of the U.S. Army Corps of Engineers. We value our partnership with local, state, and federal agencies and all of those individuals throughout the Rough River community. We will continue to work with them to lessen the impact of interim risk reduction measures where possible.

**Phase 1 Construction**  
The Dam Safety Modification project is a result of a report from July 2012, which highlighted unacceptable risk due to the dam's foundation being constructed on karst geology. The report recommended major rehabilitation to ensure the structure's integrity and to lower the project's risk. Phase I, which relocated the crest road and completed Exploratory Drilling and Grouting across the centerline of the dam, was finished in May 2017.

**Phase 2 Construction**  
Phase 1 was successful, however, the Phase II project, which will provide the permanent risk reduction, has not yet been fully funded. Since the completion of the drilling and grouting, instrumentation and visual observations have shown that the foundation conditions are continuing to deteriorate causing increasing concern. Phase II includes construction of a new outlet works and a full-depth cutoff wall across the dam and is awaiting additional funding.



### Resources

- [DAILY LAKE REPORT](#)
- [NEWS RELEASE - NOV 2022](#)
- [PRESENTATION SLIDES - DEC 2022](#)
- [PUBLIC MEETING RECORDING - DEC 2022](#)
- [NEWS RELEASE - FEB 2023](#)

### GIS Viewer

Coming soon!

### Links of Interest

[USACE HQ Dam Safety Program](#)