30 Years Later: A Review of the East Fork Dam Incident

Jessica Rudd, PG
Montana Dams & Levees Lead

MADCS - October 7, 2026

Dam Safety 2026

August 30 – September 3
Raleigh Convention Center
Raleigh, NC

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Objectives

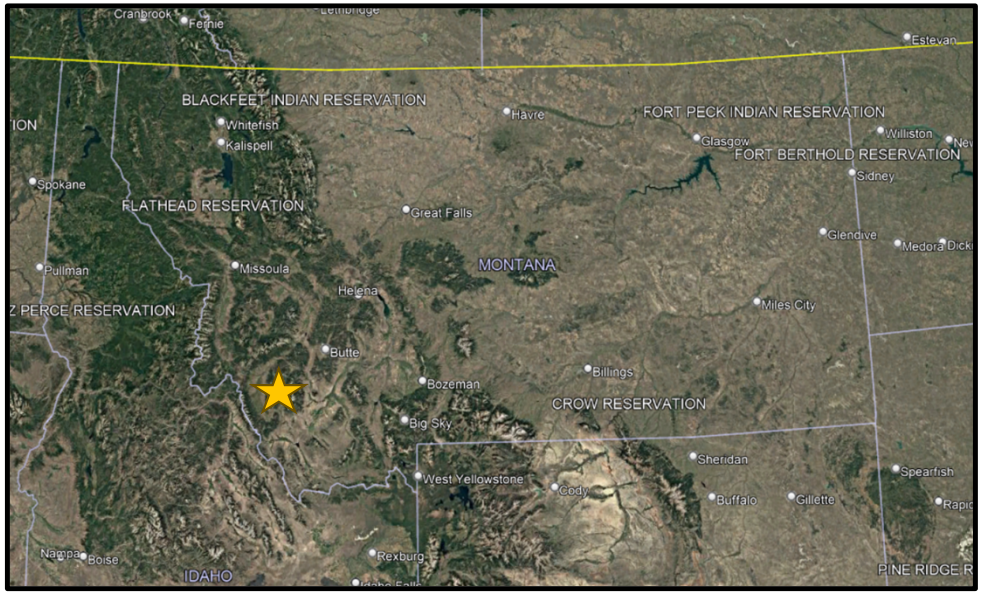
- Evaluate emergency response and incident management actions during a dam safety incident, including approaches used when a formal Emergency Action Plan (EAP) is not yet in place.

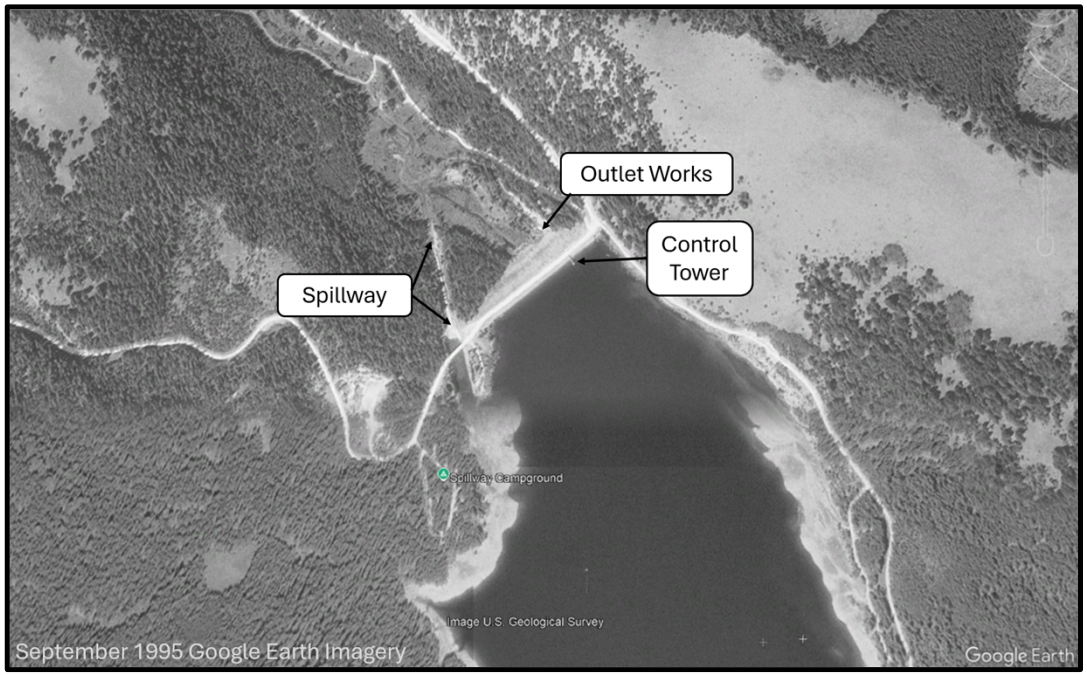
- Recognize the role of transparent, frequent, and consistent communication in building trust among project partners, emergency responders, stakeholders, and the public during an evolving dam safety emergency, and during recovery.

- Identify embankment and drainage system features susceptible to internal erosion and understand the importance of routine monitoring to understand if there are early warning signs of developing distress.

Dam Background

Site Overview

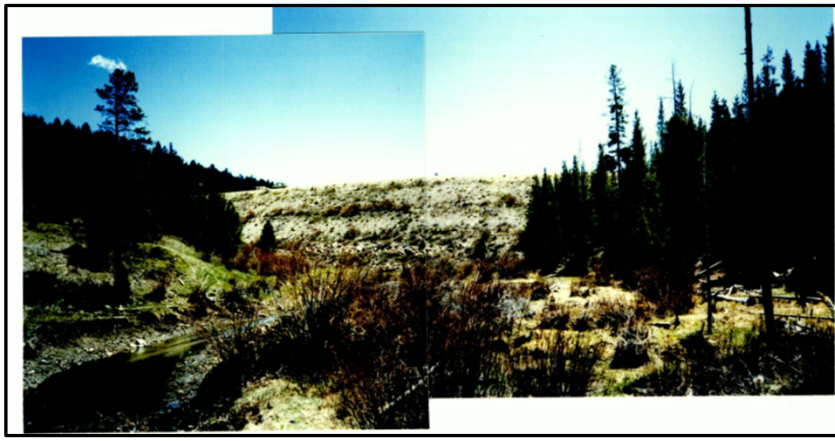




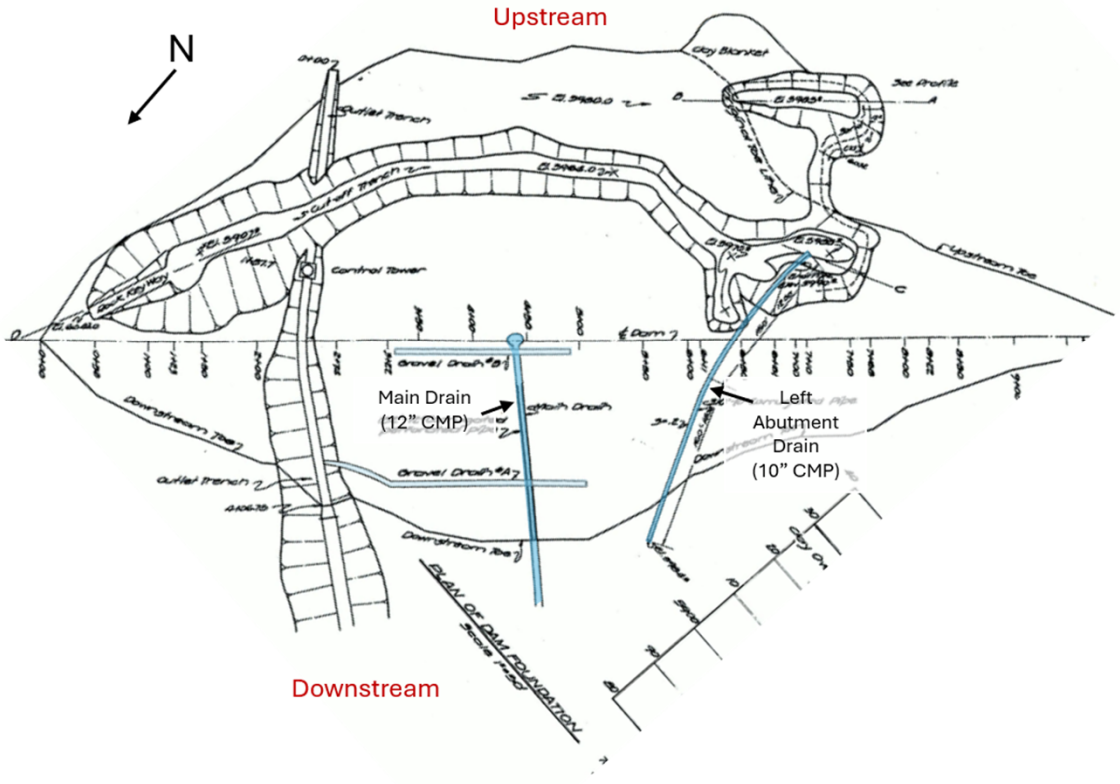


Upstream

Downstream

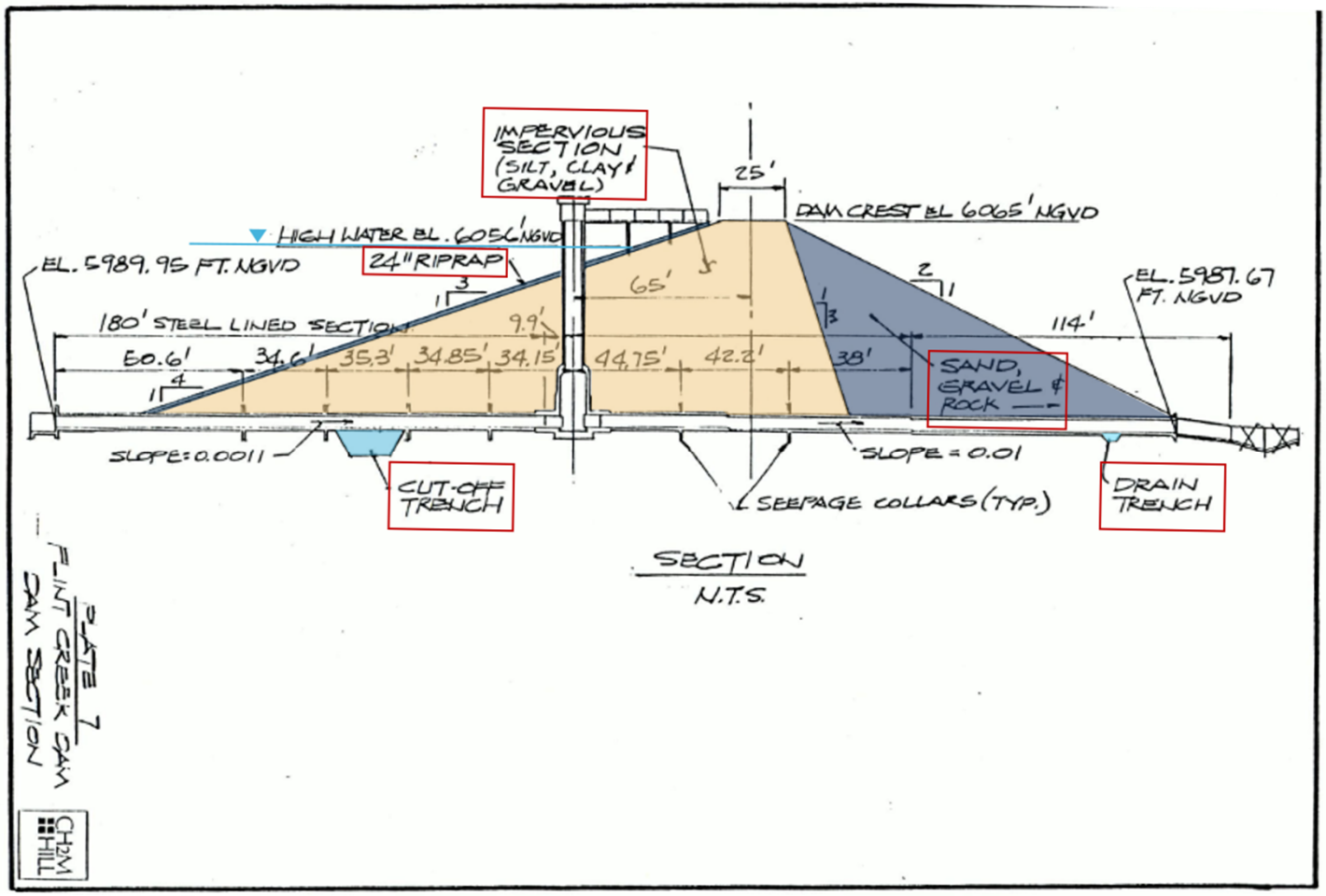


Plan View – Original Drainage Systems

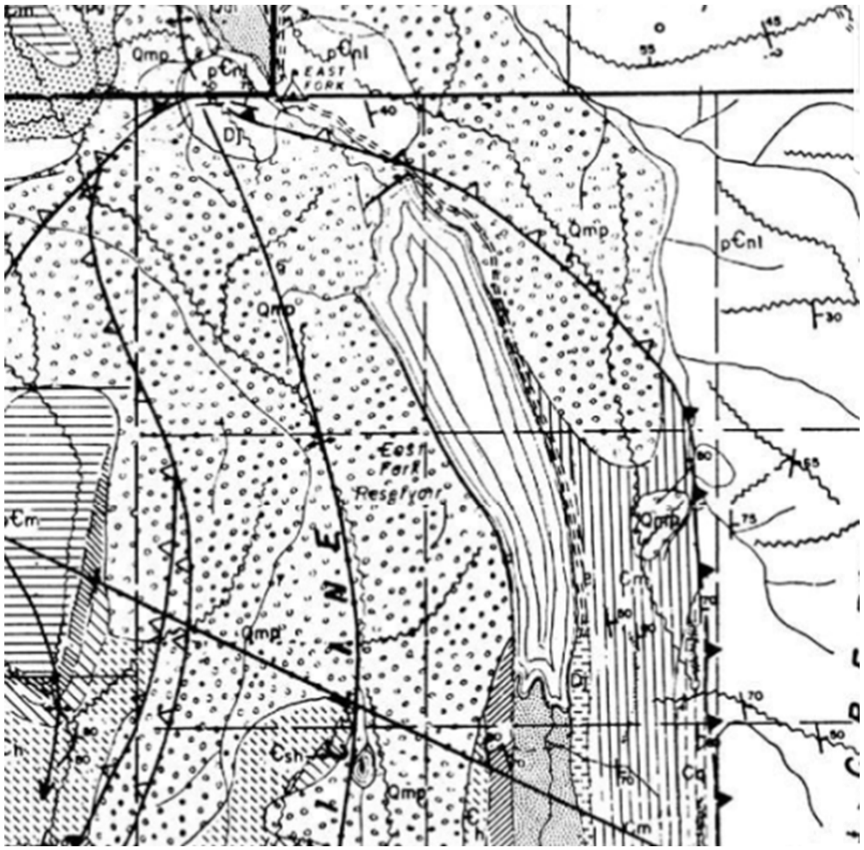


- Main Drain: 12-inch perforated CMP near the embankment center
- Left Abutment Drain: 10-inch CMP (no perforations) intercepting a gravel and sand zone during construction
- Conduit Drain: Constructed beneath the outlet conduit, connecting to the main drain

Cross-Sectional View of Embankment



Geology/Foundation



1956 Montana Bureau of Mines and Geology Map

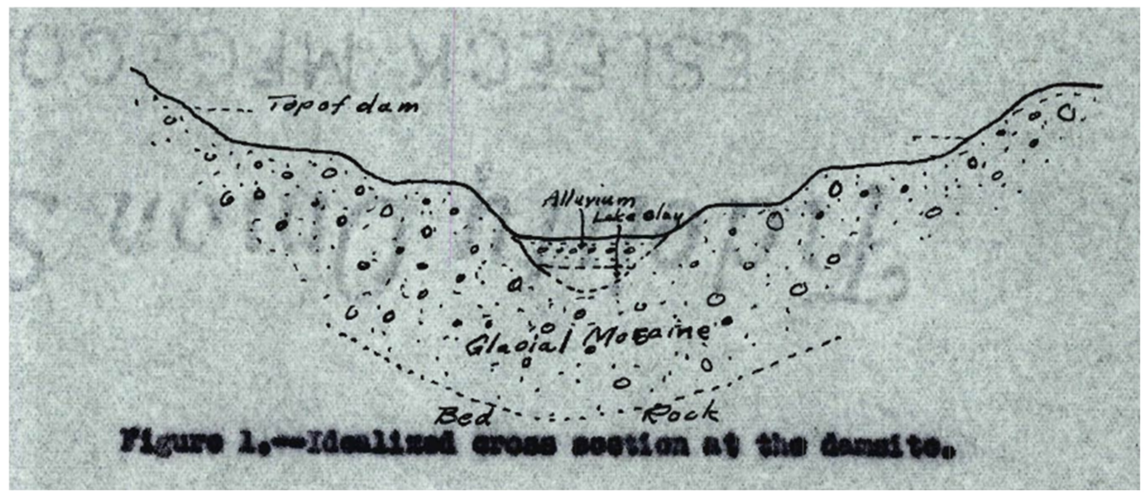


Figure 1.--Idealized cross section at the damsite.

1935 Geologic Report





Incident & Emergency Response

East Fork Dam Incident Timeline

MAJOR MILESTONE | EMERGENCY RESPONSE / PUBLIC SAFETY | INVESTIGATION & MONITORING | TRANSITION TO RECOVERY & REHABILITATION

JUNE 30

Cloudy Seepage Observed at the Downstream Toe

- Forest Service notifies DNRC and Sheriff
- Continuous 24-hour monitoring begins

JULY 1

Source Investigation Begins

- Beaver dam removed and ponded water downstream drained
- Cloudy seepage traced to main drain
- Daily inspections by engineer begin

JULY 2

Public Safety Measures

- Campground closed
- Telephone emergency notification tree established
- Backhoe arrives on site
- Advisory Notice issued to downstream residents

JULY 3

Drain Investigation

- Drain pipe probed with long rod; obstruction noted 38 feet from downstream end
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JULY 4

Sinkhole Formation

- 6-ft diameter sinkhole develops on the downstream slope along the main drain alignment
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- Outlet releases of water increased
- Voluntary evacuations recommended
- Evacuations considered given the influx of residents and recreators during the holiday
- DNRC engineer on site 24/7
- Granite County resources constrained and back-up plans set to support evacuation

JULY 5

Mandatory Evacuations

- Mandatory evacuation implemented
- Approximately 20 miles downstream affected

JULY 7

Reservoir Drawdown Continues

- Sinkhole enlarges
- Sinkhole begins stabilizing
- Drawdown target established at 10,000 ac-ft, approximately 2/3 of capacity

JULY 8

Internal Erosion Indicators

- 4-ft void discovered within the existing sinkhole
- Sand boils observed near plugged drain outlet

JULY 9

Improved Conditions

- Pool lowered to 13,618 ac-ft
- Sinkhole stabilizes
- No new sand boils have been observed
- Evacuations remain in place

JULY 11

Continued Stabilization

- Risk of dam failure continues to decrease as pool is lowered
- Sinkhole slopes are starting to slough off into the void, but the void is not growing

JULY 13

Expanded Monitoring

- Seven monitoring wells installed, with unusually high water pressures detected
- Two weirs installed in the channels downstream

JULY 16

Dam Remains Stable

- Condition not considered safe until water level reaches 10,000 ac-ft (2/3 of capacity)
- 24/7 Monitoring still in place

JULY 17

Sinkhole Unchanged

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- Some depressions on the upstream riprap slope were noticed after the water had dropped
- DNRC suspects this is related to wave action and rapid drawdown

JULY 18

Emergency Phase Ends

- Pool reaches 10,000 ac-ft
- Sheriff transfers operations to DNRC/Association
- Evacuation order lifted
- Emergency repair funding discussions begin
- Design consultant retained for investigations and design of rehabilitation
- Permitting initiated
- Sheriff representative on site until July 21
- Emergency proclamation in place until August 18

JULY 22

Public Information Program

- First Situation Report from Rick Bondy
- Public will be kept informed by:
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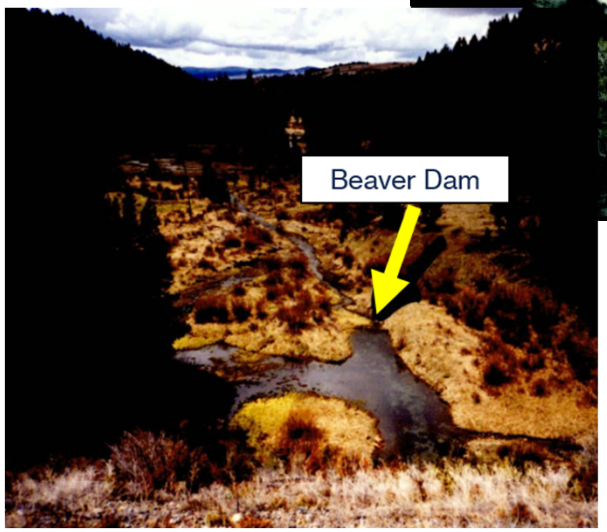
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Initial Emergency & Response

- June 30: Volunteer campground host observes cloudy seepage
- DNRC & County Sheriff are notified
- July 1: Downstream beaver dam removed
- July 2: Campground closed & emergency telephone tree developed
- Advisory Notice to residents downstream
- July 3: Investigations into the drain begin.
- Obstructions found 38’ from the end of pipe
- Cloudy seepage slowing







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Emergency & Response

- July 4: 6-ft diameter sinkhole develops on the downstream slope.
- Spikes in cloudy seepage are observed
- Water releases are increased through the outlet (concerns of cavitation and erosion must be balanced)
- Voluntary Evacuations are recommended given the holiday and influx of people in the area





JUL -3 1996

Dam failure feared

Residents, vacationers asked to leave area voluntarily

By The Montana Standard and The Associated Press

PHILIPSBURG — Residents and vacationers in the Rock Creek drainage below the East Fork Reservoir dam are being asked to voluntarily leave, following declaration of an emergency, after officials became concerned that the dam 15 miles southwest of Philipsburg might fail.

At a special meeting Tuesday night, the Granite County Commission declared an emergency. An emergency plan was activated that calls for voluntary evacuation of the Rock Creek drainage, said Mike Kahoe, administrative assistant to the commission, which met with officials of local, state and federal agencies.

An engineer is to be at the reservoir this morning to further assess the situation, Kahoe said.



THIS MAP shows the location of East Fork Reservoir.

Earlier Tuesday, Granite County Sheriff Don Dee Kennedy issued a hazard alert and the Forest Service evacuated a campground.

Kennedy said he recommends that the Forest Service notify everyone in Rock Creek drainage-area campgrounds that they should leave.

"The Forest Service probably will issue a closure order tomorrow for the Rock Creek drainage," Jack de Golia, spokesman for the Beaverhead-Deerlodge National Forest, said late Tuesday night. "Anyone who's planning to vacation in the Rock Creek area over the Fourth of July should check with the nearest Forest Service office before going." The phone number for the Forest Service's Philipsburg ranger station is 8[illegible] 3211.

"Tomorrow we'll have some thing more definitive about where the closure will apply," and what types of activities it apply to, de Golia said.

A state engineer said the chance of the dam breaking w small, but still a concern beca the consequences could be se ous.

"It would depend on how it failed," said Rick Bondy, a engineer for the Montana

See DAM, Back

[illegible] foot a day for East Fork Dam should fail, we start evacuation, these calls would hamper the evacuation process."

Emergency & Response

- July 5: Mandatory evacuation for 20 miles downstream



Saturday, July 6, 1996

QUESTIONS OR TIPS?
Call City Editor
Linda Carlcsburu
at 791-1491 or
1-800-438-6600

MONTA

Area evacuated below Phil

50-mile stretch closed along Rock Creek

The Associated Press

PHILIPSBURG – Concerned that the East Fork Dam southwest of here might break, Granite County officials on Friday ordered the mandatory evacuation of an area immediately downstream from the earthen structure.

The order was a step up from a previous request for voluntary evac-

uations. The new evacuation order prevails from the dam to Squaw Rock Campground, a distance of about 21½ miles dotted with ranch houses and recreation sites.

The Granite County Sheriff's Department said it was unknown how many people left the area. Officials said there would be no citations for refusal to comply, but people choosing to stay would be asked to sign statements that they were told of risks.

The evacuation order was issued because of concern about a small cave-in detected Thursday at the dam 15 miles southwest of Philipsburg, said Jim Kelly, disaster services coordinator for Granite County.

Also on Friday, the Forest Service closed some federal forest lands in

■Family staying put / 2B

the area.

The chance of the dam failing remains small, said Rick Bondy, an engineer for the Montana Department of Natural Resources and Conservation.

He said officials have not determined what's wrong with the East Fork Dam, but one theory is that fine sand and silt are being eroded from the interior of the earthen structure. That type of problem can be fixed, but would require draining the East Fork Reservoir, Bondy said.

The reservoir is being lowered, and Bondy said emptying it is being considered. If the reservoir is drained, there would be an attempt to do so gradually, on a schedule that

allows farmers to get water they need thi
said.

Meanwhile, the F
has suspended publ
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A small cave-in abo
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The cave-in measur
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Philipsburg-area dam

allows farmers to get the irrigation water they need this summer, he said.

Meanwhile, the Forest Service has suspended public use of the Rock Creek area of the Lolo and Beaverhead-Deerlodge national forests. The area covers about 50 miles, from the dam to Interstate 90 above Clinton.

"We're hoping the situation doesn't get any worse, but we want to stay on the safe side in case something bad does happen," said Winnie Schreiber, a Forest Service spokeswoman.

A small cave-in about 100 feet up the face of the dam was detected on Thursday, heightening concern about the structure.

The cave-in measured 6 feet in diameter, and about 28 inches deep.

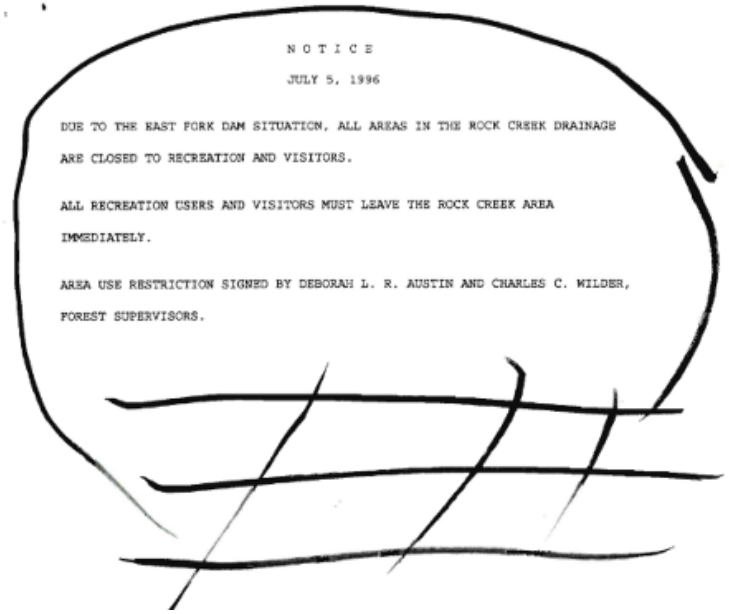
The depth increased by an inch or so on Friday, but Bondy said that was expected and was not a serious concern.

Officials have been monitoring the dam closely since Sunday, when muddy water began flowing from a drain where the flow normally is clear.

On Wednesday, the Forest Service informally notified forest users of concerns about the dam, and many left at that time, Schreiber said. On Friday, there were relatively few people in campgrounds covered by the forest closure.

Roadblocks were set up Friday.

The dam, managed by the Flint Creek Water Users Association, was built in the 1930s. The reservoir holds 16,040 acre-feet of water; 14,000 of it for irrigators.



NOTICE

JULY 5, 1996

DUE TO THE EAST FORK DAM SITUATION, ALL AREAS IN THE ROCK CREEK DRAINAGE ARE CLOSED TO RECREATION AND VISITORS.

ALL RECREATION USERS AND VISITORS MUST LEAVE THE ROCK CREEK AREA IMMEDIATELY.

AREA USE RESTRICTION SIGNED BY DEBORAH L. R. AUSTIN AND CHARLES C. WILDER, FOREST SUPERVISORS.



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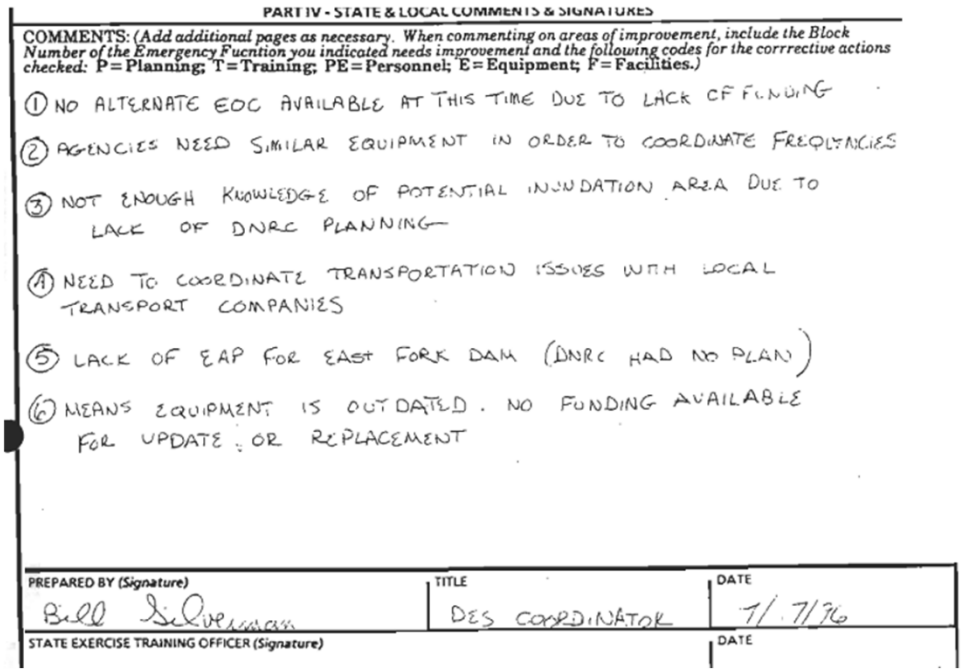
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Review of Emergency Response Findings (July 7)



PART IV - STATE & LOCAL COMMENTS & SIGNATURES

COMMENTS: *(Add additional pages as necessary. When commenting on areas of improvement, include the Block Number of the Emergency Fucntion you indicated needs improvement and the following codes for the corrrective actions checked:* **P = Planning; T = Training; PE = Personnel; E = Equipment; F = Facilities.)**

(1) NO ALTERNATE EOC AVAILABLE AT THIS TIME DUE TO LACK OF FUNDING

(2) AGENCIES NEED SIMILAR EQUIPMENT IN ORDER TO COORDINATE FREQUENCIES

(3) NOT ENOUGH KNOWLEDGE OF POTENTIAL INUNDATION AREA DUE TO LACK OF DNRC PLANNING

(4) NEED TO COORDINATE TRANSPORTATION ISSUES WITH LOCAL TRANSPORT COMPANIES

(5) LACK OF EAP FOR EAST FORK DAM (DNRC HAD NO PLAN)

(6) MEANS EQUIPMENT IS OUTDATED. NO FUNDING AVAILABLE FOR UPDATE OR REPLACEMENT

PREPARED BY *(Signature)*	TITLE	DATE
Bill Silverman	DES COORDINATOR	7/7/16
STATE EXERCISE TRAINING OFFICER *(Signature)*		DATE

- No alternate EOC was available due to lack of funding
- Not enough knowledge of potential inundation area
- Coordination with transportation issues with local transport companies should happen
- Lack of an EAP

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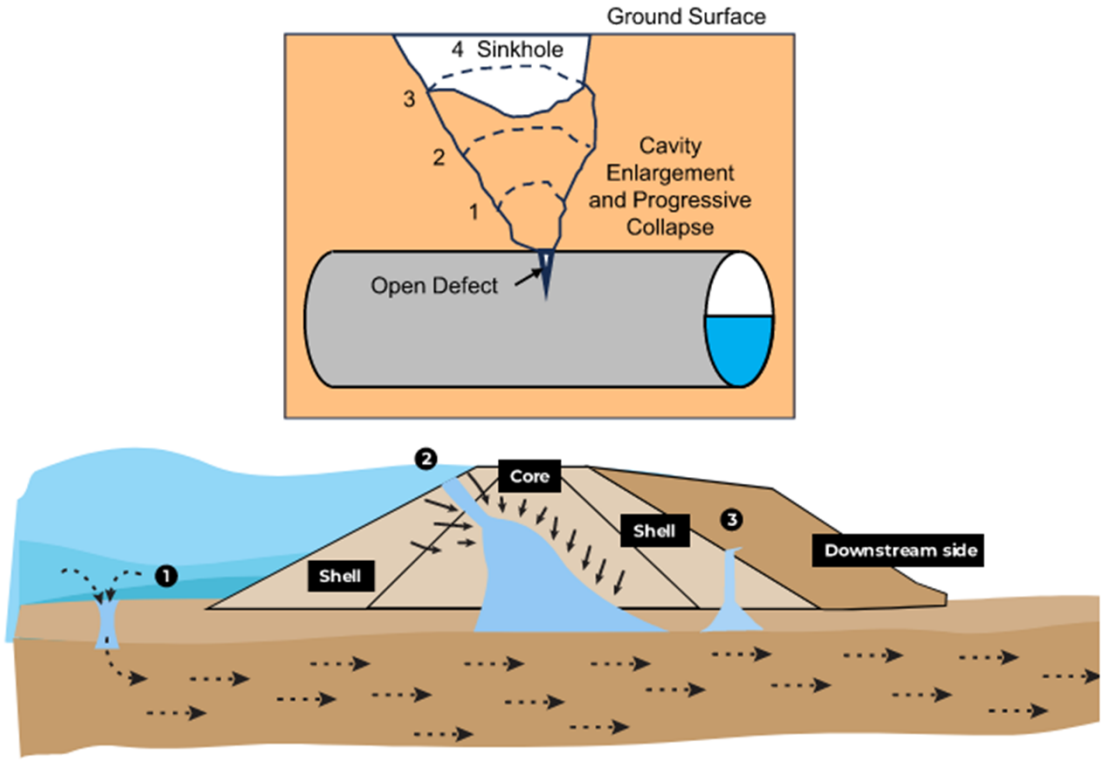
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Internal Erosion Mechanism – Internal Migration/Stoping



USACE Best Practices

Site Investigations

Site Investigations

- Mobilized by mid-July
- Seepage and Drainage Monitoring (PZs and Weirs)
- Geotech Drilling Program
- Test Pits
- Excavation of Failed Drain
- Cleaning and Inspection of Main Drain & Left Abutment Drain
- Visual Inspection of Outlet Conduit








CAT

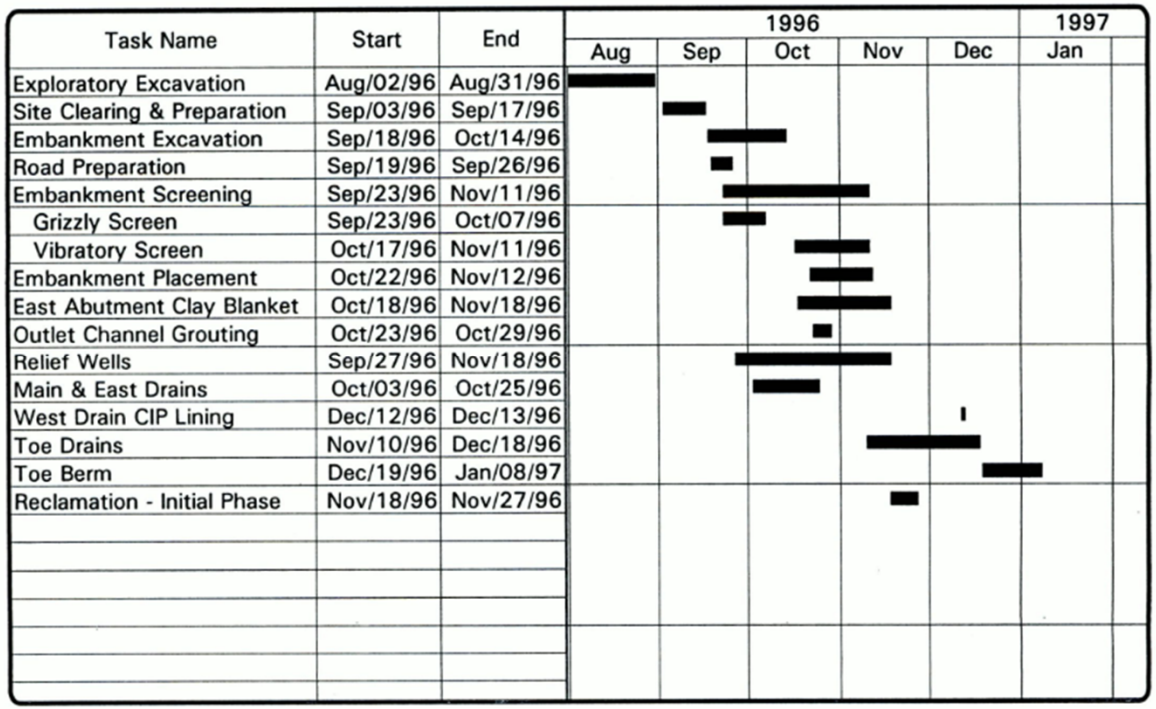


Remedial Measures & Construction

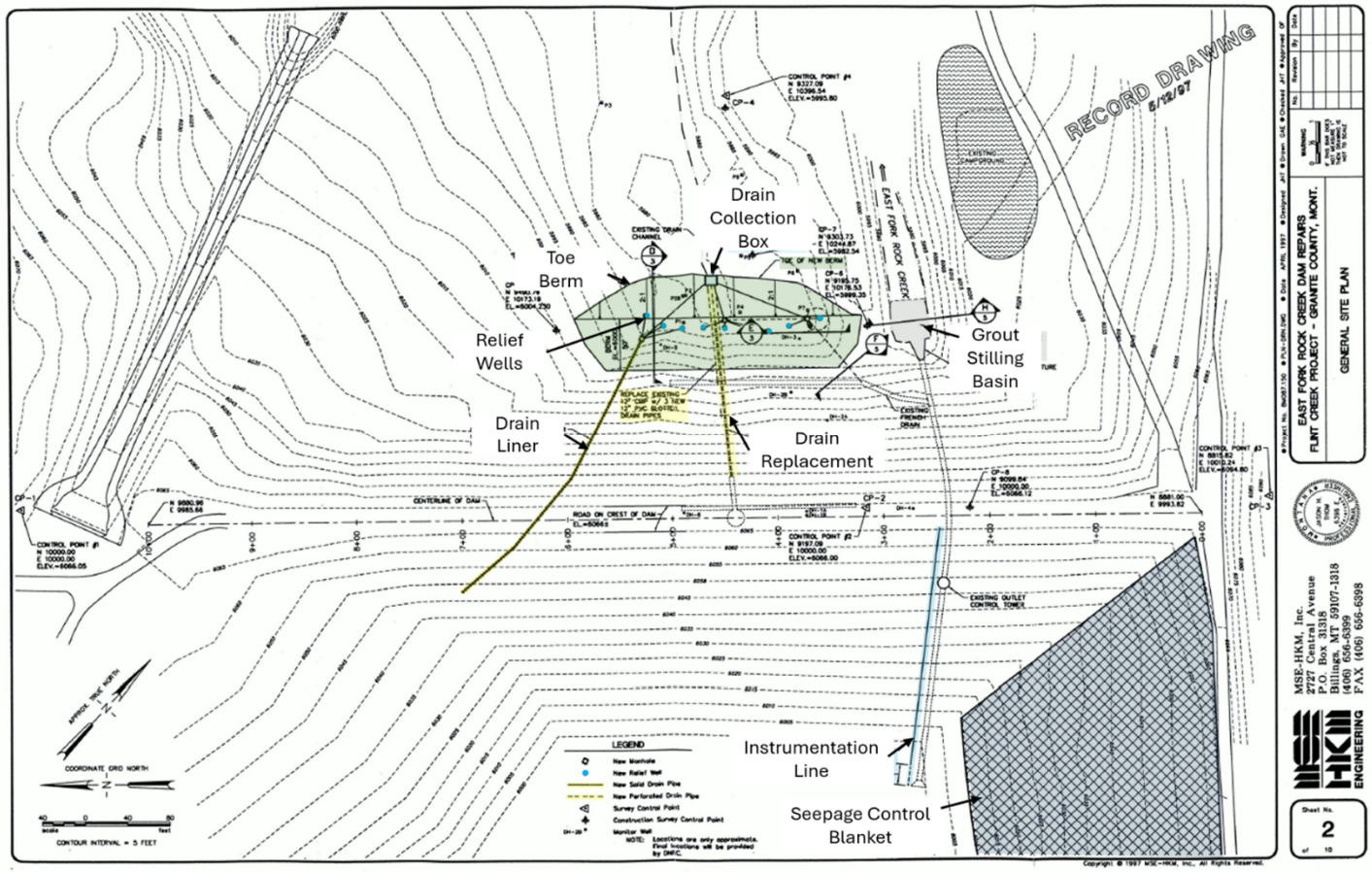
Construction Timeline

- Expedited design and construction schedule to finish construction by winter for re-fill in the Spring
- Two 10-hour shifts each day
- Design and Construction concurrently

Task Name	Start	End
Exploratory Excavation	Aug/02/96	Aug/31/96
Site Clearing & Preparation	Sep/03/96	Sep/17/96
Embankment Excavation	Sep/18/96	Oct/14/96
Road Preparation	Sep/19/96	Sep/26/96
Embankment Screening	Sep/23/96	Nov/11/96
Grizzly Screen	Sep/23/96	Oct/07/96
Vibratory Screen	Oct/17/96	Nov/11/96
Embankment Placement	Oct/22/96	Nov/12/96
East Abutment Clay Blanket	Oct/18/96	Nov/18/96
Outlet Channel Grouting	Oct/23/96	Oct/29/96
Relief Wells	Sep/27/96	Nov/18/96
Main & East Drains	Oct/03/96	Oct/25/96
West Drain CIP Lining	Dec/12/96	Dec/13/96
Toe Drains	Nov/10/96	Dec/18/96
Toe Berm	Dec/19/96	Jan/08/97
Reclamation - Initial Phase	Nov/18/96	Nov/27/96



Remedial Measures



- Fully replace main drain
- Cured-in-place liner in left abutment drain
- Ten Relief Wells
- Seepage collection system
- Upstream, right abutment clay blanket
- Grouted outlet channel
- Downstream toe berm
- Automated Instrumentation Monitoring (Early Warning System)
- First Fill Plan




CAT















Public Involvement During Construction

Missoulian 10/19

Public to inspect dam

The public can inspect construction work at the East Fork Dam during a tour at 1 p.m. today.

Park in the East Fork campground and meet at the crest of the dam.

State engineer Rick Bondy said the dam, which sits at the head of Rock Creek, will be at close to maximum excavation on Saturday. The work began six weeks ago, in response to a sinkhole that developed in the dam's downstream face in midsummer.

The dam's drainage system is being replaced and its foundation strengthened. Work is to be complete by Nov. 1.

Sherry Devlin, Missoulian

J Stultz

Missoulian 10/11/96

Landowners monitor dam plan

East Fork repair work tries to beat freeze-up

By SHERRY DEVLIN of the Missoulian

Rick Bondy is taking East Fork Dam apart and putting it back together again – and he only has four weeks left in the construction season.

But Bondy, the state engineer responsible for the dam, said Monday that he believes the reconstruction will beat winter's freeze – and will yield a safe, stable structure.

The 86-year-old earthen dam, which sits at the head of Rock Creek, threatened to give way just before the Fourth of July weekend, when a sinkhole appeared in the downstream face.

Anglers and campers were later evacuated from the Bitterroot-blue-ribbon stream, and irrigation water needed by Rock Creek Valley ranchers was released from the 14,000-acre-foot reservoir.

Bondy said engineers and contractors have since plowed the trouble to silt blocking the dam's main drain. "But we can't tell whether the drain failed, letting silt in, or whether silt found its own way in."

"The repair will solve it either way," he said. Three drains will take the place of the one, failed drain. There will be better filtering and stronger pipe.

About half of the soil on the downstream side of the dam ("It looks like most of it," Bondy said.) is being removed so the new pipes can be installed. All rocks over 6 inches in diameter will be taken out of the excavated soil, so it will compact better when returned to the dam.

Further downstream, 10 relief wells will be drilled to relieve pressure in the dam's glacial-till-and-limestone foundation. "The rock is somewhat fractured and is carrying a lot of water (leaked from the reservoir)," Bondy said. "It is building up some fairly high water pressures – artesian pressure."

The relief wells will fill whenever there is enough pressure in the foundation to push the water out, the engineer said. A berm also will be added on the downstream toe, again to stabilize the foundation.

There is only about 192 acre feet of water left in East Fork Reservoir, allowing the large excavation. Bondy will give a public tour of the project at 1 p.m. Thursday, beginning at the East Fork campground.

(The tour also will include a trip to the upstream end of the reservoir, where state bull trout coordinator Shelley Spalding will discuss the spawning redds recently discovered at the site.)

Rock Creek landowners and the Rock Creek Trust have hired a consultant to review the dam redesign. "This is the ultimate stewardship issue," said Ellen Knight, director of Rock Creek Trust.

Knight said the review – by Dames and Moore of Seattle – "is not meant to discredit the Department of Natural Resources, but is simply an indication that this is a big issue and another pair of eyes and brains won't hurt."

Landowners asked for the outside review in part because of the short time frame available for the redesign and reconstruction; Sept. 1 through Nov. 1, if the weather cooperates.

"Landowners and the trust have been watching very carefully what is going on," Knight said, "but if you don't have an engineering degree, you're a little lost. The assistance of an engineering firm will clearly be useful."

9 October 1996

SITUATION REPORT - EAST FORK DAM INCIDENT

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

INCIDENT COMMANDER: RICK BONDY ■ PHONE (406) 444-6656

Construction is continuing. The excavation of the main drain is about half completed and the soil that has been excavated from the dam is being processed to separate the large rocks from the rest of the material. The soil will be placed back in the downstream part of the main embankment and the rocks will be used in the toe berm.

The impermeable material removed from the upstream portion of the dam is being processed separately from the material removed from the downstream area. This is because the upstream material is less permeable than the downstream material and it is important to maintain this difference when the dam is reconstructed.

A geotextile fabric has been placed over most of the area that will be occupied by the toe berm, and two feet of filter gravel has been placed over the top of the fabric. This will serve as the base for the toe berm as well as a pad for the drill rig that will drill the relief wells. The fabric and gravel has not been placed in the area where the main drain must pass through. A temporary culvert has been placed in this area but it will be removed when the main drain is installed.

O'Keefe Drilling, under a subcontract with the prime contractor, the Mungas Co., has begun drilling the relief wells. An air rotary drill is being used. Ten five-inch diameter wells are planned.

The filter gravel needed for the project is still being hauled to the project. It is being stored in one of the material storage areas constructed on the upstream side of the dam last week.

No progress was made in the clay blanket area last week because the equipment was needed elsewhere. This portion of the project can be completed any time before the reservoir is refilled.

The regular 4 p.m. public meeting on Tuesday, October 15, will NOT be held. Meetings with the Granite County Commissioners will be held at 4 p.m. as usual on all of the other Tuesdays in October. The public and press is always welcome to attend.

The main excavation for the east abutment drain is complete. All of the excavation that remains is a trench large enough for the gravel and pipe that will make up the main drain installation.

The water flow in East Fork Rock Creek below the dam has dropped off considerably because the reservoir is nearly empty. The risk of dam failure is minimal.

(MORE)

STATUS OF DAM AS OF 1 OCT 1996

Sinkhole #1	Excavated	Storage in reservoir	192 acre-feet
Drain line measurement of water in stream	0.69 feet	Drop in reservoir water	62.7 feet
Elevation of reservoir water	5,992.7 feet	Turbidity	Variable, due to drain excavation
Elevation of spillway	6,055.43 feet	Sand boils/springs	Nearly dry

DNRC is keeping the public informed using the following methods: (1) This *Situation Report*, which is issued weekly by fax and mail. It is also available at the Granite County Sheriff's office and posted on the State of Montana's Electronic Bulletin Board System. [Phone: 1 (800) 362-1729. — Set your modem to 8-N-1]. (2) Weekly meetings of the Granite County Commissioners, who have graciously allowed the last part of their meetings to be used as an open forum for this project. Each Tuesday, at 4:00 p.m., a DNRC engineer will give a brief report on project activities and answer questions. The public and press are invited to attend these meetings and to participate in the discussions. (3) Call DNRC at (406) 444-6656. The phone rings at Mr. Bondy's desk. If there is no answer, leave a message, and he will return the call. As the project proceeds, this procedure and *the format of this weekly report may change*. Your suggestions are welcome.

Access across the dam will remain open. A temporary road has been constructed on the upstream side of the dam to allow access to the west side. DO NOT stop on the dam for any reason, or enter the campgrounds or area just below the dam until further notice. PLEASE WATCH OUT FOR THE HEAVY CONSTRUCTION EQUIPMENT!

All recreation, including fishing and boating on the reservoir, IS allowed.

TENTATIVE PROJECT SCHEDULE

DATE (1996)	TASK	STATUS
7/18 to 10/1	Conduct field investigations	IN PROGRESS
7/22 to 8/31	Prepare construction cost estimate	COMPLETE
7/29 to 8/31	Obtain construction permits	COMPLETE
7/22 to 8/31	Conduct analysis and design	IN PROGRESS
7/29 to 8/31	Prepare construction drawings and specifications	COMPLETE
8/12 to 8/31	Negotiate with construction contractor	IN PROGRESS
9/3 to 11/15	Construction	IN PROGRESS

For further information, call DNRC in Helena at (406) 444-6656.

Final Situation Report

1 August 1997

EAST FORK DAM UPDATE

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

CONTACT: RICK BONDY ✔ PHONE (406) 444-6656

COME JOIN US
In celebration of the successful reconstruction of this project, a gathering is planned at the dam on Friday, August 15, at 1:00 p.m. Please join us for a tour of the project and refreshments. Bring your camera!

FINAL EAST FORK DAM UPDATE
This is our final monthly East Fork Dam update! We will maintain our mailing and fax lists, and we will send an update if anything significant happens.

We are interested in your suggestions. No emergency situation should be "closed" until we learn how well we responded, and how we could have better answered your concerns and questions. Please take a few minutes to share your thoughts and feelings with us. Did you read our updates? Did you receive them by e-mail, fax, the Internet, the newspaper, the county disaster emergency officials, or mail? What was the easiest and most timely method for you to receive the information? Were our updates informative? Was there too much technical detail? Not enough? Did we send them to you often enough? What other suggestions can you provide about how we could have better kept you informed? Please write: Jim Bond; DNRC, P.O. Box 201601, Helena, MT 59620-1601; e-mail: jibond@mt.gov; or call (406) 444-6743 and leave a message.

MONITORING SYSTEM INSTALLED
The new monitoring and emergency warning system installation is nearly complete. The system at the dam is constantly logging data from the sensors installed in the dam. The phone and power lines have finally reached the gate house. We hope to have the final hookups to our computers in Helena shortly.

THE RESERVOIR IS FULL
The reservoir has remained near the full mark through most of July. The reservoir was slightly above the spillway crest through mid-July and has dropped slowly during the last half of the month. Inflows are decreasing, and the flow is now being released through the outlet works. The dam is still being monitored closely by DNRC engineers. No abnormal readings or observations have occurred. Please view the photo album on our web site:

http://www.dnrc.mt.gov/eastfork.html

(MORE)

THINGS LOOK GOOD
The seepage flows around and under the dam were stable throughout July. Some of the water levels within the dam itself have even dropped as the reservoir water level began to drop in mid-July. All monitoring readings are normal.

Most of the remaining construction activities were completed during July. The downstream face of the dam was re-shaped, the road over the top of the dam was graded and graveled and the top of the toe berm was re-shaped. All of the areas disturbed during construction have been re-seeded.

MOTORISTS USE CAUTION
There are a few new features on top of the dam. They are not within the normal roadway, but they could damage your vehicle if a collision occurred. So, Use Caution! Also, occasionally an engineer will be checking the monitoring wells that are located on the top of the dam. Please use caution, but feel free to stop and say hello.

PUBLIC MEETING NOTE
The **final** regular public meeting with the Granite County Commissioners is scheduled for Tuesday, August 5, at 2 p.m. to discuss the project, the emergency warning system, reservoir operations this summer, and any other issues the public wishes to discuss relating to the East Fork Dam. The meeting will be held in the Granite County Courthouse in Philipsburg.

STATUS OF DAM AS OF 28 JULY 1997

Elevation of spillway	6,055.43 feet	Drain line (flows through flume)	550 gpm (gallons per minute)
Elevation of reservoir water	6,052.47 feet	Turbidity	Clear
Storage in reservoir	15,248 acre feet	Springs & other seepage	Decreasing
Increase in reservoir storage since Oct. 1	15,100 acre feet		

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Lessons Learned & Conclusions

Lessons Learned

- EAPs, inundation mapping, and monitoring systems are essential and should be implemented proactively.
- Routine inspections, surveillance, and prompt reporting are critical for early problem detection.
- Dam Safety Professionals should think about what features in their dam are susceptible to performance issues and routinely look for signs.
- Public observations can play a vital role, especially at remote dams.
- Frequent, transparent communication builds trust and supports effective emergency response.
- Strong coordination among agencies/partners improves emergency outcomes.

Conclusions

- The 1996 response was viewed as appropriate and effective by participating engineers.
- The incident accelerated dam safety and emergency preparedness improvements already underway.
- Early detection, rapid response, and coordinated actions prevented a potential dam failure.
- It is important to understand features that are constructed within dams and their susceptibility to poor performance (CMPs, seepage collars, etc.).

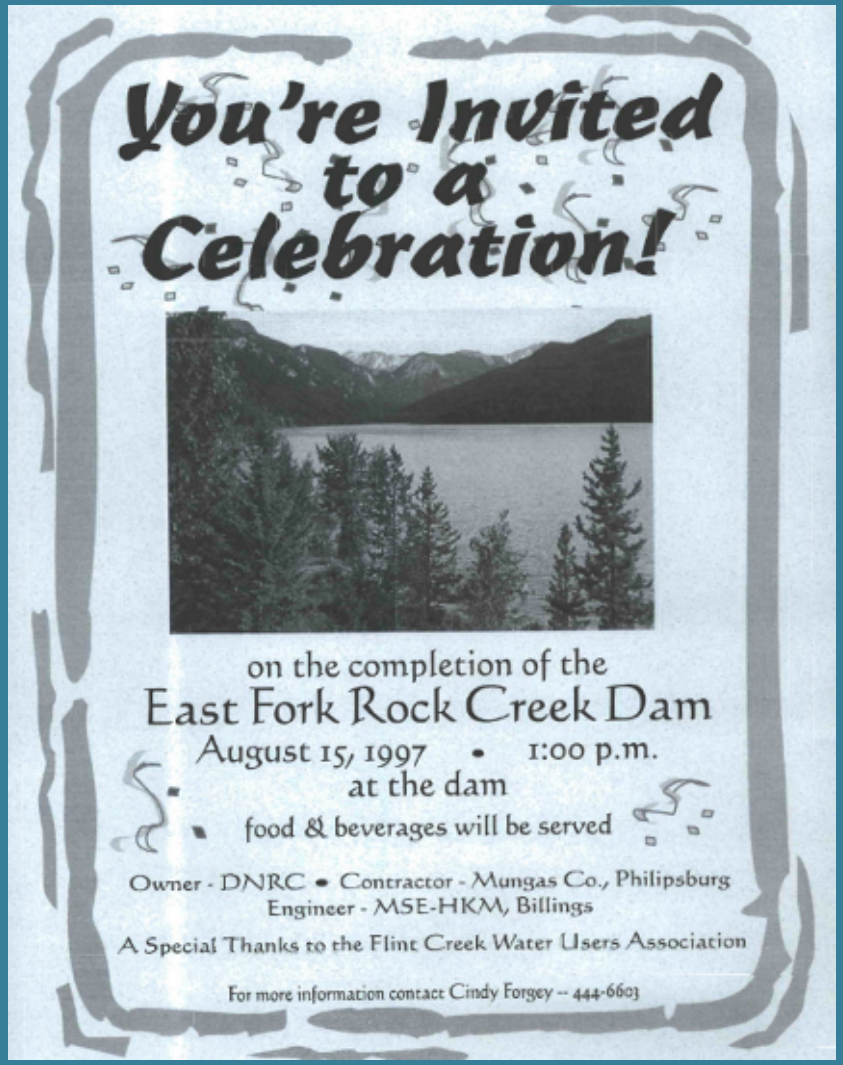
Acknowledgements

- Special Thanks to
  - Rick Bondy (DNRC Lead Engineer during Incident - Retired)
  - Rob Kingery (Retired DNRC Engineer)
  - Larry Schock (DNRC Engineer)
  - Art Taylor (Retired DNRC Engineer)
  - DNRC State Water Projects
  - DNRC Dam Safety





Questions?


You're Invited to a Celebration!
on the completion of the
East Fork Rock Creek Dam
August 15, 1997 • 1:00 p.m.
at the dam
food & beverages will be served
Owner - DNRC • Contractor - Mungas Co., Philipsburg
Engineer - MSE-HKM, Billings
A Special Thanks to the Flint Creek Water Users Association
For more information contact Cindy Forgey -- 444-6603