

RECLAMATION

Managing Water in the West

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Recreation Fatality on April 22, 2016

Serious Accident Investigation Factual Report

Canyon Ferry Reservoir, Montana
Great Plains Region



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U.S. Department of the Interior
Bureau of Reclamation

May 2016

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Team Signatures

Team Leader

Dennis Philmon
Facility Manager, Hungry Horse Field Office
Pacific Northwest Region

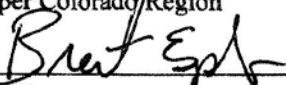


Signature

6/2/2016
Date

Chief Investigator

Brent Esplin
Deputy Regional Director
Upper Colorado Region

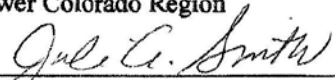


Signature

02 Jun 2016
Date

Safety Specialist

Juli A. Smith, CIH
Regional Safety Manager
Lower Colorado Region

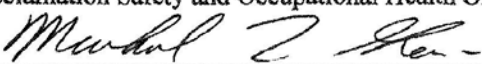


Signature

6/2/2016
Date

Accident Investigation Advisor

Michael L. Green, PE, CSP, CFPS
Safety Engineer
Reclamation Safety and Occupational Health Office



Signature

6/2/2016
Date

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Executive Summary

The Shannon Boat Launch is located on Canyon Ferry Reservoir, a feature of the Bureau of Reclamation's Canyon Ferry Unit in west-central Montana approximately 20 miles east of Helena. The Launch and its associated dock is one of several public recreation facilities managed by Reclamation's Canyon Ferry Field Office.

In September 2015, the boat dock at the Launch was removed from the Reservoir for off-season storage. Public access was not restricted around or on the stored dock. On April 18-19, 2016, Reclamation staff replaced part of the rubber matting on the surface of the Launch's courtesy boat dock. In order to facilitate the work, the staff positioned the hinged access ramp for the dock in an upright position. At the conclusion of the work, staff left the ramp in the upright position.

On April 22, 2016, a father, his 3-year-old stepson, and 2-year-old daughter were among the visiting public fishing from the shore of Canyon Ferry Reservoir near the Launch facility. At approximately 1530 hours, the father encountered a fisherman, engaged in casual conversation, and then stated that he needed to find his son. The father drove from the upper parking lot to the boat ramp to find the boy. At approximately 1535 hours, the father located his son pinned between the access ramp and the dock surface. A member of the public began to administer first aid while waiting for emergency services to arrive. The Tri-Lake Volunteer Fire Department, Lewis and Clark Sheriff's Office, and St Peter's Hospital EMTs responded and attempted to revive the child. There are no known eye-witnesses to the accident.

The child was transported to St. Peter's Hospital in Helena, Montana. Later in the evening, the boy was airlifted to Sacred Heart Children's Hospital in Spokane, Washington. The child succumbed to the injuries and passed away at Sacred Heart Children's Hospital on April 23, 2016.

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Background

Canyon Ferry Reservoir (Reservoir) is located in the west-central part of Montana approximately 20 miles east of Helena. The Reservoir's 33,500 surface acres of water and 96 shoreline miles feature a number of facilities for public recreation including concrete boat ramps, courtesy boat docks, campgrounds, day-use areas, shelters, swimming, fishing and three marinas. The construction of Canyon Ferry Dam began in 1949, with final commissioning occurring in 1954.

The public recreation facilities of the Reservoir are managed and maintained by the Bureau of Reclamation, Great Plains Region, Montana Area Office, Canyon Ferry Field Office. The three marinas on the Reservoir are operated through concession contracts with Reclamation by independent concessionaires. The recreation facilities are available for use year-round with the peak season running from mid-May to mid-September. During the non-peak season the reservoir is prepared for winter conditions. This includes removing the courtesy boat docks from the water and storing them on or near the upper sections of the concrete boat ramps.

The Shannon Boat Launch (Launch) is located at the north end of the Reservoir less than one mile from Canyon Ferry Dam. The Launch includes a parking area and one concrete boat ramp. The boat ramp accommodates one courtesy boat dock (Dock) and two boat launch lanes. The Dock is a non-floating type held in place by the weight of the Dock structure. The Dock is constructed of a galvanized steel structural frame covered by a galvanized expanded metal walkway covered by a rubberized fabric mat.

The walking surface of the Dock is 44 feet long and 6 feet wide. The shore end of the walking surface is 1 foot above ground level and the water end is 7 feet above ground level. A 6 inch wide by 6 inch high railing constructed of 2 by 6 inch composite decking boards is installed on each side and on the water end of the walking surface. The shore end of the walking surface is equipped with an access ramp (Ramp). The Ramp is attached to the Dock with a two pivot point hinge. The Ramp is constructed of a galvanized steel structural frame covered by a galvanized expanded metal walkway covered by a rubberized fabric mat. The Ramp is 4 feet 3 inches long and 4 feet 6 inches wide. The Ramp weighs approximately 249 pounds. The hinge is 7 1/2 inches long. The two pivot point hinge allows the Ramp to pivot from contact with the ground to lay flat on the Dock's walking surface.

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Investigation Process

A Serious Accident Investigation Team was appointed and mobilized on Monday, April 25, 2016. The team consisted of a:

- Team Leader
- Chief Investigator
- Safety Specialist
- Accident Investigation Advisor

The Team convened at the Canyon Ferry Field Office Tuesday morning, April 26, 2016. The Team met with the facility manager for an in-briefing, and discussed an investigation process, potential safety issues related to the site visit, and the possible existence of similar unsafe conditions at other recreation sites. The Team directed that a check be made of all sites to confirm conditions and ensure that mitigation actions be taken immediately as appropriate.

The process of information and evidence gathering consisted of:

- Evaluating all human, material, and environmental factors that may have contributed to the incident.
- Conducting a site visit to the launch and other recreation areas in the vicinity with courtesy boat docks.
- Interviewing Reclamation personnel who were associated with removal, storage, or maintenance work on the dock.
- Interviewing non-Reclamation personnel who were on scene or responded to the incident.
- Reviewing work orders, Job Hazard Analyses (JHAs), drawings, photographs, videos, and other pertinent materials related to the accident site.

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Findings¹

Finding 1 (Material)

In September 2015, the Canyon Ferry Recreation Crew (Crew) removed the Dock from the Reservoir at the Shannon Boat Launch for off-peak season storage. The Dock was relocated to a position on the side of the concrete boat ramp to allow continued use of the ramp by the public. As per original design, the Dock is equipped with a hinged access Ramp, weighing approximately 249 pounds, that is capable of being folded over to lay flat on the walking surface of the Dock, or angled down to the ground. The As-Left storage configuration of the Dock is such that it is not barricaded or posted to discourage or prevent public access to it.

Finding 2 (Human)

On Tuesday, April 19, 2016, a Crew member completed work on the walking surface of the Dock's Ramp associated with replacing the rubberized fabric links mat with new rubberized fabric matting. Upon completion of the work, the Ramp was left in an upright position suspended by tie wire.

Finding 3 (Human)

Early morning, Friday, April 22, 2016, several Crew members visited the Launch to discuss placing the Dock into the water, and while on site, inspected the new rubber mat on the Ramp.

Finding 4 (Human)

Mid to late morning, April 22, 2016, a father, his 3-year-old stepson, and 2-year-old daughter arrived at the Launch to go fishing. A fisherman spoke with the father while fishing along the shoreline. The fisherman then left the Launch area.

Finding 5 (Material)

At approximately 1528 hours, April 22, 2016, the 2-year-old daughter came crying to the father who was fishing at the shoreline.

¹ Source of principle types of evidence: Interagency Serious Accident Investigation Guide (ISAIG), 2013, ISAIG Task Team.

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Finding 6 (Human)

At approximately 1530 hours, April 22, 2016, the fisherman who originally spoke with the father returned to Launch and saw the father in the parking area placing his child (daughter) into a car seat in his truck. The fisherman spoke to the father about fishing. The father then stated he needed to find his son.

Finding 7 (Human)

At approximately 1535 hours, April 22, 2016, the father drove his truck from the upper parking area to boat launch area. The fisherman also walked from the upper parking area to the boat launch area. Upon exiting the truck, the father noticed his son pinned under the Ramp that was folded over onto the Dock walking surface. The fisherman followed the father to the Dock and saw the boy lying on the walking surface of the Dock under the Ramp. The father lifted the Ramp off his son. The fisherman observed that the boy was blue and vomiting. The father and fisherman then yelled for help.

Finding 8 (Human)

At approximately 1537 hours, April 22, 2016, a woman in a boat near the Launch heard the father and fisherman calling for help and went to shore. The woman observed the boy's condition and initiated Cardiopulmonary Resuscitation (CPR). The fisherman called 911.

Finding 9 (Human)

At 1538 hours, April 22, 2016, the dispatch center received the 911 call and dispatched the Tri-Lake Volunteer Fire Department, St Peter's Hospital ambulance, and Lewis and Clark County Sheriff's Office to the Launch.

Finding 10 (Human)

At approximately 1540 hours, on April 22, 2016, two Reclamation Canyon Ferry Field Office employees (Electricians) were returning from work at a different recreation area. When driving by the Launch they noticed unusual activity at the Dock. They entered the Launch area to investigate and noticed the boy on the Dock with the woman conducting CPR. The woman indicated that she was a nurse and inquired if the employees had an AED device or Ambu Bag. The employees did not have the requested items so they called the Canyon Ferry Field Office; however, the Office did not have the requested items.

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Finding 11 (Human)

At approximately 1545 hours, April 22, 2016, two members of the Tri-Lake Volunteer Fire Department arrived on scene and took over administration of CPR on the boy. The woman identified herself as an emergency room nurse and continued to assist with treatment of the boy. A Fire Department member unwrapped the wire holding the Ramp upright and the Ramp fell to the ground. An AED unit was deployed but did not recommend to shock.

Finding 12 (Human)

At approximately 1557 hours, April 22, 2016, the first Lewis and Clark County Sheriff's Deputy arrived at the Launch.

Finding 13 (Human)

At 1559 hours, April 22, 2016, the second Lewis and Clark County Sheriff's Deputy arrived at the Launch. The second Deputy had a body-worn camera and captured video of the scene.

Finding 14 (Human)

At approximately 1605 hours, April 22, 2016, an ambulance arrived at the Launch and transported the boy to St. Peter's Hospital in Helena, Montana.

Finding 15 (Human)

Late evening, April 22, 2016, the boy was airlifted to Sacred Heart Children's Hospital in Spokane, Washington.

Finding 16 (Human)

On April 23, 2016, the boy succumbed to injuries and passed away at Sacred Heart Children's Hospital.

Finding 17 (Human)

The Recreation Crew seasonal practice was to secure the heavy-hinged Ramp using unrated steel tie wire that was not intended (by function of the material) to serve this purpose. Securing by this method does not prohibit the Ramp from movement.

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Finding 18 (Human)

Supervisory inspection of work completed to replace Ramp rubber matting was lacking. This was a missed opportunity to identify the hazard associated to suspending the Ramp using tie wire.

Finding 19 (Environmental)

Earlier in the day, a witness stated that wind was “blowing bad” two to three hours prior to the incident. Site weather conditions at the time of the accident were not deemed a causal factor based on interviews, witness statements, and photographic evidence.

Finding 20 (Human)

The Recreation Crew recognized public safety trip hazards associated with the long bolts protruding from the backside of the Ramp and the angle iron. However, the Recreation Crew failed to recognize additional public safety hazards associated with the Ramp’s upright position and the height (as high as 7 feet) of a portion of the dock.

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Photographs



Figure 1: Signage at entrance to incident location.



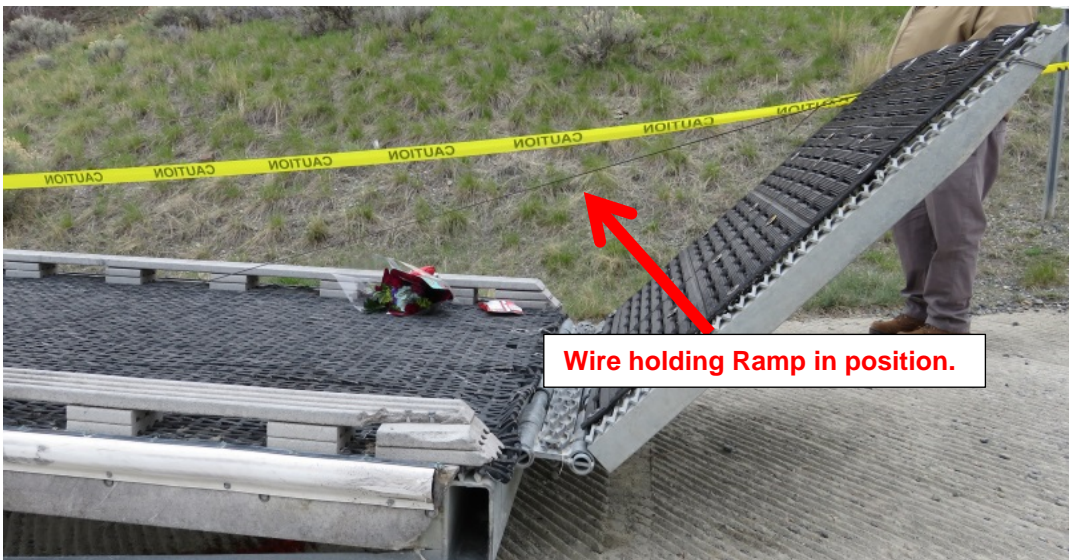
Figure 2: Access Ramp, folded closed onto the Dock.

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Figure 3: Access Ramp, open as if for use.



Wire holding Ramp in position.

Figure 4: Access Ramp, upright about 70 degrees, held with wire (simulated as it would have been on day of accident).

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Figure 5: Shannon Recreation Area Courtesy Boat Dock. Image is taken after the incident. Access Ramp is in an open position in contact with the ground. Image courtesy of the Lewis and Clark County Sheriff's Department.



Figure 6: Shannon Recreation Area Courtesy Boat Dock. Image is taken after the incident. Access Ramp is in a fully open position in contact with the ground. Image courtesy of the Lewis and Clark County Sheriff's Department.

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Figure 7: Shannon Recreation Area Courtesy Boat Dock. Image is taken after the incident. Access Ramp is in a fully closed position, folded onto the surface of the Dock. Image courtesy of the Lewis and Clark County Sheriff's Department.

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Serious Accident Investigation Team Appointment Memorandum



United States Department of the Interior

BUREAU OF RECLAMATION
Washington, DC 20240

APR 25 2016


IN REPLY REFER TO:

84-43000
SAF-4.20

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MEMORANDUM

To: Serious Accident Investigation Team (See List)

From: Grayford F. Payne 
Deputy Commissioner – Policy, Administration and Budget
Designated Agency Safety and Health Official

Subject: Appointment of Serious Accident Investigation Team (SAIT)

In accordance with the requirements of 485 DM 7, *Incident/Accident Reporting/Serious Accident Investigation*, a SAIT is being established to investigate a public recreational activity fatality at Canyon Ferry Reservoir, Helena, MT, on April 22, 2016. You are appointed to the SAIT in the following roles:

TEAM LEADER:
Dennis Philmon, Facility Manager, Hungary Horse, Pacific Northwest Region

CHIEF INVESTIGATOR:
Brent Esplin, Deputy Regional Director, Upper Colorado Region

SAFETY SPECIALIST:
Juli Smith, Regional Safety Manager, Lower Colorado Region

ACCIDENT INVESTIGATION ADVISOR:
Michael Green, Safety Engineer, Reclamation Safety and Occupational Health Office

The purpose of this serious accident investigation is to gather and evaluate evidence, determine causal and/or contributing factors, prepare findings and recommendations to prevent future accidents, and to improve Safety and Occupational Health Program controls.

The SAIT will report its findings, in the manner prescribed in 485 DM 7, through the Safety and Health Office, Security, Safety and Law Enforcement, to the Designated Agency Safety and Health Official (DASHO) within 45 calendar days of the date of this memorandum.

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Serious Accident Investigation – Factual Report
Recreation Fatality on April 22, 2016
Canyon Ferry Reservoir, Montana

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If evidence of criminal activity is discovered, the SAIT should discontinue the investigation and notify the Bureau of Reclamation's Special Agent-in-Charge, the Office of the Inspector General (OIG), and the DASHO immediately. If the evidence is based on confidential witness statements, the SAIT should not disclose the individual statements, but provide a list of all witnesses to the law enforcement authorities and/or OIG.

This appointment memorandum is subject to subsequent amendment/augmentation to include additional SAIT members. The conduct of this investigation and resulting reports must take precedence over members' other job functions. A cost authority for labor and investigation-related expenses has been established, and will be provided to you.

Questions related to this memorandum should be directed to Monte Bowman, Reclamation Safety and Occupational Health Program Manager, at 303-445-2695.

Serious Accident Investigation Team

UC-115 (BEspln), HHFO-3000 (DPhilmon), 84-43000 (MLGreen), LC-1006 (JSmith)

cc: 96-00000 (DPalumbo), 91-10000 (JHess), 84-40000 (BMuller, PPercell),
84-43000 (MBowman), UC-100 (BRhees), GP-1500 (BCornell), GP-1000 (MRyan),
GP-1200 (JSoucy), GP-1270 (GBarsness), LC-1000 (TFulp), MT-100 (SDavies),
PN-1000 (LLee)