

Terri L Anderson To: Peter N Zimmerman/R1/USDAFS@FSNOTES
09/30/2003 01:35 PM cc:
Subject: Tin Cup Dam Repairs

Pete - Here's the first message that I sent regarding Tin Cup Repairs this season.

Terri Anderson
Civil Engineer
406-363-7112

----- Forwarded by Terri L Anderson/R1/USDAFS on 09/30/2003 01:34 PM -----

Dan Ritter To: Terri L Anderson/R1/USDAFS@FSNOTES
09/30/2003 10:45 AM cc:
Subject: Tin Cup Dam Repairs

Dan Ritter
Acting District Ranger
Darby Ranger District
Bitterroot National Forest
406-821-4244

----- Forwarded by Dan Ritter/R1/USDAFS on 09/30/2003 10:44 AM -----

Terri L Anderson To: Traute Parrie/R1/USDAFS@FSNOTES, Dave T
09/20/2003 05:26 PM Bull/R1/USDAFS@FSNOTES, Dan Ritter/R1/USDAFS@FSNOTES
cc: Tom A Pettigrew/R1/USDAFS@FSNOTES, Marcia
Hughey/R1/USDAFS@FSNOTES, Stephen
Romero/R1/USDAFS@FSNOTES, Marty
Almquist/R1/USDAFS@FSNOTES, Mary H
Williams/R1/USDAFS@FSNOTES, Terri L
Anderson/R1/USDAFS@FSNOTES
Subject: Tin Cup Dam Repairs

I've attached a couple photos of the construction of the berm in the breached section. When I left on Friday afternoon (9/19/03), the berm was completed to within 2 feet of the required elevation at 6294. The progress is going well - by tomorrow (9/21/03), the work crew is expected to start the installation of the impermeable liner, which will be keyed into the cutoff trench on the upstream side of the berm. This will be followed by additional compacted material overlaying the liner, a layer of filter fabric, then riprap. The work is expected to be completed by the mid to latter part of this next week.

The sinkhole area had already been backfilled when I arrived on Thursday (9/18). Bob Doleman and crew claimed that the sink hole was over 4 feet in diameter by 4 feet deep where the breach had been overtopped (along south and downstream side of the breach). I asked if there had been any evidence of lateral or upstream piping- and they said "no" and that the flow appeared to erode the original fill material downstream towards the outlet works under the buttress rock. The crew took photos of this area and will make them available to us.

On Friday, 9/21, Tex Marsolek and Terry Forrest (TCCWSD engineer) arrived by helicopter to deliver the liner material and run compaction tests on the berm. (I denied an offer for an unauthorized helicopter ride out and, instead, chose to walk out because of our requirements for aircraft use. Dean Bitterman confirmed my decision - however, the construction crew questioned my sanity). Terry completed density tests at various locations within the berm and the native materials of the dam embankment. I believe densities were calculated using the Proctor curves that the Bureau of Reclamation generated in 1998. Terry also took samples and plans to run additional Proctor curves for materials sampled. Based on this preliminary information and field observations, it appears that compaction was achieved to acceptable levels. Terry Forrest provided direction to the crew on the remaining work, including the installation of the

liner. He plans to return to the site early next week.

I advised Terry Forrest and crew to complete As-Builts with field reference points so that the location of the liner can be determined in the future. They agreed and plan to do this.

Steve Romero and I plan on hiking in on Sunday to check out the installation of the liner. Mary Williams also plans to hike in Monday to locate the archeological site previously discovered along the original lake shore. This information is needed to determine if the log boom anchor in front of the spillway can be installed this fall without disturbing the archeological site. I'll be back in the office on 9/24 if you have any questions. Marty Almquist was planning on hiking out today.

Terri Anderson
Civil Engineer
406-363-7112



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09/18/2003



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