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MISSOURI STATE HIGHWAY PATROL
REPORT OF INVESTIGATION

STATE CONTROL NO.: 05 362 024 041
REPORTING OFFICER: SERGEANT W. W. WIEDEMANN 0696
OCC TYPE: TAUM SAUK RESERVOIR BREACH
COUNTY: REYNOLDS
DATE/TIME: DECEMBER 14, 2005
OFFENSE STATUS: INVESTIGATION CONTINUING
LOCATION: LESTERVILLE
REPORT DATE: 02/02/06
TROOP OF OCCURRENCE: G
SCENE PROCESSED: N
DDCC AT SCENE: N

DETAILS OF INVESTIGATION

INTERVIEW WITH JAMES L. ALEXANDER

1. On February 2, 2006, I was in Jefferson City continuing the investigation into the failure of the Taum Sauk reservoir. During this investigation, I interviewed James L. Alexander, date of birth [REDACTED], Rolla, Missouri, and telephone number [REDACTED].

2. On February 2, 2006, at 1350 hours, I interviewed James L. Alexander at the Department of Natural Resources office in Jefferson City. Alexander advised he had prepared a Powerpoint presentation on the failure of the Taum Sauk Reservoir. Mr. Alexander showed me the presentation on his laptop. Mr. Alexander also gave me a copy of the power-point on CD. This CD was later given to Sergeant Tom Breen. The power-point showed pictures of Taum Sauk prior to the breach and after. This included pictures showing erosion around the upper parapet wall.

3. Mr. Alexander explained he had gone to the Taum Sauk reservoir on December 29, 2005. This had been a meeting with FERC Officials from Atlanta; Chicago; and Washington DC; Regional offices, Ameren UE officials from Taum Sauk, Bagnell Dam, and St. Louis offices; the Public Service Commission and consulting engineers retained by FERC officials. Following this meeting, Mr. Alexander prepared a Department Memorandum concerning the information obtained. Mr. Alexander provided me with a copy of this memorandum (see attached).

4. This investigation is continuing.

W. W. Wiedemann, Sergeant
Division of Drug and Crime Control

WWW:1mm

Staff- Exhibit No. 2
Date 7/24/07 Case No. ES-2007-0474
Reporter MV

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WITNESS NAME: ALEXANDER, JAMES L.
ADDRESS: [REDACTED]
DOB: [REDACTED]
PHYSICAL DESC: SEX: RACE:
PHONE NUMBER: HOME WORK [REDACTED]
RELATED REPORT: 12140500093



Matt Blunt, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

MEMORANDUM

Date: January 19, 2006
To: Mike Wells
From: Jim Alexander
Subject: Taum Sauk Observations

I have listed my chronological order of events with regard to visits to Taum Sauk Reservoir below.

December 14, 2005 - I received a phone call at home around 7:30 AM from Mimi Garstang advising me of the failure of the Taum Sauk Upper Reservoir. She had been contacted by EER Hotline earlier that morning and was passing the information on. She asked me to call Alan Rinkemeyer to discuss emergency response efforts. In discussions with Mr. Rinkemeyer, I agreed to dispatch three engineers from the Water Resources Center - Dam Safety Program to the site immediately (Lloyd, Simon, and James).

December 29, 2005 - A site visit was made to Taum Sauk facility to attend a briefing on the failure of the reservoir on Dec. 14, 2005. Paul Simon and I made the trip and attended a meeting with FERC Officials from the Atlanta, Chicago and Washington DC regional offices; AmerenUE officials from Taum Sauk, Bagnell Dam and St. Louis offices; the Public Service Commission; and consulting engineers retained by FERC to investigate the failure (I have a roster of those attending that meeting if needed). The following items were discussed at that meeting that I thought might be of importance:

- AmerenUE officials went over the standard operating procedures for the facility. They explained the equipment used to determine the lake level during the filling of the upper reservoir and how each system worked. They later explained that it was the human error and the malfunction of this equipment that led to the overtopping that caused the failure of the upper reservoir.
- Several elevations were specified as being important. The designed reservoir rim elevation was at elevation 1600. Over the years, portions of the reservoir rim settled creating a low point on the rim of the reservoir at elevation 1597. The maximum water level allowed in the upper reservoir was elevation 1596.
- The first set of instruments that were used to determine the reservoir elevation during the pump back operation consisted of a set of piezometers that were set to turn the pumps off when specific reservoir elevations were achieved. During the pump back process, the turbines used to create hydropower were reversed and



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used as pumps. When the water level in the upper reservoir reached elevation 1592 the first pump was shut off automatically. The second pump was then shut off when the reservoir reached elevation 1596. AmerenUE was vague about what caused these piezometers to malfunction but did indicate it had something to do with their installation and the ends of the piezometers either being damaged or not being at the right elevation.

- The piezometers had been removed from the reservoir and on December 29th were lying on a table in the powerhouse. This was unusual in that this rendered any evaluation of them in place more difficult. It could also easily result in this instrumentation being thrown away or tampered with by someone not realizing its significance. They were not marked in any way to identify them nor were there instructions to make sure they were saved.
- A second set of instruments served as a backup to the piezometers. These instruments were supposed to be set at an elevation that would result in the pumps being shut down prior to the reservoir rim being overtopped. Statements were made by AmerenUE staff that this set of instruments appeared to have been improperly set at the wrong elevation. They commented that the instruments may have been set at an elevation that was higher than the minimum top of wall elevation. While the equipment would have done their job if they had been at the right elevation, the incorrect settings allowed the reservoir rim to overtop and the water level never reached the instruments. Ameren staff also commented that the elevations of the instruments had not been changed and had likely been at this same elevation since they were originally installed. This means that the backup instruments had not been functional since they were installed.
- At the end of the meeting, I asked AmerenUE if they knew how many times the reservoir rim had been overtopped prior to Dec. 14th. Both Warren Witt and Mark Birk, who were leading the discussion at the time, were speechless for several seconds. Finally, Warren Witt stated that he personally was not aware of the reservoir rim ever having been overtopped. Mark Birk then added that he was also unaware of the reservoir rim ever having been overtopped. He did add however, that high winds did occasionally cause waves high enough to spill over the sides when the reservoir was full.
- Once the briefing had concluded, the entire group was taken to the upper reservoir to view the breach section. After having viewed the various portions of the embankment that had suffered erosion damage, I asked if all of this erosion damage had occurred the morning of December 14th. Both Warren Witt and Mark Birk agreed that it had. I then asked why there were no signs of this having occurred on the road at the base of the embankment. In my opinion, based on the extensive amount of material that had been removed from the embankment as a result of erosion and the high flows required to create this much erosion, some of the eroded material should have been on the road we were driving on and the road should have experienced erosion damage. Instead, the roadway was perfectly clear with no erosion damage. Mark Birk commented that a few basketball sized rocks had been picked up by hand and thrown off the road but the drainage ditch running alongside the roadway had caught the water and debris and prevented it

from coming onto the roadway. I looked at the ditch and it was partially clogged with some of the debris. However, the debris stopped short of the roadway. In my opinion, the ditch was not big enough to have intercepted the amount of water required to have created the extensive erosion damage that had occurred on the embankment immediately above the area we were observing. The more likely scenario would be that the bulk of the overtopping required to create the erosion damage found on the embankment in a number of locations on the morning of Dec. 14th, occurred prior to Dec. 14th and the material that washed onto the roadway around the base of the embankment had been cleared. This would be evidence that prior overtopping had occurred.

I have accompanied FERC on at least 1 or 2 of their inspections over the years. These inspections involved a considerable amount of time being spent in the powerhouse reviewing paperwork, some time spent at the lower dam looking it over, and a quick trip to the upper reservoir that consisted of little more than climbing up onto the observation platform and looking out over the lake. While in my presence, FERC officials have never paid any attention to the instrumentation in the upper reservoir in an effort to see if they were performing properly.