

80035 NEECH

CRUISE REPORT

NEECHO - St. Louis U.S. Army Engineer District
by
G. B. Tirey

Vessel: R/V NEECHO
Cruise Number: 80-3
Project: Fault study - Mississippi River in vicinity of Alton, Illinois -- Lock and Dam No. 26.
Location: Mississippi River miles 195 - 211, in vicinity Lock and Dam No. 26 and miles 242-245 in vicinity of Lock and Dam No. 25
Dates: 11-16 December 1980
Ports: Portage des Sioux, Missouri

Scientific Crew:

Rusty Tirey - Chief Scientist
Dave Nichols - DSF5 Technician
Frank Jennings - Electronics Technician
Paul Loud - Boat Operator

Cruise Objective:

To determine whether or not a fault suspected of existing in the vicinity of Lock and Dam No. 26 could be detected and delineated with the use of a high resolution multichannel CDP seismic reflection system.

Geophysical Equipment:

- A. Hydrophones
 - 12-channel USGS Fairfield Industries 120 m streamer
 - Single channel - 20 element USGS Innerspace streamer
- B. Sources
 - 40 in³ Bolt airgun
 - 14 in³ MICA T SSI watergun
- C. DSF5
 - Fairfield Depth Indicator Pannel
 - DFS5 control module
 - DFS5 analog module
 - 2 Lamda regulated power supplies
 - 2 DFS5 Texas Instruments 9T tape drives
 - Mountain Systems extended header interface box
 - SIE, Inc. Oscillograph Model R-10A
 - BNC Model 7010 Digital delay generator
 - EPC Model 3200 graphic recorder
 - Innerspace Technology, Inc. filter-preamplifier

D. Echo Sounder

Raytheon 719B portable survey echo sounder

Navigation:

Visual sights and radar ranges on known shore objects.

Total Survey Days: 5

12 December to 16 December, 1980

Abbreviated Chronological Log:

10 December 1980: NEECHO transported by tractor trailer from Rend Lake, Illinois, to Venetian Harbor Marina at Portage des Sioux, Missouri.

11 December 1980 - 0800-1600: NEECHO was removed from trailer and set up for surveying.

12 December 1980 - 0730-1700: Day spent surveying between mile 211 and Lock and Dam No. 26. Changed from watergun to airgun because of problems with watergun.

13 December 1980 - 0730-1900: Steamed up to Lock and Dam No. 25. Locked through dam about 11:30. Surveyed until 1600 and locked back through the dam. Tied up at Venetian Harbor at 1900.

14 December 1980 - 0800-1800: Made repairs and fueled the NEECHO until 1030. We worked above Lock and Dam No. 26 all day. Alternated between watergun and airgun.

15 December 1980 - 0800-1700: Locked through Dam No. 26 at 0900 and worked between dam and mile 195 until 1530. Locked back through the dam at 1545.

16 December 1980 - 0800-1700: Surveyed above Lock and Dam No. 26 all morning. Back at the Venetian Marine about noon. Afternoon spent lifting the NEECHO out of the water, placing it on the trailer, and preparing for hauling over the road.

17 December 1980 - 0800-1700: Crew traveled back to Woods Hole.

Comments:

I. Scientific Objective: There were not any faults observed on any of the monitor records made during this survey. Penetration on the monitor records was in general limited to approximately 100 to 150 milliseconds of two-way travel time. Strong side reflections from the river banks up to 1.0 second of two-way travel time were recorded on the monitor record. As of this date, the multichannel digital data recorded on the magnetic tapes have not been processed.

- II. Equipment Performance: Considerable difficulty was experienced with the 14 in³ SSI watergun and as a result, the 40 in³ Bolt airgun was used for most of the survey. The difficulty with the water gun was attributed to icing of the gun because of cold temperatures and to the silty, dirty river water. On the whole, the remainder of the equipment operated satisfactorily.
- III. Operations: The operations went extremely well with a minimum of delay due to weather, equipment failure, or delays at the locks. The Venetian Harbor Marina was an excellent operating port, and the personnel at the marina were very cooperative.