CENWK-EC-HH 7 June 2002

MEMORANDUM TO CO-R

SUBJECT: Monitoring Program for Regulatory Plan for Commercial Dredging Activities on the Kansas River

1. The purpose of this memorandum is to document the changes in the Kansas River as described in the Regulatory Plan for Commercial Dredging Activities on the Kansas River, Appendix A. The baseline data was collected in 1992 and the most recent data was collected in 2001. The plot of the Kansas River average bed profile is enclosed.

2. The following table shows the five-mile-long reaches where the average reduction in riverbed elevation is 0.7 feet or greater. The reduction for the reach was calculated by averaging the difference between 1992 and 2001 riverbed elevations for the reach. According to the Regulatory Plan for Commercial Dredging Activities on the Kansas River, "If riverbed elevations in a 5-mile-long reach of river approach 2 feet of degradation, dredging activities which adversely affect in that reach will be altered or terminated before unacceptable impacts occur. Further, if the average reduction of riverbed elevations in a 5-mile-long reach of river attains 2 feet (regardless of cause), dredging activities which adversely affect bed elevations in that reach will be terminated."

| **Five-mile-long reaches whose average reduction, 1992 to 2001, in riverbed elevation is 0.7 feet or greater** | | | | |
|---|---|---|---|---|
| **Reach, river mileage** | **Reach Length, miles** | **Average reduction, ft** | **Dredger** | **Dredging Boundaries, River mileage** |
| 9.4 – 14.7 | 5.3 | 0.8 | Kaw Valley Sand and Gravel | 9.4 – 10.4 |
| | | | Kaw Valley Sand and Gravel | 12.8 – 13.9 |
| 21.1-26.1 | 5.0 | 1.1 | Holliday Sand and Gravel | 21.0 – 21.15 |
| 25.95 – 30.95 | 5.0 | 2.1 | Kaw Sand | 26.1 – 27.6 |
| | | | Holliday Sand and Gravel | 29.2-30.2 |
| 29.3 – 34.4 | 5.1 | 2.7 | Holliday Sand and Gravel | 29.2-30.2 |
| | | | Holliday Sand and Gravel | 31.1-31.9 |
| 34.4 – 40.5 | 6.1 | 2.1 | Kaw Sand | 35.4 – 36.4 |
| 37.5 – 42.9 | 5.4 | 0.8 | Kaw Sand | 42.6 – 44.1 |
| 45.5 – 50.6 | 5.1 | 0.9 | Penny's Concrete | 45.2 – 46.7 |
| | | | Kaw Sand | 47.1 - 48 |
| | | | Penny's Concrete | 49.6 – 51.35 |
| 84.8 – 90.2 | 5.4 | 0.7 | Kansas Sand | 84.5 – 85.8 |
| | | | Holliday Sand and Gravel | 86.3 – 86.5 |
| | | | Meirs Ready Mix | 90.1 – 91.6 |
| 86.0 – 91.1 | 5.1 | 0.9 | Holliday Sand and Gravel | 86.3 – 86.5 |
| | | | Meirs Ready Mix | 90.1 – 91.6 |

3. Below is a table showing the average riverbed lowering greater than five feet at individual cross sections. Monitoring of these holes should continue.

| **Individual cross sections where a decrease from 1992 to 2001, in the average bed elevation, is greater than five feet** | | | |
|---|---|---|---|
| **River mile** | **Decrease, feet** | **Dredgers** | **Dredging Boundaries, River mileage** |
| 12.8 | 8.1 | Kaw Valley Sand and Gravel | 12.8 - 13.9 |
| 26.1 | 6.5 | Kaw Sand | 26.1 - 27.6 |
| 86.8 | 5.7 | None | Not Applicable |

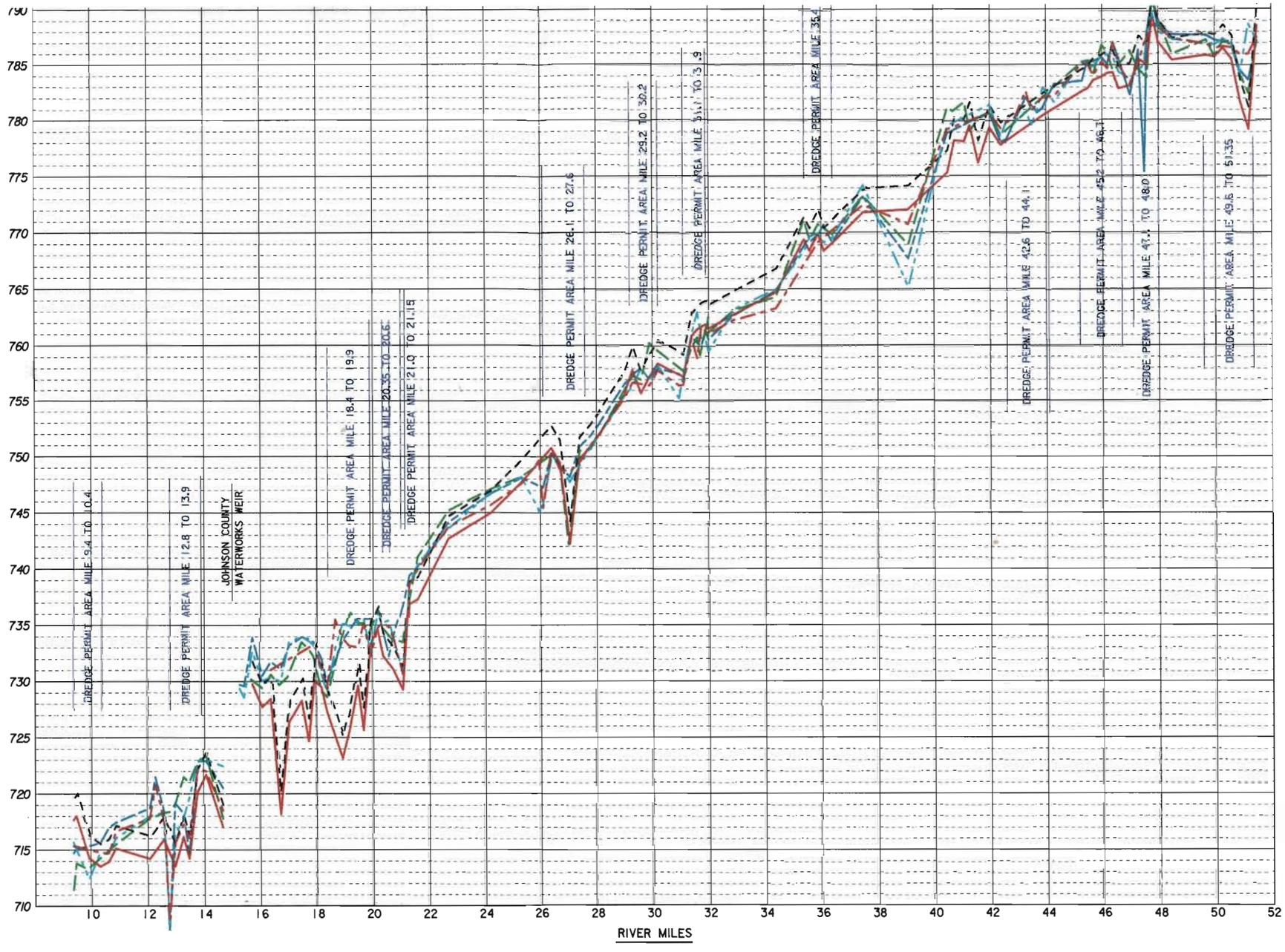
4. The Bowersock Dam is located at river mile 51.8. The structure is believed to be relatively unstable according to the Regulatory Plan for Commercial Dredging Activities on the Kansas River. The regulatory plan does not give an allowable amount of riverbed lowering downstream of the dam. The average bed lowering from 1992 to 2001 is 3.1 feet at the first survey range downstream of the dam at river mile 51.5. The regulatory plan states that reach of river located immediately downstream of the dam will be closely monitored, and if dredging activities on the river appear to be jeopardizing the integrity of the structure, additional restrictions will be imposed. A field inspection is necessary to make any valuation. Operations should notify the Kansas Water Office, Douglas County, and city of Lawrence of the bed lowering. The Corps along with the local officials may want to determine the maximum allowable bed lowering downstream of Bowersock Dam.

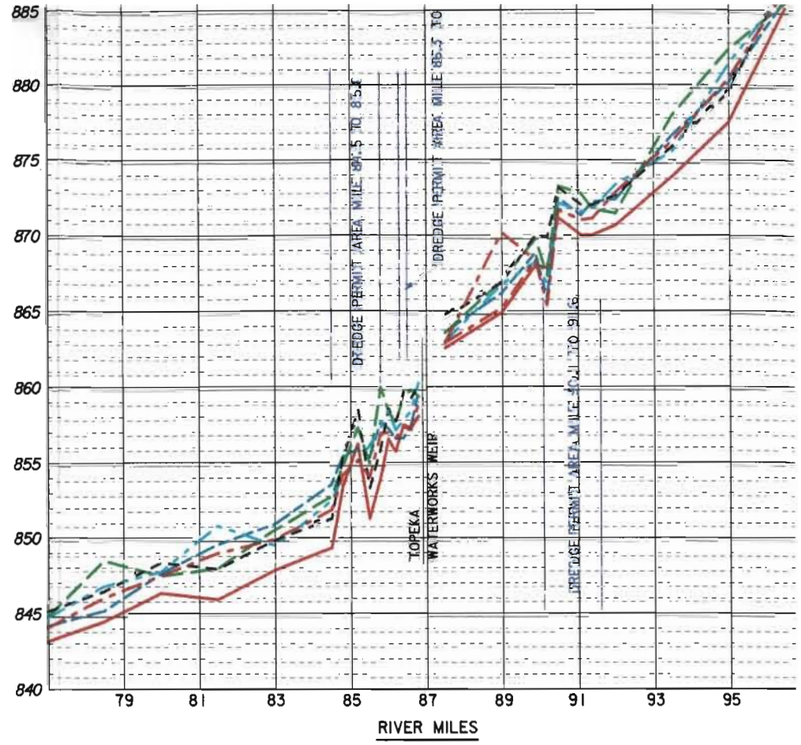
5. The city of Topeka has 2 water intake structures, 2 diversion jetties, and a weir located between river miles 86.9 and 87.2. The average bed lowering from 1992 to 2001 is 5.7 and 2.1 feet at the first two survey ranges downstream of the weir at river mile 86.8 and 86.6, respectively. The Kansas Water Office and the City of Topeka should be notified of the bed lowering. Operations should inquire of the local officials what level of bed lowering downstream of their structures will impact their operations.

Michael J. Bart

Enclosure

MICHAEL J. BART
Chief, Hydrologic Engineering Branch




| | |
|---|---|
| TURNER BRIDGE | MILE 9.3 |
| J.C.W.D. NO. 1 WEIR | MILE 15.0 |
| I-435 BRIDGE | MILE 15.6 |
| K-7 BRIDGE | MILE 20.2 |
| DESOTO BRIDGE | MILE 31.0 |
| EUDORA BRIDGE | MILE 42.5 |
| BOWERSOCK DAM | MILE 51.8 |
| SARDOU AVE BRIDGE | MILE 83.0 |
| U.P. R.R. BRIDGE | MILE 83.7 |
| KANSAS AVE BRIDGE | MILE 84.1 |
| TOPEKA AVE BRIDGE | MILE 84.5 |
| TOPEKA WATERWORKS WEIR | MILE 86.9 |
| 75 HWY | MILE 87.8 |

**LEGEND**

- 1992 MEAN BED BASELINE EL.
- 1992 MEAN BED BASELINE EL. (MINUS 2 FEET)
- 1995 MEAN BED EL.
- 1997 MEAN BED EL.
- 1999 MEAN BED EL.
- 2001 MEAN BED EL.

| Revisions | |
|---|---|
| Symbol | Descriptions |
| | |
| | |
| | |

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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Drawn by: E.E.R.

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US Army Corps of Engineers

KANSAS RI
COMMERCIAL DI

REGULATORY MONITORING
MEAN BED PROFI