

9-275-I
REV (10-01)

U.S. DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division
Acoustic Profiler Discharge Measurement Notes

Meas. No. 1
Processed by CBZ
Ck'd by KMH

Sta. No. _____
Sta. Name Mississippi Rr US U.S. 60/62 Bridge
Date 09/09 20 11 Party CBR/KMH
Width 4830 Area 170,000 Vel. 3.42 G.H. — Disch. 581713
Profiler Water Temp 16.97 °C at 1609 Rated area: — Index Velocity —
Profiler S/N 11170 Mfr: RDI Freq. 400 Firmware: 0.16 Software Ver. 7.02

Depth Cell Size	<u>1.64</u>	Other commands:
No. of Cells	<u>56</u>	
Blanking Distance	<u>0.82</u>	
Water Mode	<u>12</u>	
Ambiguity Vel.		
Water pings	<u>1</u>	
Bottom pings	<u>1</u>	

Profiler Depth 0.42
Config. file _____
Deployment tether
Moving Bed —
Moving Bed Present: Y N
Diag. Test ADCP TEST
Diag. Test Errors: (Y) N

Boat/Motor Used 513 ADCP Time to WT ☐ @ _____ GPS: VRG
Mag. Var. 1) -1.4 2) _____ 3) _____ 4) _____ Avg: _____ Comp. Cal.: 0.8

GAGE READINGS					
Time				Inside	Outside
<u>1615</u>	<u>START</u>				
<u>1750</u>	<u>END</u>				
	<u>Max V = 15.4</u>				
	<u>Max D = 74.8</u>				
Weighed MGH					
GH correction					
Correct MGH					

Samples collected: water quality, sediment, biological, other: —

Measurements documented on other sheets: water quality, aux/base gage, other: _____

Rain gage serviced/calibrated _____

Weather clear, hot

Wind Spd. — Dir. —

Air Temp 16.2 °C at 1609

Water Temp 16.2 °C at 1609

Specific Cond: —

Checkbar/chain found —

Changed to — at —

Correct —

Wading, cable, ice, boat, upstr., downstr., side bridge, _____ ft., mi. upstr., downstr. of gage.

Measurement rated: excellent (2%), good (5%), fair (8%), poor (>8%) based on following conditions:

Flow: uneven, turbulent, GPS/VRG Resolution Poor

Cross section: low bridge abutment R/W fence

Control: —

Gage operating: — Record removed: Y or N Filename: —

Battery voltage: — Intakes/Orifice cleaned/purged: —

Bubble-gage psi: Tank —, Line —; Bubble rate — /min.

Extreme-GH indicators: max —, min —

CSG checked: — HWM height on stick — Ref elev — HWM elev —

Remarks: VRG Reference, 50-200 vs of US 60 Bridge

GH of zero flow = GH — - depth at control — = — ft, rated —

[illegible]

Notes: Transect 000 7.7% ΔQ due to barge traffic.

COMPUTATION NOTES

Beginning		Ending		Discharge					
Ensemble number	Distance added	Ensemble number	Distance added	Estimated	Measured	Estimated			Total
				Top	Middle	Bottom	Left	Right	
ting on barge to pass. Ens # 1700 passed thru tree line									
Mean					Mean				
Estimation Top _____							Range (max-min)÷Mean (%) : _____		
Method Bottom _____				Power Law Exponent: _____			Measured Q as percent of total _____		

Station Number: Mississippi_US_60_Bridge
Station Name: Mississippi_Rr_before_Confluence

Meas. No: 1
Date: 05/09/2011

Party: CBR/KMH	Width: 4,830 ft	Processed by: CBR
Boat/Motor: 513	Area: 170,000 ft²	Mean Velocity: 3.42 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 582,000 ft³/s

Area Method: Avg. Course	ADCP Depth: 0.420 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: P
MagVar Method: Model (-1.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft²	Diff.: 0.000%
Depth Sounder: 0.000 ft	Top Est: Power (0.1667)	Control1: Unspecified	
		Control2: Unspecified	
		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 15.4 ft/s	Type/Freq.: Rio Grande/600 kHz
WT 3-Beam Solution: NO	Max. Depth: 74.8 ft	Serial #: 11170 Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Mean Depth: 35.3 ft	Bin Size: 50 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	% Meas.: 85.40	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	Water Temp.: 16.2 °C	WT Mode: 12 WT Pings: 1
WT Up Vel.: 6.00 ft/s	ADCP Temp.: 16.4 °C	WV : 175 WO : 1, 13
Use Weighted Mean Depth: YES		

Performed Diag. Test: YES
Performed Moving Bed Test: NO
Performed Compass Test: YES
Meas. Location: US of US 60 Bridge 20' - 500'

Project Name: Mississippi_US_60_bridge_1.r
Software: 2.07

Tr.#	Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad			
	L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins		
000	L	80	100	1992	39574	531709	53563	1137	946	626929	4898	169545	16:16	16:40	3.86	3.70	0	4	
001	R	100	80	1776	35977	477234	42697	1114	1244	558266	4929	174227	16:41	17:02	4.28	3.21	1	2	
002	L	100	100	2177	34532	489182	48115	1286	1063	574179	4758	167106	17:02	17:29	3.48	3.44	1	4	
003	R	80	100	1784	34753	488958	42345	825	598	567478	4736	170720	17:29	17:50	3.99	3.32	1	2	
Mean		90	95	1932	36209	496771	46680	1090	963	581713	4830	170399	Total	01:34	3.90	3.42	1	3	
SDev		12	10	191	2332	23951	5294	193	272	30842	97.2	2962.4				0.33	0.21		
SD/M		0.13	0.11	0.10	0.06	0.05	0.11	0.18	0.28	0.05	0.02	0.02				0.09	0.06		

Remarks: VTG Reference.

Transect 000 7.7% ΔQ due to barge Traffic

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: CBR/KMH	Width: 2,210 ft	Processed by:
Boat/Motor: 513	Area: 138,000 ft ²	Mean Velocity: 3.79 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 523,000 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.420 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: Model (-1.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: 0.000 ft	Top Est: Power (0.1667)	Control1: Unspecified	
		Control2: Unspecified	
		Control3: Unspecified	

Screening Thresholds:		ADCP:	
BT 3-Beam Solution: YES	Max. Vel.: 15.4 ft/s	Type/Freq.: Rio Grande / 600 kHz	
WT 3-Beam Solution: NO	Max. Depth: 74.8 ft	Serial #: 11170	Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Mean Depth: 62.6 ft	Bin Size: 50 cm	Blank: 25 cm
WT Error Vel.: 3.50 ft/s	% Meas.: 87.97	BT Mode: 5	BT Pings: 1
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12	WT Pings: 1
WT Up Vel.: 6.00 ft/s	ADCP Temp.: 61.1 °F	WV : 175	WO : 1, 13
Use Weighted Mean Depth: YES			

Performed Diag. Test: YES
 Performed Moving Bed Test: NO
 Performed Compass Test: YES
 Meas. Location: US of US 60 Bridge

Project Name: Mississippi_US_60_bridge_1_M
 Software: 2.08

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins	
000	L	0	0	950	27752	486572	43902	0.000	0.000	558226	2169	132893	16:23	16:34	3.72	4.20	1	4	#
001	R	0	0	561	22944	430299	31452	0.000	0.000	484695	2163	137678	16:47	16:54	5.59	3.52	0	1	#
002	L	0	0	975	24999	459084	40107	0.000	0.000	524190	2173	135654	17:10	17:22	3.33	3.86	2	4	#
003	R	0	0	594	25695	463708	34758	0.000	0.000	524162	2321	146650	17:36	17:43	5.53	3.57	0	1	#
Mean		0	0	770	25347	459916	37555	0.000	0.000	522818	2207	138219	Total	01:20	4.54	3.79	1	2	
SDev		0	0	223	1983	23114	5534	0.000	0.000	30060	76.7	5953.3				1.19	0.31		
SD/M		0.00	0.00	0.29	0.08	0.05	0.15	0.00	0.00	0.06	0.03	0.04				0.26	0.08		

Remarks: This mmt subsectioned by TAK on 2/16/12 to determine main channel vs overflow for the purpose of estimating overflow on other dates.
 Endpoints close to tree lines chosen for subsection using 0 ft edges.
 Overflow computed as OVERFLOW = TOTAL - MAIN.

- transect has been subsectioned

Discharge for transects in *italics* have a total Q more than 5% from the mean