

9-275-1	07/08/09	U.S. DEPARTMENT OF THE INTERIOR U.S. Geological Survey				Meas. No.	
Station Number						Processed by	
		ADCP Discharge Measurement Notes				Checked by	
Station Name		Ohio R. at Cairo / w/ Kentucky waterfalls					
Date		May 27, 2011		Party		REBroun / GTloodin	
Width	Area / Rated Area	Velocity	Index	Gage Height	Discharge		
					638,100		
Gage Height Change		Meas. plots	From rating	Indicated Shift	ADCP Sync'd to WT		
in hrs.		% diff	No.:		Y at _____ or N		
ADCP Mfr / Model / Frequency			Serial No.	Firmware	Software		
Lockite Rio			8706	1.16	2.05		
Boat/Motors Used		GPS Used	ADCP Depth	Diag. Test / Errors?			
Sungumay		Yes	1.50	<input checked="" type="checkbox"/> Y or (N)			
Compass Calib. & Total Error		Mag. Var	MagVar Method		Moving Bed?		
(Y) or N		-1.00	On-site Model Previous		Y or N		
Meas. Water Temp		ADCP Water Temp	Weather / Air Temp		Wind Speed / Dir.		
°F / C at		°F / C at	°F / C				
Gage Readings					Site Conditions		
Time	Start End	Primary reference			Max Water Depth		
0944	(S)				Max Water Speed		
					Max Boat Speed		
					Water Mode		
					Bottom Mode		
					Streambed material		
1136	(E)				Salinity		
					ppt at		
Weighted MGH					Checkbar found		
GH corrections					Checkbar changed to:		
Correct MGH					at		
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	Main channel measured up of st bridge, measured 3						
Cross section:	averaging bridges 85						
Control:							
Gage operating:	Y or N	Record removed:	Y or N	Filename:			
Battery voltage	V	Intakes/Orifice cleaned/purged:					
Bubble-gage psi:	Tank	Line	Bubble rate	/ min			
Extreme-GH indicators:	Max	Min	CSG Checked	Y or N			
HWM on stick	Ref elev.	HWM elevation					
GH of zero flow = GH	- depth at control	=	ft, Uncertainty	±			
Sheet No.				of	sheets		

Acoustic Profiler Discharge Measurement Notes							Filename Prefix:
Left Bank:	Sloping Vertical Other: _____					Right Bank:	Sloping Vertical Other: _____
Transect No.	Starting			Ending		Total Discharge	Notes
	Bank	Time	Distance	Distance	Time		
000	(L) R	0944	1000	730		592000	
001	L (R)	0953	730	1000		593000	had to drive under the bridge to avoid bridge - bad GPS data
003	(L) R		1000	730		592000	left (S) Dist = 1000 ens = 540
004	L (R)		730	1000		592000	subsectioned loop right Dist = 730 ens = 1205
							left Dist = 1000 ens =
002	L R	Aborted					" " "
* use chio - R - at - Cairo - main - channel - final. mmt							
chio - R	L R	Cairo - Kentucky - overflows					
000	L (R)	1033	30	44	1036	3660	1st overflow bridge DS of S1
001	(L) R	1036	45	35	1039	3640	Q = 3650 (VTG)
002	L (R)	1032	40	60	1035	4830	1st overflow bridge DS of S1
003	(L) R	1035	60	35	1057	4810	Q = 4830 (VTG)
004	L (R)	1122	76	46	1128	37400	2nd overflow bridge DS of S1
005	(L) R	1128	46	75	1136	37700	Q = 37100 (BT) loop shows no moving bed
	L R						loop is for 2nd overflow DS of S1
Notes	(stopped first loop b/c of large use loop - 004 - LBT for main channel) main channel total = 592,000						- GPS data didn't look good Overflow Total = 46,100 Mtime = 1100 CST

Party: REB/GEG	Width: 4,580 ft	Processed by: REB
Boat/Motor:	Area: 172,000 ft <sup>2</sup>	Mean Velocity: 3.44 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 592,000 ft <sup>3</sup> /s

Area Method: Avg. Course	ADCP Depth: 1.500 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (-1.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft <sup>2</sup>	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
		Control2: Unspecified	
		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 8.37 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 85.7 ft	Serial #:                      Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Mean Depth: 37.6 ft	Bin Size: 13 cm              Blank: 25 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 84.49	BT Mode: 5                      BT Pings: 1
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12                      WT Pings: 1
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 19.1 °C	WV : 170                      WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO  
 Performed Moving Bed Test: NO  
 Performed Compass Test: NO  
 Meas. Location:

Project Name: ohio\_r\_at\_cairo\_main\_channel  
 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	1000	730	910	41199	496972	49728	1431	2172	591503	4564	170262	09:44	09:55	4.39	3.47	5	2
001	R	1000	730	579	40414	501544	46045	3085	1525	592613	4562	173813	09:55	10:02	6.71	3.41	0	2
003	L	1000	750	674	41058	500695	46164	1990	2190	592097	4580	172284	10:09	10:18	5.71	3.44	0	2
004	R	1000	750	629	41634	502531	44954	1854	2076	593050	4606	171750	10:18	10:26	6.14	3.45	0	2
<b>Mean</b>		1000	740	698	41076	500436	46723	2090	1991	592316	4578	172028	<b>Total</b>	00:42	5.74	3.44	1	2
<b>SDev</b>		0	12	147	505	2428	2076	705	315	667	20.0	1466.1			0.99	0.03		
<b>SD/M</b>		0.00	0.02	0.21	0.01	0.00	0.04	0.34	0.16	0.00	0.00	0.01			0.17	0.01		

Remarks:

Party: REB/GEG	Width: 631 ft	Processed by:	partial overflow
Boat/Motor:	Area: 5,810 ft <sup>2</sup>	Mean Velocity: 0.627 ft/s	
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,650 ft <sup>3</sup> /s	

Area Method: Avg. Course	ADCP Depth: 1.500 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: None (-1.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft <sup>2</sup>	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
		Control2: Unspecified	
		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 11.6 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 13.4 ft	Serial #: 8708      Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Mean Depth: 9.21 ft	Bin Size: 13 cm      Blank: 25 cm
WT Error Vel.: 3.50 ft/s	% Meas.: 38.89	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.: 5.00 ft/s	ADCP Temp.: 20.2 °C	WV : 175      WO : 1, 6
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO  
 Performed Moving Bed Test: YES  
 Performed Compass Test: YES  
 Meas. Location:

Project Name: Ohio\_R\_Cairo\_Kentucky\_Overf  
 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	R	44	30	207	1466	1425	629	158	-20.3	3658	628	5823	10:33	10:36	3.70	0.63	0	50
001	L	45	35	255	1407	1411	652	248	-81.9	3636	633	5796	10:36	10:39	3.05	0.63	2	48
<b>Mean</b>		44	33	231	1437	1418	641	203	-51.1	3647	631	5810	<b>Total</b>	00:05	3.38	0.63	1	49
<b>SDev</b>		1	4	34	41.5	10.1	16.2	63.5	43.6	15.6	3.7	19.2			0.46	0.00		
<b>SD/M</b>		0.02	0.11	0.15	0.03	0.01	0.03	0.31	0.85	0.00	0.01	0.00			0.14	0.00		

Remarks:

Party: REB/GEG	Width: 518 ft	Processed by:
Boat/Motor:	Area: 6,580 ft <sup>2</sup>	Mean Velocity: 0.733 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,830 ft <sup>3</sup> /s

partial  
overflow

Area Method: Avg. Course	ADCP Depth: 1.500 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: None (-1.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft <sup>2</sup>	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
		Control2: Unspecified	
		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 14.5 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 22.5 ft	Serial #: 8708
BT Error Vel.: 0.33 ft/s	Mean Depth: 12.7 ft	Firmware: 10.16
WT Error Vel.: 3.50 ft/s	% Meas.: 48.59	Bin Size: 13 cm
BT Up Vel.: 1.00 ft/s	Water Temp.: None	Blank: 25 cm
WT Up Vel.: 5.00 ft/s	ADCP Temp.: 20.3 °C	BT Mode: 5
Use Weighted Mean Depth: YES		BT Pings: 1
		WT Mode: 12
		WT Pings: 1
		WV : 175
		WO : 1, 6

Performed Diag. Test: NO  
 Performed Moving Bed Test: YES  
 Performed Compass Test: YES  
 Meas. Location:

Project Name: Ohio\_R\_Cairo\_Kentucky\_Overf  
 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
002	R	60	40	188	1315	2444	735	241	111	4846	510	6523	10:52	10:55	3.07	0.74	0	46
003	L	60	35	194	1343	2245	816	322	78.8	4806	526	6636	10:55	10:57	3.08	0.73	1	47
<b>Mean</b>		60	38	191	1329	2345	776	281	95.1	4826	518	6579	<b>Total</b>	00:04	3.08	0.73	1	46
<b>SDev</b>		0	4	4	20.2	140	57.6	57.3	23.1	28.1	10.7	80.1			0.01	0.01		
<b>SD/M</b>		0.00	0.09	0.02	0.02	0.06	0.07	0.20	0.24	0.01	0.02	0.01			0.00	0.02		

Remarks:

Party: REB/GEG	Width: 1,720 ft	Processed by:
Boat/Motor:	Area: 22,600 ft²	Mean Velocity: 1.62 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 36,500 ft³/s

partial  
overflow

Area Method: Avg. Course	ADCP Depth: 1.500 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: None (-1.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
		Control2: Unspecified	
		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 19.5 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 28.6 ft	Serial #: 8708
BT Error Vel.: 0.33 ft/s	Mean Depth: 13.1 ft	Firmware: 10.16
WT Error Vel.: 3.50 ft/s	% Meas.: 50.42	Bin Size: 13 cm
BT Up Vel.: 1.00 ft/s	Water Temp.: None	Blank: 25 cm
WT Up Vel.: 5.00 ft/s	ADCP Temp.: 20.5 °C	BT Mode: 5
Use Weighted Mean Depth: YES		BT Pings: 1
		WT Mode: 12
		WT Pings: 1
		WV : 175
		WO : 1, 6

Performed Diag. Test: NO

Project Name: Ohio\_R\_Cairo\_Kentucky\_Overf

Performed Moving Bed Test: YES

Software: 2.08

Performed Compass Test: YES

Meas. Location:

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
004	R	46	70	488	12122	20472	5780	987	799	40160	1718	22474	11:22	11:28	4.50	1.79	0	52
005	L	46	75	670	10107	16363	4662	894	870	32896	1725	22661	11:28	11:36	3.31	1.45	0	51
Mean		46	73	579	11115	18418	5221	940	834	36528	1721	22567	Total	00:14	3.90	1.62	0	52
SDev		0	4	129	1425	2906	790	66.0	50.0	5137	5.4	131.9			0.84	0.24		
SD/M		0.00	0.05	0.22	0.13	0.16	0.15	0.07	0.06	0.14	0.00	0.01			0.22	0.15		

Remarks: