

9-275-1		07/08/09		U.S. DEPARTMENT OF THE INTERIOR U.S. Geological Survey				Meas. No.	
Station Number				ADCP Discharge Measurement Notes				Processed by <i>PRJ</i>	
								Checked by	
Station Name		<i>Ohio R. at Cairo (with Kentucky overpass)</i>							
Date		<i>May 21, 2011</i>		Party		<i>DEB</i>		<i>677</i>	
Width		Area / Rated Area		Velocity		Index		Gage Height	
								<i>703.000</i>	
Gage Height Change		Meas. plots		From rating		Indicated Shift		ADCP Sync'd to WT	
in hrs.		% diff		No.:				<i>(Y)</i> at <i>_____</i> or N	
ADCP Mfr / Model / Frequency				Serial No.		Firmware		Software	
<i>600 kHz 730</i>				<i>8708</i>		<i>10.16</i>		<i>2.03</i>	
Boat/Motors Used				GPS Used		ADCP Depth		Diag. Test / Errors?	
<i>Sensation</i>				<i>Yes</i>		<i>1.00</i>		<input type="checkbox"/> Y or <i>N</i>	
Compass Calib. & Total Error			Mag. Var		MagVar Method			Moving Bed?	
<i>(Y)</i> or N			<i>1.6</i>		On-site <i>Model</i> 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 <i>EST</i>	Start End	Primary reference					Max Water Depth		
							Max Water Speed		
<i>1108</i>	<i>(s)</i>						Max Boat Speed		
							Water Mode		
							Bottom Mode		
<i>1230</i>	<i>(e)</i>						Streambed material		
							Salinity		
							ppt at		
Weighted MGH							Checkbar found		
GH corrections							Checkbar changed to:		
Correct MGH							at		
Wading, cable, ice, boat, upstr., downstr., side bridge						<i>45 ft</i>	ft., mi. upstr., downstr. of gage		
Measurement rated:		excellent (2%), good (5%), fair (8%), poor (>8%)					based on following conditions		
Flow	<i>measured main channel up to 81 and then overflow</i>								
Cross section:		<i>bridge 85 ft ahead</i>							
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	① R	1108	940	763	1118	662000			
001	L ①	1119	770	1020	1127	614000			
008	① R	1129	970	780	1141	669000	subsection loop    Left ens = 755    dist = 750		
009	L ①	1141	780	970	1149	622000	subsection loop    Right ens = 755    dist = 750		
start	L R	time	of overflow Qm's		1154	CT			
002 - 003	L R	(first overflow bridge 1/3 of Rt. Sl)				Q = 7230			
004 - 005	L R	(first overflow bridge 2/3 of Rt. Sl)				Q = 6850			
006 - 007	L R	(2nd overflow bridge 3/3 of Rt. Sl)				Q = 49700	Total = 60800		
end	L R	time	of overflow Qm's =		1250	CT			
	L R								
for	L R	main channel files including subsectioned loop use Ohio R. Gaug. w. overflows - final mat							
	L R								
	L R								
Notes	Main Channel    Q = 642,000 overflow Q's    = 60,800 Total    = 703,000								

Party: REB/GEG	Width: 4,760 ft	Processed by:
Boat/Motor:	Area: 176,000 ft <sup>2</sup>	Mean Velocity: 3.64 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 641,000 ft <sup>3</sup> /s

Area Method: Avg. Course	ADCP Depth: 1.000 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.: 12.5 ft/s	Type/Freq.: Rio Grande / 600 kHz	
WT 3-Beam Solution: NO	Max. Depth: 86.6 ft	Serial #: 8708	Firmware: 10.16*
BT Error Vel.: 0.33 ft/s	Mean Depth: 37.0 ft	Bin Size: 23 cm*	Blank: 25 cm*
WT Error Vel.: 32.81 ft/s*	% Meas.: 85.44	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.: 18.9 °C	WV : 170*	WO : 1, 4*
Use Weighted Mean Depth: YES			

Performed Diag. Test: NO

Project Name: Ohio\_R\_at\_Cairo\_with\_overflow

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
008	L	970	780	745	40132	572448	49843	2043	4809	669274	4763	176405	11:29	11:41	4.53	3.79	1	8
009	R	970	780	527	37627	529362	48149	2438	4833	622409	4748	176675	11:41	11:49	6.25	3.52	1	8
000	L	940	763	661	39601	565873	51553	759	4349	662136	4754	175325	11:08	11:18	5.09	3.78	1	8
001	R	1020	770	531	36682	523662	45715	2671	2173	610903	4761	175345	11:19	11:27	6.07	3.48	2	8
<b>Mean</b>		975	773	616	38511	547836	48815	1978	4041	641180	4757	175937	<b>Total</b>	20:56	5.48	3.64	1	8
<b>SDev</b>		33	8	106	1627	24878	2491	853	1265	28853	6.5	704.1			0.82	0.16		
<b>SD/M</b>		0.03	0.01	0.17	0.04	0.05	0.05	0.43	0.31	0.05	0.00	0.00			0.15	0.04		

Remarks:

Party: REB/GEG	Width: 624 ft	Processed by:
Boat/Motor:	Area: 6,160 ft <sup>2</sup>	Mean Velocity: 1.50 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 9,230 ft <sup>3</sup> /s

partial  
overflow

Area Method: Avg. Course	ADCP Depth: 1.000 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.: 6.60 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 14.2 ft	Serial #: 8708
BT Error Vel.: 0.33 ft/s	Mean Depth: 9.86 ft	Firmware: 10.16
WT Error Vel.: 3.50 ft/s	% Meas.: 51.99	Bin Size: 10 cm
BT Up Vel.: 1.00 ft/s	Water Temp.: None	Blank: 25 cm
WT Up Vel.: 3.00 ft/s	ADCP Temp.: 20.2 °C	BT Mode: 5
Use Weighted Mean Depth: YES		BT Pings: 1
		WT Mode: 12
		WT Pings: 1
		WV : 175
		WO : 5, 5

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

Project Name: Ohio\_R\_at\_Cairo\_with\_overflow  
 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	45	50	178	2526	4719	1255	452	174	9126	619	6098	11:54	11:57	3.62	1.50	0	23
003	L	45	48	211	2629	4876	1295	470	58.5	9328	630	6219	11:57	12:00	2.95	1.50	0	23
<b>Mean</b>		45	49	194	2577	4797	1275	461	116	9227	624	6159	<b>Total</b>	00:05	3.28	1.50	0	23
<b>SDev</b>		0	1	23	72.7	111	28.3	12.6	81.5	143	8.2	84.9			0.47	0.00		
<b>SD/M</b>		0.00	0.03	0.12	0.03	0.02	0.02	0.03	0.70	0.02	0.01	0.01			0.14	0.00		

Remarks:

Party: REB/GEG	Width: 518 ft	Processed by:
Boat/Motor:	Area: 7,030 ft <sup>2</sup>	Mean Velocity: 0.974 ft/s <b>partial</b>
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 6,850 ft <sup>3</sup> /s <b>overflow</b>

Area Method: Avg. Course	ADCP Depth: 1.000 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.: 5.43 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 23.1 ft	Serial #: 8708      Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Mean Depth: 13.6 ft	Bin Size: 10 cm      Blank: 25 cm
WT Error Vel.: 3.50 ft/s	% Meas.: 59.46	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.: 3.00 ft/s	ADCP Temp.: 20.2 °C	WV : 175      WO : 5, 5
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO

Project Name: Ohio\_R\_at\_Cairo\_with\_overflow

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	50	50	162	1357	3899	868	267	155	6546	517	7078	12:09	12:12	3.04	0.93	0	30
005	L	50	45	173	1495	4243	1041	303	65.8	7148	519	6984	12:12	12:14	2.92	1.02	0	26
<b>Mean</b>		50	48	167	1426	4071	955	285	110	6847	518	7031	<b>Total</b>	00:05	2.98	0.97	0	28
<b>SDev</b>		0	4	8	97.3	244	122	25.6	63.2	426	2.0	66.2			0.09	0.07		
<b>SD/M</b>		0.00	0.07	0.05	0.07	0.06	0.13	0.09	0.57	0.06	0.00	0.01			0.03	0.07		

Remarks:

Party: REB/GEG	Width: 1,570 ft	Processed by:
Boat/Motor:	Area: 22,200 ft²	Mean Velocity: 2.01 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 44,700 ft³/s

partial  
overflow

Area Method: Avg. Course	ADCP Depth: 1.000 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.: 8.07 ft/s	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Max. Depth: 29.8 ft	Serial #: 8708
BT Error Vel.: 0.33 ft/s	Mean Depth: 14.1 ft	Firmware: 10.16
WT Error Vel.: 3.50 ft/s	% Meas.: 63.04	Bin Size: 10 cm
BT Up Vel.: 1.00 ft/s	Water Temp.: None	Blank: 25 cm
WT Up Vel.: 3.00 ft/s	ADCP Temp.: 20.1 °C	BT Mode: 5
Use Weighted Mean Depth: YES		BT Pings: 1
		WT Mode: 12
		WT Pings: 1
		WV : 175
		WO : 5, 5

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

Project Name: Ohio\_R\_at\_Cairo\_with\_overflow  
 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
006	R	47	50	447	9521	28703	5411	1027	755	45418	1575	22244	12:33	12:40	3.77	2.04	0	22
007	L	47	55	666	9318	27630	5060	975	958	43941	1569	22171	12:40	12:50	2.58	1.98	0	20
<b>Mean</b>		47	53	556	9420	28166	5235	1001	857	44679	1572	22208	<b>Total</b>	00:16	3.17	2.01	0	21
<b>SDev</b>		0	4	155	144	758	248	37.2	143	1044	4.8	52.3			0.85	0.04		
<b>SD/M</b>		0.00	0.07	0.28	0.02	0.03	0.05	0.04	0.17	0.02	0.00	0.00			0.27	0.02		

Remarks: