# **BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

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IN THE MATTER OF:

WATER QUALITY STANDARDS AND EFFLUENT LIMITATIONS FOR THE CHICAGO AREA WATERWAY SYSTEM AND THE LOWER DES PLAINES RIVER: PROPOSED AMENDMENTS TO 35 III. Adm. Code Parts 301, 302, 303 and 304

R08-09 (Rulemaking – Water)

CLERK'S OFFICE

### **NOTICE OF FILING**

STATE OF ILLINOIS Pollution Control Board

SEP 1 9 2008

To: John Therriault, Clerk Marie Tipsord, Hearing Officer James R. Thompson Center Illinois Pollution Control Board 100 West Randolph Street, Suite 11-500 Chicago, Illinois 60601

# SEE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution

Control Board Affidavit of Mr. Chris O. Yoder a copy of which is herewith served upon

you.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Stefanie N. Diers Assistant Counsel

Dated: September 17, 2008 1021 North Grand Avenue East P.O. Box 19276 Springfield, Illinois 62794-9276 (217) 782-5544

## THIS FILING IS SUMBITTED ON RECYCLED PAPER

STATE OF OHIO COUNTY OF FRANKLIN

CLERK'S OFFICE SEP 1 9 2008 STATE OF ILLINOIS Pollution Control Board

### <u>AFFIDAVIT</u>

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I, Chris O. Yoder, attest to the following:

At the hearings in January 2008, various parties asked for me to provide additional information related to questions that were asked of me. In response, I am providing the following information:

 Comments I received from U.S. EPA on my draft Temperature Report can be found in Hearing Exhibit 37 as several Microsoft Word files in the folder, "U.S. EPA\_Others Comments".. Hearing Exhibit 37 is a compact disc, with several files, that was provided to the Board and hearing participants at the April 2008 hearings.

2) I was asked to provide notes on how I determined temperature-limit averages for white sucker, log perch, and bluntnose minnow. I was able to determine which studies were used by relating each FTMS endpoint to the data in Appendix Z.1 of the report, "Re-evaluation of the Technical Justification for Existing Ohio River Mainstem Temperature Criteria" (Hearing Exhibit 16). Hence the values used in the Des Plaines River FTMS were determined by reexamining the data compiled in Appendix Z.1. For the bluntnose minnow's upper incipient lethal temperature ("UILT"), the value of 32.4 degrees Celsius used in the FTMS is the average of the most applicable and geographically relevant values available, from studies by Stauffer et al. (1974; 33.3 degrees Celsius), Stauffer et al. (1975; 32 degrees Celsius) and Cherry et al. (1977; 32 degrees Celsius) at the recommended acclimation temperature of 25-30 degrees Celsius. The logperch is not a Des Plaines River Representative Aquatic Species, and the white sucker value was based on the two studies submitted to the Board at the March 2008 hearings. (See documents attached to the March 4, 2008 Illinois EPA filings).

3) I was asked to provide a copy of the detailed study plan referenced in the "Quality Assurance Project Plan: Fish Assemblage Assessment of the Lower Des Plaines River", Hearing Exhibit 8). The maps that were provided at the March 2008 hearings and marked as Hearing Exhibit 23 are the original maps and include attending notes. These maps served as the detailed study plan. The sites were jointly selected by Alex Johnson of the Midwest Biodiversity Institute ("MBI") and Ed Hammer of U.S. EPA, Region 5. A meeting was held at Region 5 prior to the first sampling. Aerial views of the stream portions that were sampled (electrofished) are provided in Hearing Exhibit 37 in the Microsoft Powerpoint file,"Des Plaines Tracks.ppt". In this file, each slide is an aerial photograph that shows the path followed by the electrofishing boat within each site, the stream name and site code (both labeled directly), and the River Mile (indicated at the lower right).

4) I was also asked to provide field-activity logs and field-data sheets. There are no field-activity logs per se; the crew leader kept a daily calendar, but that is no longer available as it was discarded when the employee departed MBI

and it only contained work time data that is recorded elsewhere. The field-data sheets for the electrofishing samples and the Qualitative Habitat Evaluation Index ("QHEI"; Hearing Exhibit 7) are the principal documentation that the sampling actually took place and for the type of information required by the Quality Assurance Project Plan.

5) At the March 2008 hearings, the Illinois EPA was asked about a safety factor used in determining the thermal endpoints presented in "Temperature Criteria Options for the Lower Des Plaines River" (Hearing Exhibit 15). The safety factor used by the MBI methodology is addressed on p. 5 of that report (Hearing Exhibit 15). To account for an inherent over-estimation of lethality, I used a safety factor of 2°C for the critical thermal maximum (CTM) endpoint.

6) At the hearings in January 2008, a request was made for vouchers and pictures of five fish species reported in the 2006 MBI fish data that were submitted as part of Attachment S (5th through 75th page) of the Illinois EPA's "Statement of Reasons": Silver shiner (one individual identified at one site, RiverMile 265.00, in Illinois River), blacknose shiner (one individual identified at one site, RiverMile 276.40, "Moose Island Slough DP-09," in Des Plaines River), highfin carpsucker (17 individuals from seven sites in Illinois River), black redhorse (27 individuals from five sites in Illinois River), and brown bullhead (5 individuals from 2 sites, RiverMiles 279.50 and 290.00, in Des Plaines River). Because the latter three species are known to occur in lower Des Plaines River or upstream in the Chicago Area Waterway System (e.g., Heating Exhibits 28 and 48; Attachments LL and MM of Illinois EPA's "Statement of Reasons") and

are quite distinctive and thus readily identifiable in the field by a trained biologist, no voucher specimens or photographs were taken of the specified individuals. Nonetheless, representative photos of a black redhorse, highfin carpsucker, and brown bullhead collected by MBI in rivers from the Midwest (some by members of the same crew) are provided in Hearing Exhibit 37. The photos of the black redhorse and the highfin carpsucker show the distinctive features that are relied on to make the identifications. The brown bullhead photos may not reveal these features as well, but were nonetheless present. Upon re-examination of a voucher for "silver shiner," this record of one individual was changed to emerald shiner, and this change is represented on page 5 of the file, "Despl Fish Species 2-28.pdf," in Hearing Exhibit 37. We collected a voucher for the single individual that was originally identified as a "blacknose shiner". However, The Ohio State University Museum of Biodiversity has thus far been unable to locate the specimen that was deposited by MBI into their collections. This record of one individual of "blacknose shiner" was revised to pallid shiner (as represented on page 40 of the file, "Despl Fish Species 2-28 pdf," in Hearing Exhibit 37), which is a morphologically similar species that has been identified in previous fish samples from the same vicinity.

7) In the fish-IBI data reported by MBI from sampling in Illinois River, Des Plaines River, Chicago Sanitary and Ship Canal, and Grant Creek in 2006 Hearing Exhibit 21), the fish-IBI metric called "Percent of Individuals/Simple Lithophils" was incorrectly derived because emerald shiner was mistakenly categorized and counted as a simple lithophil under prior guidance by Ohio EPA.

Specifically, for each fish sample that includes emerald shiner, this error may result in a higher value for the metric, "percent of individuals as simple lithophils." In turn, in some (but not all) cases, this change may result in a higher standardized metric score for "percent...simple lithophils" and consequently a higher total IBI score. Corrected metric values, metric scores, and total IBI scores were provided in Hearing Exhibit 37 as the file, "DesPlaines IBI 2006 pMar3\_08.pdf." For the 26 fish samples from Des Plaines River (twelve sites) or Chicago Sanitary and Ship Canal (one site at River Mile 290.00; incorrectly indicated as Des Plaines River) that best pertain to this rulemaking, corrections in scoring changed only six fish-IBI scores, none by more than four points. More-recent review of the fish-IBI scoring data (i.e., the file "DesPlaines IBI 2006 pMar3\_08.pdf" in Hearing Exhibit 37 revealed a need for the following additional corrections:

a) The latitude value reported for one location ("Dst. Olin Co. DP-06") on page 3 is incorrect due to a typographical error. It should be 41.483920 rather than 41.438920.

b) The table heading should read "Table 1. Boat IBI scores and metrics at boat sites in Illinois River, Des Plaines River, Chicago Sanitary and Ship Canal, and Grant Creek, sampled by MBI in 2006" rather than "Table 1. Boat IBI scores and metrics at boat sites in Des Plaines River sampled by MBI in 2006".

c) On page 4, the location, "DP-01," at River Mile 290.10 is incorrectly identified as Des Plaines River. This location is actually within the last 0.1

mile of the Chicago Sanitary and Ship Canal before it flows into Des Plaines River.

8) Two QHEI summary tables (Hearing Exhibits 5 & 6; Hearing Exhibit 37, in part) have been revised to reflect changes that MBI made as a result of scoring discrepancies first discovered during the January 2008 hearing. These discrepancies primarily resulted from inability of a specific computer program in MBI's database to correctly incorporate the modifications made to the QHEI for assessing physical-habitat conditions in large, impounded rivers. Secondarily, for the "Riparian" metric of the QHEI, it was discovered that the computer program did not score each stream bank separately. These problems arose directly from how the QHEI data were stored and processed by the computer database. The problems, for the most part did not emanate from the field sheets themselves. To achieve consistency with the large-river modifications made to the QHEI, the computer program has been revised to correct these problems. Consequently, attached to this affidavit (See Attachment A) are the final revised versions of the two QHEI tables that are currently represented on the record as Hearing Exhibits 5 and 6 and again (as revised versions) as part of Hearing Exhibit 37. In Hearing Exhibit 37, the revised version of Hearing Exhibit 5 is the file, "Desp QHEI Metrics Feb 28-08.pdf," and the revision of Hearing Exhibit 6 is "Desp QHEI Report Feb 28-08.pdf." Attachment A of this affidavit includes the final versions of these two tables plus two corresponding spreadsheets, each of which provides a record and explanations of revisions made to these tables. These two explanatory spreadsheets are:

QHEIRecordOfRevisons\_ToMetricsTable\_08082006.xls and QHEIRecordOfRevisons\_ToAttributesTable\_08082006.xls. These revisions did not necessitate any changes to the QHEI field-data sheets (Hearing Exhibit 7) because these sheets were correctly filled out.

9) In some of the originally submitted (as part of Attachment S to Illinois EPA's "Statement of Reasons") tables of fish data collected by MBI in 2006 in Illinois River, Des Plaines River, Chicago Sanitary and Ship Canal, and Grant Creek the sampling-site latitude and longitude coordinates, county, or both were inadvertently missing or incorrect. This information has been corrected as necessary in the file, "Despl Fish Species 2-28.pdf," in Hearing Exhibit 37. For additional detail about the fish-sampling locations, aerial views of the specific stream portions that were sampled (electrofished) are provided in Hearing Exhibit 37 in the Microsoft Powerpoint file, "Des Plaines Tracks.ppt". In this file, each slide is an aerial photograph that shows the track followed by the electrofishing boat, the stream name and site code (both labeled directly), and the River Mile (indicated at the lower right). Since the fish-data tables were submitted as the file, "Despl Fish Species 2-28.pdf" in Hearing Exhibit 37, additional review has revealed the need for the following corrections:

a) On page 33 of the file "Despl Fish Species 2-28.pdf" in Exhibit 37, "# of Fish"= 0 for "Species Name..." = *Gizzard Shad* has been corrected from 0 to 49; all other sums, percentages, or averages that depended on this datum have been corrected. These corrections are attached to this affidavit as "Despl\_Fish\_RM283.9\_Aug10.pdf."

b) Also on page 33 and on page 34 of the file "Despl Fish Species 2-28.pdf" in Exhibit 37, the latitude ("Lat.") of this Des Plaines River location (RiverMile 283.90, "Dst Olin Co, DP-06") has been corrected as explained earlier in this affidavit.

c) On pages 25 and 26 of the file "Despl Fish Species 2-28.pdf" in Exhibit 37, the location, "DP-02," at River Mile 290.00 is incorrectly identified as Des Plaines River. This location is actually within the last 0.1 mile of the Chicago Sanitary and Ship Canal before it flows into Des Plaines River. The stream name has been corrected.

10) At the hearings in January 2008, Dr. Girard asked if I could provide documentation on how to address impoundment effects when scoring the Qualitative Habitat Evaluation Index ("QHEI") in larger rivers, such as Des Plaines River. A recent revision of the QHEI for use in larger rivers includes a new category called "Impounded" within the "Channelization" submetric of the "Channel Morphology" metric. This category was also added to the "Morphology" submetric called "Pool/Glide and Riffle/Run Quality". These modifications can be seen on each QHEI field sheet. (See Hearing Exhibit 7). The reason for adding this category is that the habitat modification caused by the impoundment effect of a low-head dam was not previously accounted for in these two submetrics. Without this revision for scoring the QHEI in impounded larger rivers, the "Channelization" submetric would typically score the maximum possible points (i.e., 6, unless there is an obvious channelization impact—which is rare in large rivers), thus the overall QHEI score could be artificially higher, despite the

presence of an impoundment. Similarly, addition of the "impounded" category in the "Pool/Glide ...Quality" submetric accounts for the influence of impoundments for this submetric. By adding this scoring category, the QHEI now appropriately reflects the habitat modification imparted by impoundments in larger rivers.

Chris O. Yoder

# SUBSCRIBED AND SWORN TO BEFORE ME

15th day of the This 2008, 2008

Notary Public



Peter A. Precario Altomey At I a Notary Public, State of Ohio y commission has no expiration data Sec. 147.03 R.C.

# ATTACHMENT

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Grp			Tol						Weight		
	0	MG		5			0.41	0.13	41.20		
G	0	MG	т	28	56.00	15.82	125.74	39.05	2,245.36		
N	I			12	24.00	6.78	0.14	0.04	6.00		
Ν	i	MG		11	22.00	6.21	0.12	0.04	5.45		
Ν	0	MG	Т	1	2.00	0.56	0.00	0.00	2.00		
F		MG		2	4.00	1.13	184.14	57.18	46,035.00		
	I	MG	т	22	44.00	12.43	5.78	1.79	131.36		
	I	MG		1	2.00	0.56	0.05	0.02	26.00		
Е	I			1	2.00	0.56	0.01	0.00	3.00		
F	С	MG		5	10.00	2.82	0.08	0.02	8.00		
S	I	MG	т	55	110.00	31.07	2.29	0.71	20.84		
s	1	MG	Р	11	22.00	6.21	0.42	0.13	19.09		
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	Loca Drain Basin IBI Grp G N N N F E F S S S S S S S S S S S N Date Numb	Location: Drainage: Drainage: Basin: IBI Feed Grp Guild O G O N I N I N O F I E I F C S I S I S I S I S I S I S I S I S I S I	Location: Dst Lo Drainage: 1000.0 Basin: IBI Feed Targe Grp Guild Spec. O MG G O MG G O MG N I N I MG N O MG F MG F MG F MG S I MG	Location:       Dst Locktor         Drainage:       1000.0 sq m         Basin:       41.5         IBI       Feed       Target         Grp       Guild       Spec. To         IBI       Feed       Spec. To         Grp       Guild       Spec. To         IBI       Feed       MG         N       I       MG         N       I       MG         N       I       MG         F       MG       MG         I       MG       To         F       C       MG         F       C       MG         S       I       MG	Location:       Dst Lockport.       DP-02         Drainage:       1000.0 sq mi         Basin:       Lat: $41.559820$ IBI Feed       Target       # of         Grp Guild       Spec.       Fish         O       MG       T       28         N       I       12       11         N       O       MG       T       12         N       I       MG       11       11         N       O       MG       T       12         N       I       MG       11       11         N       O       MG       T       12         N       I       MG       12       11         N       O       MG       T       12         N       I       MG       12       11         F       MG       MG       12       11         F       C       MG       T       55         S       I       MG       P       11         S       I       MG       P       7         S       I       MG       P       11         S       I	Location:       Dst Lockport.       DP-02         Drainage:       1000.0 sq mi       De         Basin:       Iat:       41.559820       Iat:         IBI       Feed       Target       # of       Relative         Grp       Guild       Spec.       Tol       Fish       Number         O       MG       T       28       56.00       Number         G       O       MG       T       28       56.00         N       I       12       24.00       N         N       MG       T       12       24.00         N       MG       T       1       22.00         N       MG       T       1       200         F       MG       T       22       44.00         I       MG       T       22.00       1         F       C       MG       T       1       2.00         F       C       MG       T       55       110.00         S       I       MG       P       1       2.00         S       I       MG       P       7       14.00      S       I       MG       P	Location:       Dst Lockport. DP-02       Drainage:       1000.0 sq mi       Depth:         Basin:       Item 11.559820       Item 12.59820       Item 12.59820       Item 12.59820         IBI       Feed       Target       # of       Relative       % by         Grp       Guild       Spec. Tol       Fish       Number       Number         0       MG       T       28       56.00       15.82         N       I       MG       11       22.00       6.21         N       I       MG       11       22.00       6.21         N       O       MG       T       12       44.00       12.43         I       MG       T       22       44.00       12.43         I       MG       T       22       44.00       12.43         I       MG       T       55       10.00       2.82         S       I       MG       T       55       10.00       31.07         S       I       MG       T       55       110.00       31.07         S       I       MG       P       1       2.00       0.56         S       I       MG<	Location:       Dst Lockport. DP-02       Invalid 3         Drainage:       1000.0 sq mi       Depth:       Data So         Basin:       Lat:       41.559820       Lat:       -88.077920         IBI       Feed       Target       # of       Relative       % by       Relative         Grp       Guild       Spec. Tol       Fish       Number       % by       Relative         G       O       MG       T       28       56.00       15.82       125.74         N       I       12       24.00       6.78       0.14         N       I       MG       11       22.00       6.21       0.12         N       O       MG       T       12       44.00       1.13       184.14         N       I       MG       1       2.00       0.56       0.00         F       MG       1       2.00       0.56       0.05       0.05         E       I       MG       T       55       10.00       2.82       0.08         S       I       MG       T       55       10.00       2.82       0.08         S       I       MG       T	Invalid Sample:         Invalid Sample:         Depth:       Data Source:         Basin:       Flow: C       Sampler Type:         Lat: 41.559820       Lat: -88.077920         IBI Feed Target       # of       Relative       % by       Relative       % by         O       MG       5       10000       2.82       0.41       0.13         G       MG       Sample: Weight         O       MG       Sample: 7920         Invalid Sample:         O       MG       Sample: 7920         IDepth:       Number       Neight         O       MG       Second         IDepth:       Namber       Relative       % by         MG       T       Second       Second         N       N       Second       Second       Second		

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River Code: 95-010	Stream		~	-	-	l Ship Can	al	Sample		9/10/2006				
River Mile: 290.00				-	t. DP-02	_	pth:		Sample:					
Time Fished: 2423 sec	Draina	ige: 1	1000.0	sq m		Data Source: 01								
Dist Fished: 0.50 km	Basin:					Flo	ow: C	C Sampler Type: A						
			Lat:	41.5	59820	La	at: -88.077	920						
Species	IBI F	=eed	Targe	t	# of	Relative	% by	Relative	% by	Ave(gm)				
Name / ODNR status	Grp C	Guild	Spec.	Tol	Fish	Number	Number	Weight	Weight	Weight				
Gizzard Shad		0	MG		26	52.00	6.18	1.38	2.31	26.54				
Common Carp	G	0	MG	Т	12	24.00	2.85	38.24	64.11	1,593.33				
Golden Shiner	Ν	1	MG	Т	1	2.00	0.24	0.00	0.01	2.00				
Emerald Shiner	Ν	I			266	532.00	63.18	1.42	2.38	2.67				
Spotfin Shiner	Ν	I	MG		9	18.00	2.14	0.06	0.09	3.11				
Bluntnose Minnow	Ν	0	MG	Т	39	78.00	9.26	0.16	0.27	2.05				
Channel Catfish	F		MG		6	12.00	1.43	9.04	15.15	753.33				
Yellow Bullhead		1	MG	т	16	32.00	3.80	2.42	4.06	75.63				
Brown Bullhead		I	MG	Т	4	8.00	0.95	1.86	3.12	232.50				
Blackstripe Topminnow		Т	MG		1	2.00	0.24	0.00	0.01	2.00				
White Perch	E		MG		1	2.00	0.24	0.58	0.97	290.00				
Largemouth Bass	F	С	MG		3	6.00	0.71	1.62	2.72	270.00				
Bluegill Sunfish	S	I	MG	Р	13	26.00	3.09	1.16	1.94	44.62				
Orangespotted Sunfish	S	I			3	6.00	0.71	0.06	0.10	10.00				
Pumpkinseed Sunfish	S	I	MG	Р	. 8	16.00	1.90	0.60	1.01	37.50				
Hybrid X Sunfish					12	24.00	2.85	1.04	1.74	43.33				
Round Goby	Е		MG		1	2.00	0.24	0.01	0.01	4.00				
	Date To	otal			421	842.00		59.65						
	Numbe	er of S	Species	3	16									
	Numbe		-		1									

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Table 2. QHEI score	s and metric values for :	site	s sample	ed in t	he	Des Plaines & Illinois Rivers by MBI in 2006.
	WWH Attribute	S		Ν	٨W	VH Attributes
	ed stes ecnés: Iness	l	High II	nfluen	ice	e Moderate Influence
Key QHEI Components River Gradien Mile QHEI (ft/mile			Charnelized or No Recovery Sift.Muck Substrates No Sinuosity	Sparse/No Ćover Max Depth < 40 cm (MD, HM)	Total H.I. MMH Attributes	Recovering Channel Heav/Moderate Sift Cover Sand Substrates (Boab Hardpan Substrate Origin Fair/Poor Development Low Sinuosity · Only 1-2 Cover Types Intermittent and Poor Pools No Fast Current HighMod. Netall Embeddedness No Riffle HighMod. Riffle Embeddedness No Riffle Iddal MJ. MMH Attributes (MMH HJL+1).((WMH+1) Ratio
(95010) Chicago Sanit	ary Ship Canal					
Year: 2006 Location: Dst	Lockport. DP-02		. ,	t server a		Latitude: 41.55982 Longitude: -88.07792
290.0 45.50 0.10		<b>5</b> 				<b>3</b> 0.50 1.25
(95650) Illinois River						
Year: 2006						
242.1 55.00 0.10	Grain Silo, DP-16	ł		<b>\$</b> .	1	Latitude: 41.33984 Longitude: -88.79339
	Marker 243.3, DP-15					Latitude: 41.31986 Longitude: -88.69300
	Marseilles Tailwater DP-14	8		•	1	Latitude: -88.72116
بالمرافع والمراجع المحافظ المراجع والمحادي		<b>b</b>		<u>کې د</u>	1	2 0.29 0.57
Location: Ust	Marseilles Dam, DP-19					Latitude: 41.31986 Longitude: -88.69300
247.8 61.50 0.10		) 	<u></u>	:_ <u>_</u>	0	<b>2</b> 0.14 0.43
	at Run, Dst Senaca DP-21			1.7.1		Latitude: 41.30450 Longitude: -88.63049
	Barry Island, DP-20	•				Latitude: 41,32282 Longitude: -88,55295
		5 <sup>.</sup>		) inter		■ 3 0.33 0.83
	Mouth Peacock Slough DP-1					Latitude: 41.36120 Longitude: -88.39145
265.0 54.75 0.10	3	• -			1	<b>E E E 6</b> 0.50 2.00
Location: Dst	Aux Sable Creek, DP-12					Latitude: 41.37904 Longitude: -88.33760
	4	~	<u> </u>	<u> </u>		<b>4</b> 0.40 1.20
Los an an an an an an	Dresden Tailwater, DP-11		in the second	N.	4	Latitude: 41.39917 Longitude: -88.28506
271.1 86.00 1.00						0 0.20 0.20
(95656) DesPlaines Riv	ver					
Year: 2006	Kankakee River, DP-18					Latitude: 41.38731 Longitude: -88.25261
273.5 <b>57.00</b> 0.10	And the second first the second	5			1	Longhude. 41.38731 Longhude88.25261
<u>-, , , , , , , , , , , , , , , , , , , </u>	- "Attanto de leval er lan" de delinateit	<sup>-</sup>		<u>a 112</u>	<b>.</b>	

WWH Attributes         MWH Attributes           Key QHEI         State         MWH Attributes           Key QHEI         State         Multiplication         Multiplication <th< th=""><th>Table 2. QHEI score</th><th>s and metric values for si</th><th>ites sal</th><th>npled in</th><th>the</th><th>Des Plaines &amp; Illinois Rivers by MBI in 2006.</th><th></th></th<>	Table 2. QHEI score	s and metric values for si	ites sal	npled in	the	Des Plaines & Illinois Rivers by MBI in 2006.	
Interference       Quest (1) (1) (1) (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2		WWH Attributes	5		M٧	VH Attributes	
Interference       Quest (1) (1) (1) (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2		es es es es	High	n Influe	nce	e Moderate Influence	
(95656) besPlaines River         Year: 2006         Latitude: 41,38331       Longitude: -88,24078         Z74.0       49.50       0.10       2       1       4       6       0.67       2.67         Location: Moose Island Slough DP-09       Latitude: 41,40877       Longitude: -88,22430         Z76.4       38.00       0.10       2       1       4       6       0.67       2.67         Location: Moose Island DP-08       Latitude: 41,40877       Longitude: -88,21430         Z76.5       51.75       0.10       3       3       1       4       6       0.50       2.00         Location: Moose Island DP-08         Latitude: 41,40970       Longitude: -88,16969         Condition: Power Lines at RM 279.5, DP-07       Latitude: 41,43953       Longitude: -88,16969         Location: Dst Olin Co. DP-06       Latitude: 41,43920       Longitude: -88,16969         Longitude: -88,16969         Location: Dst Brandon Tailwater       Latitude: 41,43920       Longitude: -88,16969         Longitude: -88,16969         Location: Dst Defferson St. DP-04       Latitude: 41,4920       Longitude: -88	QHEI <u>Components</u> River Gradien	Content callon or Fecove et No Channe zallon or Fecove et Bcu ce //Cokble/Glavel Eubst at Silf Free Sutstrafes Go cortexcel ent Substrafes Mo celatel- th Situates Mo celatel- th Situas v Extersive. Mode ate Cover Fast Currer'Jedoies Low-Normal Overall Embeddedn Low-Normal Rittle Embeddedn Low-Normal Rittle Embeddedn Low-Normal Rittle Embeddedn	Charnelized or No Recovery Silt.Nuck Substicles	No Sinuosity Sparse/No Cover Max Depth < 40 cm (MD, HW)	Total H.I. MWH Attributes	Recovering Channel HeavyModerate Silt Cover Sand Substrates (Boat) Hardpan Substrate Origin FairPoor Development Low Sinuosity Only 1-2 Cover Types Intermittent and Poor Pools No Fast Current HighMod. Niffle Embeddedness No Riffle No Riffle MMH HJ1),(WMH+1) Ratio (MMH HJ1),(WMH+1) Ratio	
Location: Dst Stone Fishing Pier, DP-17 Location: Moose Island Slough DP-09 Location: Moose Island Slough DP-09 Location: Moose Island DP-08 2							
Location: Dst Stone Fishing Pier, DP-17 Location: Moose Island Slough DP-09 Location: Moose Island Slough DP-09 Location: Moose Island DP-08 2	Year: 2006						
Location:       Moose Island Slough DP-09       Latitude: 41,40877       Longitude:       -88,22430         276.4       38,00       0.10       •       2       1       •       •       6       0.67       2.67         Location:       Moose Island DP-08       Latitude: 41,40904       Longitude:       -88,21543         276.5       51.75       0.10       •       •       3       1       •       •       6       0.50       2.00         Location:       Power Lines at RM 279.5, DP-07       Latitude: 41,43953       Longitude:       -88,16969       2.00         279.5       68.00       1.00       •       •       4       0       •       4       0.20       1.00         Location:       Dst Olin Co. DP-06       Latitude: 41,43923       Longitude: -88,13369       2.02       0.44         Location:       Dst Brandon Tailwater       Lotatitude: 41,49920       Longitude: -88,08707       2.02       0.44         Location:       Dst Jefferson St. DP-04       Latitude: 41,50404       Longitude: -88,08368       2.02       0.44         Location:       Dyst Ruby St. DP-03       Latitude: 41,5093       Longitude: -88,08902       2.05       1.00       1.04       1.04       1.04 <t< td=""><td></td><td>Stone Fishing Pier, DP-17</td><td></td><td></td><td></td><td>Latitude: 41.38331 Longitude: -88.24078</td><td></td></t<>		Stone Fishing Pier, DP-17				Latitude: 41.38331 Longitude: -88.24078	
276.4       38.00       0.10       0.2       1       0.00       0.67       2.67         Location: Moose Island DP-08       Latitude: 41,40904       Longitude: -88.21543       200         276.5       51.75       0.10       0.3       1       0.00       0.00       2.00         Location: Power Lines at RM 279.5, DP-07       Latitude: 41,43953       Longitude: -88.1369       2.00         279.5       68.00       1.00       0.0	274.0 49.50 0.10	∎ 2			1		7
Location:       Moose Island DP-08       Latitude: 41,40904       Longitude: :88.21543         276.5       51.75       0.10       •       •       3       1       •       •       6       0.50       2.00         Location:       Power Lines at RM 279.5, DP-07       Latitude: 41,43953       Longitude: :88.16969       1.00         279.5       68.00       1.00       •       •       4       0.20       1.00         Location:       Dst Olin Co. DP-06       Latitude: 41,43392       Longitude: :88.13369       2.022       0.44         Location:       Dst Brandon Tailwater       Latitude: 41,49920       Longitude: :88.08707       2.022       0.44         Location:       Dst Jefferson St. DP-04       Latitude: 41,52160       Longitude: :88.08707       2.022       0.44         Location:       Dst Ruby St. DP-03       Latitude: 41,52160       Longitude: :88.08202       2.021       0.44         Location:       DP-01       Latitude: 41,55936       Longitude: :88.08092       2.071       1.50       5.00         Location:       DP-01       Latitude: 41,65449       Longitude: :88.08092       2.071       1.044       1.044       1.044       1.044       1.044       1.044       1.044       1.00       1.044	Location: Mo	ose Island Slough DP-09				Latitude: 41,40877 Longitude: -88.22430	
276.5       51.75       0.10	276.4 38.00 0.10	■ 2	•		1		7
Location:       Power Lines at RM 279.5, DP-07       Latitude: 41,43953       Longitude: -88.16969         279.5       68.00       1.00       1.00       4.02       1.00         Location:       Dst Olin Co. DP-06       Latitude: 41,43953       Longitude: -88.13369         283.9       35.00       0.10       1       2       0       0       0       0       0       4.020       1.00         Location:       Dst Din Co. DP-06       Latitude: 41,48392       Longitude: -88.13369       4.50       4.50         Location:       Dst Brandon Tailwater       Latitude: 41,49920       Longitude: -88.10695       4.50         285.8       81.50       1.00       0       0       0       0       0       0       4.50         287.9       21.00       0.10       1       4       2       0       0       0       0       5.00         Location:       Upst Ruby St. DP-03       Latitude: 41,5936       Longitude: -88.08368       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.25       2.26       2.26	Location: Mo	ose Island DP-08	d= 100 1			Latitude: 41.40904 Longitude: -88.21543	
279.5       68.00       1.00       •••••       4       0       •••••       4       0.20       1.00         Location:       Dst Olin Co. DP-06       Latitude: 41,48392       Longitude: -88.13369       4.50         283.9       35.00       0.10       •••••       4       0       •••••       6       1.50       4.50         Location:       Dst Brandon Tailwater       Latitude: 41,49920       Longitude: -88.1369       4.50         283.8       81.50       1.00       ••••••       8       1       •••••       2       0.22       0.44         Location:       Dst Jefferson St. DP-04       Latitude: 41,49920       Longitude: -88.08707       2       0.22       0.44         Location:       Dst Jefferson St. DP-03       Latitude: 41,50404       Longitude: -88.08707       2       0.4       0       0.0       0.0       0.0       0.00		international second, we second as a subject and	•		1		)
Location:       Dst Olin Co. DP-06       Latitude: 41,48392       Longitude: -88,13369         283.9       35.00       0.10       1       2       1       6       1.50       4.50         Location:       Dst Brandon Tailwater       Latitude: 41,49920       Longitude: -88,10695       2       0.42       0.42         283.8       81.50       1.00       1       2       0.22       0.44         Location:       Dst Jefferson St. DP-04       Latitude: 41,52160       Longitude: -88,08707         287.9       21.00       0.10       1       2       0.22       0.44         Location:       Upst Ruby St. DP-03       Latitude: 41,52160       Longitude: -88,08707       2.25         Location:       Upst Ruby St. DP-03       Latitude: 41,55936       Longitude: -88,08368       2.25         Location:       DP-01       Latitude: 41,65449       Longitude: -88,08092       2.071         290.1       68.50       1.00       0       0       3       0.29       0.71         Location:       Site # 107       Latitude: 41,65449       Longitude: -88,04191       2       0       3       0.11       0.44         Location:       Dst Lemont Rd, Site # 93       Latitude: 41,66732       Longitude:	ANALY OF TAXABLE AVE	ver Lines at RM 279.5, DP-07		n (na sea		Latitude: 41.43953 Longitude: -88.16969	
283.9       35.00       0.10       1       2       1       4.50       4.50         Location: Dst Brandon Tailwater       Latitude: 41,49920       Longitude: -88.10695       2       0.22       0.44         Location: Dst Jefferson St. DP-04       Latitude: 41,52160       Longitude: -88.08707       2       0.22       0.44         Location: Dst Jefferson St. DP-04       Latitude: 41,52160       Longitude: -88.08707       5.00       5.00         Location: Upst Ruby St. DP-03       Latitude: 41,54044       Longitude: -88.08368       2.25       5.00         Location: DP-01       Latitude: 41,55936       Longitude: -88.08092       2.25       2.25         Location: Site # 107       Latitude: 41,65449       Longitude: -88.06121       2.97.0       83.00       1.00       4		Shinan dhilar - 's said start a we want do and			0		)
Location:       Dst Brandon Tailwater       Latitude: 41,49920       Longitude:       -88.10695         285.8       81.50       1.00       1.00       2.0.22       0.44         Location:       Dst Jefferson St. DP-04       Latitude: 41.52160       Longitude:       -88.08707         287.9       21.00       0.10       1       4       2       0.44       Location:       Use 11.52160       Longitude:       -88.08707         287.9       21.00       0.10       1       4       2       0.44       Longitude:       -88.08707         289.0       46.00       0.50       0       3       4       2       0.44       Longitude:       -88.08368         289.0       46.00       0.50       0       3       4       2       0.44       Longitude:       -88.08368         289.0       46.00       0.50       0       3       4       2       0.01       0       0       7       1.50       5.00         Location:       DP-01       2       Latitude: 41.55936       Longitude:       -88.08092       0.71         Location:       Site # 107       Latitude: 41.65449       Longitude:       -88.04121       0.44       2       0       3<	Juli Juli internet and a second second	www.engineering.com/com/com/com/com/com/com/com/com/com/	r • 1	· · · · · · · · · · · · · · · · · · ·	_	1 January and an analysis of the second s Second second s Second second se	
285.8       81.50       1.00       0.00		Providence and and a sub-optimized strategy and	•	i i 🌩 <sup>bal</sup> agyore 	2		) 
Location: Dst Jefferson St. DP-04       Latitude: 41.52160       Longitude: -88.08707         287.9       21.00       0.10       1       2       1       7       1.50       5.00         Location: Upst Ruby St. DP-03       Latitude: 41.52160       Longitude: -88.08707       2.25       5.00         Location: DP-01       Latitude: 41.54044       Longitude: -88.08092       2.25       6       0.75       2.25         Location: DP-01       Latitude: 41.55936       Longitude: -88.08092       3       0.29       0.71         Location: Site # 107       Latitude: 41.65449       Longitude: -88.06121       3       0.29       0.71         Location: Dst Lemont Rd., Site # 93       Latitude: 41.66732       Longitude: -88.04491       2       6       3       0.11       0.44         Location: Dst Lemont Rd., Site # 93       Latitude: 41.38341       Longitude: -88.04491       2       6       6       1.60         (95657) Grant Creek       Year: 2006       Location: Grant Creek DP-10       Latitude: 41.38341       Longitude: -88.22690		- in the second se second second s	ي يون مواليد الموالي	The spine second of Tablesons		3.9 June 1999 Birth Lingson, Computing Statistics, American Street and Statistics, American Statistics, and American S	
287.9       21.00       0.10       1       2       1       2       1       5.00         Location:       Upst Ruby St. DP-03       Latitude: 41,54044       Longitude: -88.08368       225         289.0       46.00       0.50       1       2       1       6       0.75       2.25         Location:       DP-01       Latitude: 41,55936       Longitude: -88.08092       2       1       3       0.29       0.71         Location:       Site # 107       Latitude: 41,65449       Longitude: -88.06121       3       0.29       0.71         297.0       83.00       1.00       1       4       4       2       1       3       0.11       0.44         Location:       Dst Lemont Rd., Site # 93       Latitude: 41,66732       Longitude: -88.04491       2       1       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1	Rikikowinikali wiy	Freedore 27. Greeter and Freedore		energia de la constante de la	1	TT.U. T	·
Location:       Upst Ruby St. DP-03       Latitude: 41,54044       Longitude: -88,08368         289.0       46.00       0.50       1<		The supervision of the second state of the sec			2	Sin Ne ver Si men in i melle ell'alle provinsione en en elle contracter e la suplice reglistratione elle superior elle s	
289.0       46.00       0.50       0.50       0.50       0.50       0.75       2.25         Location:       DP-01       Latitude: 41.55936       Longitude: -88.08092       0.71         290.1       68.50       1.00       0.0       0.0       0.71       1       0.0       0.71         Location:       Site # 107       1.00       0.0       0.71       1.00       0.00       0.71         297.0       83.00       1.00       0.0       0.0       0.0       0.0       0.0       0.0       0.0         297.0       83.00       1.00       0.0       0.0       0.0       0.0       0.0       0.0       0.0         297.0       83.00       1.00       0.0 <td></td> <td></td> <td></td> <td></td> <td><b>_</b></td> <td>1 areas and a construction when a mean and a second second</td> <td>) ·</td>					<b>_</b>	1 areas and a construction when a mean and a second second	) ·
Location:       DP-01       Latitude: 41.55936       Longitude: -88.08092         290.1       68.50       1.00       1       3       0.29       0.71         Location:       Site # 107       Latitude: 41.65449       Longitude: -88.06121         297.0       83.00       1.00       1	-	-		<b>.</b>	2	or real many many real real strains and the second strains	
290.1       68.50       1.00			ana diradahisti.	1. Martin 22		" - Salahan in Salah Salan Malanda Salah 2000 a Salah Karala Malanda Malanda Salah Salah Salah Salah Salah Sala	
Location:       Site # 107       Latitude: $41.65449$ Longitude: $-88.06121$ 297.0       83.00       1.00       1.00       1.00       3       0.11       0.44         Location:       Dst Lemont Rd., Site # 93       Latitude: $41.66732$ Longitude: $-88.04491$ 2       1.00       1.60         298.3       61.00       0.10       1.60       1.60       1.60       1.60         (95657)       Grant Creek       Year: 2006       Location:       Grant Creek DP-10       Latitude: $41.38341$ Longitude: $-88.22690$		. In the second state of t		•	1	weganing munitivities for the symmetric constraints of a constraints within	
297.0       83.00       1.00       Image: state with the state with state with the state with the state with stat		and the second state of th	1. s	halladhannait e dh' all -		and Mill of a star was a star was a star	
Location:       Dst Lemont Rd., Site # 93       Latitude: 41.66732       Longitude: -88.04491         298.3       61.00       0.10       4       4       2       5       0.60       1.60         (95657)       Grant Creek         Year:       2006       Location:       Grant Creek DP-10       Latitude: 41.38341       Longitude: -88.22690	297.0 83.00 1.00		•	Eroft	0	■ 3 0.11 0.44	
(95657) Grant Creek Year: 2006 Location: Grant Creek DP-10 Latitude: 41.38341 Longitude: -88.22690		Lemont Rd., Site # 93					
Year: 2006     Location: Grant Creek DP-10     Latitude: 41.38341     Longitude: -88.22690	298.3 61.00 0.10	<b>•</b> • • • • • • • • • • • • • • • • • •			2	<b>5</b> 0.60 1.60	
Year: 2006     Location: Grant Creek DP-10     Latitude: 41.38341     Longitude: -88.22690	(95657) Grant Creek						
Location: Grant Creek DP-10 Latitude: 41.38341 Longitude: -88.22690							
announce Mandal and "A Antilanda" a Br' variational and the contraction of the contractio		nt Creek DP-10				Latitude: 41.38341 Longitude: -88.22690	
	0.1 52.00 0.10	3			1	<b>E E 6</b> 0.50 2.00	

08/06/2008

					QHEI Me	trics:		
River Mile	QHEI	Substrate	Cover	Channel	Riparian	Pool	Riffle	Gradient & Score
	cago Sanitai	ry Ship Canal						
Year: 2006								
290.0	45.50	13.0	9.0	4.0	6.50	7.0	0.0	0.10 - ( 6)
(95650) Illin	ois River							
Year: 2006								
242.1	55.00	15.0	14.0	6.0	8.00	6.0	0.0	0.10 - ( 6)
243.3	49.50	16.0	9.0	6.0	6.50	6.0	0.0	0.10 - ( 6)
246.5	72.50	15.0	7.0	16.0	10.00	12.0	4.5	1.00 - ( 8)
247.8	61.50	16.0	17.0	9.0	7.50	6.0	0.0	0.10 - ( 6)
251.4	56.25	17.0	14.0	6.0	7.25	6.0	0.0	0.10 - ( 6)
256.1	59.75	17.0	12.0	8.5	9.25	7.0	0.0	0.10 - ( 6)
265.0	54.75	15.0	13.0	6.0	8.75	6.0	0.0	0.10 - (6)
268.0	57.00	16.0	14.0	5.5	9.50	6.0	0.0	0.10 - (6)
271.1	86.00	20.0	11.0	17.0	10.00	12.0	8.0	1.00 - ( 8)
(95656) Des	Plaines Rive	r						••
Year: 2006								
273.5	57.00	10.0	16.0	9.0	10.00	6.0	0.0	0.10 - ( 6)
274.0	49.50	9.0	15.0	5.5	8.00	6.0	0.0	0.10 - ( 6)
276.4	38.00	3.0	14.0	4.0	10.00	1.0	0.0	0.10 - ( 6)
276.5	51.75	11.0	15.0	6.0	7.75	6.0	0.0	0.10 - ( 6)
279.5	68.00	19.0	17.0	7.0	10.00	7.0	0.0	1.00 - ( 8)
283.9	35.00	1.5	11.0	3.0	7.50	6.0	0.0	0.10 - ( 6)
285.8	81.50	17.5	13.0	16.0	8.00	12.0	7.0	1.00 - ( 8)
287.9	21.00	1.0	3.0	2.0	3.00	6.0	0.0	0.10 - ( 6)
289.0	46.00	11.0	11.0	6.0	5.00	7.0	0.0	0.50 - ( 6)
290.1	68.50	14.5	9.0	14.0	7.00	9.0	7.0	1.00 - ( 8)
297.0	83.00	15.5	16.0	16.5	10.00	10.0	7.0	1.00 - ( 8)
298.3	61.00	6.0	13.0	16.0	10.00	10.0	0.0	0.10 - ( 6)
(95657) Grai	nt Creek							
Year: 2006								
0.1	52.00	9.0	15.0	6.0	10.00	6.0	0.0	0.10 - ( 6)

Appendix Table 1. QHEI metric scores for stations sampled in the Illinois and DesPlaines Rivers during	laines Rivers during 2006	and DesPlaines	Illinois aı	in the	is sampled	res for station	l metric scores	. QHEI	Appendix Table 1	,
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										Page 33
River Code: 95-656	Strea	ım:	DesPla	ines	River			Sample	Date: (	7/22/2006
River Mile: 283.90	Loca	tion:	Dst Oli	n Co	. DP-06			Invalid	Sample:	
Time Fished: 2056 sec	Drain	nage:	1000.0	sq n	ni	De	pth:	Data So	urce: (	)1
Dist Fished: 0.50 km	Basi	n:				Flo	ow: C	Sampler	Туре: А	A
			Lat:	41.4	83920	L	at: -88.133	590		
Species			Targe		# of	Relative	% by	Relative	% by	Ave(gm)
Name / ODNR status	Grp	Guild	Spec.	Tol	Fish	Number	Number	Weight	Weight	Weight
Gizzard Shad		0	MG		49	98.00	28.16	6.70	10.52	68.37
Smallmouth Buffalo	С	I			10	20.00	5.75	19.22	30.17	961.00
Common Carp	G	0	MG	т	12	24.00	6.90	24.34	38.20	1,014.08
Goldfish	G	0	MG	т	1	2.00	0.57	0.88	1.38	438.00
Spottail Shiner	Ν	1	MG	Ρ	2	4.00	1.15	0.01	0.02	2.50
Spotfin Shiner	N	1	MG		1	2.00	0.57	0.00	0.01	2.00
Bluntnose Minnow	Ν	0	MG	т	15	30.00	8.62	0.06	0.10	2.13
Channel Catfish	F		MG		2	4.00	1.15	3.72	5.84	930.00
White Crappie	S	1	MG		1	2.00	0.57	0.08	0.12	38.00
Largemouth Bass	F	С	MG		9	18.00	5.17	4.03	6.33	224.00
Green Sunfish	S	1	MG	т	13	26.00	7.47	0.54	0.84	20.62
Bluegill Sunfish	S	I.	MG	Р	52	104.00	29.89	3.55	5.58	34.15
Orangespotted Sunfish	S	1			1	2.00	0.57	0.01	0.02	5.00
Pumpkinseed Sunfish	S	1	MG	Р	2	4.00	1.15	0.10	0.16	25.00
Hybrid X Sunfish					4	8.00	2.30	0.47	0.74	58.75
	Date	Total			174	348.00		63.71		
	Numb	per of S	Species	5	14					
	Numb	per of l	lybrids		1					

Des Plaines River Grant Creek	nver) Des Plaines River Des Plaines River	Chicago Chicago Sanitary Ship Canal (had been coded as Des Plaines	Des Plaines River Des Plaines River	Des Plaines River	Des Plaines River	Des Plaines River	Des Plaines River	Illinois River	Illinois River	litinois Kiver	Stream Name Mile Exhibit 5 (in part); Final Version = Exhibits 7 (in part); Final Version = Exhibits 6 Deep QHE Deep QHE Attributes Feb28. Attrb					
298.3 0.1	290.1 297.0	290.0	287.9	285.8	279.5	276.4	273.5	271.1	268.0	200.1	251.4	247.8	248.5	243.3	242.1	"Rivor Mile" Ex
82.0 92.0	83.0 83.0	40	21.0	81.5	497.0 33 2	38.0	57.0 49.0	88.0	60.0	80.0	56.0	61.0	70.5	510	35.5	Exhibit 37 (in part): Exhibit 37 (in part): Desp QHEI Exhibit 6 Attributes Feb28- 08.pdf
52.00 52.00	68.50 84.00	40.50	20.00	81,50	(8) 88	37.00	57.00 48.50	87.00	56.00	58.75	55,25	80.50	73.00	48.50	55.00	'QHEI'' IIN (in part): Fin QHEI Atta s Fob28- Atta pdf par
81.00 52.00	68.50 83.00	45.50	21.00	81.50	68.00	39.00	57.00 49.50	86.00	57.00	59.75	56.25	61.50	72.50	49,50	55.00	Final Version = Attachment B (in E part) of affidavit
4.0 4.0	8.0 8.0	30	1.0	8.0	4.0	2.0	5.0	9.0	4.0	5.0	4.0	6.0	6.0	3.0	3.0	Exhibit 6 Att
4.0	8.0	3.0	3.1	1.0 8.0	4.0	22	5.0	9.0	3.0	5.0	4.0	6.0	6,0	3.0	3.0	Exhibit 37 (in part): Desp QHEt Attributes Feb28- 06.pdf
4.0 3.0	8.0	3.0		8.0									6.0		3,0	Final Version = Attachment B (in part) of affidavit
2.0	1.0 1.0	10	20	2.0 2.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	20	1.0	1.0	Exhibit 6
2.0 1.0	1.0	200	2.0	20	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0	"MWH Attributes - High Influence" "MWH Attributes - High Influence" Exhibit 37 (in part): Final Ve Besp GHEI Attributes Feb28- Attributes Feb28- part) of
2.0 1.0	1.0	10 10	2.0	2.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0	nfluence" Final Version = Attachment B (in part) of affidavit
5.0 8.0	3,0 3.0	3.0	7.0	6.0 2.0	4.0	6.0	4.0	0.0	6.0	3.0	4.0	2.0	2.0	4.0	5.0	"MWi Exhibit 6
5.0 8.0	3.0	3 G 0 G	7.	6. 2	4.0	0.0	n 4	0	4.6	3	4	2	2.0	4	5.0	"MWH Attributes - Moder: Exhibit 37 (In part): bit 6 Desp QHEI bit 6 Attributes Feb28- 08.pdf
	00			00	00	.00		0		0	0	0	0	D	0	butes - Moderate Influence" xit 37 (In part): Finat Version = xesp GHEI Attachment B (In butes Feb28- part) of alfidavit 08.pdf part) of alfidavit
5.0 0.60/1.60 6.0 0.60/1.80	3.0 0.29/0.71 3.0 0.22/0.58	6.0 0.75/2.25 3.0 0.50/1.25	100	P-121	6.0 0.50/2.00 4.0 0.20/1.00			0.0 0.20/0.20				2.0 0.14/0.43	2.0 0.43/0.71	4.0 0.504 5	5,0 0.50/1.75	"Mod 3 (in Exhibit 6 avit
											-					"Modified to Warmwater Attribute Ratios Exhibit 37 (in part): Final Versi Ibit 6 Desp OHEI Attributes Attachmen Feb28-08.pdf part) of aff
0.60/1.60	0.29/0.71 0.11/0.44	0.75/2.25 0.75/1.50	1.50/5.00	1.50/4.50 0.22/0.44	0.50/2.00	0.67/2.67	0.33/1.00	0.20/0.20	0.50/2.00	0.33/0.83	0.40/1.20	0.14/0.43	0.29/0.57	0 50/1 50	0.50/1.75	iter Attribute part): Fine ributes Attac odf part
0.80/1.60 0.50/2.00 C	0.29/0.71 0.11/0.44	0.75/2.25 0.60/1.25 2	1.50/5.00 th	1.50/4.50 0.22/0.44 C	0.50/2.00	0.67/2.67	0.33/1.00	0.20/0.20	0.50/2.00	0.33/0.83	0.40/1.20	0.14/0.43	0.28/0.57 C	0 50/1 50	0.50/1.75	ibute Ratios Final Version = Attachment B (in part) of affidavit
Corrected for the final version (Attachment B). Corrected for the final version (Attachment B). 0.807.60 0.8072.00 Change in the Rifle metric and High Influence Attributes and Ratios	0.290.71 0.11/0.45 Change in the Riffle metric and High Influence Attributes and Ratios	0.762,25 0.661/25 Change in the Riffle metric and High Influence Attributes and Ralios among each of the Exhibits reflected data anity errors that were corrected for the final version (Attachment B).	the Exhibits reflected data entry errors that were corrected for the final version (Attachment B)	1 50(4 50 0 22/0 44: Change in the High Influence Attributes and Ratios among each of								3	0.290,57 Change in the Riffle metric and High Influence Attributes and Ratios and Ratios and Ratio and the Exhibits reflected data entry errors that were anong each of the Exhibits reflected data entry errors that were			Stream Name "River Exhibit 7 (in part): Final Version = Exhibit 37 (in part): Final Version = Final Version = Final Version = Final Version = Fina
Attributes and Ra	Attributes and Ra	Attributes and R	re corrected for the	tios among each									Attributes and Ru rerrors that were			tong Versions

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		"QHE!"			"Substrate	•-		-	"Cover"		"Channel	I <b>-</b>		"Riparfar	n"		"Pool"		-	liffle"		"Gradient & Score"		
am Name "River Mile" ;	Exhibit 5	Exhibit 37 (in part): f Desp QHEI Metrics /	Inal Version : Itachment A (	n Exhibit 5	Exhibit 37 (In part	t): Final Versio	on.= A(in Exhit	Exhibit 37 bit 5 Desp QH	7 (in part): Final Ver	rsfon.≠ mlA(ın Exh	Exhibit 37 (in par	t): Final Version : cs Atlachmeni A (	.≖ (in Eo	-	rt): Final Version	= in Exhibit5	Exhibit 37 (in part) Desp QHEI Metric	Final Version = Attachment A (in	Exhibit 37 Exhibit 5 Desp QHE	(in part): Final Ve i Metrics Attachm	ersion≖ E entA(in Exhibit5 D	xhibit 37 (in part): Fi Desp QHEI Metrics Att	at Version	Reasons for Scoring Discropancies among Version (in
River 242.1		Feb28-08.pdf (	art) of affiday 55.0	it	Feb28-08.pdf	part) of affic	davil		14.0 14.0	affidavil 14.0	Feb28-08.pdf	part) of affiday		Feb28-08.pdf	part) of affidav		Feb28-08.pdf	part) of alfidavit	Feb28-6	0.0 0.0	affidavit 0.0 0.10 - (6)	Feb28-08.pdf pa 0.10 - (6)	rt) of affida	(6) "Ripsnen" meinc was score was incorrect on Exhibit 5 because computer program not scoring each bank separately; also "Shn
													1											was erased during data proofing, but not cleanly as it looks as it checked on scanned copy of Exhibit 7; this explains changed in
River 243.3	51.0	48.50	49 5	0 16.0	0 16	6.0	16.0	9.0	9.0	9.0	6.0	6.0 6.	5.0	\$0	6.5 6	5 60	5	ið 6.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 - (	(6) Riparian metric was score was incorrect on Exhibit 5 becau computer program not scoring each bank separatety. Chan the "Pool" metric between three reports reflects change in
												•												impounded subcomponent of poot metric. This was correct original report (Exhibit 5), incorrectly edited for the report of
River 246.5	70.5	73.00	72.5	B 15.0	) 15	50	15.0	7.0	70	7.0	16.0 10	6.0 16.	10	10.0	11.0 10	0 12.0	12	2.0 12.0	2.5	4.0	4.5 1.00 - (8)	1.00 - (8)	1 00 - 1	Exhibit 37 ("None" checked) and changed back ("None" unchecked) for the Final Version. (8) Riparian metric was score was incorrect on Exhibit 37 beca
							10.0				10.0					12.0						1.00 (0)		computer program not restricting maximum score to 10. Ch in the "Pool" metric between three reports reflects change
																								impounded subcomponent of pool metric. This was correct original report (Exhibit 5), incorrectly edited for the report of Exhibit 37 ("None" checked) and changed back ("None"
																								unchecked) for the Final Version. Change in the Riffle met among each of the Exhibits reflected data entry errors that corrected
River 247.8	61.0	60.50	61 5	6 16.0	) 16	6.0	16.0	17.0	17.0	17.0	9.0	9.0 9.	20	7.0	7.5 7	.5 60	5	i.0 60	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 - (	(6) Riparian metric was score was incorrect on Exhibit 5 beca computer program not scoring each bank separately.Char
																								the "Pool" metric between three reports reflects change i impounded subcomponent of pool metric. This was come originat report (Exhibit 5), incorrectly edited for the report
River 251.4	56.0	55.25	56.2	5 17.0	) 17	0	17.0	14.0	14.0	14.0	6.0	6.0 <b>6</b> .	1.0	7.0	7.25 7.2	25 6.0		10 6.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10	Exhibit 37 ("None" checkod) and changed back ("None" unchecked) for the Final Version. (6) Riparian metric was score was incorrect on Exhibit 5 bec
								14.0	14.0	14.0	0.0			1.0	123 1.			.0 0.0	0.0	0.0	0.0 0.10 - (6)	0.10-(6)	0.10-	computer program not scoring each bank separately. Ch the "Pool" metric between three reports reflects change i
100 March 100 Ma																								impounded subcomponent of pool metric This was corre- onginal report (Exhibit 5), incorrectly edited for the report Exhibit 37 ("None" checked) and changed back ("None"
River 256.1	60.0	58.75	59.7	5 17.0	) 17	7.0	17.0	12.0	12.0	12.0	8,5	8.5 8.	.5	9,5	9.25 9:	25 7.0	e	10 7.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 -	unchecked) for the Final Version. (6) Riparian metric was score was incorrect on Exhibit 5 bec
													3											computer program not sconng each bank separately. Ch the "Pool" metric between three reports reflects change i impounded subcomponent of pool metric. This was com-
		•																						original report (Exhibit 5), incorrectly edited for the report Exhibit 37 ("None" checkod) and changed back ("None" unchecked) for the Final Version.
River 265.0	54.0	53.75	54.7	5 15.0	) 15	5.0	15.0	13.0	13.0	13.0	6.0	6.0 6.	5.0	80	8.75 81	75 6.0	5	50 6.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 -	(6) Ripanan metric was score was incorrect on Exhibit 5 be computer program not scoring each bank separately. Cl
																								the "Pool" mainic between three reports reflects change impounded subcomponent of pool metric. This was con- originat report (Exhibit 5), incorrectly edited for the repo-
River 268.0	60.0	56,00	57.0	0 16.0	) 16	5.0	16.0	14.0	14.0	14.0	5.5	5.5 5.	5.5	9.5	9.5 9	5 9.0		50 6.0	0.0	0.0		0.40 (0)	0.10	Exhibit 37 ("None" checked) and changed back ("None unchecked) for the Final Version. (6) Change in the "Pool" metric between three reports refle
														0.0	5.5 5				0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.101	change in the "none" under the current subcomponent metric and data entry errors that were corrected. This
																								incorrect on original report (Exhibit 5) because of data errors, incorrectly edited for the report on Exhibit 37 (* checked) and changed back (*None* unchecked) for th
Rver 271.1	86.0	87.00	86.0	0 20.0	20	0.0	20.0	11.0	11.0	11.0	17.0 1	7.0 f7.	7.0	9.0	10.0 10	0 13.0	13	3.0 12.0	8.0	8.0	8.0 1.00 - (8)	1.00 - (8)	1.00 -	Version (8) Change in the Ripanan Metric reflects a data entry error in first report (Exhibit 5) that was fixed in Exhibit 37 an
aines River 273.5	57.0	57.00	57.0																					Version. Change in score for Poot reflects change in p limits maximum pool score to 12.0
ailles (1991 273.3	57.0	57.00	57.0	0 10.0	0 10	0.0	10.0	16.0	16.0	16.0	90 9	9.0 9.	9.0	10.0	11.0 10	.0 6.0	5	50 6.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 -	(6) Change in the Ripanan Metric reflects a data entry error in first roport (Exhibit 5) that was fixed in Exhibit 37 an Version, Change in the "Pool" metric between three rej
																								reflects change in the impounded subcomponent of po This was correct on original report (Exhibit 5), incorrect
unes River 274.0	49.0	48.50	49.5	0 90	) 9	9.0	9.0	15.0	15.0	15.0	5.5	5.5 5.	5.5	7.5	8.0 8	.0 6.0		50 6.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 -	for the report on Exhibit 37 ("None" checked) and char ("None" unchecked) for the Final Version. (6) Rtpanan metric was score was incorrect on Exhibit 5 b
																								computer program not scenng each bank separately. O the "Pool" metric between three reports reflects chang impounded subcomponent of poot metric. This was co
																								onginat report (Exhibit 5), incorrectly edited for the rep Exhibit 37 ("None" checked) and changed back ("None
aines River 276.4	38.0	37.00	39.0	0 3.0	) 3	3.0	30	14.0	14.0	14.0	4.0	40 4.	1.0	10.0	10.0 10	0 1.0	c.	30 2.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0 10 -	unchecked) for the Final Version. (6) Change in the "Pool" metric between three reports reflichange in the impounded subcomponent of pool metric
																25.2.5								data entry error. This was incorrect on original report "Slow" not checked), incorrectly edited for the report o ("None" checked) and changed back ("None" uncheck
unes River 276.5	51.5	50.75	51.7	5 11.0	) t1	1.0	11.0	15.0	15.0	15.0	6.0	6.0 6.	5.0	7.5	7.75 - 7.3	75 6.0		50 60	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 -	"Slow" checked) for the Final Version. (6) Ripanan metric was score was incorrect on Exhibit 5 b
																1								computer program not scoring each bank soparately, it the "Pool" metric between three reports reflects chang impounded subcomponent of pool metric. This was co
																								onginal report (Exhibit 5), incorrectly edited for the rep Exhibit 37 ("None" checked) and changed back ("None unchecked) for the Final Version.
ines River 279.5	67.0	68.00	68,0	0 19.0	) 19	0.0	19.0	17 0	17.0	17.0	7.0	7.0 7.	7.0	90	10.0 10	.0 7.0	7	7.0 7.0	0.0	0.0	0.0 1.00 - (8)	1 00 - (8)	1 00 -	<ul> <li>(8) Riparian metric was score was incorrect on Exhibit 5 t computer program was not scoring "Very Wide" bank is</li> </ul>
unes River 283.9	33.5	34.00	35.0	0 1.5	5 1	1.5	1.5	11.0	11.0	11.0	15	3.0 3.	2.0	7.5	7.5 7	.5 6.0	•	50 60	0.0	0.0	0 0 0.10 - (6)	0.10 - (6)	0.10 -	(6) Channol method was score was incorrect on Exhibit 5 b data entry error, correct on Exhibit 37 and Final Versic
																								In the "Pool" metric between three reports reflects cha impounded subcomponent of poot metric. This was co originat report (Exhibit 5), incorrectly edited for the rep
ines River 285.8	815	81 50	815	0 175	5 17	5	17.5	13.0	13.0	13.0	160 1	60 16		80										Exhibit 37 ("None" checked) and changed back ("Non unchecked) for the Final Version.
ines River 287.9	21.0	20.00	21.0			0		3.0	3.0	3.0			2.0			10 <u>12 0</u> 10 <b>6.0</b>		20 120 50 60	7 0 0.0	7 0 0.0	7 0 1 00 - (81 0.0 0.10 - (6)	1 00 - 18) 0.10 - (6)	1 00 - 0.10 -	<ul> <li>(6) Change in the "Pool" metric between three reports refliction of pool metric change in the impounded subcomponent of pool metric</li> </ul>
																								correct on onginal report (Exhibit 5), incorrectly edited report on Exhibit 37 ("None" checked) and changed be unchecked) for the Final Version.
iines River 289.0	46.0	45.00	46.0	0 11.0	) 11	1.0	11.0	11.0	11.0	11.0	6.0	60 6.	5.0	5.0	5.0 5	.0 7.0		5.0 7.0	0.0	0.0	0.0 0.50 - (6)	0.50 - (6)	0.50 -	(6) Change in the "Pool" motric between three reports reflection change in the impounded subcomponent of pool metric
Chicago 290.0											nim të fanjoren e serie e serie e serie e	overhiters 20 remains	10000	1.000000000000000000000000000000000000	1000 - 2000									correct on onginal report (Exhibit 5), Incorrectly edited report on Exhibit 37 ("None" checked) and changed be unchecked) for the Final Version.
y Ship	44.0	46.50	45.5	0 13.0	) 13	30	13.0	9.0	9.0	9.0	40	6.0 4.	1.0	50	6.5 6	.5 7,0		6.0 7.0	0.0	0.0	0.0 0.10 - (6)	0.10 - (6)	0.10 -	(6) Difference in the "Channel" metric score compared in compared to Exhibit 5 or Final Report was data correct
en coded Plaines																								Ripanan metric was score was incorrect on Exhibit 5 b computer program not scoring each bank separately.C the "Pool" metric between three reports reflects chang
																								impounded subcomponent of pool metric. This was co original report (Exhibit 5), incorrectly edited for the rep
ines River 290.1 ines River 297.0	68 5 83.0	68 50 84.00	68 5 83.0				14.5 15.5	9 D 16.0	9 0 16.0	9 0 16.0		40 f4. 6.5 16.	1.0	7.0 10 D		0 90		90 90	70	70	70 100-(8)	1 00 - (8)	1 00 -	
nes River 298.3		62.00	61.0					13.0	13.0				1.0	2	11.0 10 11.0 10		104/00 accile Mitcal da	0.0 10.0 1.0 10.0	7.0 0.0	7.0 0.0	7.0 1.00 - (8) 0.0 0.10 - (6)	1.00 - (8) 0.10 - (6)		<ul> <li>(8) Ripanan metric was score was incorrect on Exhibit 37 computer orogram not restricting maximum score to 11</li> <li>(6) Substrate metric score on Exhibit 5 (6.5) was incorrect</li> </ul>
													9									0.101(0)	0 10 1	of data entry error. Ripanan metric was score was inc Exhibit 37 because of computer program not restrictin
əək 0.1	62.0	52.00	52.0	D 9.0		1.0	9.0	15.0	15.0	15.0	13.0			10.0										score to 10. Change in the "Pool" matric between Exh Exhibit 37 and the Finat Version was due to a data en that was corrected
		22.00	52.0	3.0	9		3.0	-3.0	13.0	15.0	13.0 (	5.0 5	0	10.0	110 10	0 90	5	50 60	00	0.0	00010-(6)	0.10 - (6)	0.10 -	(6) Channel metric in Exhibit 5 reflected failure to check"to selection. Riparian metric was score was incorrect on
																								because of computer program not restricting maximum 10. Chango in the "Poot" metric between three reports change in the impounded subcomponent of pool metric
																								data entry error. This was incorrect on onginat report "Slow" not checked), incorrectly edited for the report of ("None" checked) and changed back ("None" uncheck
										332							1.5202000	and the second						"Slow" checked) for the Final Version

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#### Service List for R08-9

Elizabeth Schenkier Keith Harley Chicago Legal Clinic, Inc. 205 W. Monroe, 4<sup>th</sup> Floor Chicago, IL 60606

Susan M. Franzetti Nijman Franzetti LLP 10 South LaSalle St. Ste. 3600 Chicago, IL 60603

Katherine D. Hodge Monica Rios Matthew C. Read Hodge Dwyer Zeman 3150 Roland Ave. P.O. Box 5776 Springfield, IL 62702

John Therriault, Assistant Clerk Illinois Pollution Control Board James R. Thompson Center 100 West Randolph, Ste 11-500 Chicago, IL 60601

Susan Hedman Andrew Armstrong Office of the Attorney General Environmental Bureau North 69 West Washington Street, Suite 1800 Chicago, IL 60602

Jeffrey C. Fort Ariel J. Tesher Sonnenschein Nath & Rosenthal LLP 7800 Sears Tower 233 S. Wacker Drive Chicago, IL 60606-6404 Ann Alexander Senior Attorney, Midwest Program Natural Resources Defense Council 101 North Wacker Dr., Ste. 609 Chicago, IL 60606

Fredrick M. Feldman Ronald M. Hill Margaret T. Conway Metropolitan Water Reclamation District of Greater Chicago 111 East Erie Street Chicago, IL 60611

William Richardson, Chief Legal Counsel Illinois Department of Natural Resources One Natural Resources Way Springfield, IL 62705-5776

Marie Tipsord, Hearing Officer Illinois Pollution Control Board James R. Thompson Center 100 West Randolph, Ste 11-500 Chicago, IL 60601

Albert Ettinger, Senior Staff Attorney Jessica Dexter Environmental Law & Policy Center 35 E. Wacker Dr., Suite 1300 Chicago, IL 60601

Jennifer A. Simon Kevin Desharnais Thomas W. Dimond Thomas V. Skinner Mayer Brown LLP 71 South Wacker Drive Chicago, IL 60606-4637

## Service List for R08-9 Continued

Fredric P. Andes Carolyn S. Hesse David T. Ballard Barnes & Thornburg LLP One North Wacker Drive Suite 4400 Chicago, IL 60606

Kristy A.N. Bulleit Brent Fewell Hunton & Williams LLC 1900 K Street, NW Washington, DC 20006

Marc Miller Office of the Lt. Governor, Pat Quinn Room 414 State House Springfield, IL 62706

Cathy Hudzik City of Chicago, Mayor's Office of Intergovernmental Affairs 121 North LaSalle Street City Hall Room 406 Chicago, Illinois 60602 Stacy Meyers-Glen Openlands 25 E. Washington, Ste. 1650 Chicago, IL 60602

Jack Darin Cindy Skrukrud Sierra Club, Illinois Chapter 70 East Lake Street, Ste 1500 Chicago, IL 60601

Traci Barkley Prairie Rivers Network 1902 Fox Drive, Suite 6 Champaign, Illinois 61820

Lyman C. Welch Alliance for the Great Lakes 17 North State Street, Suite 1390 Chicago, Illinois 60602 STATE OF ILLINOIS

COUNTY OF SANGAMON

SS

# **PROOF OF SERVICE**

I, the undersigned, on oath state that I have served the attached Affidavit of Mr. Chris O.

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)

Yoder upon the person to whom it is directed by placing it an envelope addressed to:

John Therriault, Clerk Marie Tipsord, Hearing Officer Illinois Pollution Control Board James R. Thompson Center 100 West Randolph Street, Suite 11-500 Chicago, Illinois 60601

# SEE ATTACHED SERVICE LIST

and mailing it First Class Mail from Springfield, Illinois on September 17, 2008, with sufficient

postage affixed.

Deindre herre

SUBSCRIBED AND SWORN TO BEFORE ME

day of Septem 2008 This

Notary Public

CERICIAL SEAL
NOTARY PUBLIC, STATE OF ILLINOIS
MY CUMMISSION EXPIRES 11.2.2000
······································

# THIS FILING IS SUBMITTED ON RECYCELD PAPER