

Beneficial Use Support Document Lower Scioto River



Division of Surface Water
Ecological Assessment Section
November, 2015

Recommendations

Aquatic Life Use Status

Many of the waterbodies sampled as part of the 2011 lower Scioto River basin study area were originally designated for aquatic life use(s) in the 1978 and 1985 state water quality standards. The techniques in use at that time did not include standardized approaches to the collection of in-stream biological data or numeric biocriteria. For many waters contained within the lower Scioto River watershed, this study represents the first comprehensive use of these types of ambient biological data to inform the use designation process. While some of the recommendations may appear to constitute “downgrades” (i.e., EWH to WWH) or “upgrades” (i.e., WWH to EWH) any change should not be construed as such because these, in most instances, constitute the first application of an objective and robust data driven process to ascertain the appropriate aquatic life use designation. Ohio EPA is obligated by a 1981 public notice to review and evaluate all aquatic life use designations outside of the WWH use prior to basing any permitting actions on the existing, unverified use designations. Thus, some of the following aquatic life use recommendations constitute a fulfillment of that obligation.

Existing and recommended aquatic life use(s) resulting from the 2011 intensive survey are summarized in Table 1. Affirmation of existing uses, re-designation of existing, yet unverified, uses, or designation of previously unlisted waters and other pertinent information, where needed, are presented below. Attainment status based upon existing and recommended uses and associated causes and sources of waters identified as being impaired are presented in Table 2. Stream habitat quality being an important factor in use attainability, a matrix of riparian, channel, and substrate features and resulting QHEI scores, by station and waterbody, are presented in Table 3.

Aquatic Life Uses Verified Prior to 2011

Existing aquatic life designations, verified prior to the 2011 biosurvey, are affirmed for the following streams or stream segments. Re-endorsement is based upon either demonstrated ambient biological performance (fish and macrobenthos) consistent with the supporting biocriteria or, a use attainability analysis (UAA) if biology was found to not fully attain the applicable biological criteria.

Scioto River (mainstem) - WWH

Big Beaver Creek (entire length) - WWH

Little Beaver Creek (entire length) - WWH

Walnut Creek (lower 13.6 miles)

- From Piny Run confluence (RM 13.6) to mouth - EWH

Kinnikinick Creek (entire length) - EWH

Scioppo Creek

- Old Tarlton Pike (RM 14.8) to mouth - EWH
- All other segments - WWH

Yellowbud Creek

- Lower three miles - EWH
- All other segments - WWH

Verification of Existing Aquatic Life Uses

Existing, yet unverified, aquatic life uses of the vast majority of streams that together comprise the lower Scioto basin were designated prior to the promulgation of biocriteria. Direct assessment of these waters was among the primary objectives of the 2011 biosurvey. Based upon either demonstrated ambient biological performance, or a UAA, if biology was found to not fully attain the applicable biological criteria, existing designations were verified for waters identified as such (“+” symbol) in Table 1.

Table 1 - Existing and recommended beneficial use designations for water bodies, lower Scioto River.

Water Body Segment	Use Designations												Comments	
	S R W	Aquatic Life Habitat						Water Supply			Contact Rec.			
		W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
Scioto River														
• Circleville to the mouth		+							+	+			+	
Pond Creek		*/+							*/+	*/+			*/+	
Dry Run		*/+							*/+	*/+			*/+	
Candy Run		*/+							*/+	*/+			*/+	
Miller Run		*/+							*/+	*/+			*/+	
Cockrell Run		*/+							*/+	*/+			*/+	
Bear Creek		*/+							*/+	*/+			*/+	
Camp Creek		*/+							*/+	*/+			*/+	
Left Fork Camp Creek		*				Δ			*/+	*/+			*/+	WWH to CWH
Big Run (@ RM 22.15)		Δ							Δ	Δ			Δ	Previously Unlisted
Sunfish Creek		*	*/+						*/+	*/+			*/+	
Chenoweth Fork		*	*/+						*/+	*/+			*/+	
Carter Run		*	*/+						*/+	*/+			*/+	
Leeth Creek		*	*			Δ			*/+	*/+			*/+	WWH to CWH
Morgan Fork			*/+						*/+	*/+			*/+	
Left Fork Morgan Fork		*	*			Δ			*/+	*/+			*/+	WWH to CWH
Right Fork Morgan Fork		*	*/+						*/+	*/+			*/+	
Middle Fork Morgan Fork			Δ						Δ	Δ			Δ	Previously Unlisted
Grassy Fork		*	*			Δ			*/+	*/+			*/+	WWH to CWH
Kincaid Creek			*			Δ			*/+	*/+			*/+	WWH to CWH
Big Beaver Creek														
• Headwaters to Piketon		*	+						+	+			+	
• All other segments			+						+	+			+	
Little Beaver Creek		*	+						+	+			+	
Pecks Creek		*	*/+						*/+	*/+			*/+	
No Name Creek			*/+						*/+	*/+			*/+	
Pee Pee Creek			*/+						*/+	*/+			*/+	
Crooked Creek			*/+						*/+	*/+			*/+	
Left Fork Crooked Creek			*/+						*/+	*/+			*/+	
Haw Fork			*/+						*/+	*/+			*/+	
Meadow Run			*/+						*/+	*/+			*/+	
Moore Run			*/+						*/+	*/+			*/+	
Carrs Run			*/+						*/+	*/+			*/+	
Hickson Run			*			Δ			*/+	*/+			*/+	WWH to CWH
Walnut Creek														
• Headwaters to Piny Run (RM13.56)			Δ	+					*/+	*/+			+	Previously Unassessed
• Piny Run to mouth				+					*/+	*/+			+	
Little Walnut Creek			*	Δ					*/+	*/+			*/+	WWH to EWH
Piny Run			*			Δ			*/+	*/+			*/+	WWH to CWH
Stony Creek			*/+						*/+	*/+			*/+	

Water Body Segment	S R W	Use Designations											Comments	
		Aquatic Life Habitat						Water Supply			Contact Rec.			
		W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
Dry Run (@RM 59.8)		*/+							*/+	*/+		*/+		
Indian Creek		*/+							*/+	*/+		*/+		
North Branch Indian Creek		*/+							*/+	*/+		*/+		
Lick Run		*/+							*/+	*/+		*/+		
Dry Run (@ RM 74.6)		*				Δ			*/+	*/+		*/+		WWH to CWH
Kinnikinick Creek			+						*/+	*/+		+		
South Fork Kinnikinick Creek		Δ							Δ	Δ		Δ		Previously Unlisted
Dresbach Creek		Δ							Δ	Δ		Δ		Previously Unlisted
Blackwater Creek		*/+							*/+	*/+		*/+		
Scippo Creek														
• Old Tarlton Pike (RM 14.8) to mouth			+						*/+	*/+		+		
• All other segments			+						*/+	*/+		+		
Congo Creek		Δ	+						*/+	*/+		+		EWB to WWH
Yellowbud Creek														
• Ebenhack Rd.(RM 3.0) to mouth			+						*/+	*/+		+		
• All other segments			+						*/+	*/+		+		
Lick Run		*/+							*/+	*/+		*/+		
Hargus Creek		*/+							*/+	*/+		*/+		
Hominy Creek		*/+							*/+	*/+		*/+		
* - Unverified beneficial use designation based on 1978 Water Quality Standards (WQS).					Ohio WQS Beneficial Uses.(OAC3745-1-07) SRW = state resource water WWH = warmwater habitat EWB = exceptional warmwater habitat MWH = modified warmwater habitat SSH = seasonal salmonid habitat CWH = coldwater habitat LRW = limited resource water PWS = public water supply AWS = agricultural water supply IWS = industrial water supply BW = bathing water PCR = primary contact recreation SCR = secondary contact recreation									
+ - Verified beneficial use designation based on the results of a biological field assessment performed by the Ohio EPA. */+ - Verification of existing, yet unverified, beneficial use designation based upon the results of this investigation. Δ - Recommended beneficial use designation based on the results of this investigation.														

Redesignation of Verified Aquatic Life Uses

The WWH designation is recommended to replace the verified EWH use for all or portions of two lower Scioto River tributaries, Congo Creek and Walnut Creek. EWH was previously verified for these streams and incorporated into the Ohio WQS in the mid-1990s. However, additional information resulting from the 2011 survey work supports these revisions, as described below.

Congo Creek (entire length) - EWH to WWH

Congo Creek has consistently supported exceptional fish communities since it was first surveyed in 1993, and its EWH designation shortly thereafter was based upon these early data. Unfortunately, this initial assessment did not include an evaluation of the macroinvertebrate community. This deficit was rectified in 2011, but macrobenthos monitoring failed to yield an EWH assemblage, and instead found only WWH communities. The absence of an EWH invertebrate assemblage was attributed to natural limits rather than anthropogenic stressor(s). The persistence of exceptional fish communities over the past 18 years is a clear indication of environmental stability, and as such, the recommendation from EWH to WWH does not reflect recent degradation or a lowering of WQ. As the initial UAA for Congo Creek was incomplete (i.e., no macrobenthos assessment), the 2011 survey results represented the first full or otherwise complete appraisal of this stream.

Walnut Creek (headwaters) - EWH to WWH

Walnut Creek was designated and verified EWH in the mid-1990s. However, the initial investigation was limited in scope and did not extend into the headwaters. The 2011 resurvey of Walnut Creek extended sampling well into its upper reaches, and these were found to support only WWH communities. As they were never specifically surveyed prior to 2011, the headwaters of Walnut Creek are unassessed. Based upon demonstrated biological performance, the WWH use appears the most appropriate and attainable goal for upper Walnut Creek. As stated previously, the EWH use is affirmed for the remaining downstream portions of Walnut Creek

- Headwaters to Piny Run confluence (RM 13.56) - EWH to WWH

Cold Water Streams

Eight waterbodies within the lower Scioto River basin were found to support coldwater adapted communities. Streams so identified and the associated number of indicator taxa include the following:

Left Fork Camp Creek (unverified WWH to CWH)

- CW Taxa: 8 macrobenthos and 2 fish

Leeth Creek (unverified WWH to CWH)

- CW Taxa: 4 macrobenthos and 2 fish

Left Fork Morgan Fork (unverified WWH to CWH)

- CW Taxa: 8 macrobenthos and 2 fish

Grassy Fork (unverified WWH to CWH)

- CW Taxa: 7 macrobenthos and 2 fish

Kincaid Creek (unverified WWH to CWH)

- CW Taxa: 9 macrobenthos and 3 fish

Hickson Run (unverified WWH to CWH)

- CW Taxa: 4 macrobenthos and 2 fish

Piny Run (unverified WWH to CWH)

- CW Taxa: 7 macrobenthos and 1 fish

Dry Run [RM 74.6 (unverified WWH to CWH)

- CW Taxa: 11 macrobenthos and 1 fish

Unlisted or Undesignated Waters

Four waterbodies within the lower Scioto River study area are wholly absent from the Ohio WQS. These included, Big Run, Middle Fork Morgan Fork, Dresbach Creek, and South Fork Kinnikinick Creek. Based upon either demonstrated ambient biological performance, or a use attainability analysis (UAA), if biology was found to not fully meet applicable biocriteria, each of these streams is recommended for WWH designation.

Table 2. Aquatic life use attainment status for sampling locations in the lower Scioto River watershed, 2011.

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
Scioto River (02-001) Eastern Corn Belt Plains (ECBP) WWH+Use (Existing)									
100.0/100.1 ^(B)	Circleville, dst. Big Darby Cr., US 22	47	10.6	54	84.8	FULL			
97.8/97.9 ^(B)	Canal Lock and Dam Park	49	10.9	48	84.8	FULL			
94.2/95.3 ^(B)	Ust. B&E Landfill/dst. DuPont	47	10.8	48	86.5	FULL			
89.5 ^(B)	Dst. Scippo Creek	46	10.5	46	87.0	FULL			
86.4/86.0 ^(B)	Ust. Deer Creek, Kellenburger Rd.	47	10.6	E	77.5	FULL			
83.0 ^(B)	Dst. Deer Creek	44	10.5	52	93.0	FULL			
77.4 ^(B)	Ust. Ross Co. Correctional WWTP	44	10.6	E	81.8	FULL			
Western Allegheny Plateau (WAP) WWH+Use (Existing)									
70.9/70.4 ^(B)	Chillicothe, Bridge St., dst. Ross Co. Correctional WWTP, ust Chillicothe WWTP	48	10.5	46	83.5	FULL			
67.8/66.8 ^(B)	Dst. Chillicothe WWTP	49	10.6	E	81.0	FULL			
64.5 ^(B)	US 35, ust. Paint Creek	48	10.5	48	89.0	FULL			
60.0/60.4 ^(B)	Adj. Three Locks Rd., dst. Piant Creek/PH Glatfelter	48	10.8	48	91.5	FULL			
56.2/56.1 ^(B)	Higby Rd.	46	10.5	54	91.0	FULL			
50.8/50.9 ^(B)	Dst. Salt Creek	47	10.2	50	86.5	FULL			
46.0/45.0 ^(B)	Dst. Carrs Run, SR 335	42	9.7	50	86.3	FULL			
40.0 ^(B)	Ust. Wavery WWTP,SR 220	44	10.3	50	70.3	FULL			
37.1/36.7 ^(B)	Dst. Waverly WWTP, dst. PeePee Cr.	43	10.3	54	79.5	FULL			
33.0 ^(B)	Piketon, dst. US 23	48	9.9	42	71.5	FULL			
29.2/28.6 ^(B)	Ust. Beaver Creek, ust. USEC Facility	46	10.1	52	75.5	FULL			
23.5/23.6 ^(B)	Dst. Beaver Creek, dst. USEC Facility	43	9.7	46	82.8	FULL			
20.5/19.3 ^(B)	Adj. US 23	43	9.9	48	82.5	FULL			
14.7/13.8 ^(B)	Lucasville, Canal Dam, SR 348	43	10.2	40	80.8	FULL			
9.1/9.0 ^(B)	Rushtown, dst. Scioto Brush Creek	50	10.4	52	79.8	FULL			
5.4/4.7 ^(B)	Rosemont, adj. US 23	39 ^{ns}	10.2	50	69.0	FULL			

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
Hargus Creek (02-074) Eastern Corn Belt Plains (ECBP) WWH* Use (Existing)									
2.1 ^(H)	At Fairgrounds, ust Hominy Creek	50	NA	VG	66.5	FULL			
0.4 ^(H)	Circleville, High St./Island Rd.	46	NA	48	68.5	FULL			
Hominy Creek (02-075) Eastern Corn Belt Plains (ECBP) WWH* Use (Existing)									
0.2/1.1 ^(H)	Circleville, ust. Private lane near mouth, ust. RR Crossing	40	NA	G	56.8	FULL			
Lick Run (02-073) Eastern Corn Belt Plains (ECBP) WWH* Use (Existing)									
0.2 ^(H)	Sisk Rd./Westfall Rd.	40	NA	G	56.8	FULL			
Yellowbud Creek (02-071) Eastern Corn Belt Plains (ECBP) WWH+ Use (Existing)									
7.1/7.0 ^(H)	Kinderhook Rd./Rector Rd.	40	NA	VG	54.0	FULL			
Eastern Corn Belt Plains (ECBP) EWH+ Use (Existing)									
- /1.8 ^d	Rittinger Property (2012 sample)	-	-	E	-	NA			
1.1 ^(W)	CR 1046, dst. Village of Yellowbud	57	9.6	38*	79.3	PARTIAL	Sedimentation	Channel Modification Agriculture	
Scippo Creek (02-069) Eastern Corn Belt Plains (ECBP) EWH+ Use (Existing)									
14.8 ^(H)	Tarlton Pike	52	NA	VG	75.5	FULL			
11.5/11.4 ^(H)	SR 56	48	NA	52	65.5	FULL			
5.3 ^(W)	Kingston Pike, ust. PPG	56	9.3 ^{ns}	48	81.5	FULL			
4.4 ^(W)	Dst. PPG	49 ^{ns}	9.2 ^{ns}	58	72.8	FULL			
1.6 ^(W)	River Rd.	49 ^{ns}	8.4*	E	73.0	PARTIAL	Unknown	Unknown	
Congo Creek (02-070) Eastern Corn Belt Plains (ECBP) EWH+/WWH Use (Existing/Recommended)									
2.2 ^(W)	SR 361	48 ^{ns}	NA	MG ^{ns}	63.8	FULL			
Blackwater Creek (02-196) Eastern Corn Belt Plains (ECBP) WWH* Use (Existing)									
0.7 ^(H)	Orr Rd.	34*	NA	F*	58.0	NON	Direct Habitat Alteration	Channel Modification	
Kinnikinnick Creek (02-068) Eastern Corn Belt Plains (ECBP) EWH+ Use (Existing)									
7.5 ^(H)	Kingston-Hallsville Pike	58	NA	VG	57.5	FULL			
2.9 ^(W)	Sufur Springs Rd, RR Crossing	43*	8.9 ^{ns}	58	75.8	PARTIAL	Unknown	Unknown	
Dresbach Creek (02-491) Eastern Corn Belt Plains (ECBP) Unlisted/WWH Use (Recommended)									
0.7 ^{(H),d}	Kreisel Rd. (2012 sample)	48	NA	VG	60.0	FULL			

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
South Fork Kinnikinnick Creek (02-068-488) Eastern Corn Belt Plains (ECBP) Unlisted/WWH Use (Recommended)									
0.8 ^(H)	SR 180	48	NA	G	67.0	FULL			
Dry Run (at RM 74.6) (02-066) Western Allegheny Plateau (WAP) WWH*/CWH Use (Existing/Recommended)									
1.0/1.4 ^(H)	Bridge St.	34*	NA	46	65.0	FULL			Coldwater Taxa Macrobenthos 11 Fish 1
Lick Run (02-065) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.6 ^(H)	Schrader Lane	44	NA	44	57.5	FULL			
Indian Creek (02-063) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
1.2 ^(B)	Massieville Rd., CR 600	49	9.0	50	71.3	FULL			
North Branch Indian Creek (02-064) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.1 ^(H)	Adj. Trego Rd.	54	NA	G	73.5	FULL			
Dry Run (at RM 59.8) (02-062) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
5.4 ^(H)	Miller Rd.	28*	NA	G	62.3	PARTIAL	Natural Conditions (Low Flow)	Natural Sources	
Stony Creek (02-061) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.2/0.6 ^(H)	Three Locks Rd.	30*	NA	G	70.8	PARTIAL	Natural Conditions (Flow or Habitat)	Natural Sources	
Walnut Creek (02-056) Western Allegheny Plateau (WAP) EWH+/WWH Use (Existing/Recommended)									
14.6 ^(H)	Rout Rd., ust. Piny Run	44*	NA	E	63.3	FULL			
Western Allegheny Plateau (WAP) EWH+ Use (Existing)									
11.3 ^(W)	Mt. Nebo Rd.	54	9.7	56	71.5	FULL			
5.2 ^(W)	Schoolery Station Rd.	56	9.9	44	67.5	FULL			
1.3 ^(W)	Old SR 35	50	10.0	52	67.5	FULL			
Piny Run (02-060) Western Allegheny Plateau (WAP) WWH*/CWH (Existing/Recommended)									
0.3 ^(W)	Piney Creek Rd./CR 220	42	NA	VG	56.5	FULL			Coldwater Taxa Macrobenthos 7 Fish 1
Little Walnut Creek (02-058) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.2 ^(H)	Cottril Rd./Mitten Lane	58	NA	E	71.3	FULL			
Hickson Run (02-054) Western Allegheny Plateau (WAP) WWH*/CWH Use (Existing/Recommended)									
0.3 ^{(H), d}	Watson Rd. (2012 sample)	52	NA	VG	68.5	FULL			Coldwater Taxa Macrobenthos 4 Fish 2

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
Carrs Run (02-050) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
1.5 ^(H)	North River Rd.	52	NA	F*	64.5	PARTIAL	Sedimentation (sand)	Sand/Gravel Mining	
Moore Run (02-049) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
2.0 ^(H, 2012)	Higby Rd.(2012 sample)	52	NA	VG	51.8	FULL			
Meadow Run (02-046) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.3 ^(H)	River Rd.	44	NA	E	73.8	FULL			
PeePee Creek (02-035) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
11.5 ^(H)	Nipgen Rd.	22*	NA	VG	49.0	PARTIAL	Natural Conditions (Low Flow)	Natural Sources	
7.6 ^(W)	CR 37	40 ^{ns}	7.0*	E	63.8	PARTIAL	Natural Conditions (Low Flow)	Natural Sources	
1.1 ^(W)	US 23, dst. White Lake	44	8.2 ^{ns}	MG ^{ns}	66.5	FULL			
Haw Fork (02-042) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.4 ^(H)	Adj. Turkey Run Rd.	48	NA	VG	47.0	FULL			
Crooked Creek (02-036) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
11.0/11.3 ^(H)	Blaine Hwy./SR 167	52	NA	G	70.8	FULL			
8.0 ^(H)	Farm Lane off Alma-Omega Rd.	48	NA	42	61.5	FULL			
2.4 ^(W)	SR 220	50	9.8	38	71.0	FULL			
0.1/0.8 ^(W)	Near Lake White spillway @ mouth	42 ^{ns}	8.3 ^{ns}	MG ^{ns}	58.0	FULL			
Left Fork Crooked Creek (02-037) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
2.6 ^(H)	CR 47/Denver Rd.	38*	NA	VG	68.8	PARTIAL	Natural Conditions (Low Flow)	Natural Sources	
No Name Creek (02-031) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.8 ^(H)	SR 32	48	NA	E	68.0	FULL			
Big Beaver Creek (02-022) Western Allegheny Plateau (WAP) WWH+ Use (Existing)									
19.8 ^(H)	Gravel Washer Rd.	44	NA	MG ^{ns}	61.5	FULL			
16.0 ^(W)	Red Hollow Rd./CR 76	50	9.7	VG	70.8	FULL			
5.5/5.6 ^(W)	Shyville Rd., ust. Little Beaver Cr.	43 ^{ns}	9.0	48	80.5	FULL			
3.1 ^(W)	Grove Rd./CR 117	45	9.4	VG	73.0	FULL			

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
Pecks Creek (02-027) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
1.5 ^(H)	Germany Rd./CR 66	46	NA	E	71.5	FULL			
Little Beaver Creek (02-023) Western Allegheny Plateau (WAP) WWH+ Use (Existing)									
0.1/0.6 ^(H)	Wakefield Mound Rd.	52	NA	VG	80.3	FULL			
Sunfish Creek (02-800) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
23.3 ^(H)	Ust. Byington, Adj. SR 124	54	NA	G	57.5	FULL			
19.9 ^(W)	Ust. Grassy Fork Rd.	50	9.1	E	67.5	FULL			
16.2 ^(W)	Red Bridge Rd.	55	9.1	48	83.5	FULL			
8.1 ^(W)	SR 772	53	9.8	42	82.3	FULL			
4.8/5.3 ^(B)	CR 21/Sunfish Creek Rd.	44	10.1	44	64.5	FULL			
- /0.5	SR 104	-	-	36	-	NA			
Kincaid Creek (02-815) Western Allegheny Plateau (WAP) WWH*/CWH Use (Existing/Recommended)									
0.8 ^(H)	Adj. Lapperell Rd., at State Fish Hatchery	52	NA	G	66.5	FULL			<u>Coldwater Taxa</u> Macrobenthos 9 Fish 3
Grassy Fork (02-814) Western Allegheny Plateau (WAP) WWH*/CWH Use (Existing/Recommended)									
1.0 ^(H)	Grassy Fork Rd.	48	NA	E	73.5	FULL			<u>Coldwater Taxa</u> Macrobenthos 7 Fish 2
Morgan Fork (02-809) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
1.7 ^(W)	CR 3/Morgan Fork Rd.	48	8.6	E	75.0	FULL			
Left Fork Morgan Fork (02-810) Western Allegheny Plateau (WAP) WWH*/CWH Use (Existing/Recommended)									
1.2 ^(H)	Firetower Rd.	52	NA	40	69.5	FULL			<u>Coldwater Taxa</u> Macrobenthos 8 Fish 2
Right Fork Morgan Fork (02-811) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.7 ^(H)	Dst. Middle Fork	56	NA	G	68.0	FULL			
Middle Fork Morgan Fork (02-817) Western Allegheny Plateau (WAP) Unlisted/WWH Use (Recommended)									
1.5/1.4 ^(H)	Adj. Pike Lake Rd., dst. Pike Lake	34*	NA	G	78.0	PARTIAL	Flow Alteration	Impoundment (Downstream Effects)	

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
Leeth Creek (02-808) Western Allegheny Plateau (WAP) WWH*/CWH Use (Existing/Recommended)									
1.5 ^(H)	Leeth Creek Rd.	46	NA	46	68.0	FULL			Coldwater Taxa Macrobenthos 4 Fish 2
Chenoweth Fork (02-802) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
8.1 ^(H)	Adj. Chenoweth Fork Rd., dst. Long Run	52	NA	VG	62.5	FULL			
1.7 ^(W)	Chenoweth Fork Rd., dst. Spoon River	46	8.5	48	68.3	FULL			
Carter Run (02-804) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.4 ^(H)	Ust. SR 32. near mouth	42	NA	E	65.3	FULL			
Camp Creek (02-015) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
5.2 ^(H)	CR 25/Camp-Bear Cr. Rd./Coldicot Rd.	50	NA	E	74.5	FULL			
1.8/1.7 ^(W)	Hungry Hollow Rd., at ford	49	9.1	MG ^{ns}	69.5	FULL			
Left Fork Camp Creek (02-017) Western Allegheny Plateau (WAP) WWH*/CWH+ Use (Existing)									
1.4 ^(H)	Adj. Left Fork Rd., Dst. Rock Run	38*	NA	42	58.5	FULL			Coldwater Taxa Macrobenthos 8 Fish 2
Big Run (02-001-026) Western Allegheny Plateau (WAP) Unlisted/WWH Use (Recommended)									
2.0 ^(H)	Wakefield Mound Rd.	46	NA	VG	72.0	FULL			
Bear Creek (02-014) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
2.4 ^(H)	Adj. Bear Cr-Rarden Rd.	42	NA	G	57.0	FULL			
Miller Run (02-009) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
0.9 ^(H)	Fairground Rd./CR 55)	50	NA	G	47.0	FULL			
Cockrell Run (02-010) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
2.6 ^(H)	Beloat Rd. (Miller Run Trib.)	46	NA	E	60.5	FULL			
Candy Run (02-008) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
2.6 ^(H)	Lintz Hollow Rd., ust. Lucasville WWTP	52	NA	F*	73.3	PARTIAL	Organic Enrichment	HSTS (Home Septics)	
0.9 ^(H)	US 23, dst. Lucasville WWTP	56	NA	F*	71.0	PARTIAL	Organic Enrichment	POTW (Lucasville WWTP)	

Stream/River River Mile	Location	IBI	MIwb ^a	ICI ^b	QHEI	Attainment ^c	Cause	Source	Comment
Pond Creek (02-002) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
8.4 ^(H)	CR 49/Cave Lick Rd.	38*	NA	E	65.0	PARTIAL	Natural Conditions (Low Flow)	Natural Sources	
4.8 ^(H)	Primose Lane/Alley Rd.	42	NA	E	61.5	FULL			
Dry Run (02-003) Western Allegheny Plateau (WAP) WWH* Use (Existing)									
1.3 ^(H)	Ust. SR 104/Adj. CR 57	32*	-	-	39.3	(NON)	Natural Conditions (Low Flow)	Natural Sources	

a- River Mile (RM) represents the Point of Record (POR) for the station, not the actual sampling RM.

b- MIwb is not applicable to headwater streams with drainage areas ≤ 20 mi².

c- A narrative evaluation of the qualitative sample based on attributes such as EPT taxa richness, number of sensitive taxa, and community composition was used when quantitative data was not available or considered unreliable. VP=Very Poor, P=Poor, LF=Low Fair, F=Fair, MG=Marginally Good, G=Good, VG=Very Good, E=Exceptional
d- Attainment is given for the proposed status when a change is recommended.

ns- Nonsignificant departure from biocriteria (≤ 4 IBI or ICI units, or ≤ 0.5 MIwb units).

*- Indicates significant departure from applicable biocriteria (>4 IBI or ICI units, or >0.5 MIwb units). Underlined scores are in the Poor or Very Poor range and would automatically place a site into non-attainment.

B- Boat site.

H- Headwater site.

W- Wading site.

^{x-15} - Flow over artificial substrate less than 0.3 feet per second required for valid sample; narrative evaluation overrides ICI.

^{x-12} -Suspected high water influence; narrative evaluation overrides ICI.

Biological scores denoted by [brackets] were collected during the 2015 sampling index period.

Ecoregional Biocriteria (OAC 3745-1-07, Table 7-15)

Eastern Corn Belt Plain (ECBP) Ecoregion

Western Allegheny Plateau (WAP) Ecoregion

<u>Index-Site Type</u>	<u>WWH</u>	<u>EWH</u>	<u>MWH</u>	<u>Index-Site Type</u>	<u>WWH</u>	<u>EWH</u>	<u>MWH^e</u>
IBI-Headwater	40	50	24	IBI-Headwater	44	50	24
IBI-Wading	40	50	24	IBI-Wading	44	50	24
MIwb-Wading	8.3	9.4	6.2	MIwb-Wading	8.4	9.4	6.2/5.5
IBI-Boat	42	48	24	IBI-Boat	40	48	24
MIwb-Boat	8.5	9.6	5.8	MIwb-Boat	8.6	9.6	5.8/5.5
ICI	36	46	22	ICI	36	46	22/30

e - Where two criteria are listed for the MIwb and ICI, the second is restricted to mine affected waters. MWH IBI criteria for non-mine affected modified waters (drainage improvement, impoundment, etc.) and mine affected water are the same.

QHEI Attributes: Scioto River Basin (lower) 2011 TMDL

Key QHEI Components				WWH Attributes							MWH Attributes																								
	River Mile	QHEI	Gradient (ft/mi)	Low/Normal Riffle Embeddness Max Depth > 40cm	Low/Normal Embeddness	Fast Current/Eddies	Extensive/Moderate Cover	Moderate/High Sinuosity	Good/Excellent Development	Silt Free Substrates	Boulder/Cobble/Gravel Substrates	Not Channelized or Recovered	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparsely to Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddness	High/Mod Riffle Embeddness	No Riffle	M.I. Modified Attributes	MMW H.I.+1/MMW+1 Ratio	MMW M.I./MMW Ratio	
	02-001-026																																		
	Year: 2011																																		
	2.0	72.0	22.22	X	X	X	X	X	X	X	X	7					X	1	X		X												3	0.38	0.50
	02-002-000																																		
	Year: 2011																																		
	8.4	65.0	16.00	X	X	X	X	X	X	X	X	7			X	1					X	X	X	X	X	X	X	X	X	X	X	4	0.25	0.63	
	4.8	61.5	24.10	X		X		X	X	X	X	5			X	1				X		X	X	X	X	X	X	X	X	X	X	4	0.33	0.83	
	02-003-000																																		
	Year: 2011																																		
	1.3	39.3	117.65	X				X	X			3	X	X	X	X	4				X			X		X		X		X	3	1.25	1.00		
	02-008-000																																		
	Year: 2011																																		
	2.6	73.3	19.42	X	X	X	X	X	X	X	X	7						0			X				X	X	X	X	X	X	X	3	0.13	0.63	
	0.8	71.0	18.18	X	X	X	X	X	X	X	X	6						0			X	X			X	X	X	X	X	X	X	5	0.14	1.00	
	02-009-000																																		
	Year: 2011																																		
	1.0	47.0	20.41	X				X				2	X	X	X	2			X	X	X	X	X	X	X	X	X	X	X	6	1.00	2.67			
	02-010-000																																		
	Year: 2011																																		
	2.6	60.5	22.99	X	X	X	X	X	X	X	X	6			X	1					X	X	X	X	X	X	X	X	X	X	4	0.29	0.71		
	02-014-000																																		
	Year: 2011																																		
	2.4	57.0	43.48	X	X	X	X	X	X	X	X	6			X	1					X	X	X	X	X	X	X	X	X	X	4	0.29	0.71		
	02-015-000																																		
	Year: 2011																																		
	5.2	74.5	16.28	X	X	X	X	X	X	X	X	7			X	1					X	X	X	X	X	X	X	X	X	X	2	0.25	0.38		
	1.8	69.5	13.42	X	X	X	X	X	X	X	X	6						0			X	X	X	X	X	X	X	X	X	X	X	6	0.14	1.00	
	02-017-000																																		
	Year: 2011																																		
	1.4	58.5	51.28	X	X	X	X	X	X	X	X	5			X	1					X	X	X	X	X	X	X	X	X	X	3	0.33	0.67		

Report Date: 11/25/2015

QHEI Attributes: Scioto River Basin (lower) 2011 TMDL

Key QHEI Components	WWH Attributes				MWH Attributes						
	High Influence	Moderate Influence	High Influence	Moderate Influence							
	Low/Normal Riffle Embedderness Max Depth > 40cm Low/Normal Embedderness Fast Current/Eddies Extensive/Moderate Cover Moderate/High Sinuosity Good/Excellent Development Silt Free Substrates Boulder/Cobble/Cravel Substrates Not Channelized or Recovered	WWH Attributes	High-Influence Modified Attributes Max Depth < 40cm Sparse/No Cover No Sinuosity Silt/Muck Substrates Channelized/No Recovery	Moderate Influence High/Mod Riffle Embedderness High/Moderate Embedderness No Fast Current Intermittent/Poor Pools Only 1 or 2 Cover Types Low Sinuosity Fair/Poor Development Hardpan Substrate Origin Sand Substrates (Boat) Heavy/Moderate Silt Cover Recovering Channel	M.M. Modified Attributes MWH H.I.+1/MWH+1 Ratio MWH M.I./MWH Ratio						
River Mile	QHEI	Gradient (ft/mi)									
02-022-000											
Year: 2011											
19.8	61.5	10.15	X X X X X	5		0	X X X X X	X X X	6	0.33	1.33
16.0	70.8	8.62	X X X X X X	7	X	1	X X X X	X X	6	0.25	1.00
5.6	80.5	5.19	X X X X X X	8		0	X X X X	X X X	4	0.11	0.56
3.3	73.0	5.19	X X X X X X	8		0	X X X X	X	2	0.11	0.44
02-023-000											
Year: 2011											
0.1	80.3	16.00	X X X X X X X	8		0	X X X X	X	2	0.11	0.44
02-027-000											
Year: 2011											
1.5	71.5	29.41	X X X X X X X	8	X	1	X X X X	X X	4	0.22	0.67
02-031-000											
Year: 2011											
0.8	68.0	18.18	X X X X X	6	X	1	X X X X	X X	3	0.29	0.57
02-035-000											
Year: 2011											
11.5	49.0	100.00	X X X X X	4	X X	2	X X X X	X X X	4	0.60	1.00
7.7	63.8	76.92	X X X X X X	7	X X	2	X X X X	X	3	0.38	0.50
1.1	66.5	6.41	X X X X X	4		0	X X X X	X X X	6	0.40	1.60
02-036-000											
Year: 2011											
11.3	70.8	23.53	X X X X X X	6		0	X X X X	X X	4	0.14	0.71
8.0	61.5	4.76	X X X X X	5	X	1	X X X X	X X X	6	0.33	1.33
2.3	71.0	6.41	X X X X X	5	X	1	X X X X	X X	5	0.50	1.17
0.1	58.0	6.41	X X X X X	4		0	X X X X	X X X X	8	0.20	2.00
02-037-000											
Year: 2011											
2.7	68.8	26.67	X X X X X X	7	X	1	X X X X	X	2	0.25	0.38

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QHEI Attributes: Scioto River Basin (lower) 2011 TMDL

Key QHEI Components	WWH Attributes				MWH Attributes				M.I. Modified Attributes	MWH H.I.+1/MWH+1 Ratio	MWH M.I./MWH Ratio	
	High Influence	Moderate Influence	High Influence	Moderate Influence								
River Mile	QHEI	Gradient (ft/mi)	Low/Normal Riffle Embedderness Max Depth > 40cm Low/Normal Embedderness Fast Current/Eddies Extensive/Moderate Cover Moderate/High Sinuosity Good/Excellent Development Silt Free Substrates Boulder/Cobble/Cravel Substrates Not Channelized or Recovered	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparsely Cover	Max Depth < 40cm	High-Influence Modified Attributes	Fair/Poor Development Hardpan Substrate Origin Sand Substrates (Boat) Heavy/Moderate Silt Cover Recovering Channel	No Riffle High/Mod Riffle Embedderness High/Moderate Embedderness No Fast Current Intermittent/Poor Pools Only 1 or 2 Cover Types Low Sinuosity
02-042-000												
Year: 2011												
0.4	47.0	74.07	X X X X	4	X X	2	X X X X X	5	0.60	1.20		
02-046-000												
Year: 2011												
0.3	73.8	32.28	X X X X X	7		0	X X X	3	0.13	0.50		
02-049-000												
Year: 2012												
2.0	51.8	13.79	X X X X	3	X	1	X X X X X X	7	0.50	2.25		
02-050-000												
Year: 2011												
1.5	64.5	14.71	X X X X X	8	X	1	X X X X X	5	0.29	1.00		
02-054-000												
Year: 2012												
0.3	68.5	52.63	X X X X X	7		0	X X X X	4	0.13	0.63		
02-056-000												
Year: 2011												
14.6	63.3	17.70	X X X X X	8	X	1	X X X X X	6	0.29	1.00		
11.3	71.5	16.26	X X X X X	7		0	X X X	3	0.13	0.63		
5.2	67.5	10.47	X X X X X	7		0	X X X X	4	0.13	0.75		
1.3	67.5	7.46	X X X X	5		0	X X X X X	6	0.17	1.33		
02-058-000												
Year: 2011												
0.2	71.3	14.29	X X X X X	7		0	X X X X X	5	0.25	0.68		
02-060-000												
Year: 2011												
0.3	56.5	24.39	X X X X	4	X X	2	X X X X	5	0.60	1.40		
02-061-000												
Year: 2011												
0.2	70.8	21.98	X X X X	5	X	1	X X X	3	0.33	0.67		

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QHEI Attributes: Scioto River Basin (lower) 2011 TMDL

River Mile	QHEI	Gradient (ft/mi)	WWH Attributes										MWH Attributes										M.I. Modified Attributes	MWH H.I.+1/MWH+1 Ratio	MWH M.I./MWH Ratio																								
			Low/Normal Riffle Embedderness Max Depth>40cm	Low/Normal Embedderness Fast Current/Eddies	Extensive/Moderate Cover	Moderate/High Sinuosity	Good/Excellent Development Silt Free Substrates	Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparsely to Cover	Max Depth <40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types				Intermittent/Poor Pools	No Fast Current	High/Moderate Embedderness	High/Mod Riffle Embedderness																				
02-062-000																						Year: 2011	5.4	62.3	17.70	X	X	X	X	X	X	X	6	X	1	X	X	X	X	X	X	X	X	X	X	X	7	0.29	1.29
02-063-000																						Year: 2011	1.2	71.3	7.63	X	X	X	X	X	X	7		0	X	X	X										3	0.25	0.50
02-064-000																						Year: 2011	0.1	73.5	62.50	X	X	X	X	X	X	8		0	X									X			2	0.11	0.33
02-065-000																						Year: 2011	1.2	57.5	39.22	X	X	X	X	X	X	5	X	1	X	X	X	X	X	X	X	X	X	X	X	X	6	0.33	1.33
02-066-000																						Year: 2011	1.0	65.0	60.61	X	X	X	X	X	X	6	X	1	X								X	X	X	X	4	0.29	0.66
02-068-000																						Year: 2011	7.5	57.5	7.75	X					X	2	X	1	X	X	X	X	X	X	X	X	X	X	X	7	1.00	3.00	
02-068-000																						Year: 2011	2.9	75.8	9.09	X	X	X	X	X	X	7		0	X	X	X	X	X	X	X	X	X	X	X	X	3	0.13	0.50
02-068-001																						Year: 2011	0.8	67.0	39.22	X	X	X	X	X	X	7		0	X								X	X			3	0.13	0.63
02-068-002																						Year: 2012	0.7	60.0	22.73	X	X	X	X	X	X	7	X	1	X	X	X	X	X	X	X	X	X	X	X	X	4	0.25	0.75
02-069-000																						Year: 2011	14.8	75.5	35.71	X	X	X	X	X	X	9		0													0	0.10	0.20
02-069-000																						Year: 2011	11.5	65.5	12.50	X					X	4		0	X	X	X	X	X	X	X	X	X	X	X	6	0.40	1.60	
02-069-000																						Year: 2011	5.3	81.5	10.64	X	X	X	X	X	X	9		0									X				1	0.10	0.20

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QHEI Attributes: Scioto River Basin (lower) 2011 TMDL

Key QHEI Components				WWH Attributes					MWH Attributes									
	River Mile	QHEI	Gradient (ft/mi)	Low/Normal Riffle Embeddness Max Depth > 40cm Low/Normal Embeddness Fast Current/Eddies Extensive/Moderate Cover Moderate/High Sinuosity Good/Excellent Development Silt Free Substrates Boulder/Cobble/Cravel Substrates Not Channelized or Recovered	WWH Attributes	High Influence	High-Influence Modified Attributes Max Depth < 40cm Sparsely Cover No Sinuosity Silt/Muck Substrates Channelized/No Recovery	Moderate Influence	High/Mod Riffle Embeddness High/Moderate Embeddness No Fast Current Intermittent/Poor Pools Only 1 or 2 Cover Types Low Sinuosity Fair/Poor Development Hardpan Substrate Origin Sand Substrates (Boat) Heavy/Moderate Silt Cover Recovering Channel	No Riffle M.I. Modified Attributes	MMW H.I.+1/MMW+1 Ratio	MMW M.I./MMW Ratio						
02-069-000																		
Year: 2011																		
	4.5	72.8	8.62	X	X	X	X	X	5		0		X	X	4	0.17	1.00	
	1.6	73.0	14.29	X	X	X	X	X	8		0		X	X	2	0.11	0.44	
02-070-000																		
Year: 2011																		
	2.2	63.8	7.69			X	X	X	5		0	X	X	X	5	0.33	1.17	
02-071-000																		
Year: 2011																		
	7.1	54.0	12.82			X	X		2	X	X	2	X	X	X	7	1.00	3.00
	1.1	79.3	14.71	X	X	X	X	X	9		0		X		1	0.10	0.30	
02-073-000																		
Year: 2011																		
	0.2	66.8	16.13	X	X	X	X	X	6		0	X	X		4	0.14	0.86	
02-074-000																		
Year: 2011																		
	2.0	66.5	7.46	X	X	X	X	X	8		X	1	X	X	X	5	0.43	1.00
	0.4	68.5	10.64	X	X	X	X	X	8		X	1	X	X		2	0.33	0.44
02-075-000																		
Year: 2011																		
	0.2	56.8	27.78	X	X	X	X	X	5		X	1	X	X	X	6	0.50	1.33
02-800-000																		
Year: 2011																		
	23.3	57.5	14.93	X			X	X	3		X	2	X	X	X	4	0.75	1.25
	19.8	67.5	9.26	X	X		X	X	7	X		1	X	X	X	4	0.25	0.63
	16.2	83.5	7.60	X	X	X	X	X	9		0		X			1	0.10	0.20
	8.1	82.3	1.65	X	X	X	X	X	8		0		X			1	0.11	0.22
	4.8	64.5	1.65	X		X	X		3		X	1	X	X	X	7	0.75	2.00

Report Date: 11/25/2015

QHEI Attributes: Scioto River Basin (lower) 2011 TMDL

Key QHEI Components				WWH Attributes				MWH Attributes														
	River Mile	QHEI	Gradient (ft/mi)	Low/Normal Riffle Embedderness	Max Depth > 40cm	Low/Normal Embedderness	Fast Current/Eddies	Extensive/Moderate Cover	Moderate/High Sinuosity	Good/Excellent Development	Silt Free Substrates	Boulder/Cobble/Gravel Substrates	Not Channelized or Recovered	WWH Attributes	High Influence	Moderate Influence	M.I. Modified Attributes	MWH H.I.+1/MWH+1 Ratio	MWH M.I./MWH Ratio			
02-802-000																						
Year: 2011																						
	8.1	62.5	31.25	X	X	X	X	X	X	X	X	X	7	X	X	2	X	X	X	3	0.38	0.50
	1.7	68.3	18.69	X	X	X	X	X	X	X	X	X	6	X	X	0	X	X	X	5	0.14	0.66
02-804-000																						
Year: 2011																						
	0.4	65.3	36.36	X	X	X	X	X	X	X	X	X	7	X	1	X	X	X	2	0.25	0.38	
02-808-000																						
Year: 2011																						
	1.5	68.0	38.46	X	X	X	X	X	X	X	X	X	6	X	1	X	X	X	3	0.29	0.71	
02-809-000																						
Year: 2011																						
	2.0	86.5	7.38	X	X	X	X	X	X	X	X	X	9	X	0	X	X	X	0	0.10	0.10	
	1.7	75.0	18.69	X	X	X	X	X	X	X	X	X	9	X	1	X	X	X	2	0.30	0.30	
02-810-000																						
Year: 2011																						
	1.2	69.5	50.00	X	X	X	X	X	X	X	X	X	10	X	1	X	X	X	3	0.18	0.36	
02-811-000																						
Year: 2011																						
	0.7	68.0	23.81	X	X	X	X	X	X	X	X	X	9	X	1	X	X	X	2	0.20	0.30	
02-814-000																						
Year: 2012																						
	1.0	73.5	23.53	X	X	X	X	X	X	X	X	X	7	X	0	X	X	X	4	0.13	0.63	
02-815-000																						
Year: 2011																						
	0.6	66.5	17.39	X	X	X	X	X	X	X	X	X	8	X	1	X	X	X	5	0.33	0.67	
02-817-000																						
Year: 2011																						
	1.5	78.0	54.05	X	X	X	X	X	X	X	X	X	9	X	0	X	X	X	2	0.10	0.30	

Report Date: 11/25/2015