EPA's Detailed Analysis of Whether New or Revised Water Quality Standards are Necessary for 141 Water Body Segments

This document describes the basis for EPA's determination that new or revised water quality standards are not needed to meet the requirements of the Clean Water Act (CWA) for 42 water bodies in Missouri and that new or revised water quality standards are needed for 99 water bodies.

On March 28, 2006, the Missouri Department of Natural Resources (MDNR) submitted new or revised water quality standards that partially addressed the item in the settlement agreement identified as "Whole Body Contact Use." MDNR adopted Whole Body Contact Recreation (WBCR) for the majority of classified State waters, but did not revise or adopt recreation uses for 142 of the State's classified waters. EPA understands that at the time Missouri adopted these revisions the State only considered whether WBCR was an appropriate designation for water body segments and did not specifically consider Secondary Contact Recreation (SCR). For the 142 waters for which MDNR did not adopt WBCR, MDNR provided use attainability analyses (UAAs) assessing the attainability of WBCR uses. EPA approved the State's designation of waters designated for Whole Body Contact Recreation on April 28, 2006. Pursuant to the settlement agreement, EPA must now address the relevant item identified in the settlement agreement, as well as the concerns raised in EPA's September 8, 2000 letter. With regard to the 142 waters for which MDNR did not adopt or revise recreation uses, Paragraph 3(b) of the settlement agreement states, "EPA's September 8, 2000 letter, in Section III(b)B expressed concern whether Missouri's approach to classifying surface waters for whole body contact use would attain the 'swimmable' goal of the CWA and its implementing regulations. EPA anticipates Missouri's revisions to meet 40 CFR §§ 131.6(a), (f), and 131.10." EPA's September 8, 2000 letter conveyed that Missouri could correct this deficiency by either (1) revising its use classifications to protect fishable/swimmable uses for all classified waters of the State, or (2) conduct analyses of use attainability.

One of the 142 water body segments for which MDNR did not adopt Whole Body Contact Recreation is a 195.5-mile segment of the Mississippi River (described in the Missouri water quality standards, 10 CSR § 20-7, Table H, as: "Mississippi R., Class P, Miles 195.5, From Ohio River to Dam #27, Counties Mississippi, St. Louis City"), which MDNR previously designated for "Boating and Canoeing" (MDNR's "Boating and Canoeing" category has since been revised to "Secondary Contact Recreation"). This 195.5-mile segment is not part of today's determination. EPA and MCE have agreed to extend the settlement agreement deadline regarding this water body until October 31, 2007.

I. EPA's Decision Criteria

Upon receipt of UAAs for 141 waters, EPA reviewed the UAAs to ensure their technical and legal defensibility as the basis for not designating these waters for a WBCR use. EPA conducted its analysis pursuant to its implementing federal regulations, specifically 40 CFR §§ 131.6(a), (f), and 131.10. These three sections govern States' adoption of designated uses by requiring States to adopt use designations consistent with the provisions of sections 101(a)(2) and 303(c)(2) of the Act (40 CFR § 131.6(a)), submit general information which will aid the

Agency in determining the adequacy of the scientific basis of the standards which do not include the uses specified in section 101(a)(2) of the Act (40 CFR § 131.6(f)), and set forth the circumstances and process by which States adopt and revise their designated uses (40 CFR § 131.10).

The federal regulations require States to conduct and make part of the record UAAs in any instance where a State does not adopt those uses specified in section 101(a)(2) of the CWA. Uses described in section 101(a)(2) of the CWA are those uses that provide for "the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." The federal regulations define a UAA as a "structured, scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR §131.10(g)." For the 141 waters where Missouri did not adopt a whole body contact recreation use and instead provided a UAA, EPA looked to the statute and regulations governing the establishment and removal of designated uses, in particular, 40 CFR 131.10(g), which specifies the factors that may be used in determining the attainability of CWA section 101(a) uses.

EPA's regulation at 40 CFR § 131.10 describes the regulatory requirements related to designated uses. Consistent with CWA sections 101(a)(2) and 303(c)(2)(A), 40 CFR § 131.10(a) requires States to specify appropriate uses to be achieved and protected after taking "into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish, and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation."

EPA requires that a UAA provide sufficient information to support a technical and legally defensible determination that a "fishable/swimmable" use is not attainable and to support the designation of any use that does not include the "fishable/swimmable" use (40 CFR § 131.6(f)). In other words, there must be an adequate scientific and technical rationale in the administrative record to support the resulting use change. UAAs must have sufficient data and information to demonstrate that attaining the fishable and/or swimmable use is not feasible (using one or more of the 40 CFR § 131.10(g) factors), and the analysis must identify and result in the adoption of the "highest attainable use," which should reflect the factors and constraints that were evaluated as part of the UAA process. In identifying the highest attainable use, the same regulatory factors and the data analysis used to support removing a use should also be used to determine the highest attainable use. EPA interprets the CWA's objectives at sections 303(c) and 101(a)(2) of the Act to mean that, "wherever attainable," waters must protect the CWA section 101(a)(2) uses and that States should be striving to attain the CWA section 101(a)(2) uses by designating the attainable use as close to a CWA section 101(a)(2) use as possible (i.e., the highest attainable use).

EPA evaluated the UAAs and the supporting data provided by MDNR in order to determine whether the UAAs were sufficient to make a technically and legally defensible demonstration that the WBCR use is not attainable and whether the data contained in the UAAs indicate that SCR is an attainable use. In conducting this evaluation, EPA noted issues with the data for many waters, leading the Agency to conclude that in some instances the data were not adequate to provide the necessary scientific and technical rationale in the administrative record

supporting MDNR's decision. For these water bodies, EPA identified four types of issues associated with the data for some of the water body segments: (1) data were collected during drought conditions; (2) locational information indicated that the data contained in the UAA were not from the correct classified stream segment; (3) data were insufficient; and (4) instances where data were inconclusive

As described above, the requirements for assessing the attainability of the fishable/swimmable use and demonstrating and documenting what is and is not attainable through a UAA applies equally to States and to EPA. That is, whenever EPA promulgates or acts upon water quality standards that designate uses lower (or requiring less stringent criteria) than "fishable/swimmable" uses, EPA must also have complete UAAs. EPA acknowledges that MDNR's efforts to adopt new or revised water quality standards ahead of the deadlines contained in the settlement agreement may have resulted in a compressed time schedule for data collection. However, EPA must make its determination as to whether new or revised water quality standards are needed based on the regulatory requirements and the record. In order to determine the appropriate recreational use of the water body and to satisfy the requirements of 40 CFR §§ 131.6(a), 131.6(f) and 131.10(g) for these waters, EPA collected additional information to supplement MDNR's data in an attempt to help MDNR better support its determinations. EPA then reviewed all of the data and information to determine whether the data support these waters' lack of a recreation use (and, in two instances, the waters' designated secondary contact recreation use) or if the information available affirmatively indicated that some type of recreation use is attainable (in this case, that either of Missouri's Secondary Contact Recreation use or Whole Body Contact Recreation use is attainable).

a. UAAs for Which Depth Was the Critical Factor

For all but three water body segments, the UAAs focused solely on the extent to which the depth of the water is or is not sufficient to support a recreational use. In cases where the depth and/or flows are sufficiently low, the factor listed at 40 CFR § 131.10(g)(2) is relevant in assessing whether recreation uses are attainable. That factor specifies that a designated use may be removed if attaining the designated use is not feasible because "natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met." EPA evaluated the depth data and other available data to determine whether the data supported the State's conclusion that recreation uses were not attainable for these waters. For all 141 water body segments, EPA used in addition to the federal regulations, the Missouri Recreational Use Attainability Analysis Protocol (MDNR Water Protection Program, November 3, 2004) (hereafter referred to as the "Protocol") to evaluate the depth data and the extent to which the depth of these waters is or is not sufficient to support a recreational use and other factors addressed by the UAAs.

MDNR developed the Protocol in 2004 following direction from the Missouri Clean Water Commission (CWC). MDNR presented the first draft of the Protocol to the CWC on August 2, 2004. A subsequent stakeholder process took into consideration public comments and revised the draft protocol accordingly. The CWC continued to hold public meetings until MDNR

finalized the Protocol. EPA provided comments to MDNR staff during the public process. On November 3, 2004, the CWC formally adopted the Protocol.

Missouri's Protocol provides reasonable and specific criteria for conducting UAAs based on depth. The Protocol describes specific depths at which "Whole Body Contact Recreation" and "Boating and Canoeing" (MDNR revised this use designation to "Secondary Contact Recreation" in Missouri's 2005 revisions) are considered to be attainable when evaluating attainability based on natural low flows or water levels (40 CFR § 131.10(g)(2)). Where MDNR provided data related to the depth of a water body, EPA used the Protocol to the greatest extent practicable in evaluating the data. With regard to assessing recreational uses for depth, Missouri's Protocol states:

> The UAA submitter may show that naturally caused ephemeral, intermittent or low-flow conditions prevent the attainment of recreational uses. Stream studies should be conducted during the recreation season (April 1st to October 31st) unless sufficient evidence can be provided outside this season. In order to support whole body contact recreation, a maximum depth of at least one (1.0) meter (3.28 feet) in the deepest pool or an average depth of a least one-half (0.5) meter (1.64 feet) must be maintained during base flow conditions. The average depth criterion is met if more than 50 percent (%) of all of the water surveyed from an observation point is at least 0.5 meter in depth.
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> Boating and Canoeing (revised to "Secondary Contact Recreation" in Missouri's 2005 revisions) will be considered attainable when the water has a depth of at least one-half (0.5) meter (1.64 feet) during base flow conditions or when clear evidence of this use is shown.

Missouri's Protocol clearly describes WBCR as attainable if a water body segment meets an average depth of one-half meter where more than 50 percent of the water surveyed from an observation point is at least 0.5 meter in depth *or* if a maximum depth of at least one meter is observed at any point. In evaluating the depth data, EPA assumed that WBCR is attainable if the maximum depth was observed at any point along the stream segment or if the average depth was met at any observation point along the stream segment.

Missouri's Protocol is less clear about evaluating the SCR use. While the Protocol specifies that where water has a depth of at least one-half meter, SCR is considered attainable, the Protocol is not specific as to whether this measurement is an average or a maximum depth. Nor is the Protocol specific as to the frequency with which the depth should be observed for SCR to be considered attainable. Because the Protocol clearly states that one-half meter measured as an average is sufficient for WBCR to be attainable, EPA concluded that using one-half meter as a maximum value to indicate SCR attainability is a reasonable interpretation of Missouri's Protocol. Alternatively, an interpretation of one-half meter as an average value of depth for SCR would result in the same decision criteria as WBCR and waters with depths suitable for SCR would be a null set. As such, EPA concluded that if any depth measurements for a water body segment were greater than or equal to one-half meter, the depth was sufficient to support SCR. This interpretation is also consistent with prior EPA guidance on this topic. With regard to depth

and recreation uses, EPA agrees with the State's approach to designate secondary contact recreation in instances where water levels are not sufficient to support primary contact recreation activities during the months when primary contact recreation (WBCR, in the case of Missouri's water quality standards) would otherwise take place. (See, for example, *Water Quality Standards for Kansas; Final Rule*, 68 FR 40428.)

b. UAAs for Which Factors in Addition to Depth Were Cited

UAAs for three of the 141 water body segments EPA is addressing in this determination cite factors in addition to depth as preventing the water body segments' ability to meet WBCR. These UAAs cite 40 CFR § 131.10(g)(1), which addresses situations where uses may not be attainable due to naturally occurring pollutant concentrations; 40 CFR § 131.10(g)(3), which addresses situations where human caused conditions that cannot be remedied may preclude attainment of uses; 40 CFR § 131.10(g)(4), which addresses situations where uses may not be attainable due to hydrologic modifications; and 40 CFR § 131.10(g)(6), which addresses situations where attainment of uses would result in widespread social and economic impact. Similar to its approach in evaluating the UAAs that were based solely on depth, EPA turned to the federal regulation at 40 CFR § 131.10(g) and to the State of Missouri's Protocol.

With regard to 40 CFR § 131.10(g)(1), Missouri's Protocol states, among other things, that "the UAA must separately quantify the bacterial contributions from natural sources and show through science that the natural contribution alone is the cause for the water quality to exceed the bacterial standard." On the subject of 40 CFR § 131.10(g)(3), the Protocol states that a recreational use can be removed if documentation through an environmental assessment of multiple alternatives demonstrates that (a) Human caused conditions cannot be remedied; (b) Human caused conditions will cause environmental damage greater than what currently exists; (c) Human caused sources of pollution cannot be remedied; or (d) Human caused sources of pollution will cause environmental damage greater than what currently exists. The Protocol does not provide any further specification as to what these showings should include. To conclude that hydrologic modifications preclude attainment of a recreation use (see 40 CFR § 131.10(g)(4)), the Protocol states that the UAA must show that the hydrologic modifications are constructed and operated in such a way that recreation does not or reasonably cannot occur within the water body segment. Lastly, with regard to recreation uses being precluded by widespread social and economic impact (see 40 CFR § 131.10(g)(6)), the Protocol cites EPA's guidance documents, *Interim Economic Guidance for Water Quality Standards Workbook,* and *Combined Sewer Overflows—Guidance for Financial Capability Assessment and Schedule Development* (EPA-823-B-95-002, March 1995).

In evaluating these three UAAs, EPA used the federal regulations, Missouri's Protocol, and any other relevant EPA guidance. Generally, EPA found that the UAAs provided by Missouri did not sufficiently address these factors. In addition, the MDNR's internal review of these UAAs found that the UAAs were inconclusive in demonstrating that WBCR was not attainable. Therefore, based upon the short period of time available to collect additional data, EPA focused its additional data collection on data related to the water bodies' depth in an attempt to bolster the State's record on this factor. A further description of EPA's evaluation of each of the three UAAs is contained in the subsequent sections addressing the basis for EPA's determination on individual waters.

II. Waters Where New or Revised Water Quality Standards are Not Necessary

a. Neither Average Nor Maximum Depths Are Sufficient to Attain WBCR or SCR

EPA evaluated the data contained in the UAAs provided by MDNR and, where relevant, data collected by EPA, according to the decision criteria described above. For 41 of the 141 water body segments, these data indicate that the depths measured do not meet the criteria necessary to support either a WBCR designated use or a SCR designated use. Consequently, EPA concludes that the data support the absence of a recreation use for these 41 water body segments and hereby determines that new or revised water quality standards are not necessary for these 41 water body segments. For several of these water body segments, comments and testimony provide evidence that recreation uses may be appropriate for these waters despite the absence of sufficient depth to meet MDNR's Protocol. A more detailed explanation of these waters is provided below the table.

WBID#	Water Body Name	County
3627	BURKHART BRANCH	TEXAS
1572	BURTON BRANCH	TEXAS
3614	CAMP BRANCH	TEXAS
0292	CLEAR CREEK	NODAWAY
3559	COX BRANCH	PHELPS
2816	CRAVEN DITCH	BUTLER
1060	DOG CREEK	MILLER
3163	DRY HOLLOW	LAWRENCE
3213	DRY VALLEY BRANCH	NEWTON & LAWRENCE
0555	EAST FORK HONEY CREEK	GRUNDY
3621	EMERY HOLLOW	TEXAS
3335	FENTON CREEK	FRANKLIN
3610	FLINGER BRANCH	TEXAS
0478	GRANTHAM CREEK	NODAWAY
1733	HOCUM HOLLOW	JEFFERSON
3632	HULDY HOLLOW	TEXAS
1590	JOHNSON BRANCH	TEXAS
3691	KETCHUM HOLLOW	BARRY
2171	KOEN CREEK	ST. FRANCOIS
0744	L. CEDAR CREEK	BOONE
1277	L. DEER CREEK	BATES
3611	MAYHEN BRANCH	TEXAS
1600	MOONEY BRANCH	TEXAS
0607	MUDDY CREEK	LINN
2415	NATURAL BRIDGE HOLLOW	BARRY
2817	PIKE SLOUGH	BUTLER
0828	RISING CREEK	COLE
1710	RIVER DES PERES	ST. LOUIS
3623	ROCKY BRANCH	TEXAS

WBID#	Water Body Name	County
3620	SAND HOLLOW	TEXAS
0224	SPENCER CREEK	ST. CHARLES
1571	STREAM MILL HOLLOW	TEXAS
2402	SUGAR CAMP HOLLOW	BARRY
0992	TRIB S. MOREAU CREEK 3	MILLER
1686	TRIB. TO BUSCH CREEK 2	FRANKLIN
3497	TRIB. TO COON CREEK	PETTIS
0254	TRIB. TO DAVIS CREEK	HOLT
1001	TRIB. TO MOREAU RIVER	COLE
3361	TRIB. TO RED OAK CREEK 3	GASCONADE
2405	TRIB. TO ROCKHOUSE CREEK	BARRY
0613	WEST FORK LOCUST CREEK	SULLIVAN

For five of these waters (Burkhart Branch (WBID #3627), Emery Hollow (WBID #3621), Muddy Creek (WBID #0607), Sand Hollow (WBID #3620) and West Fork Locust Creek (WBID #0613)), EPA notes that conversations with MDNR staff and photographs provided with the UAAs indicate that recorded depths may have been estimated in half-foot increments from bridge crossings and as such may not have accurately represented stream conditions. For all five waters, maximum depths were estimated at 1.5 feet. These measurements may over or under estimate actual depths and consequently, the data are inconclusive as to whether depth is sufficient to support SCR (A depth of 0.5 meters or 1.64 feet is needed according to the Protocol). Additional data collected for Burkhart Branch (WBID #3627), Emery Hollow (WBID #3621) and Sand Hollow (WBID #3620) verified that depth is not sufficient to support SCR. For the remaining two waters, additional depth data were not available. As a result, EPA determines that no new or revised water quality standards are needed for these five waters. However, for Muddy Creek (WBID #0607) and West Fork Locust Creek (#0613), EPA recommends that Missouri collect additional data for these streams to verify whether actual depths are sufficient to support SCR.

For seven of these waters (Camp Branch (WBID #3614), Dog Creek (WBID #1060), Fenton Creek (WBID #3335), Koen Creek (WBID #2171), Little Deer Creek (WBID #1277), Spencer Creek (WBID #0224) and Tributary to Busch Creek 2 (WBID #1686)), EPA notes that comments and/or testimony exist describing various types of recreation occurring in these streams including wading, fishing and child's play or the potential for recreation by virtue of their proximity to residential or recreational areas. EPA did not believe that this information was specific enough for EPA to base its determination upon. Nevertheless, EPA recommends that MDNR consider the comments and testimony in reviewing the designated uses for these waters pursuant to 40 CFR § 131.20(a), and consider whether recreation uses are appropriate for these waters despite the absence of sufficient depth to meet MDNR's Protocol. EPA's regulation at 40 CFR § 131.20(a) requires States to re-examine the designation of uses that do not include the uses specified in CWA section 101(a)(2) every three years to determine if new information has become available indicating that CWA section 101(a)(2) uses for those waters are now attainable. If new information indicates that a CWA section 101(a)(2) use is now attainable, the State must revise its standards accordingly. For Little Deer Creek (WBID #1277) and Tributary to Busch Creek 2 (WBID #1686), data are also inconclusive as to whether depth is sufficient to

support SCR for the same reasons described in the previous paragraph, and no additional depth data were available. EPA recommends that Missouri collect additional data for these streams to verify whether actual depths are sufficient to support SCR.

Koen Creek (WBID #2171)

For Koen Creek, the UAA provided by MDNR indicates that at one observation point the depth is sufficient to support a SCR use. The depth at that site is estimated at greater than 2.5 feet. The UAA also notes that the stream is in an area of severe drought. EPA subsequently collected depth data that were not affected by a drought. That depth data did not reflect depths that would support SCR. This apparent inconsistency in data may be explained by an isolated precipitation event during the drought period to account for the depth at the one site. As such, EPA concludes that this observation is not representative of the water body segment. As a result, the remaining depth data support MDNR's decision not to designate Koen Creek with a rescreation use. However, EPA notes that according to MDNR's public record, over 40 people commented on recreational uses for Koen Creek, noting the water body segment's proximity to a neighborhood park and activities occurring within the water body, such as fishing in permanent pools and children fishing, wading and playing. As a result, while the data support the lack of a recreational use designation, as noted above, EPA encourages MDNR to consider these comments in reviewing the designated uses for this water in the future.

River des Peres (WBID #1710)

For the River des Peres (WBID #1710), the UAA provided by MDNR addressed five different factors. Missouri apparently used all of these factors in drawing its conclusion that the water body segment cannot attain WBCR. These five factors are 40 CFR § 131.10(g)(1), which addresses situations where uses may not be attainable due to naturally occurring pollutant concentrations; 40 CFR § 131.10(g)(3), which addresses situations where human caused conditions that cannot be remedied may preclude attainment of uses; 40 CFR § 131.10(g)(4), which addresses situations where uses may not be attainable due to hydrologic modifications; and 40 CFR § 131.10(g)(6), which addresses situations where attainment of uses would result in widespread social and economic impact. To support the UAA's conclusion that low flow conditions prevent attainment of recreation uses, the River des Peres UAA evaluated depth data taken from five sites. EPA collected data at an additional six sites. However, examination of hydrograph data for the River des Peres at the time of the EPA data-gathering indicate that the River des Peres flow was above base flow conditions. Therefore, the EPA is not considering the depth data it gathered on June 23, 2006 in this determination. Within the UAA for the River des Peres segment (WBID #1710) provided by MDNR, none of the data show depths sufficient for WBCR or SCR. Therefore, EPA determines that no new or revised water quality standards are needed for this water body segment.

b. Depth Data Support Current SCR Designation

One water body segment, East Yellow Creek (WBID #0597), had recorded depth data that did not meet the average or maximum depth criteria for WBCR, but met the depth criteria for SCR. This water body is currently designated for SCR. Consequently, the UAA supports Missouri's conclusion that WBCR is not attainable and that SCR is the appropriate attainable

designated use for this water body. Thus, EPA hereby determines that new or revised water quality standards are not necessary for East Yellow Creek (WBID #0597).

WBID#	Water Body Name	County
0597	EAST YELLOW CREEK	CHARITON & LINN

III. Waters Where New or Revised Water Quality Standards Are Necessary

a. Waters Where Data Based on Depth Indicate WBCR is Attainable

EPA evaluated the depth data contained in the UAAs provided by MDNR and, where relevant, data collected by EPA according to the decision criteria described above. For 73 of the 141 water body segments, these data indicate that the depths measured are sufficient to support a Whole Body Contact Recreation Use. As a result, the data do not support these waters' current lack of a recreation designated use as required by the federal regulation at 40 CFR § 131.10. Consequently, EPA hereby determines that new or revised water quality standards are necessary to meet the requirements of the Clean Water Act for these 73 water body segments. For three of these 73 water body segments, EPA provides further explanations of the Agency's evaluation of the data and information below.

WBID#	Water Body Name	County
2035	BACHELOR CREEK	FRANKLIN
0867	BASIN FORK	PETTIS
1608	BIGELOW'S CREEK	ST. CHARLES
0034	BIRKHEAD BRANCH	LINCOLN
3147	BLUE DITCH	SCOTT
0993	BLYTHES CREEK	MILLER
1301	BONES BRANCH	BATES
0859	BRUSHY CREEK	PETTIS
1865	BURGHER BRANCH	PHELPS
1028	CALLAHAN CREEK	BOONE
2389	CARNEY CREEK	BARRY
0729	CASON BRANCH	CALLAWAY
1000	CLARK FORK	COLE
1631	CLEAR CREEK 2	MONTGOMERY
3303	COLE CAMP CREEK	BENTON
0721	COLLIER CREEK	CALLAWAY
0187	COON CREEK	MONTGOMERY
0132	COON CREEK	RANDOLPH
0253	DAVIS CREEK DITCH	HOLT
0320	DICKS CREEK	PLATTE
3094	DITCH #8	NEW MADRID & STODDARD
1298	DOUBLE BRANCH	BATES
1688	DUBOIS CREEK	FRANKLIN
0811	E. BRUSH CREEK	MONITEAU
0608	E. FK. LOCUST CREEK	SULLIVAN
1518	E. FK. ROUBIDOUX CREEK	TEXAS

WBID#	Water Body Name	County
0287	ELKHORN CREEK	NODAWAY
0804	FACTORY CREEK	MONITEAU
3657	FOUNTAIN FARM BRANCH	WASHINGTON
0883	GABRIEL CREEK	MORGAN
1307	GILLUM CREEK	BATES
0807	HALDIMAN BRANCH	MONITEAU
0588	HICKORY CREEK	GRUNDY
1002	HONEY CREEK	COLE
3413	HORSESHOE CREEK	LAFAYETTE
1591	INDIAN CREEK	TEXAS
0328	L THIRD FK PLATTE RIVER	DE KALB
1864	L. DRY FORK	PHELPS
0863	L. SHAVER CREEK	PETTIS
2980	LICK CR. DITCH	STODDARD
3032	MAIN DITCH #8	PEMISCOT
3617	MINERAL SPRING HOLLOW	TEXAS
0898	MUDDY CREEK	SALINE
0391	MUDDY FORK	CLAY & CLINTON
0065	N.FK. FABIUS RIVER	SCOTLAND & SCHUYLER
1010	N.FK. GRINDSTONE CREEK	BOONE
0083	NORTH RIVER	SHELBY & KNOX
3572	OWL CREEK	PLATTE
2058	PLEASANT VALLEY CREEK	CRAWFORD
1648	QUICK CREEK	MONTGOMERY
0586	RACCOON CREEK	GRUNDY
0520	RATTLESNAKE CREEK	LIVINGSTON
0829	RISING CREEK	COLE
2123	RUBENEAU BRANCH	WASHINGTON
1032	SANFORD CREEK	COLE
0860	SEWER BRANCH	PETTIS
3624	SLABTOWN BRANCH	TEXAS
1870	SPRING BRANCH	DENT
1029	SUGAR BRANCH	BOONE
1030	SUGAR BRANCH	BOONE
0327	THIRD FORK PLATTE RIVER	DE KALB
2130	THREE HILL CREEK	ST. FRANCOIS
0316	TODD CREEK	PLATTE
1687	TRIB. TO BUSCH CREEK	FRANKLIN
0133	TRIB. TO COON CREEK	RANDOLPH
3509	TRIB. TO FLAT CREEK 2	PETTIS
1694	TRIB. TO LABADIE CREEK	FRANKLIN
3359	TRIB. TO RED OAK CREEK (listed as SOAP CR. in MO WQS)	GASCONADE
0500	TRIB. W. FK. LOST CREEK 2	DE KALB
2985	TURKEY CREEK	STODDARD
0505	WAMSLEY CREEK	DE KALB
0482	WILDCAT CREEK	NODAWAY & GENTRY
0319	WILKERSON CREEK	CLAY

Blue Ditch (WBID #3147)

Blue Ditch is one of the two waters noted above that currently has a SCR use. EPA evaluated the UAA for this water body segment to determine whether the data and information support this water body's lack of a WBCR use and whether the UAA and other data collected by EPA support the water body segment's current SCR designation. EPA evaluated this data and found that the data indicate sufficient depth for WBCR. As a result, the UAA and other available data do not support the lack of a WBCR use for Blue Ditch.

Coon Creek (WBID #0132)

One of these 72 waters, Coon Creek, is a combined sewer overflow-receiving water body. The UAA includes only depth information. While the data contained in the UAA indicate that depth does not preclude attainment of recreational uses, but rather indicate that depth is sufficient to support both WBCR and SCR, EPA understands that the City of Moberly will be developing a long-term control plan (LTCP) in the future. As a result of this process, information may become available that could be used to develop a UAA to remove the WBCR and/or SCR uses based on one of the other factors contained in 40 CFR 131.10(g). EPA encourages MDNR to consider whether information gathered and analyzed in the course of developing the LTCP would support such a conclusion.

Sewer Branch (WBID #0860)

Two UAAs were conducted for this water body: one for the classified portion of Sewer Branch (Pettis County) and one for the unclassified portion of Sewer Branch (Sedalia County). Upon review of the UAAs, EPA found that none of the data provided by MDNR were from the correct segment of Sewer Branch since the six survey sites for the classified portion of Sewer Branch were upstream of the intended classified segment and the other UAA had been erroneously conducted on the wrong stream segment. As a result, EPA collected data at six sites within the one-mile classified segment of Sewer Branch. These data indicate that depths are sufficient to support both WBCR and SCR.

b. Waters Where Data Based on Depth Indicate SCR is Attainable

EPA evaluated the depth data contained in the UAAs provided by MDNR and, where relevant, data collected by EPA according to the decision criteria described above. These data indicate that at a minimum, Secondary Contact Recreation is an attainable use for 23 of the 141 water body segments. As a result, the data do not support these waters current lack of a recreation designated use as required by the federal regulation at 40 CFR 131.10. Consequently, EPA hereby determines that new or revised water quality standards are necessary to meet the requirements of the Clean Water Act for these 23 water body segments. For twelve of these water body segments, EPA provides a more detailed explanation of the Agency's assessment of these waters below.

WBID#	Water Body Name	County
0622	BARBER CREEK	SULLIVAN
1470	BELL CREEK	PULASKI
1746	BIG BOTTOM CREEK	STE. GENEVIEVE

WBID#	Water Body Name	County
1276	BIG DEER CREEK	BATES
0441	BIG MUDDY CREEK	DAVIESS
0707	COW CREEK	CALLAWAY
1018	KELLEY BRANCH	BOONE
1303	KNOB CREEK	BATES
3113	LATERAL DITCH #2	DUNKLIN
0602	LONG BRANCH	LINN
0557	MUDDY CREEK	GRUNDY & MERCER
0521	PANTHER CREEK	CALDWELL
1295	PANTHER CREEK	BATES
0176	PARIS BRANCH	LINCOLN
0715	RICHLAND CREEK	CALLAWAY
1679	SLAUGHTER BRANCH	FRANKLIN
3294	TRIB. TO BIRD BRANCH	BENTON
1690	TRIB. TO BROWNS BRANCH	FRANKLIN
1530	TRIB. TO LITTLE BEAVER CR.	PHELPS
2126	TRIB. TO MILL CREEK	WASHINGTON
2121	TRIB. TO SHIBBOLETH CREEK	WASHINGTON
0956	TRIB. TO WILLOW FORK	MONITEAU
0556	WEST FORK HONEY CREEK	GRUNDY

For eight of these waters (Barber Creek (WBID #0622), Big Deer Creek (WBID #1276), Big Muddy Creek (WBID #0441), Kelley Branch (WBID #1018), Panther Creek (WBID #1295), Slaughter Branch (WBID #1679), Tributary to Little Beaver Creek (WBID #1530) and Tributary to Willow Fork (WBID #0956)), EPA notes that conversations with MDNR staff and photographs provided with the UAAs indicate that recorded depths may have been estimated in half-foot increments from bridge crossings and as such may not have accurately represented stream conditions. For all eight waters, recorded depths clearly met maximum depth requirements for SCR according to Missouri's Protocol and as a result, are included in EPA's determination that new or revised standards are needed. However, for seven waters, average depths were recorded at an estimated 1.5 feet. For Big Muddy Creek (WBID #1746), a maximum depth was recorded at an estimated 3 feet. These measurements may be under or over estimates and consequently the data are inconclusive as to whether depths support WBCR (the Protocol requires an average depth of 0.5 meters (1.64 feet) or a maximum depth of 1 meter (3.28 feet)). Additional data collected for Big Muddy Creek (WBID #0441) and Tributary to Little Beaver Creek (WBID #1530) verified that depth is not sufficient to support WBCR. EPA discusses the data for these two water body segments in more detail below. Additional data were not available for the remaining six of these waters. Since the data are inconclusive with regard to the attainability of WBCR based on depth, EPA recommends that Missouri collect additional data for these streams to verify whether actual depths are sufficient to support WBCR.

For an additional four of these waters (Big Bottom Creek (#1746), Paris Branch (WBID #0176), Richland Creek (WBID #0715), and Tributary to Bird Branch (WBID #3294)), EPA notes that comments, testimony and/or interview records exist describing various types of recreation occurring in these streams including child's play as well as the proximity of these

water body segments to residential areas or parks. EPA recommends MDNR consider these comments and testimony in reviewing the designated uses for these waters as part of any subsequent rulemaking addressing recreational uses for these waters, and consider whether a WBCR use is appropriate for these waters despite the absence of sufficient depth to meet MDNR's Protocol. For Tributary to Bird Branch (WBID #3294), the data are also inconclusive with regard to the attainability of WBCR based on depth, but do conclusively indicate that SCR is an attainable use based on depth. EPA discusses the data and comments submitted to MDNR for this water body segment in more detail below.

Big Muddy Creek (WBID #0441)

As part of the data collected for Big Muddy Creek and provided to EPA by MDNR, there was one data point indicating that the water body depth was sufficient to support WBCR based on the criteria described above. At the time MDNR staff gathered information on June 19, 2005, Daviess County was not under a drought advisory. According to the UAA documentation, MDNR staff conducted this UAA and, based on the photographs and the fact that the recorded depths greater than one (1) foot were in half-foot increments (i.e., 1.0, 1.5, 2.0 feet, etc.), the data indicate that depths were estimated and not actually measured. Therefore, EPA collected additional data for this water. None of this data met the depth requirements for WBCR; however, this data was collected during a Phase 2 Drought Alert. Consequently, while the information contained in the MDNR UAA indicates that WBCR may be attainable, the data are not conclusive. Despite the data being inconclusive for WBCR, the data show that depths are sufficient to support SCR. Consequently, SCR, at a minimum, is an attainable use for Big Muddy Creek. EPA recommends that Missouri consider collecting additional data for this stream under normal flow conditions to assess whether depth may be sufficient to support WBCR.

Tributary to Little Beaver Creek (WBID #1530)

For the Tributary to Little Beaver Creek, the UAA provided by MDNR indicates that an average depth of 1.5 feet was observed on one of the two sites visited indicating that depth is sufficient for SCR and that WBCR may be an attainable use. However, conversations with MDNR staff indicate that MDNR estimated depths, rather than taking measurements. As such, the estimated average of 1.5 feet may or may not be a precise representation of the actual stream depth. To confirm this inconclusive measurement, EPA collected additional data. Those data, taken under a similar drought status (Phase 1 Drought Advisory) as the data included in the MDNR UAA, did not record depths sufficient for either WBCR or SCR. Consequently, in evaluating the data collected by both MDNR and EPA, EPA concluded that the depth data support SCR, at a minimum, as an attainable use for Tributary to Little Beaver Creek. EPA recommends that Missouri consider collecting additional data for this stream under normal flow conditions to assess whether depth may be sufficient to support WBCR.

Tributary to Bird Branch (WBID #3294)

For the Tributary to Bird Branch, the UAA provided by MDNR indicates that average depths on the 2 survey sites ranged from 1-1.5 feet and the maximum depths ranged from 1.5-2 feet. However, photographs from the MDNR UAA for Tributary to Bird Branch indicate that the depths may have been estimated. The maximum depth measured as part of the subsequent data collected by EPA was 0.6 meters (1.97 feet) under a Phase 2 Drought Alert. The data indicate that, at a minimum, depth supports SCR and may support WBCR under non-drought conditions.

During the public comment period held prior to Missouri's regulatory action, a petition signed by 65 people was submitted to MDNR asking that WBCR be adopted for this water body in the State's final rulemaking. In undertaking any subsequent rulemaking to address recreation uses for Tributary to Bird Branch, EPA encourages MDNR to consider collecting additional data under non-drought conditions as well as the comments submitted on this water body segment and whether this information indicates that WBCR is an appropriate use.

c. Water Body Segments Where Data In Addition to Depth Do Not Support the Water Bodies' Lack of a Recreation Use

Maline Creek (WBID #1709) and River des Peres (WBID #1711)

Missouri provided two UAAs for one segment of Maline Creek and one segment of the River des Peres (WBID #1711) that address factors in addition to depth that prevent the water body segments' ability to attain WBCR. As noted earlier, Missouri only considered adopting WBCR uses at the time it revised its water quality standards. Similarly, UAAs provided by MDNR only considered whether WBCR was an attainable use. As described above, EPA is evaluating these and the other 139 UAAs to assess whether the information available supports the water body segments' lack of not only WBCR uses but also the water body segments' lack of SCR uses as well. To that end, EPA evaluated these UAAs on these bases according to both the State's Protocol and EPA's regulations.

The two UAAs provided by MDNR for Maline Creek and River des Peres (WBID #1711) address five different factors. Missouri apparently used all of these factors in drawing its conclusion that Maline Creek and River des Peres (WBID #1711) cannot attain WBCR. These five factors are: 40 CFR § 131.10(g)(1), which addresses situations where uses may not be attainable due to naturally occurring pollutant concentrations; 40 CFR § 131.10(g)(3), which addresses situations where human caused conditions that cannot be remedied may preclude attainment of uses; 40 CFR § 131.10(g)(4), which addresses situations where uses may not be attainable due to hydrologic modifications; and 40 CFR § 131.10(g)(6), which addresses situations where attainment of uses would result in widespread social and economic impact. Similar to the Agency's approach in evaluating the UAAs that were based solely on depth, EPA turned to the federal regulations, Missouri's Protocol, and any other relevant EPA guidance to evaluate the UAAs for Maline Creek and River des Peres (WBID #1711).

In support of the conclusion that natural concentrations of bacteria prevent attainment of recreational uses, the UAAs for Maline Creek and River des Peres (WBID #1711) cite source tracking studies completed in streams near Kansas City, Missouri, and in Mission Bay in San Diego, California. The UAAs further state that the Metropolitan Sewer District of St. Louis has contracted with the U.S. Geological Survey to conduct a bacteria source tracking study in the future to characterize pathogen level caused by natural and human sources. Missouri's Protocol, meanwhile, states, among other things, that "the UAA must separately quantify the bacterial contributions from natural sources and show through science that the natural contribution alone is the cause for the water quality to exceed the bacterial standard." However, in the cases of Maline Creek and River des Peres (WBID #1711), the studies referred to in the UAAs for these waters were either conducted elsewhere and/or have not yet occurred. As a result, the UAAs for Maline Creek and River des Peres (WBID #1711) have not presented any quantitative information representative of the segments in question to support the UAAs' assertions that

naturally occurring pollutant concentrations preclude attainment of recreation uses. As a result, these UAAs do not satisfy either the federal regulation or Missouri's Protocol.

To support the UAAs' conclusions that low flow conditions prevent attainment of recreation uses, the Maline Creek UAA evaluated depth data taken from six sites within the classified stream segment; EPA collected data at an additional seven sites. Within the Maline Creek UAA provided by MDNR the average and the maximum depths exceed that necessary to support WBCR at one of the six sites; however, the UAA asserts that this site is uncharacteristic of the stream segment due to a stormwater control structure. These data also show that depth is sufficient to support SCR at two additional locations. Data collected by EPA show that depth is sufficient for WBCR at four sites. As a result, the depth data for Maline Creek indicate that depths are sufficient to support WBCR and that the data do not support the lack of a recreation use based on low flow conditions.

For the River des Peres (WBID #1711), the UAA evaluated depth data taken from seven sites in the classified stream segment. EPA collected data at an additional seven sites in the classified stream segment. Examination of hydrograph data for the River des Peres at the time of the EPA data-gathering indicate that the River des Peres flow was above base flow conditions. Therefore, EPA is not considering the depth data gathered on June 23, 2006 in this determination. Within the UAA for the River des Peres (WBID #1711) provided by MDNR, none of the data show depths sufficient for WBCR; however, data for one site indicates depths sufficient for SCR. As a result, the depth data for River des Peres (WBID #1711) indicate that depths are sufficient to support SCR in the segment and that the data do not support the lack of recreation uses based on low flow conditions.

In support of the UAAs' conclusion that human caused conditions prevent the attainment of WBCR, the UAAs cite historic land use practices and high levels of bacteria concentrations discharged into Maline Creek and River des Peres (WBID #1711) that were collected as part of the EPA National Pollutant Discharge Elimination System Phase 1 stormwater program. Missouri's Protocol states that this factor may be used if an environmental assessment of multiple alternatives demonstrates that (a) Human caused conditions cannot be remedied; (b) Human caused conditions will cause environmental damage greater than what currently exists; (c) Human caused sources of pollution cannot be remedied; or (d) Human caused sources of pollution will cause environmental damage greater than what currently exists. The Protocol does not provide any further specification as to what these showings should include. The analysis contained in each of the UAAs did not evaluate multiple alternatives, nor did the UAAs evaluate any specific assertions regarding which aspects of human caused conditions specifically prevent attainment of WBCR other than to assert that, "As the quality of urban runoff is often associated with land use, any significant changes to land use composition required to meet WBCR criteria may represent a non-remedial condition that prevents the use from being attained." EPA concludes that the statements made with regard to human caused conditions are not sufficient to support the nonattainment of recreation uses, and that these UAAs do not satisfy either the federal regulation or Missouri's Protocol.

The UAAs also cited hydrologic modifications as preventing attainment of WBCR. To conclude that hydrologic modifications preclude attainment of a recreation use (40 CFR §

131.10(g)(4)), the Protocol states that the UAA submitted must show that the hydrologic modifications are constructed and operated in such a way that recreation does not or reasonably cannot occur within the water body segment. The UAAs for both Maline Creek and River des Peres (WBID #1711) cite dangerous flow conditions that preclude WBCR use due to the channelization of Maline Creek and River des Peres and the fact that the streambeds for both water bodies are concrete-lined. Based on photos contained in the UAAs and site visits by EPA personnel, these conditions are not present throughout the Maline Creek and River des Peres segments in question. The UAAs assert that at flows greater than or equal to three feet per second recreational activities associated with WBCR are unsafe. According to the UAAs' analyses, the acceptable/optimal swimming conditions based on velocity boundaries are exceeded 6% of the time at the Bellafontaine gage for Maline Creek and 7% of the time at the Morganford gage for River des Peres. While EPA acknowledges that, at times, flows in these water bodies may present hazardous conditions for swimming, these analyses do not address the fact that the flows would not preclude recreational activities the remainder of the time, nor do the analyses address the impact of these hydrologically modified conditions on secondary contact recreation activities, such as boating and wading near the streambanks where velocities are likely to be less. While flows may, at times, preclude recreational activities, the UAAs do not support the total absence of any recreational use. As a result, EPA concludes that the statements made with regard to hydrologically modified conditions are not sufficient to support the nonattainment of recreation uses, and that these UAAs do not satisfy either the federal regulation or Missouri's Protocol. However, if upon further analysis MDNR finds that high water velocities have a significant impact on WBCR activities, MDNR may wish to consider developing a UAA that would support adoption of a subcategory of a WBCR designated use that reflects extreme wet weather conditions (i.e., limiting the application of the criteria to certain times). Adoption of such a designated use would acknowledge that WBCR is attainable for the majority of the recreation season as well as specifying the times when such a use is not attainable.

Lastly, the Maline Creek and River des Peres (WBID #1711) UAAs cite substantial and widespread social and economic impact as preventing the attainment of WBCR. The Protocol cites only to EPA's guidance documents, *Interim Economic Guidance for Water Quality Standards Workbook*, and *Combined Sewer Overflows—Guidance for Financial Capability Assessment and Schedule Development* (EPA-823-B-95-002, March 1995). The UAAs note that the Metropolitan St. Louis Sewer District is in the process of developing a combined sewer overflow (CSO) Long Term Control Plan (LTCP) that will evaluate the impacts of different CSO control options. The UAAs note that other cities have found that support of swimming uses in urban streams is not economically feasible. The UAAs do not explain in what regard these other analyses are relevant for Maline Creek or River des Peres and do not contain any quantitative information supporting their conclusion that social and widespread economic impacts prevent the attainment of recreation uses for Maline Creek or River des Peres. As a result, these statements do not satisfy the requirements of EPA's regulation or Missouri's Protocol.

While EPA concludes at this time that the UAAs for Maline Creek and River des Peres (WBID #1711) do not contain sufficient quantitative or scientifically-based information specifically addressing or supporting the segments' lack of recreation uses altogether, future analyses may indicate that one or more of these factors may preclude certain recreation uses. As noted in all three UAAs, the Metropolitan St. Louis Sewage District is undertaking the

development of a Long Term Control Plan. EPA encourages MDNR to consider whether information gathered and analyzed in the course of the plan development indicates that certain recreational uses may not be attainable.

d. Waters Without Data

Hominy Creek (WBID #1011)

Attempts were made in on two occasions to collect data for Hominy Creek. The only data collected was from upstream of the classified segment. As such, no conclusion can be made with regard to depths that may be present within the water body segment subject to today's determination. Therefore, there is no data available to support the lack of a recreational designated use for this water body segment. Without data, EPA must rely on the presumption contained in its regulations that the CWA section 101(a) uses are attainable until demonstrated otherwise. Consequently, EPA hereby determines that new or revised water quality standards are needed for this water body. EPA encourages MDNR to collect data on this water body segment to ascertain whether depth precludes the attainment of WBCR or SCR.