U. S. EPA Final Decision and Response to Comments

for

The Stony Creek Floodplains

at

Bridgestone Americas Tire Operation, LLC
1700 Firestone Blvd.
Noblesville, Indiana

IND 006 418 263

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Final Decision Response to Comments

November 2010

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INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region 5, presents this Final Decision and Response to Comments (FD/RC) which identifies the final remedies selected for the Bridgestone Americas Tire Operations (Bridgestone) facility in Noblesville, Indiana, pursuant to the Resource Conservation and Recovery Act (RCRA) Section 3008(h). Included in this FD/RC is a summary of conditions found at and near the facility, the risks posed by those conditions, the prior corrective measures implemented remediating the sources of contamination at the Bridgestone facility, the interim measures taken in the Stony Creek residential area, and the final corrective action alternatives that EPA considered for the Stony Creek residential area and the undeveloped floodplains. Additional details relating to the facility conditions, the measures taken and the alternatives considered are available in the Statement of Basis (Attachment I) issued by EPA on July 1, 2010. Prior to issuing this FD/RC, EPA presented the Statement of Basis to the public for review and comment for 55 days, from July 1, 2010 to August 25, 2010. A public meeting was held on July 14, 2010 as part of this participation period. EPA carefully reviewed all of the comments received prior to selecting the final remedy that EPA deems necessary to protect human health or the environment. The public comments and EPA's response are provided below in Section IV, "Public Comments and EPA's Response to Comments."

FACILITY CONDITIONS, RISKS POSED, AND INTERIM MEASURES TAKEN

From 1936 to 2009, Firestone (which later became Bridgestone, and is referred to in this FD/RC as Bridgestone) operated a rubber products manufacturing facility at 1700 Firestone Boulevard in Noblesville, Indiana. PCB-containing heat-transfer fluid was used at the facility in the late 1960s and early 1970s. It is believed that floor and roof drain outfalls at the facility released PCBs to Wilson Ditch, an engineered drainage channel that flows south from the facility for approximately 5,000 feet (ft) before draining into Stony Creek. PCBs were first identified in Wilson Ditch sediments in 1984, prompting Administrative Orders on Consent (AOCs) between EPA and Bridgestone in 1990 and 2001 that described Bridgestone's corrective action obligations at and in the vicinity of the facility. The first AOC required on- and off-site field investigations and sampling efforts and some corrective actions within one-quarter mile of Bridgestone's property. A subsequent Amendment to the first AOC required Bridgestone to implement interim remedial measures for groundwater near Bridgestone's property. The second AOC included corrective actions for sediments in Wilson Ditch, monitoring requirements for sediment and fish tissue in Stony Creek, and several other corrective actions related to groundwater underlying and in the vicinity of the facility. The 2000 Final Decision selected the operation of a groundwater extraction and treatment system to contain contaminated

groundwater within the facility property until the groundwater reached potable levels. That system continues to operate. The PCB contaminated sediments in Wilson Ditch were remediated in 2005, per that 2000 decision, thus eliminating the source of PCBs to Stony Creek and its floodplains. Although not part of the AOC, at the time Wilson Ditch was remediated the confluence of Wilson Ditch and Stony Creek was also remediated based upon visual evidence that the sediment within an approximate fifty foot area was impacted.

Facility Conditions

Hydrologic Setting

The Stony Creek floodplain is a small part of the larger Stony Creek watershed, which also encompasses Stony Creek upstream of its confluence with Wilson Ditch, tributaries to Stony Creek, and all of the land that is drained by those tributaries and Stony Creek itself. Within the Stony Creek Watershed, there are approximately 40 miles of streams and ditches that have regular flow, Stony Creek being one of the major waterways.

The reach of Stony Creek between its confluence with Wilson Ditch and Allisonville Road is approximately 0.8 miles in length and 20 to 40 feet (ft) wide, depending on season and recent precipitation. Stony Creek is "flashy," in that its depth and flow are strongly affected by storm events and seasonal runoff. The creek routinely overtops its banks between Wilson Ditch and the White River, throughout the study area.

Two residential neighborhoods are located along Stony Creek between its confluence with Wilson Ditch and Allisonville Road: James Place and Wellington Northeast. A total of 45 residential properties are located along either Stony Creek or the undeveloped floodplain and have backyards that are subject to periodic flooding of Stony Creek.

Ecological Setting

The undeveloped western floodplain of Stony Creek is a generally flat 59-acre patch of wetland and forested land within the Stony Creek watershed. The undeveloped floodplain is divided into two areas, the larger of which (approximately 49 acres) is designated as the Conservation Easement Area; it is a compensatory wetland and has been leased by the City of Noblesville for 50 years. This area is also subject to a conservation easement in favor of the Central Indiana Land Trust, Inc. (CILTI), and therefore is not open to the general public. The smaller of the two areas of the undeveloped floodplain—designated as the Island Area—is surrounded by two branches of Stony Creek and is owned in separate parcels by five residents of neighboring Audubon Court. Land cover in the undeveloped floodplain consists of 37 acres of bottomland, riparian forest and roughly 22 acres of forested wetland and fallow field habitat, which was an agricultural hayfield through the 1990s. It was recently planted with tree seedlings as part of a compensatory wetlands mitigation program.

Within the Stony Creek Watershed, according to the Hamilton County Stony Creek Watershed Management Plan of 2007, there are approximately 47.2 miles of streams, and of that, approximately 19.3 miles, or 41%, have 30 feet or less of vegetated buffer on one or both of the stream banks. The study area is considered a "critical area" within the Stony Creek Watershed Management Plan, defined as a permanent vegetated buffer which provides a valuable water

quality benefit and should be protected from encroaching development. These buffers benefit the watershed in multiple ways: reduce sediment, nutrient and chemical loadings; provide wildlife habitat and food sources; provide shaded areas which cool the environment, thereby maintaining a more consistent dissolved oxygen level within the water; and reduce erosion by slowing floodwaters. As described in more detail later, the proposed remedy for the undeveloped floodplain is intended to compliment the Residential Interim Measure remedial work by preserving as much of this critical environment as possible.

Investigation Results

Summaries of the results of several investigations associated with Stony Creek and the floodplains are presented below. Stony Creek sediment, fish and the residential floodplain soils are in this section. The following section, which outlines potential risks, presents the data summary for the undeveloped floodplain.

Summary for PCBs in Stony Creek Sediment, 2009*

Depth	Detection Frequency *	Minimum Detected (ppm)	Maximum Detected (ppm)	Average (ppm)	95% UCL** (ppm)
Surface 0-6"	18/24*	0.12	2.1	0.45	0.69
Subsurface 6-12"	12/22*	0.2	2.8	0.40	0.74

*The 2009 sediment sampling event included over 70 discrete sediment samples from 24 transects. In response to public comments, EPA characterized the subsurface sediment PCB contamination.
**See 95% UCL definition in following section.

Summary for PCBs in Stony Creek Sediment (0-6"), 2003-2009

Year	Detection Frequency *	Minimum Detected (ppm)	Maximum Detected (ppm)	Average (ppm)
2003	2/4	1.4	19	5.9
2005	3/3	0.76	6.1	2.6
2006*	93/149	0.27	7.8	1.1
2007	3/3	0.84	1.2	1.0
2009	18/24	0.12	2.1	0.45

*In 2006, EPA fully characterized the PCB contamination within the first 6" of sediment with extensive sampling between Wilson Ditch and the White River.

Summary for PCBs in Stony Creek Fish*, 2009

Species	Sample Type	Average (ppm)	Minimum Detected (ppm)	Maximum Detected (ppm)	95% UCL (ppm)
Green sunfish	Whole Body	4.8	0.92	18.3	9.4
Northern hog sucker	Whole Body	2.4	1.0	6.2	3.8
Rock bass	Whole Body	2.5	0.55	7.5	4.4
Green sunfish	Fillets with skin	0.64	0.15	2.0	1.1
Rock bass	Fillets with skin	0.35	0.10	0.72	0.47

*There is currently a fish consumption advisory issued by the State for Stony Creek. Please also note there is a State-wide advisory for all Carp within Indiana rivers and streams, http://www.in.gov/isdh/23650.htm.

Summary (subset) of Residential Soil PCB Data, 2009*

Property	Sample Depth	Number of Samples	Range Before Cleanup (ppm)	Average Before Cleanup (ppm)	95%UCL Before Cleanup (ppm)	Range *After* Cleanup (ppm)	Average *After* Cleanup (ppm)	95%UCL *After* Cleanup (ppm)
1	Surface	39	0.64-15	3.1	4.0	0.64-2.6	0.79	0.93
	Subsurface	115	0.61-42	3.2	4.3	0.61-11	0.74	0.91
2	Surface	40	0.59-8	1.6	2.2	0.59-3.4	0.31	0.73
	Subsurface	109	0.59-22	2.0	2.6	0.59-6.2	0.85	1.0
3	Surface	26	0.8-2.6	0.8	1.1	0.8-0.8	0.074	0.085
	Subsurface	61	0.65-20	1.5	2.6	0.65-0.8	0.072	0.078
4	Surface	45	0.59-8.4	1.8	2.4	0.59-1.4	0.11	0.14
	Subsurface	112	0.59-18	1.7	2.2	0.59-3.9	0.19	0.23
5	Surface	24	0.76-3.2	1.0	1.3	0.76-2.2	0.52	0.67
	Subsurface	54	0.72-11.5	2.0	2.9	0.72-6.9	0.92	1.2

*All data reported as ppm

Risk Summary

Stony Creek and its floodplains have been the subject of several human health risk assessments (HHRAs) and ecological risk assessments (ERAs) from 1994-2010. The tables below summarize the risk assessments and the text which follows provides further explanation.

Ecological Risk Assessments

Area or Location where Samples were Taken	Media or Material Sampled	Average Concentration of PCBs in Media[1] (ppm)	95%UCL[1,3] (see definition below) (ppm)	Receptor: Risk (HQ)[4] (see definition below)	Source
Stony Creek	Fish	3.2	NR[2]	Great blue heron: 0.01	Dames & Moore, 1994
Undeveloped Floodplain	Soil	2.5	5.5	American Robin: 0.04-0.4	ENVIRON, 2010
	Invertebrates	0.44	0.70		
	Small Mammals	0.35	0.81	American kestrel: 0.003-0.03 Short-tailed shrew: 0.06-0.1 Red fox: 0.003-0.005 Indiana bat: 0.4 American mink 0.1-0.2	

[1] Concentrations in parts per million (ppm); one ppm is equivalent to 1 milligram per liter of water (mg/l) or 1 milligram per kilogram soil (mg/kg). The 'average' is a simple arithmetic average of the data available.

[2] Not Reported. In 1994 there was not enough data with which to calculate a 95% UCL, therefore, at that time the highest concentration found was used to conservatively assess risk.

[3] 95% UCL: 95% upper confidence limit on the mean concentration, calculated using bias-corrected accelerated (BCA) bootstrap method with 10,000 iterations. The 95% UCL, as a means to guide a risk based decision, is more conservative than the arithmetic average of the data. This is because it represents a concentration at which 95% of the time the actual concentration is below. Using the 95% UCL provides a wide margin of safety which takes into consideration the many variables and unknowns associated with environmental sampling and analysis.

[4] HQ: Hazard quotient=the ratio of an exposure level by a contaminant (e.g., maximum concentration) to a screening value selected for the risk assessment for that substance. If the exposure level is higher than the toxicity value, then there is the potential for risk to the receptor.

HQ > 1.0	Harmful effects are likely due to the contaminant in question
HQ = 1.0	Contaminant *alone* is not likely to cause ecological risk
HQ < 1.0	Harmful effects are NOT likely

Human Health Risk Assessments

Area or Location where Samples were Taken	Media or Material Sampled	Average Concentration of PCBs in Media[1] (ppm)	95%UCL[1,3] (see definition below) (ppm)	Receptor: Cancer Risk[5] (see explanation below)	Non-cancer Risk (HQ)[6] (see explanation below)	Source
Stony Creek	Sediment	NR[2]	6.9	Child: $2x10^{-7}$	0.06	ChemRisk, 1996
Undeveloped floodplain	Surface Soil	2.5	5.2	Child: $1x10^{-6}$	0.2	ENVIRON, 2009
James Place[4]	Surface Soil Subsurface Soil	0.02-1.8 0.02-1.8	0.52-2.4 0.48-2.3	Child: $1x10^{-6} - 6x10^{-6}$ Adult: $1x10^{-8} - 5x10^{-8}$	0.1 -0.4 0.02 – 0.1	ENVIRON, 2008
Stony Creek Circle and Audubon Court[4]	Surface Soil Subsurface Soil	0.28-0.72 0.31-0.93	0.31-0.95 0.43-1.1	Child: $8x10^{-7}$ -$2x10^{-6}$ Adult: $9x10^{-9}$ -$2x10^{-8}$	0.05 – 0.1 0.02 – 0.04	ENVIRON, 2009
132-140 Stony Creek Overlook[4]	Surface Soil Subsurface Soil	0.074-0.32 0.072-0.63	0.085-0.38 0.078-0.96	Child: $2x10^{-7} - 1x10^{-6}$ Adult: $2x10^{-9} - 2x10^{-8}$	0.01 – 0.06 0.003– 0.04	ENVIRON, 2009
106-130 Stony Creek Overlook[4]	Surface Soil Subsurface Soil	0.02-1.9 0.02-5.5	0.2-2.6 0.02-6.9	Child: $5x10^{-8} - 7x10^{-6}$ Adult: $4x10^{-10} - 1x10^{-7}$	0.003- 0.4 0.0007-0.3	ENVIRON, 2009

[1] Concentrations in parts per million (ppm); one ppm is equivalent to 1 milligram per liter of water (mg/l) or 1 milligram per kilogram soil (mg/kg). The 'average' is a simple arithmetic average of the data available.

[2] Not Reported.

[3] 95% UCL: 95% upper confidence limit on the mean concentration, calculated using bias-corrected accelerated (BCA) bootstrap method with 10,000 iterations. The 95% UCL, as a means to guide a risk based decision, is more conservative than the arithmetic average of the data. This is because it represents a concentration at which 95% of the time the actual concentration is below. Using the 95% UCL provides a wide margin of safety which takes into consideration the many variables and unknowns associated with environmental sampling and analysis.

[4] Concentrations and risks based on post-excavation conditions; ranges reflect conditions across all properties within the neighborhood assessed, not individual properties.

[5] Based on the National Contingency Plan (NCP), EPA's regulations for the evaluation of risk at Superfund sites, the cancer risk range is from 10-4 (one in ten thousand) to 10-6 (one in a million excess risk of developing cancer). In other words, EPA's regulations state that an acceptable range for the chance of developing an additional incident of cancer from the contamination alone is 1-in-10,000 to 1-in-1 million. EPA's preference is to select remedies that are at the more protective risk range. As shown above, multiple risk assessments for the soils around Stony Creek demonstrate the area is well within the risk range by multiple orders of magnitude.

[6] HQ: Hazard quotient=the ratio of an exposure level by a contaminant (e.g., maximum concentration) to a screening value selected for the risk assessment for that substance. The HQ is a means to measure the safety of contaminants which are noncancerous but could cause other health or environmental problems. For contaminants which are cancerous, it is simply another means by which to express risk. If the exposure level is higher than the toxicity value,

then there is the potential for risk to the receptor. An HQ>1 indicates harmful effects are likely due to the contaminant in question.

Below, findings from ecological risk assessments are presented first, followed by findings from human health risk assessments.

Ecological

Stony Creek Aquatic Ecological Risk Assessment

Dames & Moore (1994) conducted an ecological risk assessment (ERA) as an addendum to the RFI Phase II report. An ecological risk assessment is the process through which scientists evaluate the likelihood that adverse ecological effects might occur, or are occurring, due to exposure to one or more stressors, such as contamination. This ERA focused exclusively on aquatic habitats within Wilson Ditch and Stony Creek, based on the assumption that aquatic habitats are likely the most sensitive and their receptors most highly exposed, compared to terrestrial habitats. It was assumed that if no adverse ecological effects were observed or predicted for aquatic habitats, then other local habitats and receptors also would not be adversely affected. In other words, based on where the highest concentrations of PCBs were found, it was decided at that time that organisms living in or near the water were the most at risk for exposure to PCB contamination. Ecological risks associated with terrestrial habitats (i.e., the Stony Creek floodplain) were subsequently evaluated by ENVIRON (2010), as summarized below.

As described in 1994, the great blue heron (*Ardea herodias*), representing piscivorous birds, was selected as the principal receptor of concern for the ERA. Dietary exposure was assumed to be the dominant exposure pathway for great blue herons. The great blue heron, because it eats fish, and sits at the top of the food chain for the aquatic habitat, was chosen as the species most likely to be at risk. As described below, for PCB contamination, it was determined that aquatic ecological risk was within the acceptable range.

The maximum concentration of PCBs in fish tissue at the time the ERA was prepared, 7.7 ppm, was used as a conservative representation of the great blue heron's dietary exposure. Based on the broader and more recent fish tissue data now available, this concentration is clearly representative of the data set and conservative for the risk assessment. The toxicity quotient resulting from the 1994 ERA was 0.5, which is well below the acceptable benchmark of 1, indicating that piscivorous birds are unlikely to be adversely affected.

Terrestrial Ecological Risk Assessment for the Stony Creek Floodplain

ENVIRON (2010) prepared the Baseline Ecological Risk Assessment (BERA) for the undeveloped floodplain of Stony Creek between the confluence with Wilson Ditch and Allisonville Road. A BERA is a comprehensive and thorough process through which to determine if the known ecological receptors are being adversely impacted by the presence of a particular stressor, or stressors, such as contamination. The objective of this BERA was to evaluate potential ecological risks from exposure to PCBs in floodplain soil and terrestrial prey (see Figures 4 and 5). In particular, the BERA evaluated whether PCBs in soil and terrestrial prey are likely to adversely affect birds and mammals that may forage within the floodplain. (Although the ENVIRON (2010) BERA focused on the undeveloped floodplain of Stony Creek, it is also protective of ecological exposures within the residentially developed floodplain. The wildlife habitat provided by the undeveloped floodplain is far more extensive and high quality

than that provided by the residentially developed floodplain. Consequently, birds and mammals are likely to forage to a far greater extent in the undeveloped floodplain than in the residentially developed floodplain. Thus, findings for the undeveloped floodplain also serve as conservative estimates for the residentially developed floodplain.)

The average and 95% UCL concentrations of PCBs in Stony Creek floodplain surface soils, terrestrial invertebrates, and small mammals were measured and are summarized below. That data was then used to estimate the potential exposure of invertivorous and carnivorous bird and mammal populations foraging in the floodplain of Stony Creek to the current concentrations of PCBs. In other words, the samples from the floodplain were used to estimate potential exposure to the wildlife populations and then compared to the scientific literature (actual invertebrate and small mammal PCB concentrations were measured from the floodplain in order to derive more accurate, site specific exposure assumptions for organisms higher on the food chain). Upon comparison of the species-specific toxicity data (expressed as doses) derived from the scientific literature to the respective average and 95% UCL concentrations, EPA concluded that wildlife populations foraging in the Stony Creek floodplain—both undeveloped and residentially developed portions—are unlikely to be adversely affected by current concentrations of PCBs ingested via soil or diet. To be clear, the levels of PCBs within the floodplain soils and food chain would not be expected to pose a threat to the wildlife.

Environmental media relevant to the ENVIRON (2010) BERA for which analytical data were available include floodplain soil, terrestrial invertebrates, and small mammals. Average and 95% UCL concentrations of PCBs in floodplain surface soil are 2.5 ppm and 5.5 ppm, respectively. Average and 95% UCL concentrations of PCBs in invertebrates are 0.44 ppm and 0.70 ppm, respectively. Average and 95% UCL concentrations of PCBs in small mammals are 0.35 ppm and 0.81 ppm, respectively. Average and 95% UCL concentrations are used to characterize the most likely and high end exposures, respectively.

The following assessment and measurement endpoints were evaluated in the BERA:

1. Survival and reproduction of invertivorous and carnivorous bird populations foraging in the floodplain of Stony Creek: Comparison of estimated PCB doses for American robins (*Turdus migratorius*) and American kestrels (*Falco sparverius*) to species-specific toxicity data (expressed as doses) derived from the scientific literature.

2. Survival and reproduction of insectivorous and carnivorous mammal populations foraging in the floodplain of Stony Creek: a) comparison of estimated PCB doses for short-tailed shrew, red fox (*Vulpes vulpes*), mink (*Mustela vison*), and Indiana bat (*Myotis sodalis*) to toxicity data (expressed as doses) derived from the scientific literature; b) comparison of estimated PCB body burdens in mink to toxicity data (expressed as tissue concentrations) derived from the scientific literature.

Based on the overall weight-of-evidence presented in the ENVIRON (2010) BERA, wildlife populations foraging in the Stony Creek floodplain—both undeveloped and residentially developed portions—are unlikely to be adversely affected by current concentrations of PCBs in soil or diet. The results of the BERA support a conclusion that, other than continued monitoring

of fish in Stony Creek (as stipulated in the 2001 AOC), no further investigation or remedial action is warranted.

Human Health

Stony Creek Sediment Human Health Risk Assessment

ChemRisk (1996) prepared a human health risk assessment (HHRA) in support of the 1998 CMS (CELS 1998). Of the numerous on-site and off-site exposure scenarios evaluated in the 1996 HHRA, one is pertinent to Stony Creek: recreational contact by children with Stony Creek sediment.

Based on the assumptions discussed in the 1996 HHRA, ChemRisk (1996) reported an estimated cancer risk of 2×10^{-7} for Stony Creek recreators (those people using Stony Creek for fishing, swimming or wading). This value is well below the lower bound of EPA's range of acceptable cancer risks (1×10^{-6} to 1×10^{-4}), as well as the Indiana Department of Environmental Management (IDEM) benchmark of 1×10^{-5}, indicating that cancer risks associated with recreational activity in Stony Creek were acceptable, or, so low as not to be a problem. The non-cancer hazard quotient (HQ) of 0.06, is also well below EPA's and IDEM benchmark of acceptable non-cancer hazard (i.e., 1), indicating that non-cancer hazards also were acceptable. Given the 10-fold decrease in concentrations of PCBs in sediment since this HHRA was issued, current risks are significantly lower than those predicted by ChemRisk (1996). The sediments of Stony Creek do not pose an unacceptable risk to human health from PCB contamination.

Human Health Risk Assessment for the Undeveloped Floodplain Soils of Stony Creek

ENVIRON (2009a) prepared a human health risk assessment (HHRA) for the undeveloped floodplain of Stony Creek between the confluence with Wilson Ditch and Allisonville Road. The objective of the HHRA was to evaluate potential human health risks from exposure to soil in the undeveloped floodplain of Stony Creek. Soil concentrations were compared to risk-based closure levels calculated based on long-term recreational exposure to surface soil. Based on factors discussed in the 2009 HHRA, the recreational risk based concentration (RBC) for surface soil is 34 ppm. Factors which influenced this value include the land use of the area. Under a conservation easement for wetland mitigation purposes, the expected land use and potential exposure is far less than would be expected in other areas. In other words, a recreational scenario as used for this assessment is conservative provided the area is restricted.

Potential human health risks are evaluated by comparing measured exposure point concentrations (EPCs) for soil to the recreational risk-based closure level. The 95% UCL concentration for surface soil in the undeveloped floodplain is 5.2 ppm, well below the recreational risk-based closure level. This concentration was calculated at the upper end of the acceptable cancer risk range in order to ensure maximum conservatism. Provided the 95% UCL offers a wide margin of safety by representing a concentration at which 95% of the time the actual concentration of the floodplain's soil is below, the undeveloped floodplain soils do not pose an unacceptable risk. As stated above, there are strict land-use restrictions associated with the conservation easement tied to this land creating an unlikely exposure scenario.

Given that the EPC of 5.2 ppm for surface soil is well below the recreational RBC of 34 ppm, predicted cancer risks, 1 x 10^{-6}, are below the IDEM Risk Integrated System of Closure (RISC) program's default acceptable cancer risk level of 1 in 100,000 (1 x 10^{-5}) (IDEM 2006). Non-cancer hazards, 0.2, are also below IDEM acceptable HQ of 1. Thus, based on conservative assumptions about how the floodplain will be used and actual concentrations of PCBs found there, EPA believes that conditions in the undeveloped floodplain do not pose an unacceptable risk.

Cancer risks are also within the acceptable incremental cancer risk range of 1 x 10^{-6} to 1 x 10^{-4}, defined by EPA in the Superfund National Contingency Plan for the selection of remedial actions that protect human health and the environment. EPA (1991) has stated that remediation generally is not warranted for a contaminated property if the cumulative cancer risk is less than 1 x 10^{-4}. Non-cancer hazards are below EPA's acceptable HQ of 1 in the study area. Thus, conditions in the study area do not pose unacceptable risks or hazards based on EPA criteria.

Based on these findings, soil in the undeveloped floodplain of Stony Creek poses no unacceptable risk for reasonably foreseeable land uses under either IDEM or EPA criteria.

Human Health Risk Assessments for Residential Properties along Stony Creek

ENVIRON prepared four human health risk assessments (HHRAs) for the residential properties along Stony Creek (ENVIRON 2008a, 2009b,c,d). The HHRAs evaluated potential human health risks from exposure to soil in four groups of residential parcels along Stony Creek: James Place (Monticello Court and Overland Court), Audubon Court and Stony Creek Circle, 132–140 Stony Creek Overlook, and 106-130 Stony Creek Overlook. In total, 29 residential properties were evaluated in the HHRAs. Soil concentrations were compared to risk-based closure levels. This means that an EPA human health risk assessor and toxicologist calculated a safe soil concentration for the surface and subsurface soils which took into account land use and potential exposure. The values where calculated using the IDEM RISC program's default acceptable cancer risk level of 1 in 100,000. Through a conservative risk assessment process, risk based concentrations (RBCs) where developed to guide the cleanup. The residential RBC for surface soil is 3.8 ppm, and the construction worker RBC for all soil depths is 27 ppm.

Potential human health risks were evaluated by comparing measured soil concentrations (the EPC) to the residential and construction worker risk-based closure levels. In most cases the EPC was calculated as the 95% UCL concentration of PCBs in surface soil (0 to 6 inches) and subsurface soil (all depths). *Prior* to cleanup, all properties met the subsurface risk based cleanup value and 25 of the 29 properties met the surface soil risk based cleanup value. Throughout 2008 and 2009, EPA implemented an interim measures remediation within the residential portion of the floodplain. The remediation consisted of a risk-based soil removal and native plantings. After the cleanup, subsurface soil concentrations where further reduced below the already acceptable risk based value and all properties had surface soil values which met the risk based value.

Depending on the property, the pre-excavation 95% UCLs in residential surface soil ranged from 0.52 ppm to 6.8 ppm, while the 95% UCLs in soils from all depths ranged from 0.65 ppm to 19.6 ppm. While the 95% UCL concentrations of PCBs in soils from all depths were all below the construction worker RBC (i.e. 27 ppm), 4 residential properties had pre-excavation

EPCs of PCBs in surface soil above the residential risk-based closure level (i.e., 3.8 ppm). Following soil excavation, backfilling, and re-vegetation, 95% UCL concentrations of PCBs in surface soil at all properties were below the applicable risk-based closure level. In addition, non-cancer HQs were below 1 at all properties. Thus, surface and subsurface soils at the residential properties along Stony Creek do not pose unacceptable risks to people living or working there based on reasonably foreseeable land uses, including all residential land uses.

In summary, potential risks to human health and the environment have been evaluated for Stony Creek and its residentially developed and undeveloped floodplains.

Summary of potential ecological risks

-Stony Creek Sediment: Dames and Moore (1994) evaluated potential risks to piscivorous birds, while ENVIRON (2010) evaluated potential risks to piscivorous mammals as part of the BERA, and the Corrective Measures Proposal (CMP) evaluated potential risks to benthic invertebrates and fish. All assessments indicate that the measures instituted pursuant to the 2001 AOC are protective of ecological receptors foraging within Stony Creek. These actions taken previously have been effective and no new measures are needed to protect ecological receptors foraging within Stony Creek.

-Floodplain Soils (undeveloped and residentially developed): The BERA indicates that wildlife populations foraging in the Stony Creek floodplain are unlikely to be adversely affected by current concentrations of PCBs in soil or diet.

Summary of potential human health risks

-Stony Creek Sediments: ChemRisk (1996) evaluated potential risks to human health from direct contact with sediment. Predicted cancer risks and non-cancer hazards did not pose a human health risk. The levels were considered acceptable and safe by EPA and IDEM. Exposure via fish consumption was not evaluated, due to the fish consumption advisory for Stony Creek.

-Undeveloped floodplain soil: ENVIRON (2009a) evaluated potential risks to human health within the undeveloped floodplain based on long-term recreational exposure to surface soil. Predicted cancer risks and non-cancer hazards did not pose a human health risk and were considered safe by EPA and IDEM.

-Residentially developed floodplain soil: ENVIRON (2008a, 2009b,c,d) evaluated potential human health risks at residential properties along Stony Creek, based on long-term residential exposures to surface soil and short-term construction/excavation exposures to surface and subsurface soil. Soil concentrations at 25 of the 29 properties evaluated were below the risk-based closure levels for surface and subsurface soil, while conditions at 4 properties exceeded the surface soil risk-based closure level. Following soil excavation, backfilling, and re-vegetation, cancer risks and non-cancer hazards at all properties did not pose a human health risk; EPA issued letters stating this finding. Concentrations of PCBs in soil samples collected from residences along Wilson Ditch did not exceed risk-based closure levels, and thus, does not warrant further evaluation.

Interim Measures

The following corrective measures have already been implemented within the Stony Creek system: 1) institution of fish consumption advisory in 1984 by the Indiana State Department of Health; 2) Wilson Ditch and Stony Creek confluence source control in 2005; 3) Stony Creek monitored natural recovery since 2001; 4) residential risk-based soil removal in 2008 and 2009.

Bridgestone voluntarily implemented the Stony Creek floodplain investigation, following collection of residential floodplain soil samples in 2006 that indicated the presence of PCBs at concentrations exceeding 1 ppm (Round 1; CEC 2007). A comprehensive residential soil sampling program was conducted in 2006 and 2007 (Rounds 2 and 3, respectively), in which approximately 20 properties were identified with PCB concentrations greater than 1 ppm in surface soil (CEC 2007). Round 4 of the Stony Creek investigation was conducted in 2008 for purposes of refining the spatial delineation of PCBs in surface and subsurface soils at residential properties.

EPA opened an informal public participation period in 2008 and: a. distributed the draft interim measure soil removal work plan to the affected community and City of Noblesville, b. held an availability session to further discuss the proposed interim measure and solicit comments, c. received public comments on the draft work plan and responded to them through a Response to Comments document; and, d. revised the interim measure work plan to reflect changes elicited by public comments.

In 2008 and 2009, Bridgestone implemented interim measures (focused soil excavation, backfilling with clean soil, planting vegetative cover) at 26 residential properties adjacent to Stony Creek. Bridgestone also investigated PCB concentrations in soil and biota in the undeveloped floodplain in 2008 to support a human health risk assessment (HHRA) and a baseline ecological risk assessment (BERA) for that area.

CORRECTIVE MEASURES ALTERNATIVES CONSIDERED

The following remedies were considered for the various Stony Creek areas discussed in the Statement of Basis.

Undeveloped Floodplain Soil

UF-1: No Action

"No action" is the baseline case against which all other corrective measures are compared. For the undeveloped floodplain of Stony Creek, "no action" would have involved *no* institutional or engineered remedial actions, including the 2005 source control action at Wilson Ditch, and *no* additional study or monitoring. "No action" would have meant leaving all floodplain soils in place and taking no measures to reduce exposures to that soil or to enhance the existing habitat. Existing access restrictions would remain in place, however, at the discretion of current land owners and consistent with the existing conservation easement.

UF-2: Monitored Natural Recovery

Under Monitored Natural Recovery (MNR), floodplain soil would remain in place and existing natural processes would be allowed to contain, destroy, alter, or otherwise reduce the bioavailability and toxicity of chemicals in floodplain soil. In particular, the accumulation and degradation of leaf litter within the floodplain enriches surface soil with organic carbon; the high affinity of PCBs for organic carbon reduces the bioavailability of PCBs. In addition, the frequent (i.e., at least annual) flooding of Stony Creek results in deposition of silt on the floodplain soil. MNR is only an option, and is most successful, when the source of the pollution has been removed or controlled. As a result of the 2005 source removal action in Wilson Ditch, sediment and suspended solids in Stony Creek have generally low concentrations of PCBs (below 1ppm). When those materials are deposited on floodplain soil during flooding, concentrations of PCBs in the most accessible soils (i.e., surface soils) are reduced. MNR would include long-term monitoring of soils or biota to verify that conditions within the undeveloped floodplain are continuing to improve.

UF-3: Area-Wide Habitat Enhancement with Focused Vegetative Stabilization

Habitat enhancement involves two actions that would enhance the habitat property-wide while reducing potential chemical exposure in the two areas of higher PCB concentrations at the site (see Figure 4).

In general, this corrective measure option would include: planting native groundcover in the two locations within the floodplain where PCBs are elevated (28ppm and 41ppm); erecting approximately 50 bat houses within canopy gaps in the forested portion of the undeveloped floodplain; and planting approximately 100 seedlings of shagbark hickory, shellbark hickory, and/or eastern cottonwood. This option would require Bridgestone to develop a detailed habitat enhancement plan in collaboration with the City of Noblesville, the Central Indiana Land Trust and the landowners of the island area.

At the two areas of higher concentrations (28ppm and 41ppm), appropriate vegetation would be selected and planted with the purpose of stabilizing soils in the areas to limit erosion and provide a vegetative barrier for humans, as well as wildlife. In addition, this alternative would include activities that will improve habitat for valued wildlife species, while avoiding any increase in their contact with PCBs. This option would focus on habitat enhancement for valued species expected to forage within the undeveloped floodplain—bats, including the federally protected Indiana bat. The BERA (ENVIRON 2010) demonstrated that the Indiana bat, despite its endangered status, is not currently at risk of adverse effects from the PCBs in prey within the undeveloped floodplain of Stony Creek, even when highly conservative assumptions regarding PCB concentrations and area use factors are employed. Although there are no records of Indiana bats present in the undeveloped floodplain of Stony Creek, this area lies within the Indiana bat's range and provides suitable foraging and roosting habitat. However, in the likely event that Indiana bats never roost within the undeveloped floodplain of Stony Creek, this corrective measure option would also benefit other mammalian (particularly bat), avian, and plant species that are known to inhabit the area.

Portions of the undeveloped floodplain offer suitable bat habitat because many of the mature trees in the area provide the required roosting structure for breeding females (i.e., loose-

barked trees, such as hickory and sycamore). In addition, the area is consistent with the characteristics of essential summer habitat due to the availability of permanent surface water within 0.3 miles of suitable roosting trees (e.g., the White River and Stony Creek) (Evans et al. 1998). Habitat enhancement actions would focus on a summer habitat for bats, which may already be present in the area. In particular, Bridgestone would erect artificial roosting sites (i.e., bat houses) and plant seedlings of tree species favored as summer roosts by bats. Bat houses would serve as short-term roosting habitat, while seedlings of loose-barked tree species (e.g., shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), and eastern cottonwood (*Populus deltoides*) would eventually provide long-term roosting habitat, once they mature.

UF-4: Capping

This corrective measure option would involve placement of a physical barrier, such as soil or an engineered control, over the most highly PCB-impacted soil (i.e., areas immediately surrounding sampling stations UFP-41 and UFP-24) to reduce the potential for human or ecological receptor exposure to that soil. Specific design details would be dictated by site conditions, which could significantly affect cost and recovery potential. Access to the locations, as well as the capping itself, would require potentially significant tree removal. Also, cap thickness and permeability inevitably influence drainage within the floodplain forest; because micro-topography within floodplain forest is critical to the hydrologic regime, these design considerations would affect achievement of several corrective measure objectives.

UF-5: Focused Excavation

Focused excavation in the undeveloped floodplain would involve removal of the upper 12 inches of soil from areas immediately surrounding sampling stations UFP-41 and UFP-24, backfilling the excavated areas with clean soil, and planting vegetative cover. Focused excavation is typically conducted within areas with high exposure potential and/or where there is a concern that soil is not stable and is at risk of being mobilized by natural events (e.g., erosion) or anthropogenic activities (e.g., lawn care). Soil excavation would be conducted mechanically and would require designation of staging areas, construction of access roads or paths for equipment, and tree felling. For example, it is estimated that at least 12 mature trees (including two 30-inch diameter sycamores) in the immediate vicinities of UFP-41 and UFP-24 would require removal prior to initiating any excavation activities. This estimate does not include the trees that also would require removal for construction of access roads or paths.

Residential Floodplain Soil

RF-1: Risk-based removal action with homeowner input, property-specific landscape enhancements and post-excavation monitoring

This remedy was implemented in 2008 and 2009, remediating 26 parcels. Excavation plans were developed based on comparison of 95% UCL concentrations to risk-based closure levels, combined with homeowner input. Excavated areas were backfilled, re-vegetated, landscaped and will be monitored for three growing seasons to verify the success of the restoration activities. Prior to selecting this interim measure, EPA held a public comment period and received many helpful comments which facilitated the cleanup effort.

RF-2: Excavation to 1 ppm

This corrective measure would have involved removal of all soil at residences with grid sample results above 1 ppm. Excavated areas would have been backfilled, re-vegetated, and monitored for three growing seasons. This option was available to all affected homeowners.

Since RF-1 was the remedy implemented as an interim measure during 2008-2009, the only other remaining option today is 'excavation to 1 ppm.' However, during the public comment period of 2008 at least one other option was discussed, 'Risk-based Removal Action.' For the purpose of transparency, this remedial option will be briefly discussed here. This option would have relied solely on property PCB concentrations compared to the risk-based cleanup levels as a basis for excavation. Under this option, no more than 4 properties would have been remediated because these were the only properties where PCB concentrations were above the risk-based cleanup levels in surface soils. EPA recognized during the public comment period that homeowner input was critical to the success of an area-wide cleanup and did not choose this remedial option. Many homeowners, whose property 95% UCL was below the cleanup levels, expressed a desire to have certain 'grids' with elevated concentrations removed in order to lower the property's overall concentrations. Furthermore, although the only other option presented in this document is 'excavation to 1 ppm,' it is important to note that each homeowner was provided this option during the remedy implementation. For a variety of reasons, such as: tree removal, creek bank stability and overall risk, most homeowners did not choose to excavate their property to 1 ppm. The removal of certain 'grids' often resulted in a property-wide 95% UCL at or below 1 ppm while preserving the integrity of the property.

SELECTED REMEDIES

EPA selects the following corrective measures as the remedies to address the Stony Creek undeveloped floodplain and residential area. The comments received during the public participation period and EPA's responses can be found in the last section of this document.

Corrective Measures to Address the Undeveloped Floodplain

The selected remedy for the undeveloped floodplain is Area-Wide Habitat Enhancement with Focused Vegetative Stabilization. This remedial option appears to be well accepted and favored by the community, as demonstrated in the public comments provided below. In general, it includes: planting native, locally sourced groundcover in the two locations within the floodplain where PCBs are elevated (28ppm and 41ppm); erecting approximately 50 bat houses within the canopy gaps in the forested portion of the floodplain; and planting approximately 100 tree seedlings. This remedy requires Bridgestone to develop a detailed habitat enhancement plan in collaboration with the City of Noblesville, the Central Indiana Land Trust, Inc. (CILTI), and the landowners of the island area. CILTI will provide their expertise in the plant selection and planting as well as the bat house and tree seedling locations. The Plan must be submitted to EPA within 90 days after this Final Decision goes into effect and include a detailed schedule of the work to be performed, including operation and maintenance (O&M) activities. Those O&M activities include the following: During each of the three years following implementation of the remedy, Bridgestone will inspect the condition of the habitat enhancements and repair or replace bat boxes, vegetative cover, or seedlings, as needed. Such monitoring will be conducted in the Spring of each year, as well as following substantial flood events. If replacement or repair needs are identified, Bridgestone will implement them during the same field season. The primary goal of the periodic inspections will be to ensure that structural failures are readily addressed (e.g., bat

boxes are vertically oriented and sound). One-to-one replacement of seedlings that do not survive, however, is not required because the habitat enhancement plan will account for an expected failure rate of 20%. That is, during remedy implementation, an extra 20% of seedlings will be planted than are needed for habitat enhancement purposes. That 20% margin of safety will ensure success even if as many as 20% of the seedlings do not survive the first three years. If more than 20% of the seedlings are lost in the first three years, Firestone will replace seedlings such that at least 80% of the original number planted survives for three years.

This final remedy (as well as the remedy within the Residential Area) acknowledges the successful source control measures which took place as previous final remedies and recent interim measures. The 2001 AOC ordered Bridgestone to remediate the primary source of PCBs, Wilson Ditch. This work was conducted in 2005; at which time the confluence of Wilson Ditch and Stony Creek was also remediated as additional source control. Furthermore, the 2001 AOC ordered on-going monitoring of Stony Creek, which has demonstrated successful Monitored Natural Recovery in combination with the source control measures. Although Stony Creek fish monitoring has demonstrated overall improvements to the ecosystem, the current fish consumption advisory continues to provide an additional layer of protection to the community.

The final component of this remedy addresses the future land use of the undeveloped floodplain property. Per a December 27, 2004 Deed of Conservation Easement, the property owner, Residue LLC ("Grantor"), grants this property (the undeveloped floodplain) in favor of the Central Indiana Land Trust Incorporated (CILTI), an Indiana not-for-profit corporation ("Grantee"). The purpose of the conservation easement (Attachment 3) is to assure that the property will be retained forever predominantly in its natural condition and to prevent any use of the property that will significantly impair or interfere with the conservation values of the property. This easement is intended to run with the land in perpetuity. In accordance with the easement, the following activities are expressly prohibited on the undeveloped floodplain: construction of buildings, mobile homes, billboards; alterations of the topography through activities such as excavation, mining or drilling; dumping; construction of roads; and vehicles. Those activities which are not prohibited on the property, such as occasional grass mowing or ecological restoration activities have been considered within the context of the Human Health Risk Assessment approved by EPA to evaluate the risks of PCBs. The risk assessment conservatively assumed that future use of the undeveloped floodplain would be for recreational purposes. This assumption is conservative because the easement prohibits such activities. Nonetheless, the 95% UCL PCB concentration for the property is 5.2 ppm, below the 34 ppm risk-based closure level based on a long-term recreational scenario. Consequently, the current conservation easement not only determines the future land use for this property is appropriate but serves as an additional layer of protection for the community.

Corrective Measures to Address the Residential Area

The selected remedy for the residential areas adjacent to Stony Creek, implemented as an interim measure during 2008-2009 is Risk-Based Removal Action with Homeowner Input, Property-Specific Landscape Enhancements and Post-Excavation Monitoring. This remedy has already been implemented and 26 parcels were successfully remediated through excavation, backfilling and re-vegetation. The post-excavation, confirmatory soil sampling has been extended for an additional year, to ensure the remedy was a success. Therefore, in addition to the post-excavation sampling that took place in 2010, additional sampling will take place in 2011.

Bridgestone will report the findings of the 2011 sampling effort to EPA and a risk-based decision consistent with the residential interim measure work plan will be made based upon the data. Furthermore, areas where soil is settling to a lower elevation than pre-excavation levels and adversely impacting grade, or where re-vegetation has not been successful, will be addressed by Bridgestone on an individual basis for three years from the completion of the soil removal activities. Thus, properties excavated in 2008 will be monitored through late summer/fall 2011; properties excavated in 2009 will be monitored through late summer/fall 2012. All reasonable efforts to restore properties which have been adversely impacted by the excavation will be taken by Bridgestone to ensure the property is restored to its pre-excavation state, within reason.

Corrective Measures to Address Groundwater

In accordance with the original Final Decision of 2000 and subsequent AOC of 2001, Bridgestone has been operating a groundwater pump and treat system to contain contaminated groundwater that originates from Bridgestone's old South Landfill and other sources on-site. Per those documents, the system must contain contaminated groundwater within the facility property and treat it to potable levels. This means that the long-term goal is to meet the maximum contaminant levels (MCLs) for drinking water in the monitoring wells located off-site and along Bridgestone's property boundary. The extraction system appears to have been successful, for the most part. The upper aquifer has demonstrated considerable improvements as concentrations of chlorinated solvents have decreased already, and now stay below the MCLs in most wells. Also, groundwater monitoring has demonstrated the plume is stable, and there are no human health or ecological impacts.

However, monitoring in the deeper aquifer continues to show concentrations of chlorinated solvents above the MCLs, thus the long-term goal has not yet been achieved in the deeper aquifer. EPA would like to take this opportunity to begin incorporating new scientific information as it evolves regarding the optimization of pump and treat systems and various *in-situ* remedial technologies. Accordingly, we are requiring Bridgestone to begin conducting reviews every five years of its existing system and update the system as opportunities for improvements arise.

In addition to groundwater pump and treat, the original Final Decision also included an "enhanced infiltration pilot study" for the source area, the South Landfill. Other *in-situ* technologies have advanced considerably within the past ten years and may provide a beneficial "polishing" step to remediating the groundwater to the required standards in a more efficient manner.

Therefore, within six months after the date of this *Final Decision*, Bridgestone shall submit to EPA a written assessment of the effectiveness and efficiency of the ongoing groundwater remedy. It shall include a technology and cost comparison for potential alternative improvements. Bridgestone should consider all practical and reasonable technologies, or combinations thereof, which would address the source of groundwater contamination from the site for the purpose of optimizing the system. Bridgestone shall perform a review of the current groundwater pump and treat system and demonstrate whether or not it's the most cost efficient, energy efficient and/or timely means of addressing the contamination. Bridgestone shall conduct such reviews every five years until such time the performance standards are met. Five year

reviews are intended to streamline the groundwater remedy through a series of optimizing corrective actions, as necessary, which might also reduce overall costs and cleanup time frame.

If any of the five year reviews indicate that change to the selected remedy are appropriate, EPA would determine whether the proposed changes are non-significant, significant, or fundamental changes. EPA would inform the public about significant or fundamental changes, and would hold a formal public comment period prior to making its decision about such changes.

Regarding the original groundwater final remedy, Bridgestone should provide a baseline financial assurance value, as part of the overall financial assurance submittal detailed below. This should include the cost of the current on-going remedy and projected future costs of maintaining this system in order to reach the endpoint above.

Financial Assurance

EPA is also selecting financial assurance as a component of the final remedy. Bridgestone must demonstrate that adequate funds will be available to complete the construction as well as the operation and maintenance of all selected remedies, both on and off site. Bridgestone must provide this financial assurance within 90 days after EPA issues the Final Decision and Response to Comments. Any of the following financial mechanisms may be used to make this demonstration: financial trust, surety bonds, letters of credit, insurance, or qualification as a self insurer by means of a financial test. After successfully completing the construction, Bridgestone may request that the amount of the financial assurance be reduced to the amount necessary to cover the remaining costs. Bridgestone may make similar requests from time to time as the operation and maintenance phase of the remedies proceeds.

PUBLIC PARTICIPATION ACTIVITIES

Interim Actions:

The following public participation activities took place as part of the residential interim measures remediation. In January 2008, EPA provided the community, the State and the City of Noblesville with a draft residential interim measures remediation work plan and opened a public participation period. On January 31, 2008 an availability session was hosted by EPA in Noblesville, IN to discuss the proposed interim measures. During the public participation period, a total of 52 unique comments were submitted to EPA on the draft work plan. In April 2008, EPA mailed a Response to Comments document to the local community addressing each of those 52 comments and revised the work plan accordingly. EPA provided the community with the final work plan in June 2008. The interim measures work began in the summer of 2008. Several fact sheets were also provided to the community throughout the interim measures implentation process to ensure information was shared in a timely manner. Lastly, EPA met with many affected homeowners, as well as the independent community technical advisor, throughout the process in an effort to address questions and concerns. An independent community technical advisor was hired by Bridgestone but worked in a third-party capacity to provide additional technical support to the community and field oversight in general.

Statement of Basis:

For more detailed information, please refer to the Bridgestone Statement of Basis (Attachment 1) and the Administrative Record (Attachment 2) located in the Noblesville Library. EPA held a public participation period to receive comments on the Statement of Basis from July 1, 2010 – August 25, 2010. The Statement of Basis was also mailed directly to all affected homeowners, the State, and the City of Noblesville. A public meeting was held on July 14, 2010 in Noblesville, Indiana and a website created for the community to reference Bridgestone and EPA documents. The meeting was attended by approximately 10 citizens, 1 City representative, and 2 Bridgestone representatives. Three EPA representatives were also present. EPA received a total of 8 comments on the Statement of Basis. In the following section, comments received during the public participation period and meeting, accompanied by EPA's responses, are listed.

PUBLIC COMMENTS AND EPA'S RESPONSES

Bridgestone Comments

Comment (Bridgestone): During a recent inspection, and based upon some homeowner concerns, it was noted that certain low terrace areas in which soil was replaced during the residential work have settled to lower elevations than had been previously noted, prior to excavation. Bridgestone proposes to take additional steps to ensure that the post-excavation elevation is consistent with the pre-excavation elevation in these areas.

> *EPA response:* On July 15, 2010, EPA met with a homeowner and observed some of the areas of low-lying elevations where soil has settled. EPA confirmed that settlement has occurred and discussed the concerns with Bridgestone (which prompted the comment provided). Since that time, at least three properties have been addressed by Bridgestone through soil replacement, grading, seeding, plugging and matting. Work continues at other properties to ensure issues of grade, erosion and/or re-vegetation are appropriately addressed. EPA is committed to ensuring all homeowners are satisfied with the post-excavation work and each property is restored to its maximum beneficial use, within reason. We will continue to monitor the post-excavation stabilization and re-vegetation efforts as described in the work plan, for three years after completion of remediation, to ensure that Bridgestone adequately completes the residential restoration efforts.

Comment (Bridgestone): In accordance with the EPA-approved interim remedial measure plan, Bridgestone is continuing to monitor the effectiveness of the residential remedy. As such, soil samples were taken this summer which demonstrated areas remained at or below the residential risk-based concentration. Bridgestone would like to perform an additional year of soil sampling to confirm that the residential floodplain soil remedy is complete.

> *EPA response:* The proposed change to the current work plan, an additional year of soil sampling, is appropriate and acceptable to EPA. Bridgestone must notify EPA and the affected homeowners prior to initiating the sampling.

Citizen Comments

Comment: The proposed remedy for the undeveloped floodplain includes planting 100 tree seedlings, including cottonwoods. Cottonwoods are a form of allergen to many and, in fact,

large cottonwoods have been removed from the neighborhood due to this nuisance issue. Also, the cottonwood seems to be a preferred tree species for the beavers, which disturb the creek and remove the trees.

> *EPA response:* Because the undeveloped floodplain is currently under a conservation easement with the Central Indiana Land Trust, Inc. (CILTI), EPA has ensured that Bridgestone coordinate with CILTI on all comments which affect the remedy in that area. Therefore, with concurrence from CILTI, the proposed cottonwoods in the work plan have been replaced with Burr Oak. CILTI has indicated that oak provide a valuable food source for the local wildlife and migratory birds. Bridgestone will replace cottonwoods with oak in its plan and will enlist the expertise of CILTI in tree placement.

Comment: Rather than 50 bat houses, greater diversity of benefit could be achieved by enhancements for additional wildlife species such as duck houses and bird boxes.

EPA response: Again, with consultation from CILTI, we have learned that little benefit would likely be derived from structures for additional wildlife species for the following reasons. First, the bat houses will enhance the habitat for five or six unique bat species already found in the area, in addition to the potential endangered Indiana bat. Second, CILTI expressed that the size of the habitat dictates that the greatest "bang for the buck" would be achieved with the proposed 50 bat houses as it will create a significant enhancement for bats rather than a minor enhancement for several other species. Last, due to the larger home ranges of other species (such as the warbler and bluebird) the greater benefit would come from the bat house enhancement. Therefore, EPA has determined that the proposed remedy inclusion of 50 bat houses is most appropriate for this habitat and Bridgestone will enlist the expertise of CILTI in locating the bat houses.

Comment: The plants and/or seeds used in the remedy on the undeveloped floodplain should be locally sourced and CILTI should be involved in the plant selection and planning.

EPA response: EPA concurs with this comment and Bridgestone will consult with CILTI on the selection, planning and planting of locally sourced vegetation.

Comment: The removal of down trees from Stony Creek would improve the flow of water, especially during flood events.

EPA response: EPA concurs with this observation; however, it is not within the Agency's jurisdiction, or scope of work, to remove trees which have fallen into the creek from the adjacent riparian ecosystem.

Comment: When I looked through the material, I thought the alternative that was recommended was perfect. I love the fact that it was not intrusive, that it seemed to be well thought out with some good science. I frankly love the idea of reintroducing or trying to support the reintroduction of the Indiana bat.

EPA response: EPA appreciates your comment and participation during the comment period. Thank you.

Comment: I think everybody in the neighborhood wants to thank Bridgestone and EPA for work that has been exemplary. Everybody worked together to solve a problem which doesn't happen unless everybody gets on the same page and makes it happen. There's still going to be some things that we'll have to deal with but to this point it's been favorable.

EPA response: EPA appreciates your comment and participation during the comment period. Thank you.

ADMINISTRATIVE RECORD

A copy of the Administrative Record for the Bridgestone facility can be found at the Noblesville Public Library, the local repository, at 1 Library Plaza, Noblesville, IN 46060 (317-773-1384). Bridgestone documents can be found in the Indiana Room on the second floor. The administrative record can also be found on the 7th Floor Records Center at EPA Region 5, 77 West Jackson Blvd., Chicago, IL 60604 (312-886-0900). An index to the Administrative Record has been provided as Attachment 2 for your convenience.

FUTURE ACTIONS

In accordance with paragraph 15 of Administrative Order on Consent No R8H-5-01-002, signed on March 29, 2001, this Final Decision is intended to supplement the *Work to be Performed* Section of the AOC.

CORRECTIVE ACTION COMPLETE DETERMINATION

Once Bridgestone believes it has met its corrective measures obligations, it may submit a request with supporting information to EPA Region 5 for a corrective action complete determination (CACD). Once EPA Region 5 receives this request for a CACD, EPA may issue a CACD based on the content and completeness of information provided by Bridgestone, EPA guidance, and the terms of this FD/RC (which supplements the 2001 AOC referenced above). The facility's request should include a written explanation and supporting documentation demonstrating that the facility satisfies the criteria for the CAC determination, based on information outlined in the February 23, 2005, EPA guidance on CACD; the selected measures, contaminant cleanup goals and criteria, and other conditions specified in this FD/RC; and all additional measures, criteria and conditions specified in the 2001 AOC supplemented by and implementing this FD/RC. At a minimum, the facility's CACD request must: 1) demonstrate that construction activities are complete, 2) demonstrate that all required institutional controls have been implemented, 3) demonstrate that the cleanup goals and objectives have been achieved for obtaining a CACD and, 4) where the FD/RC provides for any post-CACD remedial activities such as continuing a pump and treat system or groundwater monitoring, i) identify criteria and standards that would either confirm that these long term remedial activities are functioning as intended, or would be the basis for additional work, and ii) identify the criteria for satisfaction and termination of these post-CACD activities.

DECLARATION

Based on the information in this FD/RC and the Administrative Record compiled for this corrective action at the Bridgestone facility in Noblesville, IN, EPA has determined that the

selected remedies for the Bridgestone facility is appropriate and is protective of human health and the environment.

12/8/10

Bruce Sypniewski, Director
Land and Chemicals Division
U.S. EPA Region 5

Date

Attachments, 3