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Biota Investigation Work Plan: Addendum A

The following amendments to procedures set forth in the Biota Investigation Work Plan (Work Plan) were approved by the EPA via emails on August 11, August 15, August 16, and August 21, 2017.

Section 3.2 Coating Inspections

Revision to Work Plan:

An Elcometer magnetic coating gauge will be used to measure the thickness of the coating. The effective range of the Elcometer magnetic coating thickness gauge is from 25mils (thousandths of an inch) to 250mils. Where the thickness of the coating is greater than 250mils, the reading at that point will be recorded as "greater than 250mils". Where a reading of less than 25mils is obtained, the Polatrak Cathodic Protection (CP) tool will be used to determine whether a CP measurement is possible at this location. The Polatrak tool requires a direct metal-to-metal contact between the tip of the Polatrak tool and exterior wall of the pipe. If definitive CP readings are obtained the area will be considered a Holiday and the requirements in the Work Plan for a Holiday will be followed. If definitive CP readings are not obtained, the coating thickness at this point will be recorded as greater than 0 but less than 25mils.

Rationale for Change:

Due to potential difficulties using Ultrasonic Testing (UT) to determine coating thickness on bituminous coating underwater, the project team has identified an alternative means to measure the coating thickness. An Elcometer magnetic coating gauge will be used to measure the thickness of the coating instead of UT as outlined in Revision 2 of the Work Plan.

Section 3.5.2 Biota Measurements

Revision to Work Plan

To avoid potential bias, upon ROV arrival at a Biota sampling locations not pre-defined as an Area of Interest, the crew will generate a randomly- generated number (ranging from 1 - 100 feet). The ROV will then proceed into the current (or to the north) that given distance and the diver will be lowered to the ROV location to commence Biota measurements.

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Rationale for Change:

The purpose of this change is to use the time required to travel the randomly-generated distance at the surface, rather than at depths where the diver has a limited amount of time to be submerged and complete the work.

Section 3.5.3 Biota Sampling

Revision to Work Plan

In addition to placing the biota on ice after recovering the samples, ethanol will also be applied to the samples to comply with DNR permitting, which requires euthanization of invasive species such as quagga and/or zebra mussels.

One of the paired samples will be considered a "Biota" sample, which will be submitted to the GEI ecological laboratory for analysis. The other sample from each pair is considered a "Bacterial" sample, in which the sample will be evaluated APB and SRB "test kits" manufactured by Biosan Laboratories for analysis "in the field." The remainder of the "Bacterial" sample will be submitted to the Microbial Insights laboratory for storage. Mussels will be removed from the sample prior to submission to Microbial Insights as biofilm/periphyton is the target substrate for storage, rather than mussels. Ethanol will only be applied to the "Biota" sample and will not need to be applied to the "bacterial" samples.

Rationale for Change:

Addition of detail to the Work Plan due to DNR permit requirements.

Section 3.5.3.1 Biota Sampling at Areas of Interest

Revision to Work Plan

A total of seven (7) representative locations are selected for the Biota sampling at Areas of Interest – 3 on the East pipeline and 4 on the West pipeline. Paired sampling at the Area of Interest will occur. Following this, a number between10-30 will be randomly-selected. The diver will move up current (or whichever direction is safest for the diver if the current is perpendicular to the pipelines) that many feet to arrive at the randomly-selected position and biota sampling (6-8 samples around the pipeline) will occur at this location.

Rationale for Change:

The purpose of this change is to ensure that biota sampling is conducted at randomly-selected sites while minimizing the extent to which a diver is required to walk along the lake bed. Randomly-selecting a number between10-30 is within the range a diver can safely walk without using up too much bottom time.

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Section 3.5.3.2 Biota Sampling at Any Holiday Found

Revision to Work Plan

Once the Remote Operated Vehicle identifies the Area of Interest at which various measurements will be taken, the diver on first approaching the pipe will collect four biota samples as identified in Figure 9 of the BIWP. If it is determined that there are no Holidays at the Area of Interest, the Biota samples that were collected will be properly disposed of per MDNR permit requirements. If, however, a Holiday is found at the Area of Interest the Biota samples taken from that location will be retained and analyzed as described in the Work Plan.

Rationale for Change:

This change is suggested as it is not possible to determine if any holidays might exist in the coating before the surface of the pipe is cleaned prior to undertaking the work described in the BIWP. If in the process of cleaning the pipe to take the various measurements as described Section 3.2 a Holiday is identified that would require the diver to then take such Biota samples. However in the process of cleaning the pipe as well as moving around the pipe silt and other materials are stirred up. By collecting Biota samples first it will minimize any extraneous silt or other materials being collected in these samples versus collecting the Biota samples after the pipe is cleaned.

Figures 1, 2, and 3

Revision to Work Plan

The following table with the approximate (+/-50ft) Global Positioning System (GPS) locations of each Area of Interest and Additional Site will be used by the general contractor to successfully locate the previously identified Areas of Interest and Additional Sites. The locations of Areas of Interest and Additional Sites shown on Figures 1, 2 and 3 of the Work Plan (Revision 2: May 18, 2017) are schematic representations only and not to be used for specifically locating the sites.

Actuals	Location		Description
	Latitude	Longitude	
Between E-74 & E-71	[redacted]		Area of Interest
Between E-77 & E-26			Area of Interest
Between E-24 & E-25			Area of Interest
E-30			Area of Interest
E-35			Area of Interest
Between E-33 & E-34B			Area of Interest
E-39			Area of Interest
Near E-48			Area of Interest

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Actuals	Location		Description
	Latitude	Longitude	
Near E-70	REDACTED		Area of Interest
Between E-02 & E76			Area of Interest
E-01B-B			Area of Interest
Between W-10 & W-11			Area of Interest
W-12A			Area of Interest
Between W-15 & W-16			Area of Interest
W-35			Area of Interest
W-70			Area of Interest
W-68			Area of Interest
Between W-56 & W-54			Area of Interest
E-74			Additional Site
E-72			Additional Site
W-68A			Additional Site

Rationale for Change:

Figures 1, 2 and 3 included in the test plan were provided to show the general locations for all Areas of Interest and Additional Sites. After performing initial dives, it was determined that some of the marked locations in the figures of the Areas of Interest and Additional Sites did not fully correlate with the listed pipe spans. The table with the approximate (+/-50ft) Global Positioning System (GPS) locations of each Area of Interest and Additional Site is being provided to supplement and correct Figures 1, 2 and 3 of the Biota Investigation Work Plan (Revision 2: May 18, 2017). The GPS coordinates listed will be used by the general contractor to successfully locate the previously identified Areas of Interest and Additional Sites.

Figure 7

Revision to Work Plan

The lid and shape of the sample apparatus outlined in Figure 7 may be modified.

Rationale for Change:

To preserve the sample integrity during the sample collection activities.