Stantec

# Memo

| | | | |
|---|---|---|---|
| To: | Heather Allamon, Ohio EPA | From: | Cody Fleece, Hallie Serazin, Michael DeVillers, Joey Seamands<br>Stantec Consulting Services Inc. |
| File: | 174316204 | Date: | January 3, 2018 |

**Reference: Sediment Sampling Memo**

## INTRODUCTION/BACKGROUND

The Maumee Watershed Conservancy District (MWCD) contracted Stantec Consulting Services Inc. (Stantec) to develop potential alternative solutions to reduce the risks of overbank flooding from the Blanchard River and its tributaries in the vicinity of Findlay, Hancock County, Ohio. The outcome of Stantec's efforts thus far includes the recommendations for Hydraulic Improvements along the Blanchard River in downtown Findlay, Ohio (Hancock County Flood Risk Reduction Program Final Report, Stantec - 2017). The MWCD moved to further investigate these hydraulic improvements and the Conservancy Court authorized the projects to move forward in accordance with MWCD's Official Plan. Sediment sampling was conducted in support of the MWCD hydraulic improvements project.

A draft version of this memo was submitted to Ohio EPA on November 8, 2017. This version responds to comments provided by Ohio EPA via e-mail on December 13, 2017. The comments from Ohio EPA are included here as Attachment A.

## FIELD METHODS

Sediment sampling was conducted on the upstream side of four (4) low-head dams in the Blanchard River by two Stantec field personnel on September 28, 2017 Sediment sample locations are shown on Attachment B, Figure 1). Sediment sampling was conducted from an aluminum john-boat and generally followed methodologies outlined in “Sediment Sampling Guide and Methodologies (2nd Edition)” (Ohio EPA, 2001). An attempt was made to collect sediment samples from three (3) distinct locations on the upstream side of four (4) low-head dams along the Blanchard River between approximately River Mile (RM) 57 and RM 58 (Attachment B, Figures 2 through 5).

At each low-head dam location, the following procedure was followed:

1. Reconnaissance sediment soundings with steel rod “feeling” the substrates until suitable finer sediments were located. Approximate maximum sediment depth was recorded.
2. Anchored the boat at bow and stern.
3. Photographed river upstream and downstream (Sample location photographs included as Attachment C).
4. Took water quality readings (temperature, pH, dissolved oxygen, turbidity). These measurements were collected only at the first sample site at each of the four (4) low-head dam locations.

5. Aluminum foil was spread out on the boat deck to receive the sediment sample.

6. Ponar® grab sampler was used to place sediment sample onto foil, if enough fine sediment was grabbed, a close-up photograph of sediment was taken, then four (4) labeled glass containers were filled using a metal spoon and placed in a cooler with ice.

7. Another sediment sample was collected and placed in a labelled large zip lock bag and placed in a second cooler without ice.

8. A water depth reading was taken and Global Positioning Satellite (GPS) coordinates were recorded.

9. Equipment that was in contact with the sediment sample was scrubbed/washed with an Alcanox®/distilled water mix and then thoroughly rinsed with distilled water.

10. Anchors were pulled up and the above steps were repeated for the next sediment sample site.

## ECOLOGICAL SCREENING METHODS

To characterize sediment conditions at the low-head dams, chemical analysis of the samples was compared to available reference values. Since there is not one definitive set of chemical concentrations in sediment that are considered acceptable, a tiered approach was used to assess the potential for adverse ecological impacts due to sediment contamination. Analytical results for sediment at each of the dams are presented in Attachment D. Comparison to available reference values is presented in Attachment E, Table 1.

For naturally occurring metals the first point of comparison was Ohio EPA's Sediment Reference Values (SRVs) for the Eastern Corn Belt Plains ecoregion, where the site is located (Ohio EPA 2008). SRVs are ecoregion-specific concentrations of naturally-occurring metals that can be used in lieu of site-specific background concentrations for determining whether sediments have been impacted by site related activities. If the sediment concentrations are at, or near, background concentrations, then further assessment or remediation is unnecessary.

The next point of comparison was consensus-based Threshold Effect Concentrations (TECs) and Probable Effects Concentrations (PECs). Consensus-based TECs represent sediment concentrations at which adverse effects may begin to be observed. TECs were used as Tier 1 ecological screening levels (ESLs). Consensus-based PECs represent concentrations where adverse effects are more likely to be observed. PECs were used as Tier 2 ESLs. It is important to note that TECs and PECs are consensus-based values derived from published literature and, when exceeded, do not necessarily equate to adverse effects.

Using a technique similar to the one used to derive consensus-based TECs and PECs, MacDonald developed threshold effect levels (TELs) and probable effects levels (PELs) for some of the most frequently detected sediment contaminants (MacDonald 1994). Later, Region 5 EPA adopted many of these values as sediment ESLs. Therefore, the Region 5 ESLs were referenced as a second source for Tier 1 ESLs and Tier 2 ESLs.

Finally, Ecological Screening Values (ESVs) for freshwater sediments listed in USEPA Region 4's Ecological Risk Assessment Supplemental Guidance, were used a third source for Tier 1 and 2 ESLs for sediment (EPA 2015).

## EQUILIBRIUM PARTITIONING FOR PAHS IN SEDIMENT

For nonionic organic contaminants, such as polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs), USEPA reported that the adverse biological effects from these constituents are not correlated with bulk sediment concentrations of the contaminants; but are more appropriately correlated with the concentration of the contaminant in interstitial pore water (EPA 2008). Therefore, to assess the bioavailability of PAHs in sediment, Equilibrium Partitioning Sediment Benchmarks (ESBs) were calculated for each sample where PAHs were detected (Karg Dam, Sample 3A, 3B and 3C, Swale Paris Dam, Sample 4A and 4B). The ESB predicts the fraction of a contaminant that is freely dissolved in interstitial pore water and the portion that is bound to organic carbon in the sediment and is therefore, less bioavailable (EPA 2008). The calculation of ESBs is presented in Attachment E, Table 2.

The first step in developing the ESBs was to convert the concentration of PAHs from mg/kg to µg/g which are equivalent units, and Total Organic Carbon (TOC) concentration (mg/kg) to a unitless Fraction Organic Carbon ($f_{oc}$) by dividing percent TOC by 100. The next step is to divide the concentration of each detected PAHs by the $f_{oc}$. Step three (3) is to determine an ESB Toxic Unit (ESBTU) by taking the normalized concentration for each PAH calculated in step 2 and dividing that by its corresponding Final Chronic Value from U.S. EPA's *Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures* (USEPA 2008). Step four (4) is to sum the ESBTUs for each PAH detected to get the ΣESBTU.

The ESB methodology assumes that the sediment analysis includes 34 PAH compounds. When fewer than 34 PAH compounds are reported an uncertainty factor must be applied. Sediment samples were analyzed for PAHs using EPA Method 8270 which detects 16 PAHs. Therefore, the ΣESBTU was multiplied by the Ohio EPA suggested 95th Percentile Uncertainty Factor for the13 PAHs that were detected to derive the ΣESBTU. If the adjusted ΣESBTU is less than 1, it is likely that the sediment will not be toxic to aquatic life. If the adjusted ΣESBTU is greater than 1, the sediment may be toxic to aquatic life and more information may be needed to determine appropriate sediment management options. The adjusted ΣESBTU for each location with detected PAHs is presented in Attachment E, Table 2.

## RESULTS

Weather during sediment sampling on September 28, 2017 was mostly sunny, and breezy, with a high of 71 degrees Fahrenheit. Blanchard River flow was normal with a discharge of approximately 24 cubic feet per second. Successful sediment samples were collected from eleven (11) out of twelve (12) potential sites (after approximately ten (10) failed Ponar® grab attempts at the Dam 2C site, this third sample location was abandoned). Water depths among the eleven (11) sediment sampling sites ranged from a low of 2.5 feet, at Dam 3C, Dam 4A, and Dam 4B, to a high of 4.4 feet, at Dam 1B. Overall, the average water depth was approximately 3.3 feet. Sediment depths among the eleven (11) sediment sampling sites ranged from a low of two (2) inches at Dam 2B to a high of nine (9) inches at Dam 1A, Dam 1B, and Dam 1C. Overall, the average sediment depth was

approximately 5.2 inches. An overview photograph facing upstream and downstream on the Blanchard River at each of the eleven (11) sediment sampling locations, as well as a close-up photograph of each of the sediment samples is provided in Attachment C.

In general, at all the sediment sampling sites it was fairly difficult to find pockets of finer sediment, and often it would take multiple (three to five) Ponar® grab attempts to retrieve grab sample with enough sediment volume to fill four (4) glass sample jars. It was common to have either sticks, large stones, or urban trash (aluminum can, glass) caught in the Ponar "jaws" preventing complete closure of the Ponar, resulting in a "failed" grab sample. The location of pockets of finer sediment appeared to be randomly scattered on the upstream side of each of the four (4) low-head dams on the Blanchard River with no apparent consistent pattern of finer sediment distribution in any one part of the river (for example, closer to the dam, or along the margins of the river channel).

## SEDIMENT SCREENING RESULTS

Comparing the concentration of naturally-occurring metals to Ohio EPA's SRVs for the Eastern Corn Belt Plains ecoregion shows only two (2) exceedances (Attachment D, Table 1). In sample 3B, collected at Karg Dam, arsenic was detected at 20.1 mg/kg which just exceeds the SRV (18 mg/kg). In sample 4C, collected at Swale Paris Dam, lead was detected at 116 mg/kg which exceeds the SRV (47 mg/kg) and the Tier 1 ESL (35.8 mg/kg). The concentrations of arsenic and lead detected at these locations did not exceed their Tier 2 ESLs.

Comparing the concentration of PAHs to Tier 1 and Tier 2 ESL shows more wide-spread exceedance of the ESLs. PAHs are common contaminants in areas with asphalt roofs, roadways, and automobile exhaust, so given the urban nature of this stretch of the Blanchard river, this finding is not surprising. Only at sample 3A, collected at Karg Dam, did PAHs exceed Tier 2 ESLs.

To assess the potential bioavailability of the PAHs detected in low-head dam sediments the Sum of Equilibrium Partitioning Sediment Benchmark Toxic Units (ΣESBTU) was calculated for each sample with detected PAHs. Ohio EPA's guidance on evaluating sediment contaminant results states that when the adjusted ΣESBTU is less than 1, it is likely that the sediment will not be toxic to aquatic life. If the adjusted ΣESBTU is greater than 1, more information may be needed to determine appropriate sediment management options. The adjusted ΣESBTU is at or near 1 for all PAHs detected in low-head dam sediment samples except at samples 3A and 3C collected above Karg Dam (Attachment D, Table 2).

Analysis for PCBs and pesticides in low-head dam sediments were all below detection limits and most detection limits were below screening levels. However, prior to analysis, pesticide sediment samples underwent a ten-fold dilution. Sample dilution was needed due to the presence of high levels of non-target analytes or other matrix interference. While necessary, this procedure results in elevated detection limits. Since no pesticides or PCBs were detected in sediment, it is concluded that these compounds do not present a significant ecological risk.

## DISCUSSION

Comparison of the bulk sediment chemistry results to background levels and ESLs does not indicate widespread sediment contamination. Key findings are as follows:

**Reference: Sediment Sampling Memo**

- After numerous attempts, successful sediment samples were collected from eleven (11) out of twelve (12) potential sample sites.
- At all the sediment sampling sites, fine-grained sediments were difficult to find and appeared to be randomly scattered on the upstream side of each of the four (4) low-head dams with no apparent consistent pattern of finer sediment distribution in any one part of the river.
- The concentration of arsenic detected in sample 3B (20.1 mg/kg) barely exceeds the SRV (18 mg/kg) and most likely does not pose undue ecological risk.
- The concentration of lead detected in sample 4C (116 mg/kg) exceeds the SRV and Tier 1 ESL but does not exceed the Tier 2 ESL and mostly likely does not pose undue ecological risk.

PAHs were detected in five (5) out of eleven (11) sediment samples and the concentration of PAHs detected in all but two (2) samples have an adjusted ΣESBTU at or near one (1). Adjusted ΣESBTUs at or near one (1) suggests that widespread unacceptable risks to ecological receptors due to PAHs in in direct contact with sediment is likely not a concern for this stretch of the Blanchard River. The concentrations of metals and PAHs detected above the low-head dams appear to be consistent with what one would expect to find in an urban environment like the Blanchard River in Findlay. All PCBs and pesticides were below detection limits. Although PAHs had adjusted ΣESBTUs of greater than one (1) at two (2) out of eleven (11) sediment sample locations, sediment contamination does not appear to be widespread and large amounts of fine-grained sediments do not seem to have accumulated above the low head dams, therefore, no further action for sediment is recommended.

**REFERENCES**

Ohio EPA 2010. Guidance on Evaluating Sediment Contaminant Results, Division of Surface Water, Standards and Technical Support Section, January 2010.

Ohio EPA, 2001. Sediment Sampling Guide and Methodologies (2nd Edition), Division of Surface Water, November 2001.Ohio Environmental Protection Agency (Ohio EPA), 2008. Ecological Risk Assessment Guidance Document, Division of Environmental Response and Remediation, February 2003, Revised April 2008.

U.S. Environmental Protection Agency (USEPA). 2008. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Compendium of Tier 2 Values for Nonionic Organics. Office of Research and Development. March 2008. EPA/600/R-02/016. http://www.epa.gov/nheerl/publications/files/ESB_Compendium_v14_final.pdf

**STANTEC CONSULTING SERVICES INC.**



Cody Fleece
Senior Associate Ecologist
Phone: (513) 842-8238

**Reference: Sediment Sampling Memo**

Fax: (513) 842-8250
Cody.Fleece@stantec.com

Attachment: A – Ohio EPA comments on draft memorandum
B - Site map
C – Site photos
D - Analytical results
E – Sediment screening tables

c. Brian Swartz, USACE- Buffalo District
Steve Wilson, Hancock County
Adam Hoff, Stantec
Bryon Ringley, Stantec

# Attachment A – Ohio EPA comments on draft memorandum

| | |
|---|---|
| **From:** | Seamands, Joey |
| **To:** | Serazin, Hallie; Ringley, Bryon; de Villiers, Michael; McNulty, Dillon |
| **Subject:** | FW: Findlay Sediment Sampling Memo |
| **Date:** | Wednesday, December 13, 2017 12:06:01 PM |

**From:** Heather.Allamon@epa.ohio.gov [mailto:Heather.Allamon@epa.ohio.gov]
**Sent:** Wednesday, December 13, 2017 8:25 AM
**To:** Seamands, Joey <Joey.Seamands@stantec.com>; Fleece, Cody <Cody.Fleece@stantec.com>; Hoff, Adam <Adam.Hoff@stantec.com>
**Cc:** gary.klase@epa.ohio.gov
**Subject:** RE: Findlay Sediment Sampling Memo

Hi Joey,

We had Gary Klase in our Standards and Technical Support section review your sediment data. He offered the following comments.

On November 8, 2017, you provided Stantec's review of Blanchard River sediments in the vicinity of four low-head dams near Findlay, Ohio. We generally find your tiered screening approach sound and well-supported; however, we suspect that a small math error in your calculations has affected the results of your work and needs to be corrected and your data reevaluated.

In your application of USEPA's equilibrium partitioning sediment benchmark (ESB) methodology, you correctly identified in the narrative that the second step in the application of the model is to divide the concentration of each detected PAH by the foc (fraction organic content) to generate an organic-carbon normalized PAH concentration. However, in the excel worksheet you provided, instead of dividing, you multiplied the concentration of each detected PAH by the foc. For example, see columns E, H, K, N, and Q of the spreadsheet "Attachment D Blanchard_river_sediment_2017," second tab ("ESB"). The net effect of this mistake was to shift the final screening value (adjusted sum ESB Toxic Units (ESBTU)) downward by approximately four orders of magnitude.

According to our review of the data, when this error is corrected, several of the model results exceed USEPA's screening value of 1.0—sometimes by a large margin—representing the possibility of potential toxic risks from PAHs in the affected sediments. We request that Stantec identify and correct this error in the application of the ESB model and provide an updated evaluation and conclusion to reflect these corrected results. Also note that some portions of your narrative state that all ESBTU were less than 1, while other portions state that some ESBTU were above 1—this should be corrected as well, after the new ESB results are reviewed and evaluated.

A secondary concern is the use of USEPA's Uncertainty Factor (UF) of 11.5 in the application of the ESB model. The UF of 11.5 is intended for use when 13 (or more) individual PAHs were measured in the sediments, while Stantec appears to have only measured 10 individual PAHs. The narrative provided by Stantec indicates that this UF may be used when less than 13 PAHs have been measured in the sediments, in which case Stantec's application of this UF would be valid in the present

scenario—but we cannot find any USEPA support for this position that the UF for 13 PAHs may be applied to fewer than 13 PAHs. We would ask you to provide support for your use of this UF in this model when 10 PAHs have been measured, or update your narrative to note that your application of the ESB model in this manner may be off specification and underconservative.

In general, however, we suggest that sediment contaminant analysis should include the laboratory measurement of 34 PAHs when the ESB model is intended for use with the data. In most cases, the use of an uncertainty factor (by design) inflates the apparent risk of PAHs in the sediments compared to the actual risk. Measuring 34 PAHs will, in most cases, reduce the number of ESBTU calculated by the model and therefore reduce the projected risk of PAH toxicity—although the use of an UF is supported by USEPA and Ohio EPA when at least 13 PAHs are measured.

Please let me know if there are any questions.

Thanks,
Heather

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**From:** Allamon, Heather
**Sent:** Monday, November 20, 2017 1:26 PM
**To:** 'Seamands, Joey' <Joey.Seamands@stantec.com>; Fleece, Cody <Cody.Fleece@stantec.com>
**Cc:** Hoff, Adam <Adam.Hoff@stantec.com>
**Subject:** RE: Findlay Sediment Sampling Memo

Hi Joey,

I told the person who's reviewing it that we have not received your application yet, but that you anticipate submitting in December. He's pretty familiar with 401 timelines, but he still has other projects he's working on of course, so I don't expect an answer back from him yet.

If there's some sort of extraordinary circumstance where you need feedback more quickly, please let me know and we will do our best to accommodate your request. Otherwise, we are going to review it within our 401 application review timeframe and/or the NWP review timeframe.

Please let me know if there are any questions.

Thanks,
Heather

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**From:** Seamands, Joey [mailto:Joey.Seamands@stantec.com]
**Sent:** Monday, November 20, 2017 12:57 PM
**To:** Allamon, Heather <Heather.Allamon@epa.ohio.gov>; Fleece, Cody <Cody.Fleece@stantec.com>
**Cc:** Hoff, Adam <Adam.Hoff@stantec.com>
**Subject:** RE: Findlay Sediment Sampling Memo

Heather,

Is there a timeline for review for the sediment sampling memo? We were just wondering when we should we expect a response with regards to the sediment sampling memo.

Thanks,

Joey

Joey Seamands
Environmental Scientist
Stantec
11687 Lebanon Rd.
Cincinnati, OH 45241
Cell: 702.371.0000
Joey.Seamands@stantec.com

---

**From:** Heather.Allamon@epa.ohio.gov [mailto:Heather.Allamon@epa.ohio.gov]
**Sent:** Tuesday, November 14, 2017 10:10 AM
**To:** Seamands, Joey <Joey.Seamands@stantec.com>; Fleece, Cody <Cody.Fleece@stantec.com>
**Cc:** Hoff, Adam <Adam.Hoff@stantec.com>
**Subject:** RE: Findlay Sediment Sampling Memo

Thanks!

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**From:** Seamands, Joey [mailto:Joey.Seamands@stantec.com]
**Sent:** Tuesday, November 14, 2017 12:24 PM
**To:** Allamon, Heather <Heather.Allamon@epa.ohio.gov>; Fleece, Cody <Cody.Fleece@stantec.com>
**Cc:** Hoff, Adam <Adam.Hoff@stantec.com>
**Subject:** RE: Findlay Sediment Sampling Memo

Heather,

See the attached spreadsheet, which is also included in the memo as Attachment D.
Let me know if you need anything else.

Thanks,

Joey

Joey Seamands
Environmental Scientist
Stantec
11687 Lebanon Rd.
Cincinnati, OH 45241
Cell: 702.371.0000
Joey.Seamands@stantec.com

**From:** Heather.Allamon@epa.ohio.gov [mailto:Heather.Allamon@epa.ohio.gov]
**Sent:** Monday, November 13, 2017 10:08 AM
**To:** Fleece, Cody <Cody.Fleece@stantec.com>
**Cc:** Seamands, Joey <Joey.Seamands@stantec.com>; Hoff, Adam <Adam.Hoff@stantec.com>
**Subject:** RE: Findlay Sediment Sampling Memo

Good afternoon,

Is it possible to get a spreadsheet of the data to help speed up our review?

Thank you,
Heather

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**From:** Fleece, Cody [mailto:Cody.Fleece@stantec.com]
**Sent:** Thursday, November 09, 2017 6:00 PM
**To:** Allamon, Heather <Heather.Allamon@epa.ohio.gov>; brian.p.swartz@lrb01.usace.army.mil
**Cc:** Seamands, Joey <Joey.Seamands@stantec.com>; Hoff, Adam <Adam.Hoff@stantec.com>
**Subject:** Findlay Sediment Sampling Memo

Heather
Brian

Please see the attached sediment sampling memo that was prepared as part of the downtown hydraulic improvements project. We provided a hard copy of this document earlier this morning. Let us know if you have questions, comments, or concerns regarding the content of the memo.

Thank you for your time and attention.

**Cody Fleece**
Senior Associate Ecologist
Stantec
11687 Lebanon Road, Cincinnati OH 45241-2012
Phone: (513) 842-8238
Cell: (513) 262-3994
Cody.Fleece@stantec.com

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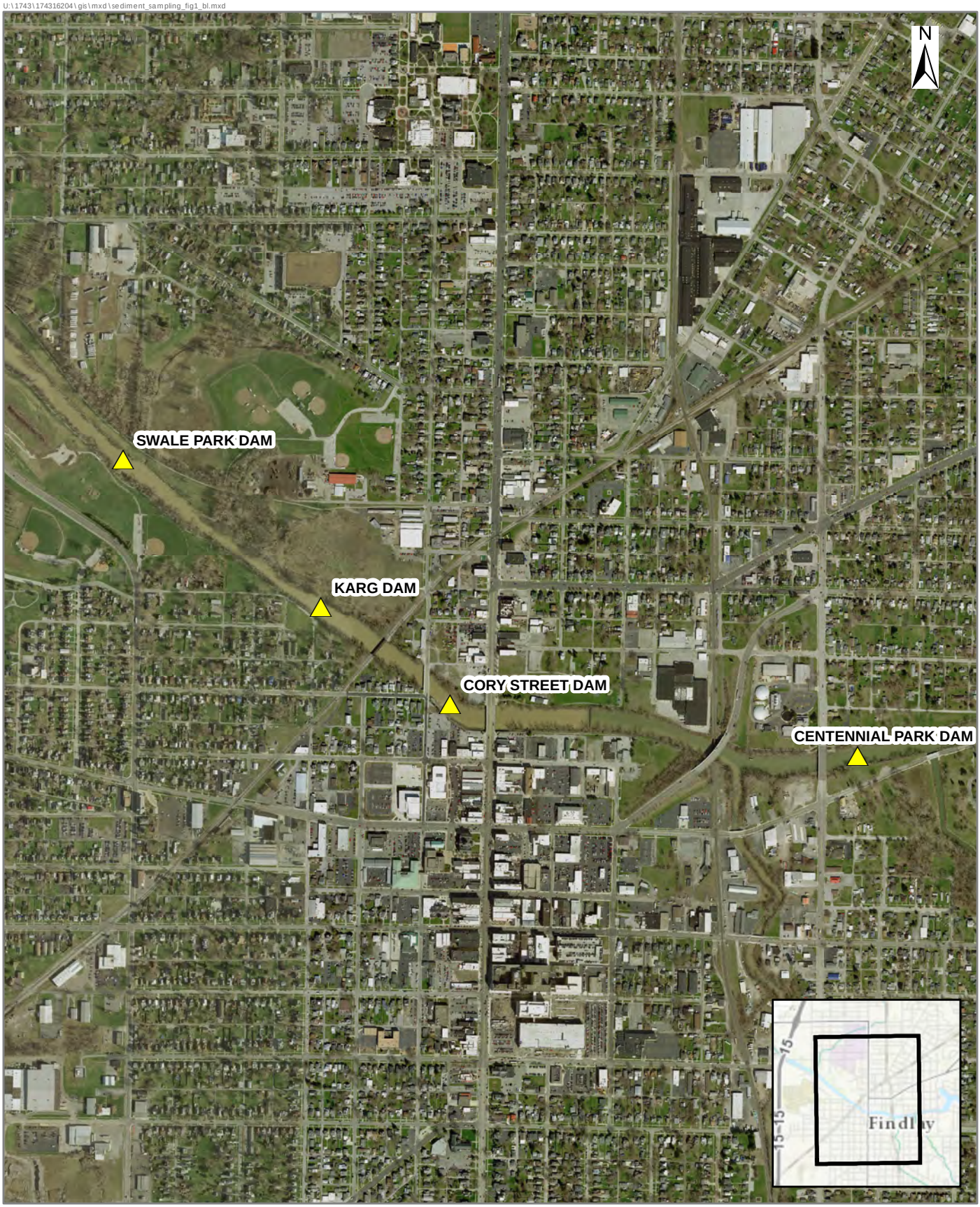
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**Did You Know:** Children of parents who talk to their teens about drugs are
up to 50% less likely to use. Start the conversation:
StartTalking.Ohio.Gov

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# Attachment B – Site map

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Hancock County GIS 2016

Disclaimer: This map is for illustrative purposes to support this Stantec Project; questions can be directed to the issuing office.

Legend

Low-Head Dams

# Sediment Sampling Locations Overview

Stantec

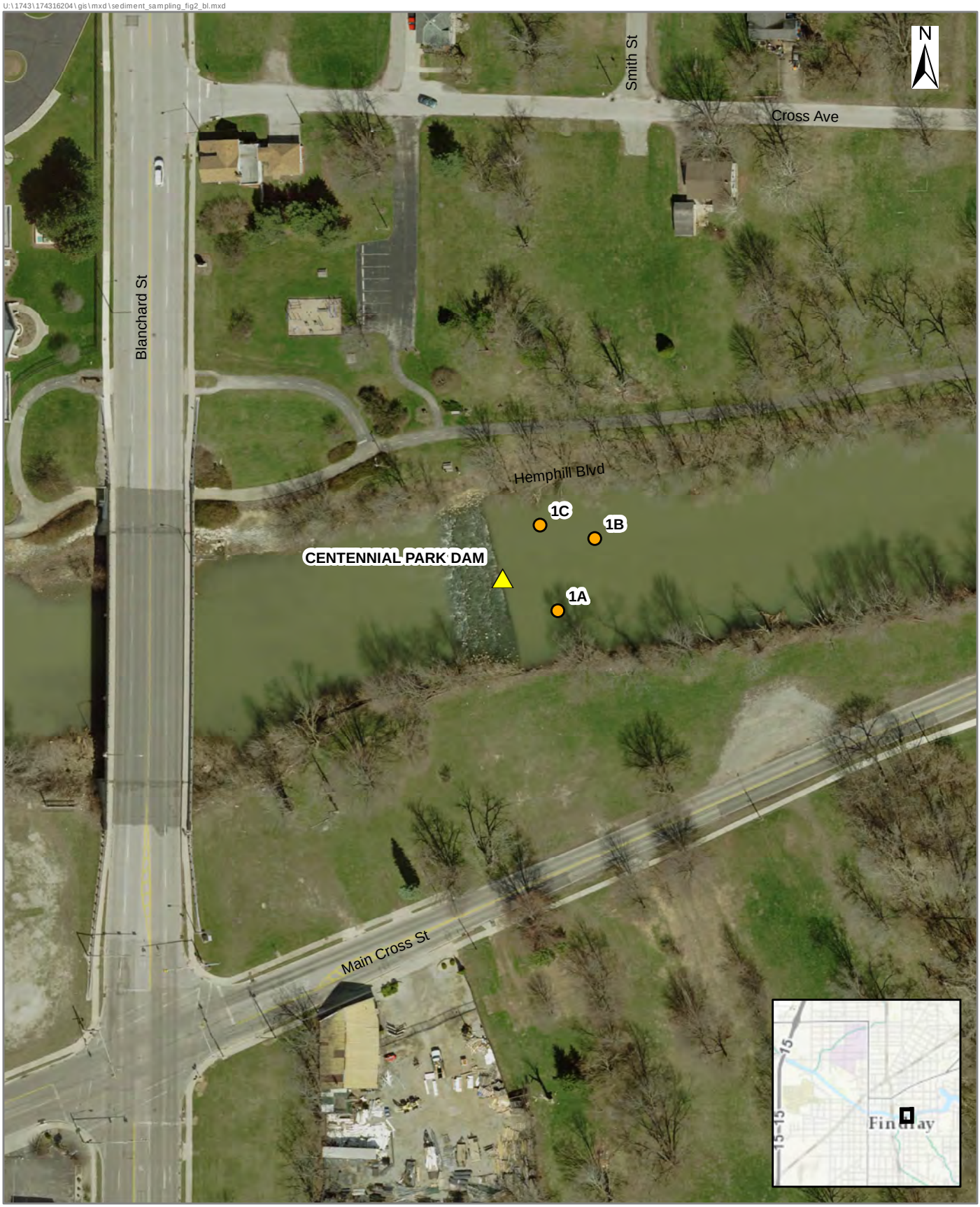
HANCOCK COUNTY FLOOD DIVERSION

0 500 1,000 2,000
Feet
174316204 NAD 1983 StatePlane Ohio North FIPS 3401 Feet

1 inch = 1,000 feet

Figure 1

U:\1743\174316204\gis\mxd\sediment_sampling_fig2_bl.mxd




Hancock County GIS 2016

*Disclaimer: This map is for illustrative purposes to support this Stantec Project; questions can be directed to the issuing office.*

Legend

- Low-Head Dam
- Approximate Sampling Location

Sediment Sampling Sites
Centennial Park Dam

Stantec

HANCOCK COUNTY FLOOD DIVERSION

0 50 100 200
Feet
174316204 NAD 1983 StatePlane Ohio North FIPS 3401 Feet

1 inch = 100 feet

Figure 2

U:\1743\174316204\gis\mxd\sediment_sampling_fig3_bl.mxd




Hancock County GIS 2016

Disclaimer: This map is for illustrative purposes to support this Stantec Project; questions can be directed to the issuing office.

Legend

Low-Head Dam

Approximate Sampling Location

Note: Site C - Not able to locate fine sediment; no sample acquired

# Sediment Sampling Sites
# Cory Street Dam

Figure 3

Stantec

HANCOCK COUNTY FLOOD DIVERSION

0 50 100 200
Feet
174316204 NAD 1983 StatePlane Ohio North FIPS 3401 Feet

1 inch = 100 feet

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Hancock County GIS 2016

Disclaimer: This map is for illustrative purposes to support this Stantec Project; questions can be directed to the issuing office.

Legend

Low-Head Dam

Approximate Sampling Location

# Sediment Sampling Sites
# Karg Dam

Stantec

HANCOCK COUNTY FLOOD DIVERSION

0 50 100 200
Feet
174316204 NAD 1983 StatePlane Ohio North FIPS 3401 Feet

1 inch = 100 feet

Figure 4

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*Hancock County GIS 2016 and OSIP II 2011*

*Disclaimer: This map is for illustrative purposes to support this Stantec Project; questions can be directed to the issuing office.*

Legend

Low-Head Dam

Approximate Sampling Location

# Sediment Sampling Sites
# Swale Park Dam

Stantec

HANCOCK COUNTY FLOOD DIVERSION

0 50 100 200
Feet
174316204 NAD 1983 StatePlane Ohio North FIPS 3401 Feet

1 inch = 100 feet

Figure 5

# Attachment C – Site photos

Attachment C
Blanchard River Sediment Sampling Memo
Hancock County, Ohio



Photograph 1. Centennial Park Dam, Dam 1A Site, Blanchard River upstream.



Photograph 2. Centennial Park Dam, Dam 1A Site, Blanchard River downstream.



Photograph 3. Centennial Park Dam, Dam 1A Site, sediment sample.



Photograph 4. Centennial Park Dam, Dam 1B Site, Blanchard River upstream.



Photograph 5. Centennial Park Dam, Dam 1B Site, Blanchard River downstream.



Photograph 6. Centennial Park Dam, Dam 1B Site, sediment sample.



Photograph 7. Centennial Park Dam, Dam 1C Site, Blanchard River upstream.



Photograph 8. Centennial Park Dam, Dam 1C Site, Blanchard River downstream.



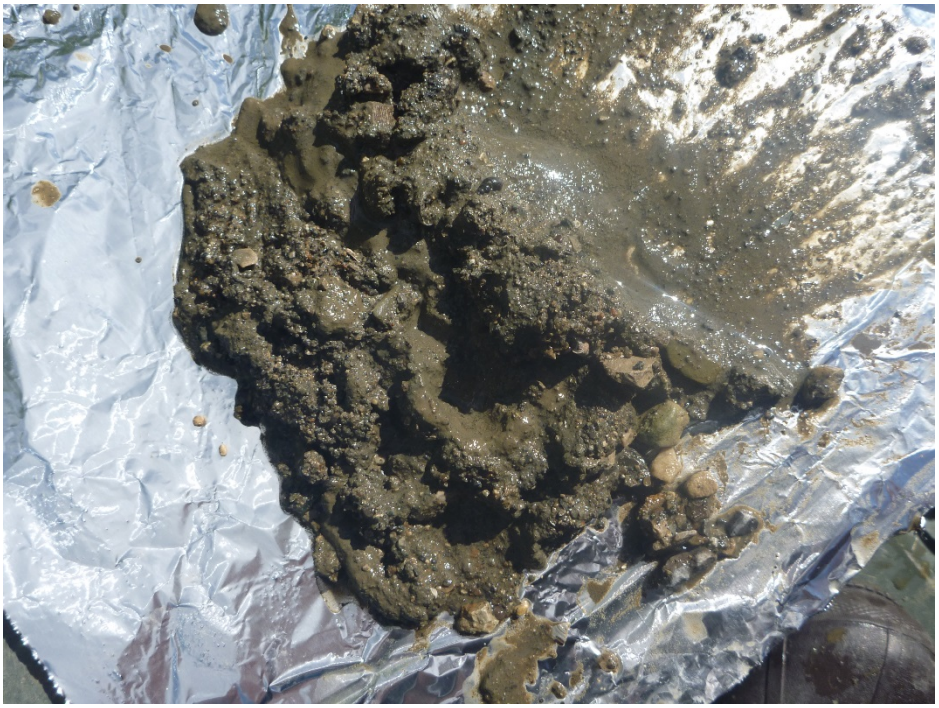
Photograph 9. Centennial Park Dam, Dam 1C Site, sediment sample.



Photograph 10. Cory Street Dam, Dam 2A Site, Blanchard River upstream.



Photograph 11. Cory Street Dam, Dam 2A Site, Blanchard River downstream.



Photograph 12. Cory Street Dam, Dam 2A Site, sediment sample.



Photograph 13. Cory Street Dam, Dam 2B Site, Blanchard River upstream.



Photograph 14. Cory Street Dam, Dam 2B Site, Blanchard River downstream.



Photograph 15. Cory Street Dam, Dam 2B Site, sediment sample.



Photograph 16. Karg Dam, Dam 3A Site, Blanchard River upstream.



Photograph 17. Karg Dam, Dam 3A Site, Blanchard River downstream.



Photograph 18. Karg Dam, Dam 3A Site, sediment sample.



Photograph 19. Karg Dam, Dam 3B Site, Blanchard River upstream.



Photograph 20. Karg Dam, Dam 3B Site, Blanchard River downstream.



Photograph 21. Karg Dam, Dam 3B Site, sediment sample.



Photograph 22. Karg Dam, Dam 3C Site, Blanchard River upstream.



Photograph 23. Karg Dam, Dam 3C Site, Blanchard River downstream.



Photograph 24. Karg Dam, Dam 3C Site, sediment sample.



Photograph 25. Swale Park Dam, Dam 4A Site, Blanchard River upstream.



Photograph 26. Swale Park Dam, Dam 4A Site, Blanchard River downstream.



Photograph 27. Swale Park Dam, Dam 4A Site, sediment sample.



Photograph 28. Swale Park Dam, Dam 4B Site, Blanchard River upstream.



Photograph 29. Swale Park Dam, Dam 4B Site, Blanchard River downstream.



Photograph 30. Swale Park Dam, Dam 4B Site, sediment sample.



Photograph 31. Swale Park Dam, Dam 4C Site, Blanchard River upstream.



Photograph 32. Swale Park Dam, Dam 4C Site, Blanchard River downstream.



Photograph 33. Swale Park Dam, Dam 4C Site, sediment sample.

# Attachment D – Analytical results

**Pace Analytical Services, LLC**
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

November 01, 2017

Mr. Dillion McNulty
Stantec
11687 Lebanon Road
Cincinnati, OH 45241

RE: Project: Hannock County Flood Diversion
Pace Project No.: 50181016

Dear Mr. McNulty:
Enclosed are the analytical results for sample(s) received by the laboratory on October 02, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revised Report; Cu, Ni, Zn, Pests and PCBs added per client request. dss

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Tina Sayer

Tina Sayer
tina.sayer@pacelabs.com
(317)228-3100
Project Manager

Enclosures

cc: Accounts Payable, Stantec Consulting Services, Inc.



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# CERTIFICATIONS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Montana Certification IDs**

150 N. 9th Street, Billings, MT 59101
A2LA Certification #: 3590.01
EPA Region 8 Certification #: 8TMS-L
Idaho Certification #: MT00012
Minnesota Dept of Health Certification #: 030-999-442
Montana Certification #: MT CERT0040
North Dakota Dept. Of Health #: R-209
Washington Department of Ecology #: C993
Nevada Certificate # : MT00012

**Green Bay Certification IDs**

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

**Indiana Certification IDs**

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257



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## SAMPLE SUMMARY

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **50181016001** | **Dam 1A (Centennial Park Dam)** | Solid | 09/28/17 09:10 | 10/02/17 09:35 |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | Solid | 09/28/17 10:20 | 10/02/17 09:35 |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | Solid | 09/28/17 10:45 | 10/02/17 09:35 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | Solid | 09/28/17 12:02 | 10/02/17 09:35 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | Solid | 09/28/17 12:34 | 10/02/17 09:35 |
| **50181016006** | **Dam 3A (Karg Dam)** | Solid | 09/28/17 14:25 | 10/02/17 09:35 |
| **50181016007** | **Dam 3B (Karg Dam)** | Solid | 09/28/17 14:53 | 10/02/17 09:35 |
| **50181016008** | **Dam 3C (Karg Dam)** | Solid | 09/28/17 15:20 | 10/02/17 09:35 |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | Solid | 09/28/17 14:23 | 10/02/17 09:35 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | Solid | 09/28/17 14:43 | 10/02/17 09:35 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | Solid | 09/28/17 17:07 | 10/02/17 09:35 |



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## SAMPLE ANALYTE COUNT

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | JGJ | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | JGJ | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | JGJ | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | JGJ | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |



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## SAMPLE ANALYTE COUNT

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| | | EPA 7471 | JGJ | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | ILP | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | ILP | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | ILP | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | ILP | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |



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## SAMPLE ANALYTE COUNT

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | ILP | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | JLZ, TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 8081 | CPH | 23 | PASI-I |
| | | EPA 8082 | NPW | 8 | PASI-I |
| | | EPA 6010 | MJC | 10 | PASI-I |
| | | EPA 7471 | ILP | 1 | PASI-I |
| | | EPA 8270 | TBP | 67 | PASI-I |
| | | EPA 8260 | TMW | 73 | PASI-I |
| | | ASA 15-5 mod | SA2 | 4 | |
| | | SM 2540G | CRP | 1 | PASI-I |
| | | EPA 9060 Modified | TJJ | 4 | PASI-G |



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## SUMMARY OF DETECTION

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50181016001** | **Dam 1A (Centennial Park Dam)** | | | | | |
| EPA 6010 | Arsenic | 4.3 | mg/kg | 1.1 | 10/09/17 12:56 | |
| EPA 6010 | Barium | 22.7 | mg/kg | 1.1 | 10/09/17 12:56 | |
| EPA 6010 | Chromium | 6.1 | mg/kg | 1.1 | 10/09/17 12:56 | |
| EPA 6010 | Copper | 5.1 | mg/kg | 1.1 | 10/09/17 12:56 | |
| EPA 6010 | Lead | 3.8 | mg/kg | 1.1 | 10/09/17 12:56 | |
| EPA 6010 | Nickel | 6.8 | mg/kg | 1.1 | 10/09/17 12:56 | |
| EPA 6010 | Zinc | 21.8 | mg/kg | 1.1 | 10/09/17 12:56 | |
| ASA 15-5 mod | Percent Sand | 97.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 2.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 21.0 | % | 0.10 | 10/03/17 15:10 | |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | | | | | |
| EPA 6010 | Arsenic | 10.9 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Barium | 28.1 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Chromium | 5.8 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Copper | 7.7 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Lead | 5.4 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Nickel | 8.1 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Selenium | 1.3 | mg/kg | 1.1 | 10/09/17 12:58 | |
| EPA 6010 | Zinc | 25.2 | mg/kg | 1.1 | 10/09/17 12:58 | |
| ASA 15-5 mod | Percent Sand | 97.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 2.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 15.6 | % | 0.10 | 10/03/17 15:10 | |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | | | | | |
| EPA 6010 | Arsenic | 8.8 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Barium | 27.6 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Chromium | 6.5 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Copper | 11.2 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Lead | 6.6 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Nickel | 10.7 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Selenium | 1.6 | mg/kg | 1.1 | 10/09/17 13:00 | |
| EPA 6010 | Zinc | 27.8 | mg/kg | 1.1 | 10/09/17 13:00 | |
| ASA 15-5 mod | Percent Sand | 97.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 2.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 17.6 | % | 0.10 | 10/03/17 15:11 | |
| EPA 9060 Modified | RPD% | 22.0 | % | 0.10 | 10/13/17 07:55 | |
| EPA 9060 Modified | Total Organic Carbon | 5450 | mg/kg | 1520 | 10/13/17 07:55 | |
| EPA 9060 Modified | Total Organic Carbon | 4370 | mg/kg | 1500 | 10/13/17 08:08 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 4910 | mg/kg | 1510 | 10/13/17 07:55 | C4 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | | | | | |
| EPA 6010 | Arsenic | 9.2 | mg/kg | 1.2 | 10/09/17 13:02 | |
| EPA 6010 | Barium | 39.5 | mg/kg | 1.2 | 10/09/17 13:02 | |
| EPA 6010 | Chromium | 9.3 | mg/kg | 1.2 | 10/09/17 13:02 | |
| EPA 6010 | Copper | 12.2 | mg/kg | 1.2 | 10/09/17 13:02 | |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50181016004** | **Dam 2A (Corey Street Dam)** | | | | | |
| EPA 6010 | Lead | 8.9 | mg/kg | 1.2 | 10/09/17 13:02 | |
| EPA 6010 | Nickel | 12.5 | mg/kg | 1.2 | 10/09/17 13:02 | |
| EPA 6010 | Selenium | 2.2 | mg/kg | 1.2 | 10/09/17 13:02 | |
| EPA 6010 | Zinc | 44.3 | mg/kg | 1.2 | 10/09/17 13:02 | |
| ASA 15-5 mod | Percent Sand | 87.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 10.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Silt | 2.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | LOAMY SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 24.1 | % | 0.10 | 10/03/17 15:11 | |
| EPA 9060 Modified | RPD% | 23.4 | % | 0.10 | 10/13/17 09:09 | |
| EPA 9060 Modified | Total Organic Carbon | 9130 | mg/kg | 1790 | 10/13/17 09:09 | |
| EPA 9060 Modified | Total Organic Carbon | 7220 | mg/kg | 1780 | 10/13/17 09:15 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 8180 | mg/kg | 1790 | 10/13/17 09:09 | C4 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | | | | | |
| EPA 6010 | Arsenic | 6.1 | mg/kg | 1.1 | 10/09/17 13:04 | |
| EPA 6010 | Barium | 20.6 | mg/kg | 1.1 | 10/09/17 13:04 | |
| EPA 6010 | Chromium | 5.4 | mg/kg | 1.1 | 10/09/17 13:04 | |
| EPA 6010 | Copper | 7.1 | mg/kg | 1.1 | 10/09/17 13:04 | |
| EPA 6010 | Lead | 5.8 | mg/kg | 1.1 | 10/09/17 13:04 | |
| EPA 6010 | Nickel | 7.1 | mg/kg | 1.1 | 10/09/17 13:04 | |
| EPA 6010 | Zinc | 26.5 | mg/kg | 1.1 | 10/09/17 13:04 | |
| ASA 15-5 mod | Percent Sand | 97.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 2.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 20.7 | % | 0.10 | 10/03/17 15:11 | |
| **50181016006** | **Dam 3A (Karg Dam)** | | | | | |
| EPA 6010 | Arsenic | 5.2 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Barium | 26.0 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Chromium | 4.9 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Copper | 6.9 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Lead | 8.6 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Nickel | 7.2 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Selenium | 1.3 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 6010 | Zinc | 23.8 | mg/kg | 1.1 | 10/10/17 10:35 | |
| EPA 8270 | Anthracene | 0.59 | mg/kg | 0.41 | 10/03/17 18:15 | R1 |
| EPA 8270 | Benzo(a)anthracene | 2.4 | mg/kg | 0.41 | 10/03/17 18:15 | M1, R1 |
| EPA 8270 | Benzo(a)pyrene | 2.0 | mg/kg | 0.41 | 10/03/17 18:15 | M1, R1 |
| EPA 8270 | Benzo(b)fluoranthene | 2.5 | mg/kg | 0.41 | 10/03/17 18:15 | M1 |
| EPA 8270 | Benzo(g,h,i)perylene | 1.2 | mg/kg | 0.41 | 10/03/17 18:15 | |
| EPA 8270 | Benzo(k)fluoranthene | 1.1 | mg/kg | 0.41 | 10/03/17 18:15 | R1 |
| EPA 8270 | Chrysene | 2.3 | mg/kg | 0.41 | 10/03/17 18:15 | M1 |
| EPA 8270 | Fluoranthene | 4.8 | mg/kg | 0.41 | 10/03/17 18:15 | M1, R1 |
| EPA 8270 | Indeno(1,2,3-cd)pyrene | 1.1 | mg/kg | 0.41 | 10/03/17 18:15 | |
| EPA 8270 | Phenanthrene | 2.6 | mg/kg | 0.41 | 10/03/17 18:15 | M1, R1 |
| EPA 8270 | Pyrene | 4.1 | mg/kg | 0.41 | 10/03/17 18:15 | M1, R1 |



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## SUMMARY OF DETECTION

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50181016006** | **Dam 3A (Karg Dam)** | | | | | |
| ASA 15-5 mod | Percent Sand | 97.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 2.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 19.4 | % | 0.10 | 10/03/17 17:25 | |
| EPA 9060 Modified | RPD% | 20.1 | % | 0.10 | 10/13/17 12:13 | |
| EPA 9060 Modified | Total Organic Carbon | 12500 | mg/kg | 831 | 10/13/17 12:13 | |
| EPA 9060 Modified | Total Organic Carbon | 10200 | mg/kg | 830 | 10/13/17 12:21 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 11300 | mg/kg | 830 | 10/13/17 12:13 | C4 |
| **50181016007** | **Dam 3B (Karg Dam)** | | | | | |
| EPA 6010 | Arsenic | 20.1 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Barium | 44.7 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Chromium | 10.1 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Copper | 25.9 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Lead | 6.7 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Nickel | 16.7 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Selenium | 4.0 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 6010 | Zinc | 36.1 | mg/kg | 1.2 | 10/10/17 10:38 | |
| EPA 8270 | Fluoranthene | 0.45 | mg/kg | 0.40 | 10/03/17 19:03 | |
| ASA 15-5 mod | Percent Sand | 95.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 5.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 18.1 | % | 0.10 | 10/03/17 17:25 | |
| EPA 9060 Modified | RPD% | 20.5 | % | 0.10 | 10/13/17 09:38 | |
| EPA 9060 Modified | Total Organic Carbon | 8460 | mg/kg | 1380 | 10/13/17 09:38 | |
| EPA 9060 Modified | Total Organic Carbon | 6890 | mg/kg | 1370 | 10/13/17 09:44 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 7670 | mg/kg | 1380 | 10/13/17 09:38 | C4 |
| **50181016008** | **Dam 3C (Karg Dam)** | | | | | |
| EPA 6010 | Arsenic | 5.4 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Barium | 25.5 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Chromium | 6.3 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Copper | 18.7 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Lead | 8.5 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Nickel | 7.4 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Selenium | 1.4 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 6010 | Zinc | 47.1 | mg/kg | 1.2 | 10/10/17 10:40 | |
| EPA 8270 | Fluoranthene | 1.3 | mg/kg | 0.42 | 10/03/17 19:18 | |
| EPA 8270 | Phenanthrene | 1.0 | mg/kg | 0.42 | 10/03/17 19:18 | |
| EPA 8270 | Pyrene | 0.85 | mg/kg | 0.42 | 10/03/17 19:18 | |
| ASA 15-5 mod | Percent Sand | 95.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 5.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 22.1 | % | 0.10 | 10/03/17 17:25 | |
| EPA 9060 Modified | RPD% | 3.2 | % | 0.10 | 10/13/17 09:55 | |
| EPA 9060 Modified | Total Organic Carbon | 8080 | mg/kg | 1590 | 10/13/17 09:55 | |
| EPA 9060 Modified | Total Organic Carbon | 7820 | mg/kg | 1610 | 10/13/17 10:01 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 7950 | mg/kg | 1600 | 10/13/17 09:55 | C4 |

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## SUMMARY OF DETECTION

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50181016009** | **Dam 4A (Swale Paris Dam)** | | | | | |
| EPA 6010 | Arsenic | 5.2 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Barium | 18.2 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Chromium | 5.1 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Copper | 10.1 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Lead | 5.1 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Nickel | 7.1 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Selenium | 1.5 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 6010 | Zinc | 22.8 | mg/kg | 1.2 | 10/10/17 10:42 | |
| EPA 8270 | Fluoranthene | 0.84 | mg/kg | 0.40 | 10/03/17 19:34 | |
| EPA 8270 | Phenanthrene | 0.56 | mg/kg | 0.40 | 10/03/17 19:34 | |
| EPA 8270 | Pyrene | 0.54 | mg/kg | 0.40 | 10/03/17 19:34 | |
| ASA 15-5 mod | Percent Sand | 95.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 5.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 17.7 | % | 0.10 | 10/03/17 17:25 | |
| EPA 9060 Modified | RPD% | 22.1 | % | 0.10 | 10/13/17 10:07 | |
| EPA 9060 Modified | Total Organic Carbon | 11100 | mg/kg | 820 | 10/13/17 10:07 | |
| EPA 9060 Modified | Total Organic Carbon | 13800 | mg/kg | 817 | 10/13/17 10:19 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 12400 | mg/kg | 818 | 10/13/17 10:07 | C4 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | | | | | |
| EPA 6010 | Arsenic | 7.9 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Barium | 38.2 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Chromium | 6.8 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Copper | 8.8 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Lead | 9.7 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Nickel | 9.0 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Selenium | 2.1 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 6010 | Zinc | 40.9 | mg/kg | 1.2 | 10/10/17 11:06 | |
| EPA 8270 | Fluoranthene | 1.1 | mg/kg | 0.42 | 10/03/17 19:50 | |
| EPA 8270 | Phenanthrene | 0.60 | mg/kg | 0.42 | 10/03/17 19:50 | |
| EPA 8270 | Pyrene | 0.80 | mg/kg | 0.42 | 10/03/17 19:50 | |
| ASA 15-5 mod | Percent Sand | 92.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 7.5 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 21.5 | % | 0.10 | 10/03/17 17:25 | |
| EPA 9060 Modified | RPD% | 17.0 | % | 0.10 | 10/13/17 10:41 | |
| EPA 9060 Modified | Total Organic Carbon | 19400 | mg/kg | 859 | 10/13/17 10:41 | |
| EPA 9060 Modified | Total Organic Carbon | 16300 | mg/kg | 856 | 10/13/17 11:05 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 17800 | mg/kg | 858 | 10/13/17 10:41 | C4 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | | | | | |
| EPA 6010 | Arsenic | 5.8 | mg/kg | 1.2 | 10/10/17 11:08 | |
| EPA 6010 | Barium | 24.5 | mg/kg | 1.2 | 10/10/17 11:08 | |
| EPA 6010 | Chromium | 7.8 | mg/kg | 1.2 | 10/10/17 11:08 | |
| EPA 6010 | Copper | 10.8 | mg/kg | 1.2 | 10/10/17 11:08 | |
| EPA 6010 | Lead | 115 | mg/kg | 1.2 | 10/10/17 11:08 | |
| EPA 6010 | Nickel | 7.9 | mg/kg | 1.2 | 10/10/17 11:08 | |



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## SUMMARY OF DETECTION

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50181016011** | **Dam 4C (Swale Paris Dam)** | | | | | |
| EPA 6010 | Selenium | 1.6 | mg/kg | 1.2 | 10/10/17 11:08 | |
| EPA 6010 | Zinc | 28.6 | mg/kg | 1.2 | 10/10/17 11:08 | |
| ASA 15-5 mod | Percent Sand | 90.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Clay | 5.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Percent Silt | 5.0 | % (w/w) | 0.10 | 10/04/17 13:36 | |
| ASA 15-5 mod | Texture | SAND | | | 10/04/17 13:36 | |
| SM 2540G | Percent Moisture | 17.7 | % | 0.10 | 10/03/17 17:25 | |
| EPA 9060 Modified | RPD% | 7.0 | % | 0.10 | 10/13/17 12:29 | |
| EPA 9060 Modified | Total Organic Carbon | 5290 | mg/kg | 818 | 10/13/17 12:29 | |
| EPA 9060 Modified | Total Organic Carbon | 5670 | mg/kg | 820 | 10/13/17 12:36 | |
| EPA 9060 Modified | Mean Total Organic Carbon | 5480 | mg/kg | 819 | 10/13/17 12:29 | C4 |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1A (Centennial Park Dam)** **Lab ID: 50181016001** Collected: 09/28/17 09:10 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.62 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.31 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.62 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 72 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 18:56 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 54 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 22:09 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **4.3** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-38-2 | |
| Barium | **22.7** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.53 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-43-9 | |
| Chromium | **6.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-47-3 | |
| Copper | **5.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-50-8 | |
| Lead | **3.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7439-92-1 | |
| Nickel | **6.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-02-0 | |
| Selenium | ND | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7782-49-2 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1A (Centennial Park Dam)** **Lab ID: 50181016001** Collected: 09/28/17 09:10 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Silver | ND | mg/kg | 0.53 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-22-4 | |
| Zinc | **21.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:56 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.26 | 1 | 10/11/17 13:52 | 10/11/17 17:12 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.82 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.82 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.82 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.82 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 117-81-7 | |
| Fluoranthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 118-74-1 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1A (Centennial Park Dam)** **Lab ID: 50181016001** Collected: 09/28/17 09:10 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 77-47-4 | |
| Hexachloroethane | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.82 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | | |
| Naphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 52 | %. | 21-102 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 4165-60-0 | |
| Phenol-d5 (S) | 56 | %. | 17-100 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 4165-62-2 | |
| 2-Fluorophenol (S) | 60 | %. | 12-108 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 74 | %. | 13-112 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 59 | %. | 33-93 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 71 | %. | 28-113 | 1 | 10/04/17 13:00 | 10/06/17 09:20 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 08:36 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 98-06-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1A (Centennial Park Dam)** **Lab ID: 50181016001** Collected: 09/28/17 09:10 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Carbon disulfide | ND | mg/kg | 0.013 | 1 | | 10/10/17 08:36 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 56-23-5 | |
| Chlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.025 | 1 | | 10/10/17 08:36 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 08:36 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 108-88-3 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1A (Centennial Park Dam)** **Lab ID: 50181016001** Collected: 09/28/17 09:10 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.13 | 1 | | 10/10/17 08:36 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0063 | 1 | | 10/10/17 08:36 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.013 | 1 | | 10/10/17 08:36 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 106 | %. | 69-136 | 1 | | 10/10/17 08:36 | 1868-53-7 | |
| Toluene-d8 (S) | 101 | %. | 64-150 | 1 | | 10/10/17 08:36 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 96 | %. | 51-142 | 1 | | 10/10/17 08:36 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **97.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **2.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **21.0** | % | 0.10 | 1 | | 10/03/17 15:10 | | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1B (Centennial Park Dam)** **Lab ID: 50181016002** Collected: 09/28/17 10:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.59 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.059 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.30 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.59 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 75 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 19:34 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 53 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 22:17 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **10.9** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-38-2 | |
| Barium | **28.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.57 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-43-9 | |
| Chromium | **5.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-47-3 | |
| Copper | **7.7** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-50-8 | |
| Lead | **5.4** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7439-92-1 | |
| Nickel | **8.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-02-0 | |
| Selenium | **1.3** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7782-49-2 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1B (Centennial Park Dam)** **Lab ID: 50181016002** Collected: 09/28/17 10:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Silver | ND | mg/kg | 0.57 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-22-4 | |
| Zinc | **25.2** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 12:58 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.25 | 1 | 10/11/17 13:52 | 10/11/17 17:18 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.78 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.78 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.78 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.78 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 117-81-7 | |
| Fluoranthene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 118-74-1 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1B (Centennial Park Dam)** **Lab ID: 50181016002** Collected: 09/28/17 10:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 77-47-4 | |
| Hexachloroethane | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.78 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | | |
| Naphthalene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.39 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 50 | %. | 21-102 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 4165-60-0 | |
| Phenol-d5 (S) | 56 | %. | 17-100 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 4165-62-2 | |
| 2-Fluorophenol (S) | 60 | %. | 12-108 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 66 | %. | 13-112 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 52 | %. | 33-93 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 56 | %. | 28-113 | 1 | 10/04/17 13:00 | 10/06/17 09:36 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.030 | 1 | | 10/10/17 09:08 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 98-06-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1B (Centennial Park Dam)** **Lab ID: 50181016002** Collected: 09/28/17 10:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Carbon disulfide | ND | mg/kg | 0.012 | 1 | | 10/10/17 09:08 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 56-23-5 | |
| Chlorobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.024 | 1 | | 10/10/17 09:08 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.030 | 1 | | 10/10/17 09:08 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 108-88-3 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1B (Centennial Park Dam)** **Lab ID: 50181016002** Collected: 09/28/17 10:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:08 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0059 | 1 | | 10/10/17 09:08 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.012 | 1 | | 10/10/17 09:08 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 106 | %. | 69-136 | 1 | | 10/10/17 09:08 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | %. | 64-150 | 1 | | 10/10/17 09:08 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 92 | %. | 51-142 | 1 | | 10/10/17 09:08 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **97.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **2.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **15.6** | % | 0.10 | 1 | | 10/03/17 15:10 | | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1C (Centennial Park Dam)** **Lab ID: 50181016003** Collected: 09/28/17 10:45 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.60 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.30 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.60 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 60 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 19:46 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 57 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 22:25 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **8.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-38-2 | |
| Barium | **27.6** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.56 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-43-9 | |
| Chromium | **6.5** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-47-3 | |
| Copper | **11.2** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-50-8 | |
| Lead | **6.6** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7439-92-1 | |
| Nickel | **10.7** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-02-0 | |
| Selenium | **1.6** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7782-49-2 | |

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1C (Centennial Park Dam)** **Lab ID: 50181016003** Collected: 09/28/17 10:45 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Silver | ND | mg/kg | 0.56 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-22-4 | |
| Zinc | **27.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:00 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.23 | 1 | 10/11/17 13:52 | 10/11/17 17:20 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.80 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.80 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.80 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.80 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 117-81-7 | |
| Fluoranthene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 118-74-1 | |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1C (Centennial Park Dam)** **Lab ID: 50181016003** Collected: 09/28/17 10:45 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 77-47-4 | |
| Hexachloroethane | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.80 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | | |
| Naphthalene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 1.9 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 55 | %. | 21-102 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 4165-60-0 | |
| Phenol-d5 (S) | 63 | %. | 17-100 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 4165-62-2 | |
| 2-Fluorophenol (S) | 67 | %. | 12-108 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 77 | %. | 13-112 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 60 | %. | 33-93 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 68 | %. | 28-113 | 1 | 10/04/17 13:00 | 10/06/17 09:52 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.030 | 1 | | 10/10/17 09:40 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 98-06-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1C (Centennial Park Dam)** **Lab ID: 50181016003** Collected: 09/28/17 10:45 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Carbon disulfide | ND | mg/kg | 0.012 | 1 | | 10/10/17 09:40 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 56-23-5 | |
| Chlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.024 | 1 | | 10/10/17 09:40 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.030 | 1 | | 10/10/17 09:40 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 108-88-3 | |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 1C (Centennial Park Dam)** **Lab ID: 50181016003** Collected: 09/28/17 10:45 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.12 | 1 | | 10/10/17 09:40 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0061 | 1 | | 10/10/17 09:40 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.012 | 1 | | 10/10/17 09:40 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 110 | %. | 69-136 | 1 | | 10/10/17 09:40 | 1868-53-7 | |
| Toluene-d8 (S) | 96 | %. | 64-150 | 1 | | 10/10/17 09:40 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 92 | %. | 51-142 | 1 | | 10/10/17 09:40 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **97.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **2.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **17.6** | % | 0.10 | 1 | | 10/03/17 15:11 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **22.0** | % | 0.10 | 1 | | 10/13/17 07:55 | | |
| Total Organic Carbon | **5450** | mg/kg | 1520 | 1 | | 10/13/17 07:55 | 7440-44-0 | |
| Total Organic Carbon | **4370** | mg/kg | 1500 | 1 | | 10/13/17 08:08 | 7440-44-0 | |
| Mean Total Organic Carbon | **4910** | mg/kg | 1510 | 1 | | 10/13/17 07:55 | 7440-44-0 | C4 |

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7726 Moller Road
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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2A (Corey Street Dam)** **Lab ID: 50181016004** Collected: 09/28/17 12:02 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.66 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.066 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.033 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.33 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.66 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 77 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 19:59 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 80 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 22:33 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **9.2** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-38-2 | |
| Barium | **39.5** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.62 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-43-9 | |
| Chromium | **9.3** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-47-3 | |
| Copper | **12.2** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-50-8 | |
| Lead | **8.9** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7439-92-1 | |
| Nickel | **12.5** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-02-0 | |
| Selenium | **2.2** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7782-49-2 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2A (Corey Street Dam)** **Lab ID: 50181016004** Collected: 09/28/17 12:02 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Silver | ND | mg/kg | 0.62 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-22-4 | |
| Zinc | **44.3** | mg/kg | 1.2 | 1 | 10/06/17 12:33 | 10/09/17 13:02 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.28 | 1 | 10/11/17 13:52 | 10/11/17 17:23 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.87 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.87 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.87 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.87 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 117-81-7 | |
| Fluoranthene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 118-74-1 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2A (Corey Street Dam)** **Lab ID: 50181016004** Collected: 09/28/17 12:02 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 77-47-4 | |
| Hexachloroethane | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.87 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | | |
| Naphthalene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 2.1 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.43 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 53 | %. | 21-102 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 4165-60-0 | |
| Phenol-d5 (S) | 61 | %. | 17-100 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 4165-62-2 | |
| 2-Fluorophenol (S) | 65 | %. | 12-108 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 73 | %. | 13-112 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 59 | %. | 33-93 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 80 | %. | 28-113 | 1 | 10/04/17 13:00 | 10/06/17 10:08 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.033 | 1 | | 10/10/17 15:04 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 98-06-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2A (Corey Street Dam)** **Lab ID: 50181016004** Collected: 09/28/17 12:02 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Carbon disulfide | ND | mg/kg | 0.013 | 1 | | 10/10/17 15:04 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 56-23-5 | |
| Chlorobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.026 | 1 | | 10/10/17 15:04 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.033 | 1 | | 10/10/17 15:04 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 108-88-3 | |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2A (Corey Street Dam)** **Lab ID: 50181016004** Collected: 09/28/17 12:02 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:04 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0066 | 1 | | 10/10/17 15:04 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.013 | 1 | | 10/10/17 15:04 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 106 | %. | 69-136 | 1 | | 10/10/17 15:04 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | %. | 64-150 | 1 | | 10/10/17 15:04 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 89 | %. | 51-142 | 1 | | 10/10/17 15:04 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **87.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **10.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | **2.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **LOAMY SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **24.1** | % | 0.10 | 1 | | 10/03/17 15:11 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **23.4** | % | 0.10 | 1 | | 10/13/17 09:09 | | |
| Total Organic Carbon | **9130** | mg/kg | 1790 | 1 | | 10/13/17 09:09 | 7440-44-0 | |
| Total Organic Carbon | **7220** | mg/kg | 1780 | 1 | | 10/13/17 09:15 | 7440-44-0 | |
| Mean Total Organic Carbon | **8180** | mg/kg | 1790 | 1 | | 10/13/17 09:09 | 7440-44-0 | C4 |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2B (Corey Street Dam)** **Lab ID: 50181016005** Collected: 09/28/17 12:34 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.62 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.31 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.62 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 62 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 20:12 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 61 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 22:41 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **6.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-38-2 | |
| Barium | **20.6** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.56 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-43-9 | |
| Chromium | **5.4** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-47-3 | |
| Copper | **7.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-50-8 | |
| Lead | **5.8** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7439-92-1 | |
| Nickel | **7.1** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-02-0 | |
| Selenium | ND | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7782-49-2 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2B (Corey Street Dam)** **Lab ID: 50181016005** Collected: 09/28/17 12:34 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Silver | ND | mg/kg | 0.56 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-22-4 | |
| Zinc | **26.5** | mg/kg | 1.1 | 1 | 10/06/17 12:33 | 10/09/17 13:04 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.25 | 1 | 10/11/17 13:52 | 10/11/17 17:25 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.83 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.83 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.83 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.83 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 117-81-7 | |
| Fluoranthene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 118-74-1 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2B (Corey Street Dam)** **Lab ID: 50181016005** Collected: 09/28/17 12:34 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 77-47-4 | |
| Hexachloroethane | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.83 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | | |
| Naphthalene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 2.0 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.41 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 46 | %. | 21-102 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 4165-60-0 | |
| Phenol-d5 (S) | 53 | %. | 17-100 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 4165-62-2 | |
| 2-Fluorophenol (S) | 55 | %. | 12-108 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 68 | %. | 13-112 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 52 | %. | 33-93 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 68 | %. | 28-113 | 1 | 10/04/17 13:00 | 10/06/17 10:23 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 15:36 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 98-06-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2B (Corey Street Dam)** **Lab ID: 50181016005** Collected: 09/28/17 12:34 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Carbon disulfide | ND | mg/kg | 0.013 | 1 | | 10/10/17 15:36 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 56-23-5 | |
| Chlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.025 | 1 | | 10/10/17 15:36 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 15:36 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 108-88-3 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 2B (Corey Street Dam)** **Lab ID: 50181016005** Collected: 09/28/17 12:34 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.13 | 1 | | 10/10/17 15:36 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0063 | 1 | | 10/10/17 15:36 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.013 | 1 | | 10/10/17 15:36 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 102 | %. | 69-136 | 1 | | 10/10/17 15:36 | 1868-53-7 | |
| Toluene-d8 (S) | 97 | %. | 64-150 | 1 | | 10/10/17 15:36 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 90 | %. | 51-142 | 1 | | 10/10/17 15:36 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **97.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **2.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **20.7** | % | 0.10 | 1 | | 10/03/17 15:11 | | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3A (Karg Dam)** **Lab ID: 50181016006** Collected: 09/28/17 14:25 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.62 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.062 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.31 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.62 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 38 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 20:24 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 41 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 22:50 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **5.2** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-38-2 | |
| Barium | **26.0** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.56 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-43-9 | |
| Chromium | **4.9** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-47-3 | |
| Copper | **6.9** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-50-8 | |
| Lead | **8.6** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7439-92-1 | |
| Nickel | **7.2** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-02-0 | |
| Selenium | **1.3** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7782-49-2 | |
| Silver | ND | mg/kg | 0.56 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-22-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3A (Karg Dam)** **Lab ID: 50181016006** Collected: 09/28/17 14:25 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 | Preparation Method: EPA 3050 | | | | | | |
| Zinc | **23.8** | mg/kg | 1.1 | 1 | 10/05/17 11:17 | 10/10/17 10:35 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 | Preparation Method: EPA 7471 | | | | | | |
| Mercury | ND | mg/kg | 0.26 | 1 | 10/06/17 13:16 | 10/09/17 09:50 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 | Preparation Method: EPA 3546 | | | | | | |
| Acenaphthene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 83-32-9 | R1 |
| Acenaphthylene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 208-96-8 | R1 |
| Anthracene | **0.59** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 120-12-7 | R1 |
| Benzo(a)anthracene | **2.4** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 56-55-3 | M1,R1 |
| Benzo(a)pyrene | **2.0** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 50-32-8 | M1,R1 |
| Benzo(b)fluoranthene | **2.5** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 205-99-2 | M1 |
| Benzo(g,h,i)perylene | **1.2** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 191-24-2 | |
| Benzo(k)fluoranthene | **1.1** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 207-08-9 | R1 |
| Benzyl alcohol | ND | mg/kg | 0.81 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.81 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 59-50-7 | R1 |
| 4-Chloroaniline | ND | mg/kg | 0.81 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 95-57-8 | R1 |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 7005-72-3 | |
| Chrysene | **2.3** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 218-01-9 | M1 |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.81 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 121-14-2 | R1 |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 117-81-7 | |
| Fluoranthene | **4.8** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 206-44-0 | M1,R1 |
| Fluorene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 86-73-7 | R1 |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 118-74-1 | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 77-47-4 | |



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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3A (Karg Dam)** **Lab ID: 50181016006** Collected: 09/28/17 14:25 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachloroethane | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | **1.1** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 91-57-6 | R1 |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.81 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | | |
| Naphthalene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 91-20-3 | R1 |
| 2-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 621-64-7 | R1 |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 87-86-5 | |
| Phenanthrene | **2.6** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 85-01-8 | M1,R1 |
| Phenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 108-95-2 | R1 |
| Pyrene | **4.1** | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 129-00-0 | M1,R1 |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.41 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 47 | %. | 21-102 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 4165-60-0 | |
| Phenol-d5 (S) | 51 | %. | 17-100 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 4165-62-2 | |
| 2-Fluorophenol (S) | 48 | %. | 12-108 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 42 | %. | 13-112 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 55 | %. | 33-93 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 69 | %. | 28-113 | 1 | 10/03/17 11:40 | 10/03/17 18:15 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.031 | 1 | | 10/10/17 16:08 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 98-06-6 | |
| Carbon disulfide | ND | mg/kg | 0.012 | 1 | | 10/10/17 16:08 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 56-23-5 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3A (Karg Dam)** **Lab ID: 50181016006** Collected: 09/28/17 14:25 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Chlorobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.025 | 1 | | 10/10/17 16:08 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.031 | 1 | | 10/10/17 16:08 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 71-55-6 | |



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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3A (Karg Dam)** **Lab ID: 50181016006** Collected: 09/28/17 14:25 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:08 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0062 | 1 | | 10/10/17 16:08 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.012 | 1 | | 10/10/17 16:08 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 103 | %. | 69-136 | 1 | | 10/10/17 16:08 | 1868-53-7 | |
| Toluene-d8 (S) | 98 | %. | 64-150 | 1 | | 10/10/17 16:08 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 90 | %. | 51-142 | 1 | | 10/10/17 16:08 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **97.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **2.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **19.4** | % | 0.10 | 1 | | 10/03/17 17:25 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **20.1** | % | 0.10 | 1 | | 10/13/17 12:13 | | |
| Total Organic Carbon | **12500** | mg/kg | 831 | 1 | | 10/13/17 12:13 | 7440-44-0 | |
| Total Organic Carbon | **10200** | mg/kg | 830 | 1 | | 10/13/17 12:21 | 7440-44-0 | |
| Mean Total Organic Carbon | **11300** | mg/kg | 830 | 1 | | 10/13/17 12:13 | 7440-44-0 | C4 |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3B (Karg Dam)** **Lab ID: 50181016007** Collected: 09/28/17 14:53 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.60 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.060 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.30 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.60 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 70 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 20:37 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 58 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 23:30 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **20.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-38-2 | |
| Barium | **44.7** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.60 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-43-9 | |
| Chromium | **10.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-47-3 | |
| Copper | **25.9** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-50-8 | |
| Lead | **6.7** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7439-92-1 | |
| Nickel | **16.7** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-02-0 | |
| Selenium | **4.0** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7782-49-2 | |
| Silver | ND | mg/kg | 0.60 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-22-4 | |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3B (Karg Dam)** **Lab ID: 50181016007** Collected: 09/28/17 14:53 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Zinc | **36.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:38 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.24 | 1 | 10/06/17 13:16 | 10/09/17 09:53 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 117-81-7 | |
| Fluoranthene | **0.45** | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 118-74-1 | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 77-47-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3B (Karg Dam)** **Lab ID: 50181016007** Collected: 09/28/17 14:53 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachloroethane | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | | |
| Naphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 39 | %. | 21-102 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 4165-60-0 | |
| Phenol-d5 (S) | 40 | %. | 17-100 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 4165-62-2 | |
| 2-Fluorophenol (S) | 41 | %. | 12-108 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 45 | %. | 13-112 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 44 | %. | 33-93 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 61 | %. | 28-113 | 1 | 10/03/17 11:40 | 10/03/17 19:03 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.031 | 1 | | 10/10/17 16:40 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 98-06-6 | |
| Carbon disulfide | ND | mg/kg | 0.012 | 1 | | 10/10/17 16:40 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 56-23-5 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3B (Karg Dam)** **Lab ID: 50181016007** Collected: 09/28/17 14:53 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Chlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.024 | 1 | | 10/10/17 16:40 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.031 | 1 | | 10/10/17 16:40 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 71-55-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3B (Karg Dam)** **Lab ID: 50181016007** Collected: 09/28/17 14:53 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.12 | 1 | | 10/10/17 16:40 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0061 | 1 | | 10/10/17 16:40 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.012 | 1 | | 10/10/17 16:40 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 106 | %. | 69-136 | 1 | | 10/10/17 16:40 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | %. | 64-150 | 1 | | 10/10/17 16:40 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 89 | %. | 51-142 | 1 | | 10/10/17 16:40 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **95.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **5.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **18.1** | % | 0.10 | 1 | | 10/03/17 17:25 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **20.5** | % | 0.10 | 1 | | 10/13/17 09:38 | | |
| Total Organic Carbon | **8460** | mg/kg | 1380 | 1 | | 10/13/17 09:38 | 7440-44-0 | |
| Total Organic Carbon | **6890** | mg/kg | 1370 | 1 | | 10/13/17 09:44 | 7440-44-0 | |
| Mean Total Organic Carbon | **7670** | mg/kg | 1380 | 1 | | 10/13/17 09:38 | 7440-44-0 | C4 |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3C (Karg Dam)** **Lab ID: 50181016008** Collected: 09/28/17 15:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.63 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.031 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.31 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.63 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 70 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 20:49 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 64 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 23:38 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **5.4** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-38-2 | |
| Barium | **25.5** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.58 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-43-9 | |
| Chromium | **6.3** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-47-3 | |
| Copper | **18.7** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-50-8 | |
| Lead | **8.5** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7439-92-1 | |
| Nickel | **7.4** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-02-0 | |
| Selenium | **1.4** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7782-49-2 | |
| Silver | ND | mg/kg | 0.58 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-22-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3C (Karg Dam)** **Lab ID: 50181016008** Collected: 09/28/17 15:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Zinc | **47.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:40 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.25 | 1 | 10/06/17 13:16 | 10/09/17 10:02 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.85 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.85 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.85 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.85 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 117-81-7 | |
| Fluoranthene | **1.3** | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 118-74-1 | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 77-47-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3C (Karg Dam)** **Lab ID: 50181016008** Collected: 09/28/17 15:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachloroethane | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.85 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | | |
| Naphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 2.1 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 87-86-5 | |
| Phenanthrene | **1.0** | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 108-95-2 | |
| Pyrene | **0.85** | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 37 | %. | 21-102 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 4165-60-0 | |
| Phenol-d5 (S) | 41 | %. | 17-100 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 4165-62-2 | |
| 2-Fluorophenol (S) | 41 | %. | 12-108 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 52 | %. | 13-112 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 49 | %. | 33-93 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 63 | %. | 28-113 | 1 | 10/03/17 11:40 | 10/03/17 19:18 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 17:12 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 98-06-6 | |
| Carbon disulfide | ND | mg/kg | 0.013 | 1 | | 10/10/17 17:12 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 56-23-5 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3C (Karg Dam)** **Lab ID: 50181016008** Collected: 09/28/17 15:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Chlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.026 | 1 | | 10/10/17 17:12 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 17:12 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 71-55-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 3C (Karg Dam)** **Lab ID: 50181016008** Collected: 09/28/17 15:20 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.13 | 1 | | 10/10/17 17:12 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0064 | 1 | | 10/10/17 17:12 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.013 | 1 | | 10/10/17 17:12 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 107 | %. | 69-136 | 1 | | 10/10/17 17:12 | 1868-53-7 | |
| Toluene-d8 (S) | 100 | %. | 64-150 | 1 | | 10/10/17 17:12 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 90 | %. | 51-142 | 1 | | 10/10/17 17:12 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **95.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **5.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **22.1** | % | 0.10 | 1 | | 10/03/17 17:25 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **3.2** | % | 0.10 | 1 | | 10/13/17 09:55 | | |
| Total Organic Carbon | **8080** | mg/kg | 1590 | 1 | | 10/13/17 09:55 | 7440-44-0 | |
| Total Organic Carbon | **7820** | mg/kg | 1610 | 1 | | 10/13/17 10:01 | 7440-44-0 | |
| Mean Total Organic Carbon | **7950** | mg/kg | 1600 | 1 | | 10/13/17 09:55 | 7440-44-0 | C4 |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4A (Swale Paris Dam)** **Lab ID: 50181016009** Collected: 09/28/17 14:23 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.61 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.30 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.61 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 48 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 21:02 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 63 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 23:47 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **5.2** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-38-2 | |
| Barium | **18.2** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.59 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-43-9 | |
| Chromium | **5.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-47-3 | |
| Copper | **10.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-50-8 | |
| Lead | **5.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7439-92-1 | |
| Nickel | **7.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-02-0 | |
| Selenium | **1.5** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7782-49-2 | |
| Silver | ND | mg/kg | 0.59 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-22-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4A (Swale Paris Dam)** **Lab ID: 50181016009** Collected: 09/28/17 14:23 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Zinc | **22.8** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 10:42 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.24 | 1 | 10/06/17 13:16 | 10/09/17 10:05 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.79 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.79 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.79 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.79 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 117-81-7 | |
| Fluoranthene | **0.84** | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 118-74-1 | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 77-47-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4A (Swale Paris Dam)** **Lab ID: 50181016009** Collected: 09/28/17 14:23 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachloroethane | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.79 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | | |
| Naphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 87-86-5 | |
| Phenanthrene | **0.56** | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 108-95-2 | |
| Pyrene | **0.54** | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 43 | %. | 21-102 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 4165-60-0 | |
| Phenol-d5 (S) | 44 | %. | 17-100 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 4165-62-2 | |
| 2-Fluorophenol (S) | 44 | %. | 12-108 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 63 | %. | 13-112 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 51 | %. | 33-93 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 74 | %. | 28-113 | 1 | 10/03/17 11:40 | 10/03/17 19:34 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 108-86-1 | R1 |
| Bromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.030 | 1 | | 10/10/17 17:44 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 98-06-6 | |
| Carbon disulfide | ND | mg/kg | 0.012 | 1 | | 10/10/17 17:44 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 56-23-5 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4A (Swale Paris Dam)** **Lab ID: 50181016009** Collected: 09/28/17 14:23 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Chlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.024 | 1 | | 10/10/17 17:44 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.030 | 1 | | 10/10/17 17:44 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 71-55-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4A (Swale Paris Dam)** **Lab ID: 50181016009** Collected: 09/28/17 14:23 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.12 | 1 | | 10/10/17 17:44 | 108-05-4 | M1 |
| Vinyl chloride | ND | mg/kg | 0.0061 | 1 | | 10/10/17 17:44 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.012 | 1 | | 10/10/17 17:44 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 107 | %. | 69-136 | 1 | | 10/10/17 17:44 | 1868-53-7 | |
| Toluene-d8 (S) | 101 | %. | 64-150 | 1 | | 10/10/17 17:44 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 97 | %. | 51-142 | 1 | | 10/10/17 17:44 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **95.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **5.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **17.7** | % | 0.10 | 1 | | 10/03/17 17:25 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **22.1** | % | 0.10 | 1 | | 10/13/17 10:07 | | |
| Total Organic Carbon | **11100** | mg/kg | 820 | 1 | | 10/13/17 10:07 | 7440-44-0 | |
| Total Organic Carbon | **13800** | mg/kg | 817 | 1 | | 10/13/17 10:19 | 7440-44-0 | |
| Mean Total Organic Carbon | **12400** | mg/kg | 818 | 1 | | 10/13/17 10:07 | 7440-44-0 | C4 |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4B (Swale Paris Dam)** **Lab ID: 50181016010** Collected: 09/28/17 14:43 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.63 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.063 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.032 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.32 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.63 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 49 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 21:15 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.13 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 70 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/30/17 23:55 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **7.9** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-38-2 | |
| Barium | **38.2** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.61 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-43-9 | |
| Chromium | **6.8** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-47-3 | |
| Copper | **8.8** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-50-8 | |
| Lead | **9.7** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7439-92-1 | |
| Nickel | **9.0** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-02-0 | |
| Selenium | **2.1** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7782-49-2 | |
| Silver | ND | mg/kg | 0.61 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-22-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4B (Swale Paris Dam)** **Lab ID: 50181016010** Collected: 09/28/17 14:43 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 | Preparation Method: EPA 3050 | | | | | | |
| Zinc | **40.9** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:06 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 | Preparation Method: EPA 7471 | | | | | | |
| Mercury | ND | mg/kg | 0.24 | 1 | 10/06/17 13:16 | 10/09/17 10:07 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 | Preparation Method: EPA 3546 | | | | | | |
| Acenaphthene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.84 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.84 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.84 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.84 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 117-81-7 | |
| Fluoranthene | **1.1** | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 118-74-1 | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 77-47-4 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4B (Swale Paris Dam)** **Lab ID: 50181016010** Collected: 09/28/17 14:43 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachloroethane | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.84 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | | |
| Naphthalene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 2.0 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 87-86-5 | |
| Phenanthrene | **0.60** | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 108-95-2 | |
| Pyrene | **0.80** | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.42 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 45 | %. | 21-102 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 4165-60-0 | |
| Phenol-d5 (S) | 48 | %. | 17-100 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 4165-62-2 | |
| 2-Fluorophenol (S) | 50 | %. | 12-108 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 59 | %. | 13-112 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 53 | %. | 33-93 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 62 | %. | 28-113 | 1 | 10/03/17 11:40 | 10/03/17 19:50 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 74-97-5 | |
| Bromodichloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 22:35 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 98-06-6 | |
| Carbon disulfide | ND | mg/kg | 0.013 | 1 | | 10/10/17 22:35 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 56-23-5 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4B (Swale Paris Dam)** **Lab ID: 50181016010** Collected: 09/28/17 14:43 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Chlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 67-66-3 | |
| Chloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-34-3 | |
| 1,2-Dichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 594-20-7 | |
| 1,1-Dichloropropene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.025 | 1 | | 10/10/17 22:35 | 75-09-2 | L2 |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.032 | 1 | | 10/10/17 22:35 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0064 | 1 | | 10/12/17 17:48 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 71-55-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4B (Swale Paris Dam)** **Lab ID: 50181016010** Collected: 09/28/17 14:43 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.13 | 1 | | 10/10/17 22:35 | 108-05-4 | |
| Vinyl chloride | ND | mg/kg | 0.0064 | 1 | | 10/10/17 22:35 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.013 | 1 | | 10/10/17 22:35 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 104 | %. | 69-136 | 1 | | 10/10/17 22:35 | 1868-53-7 | |
| Toluene-d8 (S) | 104 | %. | 64-150 | 1 | | 10/10/17 22:35 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 99 | %. | 51-142 | 1 | | 10/10/17 22:35 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **92.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **7.5** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | ND | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **21.5** | % | 0.10 | 1 | | 10/03/17 17:25 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **17.0** | % | 0.10 | 1 | | 10/13/17 10:41 | | |
| Total Organic Carbon | **19400** | mg/kg | 859 | 1 | | 10/13/17 10:41 | 7440-44-0 | |
| Total Organic Carbon | **16300** | mg/kg | 856 | 1 | | 10/13/17 11:05 | 7440-44-0 | |
| Mean Total Organic Carbon | **17800** | mg/kg | 858 | 1 | | 10/13/17 10:41 | 7440-44-0 | C4 |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4C (Swale Paris Dam)** **Lab ID: 50181016011** Collected: 09/28/17 17:07 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8081 GCS Pesticide Solids** | Analytical Method: EPA 8081 Preparation Method: EPA 3546 | | | | | | | |
| Aldrin | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 309-00-2 | H2 |
| alpha-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 319-84-6 | D3,H2 |
| beta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 319-85-7 | H2 |
| delta-BHC | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 319-86-8 | H2 |
| gamma-BHC (Lindane) | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 58-89-9 | H2 |
| Chlordane (Technical) | ND | mg/kg | 0.61 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 57-74-9 | H2 |
| alpha-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 5103-71-9 | H2 |
| gamma-Chlordane | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 5103-74-2 | H2 |
| 4,4'-DDD | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 72-54-8 | H2 |
| 4,4'-DDE | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 72-55-9 | H2 |
| 4,4'-DDT | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 50-29-3 | H2 |
| Dieldrin | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 60-57-1 | H2 |
| Endosulfan I | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 959-98-8 | H2 |
| Endosulfan II | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 33213-65-9 | H2 |
| Endosulfan sulfate | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 1031-07-8 | H2 |
| Endrin | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 72-20-8 | H2 |
| Endrin aldehyde | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 7421-93-4 | H2 |
| Endrin ketone | ND | mg/kg | 0.061 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 53494-70-5 | H2 |
| Heptachlor | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 76-44-8 | H2 |
| Heptachlor epoxide | ND | mg/kg | 0.030 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 1024-57-3 | H2 |
| Methoxychlor | ND | mg/kg | 0.30 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 72-43-5 | H2 |
| Toxaphene | ND | mg/kg | 0.61 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 8001-35-2 | H2 |
| ***Surrogates*** | | | | | | | | |
| Decachlorobiphenyl (S) | 74 | %. | 22-126 | 10 | 10/28/17 04:10 | 10/31/17 21:27 | 2051-24-3 | |
| **8082 GCS PCB Solids** | Analytical Method: EPA 8082 Preparation Method: EPA 3546 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | mg/kg | 0.12 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 11096-82-5 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 91 | %. | 28-111 | 1 | 10/27/17 13:50 | 10/31/17 00:03 | 877-09-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **5.8** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-38-2 | |
| Barium | **24.5** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-39-3 | |
| Cadmium | ND | mg/kg | 0.59 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-43-9 | |
| Chromium | **7.8** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-47-3 | |
| Copper | **10.8** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-50-8 | |
| Lead | **115** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7439-92-1 | |
| Nickel | **7.9** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-02-0 | |
| Selenium | **1.6** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7782-49-2 | |
| Silver | ND | mg/kg | 0.59 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-22-4 | |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4C (Swale Paris Dam)** **Lab ID: 50181016011** Collected: 09/28/17 17:07 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Zinc | **28.6** | mg/kg | 1.2 | 1 | 10/05/17 11:17 | 10/10/17 11:08 | 7440-66-6 | |
| **7471 Mercury** | Analytical Method: EPA 7471 Preparation Method: EPA 7471 | | | | | | | |
| Mercury | ND | mg/kg | 0.23 | 1 | 10/06/17 13:16 | 10/09/17 10:10 | 7439-97-6 | |
| **8270 MSSV SHORT LIST MICROWAVE** | Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 120-12-7 | |
| Benzo(a)anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 56-55-3 | |
| Benzo(a)pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 207-08-9 | |
| Benzyl alcohol | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 100-51-6 | |
| 4-Bromophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 101-55-3 | |
| Butylbenzylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 85-68-7 | |
| 4-Chloro-3-methylphenol | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 59-50-7 | |
| 4-Chloroaniline | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 106-47-8 | |
| bis(2-Chloroethoxy)methane | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 111-91-1 | |
| bis(2-Chloroethyl) ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 111-44-4 | |
| bis(2chloro1methylethyl) ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 108-60-1 | |
| 2-Chloronaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 91-58-7 | |
| 2-Chlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 95-57-8 | |
| 4-Chlorophenylphenyl ether | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 7005-72-3 | |
| Chrysene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 53-70-3 | |
| Dibenzofuran | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 132-64-9 | |
| 3,3'-Dichlorobenzidine | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 91-94-1 | |
| 2,4-Dichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 120-83-2 | |
| Diethylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 84-66-2 | |
| 2,4-Dimethylphenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 105-67-9 | |
| Dimethylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 131-11-3 | |
| Di-n-butylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 84-74-2 | |
| 4,6-Dinitro-2-methylphenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 534-52-1 | |
| 2,4-Dinitrophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 51-28-5 | |
| 2,4-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 121-14-2 | |
| 2,6-Dinitrotoluene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 606-20-2 | |
| Di-n-octylphthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 117-84-0 | |
| bis(2-Ethylhexyl)phthalate | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 117-81-7 | |
| Fluoranthene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 86-73-7 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 87-68-3 | |
| Hexachlorobenzene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 118-74-1 | |
| Hexachlorocyclopentadiene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 77-47-4 | |

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(317)228-3100

## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4C (Swale Paris Dam)** **Lab ID: 50181016011** Collected: 09/28/17 17:07 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8270 MSSV SHORT LIST MICROWAVE** Analytical Method: EPA 8270 Preparation Method: EPA 3546 | | | | | | | | |
| Hexachloroethane | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 193-39-5 | |
| Isophorone | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 78-59-1 | |
| 1-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 90-12-0 | N2 |
| 2-Methylnaphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 91-57-6 | |
| 2-Methylphenol(o-Cresol) | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 95-48-7 | |
| 3&4-Methylphenol(m&p Cresol) | ND | mg/kg | 0.80 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | | |
| Naphthalene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 91-20-3 | |
| 2-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 88-74-4 | |
| 3-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 99-09-2 | |
| 4-Nitroaniline | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 100-01-6 | |
| Nitrobenzene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 98-95-3 | |
| 2-Nitrophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 88-75-5 | |
| 4-Nitrophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 100-02-7 | |
| N-Nitroso-di-n-propylamine | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 621-64-7 | |
| N-Nitrosodiphenylamine | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 86-30-6 | |
| Pentachlorophenol | ND | mg/kg | 1.9 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 87-86-5 | |
| Phenanthrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 85-01-8 | |
| Phenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 108-95-2 | |
| Pyrene | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 129-00-0 | |
| 2,4,5-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 95-95-4 | |
| 2,4,6-Trichlorophenol | ND | mg/kg | 0.40 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 88-06-2 | |
| ***Surrogates*** | | | | | | | | |
| Nitrobenzene-d5 (S) | 40 | %. | 21-102 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 4165-60-0 | |
| Phenol-d5 (S) | 42 | %. | 17-100 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 4165-62-2 | |
| 2-Fluorophenol (S) | 43 | %. | 12-108 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 367-12-4 | |
| 2,4,6-Tribromophenol (S) | 52 | %. | 13-112 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 118-79-6 | |
| 2-Fluorobiphenyl (S) | 48 | %. | 33-93 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 62 | %. | 28-113 | 1 | 10/03/17 11:40 | 10/03/17 20:06 | 1718-51-0 | |
| **8260 MSV 5030 Low Level** Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 67-64-1 | |
| Acrolein | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 107-02-8 | |
| Acrylonitrile | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 107-13-1 | |
| Benzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 71-43-2 | |
| Bromobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 108-86-1 | |
| Bromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 74-97-5 | L1 |
| Bromodichloromethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-27-4 | |
| Bromoform | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-25-2 | |
| Bromomethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 74-83-9 | |
| 2-Butanone (MEK) | ND | mg/kg | 0.030 | 1 | | 10/11/17 21:03 | 78-93-3 | |
| n-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 104-51-8 | |
| sec-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 135-98-8 | |
| tert-Butylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 98-06-6 | |
| Carbon disulfide | ND | mg/kg | 0.012 | 1 | | 10/11/17 21:03 | 75-15-0 | |
| Carbon tetrachloride | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 56-23-5 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4C (Swale Paris Dam)** **Lab ID: 50181016011** Collected: 09/28/17 17:07 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| Chlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 108-90-7 | |
| Chloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-00-3 | |
| Chloroform | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 67-66-3 | L1 |
| Chloromethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 74-87-3 | |
| 2-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 95-49-8 | |
| 4-Chlorotoluene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 106-43-4 | |
| Dibromochloromethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 106-93-4 | |
| Dibromomethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 106-46-7 | |
| trans-1,4-Dichloro-2-butene | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 110-57-6 | |
| Dichlorodifluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-71-8 | |
| 1,1-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-34-3 | L1 |
| 1,2-Dichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 107-06-2 | |
| 1,1-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 156-59-2 | L1 |
| trans-1,2-Dichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 156-60-5 | |
| 1,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 78-87-5 | |
| 1,3-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 142-28-9 | |
| 2,2-Dichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 594-20-7 | L1 |
| 1,1-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 10061-02-6 | |
| Ethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 100-41-4 | |
| Ethyl methacrylate | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 97-63-2 | |
| Hexachloro-1,3-butadiene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 87-68-3 | |
| n-Hexane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 110-54-3 | |
| 2-Hexanone | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 591-78-6 | |
| Iodomethane | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 74-88-4 | |
| Isopropylbenzene (Cumene) | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 98-82-8 | |
| p-Isopropyltoluene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 99-87-6 | |
| Methylene Chloride | ND | mg/kg | 0.024 | 1 | | 10/11/17 21:03 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | mg/kg | 0.030 | 1 | | 10/11/17 21:03 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 1634-04-4 | |
| Naphthalene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 91-20-3 | |
| n-Propylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 103-65-1 | |
| Styrene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 79-34-5 | |
| Tetrachloroethene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 127-18-4 | |
| Toluene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 71-55-6 | |

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## ANALYTICAL RESULTS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

**Sample: Dam 4C (Swale Paris Dam)** **Lab ID: 50181016011** Collected: 09/28/17 17:07 Received: 10/02/17 09:35 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV 5030 Low Level** | Analytical Method: EPA 8260 | | | | | | | |
| 1,1,2-Trichloroethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 79-00-5 | |
| Trichloroethene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 79-01-6 | |
| Trichlorofluoromethane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 96-18-4 | |
| 1,2,4-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 108-67-8 | |
| Vinyl acetate | ND | mg/kg | 0.12 | 1 | | 10/11/17 21:03 | 108-05-4 | L1 |
| Vinyl chloride | ND | mg/kg | 0.0061 | 1 | | 10/11/17 21:03 | 75-01-4 | |
| Xylene (Total) | ND | mg/kg | 0.012 | 1 | | 10/11/17 21:03 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 110 | %. | 69-136 | 1 | | 10/11/17 21:03 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | %. | 64-150 | 1 | | 10/11/17 21:03 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 98 | %. | 51-142 | 1 | | 10/11/17 21:03 | 460-00-4 | |
| **PSA Percent Sand,Silt,Clay** | Analytical Method: ASA 15-5 mod | | | | | | | |
| Percent Sand | **90.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Clay | **5.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Percent Silt | **5.0** | % (w/w) | 0.10 | 1 | | 10/04/17 13:36 | | |
| Texture | **SAND** | | | 1 | | 10/04/17 13:36 | | |
| **Percent Moisture** | Analytical Method: SM 2540G | | | | | | | |
| Percent Moisture | **17.7** | % | 0.10 | 1 | | 10/03/17 17:25 | | |
| **Total Organic Carbon** | Analytical Method: EPA 9060 Modified | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| RPD% | **7.0** | % | 0.10 | 1 | | 10/13/17 12:29 | | |
| Total Organic Carbon | **5290** | mg/kg | 818 | 1 | | 10/13/17 12:29 | 7440-44-0 | |
| Total Organic Carbon | **5670** | mg/kg | 820 | 1 | | 10/13/17 12:36 | 7440-44-0 | |
| Mean Total Organic Carbon | **5480** | mg/kg | 819 | 1 | | 10/13/17 12:29 | 7440-44-0 | C4 |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408761 Analysis Method: EPA 7471
QC Batch Method: EPA 7471 Analysis Description: 7471 Mercury
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

METHOD BLANK: 1880672 Matrix: Solid
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | mg/kg | ND | 0.19 | 10/09/17 09:01 | |

LABORATORY CONTROL SAMPLE: 1880673

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | mg/kg | .51 | 0.50 | 98 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880674 1880675

| Parameter | Units | 50180976003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | mg/kg | ND | .58 | .56 | 0.61 | 0.59 | 98 | 99 | 75-125 | 4 | 20 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 409829 Analysis Method: EPA 7471
QC Batch Method: EPA 7471 Analysis Description: 7471 Mercury
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

METHOD BLANK: 1885534 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | mg/kg | ND | 0.19 | 10/11/17 17:06 | |

LABORATORY CONTROL SAMPLE: 1885535

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | mg/kg | .47 | 0.50 | 106 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1885536 1885537

| Parameter | Units | 50181016001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | mg/kg | ND | .59 | .65 | 0.61 | 0.65 | 101 | 102 | 75-125 | 8 | 20 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408650 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

METHOD BLANK: 1880243 Matrix: Solid
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Arsenic | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Barium | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Cadmium | mg/kg | ND | 0.50 | 10/10/17 10:33 | |
| Chromium | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Copper | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Lead | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Nickel | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Selenium | mg/kg | ND | 1.0 | 10/10/17 10:33 | |
| Silver | mg/kg | ND | 0.50 | 10/10/17 10:33 | |
| Zinc | mg/kg | ND | 1.0 | 10/10/17 10:33 | |

LABORATORY CONTROL SAMPLE: 1880244

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Arsenic | mg/kg | 50 | 50.8 | 102 | 80-120 | |
| Barium | mg/kg | 50 | 52.9 | 106 | 80-120 | |
| Cadmium | mg/kg | 50 | 49.8 | 100 | 80-120 | |
| Chromium | mg/kg | 50 | 51.2 | 102 | 80-120 | |
| Copper | mg/kg | 50 | 51.2 | 102 | 80-120 | |
| Lead | mg/kg | 50 | 48.8 | 98 | 80-120 | |
| Nickel | mg/kg | 50 | 50.8 | 102 | 80-120 | |
| Selenium | mg/kg | 50 | 51.0 | 102 | 80-120 | |
| Silver | mg/kg | 25 | 24.5 | 98 | 80-120 | |
| Zinc | mg/kg | 50 | 50.0 | 100 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880245 1880246

| Parameter | Units | 50181120001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | mg/kg | 18.3 | 55.6 | 59.5 | 74.9 | 72.9 | 102 | 92 | 75-125 | 3 | 20 | |
| Barium | mg/kg | 45.8 | 55.6 | 59.5 | 106 | 119 | 109 | 124 | 75-125 | 12 | 20 | 2d |
| Cadmium | mg/kg | ND | 55.6 | 59.5 | 50.9 | 55.2 | 92 | 93 | 75-125 | 8 | 20 | |
| Chromium | mg/kg | 27.2 | 55.6 | 59.5 | 112 | 86.9 | 153 | 100 | 75-125 | 25 | 20 | 1d,M0 |
| Copper | mg/kg | 25.7 | 55.6 | 59.5 | 82.2 | 83.4 | 102 | 97 | 75-125 | 2 | 20 | |
| Lead | mg/kg | 19.4 | 55.6 | 59.5 | 68.3 | 64.6 | 88 | 76 | 75-125 | 6 | 20 | |
| Nickel | mg/kg | 18.0 | 55.6 | 59.5 | 66.8 | 72.1 | 88 | 91 | 75-125 | 8 | 20 | |
| Selenium | mg/kg | 4.0 | 55.6 | 59.5 | 54.2 | 56.0 | 90 | 87 | 75-125 | 3 | 20 | |
| Silver | mg/kg | ND | 27.8 | 29.8 | 25.1 | 27.1 | 90 | 91 | 75-125 | 8 | 20 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880245 1880246

| Parameter | Units | 50181120001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Zinc | mg/kg | 63.5 | 55.6 | 59.5 | 119 | 118 | 99 | 92 | 75-125 | 0 | 20 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408891 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

METHOD BLANK: 1881369 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Arsenic | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Barium | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Cadmium | mg/kg | ND | 0.50 | 10/09/17 12:45 | |
| Chromium | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Copper | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Lead | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Nickel | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Selenium | mg/kg | ND | 1.0 | 10/09/17 12:45 | |
| Silver | mg/kg | ND | 0.50 | 10/09/17 12:45 | |
| Zinc | mg/kg | ND | 1.0 | 10/09/17 12:45 | |

LABORATORY CONTROL SAMPLE: 1881370

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Arsenic | mg/kg | 50 | 53.2 | 106 | 80-120 | |
| Barium | mg/kg | 50 | 51.5 | 103 | 80-120 | |
| Cadmium | mg/kg | 50 | 49.0 | 98 | 80-120 | |
| Chromium | mg/kg | 50 | 52.0 | 104 | 80-120 | |
| Copper | mg/kg | 50 | 51.8 | 104 | 80-120 | |
| Lead | mg/kg | 50 | 50.4 | 101 | 80-120 | |
| Nickel | mg/kg | 50 | 49.0 | 98 | 80-120 | |
| Selenium | mg/kg | 50 | 49.5 | 99 | 80-120 | |
| Silver | mg/kg | 25 | 25.3 | 101 | 80-120 | |
| Zinc | mg/kg | 50 | 50.3 | 101 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1881371 1881372

| Parameter | Units | 50181249005 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | mg/kg | 4.5 | 48.2 | 47.4 | 59.2 | 54.3 | 113 | 105 | 75-125 | 9 | 20 | |
| Barium | mg/kg | 11.4 | 48.2 | 47.4 | 57.9 | 55.7 | 96 | 93 | 75-125 | 4 | 20 | |
| Cadmium | mg/kg | ND | 48.2 | 47.4 | 47.1 | 45.7 | 97 | 96 | 75-125 | 3 | 20 | |
| Chromium | mg/kg | 5.8 | 48.2 | 47.4 | 52.0 | 49.3 | 96 | 92 | 75-125 | 5 | 20 | |
| Lead | mg/kg | 4.4 | 48.2 | 47.4 | 45.1 | 43.0 | 84 | 81 | 75-125 | 5 | 20 | |
| Selenium | mg/kg | ND | 48.2 | 47.4 | 46.9 | 45.2 | 96 | 94 | 75-125 | 4 | 20 | |
| Silver | mg/kg | ND | 24.1 | 23.7 | 25.3 | 24.4 | 105 | 103 | 75-125 | 4 | 20 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 409522 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5030 Low
Associated Lab Samples: 50181016001, 50181016002, 50181016003

METHOD BLANK: 1884319 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,1,1-Trichloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,1,2-Trichloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,1-Dichloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,1-Dichloroethene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,1-Dichloropropene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2,3-Trichlorobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2,3-Trichloropropane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2,4-Trichlorobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2,4-Trimethylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2-Dibromoethane (EDB) | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2-Dichloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,2-Dichloropropane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,3,5-Trimethylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,3-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,3-Dichloropropane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 1,4-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 2,2-Dichloropropane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 2-Butanone (MEK) | mg/kg | ND | 0.025 | 10/09/17 23:29 | |
| 2-Chlorotoluene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 2-Hexanone | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| 4-Chlorotoluene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | ND | 0.025 | 10/09/17 23:29 | |
| Acetone | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Acrolein | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Acrylonitrile | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Benzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Bromobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Bromochloromethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Bromodichloromethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Bromoform | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Bromomethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Carbon disulfide | mg/kg | ND | 0.010 | 10/09/17 23:29 | |
| Carbon tetrachloride | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Chlorobenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Chloroethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Chloroform | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Chloromethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| cis-1,2-Dichloroethene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

METHOD BLANK: 1884319 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Dibromochloromethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Dibromomethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Dichlorodifluoromethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Ethyl methacrylate | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Ethylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Hexachloro-1,3-butadiene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Iodomethane | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Isopropylbenzene (Cumene) | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Methyl-tert-butyl ether | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Methylene Chloride | mg/kg | ND | 0.020 | 10/09/17 23:29 | |
| n-Butylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| n-Hexane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| n-Propylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Naphthalene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| p-Isopropyltoluene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| sec-Butylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Styrene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| tert-Butylbenzene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Tetrachloroethene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Toluene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| trans-1,2-Dichloroethene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| trans-1,3-Dichloropropene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| trans-1,4-Dichloro-2-butene | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Trichloroethene | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Trichlorofluoromethane | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Vinyl acetate | mg/kg | ND | 0.10 | 10/09/17 23:29 | |
| Vinyl chloride | mg/kg | ND | 0.0050 | 10/09/17 23:29 | |
| Xylene (Total) | mg/kg | ND | 0.010 | 10/09/17 23:29 | |
| 4-Bromofluorobenzene (S) | %. | 100 | 51-142 | 10/09/17 23:29 | |
| Dibromofluoromethane (S) | %. | 106 | 69-136 | 10/09/17 23:29 | |
| Toluene-d8 (S) | %. | 98 | 64-150 | 10/09/17 23:29 | |

LABORATORY CONTROL SAMPLE: 1884320

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | .05 | 0.046 | 93 | 76-126 | |
| 1,1,1-Trichloroethane | mg/kg | .05 | 0.049 | 97 | 72-126 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | .05 | 0.045 | 89 | 68-125 | |
| 1,1,2-Trichloroethane | mg/kg | .05 | 0.044 | 88 | 72-124 | |
| 1,1-Dichloroethane | mg/kg | .05 | 0.044 | 88 | 78-117 | |
| 1,1-Dichloroethene | mg/kg | .05 | 0.045 | 90 | 70-132 | |
| 1,1-Dichloropropene | mg/kg | .05 | 0.048 | 97 | 79-121 | |
| 1,2,3-Trichlorobenzene | mg/kg | .05 | 0.047 | 93 | 65-117 | |

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(317)228-3100

## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1884320

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,3-Trichloropropane | mg/kg | .05 | 0.047 | 95 | 78-128 | |
| 1,2,4-Trichlorobenzene | mg/kg | .05 | 0.046 | 93 | 58-121 | |
| 1,2,4-Trimethylbenzene | mg/kg | .05 | 0.042 | 84 | 70-118 | |
| 1,2-Dibromoethane (EDB) | mg/kg | .05 | 0.046 | 93 | 76-127 | |
| 1,2-Dichlorobenzene | mg/kg | .05 | 0.046 | 92 | 72-114 | |
| 1,2-Dichloroethane | mg/kg | .05 | 0.044 | 89 | 70-119 | |
| 1,2-Dichloropropane | mg/kg | .05 | 0.045 | 91 | 76-122 | |
| 1,3,5-Trimethylbenzene | mg/kg | .05 | 0.042 | 84 | 71-122 | |
| 1,3-Dichlorobenzene | mg/kg | .05 | 0.045 | 90 | 70-115 | |
| 1,3-Dichloropropane | mg/kg | .05 | 0.047 | 94 | 76-130 | |
| 1,4-Dichlorobenzene | mg/kg | .05 | 0.044 | 88 | 68-113 | |
| 2,2-Dichloropropane | mg/kg | .05 | 0.047 | 94 | 66-125 | |
| 2-Butanone (MEK) | mg/kg | .25 | 0.27 | 106 | 56-161 | |
| 2-Chlorotoluene | mg/kg | .05 | 0.043 | 85 | 69-122 | |
| 2-Hexanone | mg/kg | .25 | 0.24 | 95 | 67-141 | |
| 4-Chlorotoluene | mg/kg | .05 | 0.043 | 86 | 70-118 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | .25 | 0.25 | 98 | 72-125 | |
| Acetone | mg/kg | .25 | 0.22 | 87 | 24-194 | |
| Acrolein | mg/kg | 1 | 1.4 | 144 | 23-200 | |
| Acrylonitrile | mg/kg | .2 | 0.19 | 93 | 70-122 | |
| Benzene | mg/kg | .05 | 0.048 | 96 | 75-119 | |
| Bromobenzene | mg/kg | .05 | 0.046 | 91 | 73-119 | |
| Bromochloromethane | mg/kg | .05 | 0.047 | 94 | 73-117 | |
| Bromodichloromethane | mg/kg | .05 | 0.046 | 91 | 73-120 | |
| Bromoform | mg/kg | .05 | 0.044 | 87 | 65-121 | |
| Bromomethane | mg/kg | .05 | 0.051 | 101 | 28-161 | |
| Carbon disulfide | mg/kg | .05 | 0.042 | 84 | 64-115 | |
| Carbon tetrachloride | mg/kg | .05 | 0.048 | 96 | 74-130 | |
| Chlorobenzene | mg/kg | .05 | 0.045 | 90 | 75-114 | |
| Chloroethane | mg/kg | .05 | 0.056 | 112 | 46-129 | |
| Chloroform | mg/kg | .05 | 0.044 | 87 | 71-114 | |
| Chloromethane | mg/kg | .05 | 0.039 | 78 | 39-121 | |
| cis-1,2-Dichloroethene | mg/kg | .05 | 0.047 | 94 | 79-121 | |
| cis-1,3-Dichloropropene | mg/kg | .05 | 0.046 | 91 | 73-132 | |
| Dibromochloromethane | mg/kg | .05 | 0.047 | 95 | 73-123 | |
| Dibromomethane | mg/kg | .05 | 0.046 | 92 | 79-119 | |
| Dichlorodifluoromethane | mg/kg | .05 | 0.050 | 99 | 44-155 | |
| Ethyl methacrylate | mg/kg | .2 | 0.19 | 93 | 74-136 | |
| Ethylbenzene | mg/kg | .05 | 0.047 | 94 | 73-121 | |
| Hexachloro-1,3-butadiene | mg/kg | .05 | 0.046 | 92 | 65-131 | |
| Iodomethane | mg/kg | .1 | .096J | 96 | 44-168 | |
| Isopropylbenzene (Cumene) | mg/kg | .05 | 0.046 | 92 | 72-122 | |
| Methyl-tert-butyl ether | mg/kg | .05 | 0.044 | 87 | 74-121 | |
| Methylene Chloride | mg/kg | .05 | 0.039 | 78 | 61-140 | |
| n-Butylbenzene | mg/kg | .05 | 0.041 | 83 | 64-125 | |
| n-Hexane | mg/kg | .05 | 0.040 | 80 | 69-116 | |
| n-Propylbenzene | mg/kg | .05 | 0.042 | 84 | 70-127 | |

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(317)228-3100

## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1884320

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Naphthalene | mg/kg | .05 | 0.044 | 87 | 65-122 | |
| p-Isopropyltoluene | mg/kg | .05 | 0.042 | 84 | 71-123 | |
| sec-Butylbenzene | mg/kg | .05 | 0.044 | 88 | 72-129 | |
| Styrene | mg/kg | .05 | 0.043 | 87 | 72-127 | |
| tert-Butylbenzene | mg/kg | .05 | 0.045 | 91 | 57-108 | |
| Tetrachloroethene | mg/kg | .05 | 0.044 | 88 | 68-120 | |
| Toluene | mg/kg | .05 | 0.048 | 95 | 71-114 | |
| trans-1,2-Dichloroethene | mg/kg | .05 | 0.044 | 88 | 76-125 | |
| trans-1,3-Dichloropropene | mg/kg | .05 | 0.044 | 87 | 69-133 | |
| trans-1,4-Dichloro-2-butene | mg/kg | .2 | 0.16 | 82 | 58-132 | |
| Trichloroethene | mg/kg | .05 | 0.045 | 90 | 77-115 | |
| Trichlorofluoromethane | mg/kg | .05 | 0.062 | 124 | 61-142 | |
| Vinyl acetate | mg/kg | .2 | 0.21 | 104 | 64-139 | |
| Vinyl chloride | mg/kg | .05 | 0.049 | 99 | 66-139 | |
| Xylene (Total) | mg/kg | .15 | 0.14 | 91 | 71-119 | |
| 4-Bromofluorobenzene (S) | %. | | | 98 | 51-142 | |
| Dibromofluoromethane (S) | %. | | | 101 | 69-136 | |
| Toluene-d8 (S) | %. | | | 97 | 64-150 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 409680 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5030 Low
Associated Lab Samples: 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010

METHOD BLANK: 1884957 Matrix: Solid
Associated Lab Samples: 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,1,1-Trichloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,1,2-Trichloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,1-Dichloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,1-Dichloroethene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,1-Dichloropropene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2,3-Trichlorobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2,3-Trichloropropane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2,4-Trichlorobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2,4-Trimethylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2-Dibromoethane (EDB) | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2-Dichloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,2-Dichloropropane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,3,5-Trimethylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,3-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,3-Dichloropropane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 1,4-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 2,2-Dichloropropane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 2-Butanone (MEK) | mg/kg | ND | 0.025 | 10/10/17 12:55 | |
| 2-Chlorotoluene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 2-Hexanone | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| 4-Chlorotoluene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | ND | 0.025 | 10/10/17 12:55 | |
| Acetone | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Acrolein | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Acrylonitrile | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Benzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Bromobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Bromochloromethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Bromodichloromethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Bromoform | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Bromomethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Carbon disulfide | mg/kg | ND | 0.010 | 10/10/17 12:55 | |
| Carbon tetrachloride | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Chlorobenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Chloroethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Chloroform | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Chloromethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| cis-1,2-Dichloroethene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

METHOD BLANK: 1884957 Matrix: Solid
Associated Lab Samples: 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Dibromochloromethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Dibromomethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Dichlorodifluoromethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Ethyl methacrylate | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Ethylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Hexachloro-1,3-butadiene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Iodomethane | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Isopropylbenzene (Cumene) | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Methyl-tert-butyl ether | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Methylene Chloride | mg/kg | ND | 0.020 | 10/10/17 12:55 | |
| n-Butylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| n-Hexane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| n-Propylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Naphthalene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| p-Isopropyltoluene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| sec-Butylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Styrene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| tert-Butylbenzene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Tetrachloroethene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Toluene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| trans-1,2-Dichloroethene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| trans-1,3-Dichloropropene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| trans-1,4-Dichloro-2-butene | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Trichloroethene | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Trichlorofluoromethane | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Vinyl acetate | mg/kg | ND | 0.10 | 10/10/17 12:55 | |
| Vinyl chloride | mg/kg | ND | 0.0050 | 10/10/17 12:55 | |
| Xylene (Total) | mg/kg | ND | 0.010 | 10/10/17 12:55 | |
| 4-Bromofluorobenzene (S) | %. | 95 | 51-142 | 10/10/17 12:55 | |
| Dibromofluoromethane (S) | %. | 101 | 69-136 | 10/10/17 12:55 | |
| Toluene-d8 (S) | %. | 92 | 64-150 | 10/10/17 12:55 | |

LABORATORY CONTROL SAMPLE: 1884958

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | .05 | 0.045 | 89 | 76-126 | |
| 1,1,1-Trichloroethane | mg/kg | .05 | 0.043 | 86 | 72-126 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | .05 | 0.045 | 90 | 68-125 | |
| 1,1,2-Trichloroethane | mg/kg | .05 | 0.043 | 85 | 72-124 | |
| 1,1-Dichloroethane | mg/kg | .05 | 0.041 | 83 | 78-117 | |
| 1,1-Dichloroethene | mg/kg | .05 | 0.038 | 75 | 70-132 | |
| 1,1-Dichloropropene | mg/kg | .05 | 0.041 | 83 | 79-121 | |
| 1,2,3-Trichlorobenzene | mg/kg | .05 | 0.047 | 93 | 65-117 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1884958

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,3-Trichloropropane | mg/kg | .05 | 0.045 | 90 | 78-128 | |
| 1,2,4-Trichlorobenzene | mg/kg | .05 | 0.044 | 88 | 58-121 | |
| 1,2,4-Trimethylbenzene | mg/kg | .05 | 0.042 | 84 | 70-118 | |
| 1,2-Dibromoethane (EDB) | mg/kg | .05 | 0.041 | 82 | 76-127 | |
| 1,2-Dichlorobenzene | mg/kg | .05 | 0.045 | 89 | 72-114 | |
| 1,2-Dichloroethane | mg/kg | .05 | 0.039 | 79 | 70-119 | |
| 1,2-Dichloropropane | mg/kg | .05 | 0.040 | 79 | 76-122 | |
| 1,3,5-Trimethylbenzene | mg/kg | .05 | 0.040 | 81 | 71-122 | |
| 1,3-Dichlorobenzene | mg/kg | .05 | 0.041 | 83 | 70-115 | |
| 1,3-Dichloropropane | mg/kg | .05 | 0.043 | 85 | 76-130 | |
| 1,4-Dichlorobenzene | mg/kg | .05 | 0.042 | 84 | 68-113 | |
| 2,2-Dichloropropane | mg/kg | .05 | 0.044 | 89 | 66-125 | |
| 2-Butanone (MEK) | mg/kg | .25 | 0.26 | 102 | 56-161 | |
| 2-Chlorotoluene | mg/kg | .05 | 0.041 | 83 | 69-122 | |
| 2-Hexanone | mg/kg | .25 | 0.23 | 91 | 67-141 | |
| 4-Chlorotoluene | mg/kg | .05 | 0.042 | 85 | 70-118 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | .25 | 0.22 | 86 | 72-125 | |
| Acetone | mg/kg | .25 | 0.22 | 89 | 24-194 | |
| Acrolein | mg/kg | 1 | 1.4 | 140 | 23-200 | |
| Acrylonitrile | mg/kg | .2 | 0.15 | 76 | 70-122 | |
| Benzene | mg/kg | .05 | 0.040 | 80 | 75-119 | |
| Bromobenzene | mg/kg | .05 | 0.040 | 81 | 73-119 | |
| Bromochloromethane | mg/kg | .05 | 0.041 | 83 | 73-117 | |
| Bromodichloromethane | mg/kg | .05 | 0.041 | 81 | 73-120 | |
| Bromoform | mg/kg | .05 | 0.042 | 85 | 65-121 | |
| Bromomethane | mg/kg | .05 | 0.046 | 91 | 28-161 | |
| Carbon disulfide | mg/kg | .05 | 0.035 | 70 | 64-115 | |
| Carbon tetrachloride | mg/kg | .05 | 0.043 | 86 | 74-130 | |
| Chlorobenzene | mg/kg | .05 | 0.040 | 79 | 75-114 | |
| Chloroethane | mg/kg | .05 | 0.047 | 93 | 46-129 | |
| Chloroform | mg/kg | .05 | 0.042 | 84 | 71-114 | |
| Chloromethane | mg/kg | .05 | 0.041 | 81 | 39-121 | |
| cis-1,2-Dichloroethene | mg/kg | .05 | 0.041 | 82 | 79-121 | |
| cis-1,3-Dichloropropene | mg/kg | .05 | 0.044 | 88 | 73-132 | |
| Dibromochloromethane | mg/kg | .05 | 0.044 | 87 | 73-123 | |
| Dibromomethane | mg/kg | .05 | 0.043 | 86 | 79-119 | |
| Dichlorodifluoromethane | mg/kg | .05 | 0.040 | 79 | 44-155 | |
| Ethyl methacrylate | mg/kg | .2 | 0.16 | 82 | 74-136 | |
| Ethylbenzene | mg/kg | .05 | 0.041 | 83 | 73-121 | |
| Hexachloro-1,3-butadiene | mg/kg | .05 | 0.046 | 92 | 65-131 | |
| Iodomethane | mg/kg | .1 | .087J | 87 | 44-168 | |
| Isopropylbenzene (Cumene) | mg/kg | .05 | 0.042 | 84 | 72-122 | |
| Methyl-tert-butyl ether | mg/kg | .05 | 0.038 | 75 | 74-121 | |
| Methylene Chloride | mg/kg | .05 | 0.028 | 56 | 61-140 | L2 |
| n-Butylbenzene | mg/kg | .05 | 0.042 | 85 | 64-125 | |
| n-Hexane | mg/kg | .05 | 0.038 | 76 | 69-116 | |
| n-Propylbenzene | mg/kg | .05 | 0.043 | 87 | 70-127 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1884958

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Naphthalene | mg/kg | .05 | 0.042 | 85 | 65-122 | |
| p-Isopropyltoluene | mg/kg | .05 | 0.040 | 79 | 71-123 | |
| sec-Butylbenzene | mg/kg | .05 | 0.043 | 86 | 72-129 | |
| Styrene | mg/kg | .05 | 0.040 | 80 | 72-127 | |
| tert-Butylbenzene | mg/kg | .05 | 0.043 | 85 | 57-108 | |
| Tetrachloroethene | mg/kg | .05 | 0.041 | 83 | 68-120 | |
| Toluene | mg/kg | .05 | 0.041 | 83 | 71-114 | |
| trans-1,2-Dichloroethene | mg/kg | .05 | 0.039 | 79 | 76-125 | |
| trans-1,3-Dichloropropene | mg/kg | .05 | 0.043 | 87 | 69-133 | |
| trans-1,4-Dichloro-2-butene | mg/kg | .2 | 0.18 | 92 | 58-132 | |
| Trichloroethene | mg/kg | .05 | 0.041 | 82 | 77-115 | |
| Trichlorofluoromethane | mg/kg | .05 | 0.054 | 108 | 61-142 | |
| Vinyl acetate | mg/kg | .2 | 0.19 | 97 | 64-139 | |
| Vinyl chloride | mg/kg | .05 | 0.048 | 95 | 66-139 | |
| Xylene (Total) | mg/kg | .15 | 0.12 | 77 | 71-119 | |
| 4-Bromofluorobenzene (S) | %. | | | 94 | 51-142 | |
| Dibromofluoromethane (S) | %. | | | 98 | 69-136 | |
| Toluene-d8 (S) | %. | | | 94 | 64-150 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1884959 1884960

| Parameter | Units | 50181016009 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | ND | .061 | .061 | 0.045 | 0.047 | 74 | 77 | 27-152 | 3 | 20 | |
| 1,1,1-Trichloroethane | mg/kg | ND | .061 | .061 | 0.044 | 0.044 | 73 | 72 | 31-146 | 1 | 20 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | ND | .061 | .061 | 0.044 | 0.047 | 72 | 77 | 22-171 | 6 | 20 | |
| 1,1,2-Trichloroethane | mg/kg | ND | .061 | .061 | 0.042 | 0.042 | 69 | 69 | 33-156 | 0 | 20 | |
| 1,1-Dichloroethane | mg/kg | ND | .061 | .061 | 0.041 | 0.042 | 68 | 69 | 54-142 | 1 | 20 | |
| 1,1-Dichloroethene | mg/kg | ND | .061 | .061 | 0.036 | 0.036 | 58 | 59 | 53-154 | 0 | 20 | |
| 1,1-Dichloropropene | mg/kg | ND | .061 | .061 | 0.040 | 0.039 | 65 | 65 | 40-146 | 1 | 20 | |
| 1,2,3-Trichlorobenzene | mg/kg | ND | .061 | .061 | 0.031 | 0.032 | 50 | 53 | 10-124 | 6 | 20 | |
| 1,2,3-Trichloropropane | mg/kg | ND | .061 | .061 | 0.047 | 0.053 | 78 | 87 | 39-177 | 12 | 20 | |
| 1,2,4-Trichlorobenzene | mg/kg | ND | .061 | .061 | 0.031 | 0.031 | 52 | 51 | 10-126 | 1 | 20 | |
| 1,2,4-Trimethylbenzene | mg/kg | ND | .061 | .061 | 0.042 | 0.041 | 70 | 67 | 10-162 | 4 | 20 | |
| 1,2-Dibromoethane (EDB) | mg/kg | ND | .061 | .061 | 0.039 | 0.041 | 65 | 67 | 28-155 | 4 | 20 | |
| 1,2-Dichlorobenzene | mg/kg | ND | .061 | .061 | 0.039 | 0.039 | 64 | 65 | 10-142 | 1 | 20 | |
| 1,2-Dichloroethane | mg/kg | ND | .061 | .061 | 0.039 | 0.042 | 64 | 70 | 45-133 | 9 | 20 | |
| 1,2-Dichloropropane | mg/kg | ND | .061 | .061 | 0.042 | 0.043 | 69 | 70 | 49-140 | 3 | 20 | |
| 1,3,5-Trimethylbenzene | mg/kg | ND | .061 | .061 | 0.044 | 0.042 | 72 | 69 | 10-151 | 5 | 20 | |
| 1,3-Dichlorobenzene | mg/kg | ND | .061 | .061 | 0.037 | 0.038 | 61 | 62 | 10-138 | 1 | 20 | |
| 1,3-Dichloropropane | mg/kg | ND | .061 | .061 | 0.042 | 0.043 | 69 | 71 | 37-158 | 3 | 20 | |
| 1,4-Dichlorobenzene | mg/kg | ND | .061 | .061 | 0.038 | 0.037 | 63 | 60 | 10-137 | 3 | 20 | |
| 2,2-Dichloropropane | mg/kg | ND | .061 | .061 | 0.045 | 0.044 | 74 | 72 | 43-146 | 3 | 20 | |
| 2-Butanone (MEK) | mg/kg | ND | .3 | .3 | 0.28 | 0.31 | 93 | 104 | 25-197 | 10 | 20 | |
| 2-Chlorotoluene | mg/kg | ND | .061 | .061 | 0.043 | 0.043 | 70 | 70 | 10-171 | 0 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

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(317)228-3100

## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1884959 1884960

| Parameter | Units | 50181016009 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Hexanone | mg/kg | ND | .3 | .3 | 0.24 | 0.25 | 80 | 83 | 21-184 | 3 | 20 | |
| 4-Chlorotoluene | mg/kg | ND | .061 | .061 | 0.043 | 0.042 | 71 | 69 | 10-152 | 3 | 20 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | ND | .3 | .3 | 0.22 | 0.23 | 71 | 76 | 31-169 | 7 | 20 | |
| Acetone | mg/kg | ND | .3 | .3 | 0.41 | 0.43 | 135 | 143 | 22-200 | 6 | 20 | |
| Acrolein | mg/kg | ND | 1.2 | 1.2 | 1.4 | 1.5 | 116 | 124 | 10-200 | 6 | 20 | |
| Acrylonitrile | mg/kg | ND | .24 | .24 | 0.14 | 0.14 | 58 | 58 | 20-165 | 1 | 20 | |
| Benzene | mg/kg | ND | .061 | .061 | 0.041 | 0.040 | 67 | 67 | 43-141 | 1 | 20 | |
| Bromobenzene | mg/kg | ND | .061 | .061 | 0.048 | 0.037 | 79 | 61 | 10-143 | 24 | 20 | R1 |
| Bromochloromethane | mg/kg | ND | .061 | .061 | 0.042 | 0.045 | 69 | 75 | 52-135 | 7 | 20 | |
| Bromodichloromethane | mg/kg | ND | .061 | .061 | 0.041 | 0.041 | 67 | 67 | 27-145 | 1 | 20 | |
| Bromoform | mg/kg | ND | .061 | .061 | 0.040 | 0.042 | 67 | 69 | 19-154 | 3 | 20 | |
| Bromomethane | mg/kg | ND | .061 | .061 | 0.038 | 0.037 | 63 | 61 | 14-170 | 3 | 20 | |
| Carbon disulfide | mg/kg | ND | .061 | .061 | 0.025 | 0.024 | 42 | 39 | 28-137 | 6 | 20 | |
| Carbon tetrachloride | mg/kg | ND | .061 | .061 | 0.043 | 0.042 | 70 | 69 | 41-150 | 2 | 20 | |
| Chlorobenzene | mg/kg | ND | .061 | .061 | 0.039 | 0.040 | 64 | 65 | 20-141 | 1 | 20 | |
| Chloroethane | mg/kg | ND | .061 | .061 | 0.043 | 0.040 | 70 | 65 | 34-147 | 7 | 20 | |
| Chloroform | mg/kg | ND | .061 | .061 | 0.043 | 0.044 | 70 | 72 | 49-134 | 3 | 20 | |
| Chloromethane | mg/kg | ND | .061 | .061 | 0.031 | 0.031 | 51 | 51 | 27-136 | 0 | 20 | |
| cis-1,2-Dichloroethene | mg/kg | ND | .061 | .061 | 0.041 | 0.041 | 67 | 67 | 50-144 | 0 | 20 | |
| cis-1,3-Dichloropropene | mg/kg | ND | .061 | .061 | 0.042 | 0.042 | 68 | 69 | 22-161 | 0 | 20 | |
| Dibromochloromethane | mg/kg | ND | .061 | .061 | 0.042 | 0.042 | 69 | 70 | 25-146 | 1 | 20 | |
| Dibromomethane | mg/kg | ND | .061 | .061 | 0.041 | 0.044 | 67 | 72 | 39-142 | 7 | 20 | |
| Dichlorodifluoromethane | mg/kg | ND | .061 | .061 | 0.019 | 0.018 | 30 | 29 | 20-186 | 5 | 20 | |
| Ethyl methacrylate | mg/kg | ND | .24 | .24 | ND | ND | 25 | 22 | 10-170 | | 20 | |
| Ethylbenzene | mg/kg | ND | .061 | .061 | 0.040 | 0.041 | 66 | 68 | 21-149 | 3 | 20 | |
| Hexachloro-1,3-butadiene | mg/kg | ND | .061 | .061 | 0.038 | 0.035 | 62 | 57 | 10-152 | 9 | 20 | |
| Iodomethane | mg/kg | ND | .12 | .12 | .07J | .072J | 58 | 59 | 10-189 | | 20 | |
| Isopropylbenzene (Cumene) | mg/kg | ND | .061 | .061 | 0.042 | 0.042 | 68 | 69 | 15-152 | 0 | 20 | |
| Methyl-tert-butyl ether | mg/kg | ND | .061 | .061 | 0.043 | 0.043 | 70 | 71 | 60-141 | 2 | 20 | |
| Methylene Chloride | mg/kg | ND | .061 | .061 | 0.036 | 0.035 | 59 | 58 | 41-145 | 2 | 20 | |
| n-Butylbenzene | mg/kg | ND | .061 | .061 | 0.038 | 0.038 | 63 | 62 | 10-154 | 1 | 20 | |
| n-Hexane | mg/kg | ND | .061 | .061 | 0.029 | 0.029 | 48 | 47 | 23-146 | 2 | 20 | |
| n-Propylbenzene | mg/kg | ND | .061 | .061 | 0.044 | 0.044 | 73 | 73 | 10-183 | 0 | 20 | |
| Naphthalene | mg/kg | ND | .061 | .061 | 0.031 | 0.033 | 51 | 54 | 10-134 | 6 | 20 | |
| p-Isopropyltoluene | mg/kg | ND | .061 | .061 | 0.040 | 0.039 | 66 | 64 | 10-183 | 3 | 20 | |
| sec-Butylbenzene | mg/kg | ND | .061 | .061 | 0.045 | 0.043 | 74 | 70 | 10-184 | 5 | 20 | |
| Styrene | mg/kg | ND | .061 | .061 | 0.039 | 0.037 | 65 | 61 | 10-154 | 5 | 20 | |
| tert-Butylbenzene | mg/kg | ND | .061 | .061 | 0.046 | 0.044 | 76 | 72 | 10-173 | 6 | 20 | |
| Tetrachloroethene | mg/kg | ND | .061 | .061 | 0.043 | 0.040 | 71 | 66 | 21-155 | 7 | 20 | |
| Toluene | mg/kg | ND | .061 | .061 | 0.041 | 0.040 | 67 | 65 | 30-146 | 3 | 20 | |
| trans-1,2-Dichloroethene | mg/kg | ND | .061 | .061 | 0.039 | 0.038 | 64 | 62 | 50-146 | 3 | 20 | |
| trans-1,3-Dichloropropene | mg/kg | ND | .061 | .061 | 0.040 | 0.042 | 66 | 68 | 15-157 | 3 | 20 | |
| trans-1,4-Dichloro-2-butene | mg/kg | ND | .24 | .24 | 0.14 | 0.16 | 60 | 65 | 10-155 | 8 | 20 | |
| Trichloroethene | mg/kg | ND | .061 | .061 | 0.040 | 0.041 | 66 | 68 | 25-162 | 2 | 20 | |
| Trichlorofluoromethane | mg/kg | ND | .061 | .061 | 0.045 | 0.045 | 74 | 73 | 42-164 | 1 | 20 | |

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(317)228-3100

## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1884959 1884960

| Parameter | Units | 50181016009 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vinyl acetate | mg/kg | ND | .24 | .24 | ND | ND | 2 | 2 | 10-173 | | 20 | M1 |
| Vinyl chloride | mg/kg | ND | .061 | .061 | 0.036 | 0.035 | 59 | 57 | 51-160 | 3 | 20 | |
| Xylene (Total) | mg/kg | ND | .18 | .18 | 0.12 | 0.12 | 65 | 63 | 15-151 | 4 | 20 | |
| 4-Bromofluorobenzene (S) | %. | | | | | | 89 | 90 | 51-142 | | | |
| Dibromofluoromethane (S) | %. | | | | | | 96 | 98 | 69-136 | | | |
| Toluene-d8 (S) | %. | | | | | | 98 | 95 | 64-150 | | | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 409862 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5030 Low
Associated Lab Samples: 50181016011

METHOD BLANK: 1885694 Matrix: Solid
Associated Lab Samples: 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,1,1-Trichloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,1,2-Trichloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,1-Dichloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,1-Dichloroethene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,1-Dichloropropene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2,3-Trichlorobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2,3-Trichloropropane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2,4-Trichlorobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2,4-Trimethylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2-Dibromoethane (EDB) | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2-Dichloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,2-Dichloropropane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,3,5-Trimethylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,3-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,3-Dichloropropane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 1,4-Dichlorobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 2,2-Dichloropropane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 2-Butanone (MEK) | mg/kg | ND | 0.025 | 10/11/17 20:31 | |
| 2-Chlorotoluene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 2-Hexanone | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| 4-Chlorotoluene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | ND | 0.025 | 10/11/17 20:31 | |
| Acetone | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Acrolein | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Acrylonitrile | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Benzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Bromobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Bromochloromethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Bromodichloromethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Bromoform | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Bromomethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Carbon disulfide | mg/kg | ND | 0.010 | 10/11/17 20:31 | |
| Carbon tetrachloride | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Chlorobenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Chloroethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Chloroform | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Chloromethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| cis-1,2-Dichloroethene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

METHOD BLANK: 1885694 Matrix: Solid
Associated Lab Samples: 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Dibromochloromethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Dibromomethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Dichlorodifluoromethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Ethyl methacrylate | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Ethylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Hexachloro-1,3-butadiene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Iodomethane | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Isopropylbenzene (Cumene) | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Methyl-tert-butyl ether | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Methylene Chloride | mg/kg | ND | 0.020 | 10/11/17 20:31 | |
| n-Butylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| n-Hexane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| n-Propylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Naphthalene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| p-Isopropyltoluene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| sec-Butylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Styrene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| tert-Butylbenzene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Tetrachloroethene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Toluene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| trans-1,2-Dichloroethene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| trans-1,3-Dichloropropene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| trans-1,4-Dichloro-2-butene | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Trichloroethene | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Trichlorofluoromethane | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Vinyl acetate | mg/kg | ND | 0.10 | 10/11/17 20:31 | |
| Vinyl chloride | mg/kg | ND | 0.0050 | 10/11/17 20:31 | |
| Xylene (Total) | mg/kg | ND | 0.010 | 10/11/17 20:31 | |
| 4-Bromofluorobenzene (S) | %. | 99 | 51-142 | 10/11/17 20:31 | |
| Dibromofluoromethane (S) | %. | 106 | 69-136 | 10/11/17 20:31 | |
| Toluene-d8 (S) | %. | 97 | 64-150 | 10/11/17 20:31 | |

LABORATORY CONTROL SAMPLE: 1885695

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | mg/kg | .05 | 0.052 | 104 | 76-126 | |
| 1,1,1-Trichloroethane | mg/kg | .05 | 0.059 | 119 | 72-126 | |
| 1,1,2,2-Tetrachloroethane | mg/kg | .05 | 0.050 | 100 | 68-125 | |
| 1,1,2-Trichloroethane | mg/kg | .05 | 0.050 | 100 | 72-124 | |
| 1,1-Dichloroethane | mg/kg | .05 | 0.067 | 134 | 78-117 | L1 |
| 1,1-Dichloroethene | mg/kg | .05 | 0.050 | 101 | 70-132 | |
| 1,1-Dichloropropene | mg/kg | .05 | 0.052 | 104 | 79-121 | |
| 1,2,3-Trichlorobenzene | mg/kg | .05 | 0.045 | 91 | 65-117 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1885695

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,3-Trichloropropane | mg/kg | .05 | 0.051 | 103 | 78-128 | |
| 1,2,4-Trichlorobenzene | mg/kg | .05 | 0.044 | 89 | 58-121 | |
| 1,2,4-Trimethylbenzene | mg/kg | .05 | 0.046 | 92 | 70-118 | |
| 1,2-Dibromoethane (EDB) | mg/kg | .05 | 0.051 | 101 | 76-127 | |
| 1,2-Dichlorobenzene | mg/kg | .05 | 0.048 | 96 | 72-114 | |
| 1,2-Dichloroethane | mg/kg | .05 | 0.053 | 106 | 70-119 | |
| 1,2-Dichloropropane | mg/kg | .05 | 0.053 | 106 | 76-122 | |
| 1,3,5-Trimethylbenzene | mg/kg | .05 | 0.048 | 96 | 71-122 | |
| 1,3-Dichlorobenzene | mg/kg | .05 | 0.047 | 93 | 70-115 | |
| 1,3-Dichloropropane | mg/kg | .05 | 0.055 | 111 | 76-130 | |
| 1,4-Dichlorobenzene | mg/kg | .05 | 0.047 | 94 | 68-113 | |
| 2,2-Dichloropropane | mg/kg | .05 | 0.065 | 130 | 66-125 | L1 |
| 2-Butanone (MEK) | mg/kg | .25 | 0.39 | 155 | 56-161 | |
| 2-Chlorotoluene | mg/kg | .05 | 0.050 | 100 | 69-122 | |
| 2-Hexanone | mg/kg | .25 | 0.27 | 107 | 67-141 | |
| 4-Chlorotoluene | mg/kg | .05 | 0.051 | 103 | 70-118 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | .25 | 0.26 | 105 | 72-125 | |
| Acetone | mg/kg | .25 | 0.27 | 109 | 24-194 | |
| Acrolein | mg/kg | 1 | 1.4 | 139 | 23-200 | |
| Acrylonitrile | mg/kg | .2 | 0.21 | 106 | 70-122 | |
| Benzene | mg/kg | .05 | 0.048 | 97 | 75-119 | |
| Bromobenzene | mg/kg | .05 | 0.046 | 93 | 73-119 | |
| Bromochloromethane | mg/kg | .05 | 0.070 | 140 | 73-117 | L1 |
| Bromodichloromethane | mg/kg | .05 | 0.049 | 99 | 73-120 | |
| Bromoform | mg/kg | .05 | 0.051 | 102 | 65-121 | |
| Bromomethane | mg/kg | .05 | 0.044 | 88 | 28-161 | |
| Carbon disulfide | mg/kg | .05 | 0.051 | 102 | 64-115 | |
| Carbon tetrachloride | mg/kg | .05 | 0.051 | 103 | 74-130 | |
| Chlorobenzene | mg/kg | .05 | 0.048 | 96 | 75-114 | |
| Chloroethane | mg/kg | .05 | 0.046 | 92 | 46-129 | |
| Chloroform | mg/kg | .05 | 0.062 | 124 | 71-114 | L1 |
| Chloromethane | mg/kg | .05 | 0.042 | 85 | 39-121 | |
| cis-1,2-Dichloroethene | mg/kg | .05 | 0.063 | 126 | 79-121 | L1 |
| cis-1,3-Dichloropropene | mg/kg | .05 | 0.053 | 107 | 73-132 | |
| Dibromochloromethane | mg/kg | .05 | 0.051 | 102 | 73-123 | |
| Dibromomethane | mg/kg | .05 | 0.049 | 98 | 79-119 | |
| Dichlorodifluoromethane | mg/kg | .05 | 0.041 | 82 | 44-155 | |
| Ethyl methacrylate | mg/kg | .2 | 0.21 | 106 | 74-136 | |
| Ethylbenzene | mg/kg | .05 | 0.047 | 94 | 73-121 | |
| Hexachloro-1,3-butadiene | mg/kg | .05 | 0.045 | 90 | 65-131 | |
| Iodomethane | mg/kg | .1 | .088J | 88 | 44-168 | |
| Isopropylbenzene (Cumene) | mg/kg | .05 | 0.049 | 98 | 72-122 | |
| Methyl-tert-butyl ether | mg/kg | .05 | 0.052 | 104 | 74-121 | |
| Methylene Chloride | mg/kg | .05 | 0.049 | 98 | 61-140 | |
| n-Butylbenzene | mg/kg | .05 | 0.048 | 95 | 64-125 | |
| n-Hexane | mg/kg | .05 | 0.055 | 111 | 69-116 | |
| n-Propylbenzene | mg/kg | .05 | 0.049 | 98 | 70-127 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1885695

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Naphthalene | mg/kg | .05 | 0.046 | 93 | 65-122 | |
| p-Isopropyltoluene | mg/kg | .05 | 0.047 | 93 | 71-123 | |
| sec-Butylbenzene | mg/kg | .05 | 0.049 | 98 | 72-129 | |
| Styrene | mg/kg | .05 | 0.048 | 95 | 72-127 | |
| tert-Butylbenzene | mg/kg | .05 | 0.050 | 100 | 57-108 | |
| Tetrachloroethene | mg/kg | .05 | 0.048 | 95 | 68-120 | |
| Toluene | mg/kg | .05 | 0.049 | 98 | 71-114 | |
| trans-1,2-Dichloroethene | mg/kg | .05 | 0.055 | 109 | 76-125 | |
| trans-1,3-Dichloropropene | mg/kg | .05 | 0.052 | 104 | 69-133 | |
| trans-1,4-Dichloro-2-butene | mg/kg | .2 | 0.18 | 89 | 58-132 | |
| Trichloroethene | mg/kg | .05 | 0.050 | 99 | 77-115 | |
| Trichlorofluoromethane | mg/kg | .05 | 0.047 | 94 | 61-142 | |
| Vinyl acetate | mg/kg | .2 | 0.32 | 160 | 64-139 | L1 |
| Vinyl chloride | mg/kg | .05 | 0.047 | 93 | 66-139 | |
| Xylene (Total) | mg/kg | .15 | 0.14 | 93 | 71-119 | |
| 4-Bromofluorobenzene (S) | %. | | | 102 | 51-142 | |
| Dibromofluoromethane (S) | %. | | | 114 | 69-136 | |
| Toluene-d8 (S) | %. | | | 103 | 64-150 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 500212 Analysis Method: ASA 15-5 mod
QC Batch Method: ASA 15-5 mod Analysis Description: PSA Percent Soil,Silt,Clay
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

LABORATORY CONTROL SAMPLE: 2719413

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Clay | % (w/w) | 18 | 15.0 | 83 | 50-150 | |
| Percent Sand | % (w/w) | 24.6 | 25.1 | 102 | 46-154 | |
| Percent Silt | % (w/w) | 56.9 | 59.9 | 105 | 84-116 | |

SAMPLE DUPLICATE: 2719414

| Parameter | Units | 10404649001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Clay | % (w/w) | 25.0 | 25.0 | 0 | 20 | |
| Percent Sand | % (w/w) | 40.0 | 37.6 | 6 | 20 | |
| Percent Silt | % (w/w) | 35.0 | 37.4 | 7 | 20 | |
| Texture | | LOAM | LOAM | | | |

SAMPLE DUPLICATE: 2721400

| Parameter | Units | 50181016009 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Clay | % (w/w) | 5.0 | 5.0 | 0 | 20 | |
| Percent Sand | % (w/w) | 95.0 | 97.5 | 3 | 20 | |
| Percent Silt | % (w/w) | ND | ND | | 20 | |
| Texture | | SAND | SAND | | | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 412323 Analysis Method: EPA 8081
QC Batch Method: EPA 3546 Analysis Description: 8081 GCS Pesticides
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

METHOD BLANK: 1897847 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 4,4'-DDD | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| 4,4'-DDE | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| 4,4'-DDT | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| Aldrin | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| alpha-BHC | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| alpha-Chlordane | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| beta-BHC | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| Chlordane (Technical) | mg/kg | ND | 0.049 | 10/30/17 12:12 | |
| delta-BHC | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| Dieldrin | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| Endosulfan I | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| Endosulfan II | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| Endosulfan sulfate | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| Endrin | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| Endrin aldehyde | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| Endrin ketone | mg/kg | ND | 0.0049 | 10/30/17 12:12 | |
| gamma-BHC (Lindane) | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| gamma-Chlordane | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| Heptachlor | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| Heptachlor epoxide | mg/kg | ND | 0.0025 | 10/30/17 12:12 | |
| Methoxychlor | mg/kg | ND | 0.025 | 10/30/17 12:12 | |
| Toxaphene | mg/kg | ND | 0.049 | 10/30/17 12:12 | |
| Decachlorobiphenyl (S) | %. | 60 | 22-126 | 10/30/17 12:12 | |

LABORATORY CONTROL SAMPLE: 1897848

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 4,4'-DDD | mg/kg | .02 | 0.013 | 67 | 46-153 | |
| 4,4'-DDE | mg/kg | .02 | 0.013 | 66 | 46-153 | |
| 4,4'-DDT | mg/kg | .02 | 0.013 | 67 | 31-159 | |
| Aldrin | mg/kg | .01 | 0.0063 | 63 | 41-139 | |
| alpha-BHC | mg/kg | .01 | 0.0063 | 63 | 42-140 | |
| alpha-Chlordane | mg/kg | .01 | 0.0065 | 66 | 47-144 | |
| beta-BHC | mg/kg | .01 | 0.0064 | 65 | 48-145 | |
| delta-BHC | mg/kg | .01 | 0.0059 | 59 | 17-138 | |
| Dieldrin | mg/kg | .02 | 0.013 | 66 | 45-151 | |
| Endosulfan I | mg/kg | .01 | 0.0066 | 67 | 47-145 | |
| Endosulfan II | mg/kg | .02 | 0.013 | 66 | 48-146 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1897848

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Endosulfan sulfate | mg/kg | .02 | 0.013 | 64 | 46-136 | |
| Endrin | mg/kg | .02 | 0.013 | 66 | 47-145 | |
| Endrin aldehyde | mg/kg | .02 | 0.013 | 63 | 44-140 | |
| Endrin ketone | mg/kg | .02 | 0.013 | 67 | 41-148 | |
| gamma-BHC (Lindane) | mg/kg | .01 | 0.0064 | 64 | 44-141 | |
| gamma-Chlordane | mg/kg | .01 | 0.0067 | 67 | 45-146 | |
| Heptachlor | mg/kg | .01 | 0.0065 | 65 | 44-141 | |
| Heptachlor epoxide | mg/kg | .01 | 0.0065 | 66 | 46-148 | |
| Methoxychlor | mg/kg | .1 | 0.068 | 68 | 38-148 | |
| Decachlorobiphenyl (S) | %. | | | 62 | 22-126 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1897849 1897850

| Parameter | Units | 50181016001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,4'-DDD | mg/kg | ND | .025 | .025 | .019J | .021J | 77 | 84 | 14-161 | | 20 | |
| 4,4'-DDE | mg/kg | ND | .025 | .025 | .021J | .024J | 84 | 93 | 22-162 | | 20 | |
| 4,4'-DDT | mg/kg | ND | .025 | .025 | ND | .021J | 77 | 84 | 10-196 | | 20 | |
| Aldrin | mg/kg | ND | .012 | .013 | .0098J | .011J | 79 | 87 | 17-155 | | 20 | |
| alpha-BHC | mg/kg | ND | .012 | .013 | .0093J | .01J | 75 | 80 | 17-159 | | 20 | |
| alpha-Chlordane | mg/kg | ND | .012 | .013 | ND | ND | 88 | 95 | 13-159 | | 20 | |
| beta-BHC | mg/kg | ND | .012 | .013 | ND | .013J | 81 | 99 | 15-176 | | 20 | |
| delta-BHC | mg/kg | ND | .012 | .013 | ND | .0097J | 68 | 77 | 10-151 | | 20 | |
| Dieldrin | mg/kg | ND | .025 | .025 | .02J | .023J | 82 | 89 | 20-159 | | 20 | |
| Endosulfan I | mg/kg | ND | .012 | .013 | .012J | .012J | 93 | 98 | 10-164 | | 20 | |
| Endosulfan II | mg/kg | ND | .025 | .025 | .021J | .022J | 83 | 89 | 10-162 | | 20 | |
| Endosulfan sulfate | mg/kg | ND | .025 | .025 | .021J | .023J | 86 | 90 | 10-164 | | 20 | |
| Endrin | mg/kg | ND | .025 | .025 | .02J | .022J | 81 | 88 | 15-153 | | 20 | |
| Endrin aldehyde | mg/kg | ND | .025 | .025 | ND | ND | 79 | 77 | 10-155 | | 20 | |
| Endrin ketone | mg/kg | ND | .025 | .025 | .019J | .021J | 78 | 84 | 10-170 | | 20 | |
| gamma-BHC (Lindane) | mg/kg | ND | .012 | .013 | .0099J | .011J | 79 | 89 | 10-174 | | 20 | |
| gamma-Chlordane | mg/kg | ND | .012 | .013 | .01J | .011J | 83 | 88 | 19-157 | | 20 | |
| Heptachlor | mg/kg | ND | .012 | .013 | ND | ND | 82 | 89 | 16-167 | | 20 | |
| Heptachlor epoxide | mg/kg | ND | .012 | .013 | .011J | .012J | 85 | 93 | 18-160 | | 20 | |
| Methoxychlor | mg/kg | ND | .12 | .13 | .11J | .12J | 88 | 94 | 10-164 | | 20 | |
| Decachlorobiphenyl (S) | %. | | | | | | 80 | 86 | 22-126 | | | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 412155 Analysis Method: EPA 8082
QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

METHOD BLANK: 1896540 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| PCB-1016 (Aroclor 1016) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| PCB-1221 (Aroclor 1221) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| PCB-1232 (Aroclor 1232) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| PCB-1242 (Aroclor 1242) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| PCB-1248 (Aroclor 1248) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| PCB-1254 (Aroclor 1254) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| PCB-1260 (Aroclor 1260) | mg/kg | ND | 0.10 | 10/30/17 21:53 | |
| Tetrachloro-m-xylene (S) | %. | 96 | 28-111 | 10/30/17 21:53 | |

LABORATORY CONTROL SAMPLE: 1896541

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| PCB-1016 (Aroclor 1016) | mg/kg | .17 | 0.17 | 102 | 37-112 | |
| PCB-1260 (Aroclor 1260) | mg/kg | .17 | 0.18 | 107 | 35-119 | |
| Tetrachloro-m-xylene (S) | %. | | | 95 | 28-111 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1896542 1896543

| Parameter | Units | 50181016006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 (Aroclor 1016) | mg/kg | ND | .21 | .21 | 0.13 | 0.14 | 61 | 65 | 10-132 | 6 | 20 | |
| PCB-1260 (Aroclor 1260) | mg/kg | ND | .21 | .21 | ND | 0.13 | 60 | 61 | 10-146 | | 20 | |
| Tetrachloro-m-xylene (S) | %. | | | | | | 68 | 75 | 28-111 | | | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408517 Analysis Method: EPA 8270
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave Short Spike
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

METHOD BLANK: 1879820 Matrix: Solid
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1-Methylnaphthalene | mg/kg | ND | 0.33 | 10/03/17 17:11 | N2 |
| 2,4,5-Trichlorophenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2,4,6-Trichlorophenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2,4-Dichlorophenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2,4-Dimethylphenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2,4-Dinitrophenol | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| 2,4-Dinitrotoluene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2,6-Dinitrotoluene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2-Chloronaphthalene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2-Chlorophenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2-Methylnaphthalene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2-Methylphenol(o-Cresol) | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2-Nitroaniline | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| 2-Nitrophenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | ND | 0.66 | 10/03/17 17:11 | |
| 3,3'-Dichlorobenzidine | mg/kg | ND | 0.66 | 10/03/17 17:11 | |
| 3-Nitroaniline | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| 4,6-Dinitro-2-methylphenol | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| 4-Bromophenylphenyl ether | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 4-Chloro-3-methylphenol | mg/kg | ND | 0.66 | 10/03/17 17:11 | |
| 4-Chloroaniline | mg/kg | ND | 0.66 | 10/03/17 17:11 | |
| 4-Chlorophenylphenyl ether | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 4-Nitroaniline | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| 4-Nitrophenol | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| Acenaphthene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Acenaphthylene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Anthracene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Benzo(a)anthracene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Benzo(a)pyrene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Benzo(b)fluoranthene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Benzo(g,h,i)perylene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Benzo(k)fluoranthene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Benzyl alcohol | mg/kg | ND | 0.66 | 10/03/17 17:11 | |
| bis(2-Chloroethoxy)methane | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| bis(2-Chloroethyl) ether | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| bis(2-Ethylhexyl)phthalate | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| bis(2chloro1methylethyl) ether | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Butylbenzylphthalate | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Chrysene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Di-n-butylphthalate | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Di-n-octylphthalate | mg/kg | ND | 0.33 | 10/03/17 17:11 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

METHOD BLANK: 1879820 Matrix: Solid
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibenz(a,h)anthracene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Dibenzofuran | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Diethylphthalate | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Dimethylphthalate | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Fluoranthene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Fluorene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Hexachloro-1,3-butadiene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Hexachlorobenzene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Hexachlorocyclopentadiene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Hexachloroethane | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Isophorone | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| N-Nitroso-di-n-propylamine | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| N-Nitrosodiphenylamine | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Naphthalene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Nitrobenzene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Pentachlorophenol | mg/kg | ND | 1.6 | 10/03/17 17:11 | |
| Phenanthrene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Phenol | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| Pyrene | mg/kg | ND | 0.33 | 10/03/17 17:11 | |
| 2,4,6-Tribromophenol (S) | %. | 74 | 13-112 | 10/03/17 17:11 | |
| 2-Fluorobiphenyl (S) | %. | 72 | 33-93 | 10/03/17 17:11 | |
| 2-Fluorophenol (S) | %. | 66 | 12-108 | 10/03/17 17:11 | |
| Nitrobenzene-d5 (S) | %. | 64 | 21-102 | 10/03/17 17:11 | |
| p-Terphenyl-d14 (S) | %. | 105 | 28-113 | 10/03/17 17:11 | |
| Phenol-d5 (S) | %. | 61 | 17-100 | 10/03/17 17:11 | |

LABORATORY CONTROL SAMPLE: 1879821

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2,4-Dinitrotoluene | mg/kg | 3.3 | 3.0 | 90 | 39-111 | |
| 2-Chlorophenol | mg/kg | 3.3 | 2.1 | 62 | 40-97 | |
| 2-Methylnaphthalene | mg/kg | 3.3 | 2.3 | 70 | 34-122 | |
| 4-Chloro-3-methylphenol | mg/kg | 3.3 | 2.2 | 66 | 40-117 | |
| 4-Nitrophenol | mg/kg | 3.3 | 2.2 | 67 | 30-120 | |
| Acenaphthene | mg/kg | 3.3 | 2.5 | 75 | 44-99 | |
| Acenaphthylene | mg/kg | 3.3 | 2.6 | 79 | 43-105 | |
| Anthracene | mg/kg | 3.3 | 2.5 | 74 | 45-113 | |
| Benzo(a)anthracene | mg/kg | 3.3 | 2.4 | 72 | 47-113 | |
| Benzo(a)pyrene | mg/kg | 3.3 | 2.2 | 68 | 33-108 | |
| Benzo(b)fluoranthene | mg/kg | 3.3 | 2.2 | 66 | 30-108 | |
| Benzo(g,h,i)perylene | mg/kg | 3.3 | 2.3 | 69 | 28-105 | |
| Benzo(k)fluoranthene | mg/kg | 3.3 | 2.3 | 71 | 35-103 | |
| Chrysene | mg/kg | 3.3 | 2.4 | 72 | 46-112 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1879821

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Dibenz(a,h)anthracene | mg/kg | 3.3 | 2.3 | 69 | 30-105 | |
| Fluoranthene | mg/kg | 3.3 | 2.7 | 83 | 45-114 | |
| Fluorene | mg/kg | 3.3 | 2.6 | 79 | 45-109 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | 3.3 | 2.3 | 70 | 30-105 | |
| N-Nitroso-di-n-propylamine | mg/kg | 3.3 | 1.8 | 54 | 34-91 | |
| Naphthalene | mg/kg | 3.3 | 2.2 | 67 | 36-104 | |
| Pentachlorophenol | mg/kg | 3.3 | 1.7 | 52 | 25-117 | |
| Phenanthrene | mg/kg | 3.3 | 2.6 | 80 | 45-112 | |
| Phenol | mg/kg | 3.3 | 1.9 | 57 | 39-97 | |
| Pyrene | mg/kg | 3.3 | 2.3 | 68 | 47-109 | |
| 2,4,6-Tribromophenol (S) | %. | | | 57 | 13-112 | |
| 2-Fluorobiphenyl (S) | %. | | | 59 | 33-93 | |
| 2-Fluorophenol (S) | %. | | | 55 | 12-108 | |
| Nitrobenzene-d5 (S) | %. | | | 51 | 21-102 | |
| p-Terphenyl-d14 (S) | %. | | | 90 | 28-113 | |
| Phenol-d5 (S) | %. | | | 51 | 17-100 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1879822 1879823

| Parameter | Units | 50181016006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4-Dinitrotoluene | mg/kg | ND | 4.1 | 4.1 | 2.9 | 2.3 | 70 | 56 | 10-112 | 22 | 20 | R1 |
| 2-Chlorophenol | mg/kg | ND | 4.1 | 4.1 | 2.5 | 1.7 | 62 | 42 | 12-105 | 38 | 20 | R1 |
| 2-Methylnaphthalene | mg/kg | ND | 4.1 | 4.1 | 2.7 | 2.0 | 66 | 48 | 25-119 | 31 | 20 | R1 |
| 4-Chloro-3-methylphenol | mg/kg | ND | 4.1 | 4.1 | 2.7 | 1.9 | 65 | 47 | 16-117 | 33 | 20 | R1 |
| 4-Nitrophenol | mg/kg | ND | 4.1 | 4.1 | 2.5 | ND | 61 | 48 | 10-121 | | 20 | |
| Acenaphthene | mg/kg | ND | 4.1 | 4.1 | 2.9 | 2.2 | 70 | 53 | 32-98 | 27 | 20 | R1 |
| Acenaphthylene | mg/kg | ND | 4.1 | 4.1 | 3.0 | 2.3 | 73 | 56 | 25-108 | 27 | 20 | R1 |
| Anthracene | mg/kg | 0.59 | 4.1 | 4.1 | 2.7 | 2.1 | 52 | 36 | 20-118 | 27 | 20 | R1 |
| Benzo(a)anthracene | mg/kg | 2.4 | 4.1 | 4.1 | 2.6 | 2.0 | 7 | -8 | 16-121 | 25 | 20 | M1,R1 |
| Benzo(a)pyrene | mg/kg | 2.0 | 4.1 | 4.1 | 2.3 | 1.8 | 5 | -6 | 14-105 | 22 | 20 | M1,R1 |
| Benzo(b)fluoranthene | mg/kg | 2.5 | 4.1 | 4.1 | 2.3 | 1.9 | -4 | -13 | 12-108 | 18 | 20 | M1 |
| Benzo(g,h,i)perylene | mg/kg | 1.2 | 4.1 | 4.1 | 2.2 | 1.8 | 25 | 15 | 13-99 | 20 | 20 | |
| Benzo(k)fluoranthene | mg/kg | 1.1 | 4.1 | 4.1 | 2.2 | 1.8 | 28 | 17 | 13-105 | 22 | 20 | R1 |
| Chrysene | mg/kg | 2.3 | 4.1 | 4.1 | 2.6 | 2.2 | 8 | -2 | 10-123 | 18 | 20 | M1 |
| Dibenz(a,h)anthracene | mg/kg | ND | 4.1 | 4.1 | 2.2 | 1.8 | 45 | 36 | 14-101 | 17 | 20 | |
| Fluoranthene | mg/kg | 4.8 | 4.1 | 4.1 | 3.5 | 2.5 | -33 | -57 | 10-131 | 34 | 20 | M1,R1 |
| Fluorene | mg/kg | ND | 4.1 | 4.1 | 3.1 | 2.3 | 75 | 56 | 27-111 | 28 | 20 | R1 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 1.1 | 4.1 | 4.1 | 2.2 | 1.8 | 27 | 17 | 14-99 | 20 | 20 | |
| N-Nitroso-di-n-propylamine | mg/kg | ND | 4.1 | 4.1 | 2.2 | 1.5 | 54 | 36 | 25-88 | 38 | 20 | R1 |
| Naphthalene | mg/kg | ND | 4.1 | 4.1 | 2.5 | 1.8 | 55 | 37 | 25-105 | 32 | 20 | R1 |
| Pentachlorophenol | mg/kg | ND | 4.1 | 4.1 | 2.1 | 1.4J | 50 | 35 | 10-108 | | 20 | |
| Phenanthrene | mg/kg | 2.6 | 4.1 | 4.1 | 3.3 | 2.6 | 18 | 0 | 20-122 | 25 | 20 | M1,R1 |
| Phenol | mg/kg | ND | 4.1 | 4.1 | 2.3 | 1.6 | 57 | 38 | 14-102 | 40 | 20 | R1 |
| Pyrene | mg/kg | 4.1 | 4.1 | 4.1 | 2.9 | 2.3 | -29 | -44 | 15-127 | 23 | 20 | M1,R1 |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1879822 1879823

| Parameter | Units | 50181016006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol (S) | %. | | | | | | 60 | 46 | 13-112 | | | |
| 2-Fluorobiphenyl (S) | %. | | | | | | 55 | 40 | 33-93 | | | |
| 2-Fluorophenol (S) | %. | | | | | | 52 | 34 | 12-108 | | | |
| Nitrobenzene-d5 (S) | %. | | | | | | 47 | 32 | 21-102 | | | |
| p-Terphenyl-d14 (S) | %. | | | | | | 77 | 58 | 28-113 | | | |
| Phenol-d5 (S) | %. | | | | | | 50 | 33 | 17-100 | | | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408744 Analysis Method: EPA 8270
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave Short Spike
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

METHOD BLANK: 1880617 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1-Methylnaphthalene | mg/kg | ND | 0.33 | 10/06/17 07:44 | N2 |
| 2,4,5-Trichlorophenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2,4,6-Trichlorophenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2,4-Dichlorophenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2,4-Dimethylphenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2,4-Dinitrophenol | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| 2,4-Dinitrotoluene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2,6-Dinitrotoluene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2-Chloronaphthalene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2-Chlorophenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2-Methylnaphthalene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2-Methylphenol(o-Cresol) | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2-Nitroaniline | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| 2-Nitrophenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | ND | 0.65 | 10/06/17 07:44 | |
| 3,3'-Dichlorobenzidine | mg/kg | ND | 0.65 | 10/06/17 07:44 | |
| 3-Nitroaniline | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| 4,6-Dinitro-2-methylphenol | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| 4-Bromophenylphenyl ether | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 4-Chloro-3-methylphenol | mg/kg | ND | 0.65 | 10/06/17 07:44 | |
| 4-Chloroaniline | mg/kg | ND | 0.65 | 10/06/17 07:44 | |
| 4-Chlorophenylphenyl ether | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 4-Nitroaniline | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| 4-Nitrophenol | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| Acenaphthene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Acenaphthylene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Anthracene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Benzo(a)anthracene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Benzo(a)pyrene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Benzo(b)fluoranthene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Benzo(g,h,i)perylene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Benzo(k)fluoranthene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Benzyl alcohol | mg/kg | ND | 0.65 | 10/06/17 07:44 | |
| bis(2-Chloroethoxy)methane | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| bis(2-Chloroethyl) ether | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| bis(2-Ethylhexyl)phthalate | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| bis(2chloro1methylethyl) ether | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Butylbenzylphthalate | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Chrysene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Di-n-butylphthalate | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Di-n-octylphthalate | mg/kg | ND | 0.33 | 10/06/17 07:44 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

METHOD BLANK: 1880617 Matrix: Solid
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibenz(a,h)anthracene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Dibenzofuran | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Diethylphthalate | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Dimethylphthalate | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Fluoranthene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Fluorene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Hexachloro-1,3-butadiene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Hexachlorobenzene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Hexachlorocyclopentadiene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Hexachloroethane | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Isophorone | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| N-Nitroso-di-n-propylamine | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| N-Nitrosodiphenylamine | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Naphthalene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Nitrobenzene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Pentachlorophenol | mg/kg | ND | 1.6 | 10/06/17 07:44 | |
| Phenanthrene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Phenol | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| Pyrene | mg/kg | ND | 0.33 | 10/06/17 07:44 | |
| 2,4,6-Tribromophenol (S) | %. | 80 | 13-112 | 10/06/17 07:44 | |
| 2-Fluorobiphenyl (S) | %. | 71 | 33-93 | 10/06/17 07:44 | |
| 2-Fluorophenol (S) | %. | 71 | 12-108 | 10/06/17 07:44 | |
| Nitrobenzene-d5 (S) | %. | 61 | 21-102 | 10/06/17 07:44 | |
| p-Terphenyl-d14 (S) | %. | 103 | 28-113 | 10/06/17 07:44 | |
| Phenol-d5 (S) | %. | 64 | 17-100 | 10/06/17 07:44 | |

LABORATORY CONTROL SAMPLE: 1880618

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2,4-Dinitrotoluene | mg/kg | 3.3 | 3.1 | 94 | 39-111 | |
| 2-Chlorophenol | mg/kg | 3.3 | 2.5 | 76 | 40-97 | |
| 2-Methylnaphthalene | mg/kg | 3.3 | 2.6 | 78 | 34-122 | |
| 4-Chloro-3-methylphenol | mg/kg | 3.3 | 2.6 | 77 | 40-117 | |
| 4-Nitrophenol | mg/kg | 3.3 | 2.3 | 68 | 30-120 | |
| Acenaphthene | mg/kg | 3.3 | 2.8 | 84 | 44-99 | |
| Acenaphthylene | mg/kg | 3.3 | 3.0 | 90 | 43-105 | |
| Anthracene | mg/kg | 3.3 | 2.8 | 85 | 45-113 | |
| Benzo(a)anthracene | mg/kg | 3.3 | 2.9 | 86 | 47-113 | |
| Benzo(a)pyrene | mg/kg | 3.3 | 2.5 | 76 | 33-108 | |
| Benzo(b)fluoranthene | mg/kg | 3.3 | 2.6 | 78 | 30-108 | |
| Benzo(g,h,i)perylene | mg/kg | 3.3 | 2.5 | 75 | 28-105 | |
| Benzo(k)fluoranthene | mg/kg | 3.3 | 2.4 | 72 | 35-103 | |
| Chrysene | mg/kg | 3.3 | 2.8 | 83 | 46-112 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

LABORATORY CONTROL SAMPLE: 1880618

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Dibenz(a,h)anthracene | mg/kg | 3.3 | 2.5 | 74 | 30-105 | |
| Fluoranthene | mg/kg | 3.3 | 2.8 | 85 | 45-114 | |
| Fluorene | mg/kg | 3.3 | 2.9 | 86 | 45-109 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | 3.3 | 2.5 | 76 | 30-105 | |
| N-Nitroso-di-n-propylamine | mg/kg | 3.3 | 2.1 | 62 | 34-91 | |
| Naphthalene | mg/kg | 3.3 | 2.5 | 76 | 36-104 | |
| Pentachlorophenol | mg/kg | 3.3 | 2.4 | 71 | 25-117 | |
| Phenanthrene | mg/kg | 3.3 | 3.0 | 91 | 45-112 | |
| Phenol | mg/kg | 3.3 | 2.3 | 68 | 39-97 | |
| Pyrene | mg/kg | 3.3 | 2.8 | 84 | 47-109 | |
| 2,4,6-Tribromophenol (S) | %. | | | 78 | 13-112 | |
| 2-Fluorobiphenyl (S) | %. | | | 68 | 33-93 | |
| 2-Fluorophenol (S) | %. | | | 69 | 12-108 | |
| Nitrobenzene-d5 (S) | %. | | | 59 | 21-102 | |
| p-Terphenyl-d14 (S) | %. | | | 96 | 28-113 | |
| Phenol-d5 (S) | %. | | | 62 | 17-100 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880619 1880620

| Parameter | Units | 50181103001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4-Dinitrotoluene | mg/kg | ND | 29.4 | 29.4 | 26.9 | 27.1 | 91 | 92 | 10-112 | 1 | 20 | |
| 2-Chlorophenol | mg/kg | ND | 29.4 | 29.4 | 22.5 | 22.4 | 77 | 76 | 12-105 | 1 | 20 | |
| 2-Methylnaphthalene | mg/kg | ND | 29.4 | 29.4 | 24.3 | 24.4 | 77 | 77 | 25-119 | 0 | 20 | |
| 4-Chloro-3-methylphenol | mg/kg | ND | 29.4 | 29.4 | 23.5 | 23.9 | 80 | 81 | 16-117 | 2 | 20 | |
| 4-Nitrophenol | mg/kg | ND | 29.4 | 29.4 | 24.5 | 21.5 | 83 | 73 | 10-121 | 13 | 20 | |
| Acenaphthene | mg/kg | ND | 29.4 | 29.4 | 25.2 | 25.5 | 86 | 87 | 32-98 | 1 | 20 | |
| Acenaphthylene | mg/kg | ND | 29.4 | 29.4 | 26.2 | 27.1 | 89 | 92 | 25-108 | 3 | 20 | |
| Anthracene | mg/kg | ND | 29.4 | 29.4 | 24.6 | 24.9 | 84 | 85 | 20-118 | 1 | 20 | |
| Benzo(a)anthracene | mg/kg | ND | 29.4 | 29.4 | 25.2 | 26.0 | 86 | 88 | 16-121 | 3 | 20 | |
| Benzo(a)pyrene | mg/kg | ND | 29.4 | 29.4 | 21.2 | 21.4 | 72 | 73 | 14-105 | 1 | 20 | |
| Benzo(b)fluoranthene | mg/kg | ND | 29.4 | 29.4 | 22.3 | 22.2 | 76 | 75 | 12-108 | 1 | 20 | |
| Benzo(g,h,i)perylene | mg/kg | ND | 29.4 | 29.4 | 19.4 | 19.2 | 66 | 65 | 13-99 | 1 | 20 | |
| Benzo(k)fluoranthene | mg/kg | ND | 29.4 | 29.4 | 20.8 | 20.6 | 71 | 70 | 13-105 | 1 | 20 | |
| Chrysene | mg/kg | ND | 29.4 | 29.4 | 23.9 | 24.6 | 81 | 84 | 10-123 | 3 | 20 | |
| Dibenz(a,h)anthracene | mg/kg | ND | 29.4 | 29.4 | 20.4 | 20.1 | 69 | 68 | 14-101 | 2 | 20 | |
| Fluoranthene | mg/kg | ND | 29.4 | 29.4 | 24.9 | 24.8 | 85 | 84 | 10-131 | 0 | 20 | |
| Fluorene | mg/kg | ND | 29.4 | 29.4 | 25.6 | 26.0 | 87 | 88 | 27-111 | 1 | 20 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | ND | 29.4 | 29.4 | 20.0 | 19.7 | 68 | 67 | 14-99 | 1 | 20 | |
| N-Nitroso-di-n-propylamine | mg/kg | ND | 29.4 | 29.4 | 18.3 | 18.3 | 62 | 62 | 25-88 | 0 | 20 | |
| Naphthalene | mg/kg | 4.0 | 29.4 | 29.4 | 25.4 | 25.5 | 73 | 73 | 25-105 | 0 | 20 | |
| Pentachlorophenol | mg/kg | ND | 29.4 | 29.4 | 12J | 11J | 41 | 37 | 10-108 | | 20 | |
| Phenanthrene | mg/kg | ND | 29.4 | 29.4 | 27.1 | 27.3 | 92 | 93 | 20-122 | 1 | 20 | |
| Phenol | mg/kg | 7.4 | 29.4 | 29.4 | 26.8 | 27.3 | 66 | 68 | 14-102 | 2 | 20 | |
| Pyrene | mg/kg | ND | 29.4 | 29.4 | 25.5 | 26.7 | 87 | 91 | 15-127 | 4 | 20 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880619 1880620

| Parameter | Units | 50181103001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol (S) | %. | | | | | | 78 | 77 | 13-112 | | | |
| 2-Fluorobiphenyl (S) | %. | | | | | | 66 | 67 | 33-93 | | | |
| 2-Fluorophenol (S) | %. | | | | | | 67 | 67 | 12-108 | | | |
| Nitrobenzene-d5 (S) | %. | | | | | | 58 | 57 | 21-102 | | | |
| p-Terphenyl-d14 (S) | %. | | | | | | 95 | 93 | 28-113 | | | |
| Phenol-d5 (S) | %. | | | | | | 63 | 62 | 17-100 | | | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408632 Analysis Method: SM 2540G
QC Batch Method: SM 2540G Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50181016001, 50181016002, 50181016003, 50181016004, 50181016005

SAMPLE DUPLICATE: 1880203

| Parameter | Units | 50180813007 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 15.4 | 17.3 | 11 | 5 | R1 |

SAMPLE DUPLICATE: 1880204

| Parameter | Units | 50180990017 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 24.3 | 24.6 | 1 | 5 | |

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## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 408679 Analysis Method: SM 2540G
QC Batch Method: SM 2540G Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

SAMPLE DUPLICATE: 1880395

| Parameter | Units | 50181120001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 16.1 | 16.9 | 5 | 5 | |

SAMPLE DUPLICATE: 1880403

| Parameter | Units | 50181143001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 3.6 | 4.0 | 10 | 5 | R1 |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

## QUALITY CONTROL DATA

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

QC Batch: 270341 Analysis Method: EPA 9060 Modified
QC Batch Method: EPA 9060 Modified Analysis Description: 9060 TOC Average
Associated Lab Samples: 50181016003, 50181016004, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

METHOD BLANK: 1588842 Matrix: Solid
Associated Lab Samples: 50181016003, 50181016004, 50181016006, 50181016007, 50181016008, 50181016009, 50181016010, 50181016011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mean Total Organic Carbon | mg/kg | ND | 668 | 10/13/17 06:58 | |

LABORATORY CONTROL SAMPLE: 1588843

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mean Total Organic Carbon | mg/kg | 120000 | 106000 | 88 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1588844 1588845

| Parameter | Units | 50181016003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean Total Organic Carbon | mg/kg | 4910 | 13700 | 13700 | 18900 | 16100 | 102 | 82 | 50-150 | 16 | 30 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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# QUALIFIERS

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

| | |
|---|---|
| PASI-G | Pace Analytical Services - Green Bay |
| PASI-I | Pace Analytical Services - Indianapolis |

## ANALYTE QUALIFIERS

| | |
|---|---|
| 1d | RPD is outside control limit due to sample non-homogeneity. MJC 10-10-17 |
| 2d | The continuing calibration %RSD for this analyte is outside of Pace Analytical acceptance limits. The result is estimated. MJC 10-10-17 |
| C4 | Sample container did not meet EPA or method requirements. |
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference. |
| H2 | Extraction or preparation conducted outside EPA method holding time. |
| L1 | Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high. |
| L2 | Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low. |
| M0 | Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| N2 | The lab does not hold NELAC/TNI accreditation for this parameter. |
| R1 | RPD value was outside control limits. |



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# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 3546 | 412323 | EPA 8081 | 412444 |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 3546 | 412155 | EPA 8082 | 412440 |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 3050 | 408891 | EPA 6010 | 409434 |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 3050 | 408891 | EPA 6010 | 409434 |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 3050 | 408891 | EPA 6010 | 409434 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 3050 | 408891 | EPA 6010 | 409434 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 3050 | 408891 | EPA 6010 | 409434 |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 3050 | 408650 | EPA 6010 | 409584 |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 3050 | 408650 | EPA 6010 | 409584 |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 3050 | 408650 | EPA 6010 | 409584 |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 3050 | 408650 | EPA 6010 | 409584 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 3050 | 408650 | EPA 6010 | 409584 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 3050 | 408650 | EPA 6010 | 409584 |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 7471 | 409829 | EPA 7471 | 409897 |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 7471 | 409829 | EPA 7471 | 409897 |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 7471 | 409829 | EPA 7471 | 409897 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 7471 | 409829 | EPA 7471 | 409897 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 7471 | 409829 | EPA 7471 | 409897 |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 7471 | 408761 | EPA 7471 | 409406 |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 7471 | 408761 | EPA 7471 | 409406 |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 7471 | 408761 | EPA 7471 | 409406 |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 7471 | 408761 | EPA 7471 | 409406 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 7471 | 408761 | EPA 7471 | 409406 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 7471 | 408761 | EPA 7471 | 409406 |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 3546 | 408744 | EPA 8270 | 408977 |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 3546 | 408744 | EPA 8270 | 408977 |

## REPORT OF LABORATORY ANALYSIS

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(317)228-3100

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 3546 | 408744 | EPA 8270 | 408977 |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 3546 | 408744 | EPA 8270 | 408977 |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 3546 | 408744 | EPA 8270 | 408977 |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 3546 | 408517 | EPA 8270 | 408642 |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 3546 | 408517 | EPA 8270 | 408642 |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 3546 | 408517 | EPA 8270 | 408642 |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 3546 | 408517 | EPA 8270 | 408642 |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 3546 | 408517 | EPA 8270 | 408642 |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 3546 | 408517 | EPA 8270 | 408642 |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | EPA 8260 | 409522 | | |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | EPA 8260 | 409522 | | |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 8260 | 409522 | | |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 8260 | 409680 | | |
| **50181016005** | **Dam 2B (Corey Street Dam)** | EPA 8260 | 409680 | | |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 8260 | 409680 | | |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 8260 | 409680 | | |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 8260 | 409680 | | |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 8260 | 409680 | | |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 8260 | 409680 | | |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 8260 | 409862 | | |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016004** | **Dam 2A (Corey Street Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016005** | **Dam 2B (Corey Street Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016006** | **Dam 3A (Karg Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016007** | **Dam 3B (Karg Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016008** | **Dam 3C (Karg Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | ASA 15-5 mod | 500212 | | |
| **50181016001** | **Dam 1A (Centennial Park Dam)** | SM 2540G | 408632 | | |
| **50181016002** | **Dam 1B (Centennial Park Dam)** | SM 2540G | 408632 | | |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | SM 2540G | 408632 | | |
| **50181016004** | **Dam 2A (Corey Street Dam)** | SM 2540G | 408632 | | |
| **50181016005** | **Dam 2B (Corey Street Dam)** | SM 2540G | 408632 | | |
| **50181016006** | **Dam 3A (Karg Dam)** | SM 2540G | 408679 | | |
| **50181016007** | **Dam 3B (Karg Dam)** | SM 2540G | 408679 | | |
| **50181016008** | **Dam 3C (Karg Dam)** | SM 2540G | 408679 | | |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | SM 2540G | 408679 | | |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | SM 2540G | 408679 | | |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | SM 2540G | 408679 | | |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016003** | **Dam 1C (Centennial Park Dam)** | EPA 9060 Modified | 270343 | | |



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Hannock County Flood Diversion
Pace Project No.: 50181016

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016004** | **Dam 2A (Corey Street Dam)** | EPA 9060 Modified | 270343 | | |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016006** | **Dam 3A (Karg Dam)** | EPA 9060 Modified | 270343 | | |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016007** | **Dam 3B (Karg Dam)** | EPA 9060 Modified | 270343 | | |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016008** | **Dam 3C (Karg Dam)** | EPA 9060 Modified | 270343 | | |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016009** | **Dam 4A (Swale Paris Dam)** | EPA 9060 Modified | 270343 | | |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016010** | **Dam 4B (Swale Paris Dam)** | EPA 9060 Modified | 270343 | | |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 9060 Modified | 270341 | | |
| **50181016011** | **Dam 4C (Swale Paris Dam)** | EPA 9060 Modified | 270343 | | |



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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

2197454

**Section A** Required Client Information:

Company: STANTEC CONSULTING SERVICES
Address: 11687 LEBANON RD CINCINNATI, OH 45241
Email To: DILLON.MCNULTY@STANTEC.COM
Phone: (513) 842-8200 Fax:
Requested Due Date/TAT:

**Section B** Required Project Information:

Report To: DILLON MCNULTY
Copy To:
Purchase Order No.: 280639
Project Name: HANCOCK COUNTY FLOOD DIVERSION
Project Number: 174316204

**Section C** Invoice Information:

Attention: DILLON MCNULTY
Company Name: STANTEC CONSULTING SERVICES
Address: 11687 LEBANON RD CINCINNATI, OH 45241
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: FINDLAY OHIO

**Section D** Required Client Information

**SAMPLE ID** (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Y/N | Analysis Test ↓: VOC | SVOC | RCRA metals | TDC 9040 | PSA | 10/12/17 TMS | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | DAM 1A (CENTENNIAL PARK DAM) | SL | G | | | 9/28/17 | 9:10AM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | | ✓ | | | | 001 |
| 2 | DAM 1B (CENTENNIAL PARK DAM) | SL | G | | | 9/28/17 | 10:20AM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | | ✓ | | | | 002 |
| 3 | DAM 1C (CENTENNIAL PARK DAM) | SL | G | | | 9/28/17 | 10:46AM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | | ✓ | | | | 003 |
| 4 | DAM 2A (COREY STREET DAM) | SL | G | | | 9/28/17 | 12:02PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 004 |
| 5 | DAM 2B (COREY STREET DAM) | SL | G | | | 9/28/17 | 12:34PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | | ✓ | | | | 005 |
| 6 | DAM 2C (COREY STREET DAM) | SL | G | | | 9/28/17 | 1:48PM | | 0 | | | | | | | | | | | | | | ✓ | | | | 10/9/17 TMS |
| 7 | DAM 3A (KARG DAM) | SL | G | | | 9/28/17 | 2:26PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 006 |
| 8 | DAM 3B (KARG DAM) | SL | G | | | 9/28/17 | 2:53PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 007 |
| 9 | DAM 3C (KARG DAM) | SL | G | | | 9/28/17 | 3:20PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 008 |
| 10 | DAM 4A (SWALE PARK DAM) | SL | G | | | 9/28/17 | 4:23PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 009 |
| 11 | DAM 4B (SWALE PARK DAM) | SL | G | | | 9/28/17 | 4:43PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 010 |
| 12 | DAM 4C (SWALE PARK DAM) | SL | G | | | 9/28/17 | 5:07PM | | 5 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 011 |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS |
|---|---|---|---|---|---|---|---|
| SAMPLE DAM2C HAS NO SAMPLES | MATTHEW FORRAI / STANTEC | 9/29/17 | 3:15 | JBudd FedEx 3 coolers | 9/29 | 1518 | |
| | | | | Put Tse | 10-1 | 0935 | 0.6 / 10.3 / 19.5 — See Sch |
| | | | | | | | |

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: MATTHEW FORRAI
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 09/29/17

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

# Sample Condition Upon Receipt

Pace Analytical

Project # 50181016

**Courier:** ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

**Tracking #:** 7403 0163 8328, 8309, 8317

**Custody Seal on Cooler/Box Present:** ☑ yes ☐ no Seals intact: ☑ yes ☐ no

**Packing Material:** ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

**Thermometer** 1 2 3 4 5 6 A B C D E F **Type of Ice:** (Wet) Blue None Samples on ice, cooling process has begun

**Cooler Temperature** 0.6/0.6, 10.3/10.3, 19.5/19.5 **Ice Visible in Sample Containers:** ☐ Yes ☑ No

(Initial/Corrected) Temp should be above freezing to 6°C **If Over 6°C, Was PM Notified?** ☑ Yes ☐ No ☐ N/A

| | | |
|---|---|---|
| **Date/Time and Initials of person examining contents:** PH 10/2/17@1011 | | **Comments** |
| **Are samples from West Virginia?** Document any containers out of temp. | ☐Yes ☑No | 1. |
| USDA Regulated Soils? (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, and Puerto Rico) | ☐Yes ☑No | |
| Chain of Custody Present: | ☑Yes ☐No | 2. |
| Chain of Custody Filled Out: | ☐Yes ☑No | 3. NO tests listed |
| **Short Hold Time Analysis (<72hr):** | ☐Yes ☑No | 4. **Date/Time 5035A T/C placed in Freezer:** _____ **Short Holds Taken to Lab:** _____ |
| **Rush Turn Around Time Requested:** | ☐Yes ☑No | 5. |
| Containers Intact: | ☑Yes ☐No | 6. |
| Sample Labels match COC: -Includes date/time/ID/Analysis - Except for TerreCores, which may only be on the bag or block. | ☐Yes ☑No ☐N/A | 7. 10 jars recd w no labels on BDS |
| All containers needing acid/base pres. have been checked? **exceptions: VOA, coliform, LLHg, O&G, and any container with a septum cap or preserved with HCl.** All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted. | ☐Yes ☐No ☑N/A | 8. (Circle) HNO3 H2SO4 NaOH NaOH/ZnAc |
| Residual Chlorine Check (SVOC 625 Pest/PCB 608) | | 9. Present Absent |
| Residual Chlorine Check (Total/Amenable/Free Cyanide) | | 10. Present Absent |
| Headspace in VOA Vials ( >6mm): | ☐Yes ☐No ☑N/A | 11 |
| Headspace Wisconsin Sulfide | ☐Yes ☐No ☑N/A | 12 |
| Trip Blank Present: ☐Yes ☐No Custody Seals | ☐Yes ☑No | 13 |

102717 Dan - Add Cu, Ni, Zn and PCBs to all samples. dss
102717 Dan - add pest, run out of hold. dss

**Client Notification/ Resolution:** 10/4/17@0925 via phone

Person Contacted: D. McNulty Date/Time:

Comments/ Resolution: Dam 1A, 1B, 1C, 2A+2B recd in out of temp cooler. Jars were recd in water (not in bubble bags).

Tests = VOC, SVOC, RCRA metals, TOC 9060 + PSA

Unable to do TOC 9060 on DAM (1A) (1B) & 2A (2B) 10/9/17 TMS due to lack of volume. OK to proceed out of temp for DAM 1A, 1B, 1C, 2A, 2B 10/3/17 TMS 10/4/17 TMS

# Sample Container Count

CLIENT: Stanford

COC PAGE 1 of 1
COC ID# 2147464

Project # SQ181016

| Sample Line Item | DG9H VG9H | AG0U | AG1H | AG1U | AG2U | AG3S | WGFU | SP5T | BP1U | BP2N | BP2S | BP2U | BP3B | BP3N | BP3S | BP3U | SBS DI Bulk Kit R | ZPLC | | | Matrix Sl/Wt/NAL (Soil/Water/Non-Aqueous Liquid) | pH <2 | pH >9 | pH>12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | 1 | | | | | | | | | | | 1 | | | SL | | | |
| 2 | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | |
| 3 | | | | | | | 3 | | | | | | | | | | | 1 | | | | | | |
| 4 | | | | | | | 3 | | | | | | | | | | | 1 | | | | | | |
| 5 | | | | | | | 2 | | | | | | | | | | | 1 | | | | | | |
| 6 | | | | | | | 0 | | | | | | | | | | | 0 | | | | | | |
| 7 | | | | | | | 4 | | | | | | | | | | | 1 | | | | | | |
| 8 | | | | | | | 4 | | | | | | | | | | | 1 | | | | | | |
| 9 | | | | | | | 4 | | | | | | | | | | | 1 | | | | | | |
| 10 | | | | | | | 4 | | | | | | | | | | | 1 | | | | | | |
| 11 | | | | | | | 4 | | | | | | | | | | | 1 | | | | | | |
| 12 | | | | | | | 4 | | | | | | | | | | | 1 | | | | | | |

Container Codes

## Glass

| | | | |
|---|---|---|---|
| DG9B | 40mL Na Bisulfate amber vial | AG0U | 100mL unpreserved amber glass |
| DG9H | 40mL HCL amber voa vial | AG1H | 1 liter HCL amber glass |
| DG9M | 40mL MeOH clear vial | AG1S | 1 liter H2SO4 amber glass |
| DG9P | 40mL TSP amber vial | AG1T | 1 liter Na Thiosulfate amber glass |
| DG9S | 40mL H2SO4 amber vial | AG1U | 1liter unpreserved amber glass |
| DG9T | 40mL Na Thio amber vial | AG2N | 500mL HNO3 amber glass |
| DG9U | 40mL unpreserved amber vial | AG2S | 500mL H2SO4 amber glass |
| VG9H | 40mL HCL clear vial | AG2U | 500mL unpreserved amber glass |
| VG9T | 40mL Na Thio. clear vial | AG3S | 250mL H2SO4 glass amber |
| VG9U | 40mL unpreserved clear vial | AG3U | 250mL unpreserved amber glass |
| VGFX | 40mL w/hexane wipe vial | BG1H | 1 liter HCL clear glass |
| VSG | Headspace septa vial & HCL | BG1S | 1 liter H2SO4 clear glass |
| WGFU | 4oz clear soil jar | BG1T | 1 liter Na Thiosulfate clear glass |
| JGFU | 4oz unpreserved amber wide | BG1U | 1 liter unpreserved glass |

## Plastic / Misc.

| | | | |
|---|---|---|---|
| BP1A | 1 liter NaOH, Asc Acid plastic | BP3U | 250mL unpreserved plastic |
| BP1N | 1 liter HNO3 plastic | BP3Z | 250mL NaOH, Zn Ac plastic |
| BP1S | 1 liter H2SO4 plastic | | |
| BP1U | 1 liter unpreserved plastic | AF | Air Filter |
| BP1Z | 1 liter NaOH, Zn, Ac | C | Air Cassettes |
| BP2A | 500mL NaOH, Asc Acid plastic | R | Terra core kit |
| BP2N | 500mL HNO3 plastic | SP5T | 120mL Coliform Na Thiosulfate |
| BP2O | 500mL NaOH plastic | U | Summa Can |
| BP2S | 500mL H2SO4 plastic | ZPLC | Ziploc Bag |
| BP2U | 500mL unpreserved plastic | | |
| BP2Z | 500mL NaOH, Zn Ac | | |
| BP3B | 250mL NaOH plastic | | |
| BP3N | 250mL HNO3 plastic | | |
| BP3S | 250mL H2SO4 plastic | | |

# Attachment E – Sediment screening tables

| Analyte | Units | ECBP Sediment Reference Value (SRV) | Ref. | Tier 1 Sediment Ecological Screening Level | Ref. | Tier 2 Sediment Ecological Screening Level | Ref. | Dam 1A (Centennial Park) | Dam 1B (Centennial Park) | Dam 1C (Centennial Park) | Dam 2A (Corey Street Dam) | Dam 2B (Corey Street Dam) | Dam 3A (Karg Dam) | Dam 3B (Karg Dam) | Dam 3C (Karg Dam) | Dam 4A (Swale Paris Dam) | Dam 4B (Swale Paris Dam) | Dam 4C (Swale Paris Dam) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 18 | a | 9.79 | b,c | 33.00 | b | 4.3 | 10.9 | 8.8 | 9.2 | 6.1 | 5.2 | 20.1 | 5.4 | 5.2 | 7.9 | 5.8 |
| Barium | mg/kg | 240 | a | 20.00 | d,e | 60.00 | d,e | 22.7 | 28.1 | 27.6 | 39.5 | 20.6 | 26 | 44.7 | 25.5 | 18.2 | 38.2 | 24.5 |
| Cadmium | mg/kg | 0.9 | a | 0.99 | b,c | 4.98 | b | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 |
| Chromium | mg/kg | 40 | a | 43.40 | b,c | 111.00 | b | 6.1 | 5.8 | 6.5 | 9.3 | 5.4 | 4.9 | 10.1 | 6.3 | 5.1 | 6.8 | 7.8 |
| Copper | mg/kg | 34 | a | 31.60 | b,c | 149.00 | b | 5.1 | 7.7 | 11.2 | 12.2 | 7.1 | 6.9 | 25.9 | 18.7 | 10.1 | 8.8 | 10.8 |
| Lead | mg/kg | 47 | a | 35.80 | b,c | 128.00 | b | 3. 8 | 5.4 | 6.6 | 8.9 | 5.8 | 8.6 | 6.7 | 8.5 | 5.1 | 9.7 | 115 |
| Nickel | mg/kg | 42 | a | 22.70 | b | 48.60 | b | 6.8 | 8.1 | 10.7 | 12.5 | 7.1 | 7.2 | 16.7 | 7.4 | 7.1 | 9 | 7.9 |
| Selenium | mg/kg | 2.3 | a | 11.00 | e | 20.00 | e | <1.1 | 1.3 | 1.6 | 2.2 | <1.1 | 1.3 | 4.0 | 1.4 | 1.5 | 2.1 | 1.6 |
| Silver | mg/kg | 0.43 | a | 0.50 | c | 2.20 | d | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 | <0.53 |
| Zinc | mg/kg | 160 | a | 121.00 | b,c | 459.00 | b | 21.8 | 25.2 | 27.8 | 44.3 | 26.5 | 23.8 | 36.1 | 47.1 | 22.8 | 40.9 | 28.6 |
| Mercury | mg/kg | 0.12 | a | 0.18 | b | 1.06 | b | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 | <0.26 |
| **PAHs** | | | | | | | | | | | | | | | | | | |
| Acenaphthylene | mg/kg | NA | -- | 0.00587 | c | 0.128 | g | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Acenaphthene | mg/kg | NA | -- | 0.00587 | c | 0.128 | g | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Anthracene | mg/kg | NA | -- | 0.0572 | b,c | 0.845 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 0.590 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Benzo(a)anthracene | mg/kg | NA | -- | 0.108 | b,c | 1.05 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 2.4 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Benzo(a)pyrene | mg/kg | NA | -- | 0.15 | b,c | 1.450 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 2.0 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Benzo(b)fluoranthene | mg/kg | NA | -- | 10.4 | c | -- | | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 2.5 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Benzo(g,h,i)perylene | mg/kg | NA | -- | 0.24 | c | -- | | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 1.2 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Benzo(k)fluoranthen | mg/kg | NA | -- | 0.17 | c | -- | | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 1.1 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Chrysene | mg/kg | NA | -- | 0.166 | b,c | 1.290 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 2.3 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Dibenz(a,h)anthracene | mg/kg | NA | -- | 0.033 | b,c | 0.135 | f | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Fluoranthene | mg/kg | NA | -- | 0.423 | b,c | 2.230 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 4.8 | 0.45 | 1.3 | 0.84 | 1.1 | <0.41 |
| Fluorene | mg/kg | NA | -- | 0.0774 | b,c | 0.536 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Indeno(1,2,3-cd)pyrene | mg/kg | NA | -- | 0.2 | c | -- | | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 1.1 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Naphthalene | mg/kg | NA | -- | 0.176 | b,c | 0.560 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 |
| Phenanthrene | mg/kg | NA | -- | 0.204 | b,c | 1.170 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 2.6 | <0.41 | 1.0 | 0.56 | 0.6 | <0.41 |
| Pyrene | mg/kg | NA | -- | 0.195 | b,c | 1.520 | b | <0.41 | <0.41 | <0.41 | <0.41 | <0.41 | 4.1 | <0.41 | 0.85 | 0.54 | 0.8 | <0.41 |
| **Pesticides** | | | | | | | | | | | | | | | | | | |
| Aldrin | mg/kg | NA | -- | 0.002 | c | 0.029 | e | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| alpha-BHC | mg/kg | NA | -- | NA | -- | 0.0016 | e | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| beta-BHC | mg/kg | NA | -- | NA | -- | 6.67 | e | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| delta-BHC | mg/kg | NA | -- | NA | -- | NA | -- | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| gamma-BHC (Lindane) | mg/kg | NA | -- | 0.00237 | e | 0.00499 | e | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| Chlordane (Technical) | mg/kg | NA | -- | 0.00324 | e | 0.0176 | e | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 |
| alpha-Chlordane | mg/kg | NA | -- | NA | -- | NA | -- | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| gamma-Chlordane | mg/kg | NA | -- | NA | -- | NA | -- | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| 4,4'-DDD | mg/kg | NA | -- | 0.00488 | e | 0.028 | e | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| 4,4'-DDE | mg/kg | NA | -- | 0.00316 | e | 0.0313 | e | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| 4,4'-DDT | mg/kg | NA | -- | 0.00416 | e | 0.0629 | e | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Dieldrin | mg/kg | NA | -- | 0.0019 | e | 0.0093 | e | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Endosulfan I | mg/kg | NA | -- | 0.00046 | e | NA | -- | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| Endosulfan II | mg/kg | NA | -- | 0.00046 | e | NA | -- | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Endosulfan sulfate | mg/kg | NA | -- | 0.001 | e | NA | -- | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Endrin | mg/kg | NA | -- | 0.00222 | e | 0.207 | e | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Endrin aldehyde | mg/kg | NA | -- | NA | -- | NA | -- | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Endrin ketone | mg/kg | NA | -- | NA | -- | NA | -- | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 | <0.062 |
| Heptachlor | mg/kg | NA | -- | 0.0019 | e | NA | -- | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| Heptachlor epoxide | mg/kg | NA | -- | 0.00247 | e | 0.016 | e | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 | <0.031 |
| Methoxychlor | mg/kg | NA | -- | 0.0024 | e | NA | -- | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 | <0.31 |
| Toxaphene | mg/kg | NA | -- | 0.00045 | e | NA | -- | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 | <0.62 |
| **PCBs** | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| PCB-1221 (Aroclor 1221) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| PCB-1232 (Aroclor 1232) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| PCB-1242 (Aroclor 1242) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| PCB-1248 (Aroclor 1248) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| PCB-1254 (Aroclor 1254) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| PCB-1260 (Aroclor 1260) | mg/kg | NA | -- | ΣPCBs 0.0598 | d,e | ΣPCBs 0.676 | e | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 |
| | | | | | | | | | | | | | | | | | | |
| Percent Moisture | (%) | NA | -- | NA | -- | NA | -- | 21.0 | 15.6 | 17.6 | 24.1 | 20.7 | 19.4 | 18.1 | 22.1 | 17.7 | 21.5 | 17.7 |
| Mean Total Organic Carbon (TOC) | mg/kg | NA | -- | NA | -- | NA | -- | NT | NT | 4,910 | 8,180 | NT | 11,300 | 7,670 | 7,950 | 12,400 | 17,800 | 5,480 |
| Mean Total Organic Carbon (TOC) | (%) | NA | -- | NA | -- | NA | -- | NT | NT | 0.49 | 0.82 | NT | 1.13 | 0.767 | 0.795 | 1.24 | 1.78 | 0.548 |
| Fraction Organic Carbon (foc) | | NA | -- | NA | -- | NA | -- | NT | NT | 0.0049 | 0.0082 | NT | 0.0113 | 0.0077 | 0.0080 | 0.0124 | 0.0178 | 0.0055 |

Notes:

Shaded values exceed SRV and TEC criteria

Shaded values exceed SRV, TEC and PEC criteria

NT- Not tested

**References**


a. Ohio EPA, 2008. Ecological Risk Assessment Guidance Document, Division of Environmental Response and Remediation, February 2003, Revised April 2008.

b. MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environ. Contam. Toxicol. 39:20-31.

c. U.S. EPA 2003. Region 5, Ecological Screening Levels for RCRA. https://www3.epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf

d. MacDonald, D.D., C.G. Ingersoll, C. G. Smorong, D. E. Lindskoog, R. A. Sloane, G and T Biernacki. 2003 and T.A. Berger. Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters. Prepared for Florida Department of Environmental Protection, Tallahassee, Florida.

d. U.S. EPA. 2015. Supplemental Guidance to ERAGS: Region 4, Ecological Risk Assessment. Originally published November 1995

e. MacDonald, D.D., C.G. Ingersoll, C. G. Smorong, D. E. Lindskoog, R. A. Sloane, G and T Biernacki. 2003 and T.A. Berger. Development and evaluation of consensus-based sediment quality guidelines for Florida Inland Water.

f. Buchman, M. F. NOAA Quick Screening Reference Tables. NOAA OR&R Report 08-1 Seattle WA, Office of Response and Restoration Division, National Atmospheric and Oceanic Administration (2008): 34 pages

g. MacDonald, D. D. 1994. Approach to the Assessment of Sediment Quality in Florida Coastal Waters Volume 1 - Development and Evaluation of Sediment Quality. Prepared for: Florida Department of Environmental Protection Office of Water Policy Assessment Guidelines, November 1994.


**Notes**

1. Results with "<" are listed as less than the adjusted method detection limit (MDL)
2. J- Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
3. Ecological screening value (ESV)
4. Refinement screening value (RSV)
5. Listed value is Probable Effects Level (PEL)
6. Non-detects included at half the MDL
7. ECBP = Eastern Corn Belt Plains

**Table 2. Equilibrium Partitioning Sediment Benchmarks for PAHs Detected in Low-Head Dam Sediment Samples, Hancock County Flood Risk Reduction Program, Hancock County, Ohio.**

| Analyte | Units | Final Chronic Value[b, c] (µg/gOC) | Dam 3A (Karg Dam) | Normalized Conc. (µg/gOC) | ESB Toxic Unit | Dam 3B (Karg Dam) | Normalized Conc. (µg/gOC) | ESB Toxic Unit | Dam 3C (Karg Dam) | Normalized Conc. (µg/gOC) | ESB Toxic Unit | Dam 4A (Swale Paris Dam) | Normalized Conc. (µg/gOC) | ESB Toxic Unit | Dam 4B (Swale Paris Dam) | Normalized Conc. (µg/gOC) | ESB Toxic Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAHs[a]** | | | | | | | | | | | | | | | | | |
| Acenaphthylene | µg/kg | 452 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | µg/kg | 491 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | µg/kg | 594 | 0.59 | 52.21 | 8.8E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | µg/kg | 841 | 2.4 | 212.39 | 2.5E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)pyrene | µg/kg | 965 | 2 | 176.99 | 1.8E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b)fluoranthene | µg/kg | 979 | 2.5 | 221.24 | 2.3E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(g,h,i)perylene | µg/kg | 1095 | 1.2 | 106.19 | 9.7E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(k)fluoranthen | µg/kg | 981 | 1.1 | 97.35 | 9.9E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chrysene | µg/kg | 844 | 2.3 | 203.54 | 2.4E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibenz(a,h)anthracene | µg/kg | 1,123 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | µg/kg | 707 | 4.8 | 424.78 | 0.601 | 0.45 | 58.67 | 8.3E-02 | 1.3 | 163.52 | 2.3E-01 | 0.84 | 67.74 | 0.10 | 1.10 | 61.80 | 0.09 |
| Fluorene | µg/kg | 538 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | µg/kg | 1,115 | 1.1 | 97.35 | 8.7E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | µg/kg | 838 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | µg/kg | 596 | 2.6 | 230.09 | 0.386 | ND | ND | ND | 1.000 | 125.79 | 2.1E-01 | 0.56 | ND | ND | 0.6 | ND | ND |
| Pyrene | µg/kg | 697 | 4.1 | 362.83 | 0.521 | ND | ND | ND | 0.85 | 106.92 | 1.5E-01 | 0.54 | ND | ND | 0.8 | ND | ND |
| | | | | | | | | | | | | | | | | | |
| Mean Total Organic Carbon (TOC) | mg/kg | -- | 11,300 | | | 7,670 | | | 7,950 | | | 12,400 | | | 17,800 | | |
| Mean Total Organic Carbon (TOC) | (%) | -- | 1.13 | | | 0.767 | | | 0.795 | | | 1.24 | | | 1.78 | | |
| Fraction Organic Carbon ($f_{OC}$) | unitless | -- | 0.0113 | | | 0.0077 | | | 0.0080 | | | 0.0124 | | | 0.0178 | | |
| ΣESBTU[a] | unitless | -- | 2.8E+00 | | | 8.3E-02 | | | 6.0E-01 | | | 9.6E-02 | | | 8.7E-02 | | |
| 95th Percentile Uncertainty Factor | unitless | -- | 11.5 | | | 11.5 | | | 11.5 | | | 11.5 | | | 11.5 | | |
| Adjusted ΣESBTU | unitless | -- | 31.99 | | | 0.954 | | | 6.85 | | | 1.1019 | | | 1.0052 | | |

Notes:

[a]Sediment samples were analyzed for PAHs using EPA Method 8270. Total organic carbon analyzed by EPA 9060 modified.

[b]U.S. EPA's Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures, Office of Research and Development, November 2003, EPA/600/R-02/013.http://www.epa.gov/nheerl/publications/files/PAHESB.pdf

[c]Ohio EPA 2010. Guidance on Evaluating Sediment Contaminant Results. Division of Surface Water, Standards and Technical Support Section.

µg/gOC = Micrograms per gram organic carbon
ND = Not detected
ΣESBTU = Sum of Equilibrium Partitioning Sediment Benchmark Toxic Units