

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0023 **USGS Hydrologic Unit:** 050902030502
Stream Name: Little Laughery Creek **County:** Ripley
Description: CR 1250 N/Legion Road **Latitude:** 39 15 6.14490 **Longitude:** -85 14 26.27253
Drainage: **Site Number:** 19T-004

SiteID: OML-05-0023 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35578
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 83.2 % | | ASTM D888-09(C) |
| DO | 9.95 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.6 SU | | EPA 150.2 |
| Specific Conductance (Field) | 305 umho/cm | | SM2510B |
| Temperature | 7.6 °C | | SM2550B(2) |
| Turbidity (Hach) | 83.6 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 5 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 3 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-1 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 110 mg/L | 5 | SM2320B |
| Chloride | 20 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 130 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 65 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 300 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 250 mg/L | 10 | SM2540C |
| Sulfate | 13 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 36 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 9.6 mg/L | 0.1 | EPA 200.7 |
| COD | 51 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.26 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 2.2 mg/L | 0.2 | SM4500NO3-F |
| Phosphorus, Total | 0.36 mg/L | 0.05 | SM4500P-E |
| TKN | 0.88 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 6.9 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0023 Sample Date: 12/17/2018 IDEM Sample #: AB35704
 Water Flow Type Run Water Appearance Murky Water Depth Algae?
 Water Flow (cf/sec): Flow Estimated? Aquatic Life? Canopy Closed % 0-20%
 Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|------------------------------|-------------|-----------------|-----------------|
| % Sat | 91.3 % | | ASTM D888-09(C) |
| DO | 11.7 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.56 SU | | EPA 150.2 |
| Specific Conductance (Field) | 339 umho/cm | | SM2510B |
| Temperature | 4.9 °C | | SM2550B(2) |
| Turbidity (Hach) | 29 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 1 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| Lab ID # 500-156474-3 | Result | Reporting Limit | Method |
|--------------------------------|-----------|-----------------|----------------|
| Alkalinity (as CaCO3) | 110 mg/L | 5 | SM2320B |
| Chloride | 21 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 140 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 22 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 220 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 210 mg/L | 10 | SM2540C |
| Sulfate | 12 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 40 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 10 mg/L | 0.1 | EPA 200.7 |
| COD | 27 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.32 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 3.4 mg/L | 0.2 | SM4500NO3-F |
| Phosphorus, Total | 0.15 mg/L | 0.05 | SM4500P-E |
| TKN | 0.67 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 5 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SITeID: OML-05-0023

Sample Date: 1/15/2019

IDEM Sample #: AB35952

Water Flow Type Run

Water Appearance Clear

Water Depth **Algae?**

Water Flow (cf/sec):

Flow Estimated?

Aquatic Life?

Canopy Closed % 0-20%

Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 91.2 % | ASTM D888-09(C) |
| | DO | 13.26 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.76 SU | EPA 150.2 |
| | Specific Conductance (Field) | 829 umho/cm | SM2510B |
| | Temperature | 0.1 °C | SM2550B(2) |
| | Turbidity (Hach) | 9.35 NTU | EPA 180.1 |
| | Air Temp | 1 Lookup | Observation |
| | Sky Conditions | 4 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # | Result | Reporting Limit | Method | |
|-----------------|--------------------------------|------------------------|---------------|----------------|
| 500-157615-3 | Alkalinity (as CaCO3) | 160 mg/L | 5 | SM2320B |
| | Chloride | 150 mg/L | 5 | EPA 300.0 |
| | Hardness (as CaCO3) | 200 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 8 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 490 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 480 mg/L | 10 | SM2540C |
| | Sulfate | 22 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 57 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 15 mg/L | 0.1 | EPA 200.7 |
| | COD | 21 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | 0.14 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 2.9 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.064 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.82 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 3.7 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | | | |
|---------------------------------|-----------------------|----------------------|---------------------|-----------------|-----------|
| SC | WD | WS | AT | | |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp | | |
| 1 - Clear | 8 - Rain | 0 | North (0 Degrees) | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 9 | East (90 Degrees) | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 18 | South (180 Degrees) | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | | 27 | West (270 Degrees) | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0009 **USGS Hydrologic Unit:** 050902030501
Stream Name: Laughery Creek **County:** Ripley
Description: CR 250 W **Latitude:** 39 15 18.76687 **Longitude:** -85 18 20.21532
Drainage: **Site Number:** 19T-005

SiteID: OML-05-0009 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35579
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 83.6 % | | ASTM D888-09(C) |
| DO | 10.03 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.52 SU | | EPA 150.2 |
| Specific Conductance (Field) | 327 umho/cm | | SM2510B |
| Temperature | 7.4 °C | | SM2550B(2) |
| Turbidity (Hach) | 50.8 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 5 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 3 Lookup | | Observation |

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 110 mg/L | 5 | SM2320B |
| Chloride | 23 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 140 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 35 mg/L | 10 | SM2540D |
| Solids, Total (TS) | 300 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 270 mg/L | 10 | SM2540C |
| Sulfate | 13 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 41 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 9.4 mg/L | 0.1 | EPA 200.7 |
| COD | 44 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.34 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 2.6 mg/L | 0.2 | SM4500NO3-F |
| Phosphorus, Total | 0.33 mg/L | 0.05 | SM4500P-E |
| TKN | 0.91 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 7.7 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
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Surface Water Results Summary**

SiteID: OML-05-0009 Sample Date: 12/17/2018 IDEM Sample #: AB35703
 Water Flow Type Run Water Appearance Murky Water Depth Algae?
 Water Flow (cf/sec): Flow Estimated? Aquatic Life? Canopy Closed % 0-20%
 Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|------------------------------|-------------|-----------------|-----------------|
| % Sat | 89.9 % | | ASTM D888-09(C) |
| DO | 11.57 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.61 SU | | EPA 150.2 |
| Specific Conductance (Field) | 365 umho/cm | | SM2510B |
| Temperature | 4.7 °C | | SM2550B(2) |
| Turbidity (Hach) | 29.9 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 1 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| Lab ID # 500-156474-2 | Result | Reporting Limit | Method |
|--------------------------------|-----------|-----------------|----------------|
| Alkalinity (as CaCO3) | 120 mg/L | 5 | SM2320B |
| Chloride | 21 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 160 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 16 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 260 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 240 mg/L | 10 | SM2540C |
| Sulfate | 17 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 44 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 11 mg/L | 0.1 | EPA 200.7 |
| COD | 15 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.15 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 3.4 mg/L | 0.5 | SM4500NO3-F |
| Phosphorus, Total | 0.21 mg/L | 0.05 | SM4500P-E |
| TKN | 0.77 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 3.8 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SITeID: OML-05-0009 **Sample Date:** 1/15/2019 **IDEM Sample #:** AB35951
Water Flow Type Run **Water Appearance** Clear **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 94.6 % | ASTM D888-09(C) |
| | DO | 13.75 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.85 SU | EPA 150.2 |
| | Specific Conductance (Field) | 557 umho/cm | SM2510B |
| | Temperature | 0.1 °C | SM2550B(2) |
| | Turbidity (Hach) | 7.55 NTU | EPA 180.1 |
| | Air Temp | 1 Lookup | Observation |
| | Sky Conditions | 4 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # | Result | Reporting Limit | Method | |
|-----------------|--------------------------------|------------------------|---------------|----------------|
| 500-157615-2 | Alkalinity (as CaCO3) | 160 mg/L | 5 | SM2320B |
| | Chloride | 52 mg/L | 2 | EPA 300.0 |
| | Hardness (as CaCO3) | 210 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 8 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 360 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 350 mg/L | 10 | SM2540C |
| | Sulfate | 20 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 60 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 15 mg/L | 0.1 | EPA 200.7 |
| | COD | 24 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | 0.21 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 3.5 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.071 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.66 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 3.7 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | |
|---------------------------------|-----------------------|----------------------|-----------------|
| SC | WD | WS | AT |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp |
| 1 - Clear | 8 - Rain | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | 27 | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0024 **USGS Hydrologic Unit:** 050902030501
Stream Name: Tub Creek **County:** Ripley
Description: CR 250 W **Latitude:** 39 15 21.78944 **Longitude:** -85 18 19.81808
Drainage: **Site Number:** 19T-006

SiteID: OML-05-0024 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35580
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 84.6 % | | ASTM D888-09(C) |
| DO | 10.2 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.44 SU | | EPA 150.2 |
| Specific Conductance (Field) | 266 umho/cm | | SM2510B |
| Temperature | 7.3 °C | | SM2550B(2) |
| Turbidity (Hach) | 88.8 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 5 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 3 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-3 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 90 mg/L | 5 | SM2320B |
| Chloride | 18 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 120 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 67 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 290 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 250 mg/L | 10 | SM2540C |
| Sulfate | 14 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 33 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 8.7 mg/L | 0.1 | EPA 200.7 |
| COD | 46 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.16 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 1.5 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.34 mg/L | 0.05 | SM4500P-E |
| TKN | 0.71 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 9 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0024 Sample Date: 12/17/2018 IDEM Sample #: AB35702
 Water Flow Type Run Water Appearance Murky Water Depth Algae?
 Water Flow (cf/sec): Flow Estimated? Aquatic Life? Canopy Closed % 0-20%
 Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|------------------------------|-------------|-----------------|-----------------|
| % Sat | 89.9 % | | ASTM D888-09(C) |
| DO | 11.65 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.47 SU | | EPA 150.2 |
| Specific Conductance (Field) | 325 umho/cm | | SM2510B |
| Temperature | 4.3 °C | | SM2550B(2) |
| Turbidity (Hach) | 23.7 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 1 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| Lab ID # 500-156474-1 | Result | Reporting Limit | Method |
|--------------------------------|-----------|-----------------|----------------|
| Alkalinity (as CaCO3) | 120 mg/L | 5 | SM2320B |
| Chloride | 19 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 160 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 15 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 240 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 260 mg/L | 10 | SM2540C |
| Sulfate | 14 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 45 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 11 mg/L | 0.1 | EPA 200.7 |
| COD | 22 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.13 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 5.4 mg/L | 0.5 | SM4500NO3-F |
| Phosphorus, Total | 0.12 mg/L | 0.05 | SM4500P-E |
| TKN | 0.53 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | < 1 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SITeID: OML-05-0024 **Sample Date:** 1/15/2019 **IDEM Sample #:** AB35950
Water Flow Type Run **Water Appearance** Clear **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 92.3 % | ASTM D888-09(C) |
| | DO | 13.43 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.81 SU | EPA 150.2 |
| | Specific Conductance (Field) | 542 umho/cm | SM2510B |
| | Temperature | 0.1 °C | SM2550B(2) |
| | Turbidity (Hach) | 5.44 NTU | EPA 180.1 |
| | Air Temp | 1 Lookup | Observation |
| | Sky Conditions | 4 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # 500-157615-1 | Result | Reporting Limit | Method | |
|------------------------------|--------------------------------|------------------------|---------------|----------------|
| | Alkalinity (as CaCO3) | 180 mg/L | 5 | SM2320B |
| | Chloride | 45 mg/L | 2 | EPA 300.0 |
| | Hardness (as CaCO3) | 220 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 6 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 340 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 350 mg/L | 10 | SM2540C |
| | Sulfate | 20 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 60 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 17 mg/L | 0.1 | EPA 200.7 |
| | COD | < 10 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | < 0.2 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 3.2 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.034 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.47 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 3.2 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | |
|---------------------------------|-----------------------|----------------------|-----------------|
| SC | WD | WS | AT |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp |
| 1 - Clear | 8 - Rain | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | 27 | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0026 **USGS Hydrologic Unit:** 050902030503
Stream Name: Ripley Cr **County:** Ripley
Description: N Old Milan Rd **Latitude:** 39 10 29.31366 **Longitude:** -85 10 12.11020
Drainage: **Site Number:** 19T-008

SiteID: OML-05-0026 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35581
Water Flow Type Run **Water Appearance** Murky **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 85.1 % | | ASTM D888-09(C) |
| DO | 10.27 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.78 SU | | EPA 150.2 |
| Specific Conductance (Field) | 373 umho/cm | | SM2510B |
| Temperature | 7.2 °C | | SM2550B(2) |
| Turbidity (Hach) | 33.1 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 5 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 3 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-4 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 150 mg/L | 5 | SM2320B |
| Chloride | 18 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 170 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 36 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 290 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 270 mg/L | 10 | SM2540C |
| Sulfate | 17 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 49 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 12 mg/L | 0.1 | EPA 200.7 |
| COD | 31 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.15 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 1.1 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.12 mg/L | 0.05 | SM4500P-E |
| TKN | 0.61 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 5.5 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0026 Sample Date: 12/17/2018 IDEM Sample #: AB35707
 Water Flow Type Run Water Appearance Murky Water Depth Algae?
 Water Flow (cf/sec): Flow Estimated? Aquatic Life? Canopy Closed % 0-20%
 Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|------------------------------|-------------|-----------------|-----------------|
| % Sat | 89 % | | ASTM D888-09(C) |
| DO | 11.49 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.5 SU | | EPA 150.2 |
| Specific Conductance (Field) | 315 umho/cm | | SM2510B |
| Temperature | 4.6 °C | | SM2550B(2) |
| Turbidity (Hach) | 30.5 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 1 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| Lab ID # 500-156474-6 | Result | Reporting Limit | Method |
|--------------------------------|-----------|-----------------|----------------|
| Alkalinity (as CaCO3) | 120 mg/L | 5 | SM2320B |
| Chloride | 13 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 140 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 16 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 200 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 220 mg/L | 10 | SM2540C |
| Sulfate | 12 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 40 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 10 mg/L | 0.1 | EPA 200.7 |
| COD | 21 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.24 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 1.4 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.18 mg/L | 0.05 | SM4500P-E |
| TKN | 0.54 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 4.8 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0026 **Sample Date:** 1/15/2019 **IDEM Sample #:** AB35955
Water Flow Type Run **Water Appearance** Clear **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 92.3 % | ASTM D888-09(C) |
| | DO | 13.45 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.89 SU | EPA 150.2 |
| | Specific Conductance (Field) | 442 umho/cm | SM2510B |
| | Temperature | 0.1 °C | SM2550B(2) |
| | Turbidity (Hach) | 6.77 NTU | EPA 180.1 |
| | Air Temp | 1 Lookup | Observation |
| | Sky Conditions | 4 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 1 Lookup | Observation |

| Lab ID # 500-157615-6 | Result | Reporting Limit | Method | |
|------------------------------|--------------------------------|------------------------|---------------|----------------|
| | Alkalinity (as CaCO3) | 170 mg/L | 5 | SM2320B |
| | Chloride | 24 mg/L | 2 | EPA 300.0 |
| | Hardness (as CaCO3) | 200 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 5.5 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 290 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 280 mg/L | 10 | SM2540C |
| | Sulfate | 19 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 55 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 15 mg/L | 0.1 | EPA 200.7 |
| | COD | 7 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | < 0.2 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 1.1 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.053 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.41 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 2.7 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | |
|---------------------------------|-----------------------|----------------------|-----------------|
| SC | WD | WS | AT |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp |
| 1 - Clear | 8 - Rain | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | 27 | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0029 **USGS Hydrologic Unit:** 050902030504
Stream Name: Ripley Cr **County:** Ripley
Description: SR 129 **Latitude:** 39 12 35.72030 **Longitude:** -85 12 32.74782
Drainage: **Site Number:** 19T-011

SiteID: OML-05-0029 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35582
Water Flow Type Run **Water Appearance** Murky **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 88.3 % | | ASTM D888-09(C) |
| DO | 10.69 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.87 SU | | EPA 150.2 |
| Specific Conductance (Field) | 376 umho/cm | | SM2510B |
| Temperature | 7 °C | | SM2550B(2) |
| Turbidity (Hach) | 23 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 5 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 2 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-5 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 150 mg/L | 5 | SM2320B |
| Chloride | 17 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 170 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 13 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 270 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 260 mg/L | 10 | SM2540C |
| Sulfate | 15 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 50 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 11 mg/L | 0.1 | EPA 200.7 |
| COD | 28 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.13 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 1.3 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.11 mg/L | 0.05 | SM4500P-E |
| TKN | 0.64 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 5.3 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0029 Sample Date: 12/17/2018 IDEM Sample #: AB35706
 Water Flow Type Run Water Appearance Brown Water Depth Algae?
 Water Flow (cf/sec): Flow Estimated? Aquatic Life? Canopy Closed % 0-20%
 Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|------------------------------|-------------|-----------------|-----------------|
| % Sat | 92.1 % | | ASTM D888-09(C) |
| DO | 11.83 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.69 SU | | EPA 150.2 |
| Specific Conductance (Field) | 296 umho/cm | | SM2510B |
| Temperature | 4.8 °C | | SM2550B(2) |
| Turbidity (Hach) | 30.1 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 1 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| Lab ID # 500-156474-5 | Result | Reporting Limit | Method |
|--------------------------------|-----------|-----------------|----------------|
| Alkalinity (as CaCO3) | 120 mg/L | 5 | SM2320B |
| Chloride | 11 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 140 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 12 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 210 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 190 mg/L | 10 | SM2540C |
| Sulfate | 9.9 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 41 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 9.1 mg/L | 0.1 | EPA 200.7 |
| COD | 34 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.19 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 1.4 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.16 mg/L | 0.05 | SM4500P-E |
| TKN | 0.59 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 4.8 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SITeID: OML-05-0029 **Sample Date:** 1/15/2019 **IDEM Sample #:** AB35954
Water Flow Type Run **Water Appearance** Clear **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 97.6 % | ASTM D888-09(C) |
| | DO | 14.24 mg/L | ASTM D888-09(C) |
| | pH (Field) | 8.03 SU | EPA 150.2 |
| | Specific Conductance (Field) | 236 umho/cm | SM2510B |
| | Temperature | 0 °C | SM2550B(2) |
| | Turbidity (Hach) | 5.19 NTU | EPA 180.1 |
| | Air Temp | 1 Lookup | Observation |
| | Sky Conditions | 4 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # | Result | Reporting Limit | Method | |
|-----------------|--------------------------------|------------------------|---------------|----------------|
| 500-157615-5 | Alkalinity (as CaCO3) | 170 mg/L | 5 | SM2320B |
| | Chloride | 25 mg/L | 1 | EPA 300.0 |
| | Hardness (as CaCO3) | 200 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 3.5 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 290 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 270 mg/L | 10 | SM2540C |
| | Sulfate | 18 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 57 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 15 mg/L | 0.1 | EPA 200.7 |
| | COD | < 10 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | < 0.2 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 1.3 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.034 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.44 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 2.5 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | |
|---------------------------------|-----------------------|----------------------|-----------------|
| SC | WD | WS | AT |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp |
| 1 - Clear | 8 - Rain | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | 27 | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0030 **USGS Hydrologic Unit:** 050902030505
Stream Name: Laughery Creek **County:** Ripley
Description: SR 48 **Latitude:** 39 11 50.29840 **Longitude:** -85 14 51.02670
Drainage: **Site Number:** 19T-012

SiteID: OML-05-0030 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35583
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 86.3 % | | ASTM D888-09(C) |
| DO | 10.32 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.95 SU | | EPA 150.2 |
| Specific Conductance (Field) | 380 umho/cm | | SM2510B |
| Temperature | 7.6 °C | | SM2550B(2) |
| Turbidity (Hach) | 25 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 5 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 2 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-6 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 140 mg/L | 5 | SM2320B |
| Chloride | 20 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 170 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 29 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 300 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 280 mg/L | 10 | SM2540C |
| Sulfate | 15 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 50 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 11 mg/L | 0.1 | EPA 200.7 |
| COD | 17 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.2 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 2.9 mg/L | 0.2 | SM4500NO3-F |
| Phosphorus, Total | 0.16 mg/L | 0.05 | SM4500P-E |
| TKN | 0.69 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 5.4 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0030 Sample Date: 12/17/2018 IDEM Sample #: AB35705
 Water Flow Type Run Water Appearance Brown Water Depth Algae?
 Water Flow (cf/sec): Flow Estimated? Aquatic Life? Canopy Closed % 0-20%
 Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|------------------------------|-------------|-----------------|-----------------|
| % Sat | 90.9 % | | ASTM D888-09(C) |
| DO | 11.59 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.65 SU | | EPA 150.2 |
| Specific Conductance (Field) | 310 umho/cm | | SM2510B |
| Temperature | 5.1 °C | | SM2550B(2) |
| Turbidity (Hach) | 38.8 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 1 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| Lab ID # 500-156474-4 | Result | Reporting Limit | Method |
|--------------------------------|-----------|-----------------|----------------|
| Alkalinity (as CaCO3) | 110 mg/L | 5 | SM2320B |
| Chloride | 14 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 140 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 23 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 220 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 200 mg/L | 10 | SM2540C |
| Sulfate | 11 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 41 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 9.1 mg/L | 0.1 | EPA 200.7 |
| COD | 23 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.16 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 3.8 mg/L | 0.2 | SM4500NO3-F |
| Phosphorus, Total | 0.18 mg/L | 0.05 | SM4500P-E |
| TKN | 0.67 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 4.8 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0030

Sample Date: 1/15/2019

IDEM Sample #: AB35953

Water Flow Type Run

Water Appearance Clear

Water Depth **Algae?**

Water Flow (cf/sec):

Flow Estimated?

Aquatic Life?

Canopy Closed % 0-20%

Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 95.5 % | ASTM D888-09(C) |
| | DO | 13.9 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.97 SU | EPA 150.2 |
| | Specific Conductance (Field) | 535 umho/cm | SM2510B |
| | Temperature | 0.1 °C | SM2550B(2) |
| | Turbidity (Hach) | 5.57 NTU | EPA 180.1 |
| | Air Temp | 1 Lookup | Observation |
| | Sky Conditions | 4 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # 500-157615-4 | Result | Reporting Limit | Method | |
|------------------------------|--------------------------------|------------------------|---------------|----------------|
| | Alkalinity (as CaCO3) | 170 mg/L | 5 | SM2320B |
| | Chloride | 55 mg/L | 2 | EPA 300.0 |
| | Hardness (as CaCO3) | 200 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 5.5 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 340 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 320 mg/L | 10 | SM2540C |
| | Sulfate | 18 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 58 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 14 mg/L | 0.1 | EPA 200.7 |
| | COD | 20 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | < 0.2 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 2.7 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.046 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.52 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 2.6 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | |
|---------------------------------|-----------------------|----------------------|-----------------|
| SC | WD | WS | AT |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp |
| 1 - Clear | 8 - Rain | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0042 **USGS Hydrologic Unit:** 050902030506
Stream Name: Laughery Creek **County:** Ripley
Description: SR 350, Osgood Water Intake **Latitude:** 39 8 59.10005 **Longitude:** -85 15 13.40180
Drainage: **Site Number:** 19T-019

SiteID: OML-05-0042 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35584
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 86.4 % | | ASTM D888-09(C) |
| DO | 10.36 mg/L | | ASTM D888-09(C) |
| pH (Field) | 7.92 SU | | EPA 150.2 |
| Specific Conductance (Field) | 343 umho/cm | | SM2510B |
| Temperature | 7.3 °C | | SM2550B(2) |
| Turbidity (Hach) | 26.5 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 9 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 0 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-7 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 130 mg/L | 5 | SM2320B |
| Chloride | 17 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 160 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 16 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 270 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 250 mg/L | 10 | SM2540C |
| Sulfate | 13 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 46 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 9.9 mg/L | 0.1 | EPA 200.7 |
| COD | 30 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.15 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 2 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.17 mg/L | 0.05 | SM4500P-E |
| TKN | 0.6 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 5.8 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0042 **Sample Date:** 12/17/2018 **IDEM Sample #:** AB35708
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 91.2 % | ASTM D888-09(C) |
| | DO | 11.53 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.76 SU | EPA 150.2 |
| | Specific Conductance (Field) | 291 umho/cm | SM2510B |
| | Temperature | 5.4 °C | SM2550B(2) |
| | Turbidity (Hach) | 47.5 NTU | EPA 180.1 |
| | Air Temp | 2 Lookup | Observation |
| | Sky Conditions | 1 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # 500-156474-7 | Result | Reporting Limit | Method | |
|------------------------------|--------------------------------|------------------------|---------------|----------------|
| | Alkalinity (as CaCO3) | 110 mg/L | 5 | SM2320B |
| | Chloride | 12 mg/L | 1 | EPA 300.0 |
| | Hardness (as CaCO3) | 130 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 24 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 210 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 190 mg/L | 10 | SM2540C |
| | Sulfate | 9.5 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 38 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 8.1 mg/L | 0.1 | EPA 200.7 |
| | COD | 27 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | < 0.2 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 3.2 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.19 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.7 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 5.3 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | | | |
|---------------------------------|-----------------------|----------------------|---------------------|-----------------|-----------|
| SC | WD | WS | AT | | |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp | | |
| 1 - Clear | 8 - Rain | 0 | North (0 Degrees) | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 9 | East (90 Degrees) | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 18 | South (180 Degrees) | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | | 27 | West (270 Degrees) | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | | | 6 - Gale | |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0012 **USGS Hydrologic Unit:** 050902030507
Stream Name: Laughery Creek **County:** Ripley
Description: CR 450 N **Latitude:** 39 8 24.22718 **Longitude:** -85 14 58.64216
Drainage: **Site Number:** 19T-021

SiteID: OML-05-0012 **Sample Date:** 11/26/2018 **IDEM Sample #:** AB35585
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| <u>Lab ID #</u> | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|------------------------------|---------------|------------------------|-----------------|
| % Sat | 88 % | | ASTM D888-09(C) |
| DO | 10.59 mg/L | | ASTM D888-09(C) |
| pH (Field) | 8 SU | | EPA 150.2 |
| Specific Conductance (Field) | 348 umho/cm | | SM2510B |
| Temperature | 7.1 °C | | SM2550B(2) |
| Turbidity (Hach) | 28.3 NTU | | EPA 180.1 |
| Air Temp | 2 Lookup | | Observation |
| Sky Conditions | 4 Lookup | | Observation |
| Wind Direction | 0 Lookup | | Observation |
| Wind Strength | 1 Lookup | | Observation |

| <u>Lab ID #</u> 500-155289-8 | <u>Result</u> | <u>Reporting Limit</u> | <u>Method</u> |
|--------------------------------|---------------|------------------------|----------------|
| Alkalinity (as CaCO3) | 130 mg/L | 5 | SM2320B |
| Chloride | 17 mg/L | 1 | EPA 300.0 |
| Hardness (as CaCO3) | 160 mg/L | 1.3 | SM2340B |
| Solids, Suspended Total, (TSS) | 16 mg/L | 5 | SM2540D |
| Solids, Total (TS) | 280 mg/L | 10 | SM2540B |
| Solids, Total Dissolved (TDS) | 250 mg/L | 10 | SM2540C |
| Sulfate | 13 mg/L | 1 | EPA 300.0 |
| Calcium (Total) | 48 mg/L | 0.2 | EPA 200.7 |
| Magnesium (Total) | 10 mg/L | 0.1 | EPA 200.7 |
| COD | 29 mg/L | 10 | SM5220C |
| Nitrogen, Ammonia | 0.16 mg/L | 0.2 | SM4500NH3-G |
| Nitrogen, Nitrate+Nitrite | 2 mg/L | 0.1 | SM4500NO3-F |
| Phosphorus, Total | 0.17 mg/L | 0.05 | SM4500P-E |
| TKN | 0.63 mg/L | 0.4 | SM4500N(Org)-D |
| TOC | 5.9 mg/L | 1 | SM5310C |

**Indiana Department of Environmental Management
Office of Water Quality-Watershed Assessment and Planning Branch
Surface Water Results Summary**

SiteID: OML-05-0012 **Sample Date:** 12/17/2018 **IDEM Sample #:** AB35709
Water Flow Type Run **Water Appearance** Brown **Water Depth** **Algae?**
Water Flow (cf/sec): **Flow Estimated?** **Aquatic Life?** **Canopy Closed %** 0-20%
Sampler Comments:

| Lab ID # | Result | Reporting Limit | Method |
|-----------------|------------------------------|------------------------|-----------------|
| | % Sat | 93 % | ASTM D888-09(C) |
| | DO | 11.74 mg/L | ASTM D888-09(C) |
| | pH (Field) | 7.75 SU | EPA 150.2 |
| | Specific Conductance (Field) | 297 umho/cm | SM2510B |
| | Temperature | 5.5 °C | SM2550B(2) |
| | Turbidity (Hach) | 43.3 NTU | EPA 180.1 |
| | Air Temp | 2 Lookup | Observation |
| | Sky Conditions | 1 Lookup | Observation |
| | Wind Direction | 0 Lookup | Observation |
| | Wind Strength | 0 Lookup | Observation |

| Lab ID # 500-156474-8 | Result | Reporting Limit | Method | |
|------------------------------|--------------------------------|------------------------|---------------|----------------|
| | Alkalinity (as CaCO3) | 110 mg/L | 5 | SM2320B |
| | Chloride | 12 mg/L | 1 | EPA 300.0 |
| | Hardness (as CaCO3) | 130 mg/L | 1.3 | SM2340B |
| | Solids, Suspended Total, (TSS) | 22 mg/L | 5 | SM2540D |
| | Solids, Total (TS) | 210 mg/L | 10 | SM2540B |
| | Solids, Total Dissolved (TDS) | 200 mg/L | 10 | SM2540C |
| | Sulfate | 9.6 mg/L | 1 | EPA 300.0 |
| | Calcium (Total) | 39 mg/L | 0.2 | EPA 200.7 |
| | Magnesium (Total) | 8.1 mg/L | 0.1 | EPA 200.7 |
| | COD | 33 mg/L | 10 | SM5220C |
| | Nitrogen, Ammonia | < 0.2 mg/L | 0.2 | SM4500NH3-G |
| | Nitrogen, Nitrate+Nitrite | 3.2 mg/L | 0.2 | SM4500NO3-F |
| | Phosphorus, Total | 0.21 mg/L | 0.05 | SM4500P-E |
| | TKN | 0.91 mg/L | 0.4 | SM4500N(Org)-D |
| | TOC | 4.8 mg/L | 1 | SM5310C |

| Weather Code Definitions | | | |
|---------------------------------|-----------------------|----------------------|-----------------|
| SC | WD | WS | AT |
| Sky Conditions | Wind Direction | Wind Strength | Air Temp |
| 1 - Clear | 8 - Rain | 0 - Calm | 1 - < 32 |
| 2 - Scattered | 9 - Snow | 1 - Light | 2 - 33-45 |
| 3 - Partly | 10 - Sleet | 2 - Mod./Light | 3 - 46-60 |
| 4 - Cloudy | 27 | 3 - Moderate | 4 - 61-75 |
| 5 - Mist | | 4 - Mod./Strong | 5 - 76-85 |
| 6 - Fog | | 5 - Strong | 6 - > 86 |
| 7 - Shower | | 6 - Gale | |