

Addendum 1
to the
2005 Eagle Creek Watershed Management Plan

Traders Point Farm
HUC 05120201120080

Introduction

The purpose of this addendum is to include this specific site as having a “High” level of degradation within a “Low” level 14-Digit Sub-watershed (Eagle Creek-Long Branch/Irishmans Run), reference Table VI-20 of the 2005 Eagle Creek Watershed Management Plan. Such inclusion will allow the Eagle Creek Watershed Alliance to use existing cost-share funds as specified in the Eagle Creek Watershed Management Plan and approved by the IDEM Program Manager.

This site came to the attention of the Eagle Creek Watershed Alliance through a contact made by the Alliance's Ag Liaison, Harold Thompson. The property owners made mention that they had received letters of violation from the Marion County Health Department. This was brought up to the Alliance's Technical Committee in the fall of 2010. Concerns were discussed that while this site was in a “non-priority” sub-watershed, it was still a source of pollution to residents on the south side of Moore Road as well as directly impacting Eagle Creek Reservoir, a recreational and drinking water resource.

It was the decision of the Alliance to write an addendum to the Management Plan to include this site as eligible for grant funding to reduce the runoff from the dairy. In the interim Mr. Thompson will continue to work with the owner on other management practices to reduce nutrient loading.

Additionally, the dairy operation on the Traders Point Farm located at 8060 Moore Road, Indianapolis IN, was notified by the Marion County Health Department of elevated levels of E. coli bacteria, ortho-phosphate and ammonium. Sample results for the above were several times over the allowable limits as specified in 327 IAC 2-1-6, State of Indiana Minimum Surface Water Quality Standards.

A review of the dairy operation by NRCS engineers indicated that the site is well suited for the installation of best management practices to reduce bacterial and nutrient runoffs. The dairy herd is 90 to 110 animals with no plans by the owner to increase the herd size to the point that it would become a regulated entity, such as a CFO.

By approving this addendum to the 2005 Eagle Creek Watershed Management Plan the Eagle Creek Watershed Alliance will be able to implement best management practices on this site to reduce pollution runoff and improve the water quality entering Eagle Creek Reservoir.

Location

The Traders Point Farm (Elder Dairy) was brought to the Eagle Creek Watershed Alliance's (the Alliance) attention by the Marion County Board of Health through samples taken near the dairy farm. Runoff from the farm is approximately 0.8 of a mile from the north end of Eagle Creek Reservoir. Meetings with the dairy's manager indicated interest in upgrading the waste management facilities. On review of the 2005 Eagle Creek Watershed Management Plan (the Management Plan) it was noted that the Traders Point Farm was in the Long Branch/Irishman Run Sub-watershed (HUC 05120201120080) which is denoted as "Low" priority in the Management Plan.

The Eagle Creek Watershed and sub-watersheds are covered in detail in the 2005 Management Plan. The Long Branch/Irishman Run sub-watershed is located at the southern base of the Eagle Creek watershed and includes the north, or upper, end of Eagle Creek reservoir. The Town of Zionsville is located in the sub-watershed as well as outfalls from the Zionsville WWTP and Clay Waste WWTP. Figure 1 is a map of the sub-watershed, with the Traders Point Dairy immediately above the 05120201120080 legend.

Figure 2 is a map of the Traders Point Farm boundaries with Eagle Creek in the lower right-hand corner. The farm is comprised of agriculturally highly erodible land slopping southwest. The small ditch/stream from the farm passes through a residential area prior to entering Eagle Creek.

Impairments

The high nutrient levels (Marion County Board of Health data, Appendix A), contribute to excessive Blue-Green algae blooms which have restricted recreational activity on Eagle Creek Reservoir and increased the cost of drinking water treatment for the Indianapolis Water Company. (<http://www.in.gov/idem/algae/>)

High bacterial levels of E. coli (Board of Health data, Appendix A) were found in ditches and streams passing through residential areas between Traders Point Farm and Eagle Creek.

Both of the above present potential public health risks. Reference Figure 8 (a) and 8 (b) for IDEM Water Quality Targets.

Causes/Sources

The principle source of the impairments noted above are from this specific site, the dairy operation of Traders Point Farm. The farm/dairy comprises the drainage way where MCHD sampling occurs (see Figure 4). Storm runoff is not separated properly from animal waste and additional waste storage should be added. Cattle are also allowed in the drainage way on the farm property on the northwest side of Moore Road. (See Figure 4) The drain continues through a culvert under Moore Road to Eagle Creek. (See Figure 5)

Primary liquid waste storage from dairy cattle is stored in containment area north of main building shown in Figure 4.



Figure 2 – Detailed Property Map of Elder Dairy (red border)

Goals

Working with the dairy manager, farm owner, and NRCS engineers, best management practices can be implemented to reduce nutrient and bacterial loads. A nutrient management plan should be completed for Traders Point Farm. Increasing liquid waste storage volume and separation of bacterial/nutrient runoff from storm water runoff should also be included in these practices. As the vast majority of pollutant sources are encompassed by this site, noticeable reductions should be apparent shortly after the installation of the proposed practices. It is hoped that construction can commence in the fall of 2011. This project would contribute greatly to achieving Goal 1 in Section XI of the 2005 Eagle Creek Watershed Management Plan.

Methods

Management practices that are considered for the site are:

- Comprehensive Nutrient Management Plan
- Improved Waste Storage Facility
 - 315,000 cubic feet additional storage
 - 2,000 gallon settling basin
- Improved Storm Water Management
 - 21,000 square feet of grassed waterway
 - 50 acres of cover crops
- Cattle Fencing and Stream Crossings
 - 950 feet of fencing

Additionally other crop residue and tillage practices will be added as needed. Reference Figure 6 for Conservation Plan areas and Figure 7 for Fencing and Stream Crossings.

Load Reductions

Accepted standard models indicate the following potential reductions using the management methods detailed above:

- 216 tons/year of soil and sediment
- 494 pounds/year of phosphorus
- 1917 pounds/year of nitrogen

While there are no standard models for E.coli reduction by specific agricultural BMP, it is anticipated that the installation of the above practices will eliminate this facility from being a net contributor to E.coli loads entering Eagle Creek Reservoir. Continued monitoring by the Marion County Health Department will be used to substantiate the E.coli load reductions. MCHD has been monitoring this site quarterly.

Implementation

As this is a site specific plan, the above BMPs, listed in Methods, will be done in a normal construction sequence, following the creation of the Comprehensive Nutrient Management Plan.

There are no additional funds required by this addendum to the Management Plan or existing grant funding.

Monitoring

Monitoring of this site will be done as described in the Management Plan, Section XI, as well as indicated in Adam Rickert's (MCHD) letter to the Elders (owner) dated January 27, 2010, see Figure 3. Quality Assurance Project Plan's exist in the Eagle Creek Watershed Management Plan and at the Marion County Board of Health.

This is a somewhat unique case in that site specific data exist so that before and after comparisons can easily be made to evaluate the actual results of the practices.

January 27, 2010

William and Nancy Elder
320 North Meridian Street
Indianapolis IN 46204

Dear Mr. and Ms. Elder,

Per the Marion County Assessors office, you currently own the following parcels:

- Parcel 6000941, addresses listed include 8060, 8084, and 8102 Moore Road
- Parcel 6023959, addresses listed include 8222 and 8231 Moore Road

Our department samples and monitors surface (and ground) waters within Marion County, including several tributaries connected to Eagle Creek. Several drainage channels and small streams from the above parcels flow in an Easterly direction toward Eagle Creek. Over the last several months, our department has been sampling (see enclosed results) these streams/drainage channels, specifically for bacteriological (E. coli) and chemical parameters.

The sample results indicate a continuously elevated level of E. coli bacteria, Ortho Phosphate, and Ammonium several times the allowable limit as specified in 327 IAC 2-1-6, State of Indiana Minimum Surface Water Quality Standards. While the surface water standards are an important benchmark to gauge the quality of the water and to track improvements or deficiencies, it is not always feasible or realistic to achieve compliance within a short amount of time.

In an effort to initiate and facilitate continued improvements to the water quality within the Eagle Creek watershed, I have enclosed information on best management practices intended for livestock farms. The Eagle Creek Watershed Alliance (ECWA) is an available resource to aid in the implementation of best management practices. Cost share grants to help defray the cost of implementing a best management practice might be available through the ECWA as well; please contact Dr. Lenore Tedesco (317-274-3693) for further information.

If you and other vested parties are agreeable with moving forward with implementing one or more of the best management practices for these properties, I would like to continue monitoring this area to gauge the expected water quality benefits over time. I look forward to hearing from you, if you have any questions, please do not hesitate to call me directly at (317) 221-2298.

Sincerely,

Adam Rickert
Manager, Water Quality and Hazardous Materials Management
Bureau of Environmental Health

Figure 3 - Adam Rickert's Letter to Owners



Figure 4
Drainage Way from Dairy Operations
MCHD Sample Site (between fence and roadway)



Figure 5
Culvert outlet under Moore Road
Drainage from Elder Farm (Figure 4) flowing to Eagle Creek



Figure 6
 Elder Dairy Conservation Plan



Figure 7
Elder Dairy – Cattle Exclusion Fencing

IDEM Water Quality Targets

Parameter	Target	Reference/Other Information
Total Ammonia (NH3)	Range between 0.0 and 0.21 mg/L depending upon temperature and pH	Indiana Administrative Code (327 IAC 2-1-6)
Atropine	Max: 3.0 ppb	U.S. EPA Drinking Water Standard
Dissolved Oxygen (DO)	Min: 4.0 mg/L Max: 12.0 mg/L	Indiana Administrative Code (327 IAC 2-1-6)
	Min: 6.0 mg/L in coldwater fishery streams	Indiana Administrative Code (327 IAC 2-1.5-8)
	Min: 7.0 mg/L in spawning areas of coldwater fishery streams	Indiana Administrative Code (327 IAC 2-1.5-8)
E. coli	Max: 235 CFU/ 100mL in a single sample	Indiana Administrative Code (327 IAC 2-1.5-8)
	Max: <u>Geometric Mean</u> of 125 CFU/ 100mL from 5 equally spaced samples over a 30-day period	Indiana Administrative Code (327 IAC 2-1.5-8)
Nitrate	Max: 10 mg/L in waters designated as a drinking water source	Indiana Administrative Code (327 IAC 2-1-6)
Nitrite	Max: 1 mg/L in waters designated as a drinking water source	Indiana Administrative Code (327 IAC 2-1-6)
Nitrate-N + Nitrite-N	Max: 10 mg/L in waters designated as a drinking water source	Indiana Administrative Code (327 IAC 2-1-6)
Temperature	Dependant on time of year and whether stream is designated as a cold water fisheries	Indiana Administrative Code (327 IAC 2-1-6)
Nitrate-nitrogen (NO3)	Max: 0.633 mg/L	U.S. EPA recommendation *
	Max: 1.0 mg/L	Ohio EPA recommended criteria for Warm Water Habitat (WWH) headwater streams in Ohio EPA Technical Bulletin MAS//1999-1-1 [PDF]
	1.5 mg/L	Dividing line between mesotrophic and eutrophic streams (Dodds, W.K. et al., 1998, Table 1, pg. 1459, and in EPA-822-B-00-002 [PDF], p 27.)
	10.0 mg/L	IDEM draft TMDL target based on drinking water targets

Figure 8 (a)

Parameter	Target	Reference/Other Information
Ortho-Phosphate also known as Soluble reactive phosphorus (SRP)	Max: 0.005 mg/L	Wawasee Area Conservancy Foundation recommendation for lake systems, NESWP344
Suspended Sediment Concentration (SSC)	Max: 25.0 mg/L	U.S. EPA recommendation for excellent fisheries
	Range: 25.0-80.0 mg/L	U.S. EPA recommendation for good to moderate fisheries
Total Kjeldahl Nitrogen (TKN)	Max: 0.591 mg/L	U.S. EPA recommendation *
Total Phosphorus	Max: 0.076 mg/L	U.S. EPA recommendation
	0.07 mg/L	Dividing line between mesotrophic and eutrophic streams (Dodds, W.K. et al., 1998, Table 1, pg. 1459, and in EPA-822-B-00-002 [PDF], p 27.)
	Max: 0.08 mg/L	Ohio EPA recommended criteria for Warm Water Habitat (WWH) headwater streams in Ohio EPA Technical Bulletin MAS//1999-1-1 [PDF]
	Max: 0.3 mg/L	IDEM draft TMDL target
Total Suspended Solids (TSS)	Max: 80.0 mg/L	Wawasee Area Conservancy Foundation recommendation to protect aquatic life in lake systems
	Max: 30.0 mg/L	IDEM draft TMDL target from NPDES rule for lake dischargers in 327 IAC 5-10-4 re: monthly average for winter limits for small sanitary treatment plants
	Range: 25.0-80.0 mg/L	Concentrations within this range reduce fish concentrations (Waters, T.F., 1995). Sediment in streams: sources, biological effects and control. American Fisheries Society, Bethesda, MD. 251 p.
	Max: 40.0 mg/L	New Jersey criteria for warm water streams
	Max: 46.0 mg/L	Minnesota TMDL criteria for protection of fish/macroinvertebrate health
Turbidity	Max: 25.0 NTU	Minnesota TMDL criteria for protection of fish/macroinvertebrate health
	Max: 10.4 NTU	U.S. EPA recommendation

* U.S. EPA recommended criteria are different for parts of southwest Indiana within Ecoregion IX. See Ecoregional Nutrient Criteria Documents for Rivers & Streams for more information.

Reference: <http://www.in.gov/idem/6242.htm>

Figure 8 (b)

Appendix A

Marion County Health Department
Sample Reports from Moore Road Site



Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FH082409-2 Lab ID: F094850501
 Sample Location: 8025 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Other Sample Description: SW 8025 MOORE RD

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: August 24, 2009 10:50
 Date Collected: August 24, 2009 10:10

Final Results

Sample ID: FH082409-2 Lab ID: F094850501
 Matrix: Surface Water Date Completed: August 24, 2009 11:40
 Received on Ice, 2-8 degrees Celsius Date Reported: August 25, 2009 11:13

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
MICROBIOLOGY							
MPN Escherichia coli	8664 MPN/100mL	10		1	08/24/2009	JJ	235

Testing performed at Marion County Health Department Public Health Laboratory, ISDH# M-49-02, 3838 North Rural Street, Indianapolis, IN 46205

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Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FH082409-2 Lab ID: F094850501
 Sample Location: 8025 MOORE RD,
 INDIANAPOLIS, IN 46278

Reason for Sampling: Complaint Sample Description:

Final Results

Sample ID: FH082409-2 Lab ID: F094850501
 Matrix: Surface Water Date Completed: September 2, 2009 16:44
 Received on Ice, 2-8 degrees Celsius Date Reported: September 9, 2009 8:23

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
1,1,2-Trichloroethane	BDL (<0.29 ug/L)	0.50	0.29	1	09/02/2009	TZ	
Trichloroethene	BDL (<0.29 ug/L)	0.50	0.29	1	09/02/2009	TZ	
Vinyl chloride	BDL (<0.16 ug/L)	0.50	0.16	1	09/02/2009	TZ	
o-Xylene	BDL (<0.21 ug/L)	0.50	0.21	1	09/02/2009	TZ	
m-Xylene	BDL (<0.23 ug/L)	0.50	0.23	1	09/02/2009	TZ	
Bromodichloromethane	BDL (<0.26 ug/L)	0.50	0.26	1	09/02/2009	TZ	
Bromoform	BDL (<0.47 ug/L)	0.50	0.47	1	09/02/2009	TZ	
Dibromochloromethane	BDL (<0.34 ug/L)	0.50	0.34	1	09/02/2009	TZ	
Chloroform	BDL (<0.16 ug/L)	0.50	0.16	1	09/02/2009	TZ	
Comment	Blank was BDL			1	09/02/2009	TZ	

METALS

Analysis Desc: EPA 200.8 Analytical Method: EPA 200.8
 Registration Number: EPA/ISDH C-49-04

Arsenic	3.0 ug/L	1.0	0.29	1	08/26/2009	TZ	
Barium	90.8 ug/L	4.0	0.47	1	08/26/2009	TZ	
Cadmium	BDL (<0.17 ug/L)	0.50	0.17	1	08/26/2009	TZ	
Chromium	BDL (<0.27 ug/L)	3.0	0.27	1	08/26/2009	TZ	
Mercury	BDL (<0.13 ug/L)	0.20	0.13	1	08/26/2009	TZ	
Lead	BDL (<0.10 ug/L)	2.0	0.10	1	08/26/2009	TZ	
Copper	BDL (<0.26 ug/L)	20.0	0.26	1	08/26/2009	TZ	
Nickel	BDL (<0.15 ug/L)	1.0	0.15	1	08/26/2009	TZ	
Zinc	BDL (<1.4 ug/L)	10.0	1.4	1	08/26/2009	TZ	
Calcium	93700 ug/L	1000	13	1	08/26/2009	TZ	
Magnesium	34900 ug/L	1000	1.4	1	08/26/2009	TZ	
Hardness	378 mg/L CaCO3	7.0		1	08/26/2009	TZ	

ANIONS

Analysis Desc: EPA 300.0 Analytical Method: EPA 300.0
 Registration Number: EPA/ISDH C-49-04

Chloride	63.4 mg/L	2.0	0.065	1	08/25/2009	DW	
Nitrite	BDL (<0.010 mg/L)	0.20	0.010	1	08/25/2009	DW	
Nitrate	BDL (<0.025 mg/L)	0.20	0.025	1	08/25/2009	DW	
Ortho-Phosphate	2.1 mg/L	0.20	0.063	1	08/25/2009	DW	



Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FH092409-1 Lab ID: E095524101
 Sample Location: 8025 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: September 24, 2009 10:33
 Date Collected: September 24, 2009 10:30

Final Results

Sample ID: FH092409-1 Lab ID: E095524101
 Matrix: Surface Water Date Completed: October 14, 2009 11:54
 Received on Ice, 2-8 degrees Celsius Date Reported: October 15, 2009 10:00

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
METALS							
Analysis Desc:	EPA 200.8	Analytical Method:	EPA 200.8				
Registration Number:	EPA/ISDH C-49-04						
Arsenic	4.2 ug/L	1.0	0.29	1	10/14/2009	DW	
Barium	242 ug/L	4.0	0.47	1	10/14/2009	DW	
Cadmium	BDL (<0.17 ug/L)	0.50	0.17	1	10/14/2009	DW	
Chromium	3.2 ug/L	3.0	0.27	1	10/14/2009	DW	
Mercury	BDL (<0.13 ug/L)	0.20	0.13	1	10/14/2009	DW	
Lead	13.5 ug/L	2.0	0.10	1	10/14/2009	DW	
Copper	21.5 ug/L	20.0	0.26	1	10/14/2009	DW	
Nickel	6.0 ug/L	1.0	0.15	1	10/14/2009	DW	
Zinc	97.1 ug/L	10.0	1.4	1	10/14/2009	DW	
Calcium	108000 ug/L	1000	13	1	10/14/2009	DW	
Magnesium	36900 ug/L	1000	1.4	1	10/14/2009	DW	
Hardness	422 mg/L CaCO3	7.0		1	10/14/2009	DW	
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:	EPA 300.0				
Registration Number:	EPA/ISDH C-49-04						
Chloride	113 mg/L	2.0	0.065	1	09/25/2009	ND	
Nitrite	BDL (<0.010 mg/L)	0.20	0.010	1	09/25/2009	ND	
Nitrate	0.77 mg/L	0.20	0.025	1	09/25/2009	ND	
Ortho-Phosphate	20.6 mg/L	0.20	0.063	1	09/25/2009	ND	
Sulfate	6.34 mg/L	2.0	0.13	1	09/25/2009	ND	



Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FH092409-1 Lab ID: E095524101
 Sample Location: 8025 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: ditch

Final Results

Sample ID: FH092409-1 Lab ID: E095524101
 Matrix: Surface Water Date Completed: October 15, 2009 7:16
 Received on Ice, 2-8 degrees Celsius Date Reported: October 15, 2009 10:00

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
CATIONS							
Ammonium	52.3 mg/L	2.0	0.38	10	10/15/2009	ND	

Testing performed at Marion County Health Department Public Health Laboratory, ISDH# M-49-02, 3838 North Rural Street, Indianapolis, IN 46205

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Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FH110309-2 Lab ID: E096335401
 Sample Location: 8025 MOORE RD.
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: ditch

Final Results

Sample ID: FH110309-2 Lab ID: E096335401
 Matrix: Surface Water Date Completed: November 7, 2009 3:04
 Received on Ice. 2-8 degrees Celsius Date Reported: November 12, 2009 7:30

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual Regl.mt
1,1,2-Trichloroethane	BDL (<0.29 ug/L)	0.50	0.29	1	11/07/2009	DW	
Trichloroethene	BDL (<0.29 ug/L)	0.50	0.29	1	11/07/2009	DW	
Vinyl chloride	BDL (<0.16 ug/L)	0.50	0.16	1	11/07/2009	DW	
o-Xylene	BDL (<0.21 ug/L)	0.50	0.21	1	11/07/2009	DW	
m-Xylene	BDL (<0.23 ug/L)	0.50	0.23	1	11/07/2009	DW	
Bromodichloromethane	BDL (<0.26 ug/L)	0.50	0.26	1	11/07/2009	DW	
Bromoform	BDL (<0.47 ug/L)	0.50	0.47	1	11/07/2009	DW	
Dibromochloromethane	BDL (<0.34 ug/L)	0.50	0.34	1	11/07/2009	DW	
Chloroform	BDL (<0.16 ug/L)	0.50	0.16	1	11/07/2009	DW	
Comment	No duplicate sample run.			1	11/07/2009	DW	

METALS

Analysis Desc:	EPA 200.8	Analytical Method:	EPA 200.8				
Registration Number:	EPA/ISDH C-49-04						
Arsenic	3.7 ug/L	1.0	0.29	1	11/06/2009	ND	
Barium	121 ug/L	4.0	0.47	1	11/06/2009	ND	
Cadmium	BDL (<0.17 ug/L)	0.50	0.17	1	11/06/2009	ND	
Chromium	BDL (<0.27 ug/L)	3.0	0.27	1	11/06/2009	ND	
Mercury	BDL (<0.13 ug/L)	0.20	0.13	1	11/06/2009	ND	
Lead	BDL (<0.10 ug/L)	2.0	0.10	1	11/06/2009	ND	
Copper	BDL (<0.26 ug/L)	20.0	0.26	1	11/06/2009	ND	
Nickel	2.5 ug/L	1.0	0.15	1	11/06/2009	ND	
Zinc	23.4 ug/L	10.0	1.4	1	11/06/2009	ND	
Calcium	117000 ug/L	1000	13	1	11/06/2009	ND	
Magnesium	39400 ug/L	1000	1.4	1	11/06/2009	ND	
Hardness	454 mg/L CaCO3	7.0		1	11/06/2009	ND	

CATIONS

Ammonium	5.5 mg/L	0.20	0.038	1	11/10/2009	TZ	
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ANIONS

Analysis Desc:	EPA 300.0	Analytical Method:	EPA 300.0				
Registration Number:	EPA/ISDH C-49-04						
Chloride	63.9 mg/L	2.0	0.065	1	11/04/2009	ND	



Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FHI10309-2 Lab ID: E096335401
 Sample Location: 8025 MOORE RD.
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: ditch

Final Results

Sample ID: FHI10309-2 Lab ID: E096335401
 Matrix: Surface Water Date Completed: November 4, 2009 19:44
 Received on Ice, 2-8 degrees Celsius Date Reported: November 12, 2009 7:30

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
Nitrite	BDL (<0.010 mg/L)	0.20	0.010	1	11/04/2009	ND	
Nitrate	1.0 mg/L	0.20	0.025	1	11/04/2009	ND	
Ortho-Phosphate	1.6 mg/L	0.20	0.063	1	11/04/2009	ND	
Sulfate	63.0 mg/L	2.0	0.13	1	11/04/2009	ND	

Testing performed at Marion County Health Department Public Health Laboratory, ISDH# M-49-02, 3838 North Rural Street, Indianapolis, IN 46205

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Marion County Health Department
 3838 North Rural Street
 Indianapolis, IN 46205
 Phone: (317) 221-4670
 Fax: (317) 221-4683

Sample Information

Sample ID: FH113009-1 Lab ID: F096763801
 Sample Location: 8025 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: November 30, 2009 12:03
 Date Collected: November 30, 2009 15:00

Final Results

Sample ID: FH113009-1 Lab ID: F096763801
 Matrix: Surface Water Date Completed: December 4, 2009 15:28
 Received on Ice, 2-8 degrees Celsius Date Reported: December 11, 2009 11:12

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
METALS							
Analysis Desc:	EPA 200.8	Analytical Method:		EPA 200.8			
Registration Number:	EPA/ISDH C-49-04						
Arsenic	4.8 ug/L	1.0	0.29	1	12/04/2009	ND	
Barium	158 ug/L	4.0	0.47	1	12/04/2009	ND	
Cadmium	BDL (<0.17 ug/L)	0.50	0.17	1	12/04/2009	ND	
Chromium	BDL (<0.27 ug/L)	3.0	0.27	1	12/04/2009	ND	
Mercury	BDL (<0.13 ug/L)	0.20	0.13	1	12/04/2009	ND	
Lead	BDL (<0.10 ug/L)	2.0	0.10	1	12/04/2009	ND	
Copper	129 ug/L	20.0	0.26	1	12/04/2009	ND	
Nickel	3.2 ug/L	1.0	0.15	1	12/04/2009	ND	
Zinc	96.6 ug/L	10.0	1.4	1	12/04/2009	ND	
Calcium	97700 ug/L	1000	13	1	12/04/2009	ND	
Magnesium	37200 ug/L	1000	1.4	1	12/04/2009	ND	
Hardness	397 mg/L CaCO3	7.0		1	12/04/2009	ND	
CATIONS							
Ammonium	9.6 mg/L	0.20	0.038	1	12/08/2009	TZ	
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Chloride	131 mg/L	2.0	0.065	1	12/02/2009	TZ	
Nitrite	BDL (<0.010 mg/L)	0.20	0.010	1	12/02/2009	TZ	
Nitrate	1.1 mg/L	0.20	0.025	1	12/02/2009	TZ	



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Sample Information

Sample ID: FH012010-1 Lab ID: E100254401
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: MOOSE

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: January 20, 2010 10:32
 Date Collected: January 20, 2010 10:20

Final Results

Sample ID: FH012010-1 Lab ID: E100254401
 Matrix: Surface Water Date Completed: January 20, 2010 0:00
 Received on Ice, 2-8 degrees Celsius Date Reported: January 21, 2010 11:27

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual Reg Limit
MICROBIOLOGY MPN Escherichia coli	>24192	10		1	01/20/2010	DG	235

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Sample Information

Sample ID: FH012010-1 Lab ID: E100254401
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: Ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: January 20, 2010 11:18
 Date Collected: January 20, 2010 10:20

Final Results

Sample ID: FH012010-1 Lab ID: E100254401
 Matrix: Surface Water Date Completed: January 22, 2010 10:48
 Received on Ice, 2-8 degrees Celsius Date Reported: January 27, 2010 10:48

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
METALS							
Analysis Desc:	EPA 200.8	Analytical Method:		EPA 200.8			
Registration Number:	EPA/ISDH C-49-04						
Arsenic	2.0 ug/L	1.0	0.29	1	01/22/2010	TZ	
Barium	780 ug/L	4.0	0.47	1	01/22/2010	TZ	
Ammonium	7.0 mg/L	1.0	0.19	5	01/25/2010	DW	
Cadmium	BDL (<0.17 ug/L)	0.50	0.17	1	01/22/2010	TZ	
Chromium	BDL (<0.27 ug/L)	3.0	0.27	1	01/22/2010	TZ	
Mercury	BDL (<0.13 ug/L)	0.20	0.13	1	01/22/2010	TZ	
Lead	445 ug/L	2.0	0.10	1	01/22/2010	TZ	
Copper	89.9 ug/L	20.0	0.26	1	01/22/2010	TZ	
Nickel	1.4 ug/L	1.0	0.15	1	01/22/2010	TZ	
Zinc	34.9 ug/L	10.0	1.4	1	01/22/2010	TZ	
Calcium	127000 ug/L	1000	13	1	01/22/2010	TZ	
Magnesium	44100 ug/L	1000	1.4	1	01/22/2010	TZ	
Hardness	499 mg/L CaCO3	7.0		1	01/22/2010	TZ	
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Chloride	56.4 mg/L	2.0	0.065	1	01/20/2010	DW	
Nitrite	0.24 mg/L	0.20	0.010	1	01/20/2010	DW	
Nitrate	2.9 mg/L	0.20	0.025	1	01/20/2010	DW	
Ortho-Phosphate	1.1 mg/L	0.20	0.063	1	01/20/2010	DW	



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Sample Information

Sample ID: AR012810-2 Lab ID: E100441901
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Sample Description: ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: January 28, 2010 14:50
 Date Collected: January 28, 2010 13:55

Final Results

Sample ID: AR012810-2 Lab ID: E100441901
 Matrix: Surface Water Date Completed: January 29, 2010 14:57
 Received on Ice, 2-8 degrees Celsius Date Reported: February 16, 2010 11:02

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Chloride	48.7 mg/L	2.0	0.065	1	01/29/2010	ND	
Nitrite	0.25 mg/L	0.20	0.010	1	01/29/2010	ND	
Nitrate	3.0 mg/L	0.20	0.025	1	01/29/2010	ND	
Ortho-Phosphate	0.58 mg/L	0.20	0.063	1	01/29/2010	ND	
Sulfate	69.4 mg/L	2.0	0.13	1	01/29/2010	ND	
CATIONS							
Ammonium	1.9 mg/L	0.20	0.038	1	02/15/2010	DW	

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Sample Information

Sample ID: FH031110-1 Lab ID: F101080801
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Routine Sample Description: DITCH

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: March 11, 2010 11:23
 Date Collected: March 11, 2010 10:40

Final Results

Sample ID: FH031110-1 Lab ID: F101080801
 Matrix: Surface Water Date Completed: March 11, 2010 3:00
 Received on Ice, 2-8 degrees Celsius Date Reported: March 12, 2010 9:45

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
MICROBIOLOGY							
MPN Escherichia coli	>24192	10		1	03/11/2010	JJ	235

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Sample Information

Sample ID: FH031110-1 Lab ID: F101080801
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Sample Description: ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: March 11, 2010 11:23
 Date Collected: March 11, 2010 10:40

Final Results

Sample ID: FH031110-1 Lab ID: F101080801
 Matrix: Surface Water Date Completed: March 12, 2010 14:26
 Received on Ice, 2-8 degrees Celsius Date Reported: April 1, 2010 8:00

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Ortho-Phosphate	0.92 mg/L	0.20	0.028	1	03/12/2010	ND	
CATIONS							
Ammonium	2.0 mg/L	0.20	0.039	1	03/31/2010	ND	

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Sample Information

Sample ID: FH061610-1 Lab ID: E102787801
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: 8102 DITCH

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: June 16, 2010 10:59
 Date Collected: June 16, 2010 9:35

Final Results

Sample ID: FH061610-1 Lab ID: E102787801
 Matrix: Surface Water Date Completed: June 16, 2010 0:00
 Received on Ice, 2-8 degrees Celsius Date Reported: June 18, 2010 7:56

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
MICROBIOLOGY							
MPN Escherichia coli	24192 MPN/100mL	10		1	06/16/2010	AC	235

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Sample Information

Sample ID: FH061610-1 Lab ID: E102787801
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: June 16, 2010 10:55
 Date Collected: June 16, 2010 9:35

Final Results

Sample ID: FH061610-1 Lab ID: E102787801
 Matrix: Surface Water Date Completed: June 17, 2010 4:46
 Received on Ice, Out of Range, 2-8 deg C Date Reported: June 24, 2010 7:43

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
ANIONS							
Analysis Desc:	EPA 300.0						
Registration Number:	EPA/ISDH C-49-04						
Ortho-Phosphate	2.1 mg/L	0.20	0.028	1	06/17/2010	TZ	
CATIONS							
Ammonium	2.6 mg/L	0.20	0.0070	1	06/22/2010	TZ	

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Sample Information

Sample ID: FH090910-1 Lab ID: E104470601
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: DITCH

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: September 9, 2010 14:57
 Date Collected: September 9, 2010 14:15

Final Results

Sample ID: FH090910-1 Lab ID: E104470601
 Matrix: Surface Water Date Completed: September 9, 2010 3:00
 Received on Ice, 2-8 degrees Celsius Date Reported: September 10, 2010 8:58

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
MICROBIOLOGY							
MPN Escherichia coli	24192 MPN/100mL	10		1	09/09/2010	JJ	235

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Sample Information

Sample ID: FH090910-1 Lab ID: E104470601
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: Ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: September 9, 2010 14:57
 Date Collected: September 9, 2010 14:15

Final Results

Sample ID: FH090910-1 Lab ID: E104470601
 Matrix: Well Water Date Completed: September 10, 2010 0:47
 Received on Ice, 2-8 degrees Celsius Date Reported: October 13, 2010 7:41

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Fluoride	2.9 mg/L	0.20	0.11	1	09/10/2010	TZ	4
Chloride	109 mg/L	2.0	0.86	1	09/10/2010	TZ	250
Nitrite	BDL (<0.028 mg/L)	0.20	0.028	1	09/10/2010	TZ	1
Nitrate	BDL (<0.077 mg/L)	0.20	0.077	1	09/10/2010	TZ	10
Ortho-Phosphate	1.6 mg/L	0.20	0.041	1	09/10/2010	TZ	0.5
Sulfate	52.3 mg/L	2.0	0.18	1	09/10/2010	TZ	250
WET CHEMISTRY							
Analysis Desc:	EPA 350.3	Analytical Method:		EPA 350.3			
Registration Number:	EPA/ISDH C-49-04						
Ammonia	BDL (<2 mg/L)	2	2	10	10/08/2010	TZ	

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Sample Information

Sample ID: FH113010-1 Lab ID: E105777601
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: DITCH

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: November 30, 2010 11:45
 Date Collected: November 30, 2010 10:45

Final Results

Sample ID: FH113010-1 Lab ID: E105777601
 Matrix: Surface Water Date Completed: November 30, 2010 0:00
 Received on Ice, 2-8 degrees Celsius Date Reported: December 1, 2010 10:01

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual Reg Limit
MICROBIOLOGY							
MPN Escherichia coli	>24192	10		1	11/30/2010	DG	235

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Sample Information

Sample ID: FH113010-1 Lab ID: E105777601
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: Ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: November 30, 2010 14:19
 Date Collected: November 30, 2010 10:45

Final Results

Sample ID: FH113010-1 Lab ID: E105777601
 Matrix: Surface Water Date Completed: December 1, 2010 16:49
 Received on Ice, 2-8 degrees Celsius Date Reported: December 8, 2010 7:43

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Chloride	109 mg/L	2.0	0.86	1	12/01/2010	ND	
Nitrite	0.35 mg/L	0.20	0.028	1	12/01/2010	ND	
Nitrate	8.3 mg/L	0.20	0.077	1	12/01/2010	ND	
Ortho-Phosphate	1.7 mg/L	0.20	0.041	1	12/01/2010	ND	
Sulfate	153 mg/L	2.0	0.18	1	12/01/2010	ND	
WET CHEMISTRY							
Analysis Desc:	EPA 350.3	Analytical Method:		EPA 350.3			
Registration Number:	EPA/ISDH C-49-04						
Ammonia	11.1 mg/L	0.2	0.2	1	12/06/2010	ND	

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Sample Information

Sample ID: FH031711-1 Lab ID: E111131501
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Survey Sample Description: DITCH

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: March 17, 2011 12:45
 Date Collected: March 17, 2011 11:50

Final Results

Sample ID: FH031711-1 Lab ID: E111131501
 Matrix: Surface Water Date Completed: March 17, 2011 0:00
 Date Reported: March 18, 2011 9:53

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
MICROBIOLOGY							
MPN Escherichia coli	7270 MPN/100mL	10		1	03/17/2011	DG	235

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Sample Information

Sample ID: FH031711-1 Lab ID: E111131501
 Sample Location: 8102 MOORE RD,
 INDIANAPOLIS, IN 46278
 Reason for Sampling: Sample Description: Ditch

Collection Information

Collection: MCHD-WQ/IAQ/HMM
 3838 North Rural Street, 5th Floor
 Indianapolis, IN 46205
 Collected By: Fikru Hailu, M.P.H., C.H.M.M. Date Received: March 17, 2011 12:45
 Date Collected: March 17, 2011 11:50

Final Results

Sample ID: FH031711-1 Lab ID: E111131501
 Matrix: Surface Water Date Completed: March 23, 2011 16:06
 Received on Ice, 2-8 degrees Celsius Date Reported: March 25, 2011 7:24

Test	Result	Report Limit	MDL	DF Prepared	Analyzed	By	Qual RegLmt
METALS							
Analysis Desc:	EPA 200.8	Analytical Method:		EPA 200.8			
Registration Number:	EPA/ISDH C-49-04						
Arsenic	3.1 ug/L	1.0		1	03/23/2011	DW	
Barium	107 ug/L	4.0		1	03/23/2011	DW	
Cadmium	BDL (< ug/L)	0.50		1	03/23/2011	DW	
Chromium	BDL (< ug/L)	3.0		1	03/23/2011	DW	
Mercury	BDL (< ug/L)	0.20		1	03/23/2011	DW	
Lead	2.3 ug/L	2.0		1	03/23/2011	DW	
Copper	35.0 ug/L	20.0		1	03/23/2011	DW	
Nickel	2.9 ug/L	1.0		1	03/23/2011	DW	
Zinc	15.1 ug/L	10.0		1	03/23/2011	DW	
Calcium	118000 ug/L	1000		1	03/23/2011	DW	
Magnesium	35000 ug/L	1000		1	03/23/2011	DW	
Hardness	439 mg/L CaCO3	7.0		1	03/23/2011	DW	
ANIONS							
Analysis Desc:	EPA 300.0	Analytical Method:		EPA 300.0			
Registration Number:	EPA/ISDH C-49-04						
Chloride	63.5 mg/L	2.0	0.054	1	03/17/2011	ND	
Nitrite	0.24 mg/L	0.20	0.011	1	03/17/2011	ND	
Nitrate	7.5 mg/L	0.20	0.015	1	03/17/2011	ND	
Ortho-Phosphate	1.0 mg/L	0.20	0.084	1	03/17/2011	ND	
Sulfate	70.8 mg/L	2.0	0.23	1	03/17/2011	ND	



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Fax: (317) 221-4683

Sample Information

Sample ID: FH031711-1 Lab ID: E111131501

Sample Location:
8102 MOORE RD,
INDIANAPOLIS, IN 46278

Reason for Sampling: Sample Description: Ditch

Final Results

Sample ID: FH031711-1 Lab ID: E111131501
Matrix: Surface Water Date Completed: March 17, 2011 23:31
Received on Ice, 2-8 degrees Celsius Date Reported: March 25, 2011 7:24

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