

# **2019 Water Quality Report**

U.S. Army Corps of Engineers Saint Louis District

# **Lake Shelbyville Water Quality Conditions: 2014-2019**



**July 2020** 

Lake Shelbyville Water Quality Conditions: 2014-2019

## Prepared for

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#### **EXECUTIVE SUMMARY**

The United States Army Corps of Engineers (USACE) commitment to environmental compliance and protection of estuaries, rivers, lakes, and navigable waters arises from the national policy and directives expressed in Federal Statutes, Executive Orders, and internal regulations. These regulations were designed to minimize pollution, maximize recreation, protect aesthetics, preserve natural resources, and promote the comprehensive planning and use of water bodies to enhance the public interest rather than private gain; therefore, USACE, in the design, construction, management, operation, and maintenance of its facilities, will exert leadership within existing authorities and appropriations in the nationwide effort to protect, enhance, and sustain the quality of the nation's resources. It is USACEs policy to comply with requirements of the Clean Water Act and not to degrade existing water quality conditions to the maximum extent that is practicable, consistent with project authorities, Federal legal and regulatory requirements, the public interest, and water control manuals.

The United States Army Corps of Engineers, Saint Louis District (CEMVS), implemented a water quality monitoring program during the 1970s to evaluate how its civil projects may be affecting water resources. Data collected from this effort serves as an invaluable tool for evaluating the significance of annual water quality measurements and tracking long-term trends. Water quality data is provided to the Missouri Department of Natural Resources and the Illinois Environmental Protection Agency to be used as a screening mechanism for the Missouri and Illinois Water Quality Report which is required every two years by the Clean Water Act Sections 303(d) and 305(b).

The National Water Quality Inventory Report to Congress (305(b) report) is the primary vehicle for informing law makers and the public about general water quality conditions in the United States. This document characterizes our water quality, identifies widespread water quality problems of national significance and describes various programs implemented to restore and protect our waters. Currently the Illinois Environmental Protection Agency (IEPA, 2018) has listed Lake Shelbyville impaired for Total Suspended Solids, total phosphorus, and mercury, while the Kaskaskia upstream of the Lake is impaired for PCB's, dissolved oxygen, pH, Fecal Coliform, and mercury. The lists of sources for these impairments are runoff, crop production, shore modifications, and recreational pollution.

Water quality sampling in 2019 revealed some minor concerns at Lake Shelbyville. The following parameters exceeded state standards during the 2019 sampling season: phosphorus, nitrogen, iron, and total suspended solids.

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#### INTRODUCTION

Lake Shelbyville is located in Shelby and Moultrie Counties of east-central Illinois with the dam site approximately one-half mile east of Shelbyville. Two rivers, the West Okaw and the Kaskaskia, drain into Lake Shelbyville. The Kaskaskia River begins in Champaign County, while the West Okaw headwaters drain farmland from Piatt County southward. At normal recreation pool, the 11,100 acre lake is approximately 20 miles long, varying in width from one-quarter to one mile. Average depth is 19 feet, with depths much deeper in the original river channel. The Kaskaskia River is an important and prominent natural feature in Central and Southwestern Illinois. The watershed, primarily agricultural, is the second largest river system within Illinois, originating in Champaign County and flowing in a southwesterly direction for approximately 292 miles, where it unites with the Mississippi River in Randolph County. The Kaskaskia River Watershed encompasses an area of 5,746 square miles (10.2% of the entire state). The CEMVS manages and operates two large reservoirs on the Kaskaskia River, Lake Shelbyville and Carlyle Lake, as well as the 36 mile long navigable channel and lock and dam at the Kaskaskia River Project.

Shelbyville Lake is managed and operated by the CEMVS for the authorized purposes of flood risk management, recreation, water supply, navigation, and fish and wildlife conservation. The lake serves as a heavy recreational usage lake. The land surrounding the lake is used predominately for agriculture. Surrounding communities have existing industrial/commercial operations and residents which discharge wastewater into municipal wastewater treatment plants that ultimately discharge treated water into the Kaskaskia River basin. Agricultural runoff and municipal wastewater treatment facilities are the primary potential source of pollution into the Lake Shelbyville watershed. Additional sources are marinas, recreational watercraft discharges and wildlife fecal material runoff.

Water quality is of paramount importance for sustaining ecological integrity and services provided by the Kaskaskia River and Lake Shelbyville. Water quality is influenced by a range of both point and nonpoint pollution sources, which may include natural processes, industrial and municipal effluents, and surface runoff from agricultural arenas.

The Saint Louis District (CEMVS) of United States Army Corps of Engineers (USACE) has implemented a Water Quality Management Plan (WQMP) as part of the operation and maintenance activities associated with managing USACEs' civil works projects throughout the District which includes, among other reservoirs and rivers, the Kaskaskia River and Lake Shelbyville. The WQMP addresses surface water quality management issues and adheres to the guidance and requirements specified by Clean Water Act (CWA), as well as the self-imposed Engineering Regulation (ER) 1110-2-8154, "Water Quality and Environmental Management for USACE Civil Works Projects" (USACE,

2018). Water quality monitoring is implemented to fulfill five primary objectives that drive the CEMVS WQMP:

- 1) Establish baseline conditions, identify significant water quality trends, and document problems and accomplishments.
- 2) Ensure that surface water quality, as affected by CEMVS projects, is suitable for project purposes, existing water uses, public health and safety, and in compliance with applicable state and federal water quality standards.
- 3) Provide support to water control, project operations, and navigation for regulations and modifications.
- 4) Investigate special problems, design and implement modifications, and improve water management procedures
- 5) Establish and maintain strong working partnerships and collaborations with appropriate entities within and outside USACE regarding water quality.

This report is intended to document and assess water quality conditions occurring at Lake Shelbyville. The report describes conditions observed in 2019, as well as baseline data collected from 2014-2018. Additional historical data are available upon request.

#### LAKE SHELBYVILLE WQMP COVERAGE

The WQMP for Lake Shelbyville includes water samples taken at the following locations: major tributaries (SBV-12 and SBV-13), main body of the lake (SBV-2, SBV-4, SBV-11, and the marinas), and just downstream of the dam (SBV-1). See figure 1 and Table 1 for a site map and site coordinates.

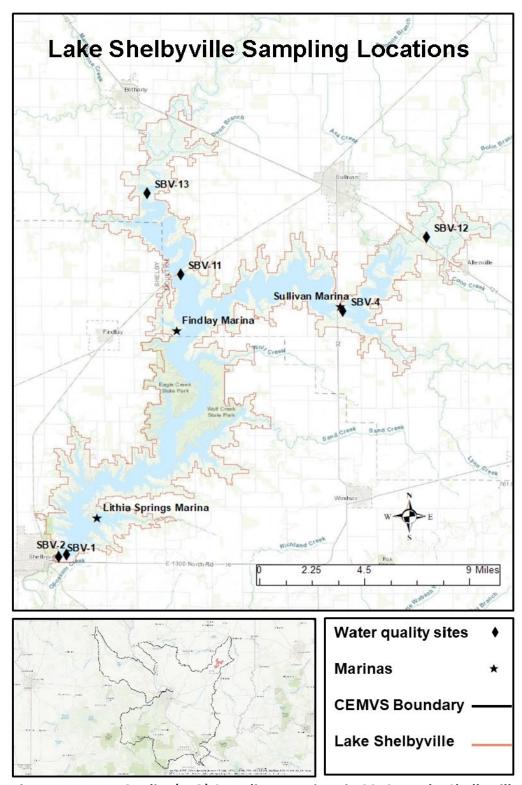


Figure 1. Water Quality (WQ) Sampling Locations in 2019 at Lake Shelbyville

# Sample Location Summary Table

Table 1: Sample Location Summary and Geographic Location (NAD 1983)

Sample Location Type	Abbreviation	Site Name	Latitude	Longitude
Major Tributary	TRIB	SBV-13	39.59417	-88.72651
	TRIB	SBV-12	39.57170	-88.55345
Main Reservoir Surface	RS	SBV-2	39.40947	-88.77614
	RS	SBV-4	39.53397	-88.60528
	RS	SBV-11	39.55269	-88.70556
	RS	SBV-FIN	39.52388	-88.70820
	RS	SBV-LS	39.42802	-88.75728
	RS	SBV-SUL	39.53635	-88.60675
Reservoir Benthic	RB	SBV-2-10	39.40947	-88.77614
Tail Race (below dam)	TR	SBV-1	39.40823	-88.78124

Samples at Marinas are not always taken in the exact same location.

#### METHODS AND ANALYSIS: WATER QUALITY

#### Data Collection and Historical Reference Data

During 2019, water quality samples were collected and analyzed for 10 locations during four separate sampling events (n=40; Table 1). One duplicate sample was also collected during each sampling event for quality control purposes. Samples were collected from the upper one meter of the water column, preserved, and transported to the Applied Research and Development Laboratory (ARDL) in Mount Vernon, Illinois for analysis.

For the purpose of this report, historical reference data refers to water quality data collected during the previous five years (2014-2018) at Lake Shelbyville. Historical reference data are intended to represent the current condition of Lake Shelbyville.

### Statistical Summary and Comparison to Applicable Water Quality Standards

Statistical analyses were performed on water quality monitoring data collected for 10 locations, and classified as TRIB (n= 2), RS (n=3), RB (n=1), and TR (n=1). Descriptive statistics were calculated to describe central tendencies and corresponding 95% confidence levels for the geometric mean. Monitoring results were compared to applicable water quality standard criteria established by the appropriate state agencies pursuant to the Federal Clean Water Act. If a state water quality standard criteria was not available, recommended criteria from the literature were considered.

Seasonal data are classified as: Winter (December 01 - March 14), Spring (March 15 – May 31), Summer (June 1 – September 15), Fall (September 16 – November 30).

### **Quality Assurance**

The United States Army Corps of Engineers, Saint Louis District quality assurance procedures considers two primary focus areas: (1) those that involve laboratory analysis of samples, and (2) those concerning the collection and processing of the water samples in the field.

Since 2012, ARDL has analyzed water quality samples for CEMVS. Their quality assurance program includes the use of quality control charts, check standards, field and in-house matrix spikes, laboratory blanks and performance evaluation samples. In addition, one blind duplicate sample is submitted for at least every 20 samples, or, in this case, every sampling event (one event/day at Lake Shelbyville has 6 samples and one duplicate).

Internal checks are also used for field sampling. This includes adherence to operating procedures for data collection and periodic evaluation of sampling personnel. Field sampling equipment and multimeters are calibrated/serviced in accordance with factory recommendations.

#### Water Quality Parameters and Criteria

Parameters used to characterize water quality have been generally accepted criteria for assessing aquatic life and human health include:

Temperature (Temp) is important because it controls several aspects of water quality. Colder water holds more dissolved oxygen which is required by aquatic organisms. Plants grow more rapidly and use more oxygen in warmer water. Decomposition of organic matter which uses oxygen is accelerated in warmer water. Temperature can also determine the availability of toxic compounds such as ammonia. Since aquatic organisms are cold blooded, water temperature regulates their metabolism and ability to survive. The number and kinds of organisms that are found in streams or lakes is directly related to temperature. Certain organisms require a specific temperature range, such as Salmonids, which require water temperatures below 20°C. Water temperature criteria for warm water bodies in Illinois is within 2.8°C of the seasonal norm.

<u>Dissolved Oxygen (DO)</u> refers to the measurement of free oxygen molecules (O<sub>2</sub>) that are not bonded to any other elements; thus, oxygen bonded in water (H<sub>2</sub>O) would not be considered in a measurement of dissolved oxygen. Oxygen is dissolved in surface waters through interactions with the atmosphere and as a waste product of photosynthesis (CO<sub>2</sub> + H<sub>2</sub>O (CH<sub>2</sub>O) + O<sub>2</sub>) from phytoplankton and aquatic vegetation. Additional factors influencing DO include temperature, pressure, and salinity.

Dissolved oxygen is required for most aquatic life including fish, invertebrates, bacteria, and plants. Fish and invertebrates utilize DO for respiration through gills and cutaneous breathing, and plants

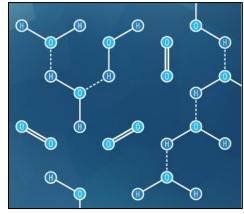


Figure 1: Dissolved oxygen  $(O_2)$  vs oxygen bonded in water  $(H_2O)$ .

require dissolved oxygen for respiration when photosynthesis is not possible. Smaller microbes and bacteria utilize DO for decomposition of organic materials, a process essential for nutrient cycling. Bottom feeders such as worms and mussels can persist when DO is  $\geq 1 \text{mg/L}$ , while most inland fish species require a minimum DO of 4 mg/L. The DO water quality criteria for Illinois is  $\geq 5 \text{mg/L}$ .

Potential of Hydrogen (pH) is a measure of how acidic or basic water is. Potential of Hydrogen is reported on a logarithmic scale ranging from 0 – 14, with 7.0 being neutral. As pH increases from 7.0, water increases in alkalinity, whereas a decrease from 7.0 indicates an increase in acidity. Since pH is measured on a logarithmic scale, every one-unit change in pH indicates a 10-fold change in acidity; thus, a pH of 6.0 is ten times more acidic than a pH of 7.0 and a pH of 4.0 would be one-thousand times more than a pH of 7.0.

The pH of water varies considerably beyond the local level. Natural variation in bedrock and soil composition through which water moves has been reported as one of the most influential factors. Additional factors include decomposition of organic materials, acidity of local precipitation, discharge of effluents and chemicals, and mining operations.

Most freshwater streams and rivers have a natural pH ranging from 6 to 8. As pH approaches 5 (acidic), less tolerant fish and aquatic invertebrate assemblages may be extirpated, and a pH below 4.5 would be without most desired aquatic life. Conversely, when pH exceeds 9.5 (alkaline), aquatic fish and invertebrate begins to rapidly decrease and beyond 10, fish become extirpated. The pH water quality criteria for Illinois ranges from 6.5 - 9.0.

<u>Conductivity</u> is a measure of water's ability to conduct electrical current. In its purist form, water has a *near* neutral charge, indicating that it is an inefficient conductor of electrical current. Thus the ability to carry electrical current is driven by water soluble ions (atoms and molecules with a charge) such as salts and other inorganic materials. Conductivity is also influenced by water temperature; as temperature increases, conductivity increases. For this reason, conductivity is commonly reported as Specific Conductivity (SpCond), which is the measurement of conductivity at 25 degrees Celsius.

Conductivity in streams and rivers is affected by the geology of the area. Streams running through granite tend to have lower conductivity due to granite being composed of inert material; materials that do not ionize or dissolve into ionic compounds in water. Conversely, streams that run through areas of limestone or clay soils tend to have higher conductivity readings because of the presence of materials that ionize. Conductivity is useful as a general measure of water quality. A stream tends to have a relatively constant range of conductivity that, once established, can be used as a baseline. Significant changes, either increases or decreases, might indicate a source of pollution has been introduced into the water. The pollution source could be a treatment plant, which raises the conductivity, or an oil spill, which would lower the conductivity. In general, there are no water quality criteria for SpCond. The District threshold of 500  $\mu$ S/cm is a rule of thumb value that is often associated with some form of biological impairment.

Oxidation Reduction Potential (ORP) is a measurement of the net status of all the oxidation and reduction reactions in a given water sample. Oxidation involves an exchange of electrons between 2 atoms. The atom that loses an electron is oxidized and the one that gains an electron is reduced. Oxidation reduction potential sensors measure the electrochemical potential between the solution and a reference electrode. Readings are expressed in millivolts. Positive readings indicate increased oxidizing potential and negative readings increased reduction. Oxidation reduction potential values are used much like pH values to determine water quality. While pH readings characterize the state of a system relative to the receiving or donating hydrogen ions (base or acid), ORP readings characterize the relative state of losing or gaining electrons. Generally ORP readings above 400mV are harmful to aquatic life; however,

ORP is a non-specific measurement, which is a reflection of a combination of effects of all the dissolved materials in the water. Therefore, the measurement of ORP in relatively clean water has only limited utility unless a predominant redox-active material is known to be present.

Total Suspended Solids (TSS) concentrations, which cause the photosynthetic activity to be reduced by more than 10% from the seasonably established norm, can have a detrimental effect on aquatic life. Soil particles, organic material, and other debris comprise suspended solids in the water column. Turbidity (FNU) measurements are inverse to suspended solid measurements. As TSS increases, the FNU or water transparency decreases. Total suspended solids can be an important indicator of the type and degree of FNU. Total Suspended Solids measurements represent a combination of Volatile Suspended Solids (VSS), which consist of organic material, and Nonvolatile Suspended Solids (NVSS), which is comprised of inorganic mineral particles in the water. In order to more accurately determine the types and amounts of suspended solids, VSS are analyzed. Volatile suspended solid concentration represents the organic portion of the total suspended solids. Organic material often includes plankton, and additional plant and animal debris present in water. Total VSS indicates the presence of organics in suspension; and, therefore, show additional demand levels of oxygen. Illinois Environmental Protection Agency (EPA) recommends that TSS not exceed 116 mg/L for streams and 12 mg/L for lakes. Illinois does not currently have a standard criteria for NVSS or VSS.

<u>Total Organic Carbon (TOC)</u> is a measure of the amount of organic carbon in a water body. In addition to natural organic substances, TOC includes insecticides and herbicides, as well as domestic and industrial waste. Industrial waste effluent may include carbon-containing compounds with various toxicity levels. Further, a high organic content means an increase in the growth of microorganisms which contribute to the depletion of oxygen supplies.

Currently, there are no state or federal water quality standard criteria set for TOC. Because carbon occurs naturally, its concentration varies based on physical and chemical attributes in a watershed; thus, this study relies on historical reference conditions to identify unfavorable conditions.

Metals Iron (TFe) and Manganese (TMn) (T=total) are nutrients for both plants and animals. Living organisms require trace amounts of metals. However, excessive amounts can be harmful to the organism. Heavy metals exist in surface waters in three forms, colloidal, particulate, and dissolved. Water chemistry determines the rate of adsorption and desorption of metals to and from sediment. Metals are desorbed from the sediment if the water experiences increases in salinity, decreases in redox potential, or decreases in pH. Metals in surface waters can be from natural or human sources. Metal levels in surface water may pose a health risk to humans and the environment.

<u>Pesticides</u> are commonly used throughout much of the agricultural landscape that the Kaskaskia River flows. This study considers one insecticide and seven herbicides.

Atrazine and Alachlor herbicides are commonly used agricultural chemicals which can be readily transported by rainfall runoff. Both compounds are suspected of causing cancer; and therefore, were monitored for the protection of human and aquatic health. Herbicides which are pesticides used to kill vegetation are the most widely used and sampled. Two of the most widely used herbicides are Atrazine and Alachlor. Atrazine is a preemergence or postemergence herbicide use to control broadleaf weeds and annual grasses. Atrazine is most commonly detected in ground and surface water due to its wide use, and its ability to persist in soil and move in water. Alachlor is a Restricted Use Pesticide (RUP) due to the potential to contaminate groundwater. The water quality standards for the pesticides sampled are located in Table 2.

<u>Nitrogen</u> occurs naturally in water through several forms including nitrogen (N2), nitrite (NO2-N), nitrate (NO3-N), ammonia (NH3), and ammonium (NH4). Nitrates are the most commonly reported form of nitrogen, and may have a meaningful influence on a water body's trophic status. Algae and other plants use NO3-N as a food source, thus excess levels of NO3-N can promote increases in algae production and hypereutrophic conditions.

In general, NO3-N does not have a *direct* effect on fish or aquatic insects. Illinois has set criteria standards for NO3-N to 10 mg/L to accommodate safe drinking waters for human and livestock; however, this threshold likely exceeds the concentration that is appropriate for assessing ecosystem health.

<u>Total Ammonia Nitrogen (TAN)</u> includes NH3 and NH4. Total ammonia nitrogen is a colorless gas with a strong pungent odor. Ammonia occurs naturally and is a biological requirement for aquatic life, however elevated concentrations can be toxic to freshwater organisms. Unnatural sources of ammonia include, accidental releases of ammonia rich fertilizer, effluent from sewage treatment plants, improper disposal of ammonia products, and livestock waste.

Toxic concentrations for freshwater organisms range from 0.53 – 22.8 mg/L, and are strongly dependent on both pH and temperature. In general, an increase in pH and/or temperature corresponds with an increase in toxicity. Additional information in regards to the relationship between pH, temperature, and ammonia, as it relates to toxicity, can be reviewed in Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater (USEPA 2013).

Total Phosphorus (TP) is analyzed as phosphorus, and has been monitored due to the potential for uptake by nuisance algae. Levels of phosphate can indicate the potential for rapid growth of algae (algae bloom) which can cause serious oxygen depletion during the algae decay process. Phosphorous is typically the limiting nutrient in a water body; therefore, any addition of phosphorous to the ecosystem stimulates the growth of plants and algae. Phosphorous is delivered to lakes and streams by way of runoff from agricultural fields and urban environments. Other sources of phosphorous are anaerobic decomposition of organic matter, leaking sewer systems, and point source pollution. The general standard for phosphorous in lake water is 0.05 mg/L. Dissolved

phosphorous, also called **Orthophosphate** (**PO**<sub>4</sub>-**P**) is generally found in much smaller concentrations than total phosphorous, and is readily available for algal uptake. Orthophosphate concentrations in a water body vary widely over short periods of time as plants take it up and release it.

<u>Chlorophyll a (CHL\_a)</u> is a measure of the amount of algae growing in a waterbody, and therefore can be used to classify trophic status. Although algae are a natural part of freshwater ecosystems, too much algae can cause aesthetic problems such as green scums and bad odors, and can result in decreased levels of DO.

<u>Pheophytin a (PHEO a)</u> is a natural degradation product or digestion of CHL\_a. The ratio of PHEO\_a to CHL\_a can provide an indication of the decline or growth in eukaryotic algae and cyanobacteria populations.

<u>Trophic Status</u> is determined using a modified **Trophic State Index (TSI)**, as described by Carlson (1977). Trophic State Index is calculated from secchi-depth transparency, total phosphorus, and chlorophyll-a measurements. Values for these three parameters are converted to an index number ranging from 0-100 according to the following equations:

```
TSI (Seechi Depth) = 10(6 - (ln SD/ln 2))
TSI (Chlorophyll-a) = TSI(Chl) = 10(6 - ((2.04 - 0.68 ln Chl)/ln 2))
TSI (Total Phosphorus) = TSI(TP) = 10(6 - (ln (48/TP)/ln 2))
```

where In indicates the Natural Logarithm

A TSI average value, calculated as the average of the three individually determined TSI metrics, is used as an overall indicator of a water body's trophic state. The relationship between TSI and trophic condition is defined as follows:

TSI	Trophic Condition
0-40	Oligotrophic
40-60	Mesotrophic
60-70	Eutrophic
80-100	Hypereutrophic

## Laboratory Methods and Water Quality Criteria Summary Table

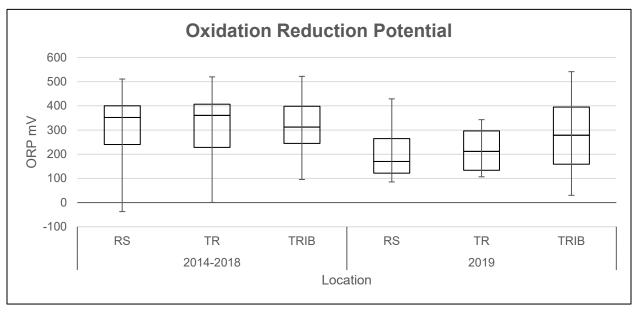
Table 2: Metrics, Methods, and Water Quality Criteria Used for Evaluating Water Quality

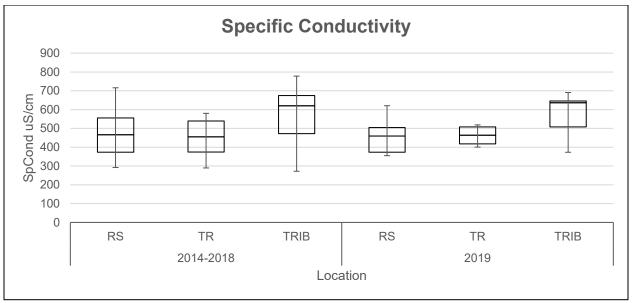
<u>Metric</u>	Abbreviation	Analysis Method	Water Quality Criteria	<u>Source</u>
Alachlor		EPA Method 8270C	< 2ug/L PWS or <1100 ug/L: aquatic life	Illinois EPA
Ammonia Nitrogen	NH <sub>3</sub>	EPA Method 350.1	<15 mg/L	United States EPA
Atrazine	Atrazine	EPA Method 8270C	9 ug/L: Chronic or 82 ug/L: Acute or 3 ug/L DWS	Illinois EPA
Bacteria: E. Coliform	E Col	EPA Method 1604	< 235 E. Col per 100/mL for single sample	Illinois EPA
Chlorophyll a	Chl_a	SM Method 10200H	< 25mg/cm³ (Eutrophic Upper Limit)	Carlson 1977
Chlorpyrifos		EPA Method 8270C	< .11 ug/L: aquatic life	Illinois EPA
Cyanazine		EPA Method 8270C	< 30 ug/L: chronic or < 370 ug/L acute (aquatic life)	Illinois EPA
Depth	Depth	Multiparameter Meter	Measurements reported at ~1 meter	
Dissolved Oxygen	DO	Multiparameter Meter	Greater than 5.0mg/L	Illinois EPA
Metolachlor		EPA Method 8270C	30.4 ug/L: Chronic or 380 ug/L: Acute	Illinois EPA
Metribuzin		EPA Method 8270C	8.4 mg/L: aquatic life or 8.3 mg/L: human health	Illinois EPA
Nitrate as Nitrogen	NO <sub>3</sub>	Green Method	< 10 mg/L	Illinois EPA
Non-Volatile Suspended Solids	NVSS	TSS - VSS		
Orthophosphate	Ortho	EPA Method 365.2		
Pendmethalin		EPA Method 8270C	< 30 ug/L: chronic or < 350 ug/L acute (aquatic life)	Illinois EPA
Pheophytin a	Phpy_a	SM Method 10200H		
Potential of Hydrogen	pН	Multiparameter Meter	Range: 6.5 – 9.0pH	Illinois EPA
Specific Conductivity	SpCond	Multiparameter Meter	500 uS/cm	
Temperature	Temp	Multiparameter Meter	Less than rise of 2.8°C above normal seasonal temperature	Illinois EPA
Total Dissolved Solids	TDS	Multiparameter Meter	< 500 mg/L	Illinois EPA
Total Manganese	TMn	EPA Method 6010C	< 1 mg/L	Illinois EPA

Total Organic Carbon	TOC	EPA Method 415.1		
Total Iron	TFe	EPA Method 6010C	< 1 mg/L	Illinois EPA
Total Phosphorus	TP	EPA Method 365.2	Less than 0.05 mg/L	Illinois EPA
Total Suspended Solids	TSS	EPA Method 160.2	< 116 mg/L: streams or <12 mg/L: lakes	Illinois EPA
Trifluralin		EPA Method 8270C	< 1.1 ug/L: chronic or < 26 ug/L acute (aquatic life)	Illinois EPA
Turbidity	Turb	Multiparameter Meter		
Volatile Suspended Solids	VSS	EPA Method 160.4		

<sup>\*1</sup> mg/L is equivalent to 1 drop in two bathtubs and 1 ug/L is equivalent to 1 drop in an Olympic size swimming pool. PWS is public water supply. DWS is drinking water standard.

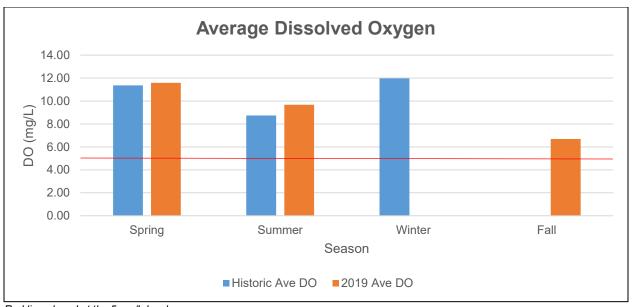
## RESULTS AND SUMMARY STATISTICS: WATER QUALITY





		Histo	rical Refe		<u>2</u> (	<u>019</u>			
					CL				CL
	Location	Mean	Median	Count	(95.0%)	Mean	Median	Count	(95.0%)
SpCond	RS	465.04	466.00	52	30.19	455.97	459.70	21	40.96
	TR	452.45	455.40	17	46.22	461.60	463.60	4	92.94
	TRIB	580.27	620.00	33	45.63	575.78	636.60	8	96.89
ORP	RS	304.64	352.00	53	38.59	198.93	169.90	21	47.10
	TR	313.34	360.70	17	69.50	218.33	211.80	4	178.36
	TRIB	319.80	312.00	33	40.44	277.74	278.75	8	148.61

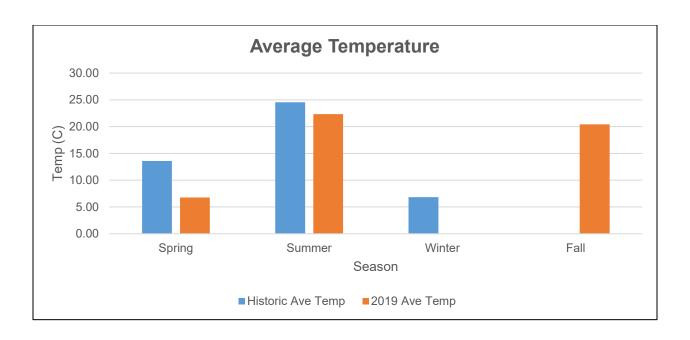
<sup>\*</sup>This report does not acknowledge a water quality criteria for SpCond or ORP.



Red line placed at the 5 mg/L level.

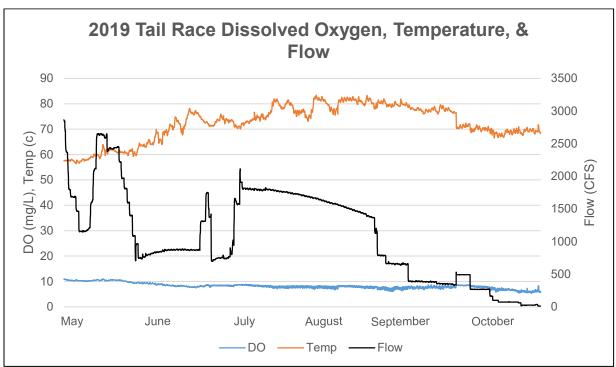
	<u>Histori</u>	cal Refere	ence 2014-2	<u>:018</u>		2019				
				<u> </u>	CL				CL	
Season	Location	Mean	Median	Count	(95.0%)	Mean	Median	Count	(95.0%)	
Spring	RS	10.96	11.10	31	0.82	11.15	11.12	3	2.78	
	TR	11.04	11.13	29	0.89	13.31	13.31	1		
	TRIB	11.03	11.14	30	0.85	11.38	11.38	2	2.03	
Summer	RS	8.05	8.50	71	0.74	8.99	8.99	16	1.92	
	TR	7.93	8.37	69	0.75	9.47	9.47	2	8.96	
	TRIB	7.92	8.34	70	0.73	9.93	9.52	4	2.49	
Winter	RS	12.13	12.21	9	1.05					
	TR	11.91	12.04	7	1.38					
	TRIB	11.30	10.72	8	0.96					
Fall	RS					7.05	6.67	6	1.56	
	TR					6.31	6.31	1		
	TRIB					5.78	5.78	2	4.51	

<sup>\*</sup> There were no observations of DO recorded at <5 mg/L in 2019. All observations met the Illinois state standard.

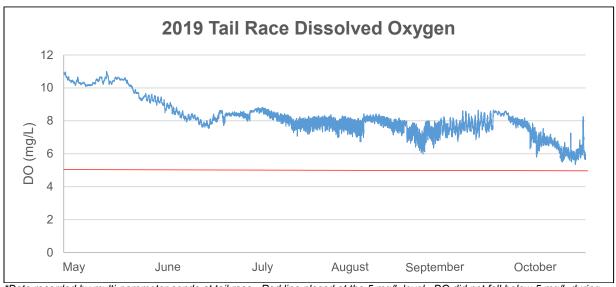


	<u>Hi</u>	istorical			<u> 2019</u>				
					CL				_
Season	Location	Mean	Median	Count	(95.0%)	Mean	Median	Count	CL (95.0%)
Spring	RS	13.57	13.05	15	2.17	6.96	7.56	3	4.60
	TR	12.61	12.99	5	5.01	4.94	4.94	1	
	TRIB	14.10	13.73	10	2.97	7.39	7.39	2	7.06
Summer	RS	25.59	25.88	35	0.64	22.37	22.70	12	3.24
	TR	19.90	19.32	10	2.49	20.95	20.95	2	64.17
	TRIB	25.09	25.48	20	1.15	22.96	23.07	4	10.18
Fall	RS					20.56	21.22	6	1.31
	TR					20.06	20.06	1	
	TRIB					20.28	20.28	2	12.71
Winter	RS	6.78	6.83	6	1.50				
	TR	5.77	5.77	2	13.53				
	TRIB	7.72	7.60	3	2.45				

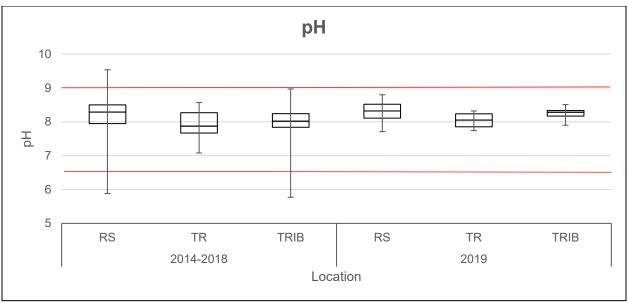
<sup>\*</sup>Temperatures were within acceptable range of water quality criteria during 2019.



\*Data recorded by multi-parameter sonde(accept flow) at tail race.



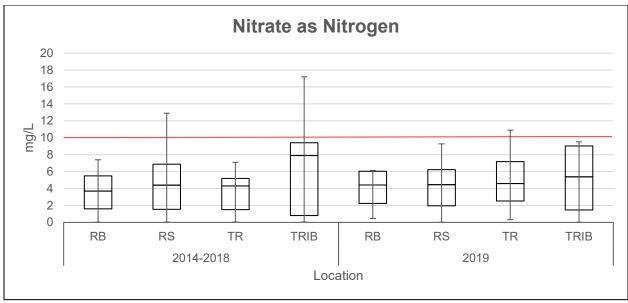
\*Data recorded by multi-parameter sonde at tail race. Red line placed at the 5 mg/L level. DO did not fall below 5 mg/L during 2019.



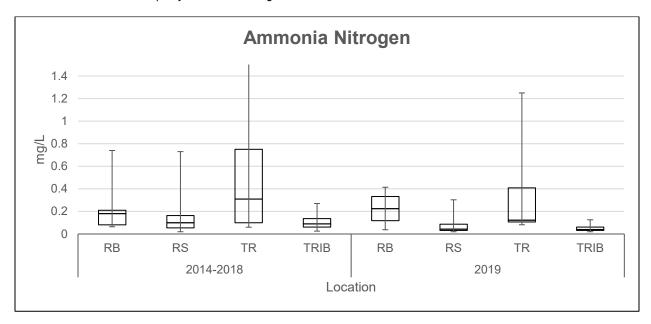
\*Red lines indicate the upper and lower water quality criteria standards (9 and 6.5).

		<u>Hist</u>	torical Re	<u>2019</u>					
	Location	Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
рН	RS	8.14	8.29	53	0.18	8.30	8.32	21	0.14
	TR	7.91	7.87	17	0.22	8.04	8.05	4	0.43
	TRIB	8.00	8.02	33	0.19	8.25	8.29	8	0.15

pH observations were within water quality standards during 2019.

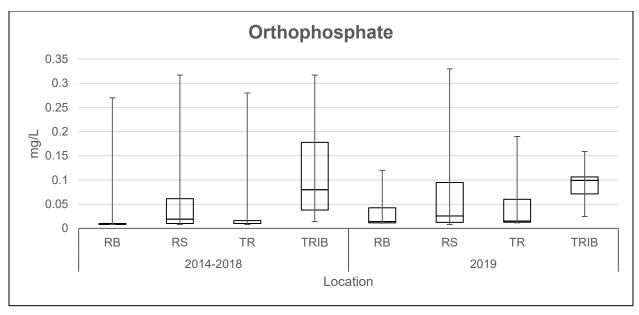


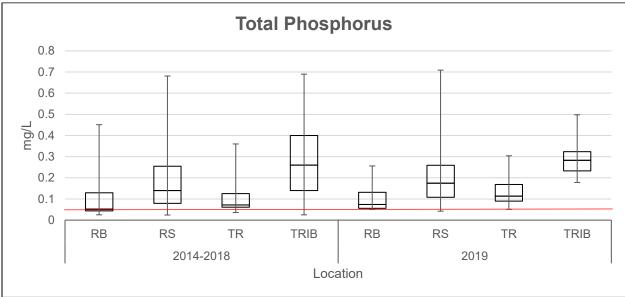
\*Red line indicates the water quality standard of 10 mg/L.



		Histo	rical Referer	nce 2014	<u>-2018</u>	<u>2019</u>			
		Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
NO3N	RB	3.44	3.70	17	1.25	3.86	4.43	4	4.35
	RS	4.53	4.40	51	0.92	4.34	4.46	12	2.08
	TR	3.40	4.30	17	1.19	5.10	4.59	4	7.15
	TRIB	6.46	7.90	33	1.73	5.10	5.39	8	3.62
NH3N	RB	0.21	0.18	17	0.09	0.23	0.22	4	0.27
	RS	0.13	0.10	51	0.04	0.08	0.04	12	0.06
	TR	0.51	0.31	17	0.29	0.39	0.12	4	0.91
	TRIB	0.10	0.09	33	0.02	0.05	0.04	8	0.03

<sup>\*</sup>Water quality standard 10 mg/L for nitrate was exceeded one time at the tail race location in 2019. All observations of ammonia were within the water quality standard.

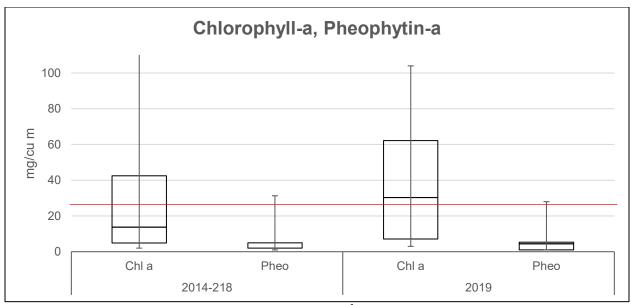




\*Red line indicates the water quality standard of 0.05 mg/L.

		<u>His</u>	torical Ref			<u> 2019</u>			
		Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
Ortho	RB	0.03	0.01	17	0.03	0.04	0.01	4	0.09
	RS	0.06	0.02	51	0.02	0.07	0.03	12	0.06
	TR	0.04	0.01	17	0.04	0.06	0.02	4	0.14
	TRIB	0.11	0.08	33	0.03	0.09	0.10	8	0.03
TP	RB	0.12	0.05	17	0.07	0.11	0.07	4	0.15
	RS	0.19	0.14	51	0.04	0.23	0.17	12	0.12
	TR	0.12	0.07	17	0.05	0.15	0.11	4	0.18
	TRIB	0.28	0.26	33	0.06	0.29	0.28	8	0.09

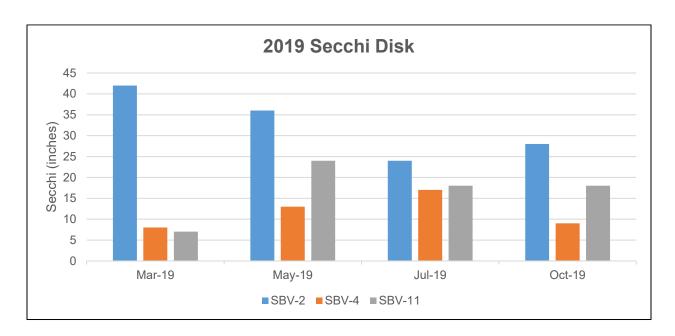
<sup>\*</sup>Total phosphorus exceeded the proposed criteria of 0.05 mg/L for all locations. This study does not acknowledge a water quality criteria for orthophosphate.

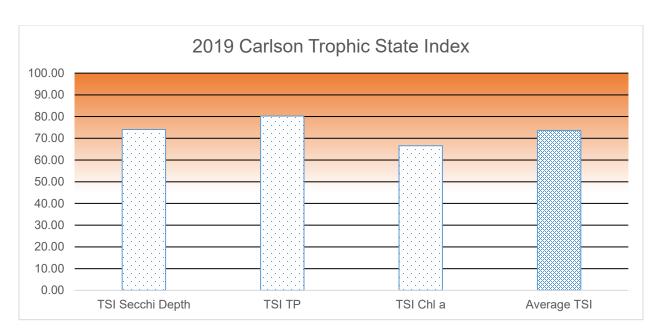


\*Red line approximately indicates the water quality standard of 25 mg/cm<sup>3</sup>. See Carlson 1977.

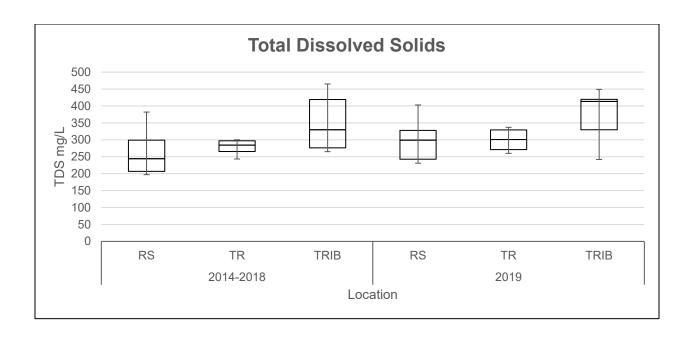
Historical Reference 2014-2018								<u> 2019</u>	
		Mean	Median	Count	CL(95.0%)	Mean	Median	Count	CL(95.0%)
Chl a	RS	28.59	13.70	51	9.73	39.10	30.35	12	20.88
Pheo a	RS	5.19	2.00	51	1.96	6.07	4.40	12	4.99

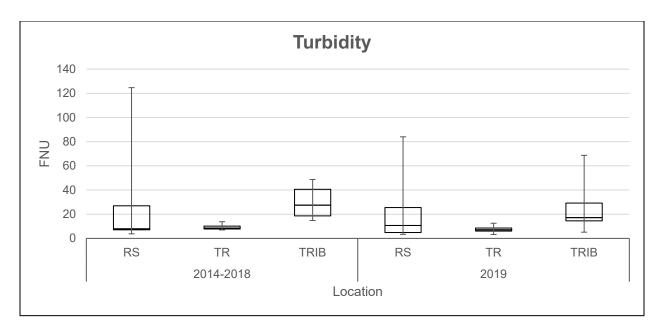
The proposed criteria for chlorophyll-a of 25mg/cm<sup>3</sup> was exceeded at most of the lake sites in 2019. This study does not acknowledge a criteria for pheophytin.





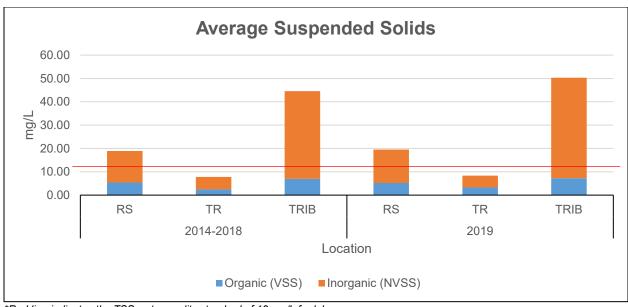
<40 = Oligotrophic \_\_\_ 40-60 = Mesotrophic \_\_\_ 60-70 = Eutrophic \_\_\_ >80 Hypereutrophic





		His	torical Ref		<u>2019</u>				
		Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
TDS	RS	258.05	244.00	17	26.39	296.38	299.00	21	26.56
	TR	278.07	284.50	4	41.47	299.75	301.00	4	60.40
	TRIB	347.21	329.85	8	66.54	374.00	413.50	8	63.11
FNU	RS	21.87	7.89	17	15.48	18.36	10.68	21	9.17
	TR	9.45	8.50	4	4.77	7.50	7.12	4	6.06
	TRIB	29.49	27.47	8	10.86	25.43	17.18	8	17.19

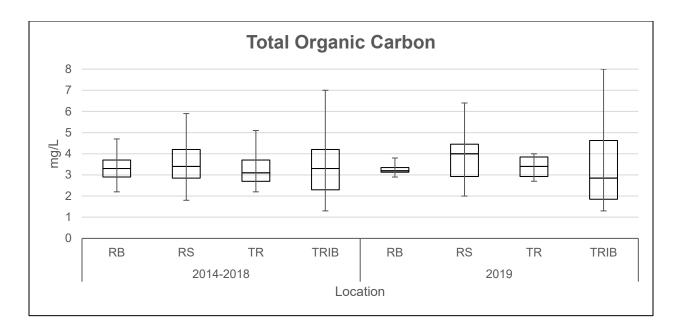
<sup>\*</sup> All observations of TDS were within the referenced water quality standard.



\*Red line indicates the TSS water quality standard of 12 mg/L for lakes.

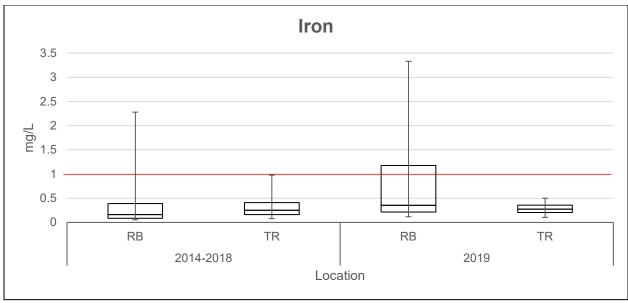
		His	torical Ref	erence 20	014-2018	<u>2019</u>			
		Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
TSS	RS	18.91	14.00	51	4.42	19.52	15.60	12	10.89
	TR	7.83	8.00	17	1.17	8.35	8.00	4	6.59
	TRIB	44.53	29.60	18	21.62	50.33	31.15	8	35.16
VSS	RS	5.37	4.80	51	0.82	5.22	4.83	12	2.03
	TR	2.43	2.40	17	0.41	3.28	3.30	4	2.54
	TRIB	7.00	4.55	18	2.75	7.24	4.50	8	4.64
NVSS	RS	13.54	7.00	51	4.01	14.31	9.38	12	9.75
	TR	5.40	5.20	17	1.00	5.07	4.74	4	5.00
	TRIB	37.53	23.65	18	19.58	43.09	27.28	8	32.48

<sup>\*</sup>In 2019 the TSS stream standard (116 mg/L) was exceeded once in a tributary, while the TSS lake standard (12 mg/L) was exceed multiple times in the lake.

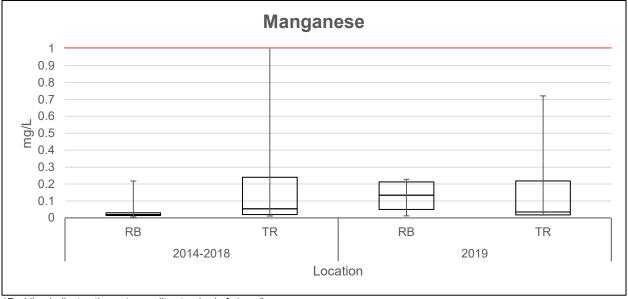


		Hist	torical Ref	<u>2019</u>					
		Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
RB	3.38	3.30	17	0.36	3.28	3.20	4	0.60	RB
RS	3.59	3.40	51	0.28	3.82	4.00	12	0.77	RS
TR	3.32	3.10	17	0.42	3.38	3.40	4	0.99	TR
TRIB	3.55	3.30	33	0.51	3.49	2.85	8	1.91	TRIB

<sup>\*</sup>This study does not recognize a water quality criteria for TOC.



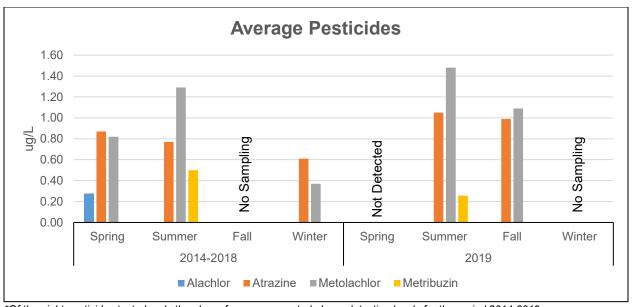
\*Red line indicates the water quality standard of 1 mg/L.



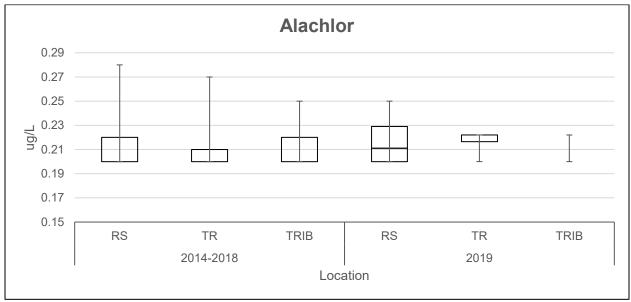
\*Red line indicates the water quality standard of 1 mg/L.

		<u>His</u>	torical Ref	erence 2	<u>2019</u>				
		Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
Iron	RB	0.36	0.16	17	0.28	1.04	0.35	4	2.44
	TR	0.34	0.25	17	0.13	0.29	0.27	4	0.26
Mang	RB	0.04	0.02	17	0.03	0.13	0.13	4	0.17
	TR	0.19	0.05	17	0.14	0.20	0.03	4	0.55

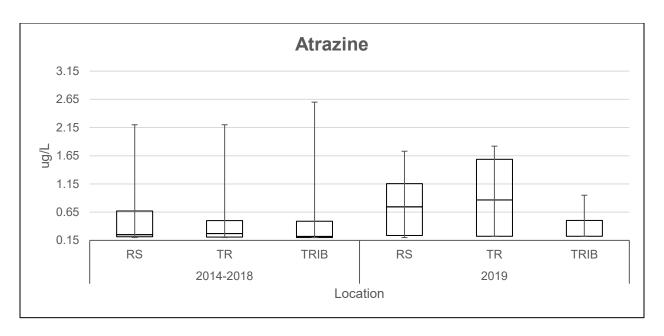
<sup>\*</sup>In 2019 iron exceeded the standard of 1 mg/L near the lake bottom in front of the dam. Manganese did not exceed the criteria.



\*Of the eight pesticides tested, only the above four were reported above detection levels for the period 2014-2019.

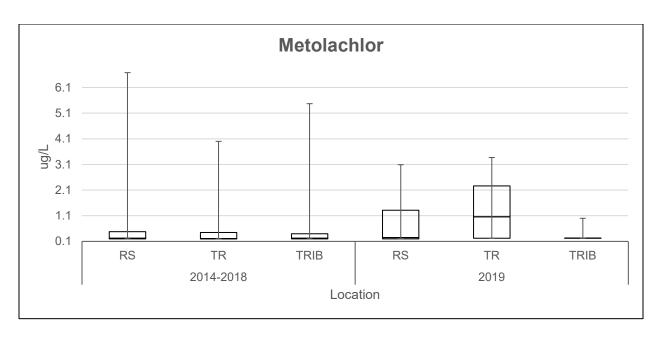


\*Alachlor did not exceed water quality criteria in 2019. There were not enough detected samples for statistical analyses.



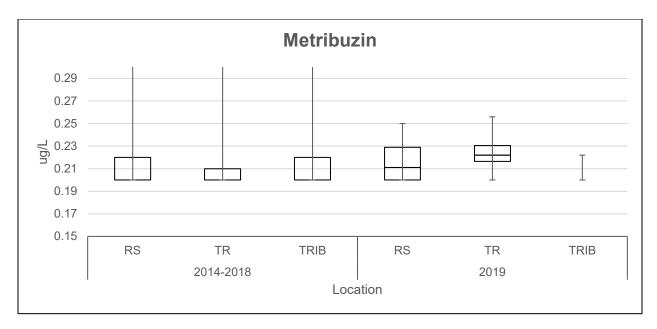
		His	torical Ref	erence 2	<u> 1014-2018</u>		<u>2019</u>			
Atraz	ine	Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)	
spring	RS	0.57	0.33	3	1.14					
	TR	0.27	0.27	1						
	TRIB	1.62	1.62	2	12.45					
summer	RS	0.74	0.67	24	0.19	1.20	1.11	5	0.60	
	TR	0.64	0.46	8	0.54	1.82	1.82	1		
	TRIB	0.94	1.00	11	0.41	0.55	0.48	3	0.92	
winter	RS	0.49	0.49	2	3.37					
	TR	0.85	0.85	1						
	TRIB									
fall	RS					0.96	1.09	3	1.03	
	TR					1.51	1.51	1		
	TRIB					0.58	0.58	1		

<sup>\*</sup>Atrazine did not exceed water quality criteria in 2019.



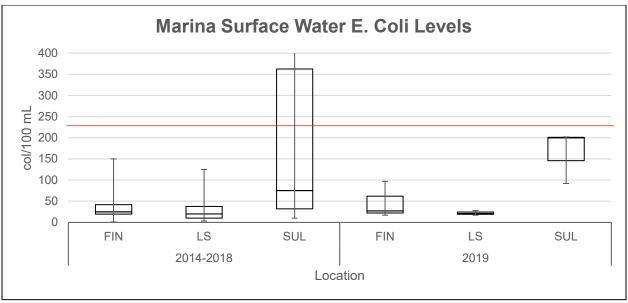
		His	torical Ref	erence 2	<u> 1014-2018</u>		<u>2019</u>			
Metola	chlor	Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)	
spring	RS	0.71	0.71	2	6.29					
	TR									
	TRIB	0.90	0.47	3	2.38					
summer	RS	1.11	0.55	20	0.68	1.45	1.26	5	1.60	
	TR	1.51	0.76	6	1.57	3.37	3.37	1		
	TRIB	1.54	0.72	9	1.46	0.62	0.62	2	4.87	
winter	RS	0.40	0.40	1						
	TR	0.45	0.45	1						
	TRIB	0.26	0.26	1						
fall	RS					0.83	0.81	3	1.58	
	TR					1.89	1.89	1		
	TRIB									

<sup>\*</sup>Metolachlor did not exceed water quality criteria in 2019.



		<u> </u>		<u>2019</u>					
Metribuzin		Mean	Mean Median		CL (95.0%)	Mean	Median	Count	CL (95.0%)
spring	RS								
	TR								
	TRIB								
summer	RS	0.456	0.456	1					
	TR	0.43	0.43	1		0.256	0.256	1	
	TRIB	0.555	0.555	2	0.063531				

<sup>\*</sup>Metribuzin did not exceed water quality criteria in 2019.



\*Red line approximately indicates the water quality standard of 235 col per 100 mL.

	His	<u>2019</u>						
Marina Location	Mean	Median	Count	CL (95.0%)	Mean	Median	Count	CL (95.0%)
Findlay	46	25	11	36	47	27	3	108
Lithia Springs	33	20	11	25	22	21	3	14
Sullivan	185	75	11	131	165	200	3	156

<sup>\*</sup>Marina bacteria levels did not exceed the reference water quality criteria.

	2019 Swimming Beach Bacteria Levels (E. Coli / 100mL)													
	Coon Cr	eek	Dam West Lithia Springs Sulliva			Sullivan	Beach	Wilborn Creek						
	shallow	deep	shallow	deep	shallow	deep	shallow	deep	shallow	deep				
5/15/2019	20.3	1	2	3.1	1	1	46.4	61.3	60.2	98.8				
5/29/2019	14.5	3.1	9.7	6.3	4.1	2	90.8	65.7	38.9	9.7				
6/12/2019	1	2	4.1	1	1	1	17.5	7.5	7.5	4.1				
6/26/2019	3	5.2	13.4	12.1	6.3	1	107.1	68.9	146.7	52.9				
7/10/2019	2	1	2	3.1	1	1	11.9	10.9	17.3	16.1				
7/25/2019	1	1	1	1	1	1		9.6	125.9	7.3				
8/7/2019	1	1	2	2	1	1	1	2	3.1	1				
8/21/2019	1	1	9.8	4.1	2	3.1		13.2	63.1	1				
9/5/2019	1	1	1	2	2	1	8.6	8.5	1	3.1				

<sup>\*</sup>Beach bacteria levels did not exceed the reference water quality criteria.

### **DISCUSSION: WATER QUALITY**

Water quality metrics assessed by CEMVS can be sporadic and highly variable from year to year, thus long-term data collection using consistent and comparable methodology is critical to identify trends or patterns. In general, conditions observed during 2019 did not deviate far from conditions observed during the reference period (2014-2018); nevertheless, concerns regarding NO3-N, TP,TSS, and TFe were evident. In addition CHL\_a and subsequent TSI levels were indicative of a eutrophic system.

TP levels have surpassed the 0.05 mg/L criterion for several years. In 2019 the TP criterion was exceeded at all locations with an average across all sites of 0.20 mg/L, comparable to the historical average of 0.18 mg/L. NO3-N levels 2019 were similar to the historical levels, but exceeded the criterion of 10 mg/L one time in 2019 at the tail race. This standard for NO3-N has been set for drinking water due to its potential to be harmful to infants between three and six months. Phosphorus is a limiting nutrient for primary producers (algae and plants) due to its relatively low amount in the environment. Higher inputs of TP and NO3-N into the lake contribute to a highly productive environment which stimulates algal growth that can lead to blooms that deplete the oxygen levels during die off. In addition, algal blooms can sometimes contain toxins which may be harmful to humans and wildlife.

Although there is not a state criterion for CHL\_a the proposed standard of 25 mg/cm³ was exceeded at most sampling locations in 2019. The 2019 average CHL\_a of 39.10 mg/cm³ was greater than the historical average of 28.59 mg/cm³, but similar to the 2018 average of 39.43 mg/cm³. CHL\_a is an indicator of the abundance of phytoplankton. Any water environment with a level recorded above 25 mg/cm³ is considered to be eutrophic (nutrient enrichment increases algal and plant growth and negative effects). The TSI level, an average of the individual trophic state indexes for secchi depth, CHL\_a, and TP, for Lake Shelbyville is 73.62. Lake Shelbyville is considered eutrophic based on the TSI level of 73.62. This does not necessarily mean the water quality is poor, but that its trophic level indicates nutrient levels are abundant, which can support an abundance of plants and algae. Long term monitoring and analyses are important to assess changes over time.

Total solids can affect water quality by increasing temperature through the absorption of sunlight by suspended particles in the water column, and consequently reduce DO. Total solids are also strongly correlated with water clarity and the presence of Macrophytes. The 2019 TSS criteria were exceeded at multiple locations in the lake (12 mg/L) and one time at a tributary (116 mg/L). Historical TSS levels are similar to the 2019 results with the upper lake locations being consistently above the 12 mg/L criterion.

Living organisms require trace amounts of metals, excessive levels can be harmful. TFe exceeded the criterion of 1 mg/L one time at the bottom reservoir location in front of the dam in 2019 with a concentration of 3.33 mg/L. Comparably, there is one exceedance which occurred historically (2014-2018) at the same location. Iron cycling is a function of oxidation-reduction processes. Elevated levels of iron near the bottom of a lake is not

immediately detrimental to the overall lake system. Iron oxidizes relatively rapidly (minutes to hours); therefore, any iron released through the spillway will be oxidized in a short period of time.

All remaining parameters evaluated during the 2019 water quality monitoring effort were within designated criteria or within historical reference norms.

### **ASA CREEK IMPACTS**

A limited investigation was started in October 2017 into the possibility of potential negative impacts to the Asa Creek arm of Lake Shelbyville and continued through 2019. As described in the 2018 Shelbyville Lake Annual Water Quality Report, the Corps was made aware of a concern of potential degradation of the Asa Creek tributary just downstream of the City of Sullivan waste water treatment plant (WTP). In addition to taking in-situ ambient water quality readings, water quality personnel took fecal coliform grab samples at the location where Asa Creek enters USACE waters and directly from the WTP effluent during the 2019 season. See appendix E for location map and data. Low levels of DO was recorded at multiple locations from 2017-2019 (Appendix A). Fecal coliform levels were high at the locations mentioned above.

Correspondence with the local Illinois Environmental Protection Agency Bureau of Water Division of Water Pollution Control has revealed that IEPA is aware and has been in contact with the WWTP regarding the situation. In December 2019 a teleconference meeting occurred with USACE, IEPA, and the City of Sullivan to discuss the findings. As a result of the discussion, USACE and Sullivan shared recent data and conducted a joint sampling for fecal coliform in January 2020. Two samples were taken from each of the 15 locations upstream and downstream of the WTP in Asa Creek. One sample went to a lab Sullivan used, while the other was analyzed at the USACE contracted lab. The results were shared between USACE and Sullivan. While the results from the two labs weren't identical, there was a clear trend of high bacteria levels at the WTP effluent as well as downstream of it. The Sullivan NPDES permit does not require bacteria monitoring except during the period May through October. IEPA has been made aware of all the latest findings. USACE water quality staff will continue to investigate as needed and coordinate with Lake Shelbyville Project, IEPA, and affected landowners.

Historical (2001-2018) average bacteria levels are three times higher at the Sullivan Marina, located just downstream of the confluence of Asa Creek, when compared to the other two marinas in the lake (Findlay & Lithia Springs). The public beach located near Sullivan Marina has also had a higher rate of closing due to unsafe bacteria levels. If current trends of high bacteria continue, negative impacts to beneficial uses are likely.

### MONITORING PROGRAM RECOMMENDATIONS

In accordance with EM-1110-2-1201, sediment samples should be taken to monitor and assess potential impacts to aquatic and human health. Sediment sampling and analyses occurred at Lake Shelbyville in 2018, and prior to that in 2007. During these last analyses multiple exceedances over the recommended criteria were observed. Identifying trends over time is much more achievable with more consistent data. Contaminated sediments may have negative impacts on ecological processes. It is recommended, if possible, to sample and analyze for sediment metals and nutrients, as well as grain size analyses yearly or every two years.

Given the eutrophic status of Lake Shelbyville it is recommended that Nitrite (NO<sub>2</sub>) be added to the monitoring program if possible. Doing so would allow CEMVS to evaluate Total Nitrogen (TN), which is a strong indicator of trophic status.

CHL\_a has routinely been high at Lake Shelbyville in the lake, but there is no data for CHL\_a in the tributaries or the tail race. It is recommended if possible to add this analyses to the tributaries and tail race to get a more complete understanding of algal activity upstream and downstream of the lake.

Given the above mentioned high bacteria levels observed in Asa Creek and near Sullivan Marina and public beach, it is recommended to add routine bacteria sampling to both tributary sites (SBV-12, SBV-13) as well as just downstream of Asa Creek. This would aid in isolating any further degradation in that section of the lake.

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- IEPA. (2018). <a href="https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx">https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx</a>

APPENDIX A: Asa Creek Monitoring Results

#### USACE Lake Shelbyville / Asa Creek Tributary Monitoring: Sullivan Waste Water Treatment Plant to Lake

	1		1	,	1	1					1		
Time	Site	Date	Water Temp (oC)	Dissolved Oxygen (%)	Dissolved Oxygen mg/L	Specific Conductivity uS/cm	Total Dissolved Solids (mg/L)	pН	Oxidation Reduction Potential (mV)	Turbidity (FNU)	Depth (meters)	Fecal Coliform (col/100mL)	Notes
1037	Asa 1	10/26/2017	11.00	18.90	2.08	727	472.6	7.57	134.00	8.60	0.13		Just upstream of 1200/country club rd bridge. DO is very low.
1043	Asa 2	10/26/2017	10.90	27.90	3.07	713	463.2	7.71	121.20	7.90	0.09		Just downstream of 1200/country club rd bridge. DO is very low.
1115	Asa 3	10/26/2017	na	na	na	na	na	na	na	na	na		Just upstream of WWTP effluent. Data measured on site, but equipment failed to log. Technician noted all parameters were well within normal limits for good water quality.
1130	Asa 4	10/26/2017	na	na	na	na	na	na	na	na	na		Located 0.37 stream miles down stream of the USACE boundary. Data measured on site, but equipment failed to log. Technician noted all parameters were well within normal limits for good water quality.
1025	Asa 1	11/16/2017	8.20	46.00	5.41	637	414.1	7.62	176.60	3.70	0.01		
													Just upstream of 1200/country club rd bridge
1031	Asa 2	11/16/2017	8.00	52.90	6.25	619	402.527	7.74	161.90	3.60	0.70		Just downstream of 1200/country club rd bridge
1005	Asa 3	11/16/2017	6.60	75.00	9.18	532	345.92	8.02	292.30	2.40	0.09		Just upstream of WWTP effluent.
1130	Asa 4	11/16/2017	na	na	na	na	na	na	na	na	na		Site not accessable due to hunting. Took readings at Golf Course just upstream instead.
1037	Asa 5	11/16/2017	8.10	52.90	6.23	620	402.7	7.76	164.20	3.90	0.21		Located approximately 40' downstream of 1200 bridge. Bottom algea present on sediment. 'Sewer' smell on water.
1112	Asa golf course	11/16/2017	8.10	62.70	7.36	619	402.432	7.81	173.00	4.20	0.14		Bottom algea present on sediment.
1010	Asa WWTP effluent	11/16/2017	12.70	83.60	8.85	637	414.23	7.94	136.50	21.10	0.06		Bottom algea present on sediment.
1431	Asa 1	2/26/2018	8.20	95.70	11.26	599	389.1	7.88	134.70	16.20	0.04		5" of precipitation occurred within last week. High flow in Asa.
1442	Asa 3	2/26/2018	8.00	95.90	11.35	591	384.4	7.9	124.20	15.90	0.17		5" of precipitation occurred within last week. High flow in Asa.
1415	Asa 4	2/26/2018	9.50	99.90	11.38	583	379.2	8	67.70	28.00	0.25		5" of precipitation occurred within last week. High flow in Asa.
1444	Asa WWTP effluent	2/26/2018	8.50	93.90	10.97	612	397.8	7.77	127.30	33.10	0.21		5" of precipitation occurred within last week. High flow in Asa.
1445	Asa WWTP effluent	2/26/2018	8.20	95.00	11.17	600	390	7.79	128.00	15.90	0.32		5" of precipitation occurred within last week. High flow in Asa.
1230	Asa 1	4/10/2018	8.10	97.20	11.46	672	436	7.64	527.8	7.60	0.10		Asa creek has moderate flow - 2' to 3' depth. Some sewer smell.
1232	Asa 2	4/10/2018	8.10	97.90	11.54	667	433	7.71	519.1	7.40	0.10		Some sewer smell.
1251	Asa 4	4/10/2018	8.40	81.00	9.47	647	420	7.7	107.4	510.90	0.37		Instrument lying on the substrate - in the mud.
1253	Asa 4 Asa WWTP effluent	4/10/2018 4/10/2018	9.80 8.20	116.50 97.30	13.18 11.44	635 675	413 439	7.9 7.72	135 411.8	9.50 13.70	0.04		Measurement taken close to surface - not on bottom.  Slightly coludy effluent.
1315	Asa 1	4/19/2018	10.80	120.60	13.33	691.5	449	8.76	329.20	3.64	0.16		Approximate depth 2'. No noticeable sewer smell.
1316	Asa 1	4/19/2018	10.70	130.10	14.39	695.8	452	8.37	499.60	3.44	0.22		
1317	Asa 2	4/19/2018	10.80	128.60	14.20	692.3	450	8.28	508.20	3.79	0.09		
1245 1302	Asa 3 Asa 4	4/19/2018 4/19/2018	9.20 10.00	116.20 129.20	13.32 14.56	688.9 676	448 439	8.19 8.29	494.60 435.00	2.18 3.72	0.06		
1246	Asa WWTP effluent	4/19/2018	11.10	99.40	10.91	726.5	472	7.76	305.20	24.17	0.00		Slightly coludy effluent.
1312	Asa 1	6/14/2018	19.70	88.50	8.08	680.5	442	7.94	411.00	8.67	0.16		Moderate flow, approximate depth = 2', no smell, conditions same upstream and downstream of 1200 bridge
1302	Asa 3	6/14/2018	19.40	91.00	8.34	678.9	441	7.84	462.40	7.93	0.02		Moderate/high flow, approximate depth = 4', no smell, WWTP discharge slightly cloudy
1329 1240	Asa 4 ASA 1	6/14/2018 9/6/2018	21.30 24.22	95.80 58.70	8.47 4.91	680 785	442 510	8.17 7.92	430.60 156.60	24.71 5.08	0.59		
1241	ASA 2	9/6/2018	24.22	57.90	4.84	787.1	512	7.9	164.90	5.18	0.05		On 9/6/18: ASA creek has low flow, appears clear, some sewer like odor at site 2.
1406	ASA 3	9/6/2018	23.78	60.90	5.14	766.6	498	8.18	36.00	7.07	0.00		Taken up stream of 1300 rd bridge (& wwtp)
1226	ASA 4	9/6/2018	27.67	95.00	7.47	766.6	498	8.49	178.90	26.06	0.33		
1227 1404	ASA 4 Asa WWTP effluent	9/6/2018 9/6/2018	27.67 24.00	97.50 68.80	7.66 5.78	763.8 505.5	497 329	8.54 8.39	79.30 55.00	63.13 1.95	0.36		Taken at WWTP discharge
14:22	Asa 4	3/21/2019	8.56	103.2	12.03	730.3	475	8.22	185.5	5.59	0.005		Taken at WWTP discharge
14:34	Asa 2	3/21/2019	8.00	99.2	11.73	733.2	477	8.18	166.9	36.26	0		
14:43	Asa 3	3/21/2019	7.17	102.2	12.33	731.5	475	8.24	173.8	5.36	0.028		
14:45 12:09	Asa WWTP effluent Asa 2	3/21/2019 5/16/2019	8.72 16.00	91.1 113.6	10.58 11.18	760.2 725.2	494 471	8.04 8.11	167.2 146.1	15.41 4.27	0.097	-	effluent cloudy
12:09	Asa 2 Asa 2	5/16/2019	16.00	113.6	11.18	725.2 726.1	471	8.11 8.12	146.1	4.27	0.138		
12:33	Asa 3	5/16/2019	16.50	94.8	9.25	742.8	483	7.88	152	11.94	0.100		
12:34	Asa 3	5/16/2019	15.50	109.9	10.95	729.1	474	8.1	152.5	3.3	0		
12:36	Asa 3	5/16/2019	15.50	110.2	10.98	729.4	474	8.06	121.3	3.43	0		
13:46 14:02	Asa 2 Asa 4	7/30/2019 7/30/2019	23.7 28.9	74 19.3	6.26 1.49	657.9 551.5	428 358	7.37 7.5	427.7 320.2	4.07 24.29	0	2000	fecal sample taken from surface water at site Asa 4
14:19	Asa 3	7/30/2019	23.2	78.6	6.7	623.9	406	7.69	421.6	3.64	0	2000	Todal campio tanon nom duridos trator at dito rida 4
14:22	Asa WWTP effluent	7/30/2019	23.3	88.7	7.55	881.9	573	7.25	348.4	2.56	0		
13:16:30	Asa 3	10/10/2019	15.3	43.5	4.34	765	497	7.79	191.6	1.21	0		(
13:20:24	Asa WWTP effluent Asa 1	10/10/2019	19.4 20.3	74.4 98.9	6.82 8.95	884 6.8	574 4	7.63 7.59	169.1 122.5	2613.26 6.02	0.039	75000	fecal sample taken directly from Sullivan WTP effluent discharge
13:38:37	Asa 1 Asa 2	10/10/2019	16.3	31.4	3.07	812	528	7.59	158	3.67	0		
13:43:06	Asa 2	10/10/2019	16.3	30.8	3.02	815	530	7.61	156.9	3.2	0.008		
14:00:18	Asa 4	10/10/2019	18.4	195.7	18.33	787	512	8.76	166.6	14.81	0		

Site Coordinates

Asa 1 39.579008°, -88.595945°
Asa 2 39.578858°, -88.595966°
Asa 3 39.593372°, -88.596020°
Asa 4 39.566550°, -88.579378°
Asa 5 39.578651°, -88.595951°
Asa golf course 39.572266°, -88.590940°
Asa WWTP effluent 39.593192°, -88.595933°

Other:

In-situ Equipment YSI ProDSS handheld multi-parameter sonde, calibrated and maintained per the manufacturer recommendations

Values in red text values exceed water quality standard



Date	Location	Depth	Temp	Redox	Cond	DO	DOmgL	рН	TDSmgL	FNU
10/10/2019	SBV-2-10	1	17.8	168.9	479.8	95.5	9.07	8.24	312	28.97
10/10/2019	SBV-FIN	2.247	21.3	126.3	355.9	81.3	7.2	8.56	231	15.39
10/10/2019	SBV-LS	1.111	21.6	128.7	373.7	61	5.38	8.24	243	4.21
10/10/2019	SBV-SUL	2.046	19.2	97.4	525.6	66.6	6.14	8.71	342	37.28
10/10/2019	SBV-11	0.974	21.4	104.5	373.4	67.4	5.95	8.35	243	4.28
10/10/2019	SBV-2	1.053	21.1	85.4	355	99.2	8.82	8.8	231	10.68
10/10/2019	SBV-4	0.049	18.8	145	434.7	94.7	8.81	8.74	283	50.49
10/10/2019	SBV-1	1.151	20.1	106.7	423.4	69.6	6.31	7.74	275	12.51
10/10/2019	SBV-12	7.219	21.3	30	373	69.3	6.13	8.31	242	5.12
10/10/2019	SBV-13	1.938	19.3	105.7	531.5	58.8	5.42	8.51	345	42.22
3/21/2019	SBV-2-10	7.193	4.9	249.8	504.3	95.6	12.22	8.25	328	9.88
3/21/2019	SBV-11	1.001	8.4	210.1	382.4	85.8	10.04	8.07	249	84.02
3/21/2019	SBV-2	0.991	4.9	246.5	504.1	96.1	12.28	8.32	328	6.62
3/21/2019	SBV-4	1.357	7.6	170.8	620	93	11.12	8.27	403	37.85
3/21/2019	SBV-1	1.007	4.9	281.1	503.8	104.3	13.31	8.32	327	7.21
3/21/2019	SBV-12	0.532	7.9	176.2	659	94.8	11.22	8.18	428	13.43
3/21/2019	SBV-13	0.636	6.8	187	632.5	94.9	11.54	8.27	411	24.79
5/16/2019	SBV-2-10	7.902	15.5	109.6	516.8	69.6	6.94	7.94	336	23.17
7/30/2019	SBV-2-10	10.059	20.4	374.8	438.4	3.6	0.32	7.35	285	14.11
5/16/2019	SBV-FIN	1.124	18.3	185.9	528.4	160.8	15.12	8.52	343	6.58
5/16/2019	SBV-LS	1.249	17.9	169.9	471.5	157	14.88	8.5	306	5.47
5/16/2019	SBV-SUL	1.104	17.4	98.4	620.7	91.6	8.76	8.06	403	25.49
5/16/2019	SBV-11	1.018	17.8	129.9	459.7	104.6	9.93	8.34	299	16.29
5/16/2019	SBV-2	1.111	16.7	121.9	503.7	132.9	12.92	8.53	327	3.87
5/16/2019	SBV-4	1.239	16.9	113.2	619	89.5	8.65	8.01	402	27.88
7/30/2019	SBV-FIN	1.205	27.2	362.3	369.3	96.3	7.64	8.11	240	4.9
7/30/2019	SBV-LS	1.598	27.5	297.8	380.2	128.6	10.15	8.41	247	4.67
7/30/2019	SBV-SUL	1.139	27.2	337.1	472.3	71.5	5.67	7.71	307	15.07
7/30/2019	SBV-11	1.081	27.1	429.1	365.4	77.3	6.14	8.14	238	6.31
7/30/2019	SBV-2	1.037	27.1	353.1	387.6	116	9.21	8.27	252	3.34
7/30/2019	SBV-4	1.02	27.3	264.3	472.8	80.7	6.39	7.73	307	14.82
5/16/2019	SBV-1	1.121	15.9	142.5	518.7	102.8	10.17	8.21	337	7.03
7/30/2019	SBV-1	1.184	26.0	343	400.5	108.1	8.76	7.89	260	3.24
5/16/2019	SBV-12	0.279	16.6	370.5	641.2	87.7	8.53	7.9	417	18.61
5/16/2019	SBV-13	0.208	18.3	384.8	640.7	100.3	9.41	8.14	416	68.68
7/30/2019	SBV-12	0.48	27.8	426.2	690.7	155.1	12.17	8.3	449	14.88
7/30/2019	SBV-13	0.301	29.1	541.5	437.6	125.4	9.62	8.41	284	15.74





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**Customer Name: SLCOE** 

Date: 4/16/19

Project Name: Shelbyville Lake / Kaskaskia River

Lab Name: ARDL, Inc.

Samples Received at ARDL: 3/22/19

ARDL Report No.: 8468

### **CASE NARRATIVE**

<u>Customer</u> <u>Sample No.</u>	<u>Date</u> <u>Collected</u>	<u>Lab ID</u> <u>Number</u>	Analyses Requested
SVL-1	3/21/19	8468-01	NP Pesticides, Inorganics(1)
SVL-2	3/21/19	8468-02	NP Pesticides, Inorganics(1)(2)
SVL-2-10	3/21/19	8468-03	Inorganics(1)
SVL-4	3/21/19	8468-04	NP Pesticides, Inorganics(1)(2)
SVL-12	3/21/19	8468-05	NP Pesticides, Inorganics(1)
SVL-13	3/21/19	8468-06	NP Pesticides, Inorganics(1)
SVL-11	3/21/19	8468-07	NP Pesticides, Inorganics(1)(2)
SVL-15	3/21/19	8468-08	NP Pesticides, Inorganics(1)(2)
KAS-3	3/21/19	8468-09	Inorganics(1)(2)(3)

- (1) Including ammonia, nitrate, TOC, orthophosphate, total phosphorus, TSS, and VSS.
- (2) Including chlorophyll/pheophytin.
- (3) Including nitrite & TKN.

The quality control data are summarized as follows:

#### NPPEST\SIM FRACTION - METHOD 8270

#### HOLDING TIME

Samples were prepared and analyzed within method specified holding times.

#### **INITIAL CALIBRATION**

The initial calibration passed criteria.

#### CONTINUING CALIBRATION

The continuing calibration verification (CCV) passed criteria for all analytes. The closing CCV passed criteria for all analytes.

#### PREPARATION BLANK

The blank met acceptance criteria.

#### LABORATORY CONTROL SAMPLE

The LCS analyses met recovery criteria.

#### MATRIX SPIKE

The matrix spike and matrix spike duplicate met recovery criteria.

Project Name: Shelbyville Lake / Kaskaskia River

CASE NARRATIVE (Continued)

**DUPLICATE** 

Duplicate analyses are reported as MS/MSD. RPD of the duplicate analyses met criteria.

INTERNAL STANDARD

All internal standard criteria were met.

**SURROGATE** 

All surrogate recovery criteria were met.

**INORGANIC FRACTION** 

TOC were analyzed by an accredited outside laboratory due to instrument status.

PREPARATION BLANK

Results of the preparation blanks were within acceptable limits.

LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

MATRIX SPIKE

Only an MS sample data evaluation was performed for the TOC analysis. The sample result for nitrate was greater than 4 times the spike amount; therefore, percent recovery was not considered. Percent recovery of all other matrix spikes and matrix spike duplicates were within control limits.

**DUPLICATE** 

All duplicate analyses are reported as MS/MSD, except chlorophyll-a, pheophytin-a, TOC, TSS, and TVSS. RPD on all duplicate analyses were within control limits, with the exception of pheophytin which was within  $\pm$  the reporting limit and therefore acceptable.

#### **DATA REPORTING QUALIFIERS**

The following data reporting qualifiers are used as required:

ND - Indicates parameter was analyzed for but not detected. The sample quantitation limit has been corrected for weight, dilution and/or percent moisture.

#### REPORT ORGANIZATION

The data in this report appear by sample type (Field sample, preparation blank, laboratory control sample / spike blank, matrix spike /spike duplicate and sample duplicate). Within each sample type the data appear in the order that the analytical methods were discussed in this case narrative. Sample receipt information follows the analytical data.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Dean S. Dickerson

Technical Services Manager

ARDL Report No.: 8468

### Sample & QC Results

Including as appropriate:
Field Sample Results
Batch QC
Prep Blank
LCS/Spike Blank
Matrix QC
MS/MSD
Sample Duplicate

ARDL Data Package

8468

Lab Report No: 008468 Report Date: 03/28/2019

Project Name:	SHELBYVILLE LAKE/KA			P PESTICII	DES (82	70SIM-MC	D)
Project No.:	Ana	lytical M	ethod: 8	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	SVL-1		ARDL :	Lab No.:	0084	58-01	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E032	5913	
Sample Date:	03/21/2019		Recei	ved Date:	03/2	2/2019	
Sample Time:	0945		Prep.	Date:	03/2	2/2019	
Matrix:	WATER		Analy	sis Date:	03/2	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B110	34	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	ND		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	1
Triphenylphosphate	30-130	89%	1
			- 1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

ا ب	468						<b>X</b>	Report Date:		119
Project Name: SHELBYVII Project No:	LLE LAKE/K	SHELBYVILLE LAKE/KASKASKIA RIVER	IVER				Z	Analysis: Inor NELAC Certified -	: Inorganics fied - IL1003	ganics IL100308
ARDL No: 008468-01 Field ID: SVL-1 Received: 03/22/2019	1	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 03/21/2019 0945			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron	0.0400	0.0500		0.307	MG/L	3010A	6010C	04/10/19	04/10/19	P7190
(a) Manganese	0.00400	0.00500		0.0159	MG/L	3010A	6010C	04/10/19	04/10/19	P7190
Ammonia Nitrogen	0.0200	0.0300		0.128	MG/L	NONE	350.1	NA	03/26/19 (	03274431
Nitrate as Nitrogen	0.190	0.200		5.93	MG/L	NONE	GREEN	NA	04/08/19 (	04114462
Phosphorus	0.00800	0.0100		0.304	MG/L	365.2	365.2	03/27/19	03/27/19 (	03294446
Phosphorus, -ortho	0800.0	0.010		0.19	MG/L	NONE	365.2	NA	03/22/19 (	03274435
Solids, Total Suspended	1.33	1.33		4.8	MG/L	NONE	160.2	NA	03/25/19 (	03274437
Solids, Volatile Suspen	1.33	1.33		NO CM	MG/L	NONE	160.4	NA	03/25/19 (	03274438
Total Organic Carbon	0.500	1.00		2.7	MG/L	NONE	415.1	NA	03/25/19 (	04084461

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008468 Report Date: 03/28/2019

Project Name:	SHELBYVILLE LAKE/K		_	P PESTICII	DES (82	70SIM-MO	D)
Project No.:	An	alytical	Method: 8:	270C			
NELAC Certi:	fied - IL100308	Prep	Method: 3	510C			
Field ID:	SVL-2		ARDL :	Lab No.:	0084	68-02	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E032	5916	
Sample Date:	03/21/2019		Recei	ved Date:	03/2	2/2019	
Sample Time:	1030		Prep.	Date:	03/2	2/2019	
Matrix:	WATER		Analy	sis Date:	03/2	5/2019	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B1103	34	
% Moisture:	NA		Level	:	LOW		
	· ·				Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	ND		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	1
Triphenylphosphate	30-130	95%	
			I

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

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13	0308		Run Number	03274431	04014453	04114462	04014453	03294446	03274435	03274437	03274438	04084461
04/12/2019	Inorganics	WATER NA	Analysis Date	03/26/19 0	03/28/19 0	04/08/19 0	03/28/19 0	03/27/19 0	03/22/19 0	03/25/19 0	03/25/19 0	03/25/19 0
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA	03/22/19	AN	03/22/19	03/27/19	NA	NA	NA	NA.
Re	IN .		Analysis Method	350.1	10200H	GREEN	10200H	365.2	365.2	160.2	160.4	415.1
			Prep Method	NONE	10200H	NONE	10200H	365.2	NONE	NONE	NONE	NONE
		SHELBYVILLE LAKE 03/21/2019 1030	Units	MG/L	MG/CU.M.	MG/L	MG/CU.M.	MG/L	MG/L	MG/L	MG/L	MG/L
			Result	0.142	4.7	5.95	QN QN	0.207	0.17	3.89	ΩN	2.7
	LIVER	Sampling Loc'n: Sampling Date: Sampling Time:	Flag									
	SHELBYVILLE LAKE/KASKASKIA RIVER	Sampl Samp Samp	бол	0.0300	1.00	0.200	1.00	0.0100	0.010	1.11	1.11	1.00
89	LE LAKE/K	0	LOD	0.0200	1.0	0.190	1.0	0.00800	0.0080	1.11	1.11	0.500
No: 008468	SHELBYVIL	008468-02 SVL-2 03/22/2019	t e	en	Correcte	rogen		_	rtho	Suspended	le Suspen	Carbon
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	Ammonia Nitrogen	Chlorophyll-a, Correcte	Nitrate as Nitrogen	Pheophytin-a	Phosphorus	Phosphorus, -ortho	Solids, Total Suspended	Solids, Volatile Suspen	Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 0	008468						M.	Report Date:	: 04/12/2019	019
Project Name: SHELBY Project No:	SHELBYVILLE LAKE/KASKASKIA RIVER	CASKASKIA R	IVER				Z	Analysis: ELAC Certif	Analysis: Inorganics NELAC Certified - IL100308	ics 00308
ARDL No: 008468-03 Field ID: SVL-2-10 Received: 03/22/2019	-03 10 2019	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 03/21/2019 1040			Matrix: Moisture:	: WATER : NA	
Analyte	ТОР	čor	Flag R	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron	0.0400	0.0500		3.33	MG/L	3010A	6010C	04/10/19	04/10/19	P7190
(a) Manganese	0.00400	0.00500		0.207	MG/L	30102	6010C	04/10/19	04/10/19	P7190
Ammonia Nitrogen	0.0200	0.0300		0.145	MG/L	NONE	350.1	NA	03/26/19 (	03274431
Nitrate as Nitrogen	0.190	0.200		6.14	MG/L	NONE	GREEN	NA	04/08/19 (	04114462
Phosphorus	0.00800	0.0100		0.256	MG/L	365.2	365.2	03/27/19	03/27/19 (	03294446
Phosphorus, -ortho	0.0080	0.010		0.12	MG/L	NONE	365.2	NA	03/22/19 (	03274435
Solids, Total Suspended	ed 2.0	2.00		27.8	MG/L	NONE	160.2	NA	03/25/19 (	03274437
Solids, Volatile Suspen	en 2.0	2.00		2.6	MG/L	NONE	160.4	NA	03/25/19 (	03274438
Total Organic Carbon	0.500	1.00		2.9	MG/L	NONE	415.1	NA	03/25/19 (	04084461

(a) DOD and/or NELAC Accredited Analyte.

Sample 008468-03, Inorganic Analyses

Lab Report No: 008468 Report Date: 03/28/2019

-	SHELBYVILLE LAKE/F		alysis: N		DES (827	OSIM-MO	D)
Project No.:	Ar	nalytical I					
NELAC Certi:	fied - IL100308	Prep	Method: 3	510C			
Field ID:	SVL-4	·	ARDL 1	Lab No.:	00846	8-04	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0326	917	
Sample Date:	03/21/2019		Recei	ved Date:	03/22	/2019	
Sample Time:	1330		Prep.	Date:	03/22	/2019	
Matrix:	WATER		Analya	sis Date:	03/26	/2019	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1103	4	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	ND		UG/L	1
Metribuzin		0.200	0.200	ND	•	$\mathtt{UG}/\mathtt{L}$	1.
Alachlor		0.200	0.200	ND		$\mathtt{UG}/\mathtt{L}$	1.
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	83%	
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

ARDL No: 008468-04 Field ID: SVL-4 Received: 03/22/2019 Analyte LOD Ammonia Nitrogen 0.0200	KASKASK S LOQ LOQ	Loc' Dat Tim		SHELBYVILLE LAKE 03/21/2019 1330 1t Units 143 MG/L	Prep Method NONE	N Analysis Method 350.1	Analysis: Inor NELAC Certified - Matrix: WATE Moisture: NA Prep Analys Date Date NA 03/26/	Eied - IL100308 WATER NA Analysis Run Date Number 03/26/19 03274431	ganics IL100308 RR its Run Number 19 03274431
orrecte			5.1	MG/CU.M.	10200H	10200H	03/22/19	03/28/19 0	04014453
Nitrate as Nitrogen 0.190	0.200		9.11	MG/L	NONE	GREEN	NA	04/08/19 0	04114462
Pheophytin-a 1.0	1.00		NO	MG/CU.M.	10200H	10200H	03/22/19	03/28/19 0	04014453
Phosphorus 0.00800	0010.0		0.386	MG/L	365.2	365.2	03/27/19	03/27/19 0	03294446
Phosphorus, -ortho 0.0080	30 0.010		0.12	MG/L	NONE	365.2	NA	03/22/19 (	03274435
Solids, Total Suspended 2.0	2.00		21.4	MG/L	NONE	160.2	NA	03/25/19 (	03274437
Solids, Volatile Suspen 2.0	2.00		2.0	MG/L	NONE	160.4	NA	03/25/19 (	03274438
Total Organic Carbon 0.500	00.1		2.0	MG/L	NONE	415.1	NA	03/25/19 0	04084461

(a) DOD and/or NELAC Accredited Analyte.

Sample 008468-04, Inorganic Analyses

Lab Report No: 008468 Report Date: 03/28/2019

Project Name:	SHELBYVILLE LA		nalysis: N		DES (82	70SIM-MC	D)
Project No.:		Analytical	Method: 8	270C			
NELAC Certi:	fied - IL100308	Prep	Method: 3	510C			
Field ID:	SVI12		TOTA	Lab No.:	0004	68-05	
Desc/Location:	2.2 22	ZE.		ilename:			
•		KE					
-	03/21/2019			ved Date:		2/2019	
Sample Time:	1525		_	Date:		2/2019	
Matrix:	WATER		_	sis Date:		6/2019	
Amount Used:				ument ID:			
Final Volume:	1 mL		QC Ba		B110:	34	
% Moisture:	NA		Level	:	LOW		
					Data		Dilutio
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	ND		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222		ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

|SURROGATE RECOVERIES: Limits Results |Triphenylphosphate 30-130 89%

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

0.190 0.200 9.32 MG/L NONE GREEN 0.00800 0.0100 0.178 MG/L 365.2 365.2 0.0080 0.010 0.099 MG/L NONE 365.2 1.87 1.87 25.2 MG/L NONE 160.2	0.200 9.32 MG/L NONE 0.0100 0.178 MG/L 365.2 0.010 0.099 MG/L NONE 1.87 25.2 MG/L NONE 1.87 2.06 MG/L NONE
0.200 9.32 MG/L 0.0100 0.178 MG/L 3 0.010 0.099 MG/L 1.87 25.2 MG/L	0.200 9.32 MG/L 0.0100 0.178 MG/L 3 0.010 0.099 MG/L 1.87 25.2 MG/L 1.87 2.06 MG/L
0.0100 0.178 MG/L 3 0.010 0.099 MG/L 1.87 25.2 MG/L	0.0100 0.178 MG/L 3 0.010 0.099 MG/L 1.87 25.2 MG/L 1.87 2.06 MG/L
0.010 0.099 MG/L 1.87 25.2 MG/L	0.010 0.099 MG/L 1.87 25.2 MG/L 1.87 2.06 MG/L
1.87 25.2 MG/L	1.87 25.2 MG/L 1.87 2.06 MG/L
	1.87 2.06 MG/L NONE

(a) DOD and/or NELAC Accredited Analyte.

Sample 008468-05, Inorganic Analyses

Lab Report No: 008468 Report Date: 03/28/2019

_	SHELBYVILLE LAKE/		-	P PESTICII	DES (82	70SIM-MC	D)
Project No.:	P	Analytical M	ethod: 8	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	SVL-13		ARDL :	Lab No.:	0084	58-06	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0326	5919	
Sample Date:	03/21/2019		Recei <sup>.</sup>	ved Date:	03/22	2/2019	
Sample Time:	1240		Prep.	Date:	03/22	2/2019	
Matrix:	WATER		Analy	sis Date:	03/26	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B1103	34	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	ND		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	88%	ĺ
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

	LE LAKE/K	SHELBYVILLE LAKE/KASKASKIA RIVER	IVER					Analysis:	: Inorganics	ics
							4	NELAC Certified - IL100308	fied - IL1	00308
008468-06		Sampl	Sampling Loc'n:		SHELBYVILLE LAKE			Matrix:	:: WATER	
SVL-13		Samp	Sampling Date:		03/21/2019			Moisture:	: NA	
03/22/2019	o.	Samp	Sampling Time:	ime: 1240						
						Prep	Analysis	Prep	Analysis	Run
	LOD	ŎOI	Flag	Result	Units	Method	Method	Date	Date	Number
	0.0200	0.0300		0.0558	MG/L	NONE	350.1	NA	03/26/19	03274431
Nitrate as Nitrogen	0.190	0.200		9.52	MG/L	NONE	GREEN	NA	04/08/19	04114462
	0.00800	0.0100		0.367	MG/L	365.2	365.2	03/27/19	03/27/19	03294446
Phosphorus, -ortho	0.0080	0.010		660.0	MG/L	NONE	365.2	NA	03/22/19	03274435
Solids, Total Suspended	2.56	2.56		58.7	MG/L	NONE	160.2	NA	03/25/19	03274437
Solids, Volatile Suspen	2.56	2.56		3.59	MG/L	NONE	160.4	NA	03/25/19	03274438
Total Organic Carbon	0.500	1.00		1.4	MG/L	NONE	415.1	NA	03/25/19	04084461

(a) DOD and/or NELAC Accredited Analyte.

Sample 008468-06, Inorganic Analyses

Lab Report No: 008468 Report Date: 03/28/2019

Project Name:	SHELBYVILLE LAKE/	KAS Ana	lysis: N	P PESTICII	DES (82	70SIM-MC	D)
Project No.:	A	nalytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 3!	510C			
Field ID:	SVL-11		ARDL 1	Lab No.:	00846	58-07	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E032	5920	
Sample Date:	03/21/2019		Recei	ved Date:	03/22	2/2019	
Sample Time:	1200		Prep.	Date:	03/22	2/2019	
Matrix:	WATER		Analy	sis Date:	03/26	5/2019	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1103	34	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	ND		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	70%	İ

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

119	cs 00308		Run Number	03274431	04014453	04114462	04014453	03294446	03274435	03274437	03274438	04084461	
04/12/2019	Inorganics ied - IL1003	WATER NA	Analysis Date	03/26/19 0	03/28/19 (	04/08/19 (	03/28/19 (	03/27/19 (	03/22/19 (	03/25/19 (	03/25/19 (	03/25/19 0	
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA	03/22/19	NA	03/22/19	03/27/19	NA	NA	NA	NA	
Re	N		Analysis Method	350.1	10200H	GREEN	10200H	365.2	365.2	160.2	160.4	415.1	
-			Prep Method	NONE	10200H	NONE	10200H	365.2	NONE	NONE	NONE	NONE	
		SHELBYVILLE LAKE 03/21/2019 1200	Units	MG/L	MG/CU.M.	MG/L	MG/CU.M.	MG/L	MG/L	MG/L	MG/L	MG/L	
			Result	0.229	3.0	6.12	1.9	0.709	0.33	54.8	6.0	4.4	
	LIVER	Sampling Loc'n: Sampling Date: Sampling Time:	Flag										
	ASKASKIA F	Sampli Sampl Sampl	O O I	0.0300	1.00	0.200	1.00	0.0100	0.010	4.00	4.00	1.00	
8 9	LE LAKE/K	6	LOD	0.0200	1.0	0.190	1.0	0.00800	0.0080	4.0	4.0	0.500	
Lab Report No: 008468	Project Name: SHELBYVILLE LAKE/KASKASKIA RIVER Project No:	ARDL No: 008468-07 Field ID: SVL-11 Received: 03/22/2019	Analyte	Ammonia Nitrogen	Chlorophyll-a, Correcte	Nitrate as Nitrogen	Pheophytin-a		Phosphorus, -ortho	Solids, Total Suspended	Solids, Volatile Suspen	Total Organic Carbon	
Ţ	Proje( Pro_	F. P. Re		Ammon	Chlore	Nitrat	Pheopl	Phosphorus	Phospl	Solida	Solida	Total	

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008468 Report Date: 03/28/2019

Project Name: Project No.: NELAC Certi	SHELBYVILLE	Anal	ytical	nalysis: Method: Method:	8270C	TICIDE	S (82	70SIM-MC	DD)
   Field ID:	SVL-15			ARD	L Lab N	0 •	00846	68-08	
Desc/Location:		LAKE			Filena		E0326		
Sample Date:	03/21/2019				eived D			2/2019	
Sample Time:	1040				o. Date		•	2/2019	
Matrix:	WATER				lysis D			5/2019	
Amount Used:	1000 mL				rument		AG5	-,	
Final Volume:	1 mL			QC 1	Batch:		B1103	34	
% Moisture:	NA			Leve	el:		LOW		
				***		]	Data		Dilution
Parameter			LOD	LOQ	Res	ult 1	Flag	Units	Factor
Trifluralin			0.200	0.20	) N	D		UG/L	1
Atrazine			0.200	0.20	) N	D		UG/L	1
Metribuzin			0.200	0.200	) N	D		UG/L	1
Alachlor			0.200	0.200	) N	D		UG/L	1
Metolachlor			0.200	0.200	) N	D		UG/L	1
Chlorpyrifos			0.200	0.200	) NI	D		UG/L	1
Cyanazine			0.200	0.200	) N	D		UG/L	1
Pendimethalin			0.200	0.200	) N	D		UG/L	1
SURROGATE RECOVI	ERIES:		T,-	imits			Res	sults	

|Triphenylphosphate 30-130 78%

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

019	ics .00308		Run Number	03274431	04014453	04114462	04014453	03294446	03274435	03274437	03274438	04084461
: 04/12/2019	: Inorganics fied - IL1003	: WATER : NA	Analysis Date	03/26/19 03274431	03/28/19	04/08/19	03/28/19	03/27/19	03/22/19	03/25/19	03/25/19	03/25/19
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA	03/22/19	NA	03/22/19	03/27/19	NA	NA	NA	NA
ŭ	Ä		Analysis Method	350.1	10200H	GREEN	10200H	365.2	365.2	160.2	160.4	415.1
			Prep Method	NONE	10200H	NONE	10200H	365.2	NONE	NONE	NONE	NONE
		SHELBYVILLE LAKE 03/21/2019 1040	Units	MG/L	MG/CU.M.	MG/L	MG/CU.M.	MG/L	MG/L	MG/L	MG/L	MG/L
			Result	0.0441	7.1	9.07	NO	0.468	0.13	55.2	4.8	2.0
	RIVER	Sampling Loc'n: Sampling Date: Sampling Time:	Flag									
	ASKASKIA	Samp Samj Samj	ČOT	0.0300	1.00	0.200	1.00	0.0100	0.010	4.00	4.00	1.00
8	LE LAKE/K	0	LOD	0.0200	1.0	0.190	1.0	0.0800.0	0.0080	4.0	4.0	0.500
No: 008468	SHELBYVILLE LAKE/KASKASKIA RIVER	008468-08 SVL-15 03/22/2019	t e	en	Correcte	rogen		J	rtho	Suspended	le Suspen	Carbon
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	Ammonia Nitrogen	Chlorophyll-a, Correcte	Nitrate as Nitrogen	Pheophytin-a	Phosphorus	Phosphorus, -ortho	Solids, Total Suspended	Solids, Volatile Suspen	Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Sample 008468-08, Inorganic Analyses

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Report Date: 04/12/2019	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA	Prep Analysis Date Date	NA 03/26/19	/19 03/28/19	03/27/19	04/08/19	03/22/19	28	_	~;	_		-
Report Date	Analysis NELAC Certi	Matrix Moisture		NA	/19			03	03/28/19	03/27/19	03/22/19	03/25/19	03/25/19	03/26/19
ж	Z		l		03/22/19	03/26/19	NA	NA	03/22/19	03/27/19	NA	NA	NA	NA
			Analysis	350.1	10200H	351.2	GREEN	354.1	10200H	365.2	365.2	160.2	160.4	415.1
			Prep Method	NONE	10200H	351.2	NONE	NONE	10200H	365.2	NONE	NONE	NONE	NONE
		KASKASKIA RIVER 03/21/2019 0910	Units	MG/L	MG/CU.M.	MG/L	MG/L	MG/L	MG/CU.M.	MG/L	MG/L	MG/L	MG/L	MG/L
			Result	0.14	3.0	0.835	5.82	NO	N ON	0.294	0.18	21.2	1.47	2.7
RTVER	77 N T N	Sampling Loc'n: Sampling Date: Sampling Time:	Flag											
No: 008468 SHELRYVIII.E LAKE/KASKASKIA RIT	ASKASKIA	Samp Samj Samj	TOO	0.030	1.00	0.200	0.200	0.0200	1.00	0.0100	0.010	1.33	1.33	1.00
68 1.2 T.2KE/K	LE LAKE/K	თ	LOD	0.020	1.0	0.190	0.190	0.0200	1.0	0.00800.0	0.0080	1.33	1.33	0.500
Lab Report No: 008468		ARDL No: 008468-09 Field ID: KAS-3 Received: 03/22/2019	Analyte	Ammonia Nitrogen	Chlorophyll-a, Correcte	Kjeldahl Nitrogen	Nitrate as Nitrogen	Nitrite as Nitrogen	Pheophytin-a	Phosphorus	Phosphorus, -ortho	Solids, Total Suspended	Solids, Volatile Suspen	Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Sample 008468-09, Inorganic Analyses

# METHOD BLANK REPORT ARDL, Inc. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008466 Report Date: 03/28/2019

Project Name: CARLYLE	LAKE Analy	sis: NP PEST	CICIDES (8	270SIM-MC	D)
Project No.:	Analytical Met	hod: 8270C			
NELAC Certified - II	100308 Prep Met	hod: 3510C			
Field ID: NA		ARDL Lab No	0.: 008	466-01B1	
Desc/Location: NA		Lab Filenam	ne: E03	26903	
Sample Date: NA		Received Da	ite: NA		
Sample Time: NA		Prep. Date:	03/	22/2019	
Matrix: QC Mater	ial	Analysis Da		26/2019	
Amount Used: 1000 mL		Instrument	•	•	
Final Volume: 1 mL		QC Batch:	B11	034	
% Moisture: NA		Level:	LOW		
				Data	
Parameter	LOD	LOQ	Result	Flag	Units
Trifluralin	0.200	0.200	ND		UG/L
Atrazine	0.200	0.200	ND		UG/L
Metribuzin	0.200	0.200	ND		UG/L
Alachlor	0.200	0.200	ND		UG/L
Metolachlor	0.200	0.200	ND		UG/L
Chlorpyrifos	0.200	0.200	ND		UG/L
Cyanazine	0.200	0.200	ND		UG/L
Pendimethalin	0.200	0.200	ND		UG/L
URROGATE RECOVERIES:	Limit	C	D	esults	
riphenylphosphate	30-13		Re	92%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

400 Aviation Drive; P.O. Box 1566 BLANK SUMMARY REPORT ARDL, INC.

62864 Mt. Vernon, IL

NELAC Certified - IL100308 Report Date: 04/12/2019 SHELBYVILLE LAKE/KASKASKIA RIVER Lab Report No: 008468 Project Name:

		edensite advice de la	Blank		Prep	Analvsis	Prep	Analvsis		OC Lab
Analyte	LOD	TOO	Result	Units	Method	Method	Date	Date	Run	Number
(a) Iron	0.040	0.050	QN CN	MG/L	3010A	60100	04/10/19	04/10/19	P7190	008468-01B1
(a) Manganese	0.004	0.005	QN	MG/L	3010A	60100	04/10/19	04/10/19	P7190	008468-01B1
Ammonia Nitrogen	0.020	0:030	N	MG/L	NONE	350.1	NA	03/26/19 0	03274431	008468-01B1
Chlorophyll-a, Corre	1.0	1.0	QN ON	MG/CU.M.	10200H	10200H	03/22/19	03/28/19 0	04014453	008468-07B1
Kjeldahl Nitrogen	0.19	0.20	QN ON	MG/L	351.2	351.2	03/26/19	03/27/19 0	03274434	008467-01B1
Nitrate as Nitrogen	0.019	0.020	QN QN	MG/L	NONE	GREEN	NA	04/08/19 0	04114462	008468-04B1
Nitrite as Nitrogen	0.020	0.020	ON	MG/L	NONE	354.1	NA	03/22/19 0	04014454	008468-09B1
Pheophytin-a	1.0	1.0	QN	MG/CU.M.	10200H	10200H	03/22/19	03/28/19 0	04014453	008468-07B1
Phosphorus	0.008	0.010	ON ON	MG/L	365.2	365.2	03/27/19	03/27/19 0	03294446	008467-02B1
Phosphorus, -ortho	0.008	0.010	Q.	MG/L	NONE	365.2	NA	03/22/19 0	03274435	008468-05B1
Solids, Total Suspen	1.0	1.0	R	MG/L	NONE	160.2	NA	03/25/19 0	03274437	008468-07B1
Solids, Volatile Sus	1.0	1.0	R	MG/L	NONE	160.4	NA	03/25/19 0	03274438	008468-07B1
Total Organic Carbon	0.50	1.0	N Q	MG/L	NONE	415.1	NA	03/25/19 0	04084461	008466-01B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008468

Mt. Vernon, IL BLANK SPIKE/SPIKE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

62864

100 · · · · · · · · · · · · · · · · · ·							<b>D</b>	ביים ביים	Report Date: 03/40/4019	n
Project Name: CARLYLE LAKE Project No.:	And	Analysis: NP P	ESTICIDE	PESTICIDES (8270SIM-MOD)	CM-MOD)	Anal	Analytical Method: Prep Method:	ical Method: 8270C Prep Method: 3510C	000	1
Matrix: QC Material Amount Used: 1000 mL		QC Batch: Level:	B11034 LOW	)34		Prep. Date: Analysis Da	Date: is Date:	Prep. Date: 03/22/2019 Analysis Date: 03/26/2019	o, o,	ı
Parameter	Spike Result	Spike Level	Spike % Rec	Duplicate Result	Duplicate	Duplicate % Rec	Recovery	RPD	RPD Limit	ı
Trifluralin	67.0	-	79	1	1	li g	30-130	1 1	1	
Atrazine	0.85		82	;	;	;	30-130	!	!	
Metribuzin	0.79	н	79	;	;	1	30-130	!	;	
Alachlor	0.91	п	91	;	t I	;	30-130	;	!	
Metolachlor	0.98	п	86	-{	;	;	30-130	;	;	
Chlorpyrifos	0.88	н	88	;	;	f i	30-130	;	;	
Cyanazine	н	П	100	;	i i	ļ ļ	30-130	ı	;	
Pendimethalin	0.67	п	67	i	;	1	30-130	i i	;	
										***************************************

%R Limits 30-130

Duplicate %R

Spike %R 84

SURROGATE RECOVERIES:

Triphenylphosphate

(a) DOD-QSM Accredited Analyte.

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits.
Spike Blanks for 008466-01, NP PESTICIDES (8270SIM-MOD)

62864 Mt. Vernon, IL LABORATORY CONTROL SAMPLE REPORT 400 Aviation Drive; P.O. Box 1566 Mt. ARDL, INC.

Lab Report No: 008468	891								Report Da	Report Date: 04/12/2019
Project Name:	SHELBYVILLE LAKE/KASKASKIA RIVER	E LAKE/	KASKASK	IA RIVE	R				NELAC Cer	NELAC Certified - IL100308
	LCS 1	LCS 1	LCS 1	LCS 2	LCS 2	LCS 2	% B B B B	Mean	Analytical	QC Lab
Analyte	Result	Level	% ወ ር	Result	Level	% Rec	Limits	% B C O	Run	Number
(a) Iron	8.4	5.0	95	ŀ	!	I.	87-115	i	P7190	008468-01C1
(a) Manganese	0.75	0.75	100	1	ì	:	90-114	;	P7190	008468-01C1
Ammonia Nitrogen	1.0	1.0	102	i i	;	!	80-120	ŀ	03274431	008468-01C1
Kjeldahl Nitrogen	0.97	1.0	97	;	!	1	80-120	1	03274434	008467-01C1
Nitrate as Nitrogen	1.0	1.0	103	;	!	1	80-120	1	04114462	008468-04Cl
Nitrite as Nitrogen	76.0	1.0	76	1	ı	i i	80-120	i	04014454	008468-09C1
Phosphorus	0.78	0.67	116	i i	1	1	80-120	1	03294446	008467-02C1
Phosphorus, -ortho	0.10	0.10	102	\$ \$	1	-	80-120	1	03274435	008468-05C1
Total Organic Carbon	10	10.0	100	}	i I	1	76-120	;	04084461	008466-01C1

NOTE: Any values tabulated above marked with an asterisk are outside of acceptable limits.

Inorganic LCS Results for 008468

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte

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	Vernon,
	Mt.
TE REPORT	Box 1566
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DUPLICATE	P.0.
ATRIX SPIKE/SPIKE D	Drive;
SPIKE/	400 Aviation
MATRIX S	Avi
MAT	400
	INC.
	ARDL,

04/02/2019 Analytical Method: 8270C Report Date: Analysis: NP PESTICIDES (8270SIM-MOD) Project Name: SHELBYVILLE LAKE/KAS 008468 Lab Report No:

Project No.:				Prep Method: 3510C
Field ID:	SVL-1	Prep. Date: 03/22/2019	03/22/2019	ARDL Lab No.: 008468-01
Desc/Location:	Desc/Location: SHELBYVILLE LAKE	Amount Used: 900 mL	900 mL	Lab Filename:
Sample Date:	03/21/2019	% Moisture:	NA	Received Date: 03/22/2019
Sample Time:	0945	QC Batch:	B11034	Analysis Date: 03/26/2019
Matrix:	WATER	Level:	LOW	

LX:	0945 WATER		yc Batch: Level:		Blio34 LOW		An	alysis De	Analysis Date: 03/26/2019	0/20TA		
		Sample	MS	MS	MS	MSD	MSD	MSD	% Rec		RPD	1
Paı	Parameter	Result	Result	Level	% D D	Result	Level	% Rec	Limits	RPD	Limit	
Trif	Trifluralin	QN	0.856	1.11	7.7	0.922	1.11	83	30-130	7.5	30	1
At	Atrazine	CN	0.922	1.11	83	0.989	1.11	89	30-130	7	30	
Met	Metribuzin	CN	6.0	1.11	81	0.956	1.11	86	30-130	9	30	
[A]	Alachlor	QN	1.01	1.11	16	П	1.11	06	30-130	۲.۲	30	
Metc	Metolachlor	CIN	1.13	1.11	102	1.2	1.11	108	30-130	5.7	30	
Chlc	Chlorpyrifos	QN	0.978	1.11	88	0.989	1.11	68	30-130	1.1	30	
Cys	Cyanazine	CIN	1.09	1.11	86	1.17	1.11	105	30-130	6.9	30	
Pendi	Pendimethalin	ON	0.856	1.11	77	0.922	1.11	83	30-130	7.5	30	

SURROGATE RECOVERIES:	MS %R	MSD %R	%R Limits
Triphenylphosphate	87	95	30-130

<sup>(</sup>a) DOD-QSM Accredited Analyte.

<sup>&#</sup>x27;nc' indicates sample >4X spike level.

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits.
Matrix Spikes for 008468-01, NP PESTICIDES (8270SIM-MOD)

62864 MATRIX SPIKE/SPIKE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL ARDL, INC.

Lab Report No: 008468

Report Date: 04/12/2019

Project Name:		SHELBYVILLE LAKE/KASKASKIA RIVER	LE LAKE/	KASKASK	IA RIVE	ex.					NELAC	Certifi	NELAC Certified - IL100308
	Sample	Sample	MS	MS	MS	MSD	MSD	MSD	% Rec		RPD		QC Lab
Analyte	Matrix	Result	Result	Level	% Red	Result	Level	% & O	Limits	RPD	Limit	Run	Number
(a) Iron	WATER	0.31	1.3	1.0	100	1.3	1.0	66	87-115	н	20	P7190	008468-01MS
(a) Manganese	WATER	0.016	0.53	0.50	104	0.54	0.50	104	90-114	н	20	P7190	008468-01MS
Ammonia Nitrogen	WATER	0.13	2.2	2.0	104	2.2	2.0	103	75-125	ч	20	03274431	008468-01MS
Kjeldahl Nitrogen	WATER	0.84	1.7	0.80	113	1.6	08.0	24	75-125	ω	20	03274434	008468-09MS
Nitrate as Nitrogen	WATER	9.1	10.3	1.0	115	10.4	1.0	131 *	75-125	7	20	04114462	008468-04MS
Phosphorus	WATER	0.39	1.2	0.83	93	1.2	0.83	100	75-125	ß	20	03294446	008468-04MS
Phosphorus, -ortho	WATER	0.099	0.20	0.10	100	0.20	0.10	103	75-125	7	20	03274435	008468-05MS
Total Organic Carbon	WATER	2.7	7.8	5.0	103	1	!	;	76-120	1	!	04084461	008468-02MS

NOTE: Values tabulated above marked with an asterisk are explained in the associated narrative.

Inorganic Matrix Spikes for 008468

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte.

62864 Mt. Vernon, IL SAMPLE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

Lab Report No: 008468	8468						Report Date: 04/12/2019	04/12/2019
Project Name: SH	SHELBYVILLE LAKE/KAS	AKE/KASKASK	KASKIA RIVER				NELAC Certifi	NELAC Certified - IL100308
Analyte	Sample Conc'n	Sample First Second Conc'n Duplicate	Second	Units	Percent Diff	Mean (Smp, D1, D2)	Analytical Run	QC Lab Number
Chlorophyll-a, Corrected	ed 3.0	3.0	44 88	MG/CU.M.	0	and the	04014453	008468-07D1
Pheophytin-a	1.9	0	1	MG/CU.M.	0	!	04014453	008468-07D1
Solids, Total Suspended	ed 54.8	56.0	1	MG/L	73	!	03274437	008468-07D1
Solids, Volatile Suspend	nd 6.0	6.0	;	MG/L	0	1	03274438	008468-07D1

(a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008468

## Sample Receipt Information

Including as appropriate:

- COCs
- Cooler Receipts
- Airbills
- Email Communication / Instructions from Customer

ARDL, Inc.
P.O. Box 1566, 400 Aviation Drive, Mt. Vernon, IL 62864 (618) 244-3235 Phone (618) 244-1149 Fax

**CHAIN OF CUSTODY RECORD** 

Shelbyville Lake			4			S		1														<u> </u>	PRESERVATION	NOI
SAMPLERS: (Signature)  Schepkor (6)	(Greeling	ς (		CONTAIN	V	SIGN	0917	7 ×	V. EHN I	15		Q	7									ICED	SPECIFY CHEMICALS ADDED AND FINAL PH IF KNOWN	ICALS O AND PH IF
SAMPLE NUMBER	DATE	TIME	COMP		SST SOLIS SALO	010/0*	500	103/18/ 100/ 10/18/18/	S ON	TO THE	WSW OS IN	WOW	SEE S					SAN	REMARKS OR APLE LOCA'	REMARKS OR SAMPLE LOCATION	z			
SVL-1	3-2/6	2460	×	×		×	×	×	XX		×				┢	igspace						×		
SVL-2	12-8	1030	×	×	×	×	×	×	×													×		
SVL-2-10	17-6	10 40	×	×		×	×	×	×	h.d.						_						×		
SVL-4	3-21	338	×	×	×	×	×	X	×													×		
SVL-12	3-21	3:25	×	×		×	×	×	×													×		
SVL-13		12 40	×	×		×	×	×	×													×		
SVL-11		1200	×	×	×	×	×	×	×													×		
SVL-15	3-4	1040	×	×	×	×	×	X	×													×		
KAS-3		09/0	×	×	X	70,	×	×				×				B	Ele	100	7 7	XX	Port	tain	3	
		-		-						N.											dle	3/22	611	
																				1				
				,																				
			_																					
Relinquished by: (Signature) Relinquished by: (Signature) Received for Laboratory by: (Signature)	Date Date 322/19	Time Time Time Time Time Time	Receive Receive Shippin	Received by: (Signature) The Control of Signature) Received by: (Signature) Shipping Ticket No.	t No.		7 3	*Pres #Pres	Preserved with H28 Preserved with H18 Preserved with H18	with ]	*Preserved with H <sub>2</sub> SO <sub>4</sub> #Preserved with HNO <sub>3</sub>	ISSU 2	N 0 2	*Preserved with H <sub>2</sub> SO <sub>4</sub> #Preserved with H <sub>0</sub> SO <sub>4</sub> #Preserved with HNO <sub>3</sub> MO <sub>2</sub> ON	3	in 3	S	1 3	,	One Was with 755	0		+	

PURCHASE ORDER NO:

ARDL Report 8468 - Page 28 of 30

## COOLER RECEIPT REPORT ARDL, INC.

AR	DL#: 8468		oler# 1 of 2			
		Nur	mber of Coolers in Sh	ipment:	·	_
Pro	oject: Shelleyville Bake/Kaskaskia	Dat	e Received: 3-2/	-19 ley:	vaj	ė'
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 3-2	2-19	(Signature)(Signature)	chrum	<u> </u>	
1.	Did cooler come with a shipping slip (airbill, etc.)?			YES	NO	)
	If YES, enter carrier name and airbill number here:		Laure	il)		
2.	Were custody seals on outside of cooler?				10	N/A
	How many and where?,Seal Dat	e:	,Seal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?				NO	MA)
4.	Did you screen samples for radioactivity using a Geiger Counter?			ŒS	, NO	
5.	Were custody papers sealed in a plastic bag?			YES	NO.	
6.	Were custody papers filled out properly (ink, signed, etc.)?			YES	NO	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?			(ES)	NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name			1	NO	N/A
9.	Was a separate container provided for measuring temperature? YES	NO	Observed Cooler Te	mp. // (orrection factor_E	) ) (O	) с
В.	LOG-IN PHASE: Date samples were logged-in: 3-22-19	(Signat	ure) <u>Mackr</u>	um:		
10.	Describe type of packing in cooler: Louse ice					
11.	Were all samples sealed in separate plastic bags?			YES	(NO)	N/A
12.	Did all containers arrive unbroken and were labels in good condition?		······································	VES	NO	
13.	Were sample labels complete?			(ES)	NO	•
14.	Did all sample labels agree with custody papers?			(ES	NO	
15.	Were correct containers used for the tests indicated?		······································	YES	NO	
16.	Was pH correct on preserved water samples?			KES	NO	N/A
17.	Was a sufficient amount of sample sent for tests indicated?			YES	NO	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	-	·	YES	NO	(N/A
19.	Was the ARDL project coordinator notified of any deficiencies?			YES	NO	(N/A)
	Comments and/or Corrective Action:			e Transfer		
			Fraction	Fraction		
		$\dashv$	Area #	Area #		
			Walkin			
		ļ	By 	Ву		
		1	On	On		
		_	3-22-19			
			Chain-of-Custody #	* NA		
(F	By: Signature) Date:	1	Situation of outlody in			

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## COOLER RECEIPT REPORT ARDL, INC.

ARDL#: SHEBUSALE ALE Number of Coolers in Shipment: A Number of Coolers in Shipment: A Number of Coolers in Shipment: A Date Received: 3 - 21 - 19 Ly raf.  A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 3 - 22 - 19 (Signature)
A. PRELIMINARY EXAMINATION PHASE; Date cooler was opened: 3-12-19 (Signature)
1. Did cooler come with a shipping slip (airbili, etc.)?
1. Did cooler come with a shipping slip (airbili, etc.)?
2. Were custody seals on outside of cooler?
How many and where?
3. Were custody seals unbroken and intact at the date and time of arrival?  4. Did you screen samples for radioactivity using a Geiger Counter?  5. Were custody papers sealed in a plastic bag?  6. Were custody papers signed in appropriate place by ARDL personnel?  7. Were custody papers signed in appropriate place by ARDL personnel?  8. Was project identifiable from custody papers? If YES, enter project name at the top of this form  9. Was a separate container provided for measuring temperature? YES NO N/A  9. Was a separate container provided for measuring temperature? YES NO Observed Cooler Temp.  10. Describe type of packing in cooler:  11. Were all samples sealed in separate plastic bags?  12. Did all containers arrive unbroken and were labels in good condition?  13. Were sample labels complete?  14. Did all sample labels agree with custody papers?  15. Were correct containers used for the tests indicated?  16. Was pH correct on preserved water samples?  17. Wes a sufficient amount of sample sent for tests indicated?  18. Were bubbles absent in VOA samples? If NO, list by sample #:  19. YES NO N/A  19. Were bubbles absent in VOA samples? If NO, list by sample #:  19. YES NO N/A  10. Were bubbles absent in VOA samples? If NO, list by sample #:  19. YES NO N/A
4. Did you screen samples for radioactivity using a Geiger Counter?  5. Were custody papers sealed in a plastic bag?  6. Were custody papers filled out properly (ink, signed, etc.)?  7. Were custody papers signed in appropriate place by ARDL personnel?  8. Was project identifiable from custody papers? If YES, enter project name at the top of this form.  9. Was a separate container provided for measuring temperature? YES NO Observed Cooler Temp.  9. Correction factor OCC  10. Describe type of packing in cooler:  11. Were all samples sealed in separate plastic bags?  12. Did all containers arrive unbroken and were labels in good condition?  13. Were sample labels complete?  14. Did all sample labels agree with custody papers?  15. Were correct containers used for the tests indicated?  16. Was a sufficient amount of sample sent for tests indicated?  17. Was a sufficient amount of samples sent for tests indicated?  18. Were bubbles absent in VOA samples? If NO, list by sample #:  19. YES NO  10. N/A  11. Was a sufficient amount of samples? If NO, list by sample #:  11. YES NO  12. N/A  13. Were bubbles absent in VOA samples? If NO, list by sample #:  14. YES NO  15. Were bubbles absent in VOA samples? If NO, list by sample #:  16. YES NO  17. YES NO  18. Were bubbles absent in VOA samples? If NO, list by sample #:  18. YES NO
S. Were custody papers sealed in a plastic bag?
6. Were custody papers filled out properly (ink, signed, etc.)?
7. Were custody papers signed in appropriate place by ARDL personnel?
8. Was project identifiable from custody papers? If YES, enter project name at the top of this form
9. Was a separate container provided for measuring temperature? YESNO/ Observed Cooler Temp
B. LOG-IN PHASE: Date samples were logged-in: 3-22-19 (Signature) // / / / / / / / / / / / / / / / / /
B. LOG-IN PHASE: Date samples were logged-in: 3-22-19 (Signature) // / / / / / / / / / / / / / / / / /
11. Were all samples sealed in separate plastic bags?  12. Did all containers arrive unbroken and were labels in good condition?  13. Were sample labels complete?  14. Did all sample labels agree with custody papers?  15. Were correct containers used for the tests indicated?  16. Was pH correct on preserved water samples?  17. Was a sufficient amount of sample sent for tests indicated?  18. Were bubbles absent in VOA samples? If NO, list by sample #:  19. VES NO  10. N/A
12. Did all containers arrive unbroken and were labels in good condition?  13. Were sample labels complete?  14. Did all sample labels agree with custody papers?  15. Were correct containers used for the tests indicated?  16. Was pH correct on preserved water samples?  17. Was a sufficient amount of sample sent for tests indicated?  18. Were bubbles absent in VOA samples? If NO, list by sample #:  19. NO  10. Were bubbles absent in VOA samples? If NO, list by sample #:  10. YES NO  11. Were bubbles absent in VOA samples? If NO, list by sample #:  11. YES NO  12. NO
13. Were sample labels complete?
14. Did all sample labels agree with custody papers?  15. Were correct containers used for the tests indicated?  16. Was pH correct on preserved water samples?  17. Was a sufficient amount of sample sent for tests indicated?  18. Were bubbles absent in VOA samples? If NO, list by sample #:  YES NO N/A
15. Were correct containers used for the tests indicated?  16. Was pH correct on preserved water samples?  17. Was a sufficient amount of sample sent for tests indicated?  18. Were bubbles absent in VOA samples? If NO, list by sample #:
16. Was pH correct on preserved water samples?
17. Was a sufficient amount of sample sent for tests indicated?
18. Were bubbles absent in VOA samples? If NO, list by sample #:
19. Was the ARDL project coordinator notified of any deficiencies?
Comments and/or Corrective Action: Sample Transfer
14) received Container for TKN Fraction Fraction
analyses Mat on a of a for Area# Area#
Kashaskia Ruier (KAS-3). Walkin
Ву Ву
On On
3-22-19
Chain-of-Custody#
(By: Signature)

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PO Box 1566 400 Aviation Drive Mt. Vernon, IL 62864 618-244-3235

www.ardlinc.com

**Customer Name: SLCOE** 

Date: 6/25/19

Project Name: Shelbyville Lake

Lab Name: ARDL, Inc.

Samples Received at ARDL: 5/16/19

ARDL Report No.: 8478

## **CASE NARRATIVE**

<u>Customer</u>	<u>Date</u>	<u>Lab ID</u>	
Sample No.	<u>Collected</u>	<u>Number</u>	Analyses Requested
SVL-1	5/16/19	8478-01	NP Pesticides, Metals(1), Inorganics(2)
SVL-2	5/16/19	8478-02	NP Pesticides, Inorganics(2)(3)
SVL-2-10	5/16/19	8478-03	Metals(1), Inorganics(2)
SVL-4	5/16/19	8478-04	NP Pesticides, Inorganics(2)(3)
SVL-12	5/16/19	8478-05	NP Pesticides, Inorganics(2)
SVL-13	5/16/19	8478-06	NP Pesticides, Inorganics(2)
SVL-11	5/16/19	8478-07	NP Pesticides, Inorganics(2)(3)
SVL-15	5/16/19	8478-08	NP Pesticides, Inorganics(2)(3)
LS MARINA	5/16/19	8478-09	E. Coli
FIN MARINA	5/16/19	8478-10	E. Coli
SUL MARINA	5/16/19	8478-11	E. Coli
ASA 4	5/16/19	8478-12	E. Coli

- (1) Including iron and manganese.
- (2) Including ammonia, nitrate, orthophosphate, total phosphorus, TOC, TSS, and TVSS.
- (3) Including chlorophyll-a and pheophytin-a.

The quality control data are summarized as follows:

#### NP PESTICIDE FRACTION - METHOD 8270-SIM

#### **HOLDING TIME**

Samples were prepared and analyzed within method specified holding times.

#### **INITIAL CALIBRATION**

The initial calibration passed criteria.

### **CONTINUING CALIBRATION**

The continuing calibration verification (CCV) passed criteria for all analytes. The closing CCV passed criteria for all analytes.

### PREPARATION BLANK

The blank met acceptance criteria.

### LABORATORY CONTROL SAMPLE

The LCS analyses met recovery criteria.

Project Name: Shelbyville Lake ARDL Report No.: 8478

## **CASE NARRATIVE (Continued)**

#### MATRIX SPIKE

The matrix spike and matrix spike duplicate met recovery criteria.

#### **DUPLICATE**

Duplicate analyses are reported as MS/MSD. RPD of the duplicate analyses met criteria.

#### INTERNAL STANDARD

All internal standard criteria were met.

#### SURROGATE

All surrogate recovery criteria were met.

## **INORGANIC FRACTION**

TOC and Nitrate-nitrite were analyzed by an accredited outside laboratory due to instrument status.

#### PREPARATION BLANK

Results of the preparation blanks were within acceptable limits.

#### LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

#### MATRIX SPIKE

Percent recovery of all matrix spikes and matrix spike duplicates.

#### **DUPLICATE**

All duplicate analyses are reported as MS/MSD except chlorophyll-a, pheophytin-a, TSS, and TVSS. RPD on all duplicate analyses were within control limits, with the exception of pheophytin-a (24% RPD), which was within ± the reporting limit and therefore acceptable.

#### DATA REPORTING QUALIFIERS

The following data reporting qualifiers are used as required:

ND - Indicates compound was analyzed for but not detected.

### **REPORT ORGANIZATION**

The data in this report appear by sample type (Field sample, preparation blank, laboratory control sample / spike blank, matrix spike /spike duplicate and sample duplicate). Within each sample type the data appear in the order that the analytical methods were discussed in this case narrative. Sample receipt information follows the analytical data.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Dean S. Dickerson

**Technical Services Manager** 



Including as appropriate:

Field Sample Results

Batch QC

Prep Blank

LCS/Spike Blank

Matrix QC

MS/MSD

Sample Duplicate

ARDL Data Package

8478

N:\ARDL Case Narratives\ARDL Data Package Contents.pdf - Revised May 14, 2019

Authorized By: DSD-QAO

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	P PESTICIO	ES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-1	***************************************	ARDL I	Lab No.:	00847	78-01	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0522	2915	
Sample Date:	05/16/2019		Receiv	ved Date:	05/16	5/2019	
Sample Time:	0915		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	cch:	B1104	17	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	ND		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	82%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 00	008478						μ.,	Report Date:	: 06/18/2019	119
Project Name: SHELBYV Project No:	SHELBYVILLE LAKE					-	Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	lcs 00308
ARDL No: 008478-01 Field ID: SVL-1	01	Sampl Samp	Sampling Loc'n: Sampling Date:		SHELBYVILLE LAKE 05/16/2019			Matrix: Moisture:	: WATER : NA	
Received: 05/16/2019	019	Samp	Sampling Time:	me: 0915						
ı						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	Ŏ01	Flag	Result	Units	Method	Method	Date	Date	Number
(a) Iron	0.0400	0.0500		0.239	MG/L	3010A	6010C	05/23/19	05/28/19	P7207
(a) Manganese	0.00400	0.00500		0.0187	MG/L	3010A	6010C	05/23/19	05/28/19	P7207
Ammonia Nitrogen	0.0200	0.0300		0.0817	MG/L	NONE	350.1	NA	05/28/19 (	05294592
Nitrate as Nitrogen	1.0	1.00		10.9	MG/L	NONE	GREEN	NA	06/12/19 (	06144640
Phosphorus	0.00800	0.0100		0.103	MG/L	365.2	365.2	05/28/19	05/29/19 (	06034606
Phosphorus, -ortho	0.00800	0.0100		0.0134	MG/L	NONE	365.2	NA	05/17/19 (	05204556
Solids, Total Suspended	d 2.0	2.00		12.6	MG/I	NONE	160.2	NA	05/17/19 (	05214562
Solids, Volatile Suspen	n 2.0	2.00		3.6	MG/L	NONE	160.4	NA	05/17/19 (	05214563
Total Organic Carbon	0.500	1.00		3.0	MG/L	NONE	415.1	NA	05/30/19 (	06044609

(a) DOD and/or NELAC Accredited Analyte.

Sample 008478-01, Inorganic Analyses

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE		-	PESTICIE	DES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-2		ARDL I	Lab No.:	00847	78-02	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	llename:	E0522	2918	
Sample Date:	05/16/2019		Recei	red Date:	05/16	5/2019	
Sample Time:	0950		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	800 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1104	17	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.250	0.250	ND		UG/L	1
Atrazine		0.250	0.250	ND		UG/L	1
Metribuzin		0.250	0.250	ND		UG/L	1
Alachlor		0.250	0.250	ND		UG/L	1
Metolachlor		0.250	0.250	ND		UG/L	1
Chlorpyrifos		0.250	0.250	ND		UG/L	1
Cyanazine		0.250	0.250	ND		UG/L	1
Pendimethalin		0.250	0.250	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	78%	İ
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

2019	lics 100308		Run Number	05294592 05294596 06144640 05294596 06034606 05204556 05214562
: 06/18/2019	: Inorganics fied - IL1003	: WATER : NA	Analysis Date	05/28/19 05294592 05/28/19 05294596 06/12/19 06144640 05/28/19 05294596 05/29/19 06034606 05/17/19 05204556 05/17/19 05214563 05/17/19 05214563
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA 05/17/19 NA 05/17/19 05/28/19 NA NA NA
r.	Z		Analysis Method	350.1 10200H GREEN 10200H 365.2 365.2 160.2 160.2
			Prep Method	NONE 10200H NONE 10200H 365.2 NONE NONE NONE
		SHELBYVILLE LAKE 05/16/2019 0950	Units	MG/L MG/CU.M. MG/L MG/CU.M. MG/L MG/L MG/L MG/L
			Result	ND 31.8 5.73 4.8 0.0854 0.0134 9.4 4.4
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Samp Sam Sam	TOO	0.0300 1.00 0.500 1.00 0.0100 2.00 2.00 1.00
78	LE LAKE	on on	LOD	0.0200 1.0 0.500 1.0 0.00800 0.00800 2.0 2.0
E No: 008478	SHELBYVILLE LAKE	008478-02 SVL-2 05/16/2019	/te	
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Sample 008478-02, Inorganic Analyses

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478	478						K.	Report Date:	: 06/18/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						Z	Analysis: Inor NELAC Certified -	: Inorganics fied - IL1003	ganics IL100308
ARDL No: 008478-03 Field ID: SVL-2-10 Received: 05/16/2019	3	Sampling Sampling Sampling	ampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 05/16/2019 0950			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	COI	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0400 0.00400 0.0200 0.500 0.00800 2.0 2.0 2.0	0.0500 0.0500 0.0300 0.500 0.0100 2.00 1.00		0.116 0.0122 0.0375 6.01 0.0898 0.0108 13.0 5.0	MG/L MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE NONE	6010C 6010C 350.1 GREEN 365.2 365.2 160.2 160.4	05/23/19 05/23/19 NA NA 05/28/19 NA NA NA	05/28/19 05/28/19 05/28/19 06/12/19 05/29/19 05/17/19 05/17/19	P7207 P7207 05294592 06144640 06034606 05204556 05214563 06044609

(a) DOD and/or NELAC Accredited Analyte.

Sample 008478-03, Inorganic Analyses

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:	Ana	alytical Me	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	SVL-4		ARDL I	Lab No.:	00847	78-04	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	lename:	E0522	2919	
Sample Date:	05/16/2019		Receiv	ved Date:	05/16	5/2019	
Sample Time:	1137		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	1000 mL		Instr	ment ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1104	17	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.610		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	0.250		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	79%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478	478						gg.	Report Date:	: 06/18/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE	Transition and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the				A Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Comp	Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008478-04 Field ID: SVL-4 Received: 05/16/2019	19	Sampling Samplir Samplir	ampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 05/16/2019 1137			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.0 0.500 1.0 0.00800 0.00800 2.0 2.0	0.0300 1.00 0.500 1.00 0.0100 2.00 2.00		0.0517 7.8 9.28 ND 0.217 0.0845 19.8 2.8	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE	350.1 10200H GREEN 10200H 365.2 365.2 160.2 160.4	NA 05/17/19 NA 05/28/19 NA NA NA	05/28/19 05/28/19 06/10/19 05/28/19 05/29/19 05/17/19 05/17/19	05294592 05294596 06144639 05294596 06034606 05204556 05214563 06044609

(a) DOD and/or NELAC Accredited Analyte.

Sample 008478-04, Inorganic Analyses

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	Fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-12	<u> </u>	ARDL 1	Lab No.:	00847	78-05	
Desc/Location:	SHELBYVILLE LAKE		Lab F	llename:	E0522	2920	
Sample Date:	05/16/2019		Receiv	red Date:	05/16	5/2019	
Sample Time:	1113		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1104	17	
% Moisture:	NA		Level	•	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.478		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

Triphenylphosphate 30-130 86%

Limits

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

(a) DOD-QSM Accredited Analyte.

SURROGATE RECOVERIES:

Results

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478	478						щ	Report Date:	: 06/18/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						Z	Analysis: Inor NELAC Certified -	: Inorganics fied - IL1003	ganics IL100308
ARDL No: 008478-05 Field ID: SVL-12 Received: 05/16/2019	19	Sampling Samplin Samplin	ا _ ق ق		SHELBYVILLE LAKE 05/16/2019			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.0 0.00800 0.00800 2.50 2.50	0.0300 1.00 0.0100 0.0100 2.50 2.50 1.00		0.0408 8.6 0.195 0.0766 33.5 3.75	MG/L MG/L MG/L MG/L MG/L MG/L	NONE NONE 365.2 NONE NONE NONE NONE	350.1 GREEN 365.2 365.2 160.2 160.4	NA NA 05/28/19 NA NA NA NA	05/28/19 06/10/19 05/29/19 05/17/19 05/17/19 05/17/19	05294592 06144639 06034606 05204556 05214562 05214563

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE		-	PESTICII	DES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-13		ARDL I	Lab No.:	00847	78-06	
Desc/Location:	SHELBYVILLE LAKE		Lab F	lename:	E0522	2921	
Sample Date:	05/16/2019		Recei	red Date:	05/16	5/2019	
Sample Time:	1030		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1104	17	
% Moisture:	NA		Level	1	LOW		
					Data		Dilutio
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	ND		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	71%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478	478						щ	Report Date:	: 06/18/2019	119
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	0308
ARDL No: 008478-06 Field ID: SVL-13 Received: 05/16/2019	19	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 05/16/2019 1030			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	ŎOI	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.0 0.00800 0.00800 6.67 6.67	0.0300 1.00 0.0100 0.0100 6.67 6.67		0.0764 8.94 0.309 0.0556 143 12.7 2.2	MG/L MG/L MG/L MG/L MG/L MG/L	NONE NONE 365.2 NONE NONE NONE	350.1 GREEN 365.2 365.2 160.2 160.4 415.1	NA NA 05/28/19 NA NA NA	05/28/19 (06/10/19 (05/29/19 (05/17/19 (05/17/19 (05/17/19 (05/17/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30/19 (05/30)))))))))))	05294592 06144639 06034606 05204556 05214562 05214563

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:	An	alytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-11		ARDL 1	Lab No.:	00847	78-07	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0522	2922	
Sample Date:	05/16/2019		Recei	red Date:	05/16	5/2019	
Sample Time:	1100		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1104	17	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.878		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	0.222		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	-
Triphenylphosphate	30-130	82%	-
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478	3478						Ж	Report Date:	: 06/18/2019	119
Project Name: SHELBYVI Project No:	SHELBYVILLE LAKE						Z	Analysis: Inor	: Inorganics fied - IL1003	ganics IL100308
ARDL No: 008478-07 Field ID: SVL-11 Received: 05/16/2019	)19	Sampl: Samp. Samp.	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 05/16/2019			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	Ŏ01	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 0.500 1.0 0.00800 0.00800 0.00800 0.00800	0.0300 1.00 0.500 1.00 0.0100 2.50 2.50 1.00		ND 60.7 6.58 5.2 0.186 0.0292 14.0 5.25 3.0	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE NONE	350.1 10200H GREEN 10200H 365.2 365.2 160.2 160.4	NA 05/17/19 NA 05/17/19 05/28/19 NA NA NA	05/28/19 (05/28/19 (05/28/19 (05/29/19 (05/29/19 (05/17/19 (05/17/19 (05/17/19 (05/30/19 (05/30/19 (05/20/19 (05/30/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/20 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20/19 (05/20)))))))))))	05294592 05294596 06144639 05294596 06034606 05204556 05214562 05214563

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008478 Report Date: 05/23/2019

Project Name:	SHELBYVILLE LAKE			PESTICII	DES (827	70SIM-MO	D)
Project No.:		alytical Mo					
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-15		ARDL I	Lab No.:	00847	78-08	
Desc/Location:	SHELBYVILLE LAKE		Lab F	llename:	E0522	2923	
Sample Date:	05/16/2019		Receiv	red Date:	05/16	5/2019	
Sample Time:	1300		Prep.	Date:	05/17	7/2019	
Matrix:	WATER		Analys	sis Date:	05/22	2/2019	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1104	17	
% Moisture:	NA		Level	1	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.844		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	0.222		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	83%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478	78						Ж	Report Date:	: 06/18/2019	119
Project Name: SHELBYVILLE LAKE Project No:	LE LAKE						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	.cs 10308
ARDL No: 008478-08 Field ID: SVL-15 Received: 05/16/2019	ത	Sampling L Sampling Sampling	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 05/16/2019 1300			Matrix: Moisture:	. WATER . NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.0 0.500 1.0 0.00800 0.00800 2.50 2.50 0.500	0.0300 1.00 0.500 1.00 0.0100 2.50 2.50 1.00		0.0325 67.5 6.4 4.4 0.182 0.0213 14.0 6.25	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE NONE	350.1 10200H GREEN 10200H 365.2 365.2 160.2 160.4	NA 05/17/19 NA 05/17/19 05/28/19 NA NA NA	05/28/19 05/28/19 06/10/19 05/28/19 05/29/19 05/17/19 05/17/19 05/17/19 05/17/19 05/17/19 05/17/19 0	05294592 05294596 06144639 05294596 06034606 05204556 05214562 05214563

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

06/18/2019	Analysis: Inorganics NELAC Certified - IL100308	WATER NA	Analysis Run Date Number	05/16/19 05204553
Report Date:	Analysis:	Matrix: Moisture:	Prep A Date	NA 0
Re	N.		Analysis Method	1604
			Prep Method	NONE
		SHELBYVILLE LAKE 05/16/2019 1000	Units	COL/100 ML NONE
			Result	28.0
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
		Samp Sami Sami	TOO	1.00
008478	SHELBYVILLE LAKE	008478-09 LS MARINA 05/16/2019	LOD	1.0
Lab Report No:	Project Name: SHEL Project No:	ARDL No: 008478-09 Field ID: LS MARINA Received: 05/16/201	Analyte	E. Coliform
	Pro.			EI .

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report	Lab Report No: 008478	æ						Re	Report Date: 06/18/2019	: 06/18/2	119
Project Name: Project No:	SHELBYVILLE LAKE	E LAKE						IN N	Analysis: Inorganics NELAC Certified - IL100308	Analysis: Inorganics AC Certified - IL1003	lcs 00308
ARDL No: Field ID: Received:	008478-10 FIN MARINA 05/16/2019		Samp Samp Samp	ampling Loc'n: Sampling Date: Sampling Time:	'n: SHEL tte: 05/1 me: 1040	Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 05/16/2019 Sampling Time: 1040			Matrix: Moisture:	MATER NA	
Analyte	/te	LOD	COI	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
E. Coliform		1.0	1.00		27.0	COL/100 ML NONE	NONE	1604	NA	05/16/19 05204553	)5204553

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

18/2019	rganics IL100308	ER	sis Run e Number	05/16/19 05204553
/90 :	: Ino fied -	: WAT	Analysis Date	05/16
Report Date: 06/18/2019	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA	Prep Date	NA
Ŗ	N		Analysis Method	1604
			Prep Method	NONE
		SHELBYVILLE LAKE 05/16/2019 1143	Units	COL/100 ML
			Result	200
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag Result	
		Samp Samp Samp	TOO	1.00
008478	SHELBYVILLE LAKE	008478-11 SUL MARINA 05/16/2019	LOD	1.0
rt No:			Analyte	
Lab Report No: 008478	Project Name: Project No:	ARDL No: 008478-11 Field ID: SUL MARIN Received: 05/16/201	Ana	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Report Date: 06/18/2019	LE LAKE  Analysis: Inorganics  NELAC Certified - IL100308	Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 05/16/2019 Sampling Time: 1213	Prep Analysis Prep Analysis Run LOD LOQ Flag Result Units Method Method Date Date Number	1.0 1.00 325 COL/100 ML NONE 1604 NA 05/16/19 05204553
: 008478	SHELBYVILLE LAKE			1.0 1.0
Lab Report No: 008478	Project Name: SHE Project No:	ARDL No: 008478-12 Field ID: ASA 4 Received: 05/16/2019	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

# METHOD BLANK REPORT ARDL, Inc. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008478 Report Date: 05/23/2019

_	SHELBYVILLE LAK	_	sis: NP PEST	CICIDES (82	270SIM-MO	D)
Project No.:		Analytical Met				
NELAC Certi:	fied - IL100308	Prep Met	hod: 3510C			
Field ID:	NA		ARDL Lab No	008	178-01B1	
Desc/Location:	NA		Lab Filenam	ne: E052	22913	
Sample Date:	NA		Received Da	ate: NA		
Sample Time:	NA		Prep. Date:	: 05/3	17/2019	
Matrix:	QC Material		Analysis Da	ate: 05/2	22/2019	
Amount Used:	1000 mL		Instrument	ID: AG5		
Final Volume:	1 mL		QC Batch:	B11	047	
% Moisture:	NA		Level:	LOW		
					Data	
Parameter		LOD	LOQ	Result	Flag	Units
Trifluralin		0.200	0.200	ND		UG/L
Atrazine		0.200	0.200	ND		UG/L
Metribuzin		0.200	0.200	ND		UG/L
Alachlor		0.200	0.200	ND		UG/L
Metolachlor		0.200	0.200	ND		UG/L
Chlorpyrifos		0.200	0.200	ND		UG/L
Cyanazine		0.200	0.200	ND		UG/L
Pendimethalin		0.200	0.200	ND		UG/L

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

Limits

30-130

SURROGATE RECOVERIES:

Triphenylphosphate

Results

90왕

<sup>(</sup>a) DOD-QSM Accredited Analyte.

Mt. Vernon, IL 400 Aviation Drive; P.O. Box 1566 BLANK SUMMARY REPORT ARDL, INC.

06/18/2019
Report Date:
Lab Report No: 008478

Project Name:	SHELBY	SHELBYVILLE LAKE	KE					NELA	NELAC Certified -	ed - IL100308
Analyte	TOD	TOOT	Blank Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
(a) Iron	0.040	0.050	ON	MG/L	3010A	6010C	05/23/19	05/28/19	P7207	008478-03B1
(a) Manganese	0.004	0.005	Q.	MG/L	3010A	6010C	05/23/19	05/28/19	P7207	008478-03B1
Ammonia Nitrogen	0.020	0:030	NO	MG/L	NONE	350.1	NA	05/28/19	05294592	008478-01B1
Chlorophyll-a, Corre	1.0	1.0	NO	MG/CU.M.	10200H	10200H	05/17/19	05/28/19	05294596	008478-02B1
E. Coliform	1.0	1.0	NO	COL/100 ML	NONE	1604	NA	05/16/19	05204553	008478-09B1
Nitrate as Nitrogen	0.050	0.050	NO	MG/L	NONE	GREEN	NA	06/12/19	06144640	008476-02B1
Nitrate as Nitrogen	0:020	0.050	ND	MG/L	NONE	GREEN	NA	06/10/19	06144639	008477-02B1
Pheophytin-a	1.0	1.0	NO	MG/CU.M.	10200H	10200H	05/17/19	05/28/19	05294596	008478-02B1
Phosphorus	0.008	0.010	N	MG/L	365.2	365.2	05/28/19	05/29/19	06034606	008476-06B1
Phosphorus, -ortho	0.008	0.010	N N	MG/L	NONE	365.2	NA	05/17/19	05204556	008477-02B1
Solids, Total Suspen	1.0	1.0	NO	MG/L	NONE	160.2	NA	05/17/19	05214562	008478-06B1
Solids, Volatile Sus	1.0	1.0	NO	MG/L	NONE	160.4	NA	05/17/19	05214563	008478-06B1
Total Organic Carbon	0.50	1.0	ND	MG/L	NONE	415.1	NA	05/30/19	06044609	008477-02B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008478

Mt. Vernon, IL BLANK SPIKE/SPIKE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

LBYVILLE LAKE	Anal	s: NP	STICIDE	s (8270SI	M-MOD)	Anal	ytical Me Prep Me	ethod: 82 ethod: 35	70C 10C
Material		QC Batch: Level:	B110 LOW	4.7		Prep.   Analys:	Date: is Date:	05/17/20	61
	Spike	Spike	Spike	Duplicate	Duplicate	Duplicate	Recovery	To the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	RPD
eter	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
ralin	3.16	4	79		1	1	30-130	1	1
zine	2.77	4	69	;	1	1	30-130	i i	1
ouzin	2.92	4	73	1	!	1	30-130	!	}
nlor	2.51	4	63	!	!	!	30-130	1	1
chlor	3.07	4	77	1	1	1	30-130	1	}
yrifos	2.72	4	89	;	}	1	30-130	1	!
zine	3.45	4	98	;	ļ	1	30-130	1	1
chalin	3.25	4	81	1	1	1	30-130	1	1
	Project Name: SHELBYVILLE LAKE Project No.:  Matrix: QC Material Amount Used: 1000 mL  Trifluralin Atrazine Metribuzin Alachlor Metolachlor Chlorpyrifos Cyanazine Pendimethalin	Spike Result 3.16 2.77 2.92 2.51 3.07 2.73 3.25	Analysis: NP  QC Batch Level: Spike Result Level 3.16 4 2.77 4 2.92 4 2.51 4 3.07 4 3.07 4 3.25 4 3.25 4	Analysis: NP  QC Batch Level: Spike Spike Result Level 3.16 4 2.77 4 2.92 4 2.51 4 3.07 4 3.25 4 3.25 4	Analysis: NP  OC Batch Level: Spike Spike Result Level 3.16 4 2.77 4 2.92 4 2.51 4 3.07 4 3.05 4 3.25 4	Analysis: NP PESTICIDES (8270SIM COC Batch: B11047  Level: Low B11047  Level: Low B11047  Level: Low B11047  Level: A 79 2.77 4 69 2.51 4 77 2.51 4 63 3.07 4 77 3.07 4 86 3.25 4 86 3.25 4 86	Analysis: NP PESTICIDES (8270SIM-MOD)  QC Batch: B11047  Level: Low  Spike Spike Duplicate Duplicate Dupli  8 Rec Result Level % Rec Result Level % R  2.77 4 6 69  2.51 4 63  2.52 4 68  3.07 4 68  3.25 4 88   3.25 4 881  3.25 4 881  3.25 4 881  3.25 4 881	Analysis: NP PESTICIDES (8270SIM-MOD) Analyticate bublicate buplicate buplic	Analysis: NP PESTICIDES (8270SIM-MOD) Analytical Metho- Prep Metho  QC Batch: B11047  Spike Spike Duplicate Duplicate Recovery Result Level: Low Result Level % Rec 2.77 4 6 69 30-130 2.51 4 63 30-130 3.07 4 77 30-130 3.15 4 86 30-130 3.25 4 81 30-130

%R Limits 30-130

Duplicate %R

Spike %R 82

SURROGATE RECOVERIES:

Triphenylphosphate

(a) DOD-QSM Accredited Analyte.

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits. Spike Blanks for 008478-01, NP PESTICIDES (8270SIM-MOD)

400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL LABORATORY CONTROL SAMPLE REPORT ARDL, INC.

06/18/2019	NELAC Certified - IL100308	QC Lab	Number	008478-03C1	008478-03C1	008478-01C1	008477-02C1	008476-02C1	008476-06C1	008477-02C1	008477-02C1
Report Date: 06/18/2019	NELAC Certifi	Analytical	Run	P7207 008	P7207 008	05294592 008	06144639 008	06144640 008	06034606 008	05204556 008	06044609 008
		Mean	% Rec	1	1	;	;	1	;	I I	!
		% Rec	Limits	87-115	90-114	80-120	80-120	80-120	80-120	80-120	76-120
		LCS 2	% Rec	ŀ	ł	ł	ł	ł	1	ł	1
		LCS 2	Level	1	1	i	1	1	ł	4	1
		LCS 2	Result	1	1	;	;	;	;	;	1
		LCS 1	% Rec	86	102	102	66	86	104	103	91
	E LAKE	LCS 1	Level	5.0	0.75	1.0	5.0	5.0	0.67	0.10	10.0
18478	SHELBYVILLE LAKE	LCS 1	Result	4.9	0.76	1.0	5.0	4.9	69.0	0.10	9.1
Lab Report No: 008478	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Nitrate as Nitrogen	Phosphorus	Phosphorus, -ortho	Total Organic Carbon

NOTE: Any values tabulated above marked with an asterisk are outside of acceptable limits.

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte

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	Vernon,
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REPORT	1566
ATE	Box
DUPLICAT	P.0.
SPIKE	Drive;
TRIX SPIKE/SPIK	Aviation
MATRIX	74
MAT	400
	INC.
	ARDI,

MIGHT STS. INT
Prep. Date:
Amount Used:
% Moisture:
QC Batch: Level:
Sample MS
Result Result
ND 3.53
3.19
ND 3.27
ND 2.83
3.47
ND 3
3.89
CIN S

%R Limits	30-130
MSD %R	82
MS &R	81
SURROGATE RECOVERIES:	Triphenylphosphate

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits. Matrix Spikes for 008478-01, NP PESTICIDES (8270SIM-MOD)

62864 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL MATRIX SPIKE/SPIKE DUPLICATE REPORT ARDL, INC.

	100308			3MS	3MS	IMS	IMS	SMS
06/18/2019	ed - II	QC Lab	Number	008478-03MS	008478-03MS	008478-01MS	008478-01MS	008478-05MS
	NELAC Certified - IL100308		Run	P7207	P7207	05294592	06034606	05204556
Report Date:	NELAC	RPD	Limit	20	20	20	20	20
Repor			RPD	1	Н	4	7	7
		% Rec	Limits	87-115	90-114	75-125	75-125	75-125
		MSD	% Rec	100	103	104	101	106
		MSD	Level	1.0	0.50	2.0	0.83	0.10
		MSD	Result	1.1	0.53	2.2	0.94	0.18
		WS	% Rec	100	103	108	66	103
		W S	MS Level	1.0	0.50	2.0	0.83	0.10
	SHELBYVILLE LAKE	WS.	Result	1.1	0.53	2.3	0.92	0.18
<sub>∞</sub>		Sample	Result	0.12	0.012	0.082	0.10	0.077
5: 00847		Sample	Matrix	WATER	WATER	WATER	WATER	WATER
Lab Report No: 008478	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Phosphorus	Phosphorus, -ortho

NOTE: Values tabulated above marked with an asterisk are explained in the associated narrative.

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte.

62864 Mt. Vernon, IL 400 Aviation Drive; P.O. Box 1566 SAMPLE DUPLICATE REPORT ARDL, INC.

Report Date: 06/18/2019 Lab Report No: 008478

31.2 6.1 149	
12.7	12.7 12.7
1 (	
1	31.8 4.8 143 12.7

See Case Narrative for exceptions. \* indicates that agreement between duplicates is greater than 20%. (a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008478



Including as appropriate:

- COCs
- Cooler Receipts
- Airbills
- Email Communication / Instructions from Customer

ARDL Data Package

8478

**ARDL, Inc.** P.O. Box 1566, 400 Aviation Drive, Mt. Vernon, IL 62864 (618) 244-3235 Phone (618) 244-1149 Fax

(618) 244-3235 Phone (618) 244-1149 Fax

**CHAIN OF CUSTODY RECORD** 

PROJECT Shelbyville Lake		2991			S		1		_						_					PRES	PRESERVATION
	P. Greeling		F CONTAIN	SAL	SACIO	08/1/3	7 C	04 110 00 00 00 00 00 00 00 00 00 00 00 00	156	- W	VS	0					. ,		;	 ÍCED	SPECIFY CHEMICALS ADDED AND FINAL PH IF KNOWN
SAMPLE NUMBER	DATE TIME	COMP		30	10/1/2°	200	SON.	SON	10/1/1	03	MSM						SAMP	REMARKS OR PLE LOCA?	REMARKS OR SAMPLE LOCATION		
SVL-1	516 31-5	×	×		×	×	X	X	V	×										×	
SVL-2	510 950	×	×	×	×	×	X	×												×	
SVL-2-10	256 71-5	×	×		×	×	×	~	×											×	
/ •	2-16 1137	×	×	×	×	×	X	×												×	
SVL-12	7-16 1113	×	×		×	×	X	X												×	
SVL-13	3-16/1030	×	×		×	X	X	×												×	
SVL-11	5-16/100	X	X	X	X	X	X	×												×	
SVL-15	2-161300	×	X	×	×	×	X	×												×	
LS Marina	200191-5	×							×	<b>.</b>										×	
FIN Marina	dh0/ 71-5	X							×	<b>N</b> 4										×	
SUL Marina	5/10/10	×							×											×	
15A 4 S	5-16 1213								X												
,	•																				
Relinquished by: (Signature)	Date Time	Received by		(Signature)	9 7	0	REM	ARK!	S/SPE	CIAL	NI	REMARKS/SPECIAL INSTRUCTIONS	CTIO	NS:							19
Refinguished by: (Signature)	Date Time Date (1515)	Repetivedby: Ostgna Shipping/Acket No.	ing Acket	(Signature)			*Pres	*Preserved with H <sub>2</sub> SO <sub>4</sub>	with	HSC	3 4										
GURCHASE ORDER NO:	5/14/19/06/04	dle 5-17-19	6																		

## COOLER RECEIPT REPORT ARDL, INC.

ARDL#: 9478	Cooler # 1 0 3	
	Number of Coolers in Shipment:	
Project: <u>Shelbyville Lake</u>	Date Received: 5-16-19 luyway	
A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 5-11	o-19 (Signature) 780	
Did cooler come with a shipping slip (airbill, etc.)?	YES NO .	
If YES, enter carrier name and airbill number here:	Caurier	
2. Were custody seals on outside of cooler?		
How many and where?,Seal Date:	,Seal Name:	
3. Were custody seals unbroken and intact at the date and time of arrival?	YES NO NA	
4. Did you screen samples for radioactivity using a Geiger Counter?	YES NO	
5. Were custody papers sealed in a plastic bag?	YES NO	
6. Were custody papers filled out properly (ink, signed, etc.)?	YES NO N/A	
7. Were custody papers signed in appropriate place by ARDL personnel?	YES NO N/A	
8. Was project identifiable from custody papers? If YES, enter project name at	the top of this form	
9. Was a separate container provided for measuring temperature? YES		
B. LOG-IN PHASE: Date samples were logged-in: 5-16-1119	(Signature) Correction factor O.O C	
10. Describe type of packing in cooler: Loose Tae.		
11. Were all samples sealed in separate plastic bags?	YES NO N/A	
12. Did all containers arrive unbroken and were labels in good condition?	FES NO	
13. Were sample labels complete?	NO	
14. Did all sample labels agree with custody papers?		
15. Were correct containers used for the tests indicated?	YES NO	
6. Was pH correct on preserved water samples?		
17. Was a sufficient amount of sample sent for tests indicated?		
18. Were bubbles absent in VOA samples? If NO, list by sample #:	YES NO NA	
19. Was the ARDL project coordinator notified of any deficiencies?	YES NO WA	
Comments and/or Corrective Action:	Sample Transfer	
	Fraction Fraction	
	Area # Area #	
	Walkin	
	By By	
	On On	
	5-17-19	
	Chain-of-Custody #	
(By: Signature) Date:		

## COOLER RECEIPT REPORT ARDL, INC.

ARD	L#: <u>8478</u>	Cooler # <u>a of 3</u> Number of Coolers in Shipment: <u>3</u>
Proje	ect: Shelbyville lake	Date Received: 5-16-19 Lugwaj
A. <u>E</u>	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 5-\	o-19 (Signature) TPC
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES (40) .
	If YES, enter carrier name and airbill number here:	Caurel
2. V	Vere custody seals on outside of cooler?	
	How many and where?,Seal Date:_	"Seal Name:
3. V	Vere custody seals unbroken and intact at the date and time of arrival?	
4. E	Did you screen samples for radioactivity using a Geiger Counter?	YES NO
5. V	Vere custody papers sealed in a plastic bag?	YES (NO)
6. V	Vere custody papers filled out properly (ink, signed, etc.)?	YES NO N/A
7. V	Vere custody papers signed in appropriate place by ARDL personnel?	YES NO N/A
8. V	Vas project identifiable from custody papers? If YES, enter project name at	the top of this form
9. V	Vas a separate container provided for measuring temperature? YES	NO_X Observed Cooler Temp. O. 2 C
В. <u>L</u>	OG-IN PHASE: Date samples were logged-in: 5-17-19	Correction factor O.O C Signature) Machine
10. E	Describe type of packing in cooler:	
11. V	Vere all samples sealed in separate plastic bags?	YES NA
12. C	Did all containers arrive unbroken and were labels in good condition?	YES NO
13. V	Vere sample labels complete?	YES' NO
14. C	old all sample labels agree with custody papers?	YES NO
15. V	Vere correct containers used for the tests indicated?	
16. V	Vas pH correct on preserved water samples?	YES NO N/A
17. V	Vas a sufficient amount of sample sent for tests indicated?	
18. V	Vere bubbles absent in VOA samples? If NO, list by sample #:	YES NO (N/A)
19. V	Vas the ARDL project coordinator notified of any deficiencies?	YES NO NA
	Comments and/or Corrective Action:	Sample Transfer
		Fraction Fraction
		Area # Area #
		Walkin
		By By
		On On 5-17-19
		Chain-of-Custody #
/By:	Signature) Date:	

## COOLER RECEIPT REPORT ARDL, INC.

	DL#: 8478	Cooler # 3 4 3  Number of Coolers in Shipment: 3
Pro	ject: Shelbyville Lake	Date Received: 5-16-19 ly vaj
Α.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 5 -\ (c)	-19 (Signature) TRC
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES (NO)
	If YES, enter carrier name and airbill number here:	Caurier
2.	Were custody seals on outside of cooler?	
	How many and where?,Seal Date:_	"Seal Name:
3.	Were custody seals unbroken and intact at the date and time of arrival?	
4.	Did you screen samples for radioactivity using a Geiger Counter?	
5.	Were custody papers sealed in a plastic bag?	YES (PO)
6.	Were custody papers filled out properly (ink, signed, etc.)?	
7.	Were custody papers signed in appropriate place by ARDL personnel?	
8.	Was project identifiable from custody papers? If YES, enter project name at t	he top of this form
9.	Was a separate container provided for measuring temperature? YES	NO Observed Cooler Temp C
В.	LOG-IN PHASE: Date samples were logged-in: 5/17/19 (S	Signature) Signature Correction factor O.O C
10.	Describe type of packing in cooler:	
11.	Were all samples sealed in separate plastic bags?	YES ONA
12.	Did all containers arrive unbroken and were labels in good condition?	YES NO
13.	Were sample labels complete?	₩ES NO
14.	Did all sample labels agree with custody papers?	WES NO
15.	Were correct containers used for the tests indicated?	YES NO
16.	Was pH correct on preserved water samples?	YES NO N/A
17.	Was a sufficient amount of sample sent for tests indicated?	VES NO
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	YES NO (N/A
19.	Was the ARDL project coordinator notified of any deficiencies?	YES NO (N/A)
	Comments and/or Corrective Action:	Sample Transfer
		Fraction Fraction
-		Area # Area #
		Walkin
		Wilkin By By
-	·	On
	·	5-17-19
		Chain-of-Custody #//A
/5	Av. Signatura) Date:	Onam-or-oustody #



PO Box 1566 400 Aviation Drive Mt. Vernon, IL 62864 618-244-3235

www.ardlinc.com

**Customer Name: SLCOE** 

Date: 10/2/19

Project Name: Shelbyville Lake

Lab Name: ARDL, Inc.

Samples Received at ARDL: 7/31/19

ARDL Report No.: 8502 Revision 1

#### **CASE NARRATIVE**

Customer	<u>Date</u>	Lab ID	
Sample No.	Collected	<u>Number</u>	Analyses Requested
SVL-1	7/30/19	8502-01	NP Pesticides, Metals(1), Inorganics(2)
SVL-2	7/30/19	8502-02	NP Pesticides, Inorganics(2)(4)
SVL-2-10	7/30/19	8502-03	Metals(1), Inorganics(2)
SVL-4	7/30/19	8502-04	NP Pesticides, Inorganics(2)(4)
SVL-12	7/30/19	8502-05	NP Pesticides, Inorganics(2)
SVL-13	7/30/19	8502-06	NP Pesticides, Inorganics(2)
SVL-11	7/30/19	8502-07	NP Pesticides, Inorganics(2)(4)
SVL-15	7/30/19	8502-08	NP Pesticides, Inorganics(2)(4)
LS MARINA	7/30/19	8502-09	E. Coli
FIN MARINA	7/30/19	8502-10	E. Coli
SUL MARINA	7/30/19	8502-11	E. Coli
ASA-4	7/30/19	8502-12	Fecal
KAS 3	7/30/19	8502-13	Inorganics(2)(3)(4)

- (1) Including iron and manganese.
- (2) Including ammonia, nitrate, orthophosphate, total phosphorus, TOC, TSS, and TVSS.
- (3) Including nitrite and TKN.
- (4) Including chlorophyll-a and pheophytin-a.

Note: This report was revised on 10/2/2019 to correct LOD and LOQ values for nitrate.

The quality control data are summarized as follows:

#### NP PESTICIDE FRACTION – METHOD 8270-SIM

#### HOLDING TIME

Samples were prepared and analyzed within method specified holding times.

#### **INITIAL CALIBRATION**

The initial calibration passed criteria.

#### CONTINUING CALIBRATION

The continuing calibration verification (CCV) passed criteria for all analytes. The closing CCV passed criteria for all analytes.

#### PREPARATION BLANK

The blank met acceptance criteria.

#### LABORATORY CONTROL SAMPLE

The LCS analyses met recovery criteria.

"Test everything, keep the good" 1 Thes. 5:21

Page 1 of 2

Project Name: Shelbyville Lake

ARDL Report No.: 8502 Revision 1

#### **CASE NARRATIVE (Continued)**

#### MATRIX SPIKE

The matrix spike and matrix spike duplicate met recovery criteria.

#### **DUPLICATE**

Duplicate analyses are reported as MS/MSD. RPD of the duplicate analyses met criteria.

#### INTERNAL STANDARD

All internal standard criteria were met.

#### SURROGATE

All surrogate recovery criteria were met.

#### **INORGANIC FRACTION**

TOC were analyzed by an accredited outside laboratory due to instrument status.

Nitrate analysis was performed outside holding time due to instrumentation status. Samples were analyzed via method 300.0 using ion chromatography. These results have been flagged appropriately.

#### PREPARATION BLANK

Results of the preparation blanks were within acceptable limits.

#### LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

#### MATRIX SPIKE

Percent recovery of all matrix spikes and matrix spike duplicates except 1 of 2 for TKN.

#### **DUPLICATE**

All duplicate analyses are reported as MS/MSD except chlorophyll-a, pheophytin-a, TSS, and TVSS. RPD on all duplicate analyses were within control limits.

#### DATA REPORTING QUALIFIERS

The following data reporting qualifiers are used as required:

- ND Indicates compound was analyzed for but not detected.
- X Sample preparation and/or analysis was performed outside of holding time requirements.
- Indicates an estimated value. This flag is used either when estimating a concentration or this flag indicates analyte(s) associated with a DOD-QSM specified non-compliance pertaining to matrix QC criteria.

#### REPORT ORGANIZATION

The data in this report appear by sample type (Field sample, preparation blank, laboratory control sample / spike blank, matrix spike /spike duplicate and sample duplicate). Within each sample type the data appear in the order that the analytical methods were discussed in this case narrative. Sample receipt information follows the analytical data.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Dean S. Dickerson

**Technical Services Manager** 



### Sample & QC Results

Including as appropriate:
Field Sample Results

Batch QC

Prep Blank LCS/Spike Blank

Matrix QC MS/MSD

Sample Duplicate

ARDL Data Package

8502

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICIE	DES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-1	515	ARDL I	Lab No.:	00850	02-01	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	llename:	E0815	5905	
Sample Date:	07/30/2019		Recei	ved Date:	07/30	/2019	
Sample Time:	1000		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	1.82		UG/L	1
Metribuzin		0.222	0.222	0.256		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	3.37		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	84%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

(a) DOD and/or NELAC Accredited Analyte.

Sample 008502-01, Inorganic Analyses

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:	Ar	alytical M	ethod: 82	270C			
NELAC Certif	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-2		ARDL I	Lab No.:	00850	02-02	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	llename:	E0815	5908	
Sample Date:	07/30/2019		Receiv	red Date:	07/30	)/2019	
Sample Time:	1049		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	800 mL		Instru	ment ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
		44,44			Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.250	0.250	ND		UG/L	1
Atrazine		0.250	0.250	1.73		UG/L	1
Metribuzin		0.250	0.250	ND		UG/L	1
Alachlor		0.250	0.250	ND		UG/L	1
Metolachlor		0.250	0.250	3.09		UG/L	1
Chlorpyrifos		0.250	0.250	ND		UG/L	1
Cyanazine		0.250	0.250	ND		UG/L	1
Pendimethalin		0.250	0.250	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	83%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

008502 Report Date: 10/02/2019	SHELBYVILLE LAKE  NELAC Certified - IL100308	02-02 Sampling Loc'n: SHELBYVILLE LAKE Matrix: WATER 2 Sampling Date: 07/30/2019 Moisture: NA 80/2019 Sampling Time: 1049	Prep Analysis Prep Analysis Run LOD LOQ Flag Result Units Method Method Date Date Number	0 0
1502	LLE LAKE	12		0.0200 1.0 0.800 1.0 0.00800 0.00800 2.0 2.0
Lab Report No: 008	Project Name: SHELBYVI Project No:	ARDL No: 008502-02 Field ID: SVL-2 Received: 07/30/2019	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502	502						æ	Report Date:	: 10/02/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008502-03 Field ID: SVL-2-10 Received: 07/30/2019	3	Samplin Sampli Sampli	ampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 07/30/2019 1049			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0400 0.00400 0.0200 0.800 0.00800 4.0 4.0 4.0	0.0500 0.00500 0.0300 1.00 0.0100 4.00 4.00	×	0.248 0.228 0.414 2.84 0.0508 0.0118 52.4 6.8	MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE NONE	6010C 6010C 350.1 300.0 365.2 160.2 160.4	07/31/19 07/31/19 NA NA 08/15/19 NA NA NA	08/23/19 08/23/19 08/07/19 08/27/19 07/31/19 08/05/19 08/05/19 08/13/19	P7233 P7233 08124784 09034842 08204809 08124782 08124783

(a) DOD and/or NELAC Accredited Analyte.

Sample 008502-03, Inorganic Analyses

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NI	PESTICIE	ES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-4		ARDL 1	Lab No.:	00850	02-04	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0815	5909	
Sample Date:	07/30/2019		Recei	ved Date:	07/30	)/2019	
Sample Time:	1300		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	800 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.250	0.250	ND		UG/L	1
Atrazine		0.250	0.250	1.65		UG/L	1
Metribuzin		0.250	0.250	ND		UG/L	1
Alachlor		0.250	0.250	ND		UG/L	1
Metolachlor		0.250	0.250	1.26		UG/L	1
Chlorpyrifos		0.250	0.250	ND		UG/L	1
Cyanazine		0.250	0.250	ND		UG/L	1
Pendimethalin		0.250	0.250	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	83%	ĺ
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

ate: 10/02/2019	Analysis: Inorganics NELAC Certified - IL100308	ix: WATER ire: NA	Analysis Run Date Number	08/07/19 08124784 08/27/19 08154799 08/27/19 09034842 9 08/12/19 08154799 9 08/16/19 08204809 07/31/19 08014759 08/05/19 08124782 08/05/19 08124783
Report Date:	Analysis: WELAC Certif	Matrix: Moisture:	Prep Date	NA 07/31/19 NA 07/31/19 08/15/19 NA NA
ц	2		Analysis Method	350.1 10200H 300.0 10200H 365.2 365.2 160.2
			Prep Method	NONE 10200H NONE 10200H 365.2 NONE NONE NONE
		SHELBYVILLE LAKE 07/30/2019	Units	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L MG/L
			Result	0.0457 63.5 2.46 5.7 0.163 ND 18.8 8.8
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	×
		Sampl Samp Samp	TOO	0.0300 1.00 1.00 1.00 0.0100 4.00 4.00
203	LE LAKE	ത	LOD	0.0200 1.0 0.800 1.0 0.00800 4.0 4.0 4.0
Lab Report No: 008502	Project Name: SHELBYVILLE LAKE Project No:	ARDL No: 008502-04 Field ID: SVL-4 Received: 07/30/2019	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:	Ana	alytical M					
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-12		ARDL 1	Lab No.:	00850	2-05	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0815	5910	
Sample Date:	07/30/2019		Receiv	ved Date:	07/30	/2019	
Sample Time:	1227		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
	44-1-4-1				Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.222		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	0.233		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	86%	j
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502	502						ፚ	Report Date:	: 10/02/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008502-05 Field ID: SVL-12 Received: 07/30/2019	5	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 07/30/2019			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0200	0.0300		0.0386	MG/L	NONE	350.1	NA	08/07/19 08124784	08124784
Nitrate as Nitrogen	0.800	1.00	×	2.17	MG/L	NONE	300.0	NA	08/27/19	09034842
Phosphorus	0.00800	0.0100		0.245	MG/L	365.2	365.2	08/15/19	08/16/19	08204809
Phosphorus, -ortho	0.00800	0.0100		0.101	MG/L	NONE	365.2	NA	07/31/19	08014759
Solids, Total Suspended	2.50	2.50		13.0	MG/L	NONE	160.2	NA	08/05/19	08124782
Solids, Volatile Suspen	2.50	2.50		5.0	MG/L	NONE	160.4	NA	08/05/19	08124783
Total Organic Carbon	0.500	1.00		3.5	MG/L	NONE	415.1	NA	08/13/19	08204806
										1

(a) DOD and/or NELAC Accredited Analyte.

Sample 008502-05, Inorganic Analyses

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE		_	PESTICIE	ES (827	OSIM-MO	D)
Project No.:		alytical M					
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-13		ARDL I	Lab No.:	00850	)2-06	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	lename:	E0815	911	
Sample Date:	07/30/2019		Recei	red Date:	07/30	/2019	
Sample Time:	1134		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	1000 mL		Instru	ment ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.950		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	1.00		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	67%	- 1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502	502						Ж	Report Date:	: 10/02/2019	019
Project Name: SHELBYVILLE LAKE Project No:	CLE LAKE						Z Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008502-06 Field ID: SVL-13 Received: 07/30/2019	61	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 07/30/2019 1134			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	ŌOT	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 0.800 0.00800 0.00800 4.0 4.0	0.0300 1.00 0.0100 0.0100 4.00 1.00	×	0.126 1.81 0.266 0.0246 28.4 8.8 5.0	MG/L MG/L MG/L MG/L MG/L MG/L	NONE NONE 365.2 NONE NONE NONE	350.1 300.0 365.2 365.2 160.2 160.4	NA NA 08/15/19 NA NA NA NA	08/07/19 08124784 08/27/19 09034842 08/16/19 08204809 07/31/19 08014759 08/05/19 08124782 08/05/19 08124783	08124784 09034842 08204809 08014759 08124782 08124783

(a) DOD and/or NELAC Accredited Analyte.

Sample 008502-06, Inorganic Analyses

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICIE	ES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-11		ARDL 1	Lab No.:	00850	02-07	
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E0815	5912	
Sample Date:	07/30/2019		Recei	ved Date:	07/30	)/2019	
Sample Time:	1230		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	1.11		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	2.42		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	87%	İ
			1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502	502						μ,	Report Date:	: 10/02/2019	119
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE			And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			24	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	.cs 10308
ARDL No: 008502-07 Field ID: SVL-11 Received: 07/30/2019	7	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 07/30/2019			Matrix: Moisture:	. WATER . NA	
Analyte	TOD	ÕOT	Flag	Result	Units	Prep	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.0 0.800 1.0 0.00800 0.00800 2.50 2.50 2.50	0.0300 1.00 1.00 0.0100 0.0100 2.50 2.50 1.00	×	0.0408 61.7 2.93 4.4 0.115 ND 9.0 6.25	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE	350.1 10200H 300.0 10200H 365.2 365.2 160.2 160.4	NA 07/31/19 NA 07/31/19 08/15/19 NA NA NA	08/07/19 0 08/12/19 0 08/27/19 0 08/12/19 0 08/16/19 0 07/31/19 0 08/05/19 0 08/05/19 0 08/13/19 0 08/13/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 08/05/19 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	08124784 08154799 09034842 08154799 08204809 08014759 08124782 08124783

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:	An	alytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-15		ARDL 1	Lab No.:	00850	02-08	
Desc/Location:	SHELBYVILLE LAKE		Lab F:	ilename:	E0815	5913	
Sample Date:	07/30/2019		Recei	ved Date:	07/30	)/2019	
Sample Time:	1400		Prep.	Date:	08/02	2/2019	
Matrix:	WATER		Analys	sis Date:	08/15	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	cch:	B1107	79	
% Moisture:	NA		Level	:	LOW		
					Data		Dilutior
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	1.41		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	1.11		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	-
Triphenylphosphate	30-130	80%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502	502						rz.	Report Date:	: 10/02/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	lcs 00308
ARDL No: 008502-08 Field ID: SVL-15 Received: 07/30/2019	3	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 07/30/2019			Matrix: Moisture:	: WATER : NA	
Analyte	TOD	COI	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.0 0.800 1.0 0.00800 0.00800 4.0 4.0	0.0300 1.00 1.00 0.0100 0.0100 4.00 1.00	מ ×	0.0528 63.5 2.45 9.5 0.176 0.0092 18.8 8.4	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE NONE	350.1 10200H 300.0 10200H 365.2 365.2 160.2 160.4	NA 07/31/19 NA 07/31/19 08/15/19 NA NA NA	08/07/19 08124784 08/12/19 08154799 08/27/19 09034842 08/12/19 08154799 08/16/19 08204809 07/31/19 08014759 08/05/19 08124782	08124784 08154799 09034842 08154799 08204809 08014759 08124782

(a) DOD and/or NELAC Accredited Analyte.

Sample 008502-08, Inorganic Analyses

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Report Date: 09/06/2019	Analysis: Inorganics NELAC Certified - IL100308	: WATER : NA	Analysis Run Date Number	07/30/19 08024762
port Date	Analysis LLAC Certi	Matrix: Moisture:	Prep Date	NA
Re	HN		Prep Analysis Method Method	1604
			Prep Method	NONE
		Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 07/30/2019 Sampling Time: 1130	Units	COL/100 ML
		n: SHEL1 :e: 07/30 ne: 1130	Result	21.0
		ampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Samp Sam Sam	ÕOI	1.00
08502	SHELBYVILLE LAKE	-09 INA 2019	LOD	1.0
t No: 00		ARDL No: 008502-09 ield ID: LS MARINA eceived: 07/30/201	yte	
Lab Report No: 008502	Project Name: Project No:	ARDL No: 008502-09 Field ID: LS MARINA Received: 07/30/2019	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

119	lcs )0308		Run Number	18024762
Report Date: 09/06/2019	Analysis: Inorganics NELAC Certified - IL100308	WATER	Analysis Date	07/30/19 08024762
port Date:	Analysis: LAC Certif	Matrix: Moisture:	Prep Date	NA
Rej	NE		Analysis Method	1604
			Prep	NONE
		Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 07/30/2019 Sampling Time: 1215	Units	COL/100 ML
		n: SHELF e: 07/30 e: 1215	Result	17.0
		ampling Loc'n: Sampling Date: Sampling Time:	Flag Result	
		Samp. Samp	LOQ	1.00
08502	SHELBYVILLE LAKE	-10 RINA 2019	ГОР	1.0
No: 00	SHELBY	008502-10 FIN MARINA 07/30/2019	ب 0	
Lab Report No: 008502	Project Name: Project No:	ARDL No: 008502-10 Field ID: FIN MARIN Received: 07/30/201	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Report Date: 09/06/2019	Analysis: Inorganics NELAC Certified - IL100308	WATER NA	Analysis Run Date Number	07/30/19 08024762
port Date:	Analysis: LAC Certifi	Matrix: WATER Moisture: NA	Prep A Date	NA 0
Re	NE		Prep Analysis Method Method	1604
			Prep Method	NONE
		SHELBYVILLE LAKE 07/30/2019 1320	Units	COL/100 ML NONE
		n: SHELJ e: 07/30 e: 1320	Result	92.0
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Samp Samp Samp	TOO	1.00
008502	SHELBYVILLE LAKE	008502-11 SUL MARINA 07/30/2019	TOD	1.0
Lab Report No:	Project Name: SHEI Project No:	ARDL No: 0085 Field ID: SUL Received: 07/3	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report	Lab Report No: 008502	2						Ж.	eport Date	Report Date: 09/06/2019	010
Project Name: Project No:	SHELBYVILLE LAKE	E LAKE						N N	Analysis ELAC Certi	Analysis: Inorganics NELAC Certified - IL100308	ics 00308
ARDL No: Field ID: Received:	008502-12 ASA-4 07/30/2019		Sampling Samplin Samplin	1 0 0		SHELBYVILLE LAKE 07/30/2019			Matrix: Moisture:	Matrix: WATER isture: NA	
Analyte	t e	LOD	ЙОЛ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Fecal Coliform		1.0	1.00		2000	COL/100 ML	NONE	9222D	NA	07/30/19 08024761	38024761

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502	1502						ц	Report Date:	: 10/02/2019	019
Project Name: SHELBYVII Project No:	SHELBYVILLE LAKE						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008502-13 Field ID: KAS 3 Received: 07/30/2019	19	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		KASKASKIA RIVER 07/30/2019 0850			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0200	0.0300		0.133	MG/L	NONE	350.1	NA	08/07/19	08124784
Chlorophyll-a, Correcte	1.0	1.00		12.7	MG/CU.M.	10200H	10200H	07/31/19	08/12/19	08154799
Kjeldahl Nitrogen	0.190	0.200	þ	1.07	MG/L	351.2	351.2	08/19/19	08/21/19	08214825
Nitrate as Nitrogen	0.800	1.00	×	3.17	MG/L	NONE	300.0	NA	08/27/19	09034842
Nitrite as Nitrogen	0.0200	0.0200		0.025	MG/L	NONE	354.1	NA	07/31/19	07314756
Pheophytin-a	1.0	1.00		3.2	MG/CU.M.	10200H	10200H	07/31/19	08/12/19	08154799
Phosphorus	0.00800	0.0100		0.262	MG/L	365.2	365.2	08/15/19	08/16/19	08204809
Phosphorus, -ortho	0.00800	0.0100		0.0143	MG/I	NONE	365.2	NA	07/31/19	08014759
Solids, Total Suspended	4.0	4.00		8.09	MG/I	NONE	160.2	NA	08/05/19	08124782
Solids, Volatile Suspen	4.0	4.00		6.4	MG/L	NONE	160.4	NA	08/05/19	08124783
Total Organic Carbon	0.500	1.00		3.9	MG/L	NONE	415.1	NA	08/13/19	08204807

(a) DOD and/or NELAC Accredited Analyte.

Sample 008502-13, Inorganic Analyses

# METHOD BLANK REPORT ARDL, Inc. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008502 Report Date: 08/16/2019

Project Name:	SHELBYVILLE LAKE	Analys:	is: NP PEST	CICIDES (8:	270SIM-M	OD)
Project No.:		lytical Metho	od: 8270C			
NELAC Certi:	fied - IL100308	Prep Metho	od: 3510C			
Field ID:	NA	· · · · · · · · · · · · · · · · · · ·	ARDL Lab No	008	502-01B1	
Desc/Location:	NA	]	Lab Filenam	ne: E08	15903	
Sample Date:	NA	I	Received Da	ate: NA		
Sample Time:	NA	I	Prep. Date:	08/	02/2019	
Matrix:	QC Material	Ī	Analysis Da	te: 08/	15/2019	
Amount Used:	1000 mL	;	Instrument	ID: AG5		
Final Volume:	1 mL	(	QC Batch:	B11	079	
% Moisture:	NA	]	Level:	LOW		
					Data	<u> </u>
Parameter		LOD	LOQ	Result	Flag	Units
Trifluralin		0.200	0.200	ND		UG/L
Atrazine		0.200	0.200	ND		UG/L
Metribuzin		0.200	0.200	ND		UG/L
Alachlor		0.200	0.200	ND		UG/L
Metolachlor		0.200	0.200	ND		UG/L
Chlorpyrifos		0.200	0.200	ND		UG/L
Cyanazine		0.200	0.200	ND		UG/L
Pendimethalin		0.200	0.200	ND		UG/L

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	101%	j
			- 1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

Mt. Vernon, IL 400 Aviation Drive; P.O. Box 1566 BLANK SUMMARY REPORT ARDL, INC.

Mt. Vernon, IL 62864	Report Date: 10/02/2019
400 Aviation Drive; P.O. Box 1566	
ARDI, INC.	Lab Report No: 008502

Project Name:	SHELBY	SHELBYVILLE LAKE	EX					NELA(	NELAC Certified -	ed - IL100308
Analyte	LOD	ŌOI	Blank Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
(a) Iron	0.040	0.050	S S	MG/L	3010A	6010C 6010C	07/31/19	08/23/19	P7233	008502-01B1 008502-01B1
Ammonia Nitrogen	0.020	0.030		MG/L	NONE	350.1	NA		08124784	008502-01B1
Chlorophyll-a, Corre E. Coliform	1.0	1.0	2 2	MG/CU.M. COL/100 ML	10200H NONE	10200H 1604	07/31/19 NA	08/12/19 07/30/19	08154799 08024762	008502-02B1 008502-09B1
Fecal Coliform	1.0	1.0		COL/100 ML	NONE	9222D	NA		08024761	008502-12B1
Kjeldahl Nitrogen	0.19	0.20		MG/L	351.2	351.2	08/19/19		08214825	008502-13B1
Nitrate as Nitrogen Nitrite as Nitrogen	0.80	0.020	N N	MG/L MG/L	NONE	300.0 354.1	NA NA	07/31/19	0903484 <i>2</i> 07314756	008502-01B1
Pheophytin-a	1.0	1.0	ND	MG/CU.M.	10200H	10200Н	07/31/19		08154799	008502-02B1
Phosphorus	0.008	0.010	ND	MG/I	365.2	365.2	08/15/19		08204809	008502-02B1
Phosphorus, -ortho	0.008	0.010	QN	MG/L	NONE	365.2	NA		08014759	008502-02B1
Solids, Total Suspen	1.0	1.0	N N	MG/L	NONE	160.2	NA	08/02/19	08124782	008502-03B1
Solids, Volatile Sus	1.0	1.0	N Q	MG/L	NONE	160.4	NA	08/05/19	08124783	008502-03B1
Total Organic Carbon	0.50	1.0	QN	MG/L	NONE	415.1	NA	08/13/19	08204806	008502-01B1
Total Organic Carbon	0.50	1.0	NO	MG/L	NONE	415.1	NA	08/13/19 (	08204807	008502-06B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008502

Mt. Vernon, IL BLANK SPIKE/SPIKE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

62864

Lab Report No:	008502							Rep	ort Date:	Report Date: 08/16/2019
Project Name: S Project No.:	Project Name: SHELBYVILLE LAKE Project No.:	Ana	Analysis: NP PESTICIDES (8270SIM-MOD)	STICIDES	8270SIN	4-MOD)	Analy	rtical Me Prep Me	Analytical Method: 8270C Prep Method: 3510C	00 00
Matrix: Amount Used:	QC Material 1000 mL		QC Batch: Level:	B11079 LOW	67		Prep. Date: Analysis Da	Jate: .s Date:	Prep. Date: 08/02/2019 Analysis Date: 08/15/2019	o o
Par	Parameter	Spike Result	Spike Level	Spike % Rec	Duplicate Result	Duplicate Level	Duplicate % Rec	Recovery	RPD	RPD Limit
Trif	Trifluralin	3.81	ħ	95				30-130		
At	Atrazine	3.33	4	83	1	ļ	1	30-130	1	!
Met	Metribuzin	3.32	4	83	!	1	}	30-130	1	1
Al	Alachlor	3.24	4	81	1	1	}	30-130	-	1
Metc	Metolachlor	3.66	4	92	1	î i	{	30-130	1	!!
Chlc	Chlorpyrifos	3.24	4	81	;	1	ŀ	30-130	1	l i
Cya	Cyanazine	3.97	4	66	!	1	l I	30-130	1	;
Pendi	Pendimethalin	3.9	4	86	1	1	!	30-130	1	ŀ

	Triphenylphosphate 96 30-130	%R Limits 30-130	Duplicate %R	Spike %R 96	RROGATE RECOVERIES:
96		%R Limits	Duplicate %R	Spike %R	SURROGATE RECOVERIES:

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits. Spike Blanks for 008502-01, NP PESTICIDES (8270SIM-MOD)

62864 LABORATORY CONTROL SAMPLE REPORT 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL ARDL, INC.

/2019	100308												
Report Date: 09/06/2019	NELAC Certified - IL100308	QC Lab	Number	008502-01C1	008502-01C1	008502-01C1	008502-13C1	008502-01C1	008502-13C1	008502-02C1	008502-02C1	008502-01C1	008502-06C1
Report Da	NELAC Cer	Analytical	Run	P7233	P7233	08124784	08214825	09034842	07314756	08204809	08014759	08204806	08204807
		Mean	% Rec	!	}	1	i	}	;	!	ļ	1	1
		% Rec	Limits	87-115	90-114	80-120	80-120	80-120	80-120	80-120	80-120	76-120	76-120
	SHELBYVILLE LAKE	LCS 2	% Rec	1	}	}	1	. 1	1	}	i	!	1
		LCS 2	Level	1	1	1	}	1	1	1	1	i	1
		LCS 2	Result	ŀ	1	1	ì	}	1	!	;	1	1
		LCS 1	% Rec	66	103	97	102	92	97	97	96	98	8
		LE LAKE	LCS 1	Level	5.0	0.75	1.0	1.0	14.0	1.0	0.67	0.10	10.0
38502		LCS 1	Result	4.9	77.0	76.0	1.0	12.8	76.0	0.65	960.0	9.8	8
Lab Report No: 008502	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Kjeldahl Nitrogen	Nitrate as Nitrogen	Nitrite as Nitrogen	Phosphorus	Phosphorus, -ortho	Total Organic Carbon	Total Organic Carbon

NOTE: Any values tabulated above marked with an asterisk are outside of acceptable limits.

Inorganic LCS Results for 008502

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte

	Vernon,
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REPORT	Box 1566
ATE	Box
DUPLICAT	ъ.о.
/SPIKE	Drive;
SPIKE/	400 Aviation D
MATRIX	400 Av.
	INC.
	ARDL,

IL 62864

Project Name: SHELBYVILLE LAKE Project No.:	LE LAKE	Analysis:	NP PESTI	PESTICIDES (8270	(8270SIM-MOD)		Analytical Prep	ical Method: Prep Method:	1: 8270C	
Field ID: SVL-1 Desc/Location: SHELBYVILLE LAKE Sample Date: 07/30/2019	LE LAKE	Prep. Amount % Mois	Prep. Date: Amount Used: % Moisture:	08/02/2019 900 mL NA		A L	ARDL Lab No.: Lab Filename: Received Date		008502-01	
Sample Time: 1000 Matrix: WATER		QC Bat Level:	Batch: rel:	B11079 LOW		Aı	Analysis D	Date: 08/1	08/15/2019	
	Sample	MS	MS	MS	MSD	MSD	MSD	% Rec		RPD
Parameter	Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin	QN	3.78	4.44	85	3.29	4.44	74	30-130	13.8	30
Atrazine	1.82	5.18	4.44	75.5	4.74	4.44	65.8	30-130	8.7	30
Metribuzin	0.256	3.62	4.44	75.8	3.34	4.44	69.5	30-130	80	30
Alachlor	ON	3.3	4.44	74.3	3.18	4.44	71.5	30-130	æ. æ.	30
Metolachlor	3.37	6.91	4.44	79.8	6.58	4.44	72.3	30-130	4.9	30
Chlorpyrifos	QN	3.22	4.44	72.5	2.93	4.44	99	30-130	9.4	30
Cyanazine	QN	4	4.44	06	3.68	4.44	82.8	30-130	8.4	30
Pendimethalin	QN	3.77	4.44	84.8	3.41	4.44	76.8	30-130	6.6	30

%R &R Limits	30-130
MSD %R	79
MS %R	87
SURROGATE RECOVERIES:	Triphenylphosphate

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits.
Matrix Spikes for 008502-01, NP PESTICIDES (8270SIM-MOD)

# 62864 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL MATRIX SPIKE/SPIKE DUPLICATE REPORT ARDL, INC.

Lab Report No: 008502	10: 00850	02								Repor	Report Date:	0/60 :	09/06/2019
Project Name:	2:	SHELBYVILLE LAKE	LE LAKE								NELAC	Certifi	NELAC Certified - IL100308
		. After de condact de distribute de commerce en en encommerce de condense											
	Sample	Sample	MS	WS	MS	MSD	MSD	MSD	% Rec		RPD		QC Lab
Analyte	Matrix	Result	Result	Level	& Rec	Result	Level	% Rec	Limits	RPD	Limit	Run	Number
(a) Iron	WATER	0.10	1.0	1.0	06	66.0	1.0	88	87-115	2	20	P7233	008502-01MS
(a) Manganese	WATER	0.051	0.56	0.50	102	0.55	0.50	100	90-114	1	20	P7233	008502-01MS
Ammonia Nitrogen	WATER	0.12	2.1	2.0	97	2.0	2.0	95	75-125	2	20	08124784	008502-01MS
Kjeldahl Nitrogen	WATER	1.1	1.6	08.0	* 69	1.9	08.0	106	75-125	17	20	08214825	008502-13MS
Nitrate as Nitrogen	WATER	3.3	11.1	8.0	86	11.1	8.0	86	75-125	0	20	09034842	09034842 008502-01MS

008502-13MS 008502-02MS 008502-02MS 008502-01MS 008502-06MS

07314756

75-125 75-125 75-125 76-120

101

1.0

1.0 0.88 0.10 7.7

101

1.0 0.86 0.10 7.8 9.0

0.025

WATER
WATER
WATER
WATER

Nitrite as Nitrogen

0.83 0.10 5.0 5.0

J 0.0092

3.8

Total Organic Carbon Total Organic Carbon

Phosphorus Phosphorus, -ortho

99 94 79 80

08204809

08204806

08014759

0 7 0 1 4

94 78 87

08204807

NOTE: Values tabulated above marked with an asterisk are explained in the associated narrative.

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte.

# 62864 Mt. Vernon, IL SAMPLE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

Lab Report No: 008502	22						Report Date: 09/06/2019	09/06/2019
Project Name: SHELE	SHELBYVILLE LAKE	AKE					NELAC Certifi	NELAC Certified - IL100308
	Sample	First	Second		Percent	Mean	Analytical	QC Lab
Analyte	Conc'n	Conc'n Duplicate	Duplicate	Units	Diff	(Smp, D1, D2)	Run	Number
Chlorophyll-a, Corrected	28.9	27.8	1	MG/CU.M.	4		08154799	008502-02D1
Pheophytin-a	ND	2.0	} }	MG/CU.M.	NC	1	08154799	008502-02D1
Solids, Total Suspended	52.4	56.4	1	MG/L	7	!	08124782	008502-03D1
Solids, Volatile Suspend	6.8	7.6	1	MG/L	11	!	08124783	008502-03D1

(a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008502



### Sample Receipt Information

Including as appropriate:

- COCs
- Cooler Receipts
- Airbills
- Email Communication / Instructions from Customer

ARDL Data Package 8502

CHAIN OF CUSTODY RECORD

P.O. Box 1566, 400 Aviation Drive, Mt. Vernon, IL 62864

(618) 244-1149 Fax (618) 244-3235 Phone

SPECIFY CHEMICALS ADDED AND FINAL PH IF KNOWN PRESERVATION × × × × × × × × × × ICED × did NOT RECEIUC NOPESTI OIG RECEIUE ALCZ-W. MHZ-N Also Received Foc, F-Pox SAMPLE LOCATION REMARKS × × × × × × × × × × × × × × × × × X × × × × × × × × × × × × NO. OF CONTAINERS × GKAB × × × × × × × 7 -30-19 COMP 7-30-9 7-3019 727 7-30-6 7-36-1 30-1 -301 7-30-4 730-19 07-7 Fine Date 640 000 300 330 085h 405 649 34 1400 SAMPLE NUMBER SAMPLERS: (Signature) Shelbyville Lake 日SUL Marina FIN Marina S LS Marina ASA-4 SVL-2-10 **SVL-12** SVL-15 **SVL-13** SVL-11 SVL-4 SVL-2 SVL-1 PROJECT

NO3-N KAS-3 Only \*Preserved with H<sub>2</sub>SO<sub>4</sub> #Preserved with HNO<sub>3</sub> Received by: (Signature) Shipping Ticket No. Time 7/50/19 Date

REMARKS/SPECIAL INSTRUCTIONS:

Received by: (Signature)

1345

713019

Date

Relinquished by: (Signature)

Rélinguished by: (Signature)

9 Y PURCHASE ORDER NO:

## COOLER RECEIPT REPORT ARDL, INC.

ARI	DL#: 8502	Cooler# 1 of 2			
	•	Cooler # A A A Number of Coolers in Shipmer	nt:		_
Pro	ect: <u>Shelby Ville Lake</u>	Date Received: 7-30-1			
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 7 - 3	10-19 (Signature) Stack	runz	<i></i>	
1.	Did cooler come with a shipping slip (airbill, etc.)?		YES (	NO	
	If YES, enter carrier name and airbill number here:	Pau	rier		
2.	Were custody seals on outside of cooler?			NO	N/A
	How many and where?,Seal Date	e:,Seal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?				(NA)
4.	Did you screen samples for radioactivity using a Geiger Counter?			NO	
5.	Were custody papers sealed in a plastic bag?			<b>(10)</b>	
6.	Were custody papers filled out properly (ink, signed, etc.)? Landelle	ins nat unitialed or das	t.dYES	(NO)	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?			NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name a	at the top of this form	YES`	NO	N/A
9.	Was a separate container provided for measuring temperature? YES	NOObserved Cooler Temp	0.60	2	
В.	LOG-IN PHASE: Date samples were logged-in: 7-31-19	_(Signature)(Correcti	on factor <u>C</u>	٥,۵	c
10.	Describe type of packing in cooler: <u>loase</u> ice	MANAGEM TO THE TOTAL THE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABLE THE TAXABBLE THE TAXABLE THE			
11.	Were all samples sealed in separate plastic bags?		YES	<b>(</b> (0)	N/A ر
12.	Did all containers arrive unbroken and were labels in good condition?		(ES)	NO	
13.	Were sample labels complete?			NO	
14.	Did all sample labels agree with custody papers?		YES	MO,	,
15.	Were correct containers used for the tests indicated?	·	(ES)	NO	
16.	Was pH correct on preserved water samples?		FES	NO	N/A
17.	Was a sufficient amount of sample sent for tests indicated?		¥ES	NO	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	t .	YES	NO	N/A
19.	Was the ARDL project coordinator notified of any deficiencies?		VES	NO	N/A
	Comments and/or Corrective Action:	Sample Tra	nsfer		
14	did NOT Receive NP PEST for KAS 3	1 1	action		
AS	did Receive NO3-N, NH3-N. APPEARS Though X WAS PLACED IN WRONG Volume Adjusted Cof C. 150 Received A Too, T-PO4 CONTAINER-	Area # Ar	ea#		
2	Wlunger Adjusted Cof C.	Walkin			
A	150 Received A Toc, T-PO4 CONTAINER -	By By	,		
H	dded To CafC.	On Or	n		
		7-31-19			
		Chain-of-Custody#	NA		
/F	by: Signature) Ala Date: 7-31-19				

M:\ADMIN\FORMS\COOLER RECEIPT REPORT.doc Rev. 02/22/17

## COOLER RECEIPT REPORT ARDL, INC.

AR	DL#: 8502	Coo	ler# 2 4 2			
	•	Nun	nber of Coolers in Ship	ment: $\underline{\mathcal{J}}$		-
Pro	oject: <u>Shelby V:11e</u> Lake	Date	e Received: 7-30	-19		
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 7-30	-19	(Signature)	achric.	m	
1.	Did cooler come with a shipping slip (airbill, etc.)?			YES	NO	
	If YES, enter carrier name and airbill number here:	A11-2		aurier	2	
2.	Were custody seals on outside of cooler?			YES	NO	N/A
	How many and where?,Seal Date:_		,Seal Name:	***************************************		
3.	Were custody seals unbroken and intact at the date and time of arrival?			YES	NO	(NA)
4.	Did you screen samples for radioactivity using a Geiger Counter?			(YES	, NO	
5.	Were custody papers sealed in a plastic bag?				(NO)	
6.	Were custody papers filled out properly (ink, signed, etc.)? Laurechem	1. M	at initialist or da	tedYES	(NO)	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?				NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name at	the top	of this form	YES	NO	N/A
9.	Was a separate container provided for measuring temperature? YES		-1\ 1 \ Co.	rraction factor (	2.0	C
B.	LOG-IN PHASE: Date samples were logged-in: 7-31-19	Signat	ure) Machred	incolor ladioi		
10.						
11.						N/A
12.						
13.	, , , ,					
14.	Did all sample labels agree with custody papers? Lee Receipt 142 YES NO					
15.						
16.	. Was pH correct on preserved water samples?					N/A
17.	. Was a sufficient amount of sample sent for tests indicated?					
18.	Were bubbles absent in VOA samples? If NO, list by sample #:			YES	NO	N/A
19.	Was the ARDL project coordinator notified of any deficiencies?			(ES	NO	N/A
	Comments and/or Corrective Action:			Transfer		
			Fraction	Fraction		
			All Area#	Area #		
			Walkin			
			All Area #  Walkin  By  Cle	Ву		
			On Ole	On		
			On 7-31-19			
			Chain-of-Custody#	/\/ /	A	
(E	By: Signature) Date:					



PO Box 1566 400 Aviation Drive Mt. Vernon, IL 62864 618-244-3235

www.ardlinc.com

**Customer Name: SLCOE** 

Date: 11/6/19

Project Name: Shelbyville Lake

Lab Name: ARDL, Inc.

Samples Received at ARDL: 10/10/19

ARDL Report No.: 8554

#### **CASE NARRATIVE**

Customer	<u>Date</u>	<u>Lab ID</u>	
Sample No.	Collected	Number	Analyses Requested
SVL-1	10/10/19	8554-01	NP Pesticides, Metals(1), Inorganics(2)
SVL-2	10/10/19	8554-02	NP Pesticides, Inorganics(2)(3)
SVL-2-10	10/10/19	8554-03	Metals(1), Inorganics(2)
SVL-4	10/10/19	8554-04	NP Pesticides, Inorganics(2)(3)
SVL-12	10/10/19	8554-05	NP Pesticides, Inorganics(2)
SVL-13	10/10/19	8554-06	NP Pesticides, Inorganics(2
SVL-11	10/10/19	8554-07	NP Pesticides, Inorganics(2)(3)
SVL-15	10/10/19	8554-08	NP Pesticides, Inorganics(2)(3)
KAS-3	10/10/19	8554-09	Inorganics(2)(3)(4)
LS MARINA	10/10/19	8554-10	ECOLI
FIN MARINA	10/10/19	8554-11	ECOLI
SUL MARINA	10/10/19	8554-12	ECOLI
ASA/WWTP	10/10/19	8554-13	FECAL

- (1) Including iron and manganese.
- (2) Including ammonia, nitrate, orthophosphate, total phosphorus, TOC, TSS, and TVSS.
- (3) Including chlorophyll-a and pheophytin-a.
- (4) Including nitrite.

The quality control data are summarized as follows:

#### NP PESTICIDE FRACTION - METHOD 8270-SIM

#### **HOLDING TIME**

Samples were prepared and analyzed within method specified holding times.

#### **INITIAL CALIBRATION**

The initial calibration passed criteria.

#### **CONTINUING CALIBRATION**

The continuing calibration verification (CCV) passed criteria for all analytes except cyanazine (+22.4%) which was not detected in any of the associated samples. The closing CCV passed criteria for all analytes.

#### PREPARATION BLANK

The blank met acceptance criteria.

#### LABORATORY CONTROL SAMPLE

The LCS analyses met recovery criteria.

#### MATRIX SPIKE

The matrix spike and matrix spike duplicate met recovery criteria.

"Test everything, keep the good" 1 Thes. 5:21

Page 1 of 2

Project Name: Shelbyville Lake

ARDL Report No.: 8554

# **CASE NARRATIVE (Continued)**

### **DUPLICATE**

Duplicate analyses are reported as MS/MSD. RPD of the duplicate analyses met criteria.

### INTERNAL STANDARD

All internal standard criteria were met.

#### **SURROGATE**

All surrogate recovery criteria were met.

### **INORGANIC FRACTION**

TOC were analyzed by an accredited outside laboratory due to instrument status.

#### PREPARATION BLANK

Results of the preparation blanks were within acceptable limits.

#### LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

### MATRIX SPIKE

Only an MS sample data evaluation was performed for the TOC analysis. Percent recoveries of all matrix spikes and matrix spike duplicates were within control limits.

### **DUPLICATE**

All duplicate analyses are reported as MS/MSD except chlorophyll-a, pheophytin-a, TOC, TSS, and TVSS. RPD on all duplicate analyses were within control limits.

#### DATA REPORTING QUALIFIERS

The following data reporting qualifiers are used as required:

- ND Indicates parameter was analyzed for but not detected.
- Indicates an estimated value. This flag is used either when estimating a concentration or this flag indicates analyte(s) associated with a DOD-QSM specified non-compliance pertaining to matrix QC criteria.

### REPORT ORGANIZATION

The data in this report appear by sample type (Field sample, preparation blank, laboratory control sample / spike blank, matrix spike /spike duplicate and sample duplicate). Within each sample type the data appear in the order that the analytical methods were discussed in this case narrative. Sample receipt information follows the analytical data.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Dean S. Dickerson

Technical Services Manager



# Sample & QC Results

Including as appropriate:
Field Sample Results
Batch QC
Prep Blank

LCS/Spike Blank
Matrix QC
MS/MSD
Sample Duplicate

ARDL Data Package 8554

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE		-	PESTICII	DES (827	70SIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-1		ARDL I	Lab No.:	0085	54-01	ACTION
Desc/Location:	SHELBYVILLE LAKE		Lab F	llename:	E1025	5917	
Sample Date:	10/10/2019		Recei	red Date:	10/10	0/2019	
Sample Time:	1030		Prep.	Date:	10/14	4/2019	
Matrix:	WATER		Analys	sis Date:	10/25	5/2019	
Amount Used:	1000 mL		Instr	ment ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1112	21	
% Moisture:	NA		Level	1	LOW		
	14.00				Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	1.51		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	1.89		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	1
Triphenylphosphate	30-130	89%	ĺ
			I

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

2019	nics 100308		Run Number	P7284 P7284 10234992 10245003 10315018 10234994 10234995 TA462384
: 11/01/2019	: Inorganics fied - IL1003	. WATER . NA	Analysis Date	10/23/19 10/23/19 10/15/19 10/15/19 10/11/19 10/16/19 10/16/19
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	10/16/19 10/16/19 NA NA 10/28/19 NA NA NA
Ж	Z		Analysis Method	6010C 6010C 350.1 GREEN 365.2 365.2 160.2 160.4
			Prep Method	3010A 3010A NONE NONE 365.2 NONE NONE NONE
		SHELBYVILLE LAKE 10/10/2019 1030	Units	MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L
			Result	0.498 0.721 1.25 0.324 0.123 0.0115 11.2 5.2
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Sampl Samp Samp	TOO	0.0500 0.00500 0.0600 0.0200 0.0100 4.00 1.00
554	LLE LAKE	6	TOD	0.0400 0.00400 0.0400 0.0190 0.00800 4.0 4.0
. No: 008554	SHELBYVILLE LAKE	008554-01 SVL-1 10/10/2019	t e	en rogen rtho Suspended le Suspen
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NI	PESTICII	DES (82	70SIM-MO	D)
Project No.:	An	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-2		ARDL 1	Lab No.:	0085	54-02	
Desc/Location:	SHELBYVILLE LAKE		Lab F	llename:	E1025	5920	
Sample Date:	10/10/2019		Recei	red Date:	10/10	0/2019	
Sample Time:	1120		Prep.	Date:	10/14	4/2019	
Matrix:	WATER		Analys	sis Date:	10/25	5/2019	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1112	21	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	1.29		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	1.47		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	77%	Ì
			- 1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Report Date: 11/01/2019	Analysis: Inorganics NELAC Certified - IL100308	Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 10/10/2019 Sampling Time: 1120	Prep Analysis Prep Analysis Run LOQ Flag Result Units Method Method Date Date Number	00         0.0300         0.303         MG/L         NONE         350.1         NA         10/15/19 10234993           1.00         25.4         MG/CU.M.         10200H         10200H         10/11/19         10/28/19 10315019           90         0.0200         0.463         MG/L         NONE         GREEN         NA         10/15/19 10245003           1.00         4.4         MG/L         NONE         GREEN         NA         10/15/19 10245003           100         0.0100         0.0578         MG/L         365.2         365.2         10/28/19 10/29/19 10315018           100         0.0100         0.0141         MG/L         NONE         365.2         NA         10/11/19 10234991           10         2.50         7.5         MG/L         NONE         160.2         NA         10/16/19 10234995           10         2.50         3.5         MG/L         NONE         160.4         NA         10/16/19 10234995
			Flag	0 0
54	LE LAKE	ω	TOD TO	0.0200 0.030 1.0 1.00 1.0 0.020 1.0 1.00 0.00800 0.010 0.00800 0.010 2.50 2.50 2.50 2.50
Lab Report No: 008554	Project Name: SHELBYVILLE LAKE Project No:	ARDL No: 008554-02 Field ID: SVL-2 Received: 10/10/2019	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen

(a) DOD and/or NELAC Accredited Analyte.

Sample 008554-02, Inorganic Analyses

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Sampling Loc'n: SHELBYVILLE LAKE   Sampling Date: 10/10/2019   Matrix: WATER   Sampling Time: 1120   Prep Analysis   Prep Analysis   Matrix: WATER   Sampling Time: 1120   Prep Analysis   Prep Analysis   Prep Analysis   Date Date   te Date Date Date Date Date	Lab Report No: 008554	Vo: 0085	54						щ	Report Date:	: 11/01/2019	019
Sampling Loc'n: SHELBYVILLE LAKE   Matrix: WATER		SHELBYVIL	LE LAKE						z	Analysis ELAC Certi	: Inorgan fied - IL1	lcs 00308
LOD LOQ Flag Result Units Method Method Date Date  0.0460 0.0500 0.0621 MG/L 3010A 6010C 10/16/19 10/23/19 0.0200 0.00500 0.0621 MG/L 3010A 6010C 10/16/19 10/23/19 0.0200 0.0304 MG/L NONE 350.1 NA 10/15/19 0.00800 0.0100 0.0578 MG/L NONE 365.2 10/28/19 10/29/19 0.00800 0.0100 0.0167 MG/L NONE 365.2 NA 10/11/19 4.0 4.00 57.6 MG/L NONE 160.2 NA 10/16/19 4.0 4.00 3.8 MG/L NONE 160.4 NA 10/16/19 0.500 1.00 3.8 MG/L NONE 160.4 NA 10/16/19		008554-03 3VL-2-10	<u></u>	Sampl Samp Samp	ממ ו		BYVILLE LAKE 0/2019			Matrix Moisture		
0.0400         0.0500         0.461         MG/L         3010A         6010C         10/16/19         10/23/19           0.00400         0.00500         0.0621         MG/L         NONE         350.1         NA         10/15/19           0.0200         0.0300         0.457         MG/L         NONE         365.2         10/28/19         10/15/19           0.00800         0.0100         0.0578         MG/L         NONE         365.2         10/28/19         10/12/19           0.00800         0.0100         0.0167         MG/L         NONE         365.2         NA         10/11/19           4.0         4.0         57.6         MG/L         NONE         160.2         NA         10/16/19           4.0         4.0         6.4         MG/L         NONE         160.4         NA         10/16/19           4.0         4.0         6.4         MG/L         NONE         160.4         NA         10/16/19           0.500         1.00         3.8         MG/L         NONE         415.1         NA         10/19/19	Analyte	41	LOD	TOO	Flag	Result	Units	Prep	Analysis Method	Prep Date	Analysis Date	Run Number
	(a) Iron (b) Manganese Ammonia Nitroger Nitrate as Nitro Phosphorus Phosphorus Colids, Total Su Solids, Volatile Total Organic Ca		0.0400 0.00400 0.0200 0.0190 0.00800 0.00800 4.0	0.0500 0.00500 0.0300 0.0200 0.0100 4.00 1.00		0.461 0.0621 0.304 0.457 0.0578 0.0167 57.6 6.4	MG/L MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE NONE	6010C 6010C 350.1 GREEN 365.2 365.2 160.2 160.4	10/16/19 10/16/19 NA NA 10/28/19 NA NA NA		P7284 P7284 10234993 10245003 10234991 10234994 10234995 TA462384

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICIE	ES (827	OSIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-4		ARDL I	Lab No.:	00855	54-04	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	llename:	E1025	921	
Sample Date:	10/10/2019		Recei	red Date:	10/10	)/2019	
Sample Time:	1330		Prep.	Date:	10/14	1/2019	
Matrix:	WATER		Analys	sis Date:	10/25	5/2019	
Amount Used:	1000 mL		Instru	ment ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1112	21	
% Moisture:	NA		Level	:	LOW		
					Data	commode	Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.490		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	0.200		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	_
Triphenylphosphate	30-130	77%	İ

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008554	08554						Ľ,	Report Date:	: 11/01/2019	119
Project Name: SHELBY Project No:	SHELBYVILLE LAKE						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	.cs 00308
	-04	Samp	Sampling Loc'n: Sampling Date:		SHELBYVILLE LAKE 10/10/2019			Matrix: Moisture:	: WATER : NA	
recelved: 10/10/2019	2013	Samk	sampiing lime:	ne: 1330						ť
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ТОÕ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.0200	0.0300		0.0354	MG/L	NONE	350.1	NA	10/15/19	10234993
Chlorophyll-a, Correcte	te 1.0	1.00		104	MG/CU.M.	10200H	10200H	10/11/19	10/28/19	10315019
Nitrate as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA		10245003
Pheophytin-a	1.0	1.00		28.0	MG/CU.M.	10200H	10200H	10/11/19		10315019
Phosphorus	0.00800	0.0100		0.429	MG/L	365.2	365.2	10/28/19	10/29/19	10315018
Phosphorus, -ortho	0.00800	0.0100		0.0864	MG/L	NONE	365.2	NA	10/11/19	10234991
Solids, Total Suspended	ed 6.67	6.67		53.3	MG/L	NONE	160.2	NA	10/16/19 1	10234994
Solids, Volatile Suspen	en 6.67	6.67		12.7	MG/I	NONE	160.4	NA	10/16/19 1	10234995
Total Organic Carbon	0.500	1.00		6.4	MG/I	NONE	415.1	NA	10/19/19 1	TA462384

(a) DOD and/or NELAC Accredited Analyte.

Sample 008554-04, Inorganic Analyses

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NI	PESTICII	DES (82	70SIM-MO	D)
Project No.:	A	nalytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	SVL-12		ARDL	Lab No.:	0085	54-05	TV-INA
Desc/Location:	SHELBYVILLE LAKE		Lab F:	ilename:	E1025	5922	
Sample Date:	10/10/2019		Recei	ved Date:	10/10	0/2019	
Sample Time:	1245		Prep.	Date:	10/1	1/2019	
Matrix:	WATER		Analy	sis Date:	10/2	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1112	21	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	ND		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	94%	İ
			į

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008554	554						Ж	Report Date:	: 11/01/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE				The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008554-05 Field ID: SVL-12 Received: 10/10/2019	67	Sampling Samplin Samplin	ם מ		SHELBYVILLE LAKE 10/10/2019 1245			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Nitrate as Nitrogen Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 0.0190 0.00800 0.00800 4.0 4.0	0.0300 0.0200 0.0100 4.00 4.00		0.0346 0.446 0.30 0.159 28.8 ND 4.5	MG/L MG/L MG/L MG/L MG/L MG/L	NONE NONE 365.2 NONE NONE NONE NONE	350.1 GREEN 365.2 365.2 160.2 160.4	NA NA 10/28/19 NA NA NA NA	10/15/19 10234993 10/15/19 10245003 10/29/19 10315018 10/11/19 10234991 10/16/19 10234994 10/16/19 10234995	10234993 10245003 10315018 10234994 10234995 10234995

(a) DOD and/or NELAC Accredited Analyte.

Sample 008554-05, Inorganic Analyses

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	Fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-13		ARDL I	Lab No.:	00855	54-06	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	llename:	E1025	923	
Sample Date:	10/10/2019		Receiv	red Date:	10/10	/2019	
Sample Time:	1155		Prep.	Date:	10/14	1/2019	
Matrix:	WATER		Analys	sis Date:	10/25	5/2019	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1112	21	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.578		UG/L	. 1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	ND		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	66%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008554	554						<b>Y</b> ,	Report Date:	:: 11/01/2019	019
Project Name: SHELBYVILLE LAKE Project No:	LLE LAKE						Z	Analysis: ELAC Certifie	Analysis: Inorganics NELAC Certified - IL100308	ics 00308
ARDL No: 008554-06 Field ID: SVL-13 Received: 10/10/2019	19	Sampling Sampling Sampling	ampling Loc'n: Sampling Date: Sampling Time:		SHELBYVILLE LAKE 10/10/2019 1155			Matrix: Moisture:	MATER NA	
Analyte	TOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 0.0190 0.00800 0.00800 10.0 10.0	0.0300 0.0200 0.0100 10.0 1.00		ND ND 0.498 0.123 72.0 18.0	MG/L MG/L MG/L MG/L MG/L MG/L	NONE NONE 365.2 NONE NONE NONE	350.1 GREEN 365.2 365.2 160.2 160.4	NA NA 10/28/19 NA NA NA	10/15/19 10234993 10/15/19 10245003 10/29/19 10315018 10/11/19 10234991 10/16/19 10234994 10/16/19 10234995	10234993 10245003 10315018 10234991 10234995 TA462384

(a) DOD and/or NELAC Accredited Analyte.

Sample 008554-06, Inorganic Analyses

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICIO	DES (827	OSIM-MO	D)
Project No.:	Ana	alytical M	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-11		ARDL I	Lab No.:	00855	54-07	
Desc/Location:	SHELBYVILLE LAKE		Lab Fi	llename:	E1025	924	
Sample Date:	10/10/2019		Recei	red Date:	10/10	/2019	
Sample Time:	1135		Prep.	Date:	10/14	1/2019	
Matrix:	WATER		Analys	sis Date:	10/25	5/2019	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1112	21	
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	1.09		UG/L	1
Metribuzin		0.222	0.222	ND		UG/L	1
Alachlor		0.222	0.222	ND		UG/L	1
Metolachlor		0.222	0.222	0.811		UG/L	1
Chlorpyrifos		0.222	0.222	ND		UG/L	1
Cyanazine		0.222	0.222	ND		UG/L	1
Pendimethalin		0.222	0.222	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	ļ
Triphenylphosphate	30-130	79%	
			- 1

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Project Name: SHELBYVILLE LAKE Project No:	LE LAKE						z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	10308 10308
ARDL No: 008554-07		Sampl	Sampling Loc'n:		SHELBYVILLE LAKE			Matrix:	: WATER	
Field ID: SVL-11		Samp	Sampling Date:		10/10/2019			Moisture:	: NA	
Received: 10/10/2019	6	Samp	Sampling Time:	me: 1135						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	COT	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.0200	0.0300		QN	MG/L	NONE	350.1	NA	10/15/19 10234993	10234993
Chlorophyll-a, Correcte	1.0	1.00		72.6	MG/CU.M.	10200H	10200H	10/11/19	10/28/19	10315019
Nitrate as Nitrogen	0.0190	0.0200		0.223	MG/L	NONE	GREEN	NA	10/15/19	10245003
Pheophytin-a	1.0	1.00		14.4	MG/CU.M.	10200H	10200H	10/11/19	10/28/19	10315019
Phosphorus	0.00800	0.0100		0.153	MG/I	365.2	365.2	10/28/19	10/29/19	10315018
Phosphorus, -ortho	0.00800	0.0100		0.0219	MG/I	NONE	365.2	NA	10/11/19	10234991
Solids, Total Suspended	4.0	4.00		17.2	MG/I	NONE	160.2	NA	10/16/19	10234994
Solids, Volatile Suspen	4.0	4.00		6.4	MG/L	NONE	160.4	NA	10/16/19	10234995
Total Organic Carbon	005	1		4	MG/T.	MONE	415 1	NA	10/21/19	TA462603

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008554 Report Date: 10/29/2019

Project Name:	SHELBYVILLE LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:	An	alytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	SVL-15		ARDL 1	Lab No.:	00855	4-08	· · · · · · · · · · · · · · · · · · ·
Desc/Location:	SHELBYVILLE LAKE		Lab F	ilename:	E1025	925	
Sample Date:	10/10/2019		Recei	ved Date:	10/10	/2019	
Sample Time:	1200		Prep.	Date:	10/14	1/2019	
Matrix:	WATER		Analys	sis Date:	10/25	5/2019	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1112	21	
% Moisture:	NA		Level	:	LOW		
			Mariantala		Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.550		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	0.210		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	84%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Report Date: 11/01/2019	Analysis: Inorganics NELAC Certified - IL100308	SHELBYVILLE LAKE Matrix: WATER 10/10/2019 Moisture: NA 1200	Prep Analysis Prep Analysis Run Units Method Method Date Date Number	MG/L         NONE         350.1         NA         10/15/19         10234993           MG/CU.M.         10200H         10/11/19         10/28/19         10315019           MG/L         NONE         GREEN         NA         10/15/19         10315019           MG/L         NONE         10200H         10/11/19         10/28/19         10245003           MG/L         365.2         365.2         10/28/19         10/29/19         10315018           MG/L         NONE         365.2         NA         10/11/19         10234991           MG/L         NONE         160.2         NA         10/16/19         10234994           MG/L         NONE         160.4         NA         10/16/19         10234995           MG/L         NONE         415.1         NA         10/21/19         1A462603
			Result	0.0349 95.3 ND 24.4 0.399 0.11 47.3
		Sampling Loc'n: Sampling Date: Sampling Time:	LOQ Flag	0.0300 1.00 0.0200 1.00 0.0100 6.67 6.67
554	LE LAKE	ر ون	LOD	0.0200 1.0 0.0190 1.0 0.00800 0.00800 6.67 6.67
Lab Report No: 008554	Project Name: SHELBYVILLE LAKE Project No:	ARDL No: 008554-08 Field ID: SVL-15 Received: 10/10/2019	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus, -ortho Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Analysis: Sampling Loc'n: SHELBYVILLE LAKE   Sampling Date: 10/10/2019   Matrix: Sampling Date: 10/10/2019   Moisture: Sampling Time: 0930   Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis Prep Analysis	Lab Report No: 008554	3554						ц	Report Date:	: 11/01/2019	019
Sampling Loc'n: SHELBYVILLE LAKE  Sampling Date: 10/10/2019  Prep Analysis Prep  LOD LOQ Flag Result Units Method Method Date  0.0200 0.0300 ND MG/L NONE 350.1 NA  1.0 1.00 12.7 MG/CU.M. 10200H 10/11/19  0.0200 0.0200 ND MG/L NONE GREEN NA  0.0200 0.0200 ND MG/L NONE 10200H 10/11/19  0.0200 0.0200 ND MG/L NONE 354.1 NA  1.0 1.00 1.3 MG/L NONE 365.2 10/28/19  0.00800 0.0100 0.0219 MG/L NONE 160.2 NA  2.0 2.00 2.00 2.00 2.00 2.00 2.00 2.00		ILLE LAKE						4	Analysis	: Inorganics fied - IL1003	ics 00308
LOD LOQ Flag Result Units Method Method Date  0.0200 0.0300 ND MG/L NONE 350.1 NA  1.0 1.00 12.7 MG/CU.M. 10200H 10/11/19  0.0200 0.0200 1.54 MG/L NONE GREEN NA  0.0200 0.0200 1.3 MG/L NONE 354.1 NA  1.0 1.00 1.3 MG/L NONE 354.1 NA  0.00800 0.0100 0.0923 MG/L NONE 365.2 10/28/19  0.00800 0.0100 0.0219 MG/L NONE 160.2 NA  2.0 2.00 2.00 2.8 MG/L NONE 160.4 NA  0.500 1.00 3.3 MG/L NONE 160.4 NA		)19	Sampl Samp	ing Loc ling Da					Matrix Moisture		
0.0200 0.0300 ND MG/L NONE 350.1 NA 1.0 12.7 MG/CU.M. 10200H 10200H 10/11/19 0.0200 0.0200 1.54 MG/L NONE GREEN NA 1.0 1.00 1.3 MG/L NONE 354.1 NA 0.00800 0.0100 0.0923 MG/L 365.2 365.2 10/28/19 0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 1.7.8 MG/L NONE 160.2 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00 0.500 1.00	Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
1.0 1.00 12.7 MG/CU.M. 10200H 10200H 10/11/19 0.0190 0.0200 1.54 MG/L NONE GREEN NA 0.0200 0.0200 ND MG/L NONE 354.1 NA 1.0 1.00 1.3 MG/L 10200H 10/11/19 0.00800 0.0100 0.0923 MG/L 365.2 365.2 10/28/19 0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.00 2.8 MG/L NONE 160.4 NA 0.50 1.00 3.3 MG/L NONE 160.4 NA	Ammonia Nitrogen	0.0200	0.0300		ND	MG/L	NONE	350.1	NA	10/15/19	10234993
0.0190 0.0200 1.54 MG/L NONE GREEN NA 0.0200 0.0200 ND MG/L NONE 354.1 NA 1.0 1.00 1.3 MG/L 10200H 10/11/19 0.00800 0.0100 0.0923 MG/L 365.2 365.2 10/28/19 0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA	Chlorophyll-a, Correcte		1.00		12.7	MG/CU.M.	10200H	10200H	10/11/19	10/28/19	10315019
0.0200 0.0200 ND MG/L NONE 354.1 NA 1.0 1.00 1.3 MG/CU.M. 10200H 10/11/19 0.00800 0.0100 0.0923 MG/L 365.2 365.2 10/28/19 0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 160.4 NA	Nitrate as Nitrogen		0.0200		1.54	MG/L	NONE	GREEN	NA	10/15/19	10245003
1.0 1.00 1.3 MG/CU.M. 10200H 10200H 10/11/19 0.00800 0.0100 0.0923 MG/L 365.2 365.2 10/28/19 0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 415.1 NA	Nitrite as Nitrogen	0.0200	0.0200		ND	MG/L	NONE	354.1	NA	10/11/19	10244999
0.00800 0.0100 0.0923 MG/L 365.2 10/28/19 0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 415.1 NA	Pheophytin-a	1.0	1.00		1.3	MG/CU.M.	10200H	10200H	10/11/19	10/28/19	10315019
0.00800 0.0100 0.0219 MG/L NONE 365.2 NA 2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 415.1 NA	Phosphorus	0.00800	0.0100		0.0923	MG/L	365.2	365.2	10/28/19	10/29/19	10315018
2.0 2.00 17.8 MG/L NONE 160.2 NA 2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/L NONE 415.1 NA	Phosphorus, -ortho	0.00800	0.0100		0.0219	MG/L	NONE	365.2	NA	10/11/19	10234991
2.0 2.00 2.8 MG/L NONE 160.4 NA 0.500 1.00 3.3 MG/T NONE 415.1 NA	Solids, Total Suspended		2.00		17.8	MG/L	NONE	160.2	NA	10/16/19	10234994
0 500 1 00 3 3 MG/T. NONE 415 1 NA	Solids, Volatile Suspen		2.00		2.8	MG/L	NONE	160.4	NA	10/16/19	10234995
1.011 1.011	Total Organic Carbon	0.500	1.00		3.3	MG/L	NONE	415.1	NA	10/21/19	TA462603

(a) DOD and/or NELAC Accredited Analyte.

Sample 008554-09, Inorganic Analyses

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report	Lab Report No: 008554	54						Re	sport Date	Report Date: 11/01/2019	019
Project Name: Project No:	SHELBYVILLE LAKE	E LAKE						NE	Analysis LLAC Certi	Analysis: Inorganics NELAC Certified - IL100308	ics 00308
ARDL No: Field ID: Received:	ARDL No: 008554-10 ield ID: LS MARINA eceived: 10/10/2019		Sampling Samplin Samplin	0, 0,	'n: SHELF te: 10/10 me: 1140	Loc'n: SHELBYVILLE LAKE J Date: 10/10/2019 J Time: 1140			Matrix: Moisture:	Matrix: WATER	
Analyte	te	TOD	TOO	Flag	Result	Units	Prep	Prep Analysis Lethod Method	Prep	Analysis Date	Run Number
E. Coliform		1.0	1.00		17.0	COL/100 ML	NONE	1604	NA	10/10/19 10154968	10154968

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

	Lab Report No: 008554						Re	port Date:	Report Date: 11/01/2019	19
Project Name: S Project No:	SHELBYVILLE LAKE	KE					NE	Analysis: Inorganics NELAC Certified - IL100308	Analysis: Inorganics AC Certified - IL1003	cs 0308
ARDL No: 008554-11 Field ID: FIN MARIN Received: 10/10/201	008554-11 FIN MARINA 10/10/2019	Sar	ampling Loc'n: Sampling Date: Sampling Time:	o'n: SHELH ate: 10/10	Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 10/10/2019 Sampling Time: 1217			Matrix: Moisture:	Matrix: WATER isture: NA	
Analyte	LOD	TOO	Flag	Flag Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
E. Coliform	1.0	1.0	A Service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the serv	97.0	COL/100 ML NONE	NONE	1604	NA	10/10/19 10154968	0154968

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

01/2019	rganics IL100308	ER.	sis Run e Number	10/10/19 10154968
:: 11/(	fied -	Matrix: WATER	Analysis Date	10/10/
Report Date: 11/01/2019	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA
ŭ	Z		Prep Analysis Method Method	1604
			Prep Method	NONE
		Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 10/10/2019 Sampling Time: 1319	Units	COL/100 ML NONE
		n: SHELL e: 10/10 e: 1319	Result	202
		ampling Loc'n: Sampling Date: Sampling Time:	Flag Result	
		Samp Sam Sam	TOO	1.0
008554	SHELBYVILLE LAKE	008554-12 SUL MARINA 10/10/2019	ГОР	1.0
Lab Report No: 008554	Project Name: SHE Project No:	ARDL No: 008554-12 Field ID: SUL MARIN Received: 10/10/201	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

19	cs 0308		Run Number	0154969
11/01/20	Analysis: Inorganics AC Certified - IL1003	WATER NA	Analysis Date	10/10/19 10154969
Report Date: 11/01/2019	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA	Prep Date	NA
Rei	NEJ		Analysis Method	9222D
			Prep Analysi: Method Method	NONE
		Sampling Loc'n: SHELBYVILLE LAKE Sampling Date: 10/10/2019 Sampling Time: 1315	Units	COL/100 ML
		SHELL 10/10 1315	esult	75000
		ampling Loc'n: Sampling Date: Sampling Time:	Flag Result	
		Samp Samp Samp	TOO	1.00
554	LLE LAKE	3	гор	1.0
No: 008	SHELBYVI	008554-1 ASA/WWTP 10/10/20	Φ	
Lab Report No: 008554	Project Name: SHELBYVILLE LAKE Project No:	ARDL No: 008554-13 Field ID: ASA/WWTP Received: 10/10/2019	Analyte	Fecal Coliform

(a) DOD and/or NELAC Accredited Analyte.

# METHOD BLANK REPORT ARDL, Inc. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864

Lab Report No: 008554 Report Date: 10/29/2019

Project No.:	SHELBYVILLE LAK	Analytical Meth		CICIDES (8:	270SIM-M	OD)
NELAC Certi	fied - IL100308	Prep Meth	nod: 3510C			
Field ID:	NA		ARDL Lab No	008	554-01B1	
Desc/Location:	NA		Lab Filenam	ne: E10:	25915	
Sample Date:	NA		Received Da	ite: NA		
Sample Time:	NA		Prep. Date:	10/	14/2019	
Matrix:	QC Material		Analysis Da	te: 10/	25/2019	
Amount Used:	1000 mL		Instrument	ID: AG5		
Final Volume:	1 mL		QC Batch:	B11:	121	
% Moisture:	NA		Level:	LOW		
					Data	
Parameter		LOD	LOQ	Result	Flag	Units
Trifluralin		0.200	0.200	ND		UG/L
Atrazine		0.200	0.200	ND		UG/L
Metribuzin		0.200	0.200	ND		UG/L
Alachlor		0.200	0.200	ND		UG/L
Metolachlor		0.200	0.200	ND		UG/L
Chlorpyrifos		0.200	0.200	ND		UG/L
Cyanazine		0.200	0.200	ND		UG/L
Pendimethalin		0.200	0.200	ND		UG/L
SURROGATE RECOV	ERIES:	Limit	S	Re	esults	
Triphenylphosph	ate	30-130			90%	

Surrogate recoveries marked with '\*' indicates they are outside standard limits.

<sup>(</sup>a) DOD-QSM Accredited Analyte.

Mt. Vernon, IL 400 Aviation Drive; P.O. Box 1566 BLANK SUMMARY REPORT ARDL, INC.

62864

Lab Report No: 008554	554 SHET.RV	4 SHELRWITTE LAKE	<u>بر</u>					Report Date:	1 8	201
	SHELBY	VILLE LA	KE.					NELAC	NELAC Certified	ed - 1L100308
Analyte	TOD	TOO	Blank Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
Arsenic	0.002	0.003	QN	MG/L	3010A	6010C	10/16/19	10/23/19	P7284	008546-04B1
Cadmium	0.0008	0.002	ND	MG/L	3010A	6010C	10/16/19	10/23/19	P7284	008546-04B1
Iron	0.04	0.05	NO	MG/L	3010A	6010C	10/16/19	10/23/19	P7284	008546-04B1
Lead	0.002	0.003	ND	MG/L	3010A	6010C	10/16/19	10/23/19	P7284	008546-04B1
Manganese	0.004	0.005	NO	MG/L	3010A	6010C	10/16/19	10/23/19	P7284	008546-04B1
Zinc	0.004	0.005	QN	MG/L	3010A	6010C	10/16/19	10/23/19	P7284	008546-04B1
Ammonia Nitrogen	0.020	0:030	ND	MG/L	NONE	350.1	NA	10/15/19	10234993	008554-02B1
Ammonia Nitrogen	0.020	0.030	NO	MG/L	NONE	350.1	NA	10/15/19	10234992	008554-01B1
Chlorophyll-a, Corre	1.0	1.0	NO	MG/CU.M.	10200H	10200H	10/11/19	10/28/19	10315019	008554-02B1
Coliform	1.0	1.0	ND	COL/100 ML	NONE	1604	NA	10/10/19	10154968	008554-10B1
Fecal Coliform	1.0	1.0	ND	COL/100 ML	NONE	9222D	NA	10/10/19	10154969	008554-13B1
Nitrate as Nitrogen	0.019	0.020	ND	MG/L	NONE	GREEN	NA	10/15/19	10245003	008554-03B1
Nitrite as Nitrogen	0.020	0.020	NO	MG/L	NONE	354.1	NA	10/11/19 1	10244999	008554-09B1
Pheophytin-a	1.0	1.0	NO	MG/CU.M.	10200H	10200H	10/11/19	10/28/19 1	10315019	008554-02B1
Phosphorus	0.008	0.010	ND	MG/L	365.2	365.2	10/28/19	10/29/19 1	10315018	008554-03B1
Phosphorus, -ortho	0.008	0.010	ND	MG/I	NONE	365.2	NA	10/11/19 1	10234991	008554-02B1
Solids, Total Suspen	1.0	1.0	NO	MG/L	NONE	160.2	NA	10/16/19 1	10234994	008554-03B1
Solids, Volatile Sus	1.0	1.0	NO	MG/L	NONE	160.4	NA	10/16/19 1	10234995	008554-03B1
Total Organic Carbon	0.50	1.0	ND	MG/L	NONE	415.1	NA	10/19/19	TA462384	008551-01B1
Organic Carbon	0.50	1.0	NO	MG/I	NONE	415.1	NA	10/21/19 1	TA462603	008554-07B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008554

Mt. Vernon, IL BLANK SPIKE/SPIKE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

62864

Lab Report No:	008554							Rep	ort Date	Report Date: 10/29/2019	61
Project Name: Project No.:	Project Name: SHELBYVILLE LAKE Project No.:	Ans	Analysis: NP	PESTICIDI	s: NP PESTICIDES (8270SIM-MOD)	[M-MOD)	Anal	Analytical Method: 8270C Prep Method: 3510C	ical Method: 8270C Prep Method: 3510C	70C 10C	
Matrix: Amount Used:	QC Material 1000 mL		QC Batch: Level:	E11121 LOW	121		Prep. Date: Analysis Da	Prep. Date: 10/14/2019 Analysis Date: 10/25/2019	10/14/2019 10/25/2019	19	1
		Spike	Spike	Spike	Duplicate	Duplicate	Duplicate	Recovery		RPD	1
Δ	Parameter	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit	
Tr:	Trifluralin	3.19	4	80			pas mak	30-130	1	1 1	
**	Atrazine	3.03	4	16	1	1	f	30-130	}	1	
M	Metribuzin	3.18	4	80	!	1	* *	30-130	}	1	
. 7	Alachlor	3.08	4	77	!	i i	1	30-130	;	;	
Met	Metolachlor	3.4	4	85	!	!	1	30-130	1	!	
Ch.	Chlorpyrifos	3.14	4	79	į	1	1	30-130	}	1	
ť	Cyanazine	3.74	4	94	!	1	1	30-130	1	!	
Pen	Pendimethalin	3.41	4	85	1	}	1	30-130	1	}	

SURROGATE RECOVERIES:	Spike %R	Duplicate %R	&R Limits
Triphenylphosphate	94.3	ì	30-130

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits. Spike Blanks for 008554-01, NP PESTICIDES (8270SIM-MOD)

62864 LABORATORY CONTROL SAMPLE REPORT 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL ARDL, INC.

Lab Report No: 008554	8554								Report Da	Report Date: 11/01/2019
Project Name:	SHELBYVILLE LAKE	E LAKE							NELAC Cer	NELAC Certified - IL100308
	ICS 1	LCS 1	LCS 1	LCS 2	LCS 2	LCS 2	% Rec	Mean	Analytical	QC Lab
Analyte	Result	Level	% Rec	Result	Level	% Rec	Limits	% Rec	Run	Number
(a) Iron	5.2	5.0	104	1 1	1 1	1	87-115		P7284	008551-01C1
(a) Manganese	0.80	0.75	107	;	!	}	90-114	i	P7284	008551-01C1
Ammonia Nitrogen	0.98	1.0	86	;	1	ì	80-120	;	10234992	008554-01C1
Ammonia Nitrogen	1	1.0	100	i	;	1	80-120	1	10234993	008554-02C1
Nitrate as Nitrogen	96.0	1.0	96	}	1	1	80-120	1	10245003	008554-03C1
Nitrite as Nitrogen	0.98	1.0	86	1	1	i	80-120	1	10244999	008554-09C1
Phosphorus	0.65	0.67	86	44 44	i	1	80-120	1	10315018	008554-03C1
Phosphorus, -ortho	0.097	0.10	26	ł	;	1	80-120	1	10234991	008554-02C1
Total Organic Carbon	6.6	10.0	26	;	;	1	76-120	1	TA462384	008551-01C1
Total Organic Carbon	9.6	10.0	96	!	1	1	76-120	1	TA462603	008554-07C1

NOTE: Any values tabulated above marked with an asterisk are outside of acceptable limits.

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte

		Report Date: 10/29/2019
	n, IL 62864	Date:
	ΙΓ	Report
	Mt. Vernon,	щ
	Mt.	
MATRIX SPIKE/SPIKE DUPLICATE REPORT	400 Aviation Drive; P.O. Box 1566	
	INC.	
	ARDI,	008554
		Lab Report No:

Project Name: SHELBYVILLE LAKE Project No.:	LAKE	Analys	sis: NP	PESTI	CIDES (82	PESTICIDES (8270SIM-MOD)		Analytic Pr	Analytical Method: 8270C Prep Method: 3510C	1: 8270C 1: 3510C	
Field ID: SVL-1 Desc/Location: SHELBYVILLE LAKE	I LAKE	E E	Prep. Date: Amount Used:		10/14/2019 1000 mL	0	L. J.	ARDL Lab No.: Lab Filename:	1	008554-01	
		УОН	e moiseur QC Batch: Level:	V	nA B11121 LOW		Al	alysis D		5/2019	
	Sample		MS	MS	MS	MSD	MSD	MSD	% Rec		RPD
Parameter	Result		Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin	ON	3.	.07	4	76.8	3.29	4	82.3	30-130	6.9	30
Atrazine	1.51	4,	.43	4	73	4.67	4	79	30-130	5.3	30
Metribuzin	QN	Ŕ	.16	4	79	3.32	4	83	30-130	4.9	30
Alachlor	ND	2.	66.	4	74.8	3.04	4	97	30-130	1.7	30
Metolachlor	1.89	Ś	.18	4	82.3	5.23	4	83.5	30-130	н	30
Chlorpyrifos	ON	2.	.87	4	71.8	3.03	4	75.8	30-130	5.4	30
Cyanazine	QN	ж Э	.57	4	89.3	3.78	4	94.5	30-130	5.7	30
Pendimethalin	ON	'n	3.16	4,	79	3.38	4	84.5	30-130	6.7	30

SURROGATE RECOVERIES:	MS &R	MSD %R	%R Limits
Triphenylphosphate	91	94	30-130

<sup>&#</sup>x27;\*' indicates a recovery outside of standard limits.

62864 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL MATRIX SPIKE/SPIKE DUPLICATE REPORT ARDL, INC.

Lab Report No: 008554	No: 0085	54								Repor	t Date	Report Date: 11/01/2019	1/2019
Project Name:	le:	SHELBYVILLE LAKE	LE LAKE								NELAC	Certifi	NELAC Certified - IL100308
								The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon					
	Sample	Sample	WS	MS	WS	MSD	MSD	MSD	% Rec		RPD		QC Lab
Analyte	Matrix	Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit	Run	Number
(a) Iron	WATER	0.50	1.5	1.0	101	1.5	1.0	101	87-115	0	20	P7284	008554-01MS
(a) Manganese	WATER	0.72	1.2	0.50	100	1.2	0.50	86	90-114	1	20	P7284	008554-01MS
Ammonia Nitrogen	WATER	1.3	3.3	2.0	100	3.3	2.0	101	75-125	1	20	10234992	008554-01MS
Nitrate as Nitrogen	WATER	0.46	1.3	1.0	83	1.3	1.0	88	75-125	4	20	10245003	008554-03MS
Phosphorus	WATER	0.058	68.0	0.83	100	0.91	0.83	103	75-125	7	20	10315018	008554-03MS
Phosphorus, -ortho	WATER	0.014	0.12	0.10	106	0.11	0.10	86	75-125	7	20	10234991	008554-02MS

NOTE: Values tabulated above marked with an asterisk are explained in the associated narrative.

<sup>(</sup>a) DOD and/or NELAC Accredited Analyte.

62864 Mt. Vernon, IL SAMPLE DUPLICATE REPORT 400 Aviation Drive; P.O. Box 1566 ARDL, INC.

Lab Report No: 008554	1554						Report Date: 11/01/2019	11/01/2019	
Project Name: SHE	SHELBYVILLE LAKE	AKE					NELAC Certifi	NELAC Certified - IL100308	ı
Analyte	Sample Conc'n	Sample First Conc'n Duplicate	Second Duplicate	Units	Percent Diff	Mean (Smp, D1, D2)	Analytical Run	QC Lab Number	
Chlorophyll-a, Corrected	d 25.4	27.2	1	MG/CU.M.	7		10315019	008554-02D1	1
Pheophytin-a	4.4	3.9	!	MG/CU.M.	12	!	10315019	008554-02D1	
Solids, Total Suspended	57.6	60.4	1	MG/L	5	;	10234994	008554-03D1	
Solids, Volatile Suspend	id 6.4	7.2	1	MG/L	12	1	10234995	008554-03D1	

(a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008554



# Sample Receipt Information

Including as appropriate:

- COCs
- Cooler Receipts
- Airbills
- Email Communication / Instructions from Customer

ARDL Data Package 8554

**ARDL**, Inc. P.O. Box 1566, 400 Aviation Drive, Mt. Vernon, IL 62864 (618) 244-3235 Phone (618) 244-1149 Fax

**CHAIN OF CUSTODY RECORD** 

Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   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	1	, 5	, 5	X
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PURCHASE ORDER NO:

# COOLER RECEIPT REPORT ARDL, INC.

ARE	DL#: 8554	Coo	ler# 1 0A Z			
		Nun	ler# <u>/ ルピス</u> nber of Coolers in Sh	ipment: 🔏		
	ect: Shelby Ville LAKE		e Received: 10 -/			•
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 10 -10	-19	(Signature)	Lachree,	n	
	Did cooler come with a shipping slip (airbill, etc.)?					
	If YES, enter carrier name and airbill number here:			Causeir	)	
2.	Were custody seals on outside of cooler?					N/A
	How many and where?,Seal Date:_		,Seal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?				NO (	(NA)
4.	Did you screen samples for radioactivity using a Geiger Counter?				NO	
5.	Were custody papers sealed in a plastic bag?			YES	NO	
6.	Were custody papers filled out properly (ink, signed, etc.)?			¥ES	NO	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?			YES	NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name at t	he top	of this form	(.YES)	NO	N/A
9.	Was a separate container provided for measuring temperature? YES	.NO_	✓ Observed Cooler To	emp. 1.6	2.0	С
В.	LOG-IN PHASE: Date samples were logged-in: 10-11-19 (S	Signat	ure) <u>SLack</u>	kum		
10.	Describe type of packing in cooler: <u>lorase</u> ice					
11.	Were all samples sealed in separate plastic bags?			YES	NO	N/A
12.	Did all containers arrive unbroken and were labels in good condition?				NO	
13.	Were sample labels complete?			YES	NO	
14.	Did all sample labels agree with custody papers?			(ES)	NO	
15.	Were correct containers used for the tests indicated?			ÝES	NO	
16.	Was pH correct on preserved water samples?	•••••		VES	NO	N/A
17.	Was a sufficient amount of sample sent for tests indicated?				NO	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	•		YES	NO	(N/A
19.	Was the ARDL project coordinator notified of any deficiencies?	•••••		YES	NO (	N/A
	Comments and/or Corrective Action:			le Transfer		
			Fraction	Fraction		ı
<u> </u>			Area #	Area #		
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			le sellein By Ale	Ву		
			On	On		
			10-11-19 .			•
			Chain-of-Custody	# ///	, .	
(B	y: Signature) Date:					

# COOLER RECEIPT REPORT ARDL, INC.

ARI	DL#: <i>\gamma\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\delta\de</i>	Coc	oler# 2 of 2 nber of Coolers in St			
						_
Pro	ect: Shelby Ville Lake		e Received: 10 -			•
Α.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 10-	0-1	9(Signature)	achreen	<u> </u>	
1,	Did cooler come with a shipping slip (airbill, etc.)?					
	If YES, enter carrier name and airbill number here:			necres		
2.	Were custody seals on outside of cooler?			YES	NO	N/A
	How many and where?,Seal Date:		,Seal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?			YES	NO	(NA)
4.	Did you screen samples for radioactivity using a Geiger Counter?			¥ES	NO	
5.	Were custody papers sealed in a plastic bag?			YES	NO	
6.	Were custody papers filled out properly (ink, signed, etc.)?			YES	NO	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?			(YES	NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name at	the top	of this form	(YES)	NO	N/A
9.	Was a separate container provided for measuring temperature? YES	_ NO_	Observed Cooler T	emp. O, 7		С
В.	LOG-IN PHASE: Date samples were logged-in: 10-11-19	(Signat	ure) Mack	eim		
10.	LOG-IN PHASE: Date samples were logged-in: 10-11-19  Describe type of packing in cooler: 10-11-19			· · · · · · · · · · · · · · · · · · ·		
11.	Were all samples sealed in separate plastic bags?					) N/A
12.	Did all containers arrive unbroken and were labels in good condition?			YÉS	NO	
13.	Were sample labels complete?			YES	NO	
14.	Did all sample labels agree with custody papers?			YES	NO	
15.	Were correct containers used for the tests indicated?			YES	NO	
16.	Was pH correct on preserved water samples?			YES	ON <sup>(</sup>	N/A
17.	Was a sufficient amount of sample sent for tests indicated?			¥ES	NO	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:			YES	NO	N/A
19.	Was the ARDL project coordinator notified of any deficiencies?			YES	NO	(N/A
Comments and/or Corrective Action:				le Transfer		
			Fraction	Fraction		1
-			Area #	Area #		
	•		Walkin			
			By	Ву		
			On	On		
			On 10-11-19			-
			Chain-of-Custody	# 1/14		
/F	ly: Signature) Date:		Chain-or-Custody	<i>π</i> / / / / / / / / / / / / / / / / / / /		
	j. Oignacio)	I				