

2021 Water Quality Report

U.S. Army Corps of Engineers Saint Louis District

Rend Lake Water Quality Conditions: 1971-2021



May 2023

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Prepared for

United States Army Corps of Engineers Saint Louis District 1222 Spruce Street Saint Louis, MO 63103-2833

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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, 2020) has listed Rend Lake impaired for fish consumption caused by mercury. The Big Muddy River (including Rayse Creek) upstream of Rend Lake is impaired for oil, mercury, dissolved oxygen, pH, and fecal coliform. The other main tributary, Casey Fork, is impaired for oil, total suspended solids, and PCBs. The smaller tributaries, Gun Creek and Atchison Creek, are impaired for dissolved oxygen. Immediately downstream of Rend Lake, the Big Muddy River is impaired for aquatic life and fish consumption caused by sedimentation/siltation, mercury, PCBs, Aldrin, Dieldrin, Endrin, Heptachlor, Mirex, and Toxaphene.

Water quality sampling in 2021 revealed the following concerns at Rend Lake: dissolved oxygen, temperature, Atrazine, chlorophyll, manganese, phosphorus, and bacteria.

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INTRODUCTION

The Big Muddy River Watershed is located in Southern Illinois and encompasses a drainage area of approximately 2,390 square miles within the following counties: Franklin, Jackson, Jefferson, Marion, Perry, Union Washington, and Williamson. The Big Muddy River originates in Jefferson County, southeast of Centralia, Illinois and flows southward for approximately 156 miles, where it joins the Mississippi River, just south of Grand Tower, Illinois in Jackson County. Major tributaries of the Big Muddy River include: Beaucoup Creek, Little Muddy River, Casey Creek, Middle Fork of the Big Muddy, and Crab Orchard Creek. Lakes and reservoirs within the Big Muddy River Watershed include: Kinkaid Lake, Rend Lake, Crab Orchard Lake, Devil's Kitchen Lake, Little Grassy Lake, and Cedar Lake.

The Rend Lake Watershed is located in south-central Illinois. It flows generally in a southerly direction and drains approximately 311,000 acres, located in the following four counties: Jefferson, Franklin, Washington, and Marion. Elevation within the watershed ranges from 642.0 feet NGVD (National Geodetic Vertical Datum) in the northern portion of the watershed to 396.0 feet NGVD at the outfall of the Rend Lake dam at the southern extent of the watershed. Approximately 37,400 people reside within the Rend Lake Watershed and the average precipitation is approximately 41.1 inches per year. Land cover data for the watershed indicate the largest percentage of area is used for crop production (35%). Approximately 27% of the watershed area is forest and 20% of the watershed is pasture.

Rend Lake is located in Franklin and Jefferson counties, about three miles northwest of Benton, Illinois. The dam is located on the Big Muddy River, 103.7 miles upstream from its confluence with the Mississippi River. The Rend Lake project is comprised of 40,840 acres of land and water. The lake has a water surface area of 20,633 acres at the normal operating pool elevation of 405.0 feet NGVD. At this pool elevation the lake shoreline is approximately 162 miles; and extends upstream from the dam approximately 13 miles. Roughly 10 miles above the main dam are two sub-impoundment dams: one on the Big Muddy River and the other on the Casey Fork River. These sub-impoundments are used for regulating water levels for fish and wildlife management activities. The lake width varies from 1.5 to 3 miles. The depth is fairly shallow, with a maximum depth of about 35 feet near the main dam, when the pool elevation is at 405.0 feet NGVD. The Rend Lake project contains 53 recreation areas, with 756 campsites, 104 picnic sites, 30 boat ramps, 235 marina slips and over 34 miles of trails. Each year, on average, over two-million people visit the lake, which annually generates nearly \$35 million in visitor spending within 30-miles of the project.

There is virtually no municipal or industrial use of groundwater in the area because of the abundant water supply provided by Rend Lake, which serves as the major municipal water supply for approximately 300,000 residents of Southern Illinois. This water supply system is managed by the Rend Lake Conservancy District (RLCD), which is the largest public water supply system (1,800 square miles) in the State of Illinois and draws nearly

13 million gallons of water per day from Rend Lake. Also, the lake provides industrial water supply for a coal mine in the area, which is managed by Adena Resources.

Rend Lake is managed and operated by the CEMVS for the authorized purposes of flood risk management, water supply, water quality, fish and wildlife conservation, recreation, and area redevelopment. The lake serves as a heavy recreational usage lake. The land surrounding the lake is used predominately for agriculture. Agricultural runoff and municipal wastewater treatment facilities are the primary potential source of pollution into the Rend Lake 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 Big Muddy River and Rend Lake. 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 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 Big Muddy River and Rend Lake. 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.
- 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 Rend Lake. The report describes conditions observed in 2021, as well as baseline data collected from 1971-2019. Additional historical data are available upon request.

REND LAKE WQMP COVERAGE

The WQMP for Rend Lake includes water samples taken at the following locations: major tributaries (REN-7 and REN-5), main body of the lake (REN-2, REN-3, REN-4, REN-8, and Rend Marina), and just downstream of the dam (REN-1). See figures 1 and 2, and Table 1 for a site map and site coordinates.

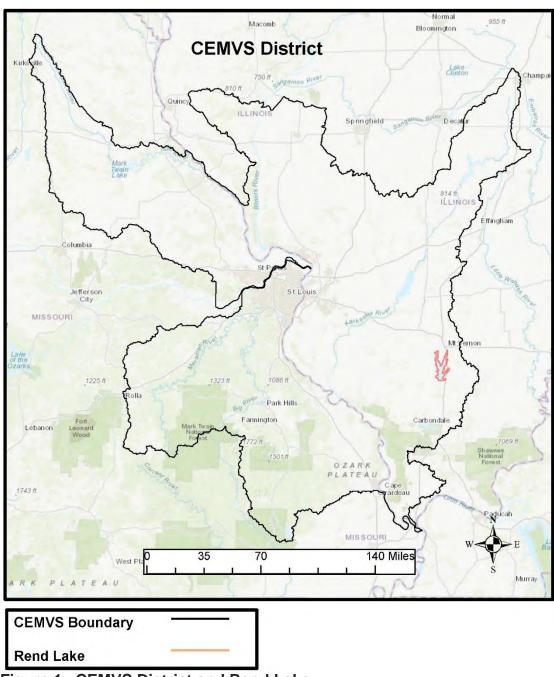


Figure 1. CEMVS District and Rend Lake

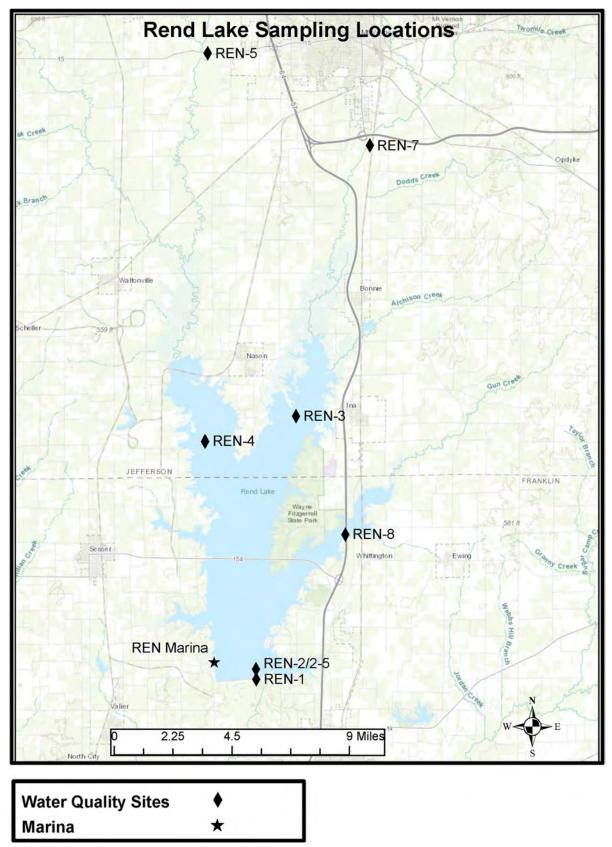


Figure 2. Water Quality (WQ) Sampling Locations at Rend Lake

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	REN-5	38.309795	-88.988575
	TRIB	REN-7	38.2695630	-88.8987040
Main Reservoir Surface	RS	REN-2	38.039294	-88.961891
	RS	REN-3	38.1517450	-88.9395220
	RS	REN-4	38.1407880	-88.9899850
	RS	REN-8	38.1002570	-88.9123030
	RS	REN-MAR	38.044727	-88.985267
Reservoir Benthic	RB	REN-2-5	38.039294	-88.961891
Tail Race (below dam)	TR	REN-1	38.0369550	-88.9615650

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

METHODS AND ANALYSIS: WATER QUALITY

Data Collection and Historical Reference Data

During 2021, water quality samples were collected and analyzed for 9 locations during four separate sampling events (n=36; Table 1). One duplicate sample was also collected during each sampling event for quality control purposes. With the exception of the benthic sample location REN 2-5 in front of the dam, 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 years ranging as far back as 1971 (parameter dependent) at Rend Lake. Historical reference data are intended to represent the current condition of Rend Lake.

Statistical Summary and Comparison to Applicable Water Quality Standards

Statistical analyses for 2020 data were performed on water quality monitoring data collected for 9 locations, and classified as TRIB (n= 2), RS (n=5), RB (n=1), and TR (n=1). For comparison, statistical analyses were also performed on historical water quality monitoring data and, although some sampling locations have been removed, they were classified in the same manner. Descriptive statistics were calculated to describe central tendencies and boxplots created to illustrate comparisons between groups. 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 Rend Lake has 9 samples and one duplicate).

Internal checks are also used for field sampling. These include 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.

Dissolved Oxygen (DO) refers to the measurement of free oxygen molecules (O₂) that are not bonded to any other elements; thus, oxygen bonded in water (H₂O) 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 (CO₂ + H₂O = (CH₂O) + O₂) 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

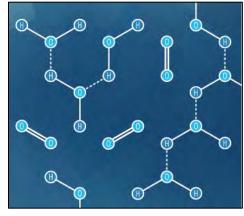


Figure 1: Dissolved oxygen (O_2) vs oxygen bonded in water (H_2O) .

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 $\geq 5 \text{mg/L}$.

<u>Potential of Hydrogen (pH)</u> 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 invertebrates begin 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 μ 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. The Illinois Environmental Protection Agency suggests that generally NVSS above 15 mg/L could highly impair recreational lake use while NVSS of 3 to 7 mh/L may cause slight impairment (Hudson, 1998). Illinois does not currently have a standard criteria for TSS, NVSS or VSS.

Total Organic Carbon (TOC) 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.

Pesticides are commonly used throughout much of the agricultural landscape that the Big Muddy 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).

<u>Total Phosphorus (TP)</u> 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 (algal 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 (PO₄-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))
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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
40-50	Mesotrophic
50-70	Eutrophic
70-100	Hypereutrophic

Laboratory Methods and Water Quality Criteria Summary Table

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

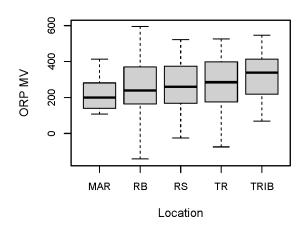
<u>Metric</u>	Abbreviation	Analysis Method	Water Quality Criteria	Source
Alachlor		EPA Method 8270C	< 2μg/L PWS or <1100 μg/L: aquatic life	Illinois EPA
Ammonia Nitrogen	NH ₃	EPA Method 350.1	<15 mg/L	Illinois EPA
Atrazine	Atrazine	EPA Method 8270C	9 μg/L: Chronic or 82 μg/L: Acute or 3 μg/L DWS	Illinois 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	< 25 mg/cm³ (Eutrophic Upper Limit)	Carlson 1977
Chlorpyrifos		EPA Method 8270C	< 0.11 μg/L: aquatic life	Illinois EPA
Cyanazine		EPA Method 8270C	< 30 μg/L: chronic or < 370 μg/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 μg/L: Chronic or 380 μg/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 ₃	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 μg/L: chronic or < 350 μg/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 μS/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

<u>Metric</u>	Abbreviation	Analysis Method	Water Quality Criteria	<u>Source</u>
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		
Trifluralin		EPA Method 8270C	< 1.1 μg/L: chronic or < 26 μg/L acute (aquatic life)	Illinois EPA
Turbidity	Turb	Multiparameter Meter		
Volatile Suspended Solids	VSS	EPA Method 160.4		

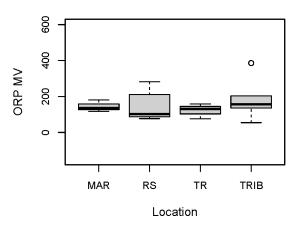
^{*1} mg/L is equivalent to 1 drop in two bathtubs and 1 ug/L is equivalent to 1 drop in an Olympic size swimming pool. PWS is public water supply. DWS is drinking water standard.

RESULTS AND SUMMARY STATISTICS: WATER QUALITY

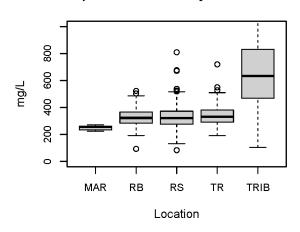
Oxidation Reduction Potential: 1986-2020



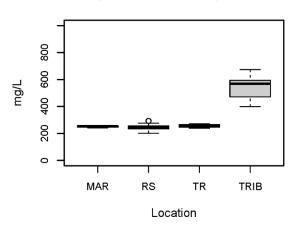
Oxidation Reduction Potential: 2021



Specific Conductivity: 1974-2020

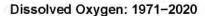


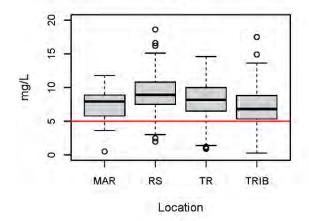
Specific Conductivity: 2021



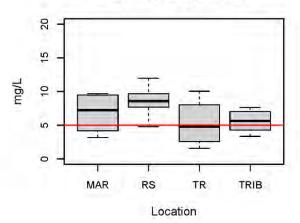
	Historical Re	eference 197	<u> 4-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
ORP	MAR	214.41	199.60	10	144.93	136.20	3
	RB	259.05	239.50	120			
	RS	262.10	259.20	458	144.69	102.55	12
	TR	277.88	285.00	129	121.50	130.60	3
	TRIB	315.59	339.00	194	182.03	156.35	6
SpCond	MAR	251.11	256.45	10	251.68	252.55	4
	RB	324.38	322.50	178			
	RS	327.73	322.00	760	246.62	244.80	16
	TR	352.48	331.00	231	256.88	258.95	4
	TRIB	696.79	633.00	377	542.40	567.90	8

^{*}This report does not acknowledge a water quality criteria for SpCond or ORP.

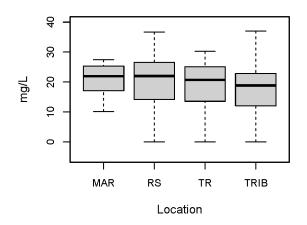




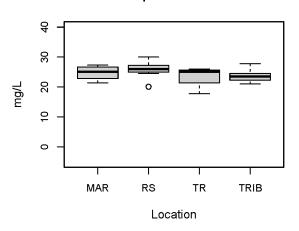
Dissolved Oxygen: 2021



Temperature: 1971-2020



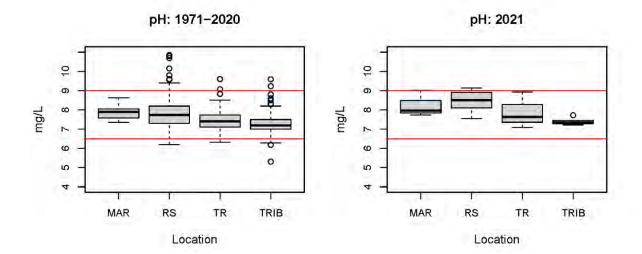
Temperature: 2021



^{*} Red line placed at the 5 mg/L level for DO.

	Historical Re	eference 197	71-2020			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
DO	MAR	7.13	7.92	10	6.83	7.23	4
	RS	9.08	8.90	704	8.59	8.58	16
	TR	8.21	8.18	226	5.30	4.78	4
	TRIB	7.17	6.80	345	5.60	5.63	8
Temp	MAR	20.89	21.99	10	24.73	25.10	4
	RS	20.07	22.00	768	26.18	26.00	16
	TR	18.69	20.70	236	23.53	25.15	4
	TRIB	16.74	18.86	380	23.66	23.50	8

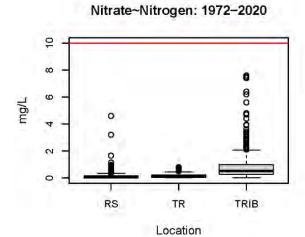
^{*} During the four sampling events surface water DO was measured below the standard at the following locations: the outlet in May and August, two of the lake sites and the marina in July, and at the tributary REN-5 in May, July and September. In 2021 temperature was recorded above the standard (rise of 2.8° C above the natural temperatures) during the spring at all locations except the REN-1, and in July at two locations in the lake.. The historical seasonal mean temperature was used as the natural temperature.

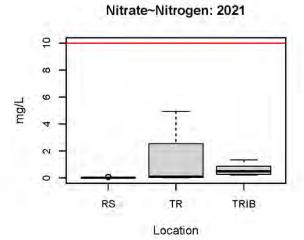


*Red lines indicate the upper and lower water quality criteria standards (9 and 6.5).

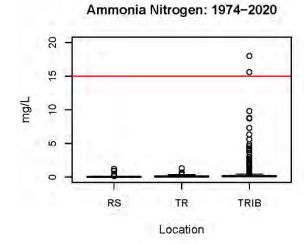
	<u>Historical F</u>	Reference '	1971-2020			2021	
	Location	Mean	Median	n	Mean	Median	n
рН	MAR	7.91	7.90	10	8.23	7.96	3
	RS	7.81	7.74	758	8.46	8.50	12
	TR	7.42	7.40	234	7.88	7.63	3
	TRIB	7.27	7.20	367	7.40	7.35	6

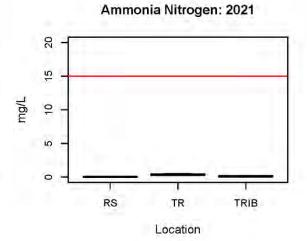
^{*}During 2021 the pH was recorded above the standard of 6.5-9 in the lake in May and August.





*Red line indicates the water quality standard (10 mg/L).

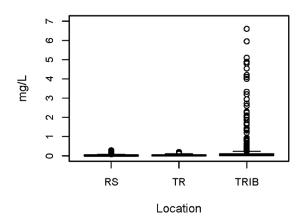




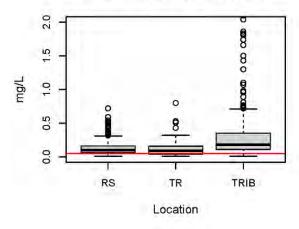
	Historical Re	eference 197	<u>2-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
NO3-N	RS	0.13	0.05	762	0.03	0.02	16
	TR	0.16	0.10	238	1.28	0.09	4
	TRIB	0.87	0.52	375	0.60	0.49	8
NH3N	RS	0.06	0.03	695	0.03	0.03	16
	TR	0.12	0.07	206	0.37	0.33	4
	TRIB	0.60	0.12	311	0.10	0.09	8

^{*}All 2021 observations of nitrate and ammonia nitrogen were within the water quality standard.

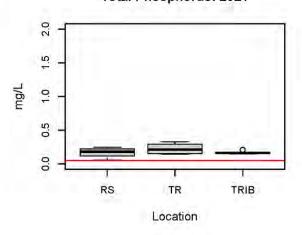
Orthophosphate: 1972-2020



Total Phosphorus: 1972-2020



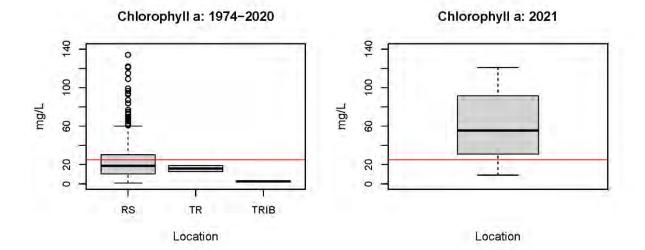
Total Phosphorus: 2021



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

	<u>Historical Re</u>	ference 197	<u>72-2020</u>			2021	
	Location	Mean	Median	n	Mean	Median	n
PO4	RS	0.03	0.02	743			
	TR	0.04	0.02	221			
	TRIB	0.33	0.05	374			
TP	RS	0.13	0.10	798	0.17	0.18	16
	TR	0.12	0.09	242	0.22	0.21	4
	TRIB	0.53	0.18	387	0.17	0.16	8

^{*}Total phosphorus exceeded the standard of 0.05 mg/L for all locations in 2021. This study does not acknowledge a standard for orthophosphate.

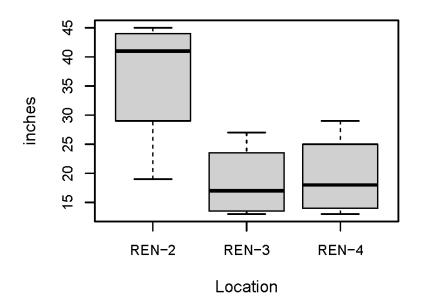


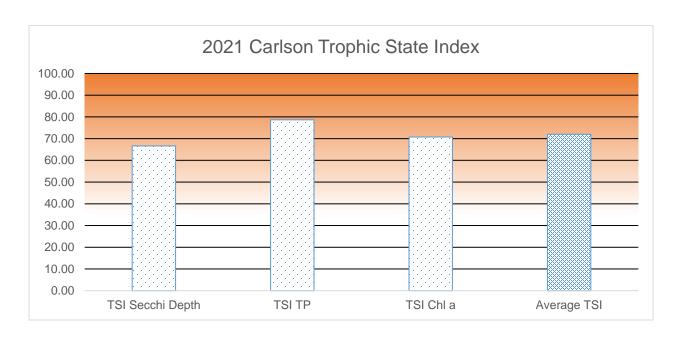
*Red line indicates the reference water quality standard of 25 mg/cm³. See Carlson 1977.

	Historical Re	ference 197	74-202 <u>0</u>			2021	
	Location	Mean	Median	n	Mean	Median	n
Chl_a	RS	24.06	18.70	513	59.85	55.35	16
	TR	15.85	15.85	2			
	TRIB	2.60	2.60	2			

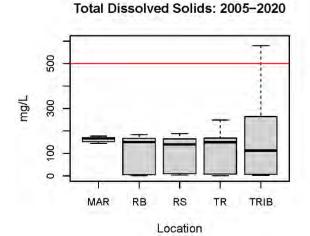
^{*}Chl_a was collected only at the RS locations in 2021. The reference standard for chlorophyll-a of 25mg/cm³ was exceeded at the lake sites throughout 2021. This study does not acknowledge a standard for pheophytin.

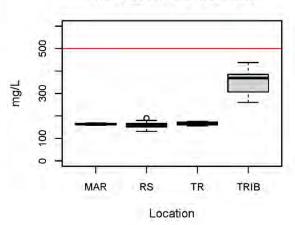
Secchi Depth: 2021



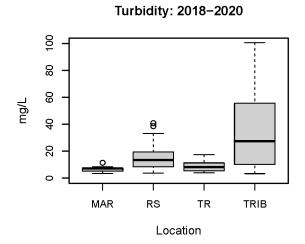


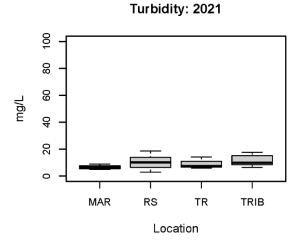
<40 = Oligotrophic ___ 40-50 = Mesotrophic ___ 50-70 = Eutrophic ___ >70 Hypereutrophic





Total Dissolved Solids: 2021

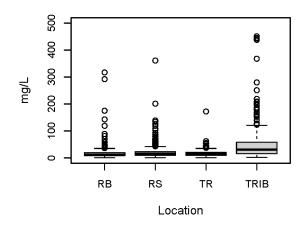




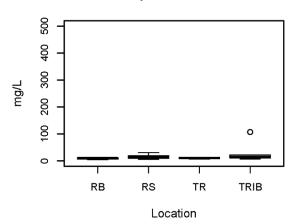
	Historical Re	eference 200	<u> </u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
TDS	MAR	163.30	167.00	10	163.50	164.00	4
	RB	100.57	150.50	20			
	RS	93.70	140.00	85	160.31	159.00	16
	TR	101.00	150.00	21	167.00	168.50	4
	TRIB	156.70	112.50	44	352.63	369.00	8
FNU	MAR	6.75	7.14	10	6.60	6.24	4
	RS	14.96	13.31	48	10.53	10.21	16
	TR	8.77	8.17	12	8.76	7.42	4
	TRIB	48.06	27.31	24	11.37	9.90	8

^{*} All 2021 observations of TDS were within the referenced water quality standard. This study does not acknowledge a standard for turbidity (FNU).

Total Suspended Solids: 1974-2020



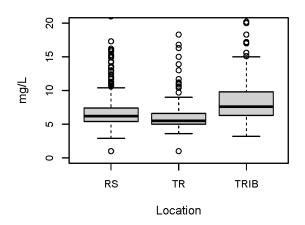
Total Suspended Solids: 2021



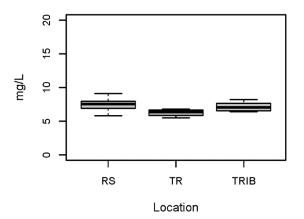
	Historical Re	ference 197	74-202 <u>0</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
TSS	RB	21.34	12.00	178	8.80	10.00	4
	RS	19.80	15.85	742	14.81	13.95	16
	TR	16.92	13.00	223	10.25	10.95	4
	TRIB	50.19	30.70	336	25.63	13.60	8

^{*}The mean total suspended solids data measured in 2021 were greater at RS and TRIB locations, and less at the TR and RB when compared to the historical data. There is no numeric standard for TSS.

Total Organic Carbon: 1984-2020

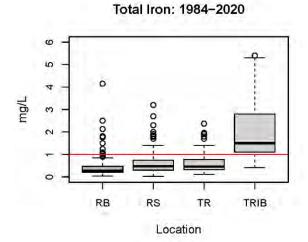


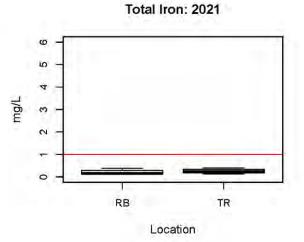
Total Organic Carbon: 2021



	Historical Re	ference 198	<u>84-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
TOC	RS	6.75	6.20	541	7.46	7.55	16
	TR	6.32	5.50	154	6.25	6.35	4
	TRIB	8.76	7.60	209	7.14	7.05	8

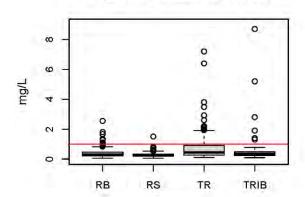
^{*}This study does not recognize a water quality criteria for TOC.



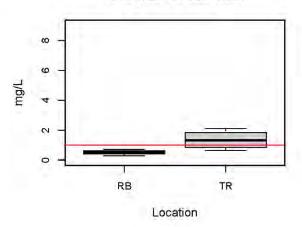


*Red line indicates the water quality standard of 1 mg/L.

Total Manganese: 1984-2020





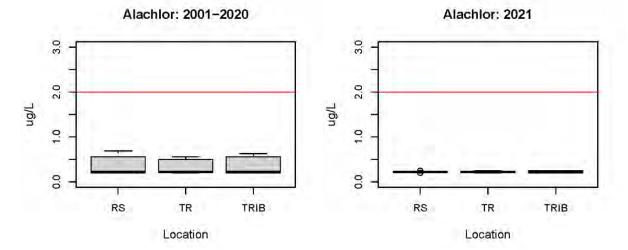


*Red line indicates the water quality standard of 1 mg/L.

Location

	Historical Re	ference 19	<u>84-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
TFe	RB	0.44	0.28	151	0.20	0.16	4
	RS	0.59	0.47	234			
	TR	0.58	0.46	149	0.25	0.25	4
	TRIB	2.06	1.50	65			
TMn	RB	0.41	0.31	151	0.52	0.54	4
	RS	0.28	0.25	234			
	TR	0.77	0.44	149	1.34	1.31	4
	TRIB	0.64	0.34	66			

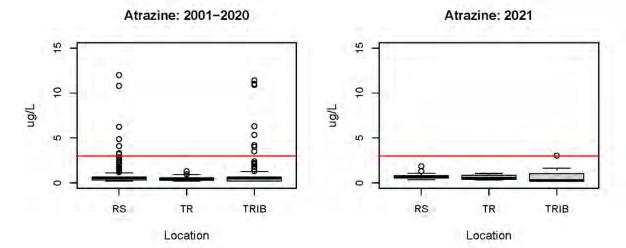
*In 2021 iron did not exceed the standard of 1 mg/L near the lake bottom in front of the dam. Manganese exceeded the standard of 1 mg/L in the tail race in May, July, and August.



*Red line indicates the standard of 2 ug/L.

	Historical Re	ference 200	<u>01-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
Alachlor	RS	0.36	0.22	247	0.22	0.22	16
	TR	0.35	0.22	62	0.22	0.22	4
	RS	0.36	0.22	247	0.22	0.22	16

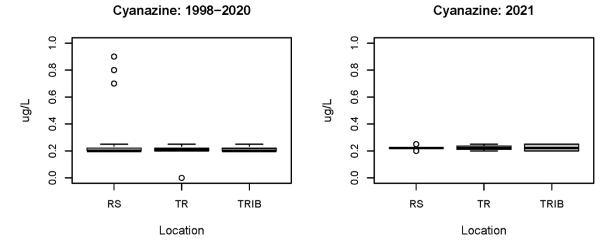
^{*}Alachlor did not exceed the criteria in 2021.



*Red line indicates the standard of 3 ug/L.

	Historical Re	ference 200	<u>01-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
Atrazine	RS	0.78	0.56	248	0.74	0.63	16
	TR	0.50	0.50	62	0.61	0.54	4
	RS	0.78	0.56	248	0.74	0.63	16

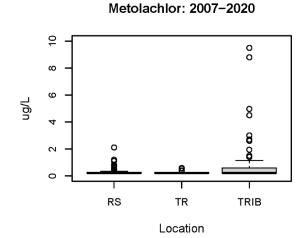
^{*}Atrazine was measured above the DWS criterion of 3 ug/L in May 2021 the REN-5 tributary.

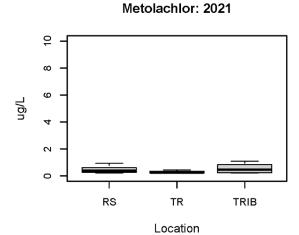


*The chronic standard of 30 ug/L for Cyanazine is not shown.

	Historical Re	ference 199	98-202 <u>0</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
Cyanazine	RS	0.22	0.20	144	0.22	0.22	16
	TR	0.20	0.21	36	0.22	0.22	4
	TRIB	0.21	0.20	70	0.22	0.22	8

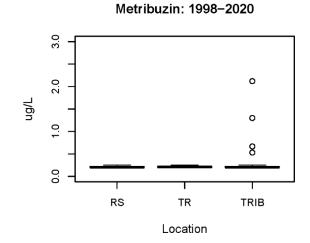
^{*}Cyanazine was not measured above the minimum detectin limit of 0.2 ug/L in 2021.

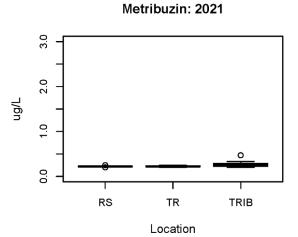




	Historical Re	ference 200	<u>07-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
Metolachlor	RS	0.31	0.22	136	0.44	0.38	16
	TR	0.26	0.22	34	0.28	0.23	4
	TRIB	0.87	0.22	66	0.55	0.47	8

^{*}Metolachlor did not exceed water quality criteria in 2021.



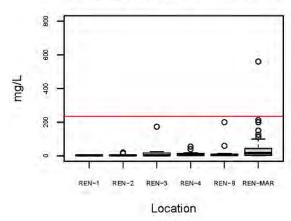


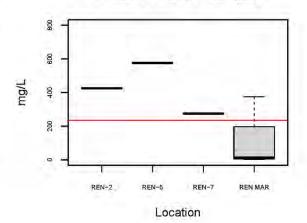
	Historical Re	ference 19	<u>98-2020</u>			<u>2021</u>	
	Location	Mean	Median	n	Mean	Median	n
Metribuzin	RS	0.21	0.20	144	0.22	0.22	16
	TR	0.21	0.21	36	0.22	0.22	4
	TRIB	0.26	0.20	70	0.27	0.25	8

^{*}Metribuzin did not exceed water quality criteria in 2021.



Surface Water E. Coli: 2021





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

	Historical Re	ference 1996	6-202 <u>0</u>		2	<u> 2021</u>	
	Location	Mean	Median	n	Mean	Median	n
E col	REN-1	3.00	3.00	1			
	REN-2	5.82	3.00	11	425.00	425.00	1
	REN-3	22.91	3.00	11			
	REN-4	12.85	5.00	13			
	REN-5				575.00	575.00	1
	REN-7				275.00	275.00	1
	REN-8	24.92	5.00	13			
	REN-MAR	47.75	16.50	48	101.00	13.00	4

^{*}Marina bacteria levels exceeded the standard in front of the dam, in both tributaries, and at the Marina in May 2021.

2021 Swimming Beach Bacteria Levels (E. Coli / 100mL)										
	Dale M	1iller	North Ma	ırcum	Sandusky					
	Shallow	Shallow Deep		Deep	Shallow	Deep				
5/11/2021	1	<1	1	<1	3.1	1				
5/24/2021	1	1	<1	<1	2	2				
6/7/2021	6.3	8.6	2	5.2	4.1	3				
6/21/2021	8.6	2	NA	NA	<1	<1				
7/6/2021	3.1	2	1	2	<1	<1				
7/19/2021	14.2	9.7	13.2	14.8	105	63.1				
8/2/2021	1	1	<1	1	2	1				
8/17/2021	<1	<1	2	<1	<1	1				
8/30/2021	1	<1	9.7	10.9	1	<1				
9/14/2021	6.3	3.1	4.1	2	5.2	1				

^{*}Bacteria levels at the swimming beaches remained below the standard in 2021.

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 2021 did not deviate far from conditions observed during the reference period (1972-2020); nevertheless, concerns regarding DO, temperature, Atrazine, Mn, TP, and bacteria were evident. In addition, CHL_a and subsequent TSI levels were indicative of a hyper eutrophic system.

There were 32 surface DO measurements in 2021. Seven of those 32 were below the standard of 5 mg/L. On May 25, 2021, DO was recorded at 3.53 at REN-1 and 4.35 mg/L at REN-5. On July 8, 2021 DO was recorded at 4.76 mg/L at REN-2, 3.35 at REN-5, and 3.19 at RL MAR. On August 5, 2021 DO was recorded at 1.58 mg/L at REN-1. On September 14, 2021 DO was recorded at 4.17 mg/L at REN-5. Similar low DO levels have been observed at REN-1 and REN-5 in recent years. Since 1972, the DO concentration was below the minimum standard 15 times at REN-1, six times at REN-2, twice at REN-4, 24 times at REN-5, and 10 times at REN-7. The 2021 DO means for TR (5.3 mg/L) and TRIB (5.6 mg/L) are lower than the historic means (8.21 and 7.17 mg/L). Given that most of the tributaries are impaired for DO, it is not unexpected to see low DO events occur in the tributaries, lake, or in the discharge. However, the number of DO exceedances increased in 2021, therefore it is important to continue monitoring for long term trends.

Temperature is important because it controls several aspects of water quality. Colder water holds more dissolved oxygen which is required by aquatic organisms. Water temperature criteria for warm water bodies in Illinois is within 2.8°C of the seasonal norm. The statistical summary for temperature in the results section of this report compares the means and medians of historical and 2021 data by location. This revealed greater temperatures at each location in 2021. For comparison to the standard (within 2.8 °C of the seasonal norm) the historical means of two seasons (spring and summer) that were sampled in 2021 were calculated. This comparison of historical means to each result of 2021 revealed that all observations in May except REN-1 as well as two lake sites in July, were greater than the standard. It is possible that this temperature exceedance is an anomaly or a result of sampling during exceptionally warm periods, but it will be important to continue monitoring to assess trends.

Pesticides are commonly used throughout much of the agricultural landscape that the Big Muddy River flows. Of the eight pesticides tested, only Alachlor, Atrazine, Cyanazine, Metolachlor, and Metribuzin were detected between 1998 and 2021. Of those five, only Atrazine was found to exceed the criteria in 2021. The Atrazine drinking water standard (3 ug/L) was exceeded on May 25, 2021 at REN-5 with a concentration of 3.04 ug/L. In the previous year it was exceeded at REN-4 and REN-8 with a level of

3.31 ug/L and 6.24 ug/L respectively. Atrazine levels were recorded over the standard multiple times in the tributaries historically. The 2021 Atrazine average (0.752 ug/L) is comparable to the historic Atrazine average (0.87 ug/L). 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. 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.

Living organisms require trace amounts of metals, but excessive levels can be harmful. TFe did not exceed the criterion of 1 mg/L in 2021. The mean TFe concentrations in 2021 were approximately 50% less than the historical data. 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 discharge should be oxidized in a short period of time. TMn in 2021 exceeded the criterion in the tailrace in May, July, and August with respective values of 1.58, 1.04, and 2.1 mg/L. Historically, TMn has exceeded the criterion multiple times in the tailrace and once in front of the dam. The mean concentrations of TMn in 2021 were significantly greater than the historical values. Since excessive levels of metals can be harmful to aquatic organisms it is essential to continue monitoring.

TP levels have surpassed the 0.05 mg/L criterion for several years. In 2021 the TP criterion was exceeded at all locations with a mean concentration across all sites of 0.18 mg/L compared to the historical mean of 0.26 mg/L. Historical concentrations of TP are higher in the tributaries coming into the lake than the lake or tailrace. 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, 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 all the lake sampling locations at least once in 2021. The 2021 surface reservoir mean CHL_a concentration (59.85 mg/cm³) was greater than twice the historical surface reservoir mean (24.06 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 2021 TSI level, an average of the individual trophic state indexes for secchi depth, CHL_a, and TP, for Rend Lake was 72.01. Rend Lake is considered hyper-eutrophic based on this TSI level. 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 in trophic levels over time.

Swimming beach bacteria levels remained below the standard in 2021. However, E coli levels were above the standard in front of the dam, in the tributaries, and the at the marina in May. Marina bacteria samples were taken at the three other events (July, August, September), all of which were below the standard. Bacteria occurs naturally, but is monitored at swimming beaches as required by law to protect human health. Bacteria is monitored at other locations as needed to identify potential leaking septic systems/wastewater treatment or other point and non-point sources. Though those locations may not be designated swimming areas, the public can still be exposed to bacteria. Ongoing monitoring is essential.

All remaining parameters evaluated during the 2021 water quality monitoring effort were within designated criteria or within historical reference norms.

MONITORING PROGRAM RECOMMENDATIONS

The Illinois Environmental Protection Agency (IEPA, 2020) has listed Rend Lake and its tributaries with multiple water quality impairments. In order to better understand the causes of these impairments it is recommended the following be considered for implementation to the current monitoring program: chemical and in-situ data collected downstream of the spillway (previously unsampled), include mercury, PCBs, Aldrin, Dieldrin, Endrin, Heptachlor, Mirex, and Toxaphene. for site REN-1, augment current sampling suite at REN-7 (Casey Fork) to include PCBs and mercury, and augment the current sampling suite at site REN-5 (Big Muddy River) as well as all the lake sites to include mercury.

In accordance with EM-1110-2-1201, benthic sediment samples should be taken to monitor and assess potential impacts to aquatic and human health. Sediment sampling and analyses occurred at Rend Lake 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 hypereutrophic status of Rend Lake it is recommended that Total Nitrogen (TN) be added to the monitoring program. Doing so would allow CEMVS to better evaluate trophic status. Similarly, it would strengthen the monitoring program to add CHL_a to every sample site. Currently CHL_a is only sampled at the lake sites and not the tributaries or lake discharge. This would allow for a trophic status comparison between the tributaries, lake, and discharge.

WORKS CITED

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APPENDIX A: FIELD DATA

Date	Location	Depth (m)	Temp (°C)	ORP (mV)	Sp Cond (µS/cm)	рН	ODO (% Sat)	ODO (mg/L)	TDS (mg/L)	Turbidity (FNU)	Secchi (in)
5/25/2021	REN MAR	1.133	21.4	118	(µ3/cm) 242.6	7.96	105	9.28	158	4.94	(111)
5/25/2021	REN MAR	2.597	19.6	120.4	241.5	7.4	63	5.78	157	7.49	
5/25/2021	REN-1	0.678	17.8	130.6	254.7	7.09	37.2	3.53	166	7.45	
5/25/2021	REN-2	1.084	20.1	129.5	240.8	7.55	93.7	8.49	157	4.1	45
5/25/2021	REN-2	2.077	20	131.8	240.6	7.44	89.5	8.14	156	4.09	
5/25/2021	REN-2	3.016	19.7	134.7	240.6	7.32	81.3	7.44	156	4.22	
5/25/2021	REN-2	4.021	19.4	137.1	240.7	7.22	75.5	6.94	156	4.26	
5/25/2021	REN-2	5.104	19.2	139.3	240.8	7.13	70.1	6.47	157	4.45	
5/25/2021	REN-2	6.053	18.5	144	244	6.98	47.7	4.46	159	6.79	
5/25/2021	REN-2	7.085	17.7	147.2	246.6	6.88	33.6	3.2	160	6.78	
5/25/2021	REN-3	1.189	27.1	80.8	253.9	8.41	116.9	9.29	165	6.38	27
5/25/2021	REN-3	2.014	26.4	87.6	252.9	8.23	112	9.01	164	6.8	
5/25/2021	REN-3	3.128	23.1	109.8	273.1	7.02	14.6	1.25	178	25.92	
5/25/2021	REN-4	1.06	25.4	100.1	271.7	8.09	105.3	8.64	177	5.69	29
5/25/2021	REN-4	2.147	23.8	119.7	281.9	7.16	56	4.73	183	10.9	
5/25/2021	REN-5	0	22.6	136	673	7.29	50.4	4.35	438	13.31	
5/25/2021	REN-7	0	23.8	175.7	565	7.22	68.9	5.82	367	16.93	
5/25/2021	REN-7	0.243	23.1	182.1	568	7.23	60.3	5.15	369	96.13	
5/25/2021	REN-8	1.019	27.3	89.2	227.5	9.13	132.3	10.49	148	6.25	
5/25/2021	REN-8	2.002	24	126.7	231.8	7.17	22.4	1.88	151	11.36	
5/25/2021	REN-8	3.082	21.5	126.7	233.6	7.01	2.2	0.19	152	14.49	
5/25/2021	REN-8	4.134	21.3	90.6	234.2	6.85	1.5	0.13	152	16.8	
7/8/2021	REN-1	0	25.4		263.2		73.6	6.03	171	5.99	
7/8/2021	REN-2	0.074	26.4		258.1		59.2	4.76	168	2.87	43
7/8/2021	REN-2	1.176	26.1		257.4		57	4.61	167	3.3	
7/8/2021	REN-2	2.184	26		257.4		51.8	4.2	167	3.01	
7/8/2021	REN-2	3.226	25.8		257.7		32.5	2.64	167	2.33	
7/8/2021	REN-2	4.127	25.8		257.7		30.5	2.48	167	2.32	
7/8/2021	REN-2	5.098	25.6		258.8		22.7	1.85	168	4.48	

Date	Location	Depth (m)	Temp (°C)	ORP (mV)	Sp Cond (µS/cm)	рН	ODO (% Sat)	ODO (mg/L)	TDS (mg/L)	Turbidity (FNU)	Secchi (in)
7/8/2021	REN-3	2.034	29.9	()	275.8	ρ	109.4	8.28	179	52.66	(,
7/8/2021	REN-4	0.383	29.2		292.9		98	7.5	190	13.56	13
7/8/2021	REN-4	1.132	28.4		287.6		55.9	4.35	187	15.49	
7/8/2021	REN-5	0.202	25.2		517.1		40.7	3.35	336	9.24	
7/8/2021	REN-7	0	27.8		572.4		85.1	6.67	372	7.81	
7/8/2021	REN-8	1.156	30		248.9		158.4	11.96	162	15.52	
7/8/2021	REN-8	2.013	29.2		240.6		66.1	5.06	156	25.28	
7/8/2021	REN-8	3.094	28.9		241.4		23.6	1.82	157	37.54	
7/8/2021	RL MAR	0.324	27		257.5		96	7.65	167	6.76	
7/8/2021	RL MAR	0.325	27.1		257.5		100.7	8.01	167	6.64	
7/8/2021	RL MAR	1.042	26		259		39.4	3.19	168	5.99	
8/5/2021	REN-1	0.241	26.1	129.6	269.9	7.62	20.8	1.69	175	7.03	
8/5/2021	REN-1	0.838	26	158.2	270.5	7.63	19.5	1.58	176	7.39	
8/5/2021	REN-2	1.066	26.9	281.8	253.8	8.93	110.4	8.81	165	9.74	19
8/5/2021	REN-2	2.056	26.8	261.2	254.6	8.8	94.2	7.53	166	9.69	
8/5/2021	REN-2	3.117	26.6	243.1	254.9	8.69	86.3	6.93	166	9.8	
8/5/2021	REN-2	4.131	26.4	263.7	255.9	8.46	71	5.71	166	9.06	
8/5/2021	REN-2	4.996	26.4	271	256.3	8.3	63.4	5.1	167	9.83	
8/5/2021	REN-3	1.081	25.3	226.8	242.8	8.13	83.6	6.86	158	10.65	20
8/5/2021	REN-3	2.056	25.2	242.5	244.3	7.61	63.5	5.22	159	10.91	
8/5/2021	REN-3	2.76	25.1	236.3	244.9	7.59	62.4	5.14	159	13.64	
8/5/2021	REN-4	1.194	26.5	195.2	223.4	8.86	126.6	10.17	145	10.52	21
8/5/2021	REN-4	2.087	26.2	207.3	224.8	8.27	100.8	8.14	146	13.41	
8/5/2021	REN-5	0.091	21	385.9	427.5	7.3	61	5.43	278	17.68	
8/5/2021	REN-7	0.091	23.2	203.2	570.8	7.45	89.5	7.64	371	9.16	
8/5/2021	REN-8	1.163	25.6	269.8	202.2	7.68	80	6.54	131	9.89	
8/5/2021	REN-8	2.097	25.5	273.4	203.3	7.57	74.6	6.1	132	9.69	
8/5/2021	REN-8	3.033	25.5	277.6	204.9	7.42	65.3	5.35	133	15.92	
8/5/2021	RL MAR	1.034	27.3	180.6	255.4	9.01	122	9.67	166	8.98	

Date	Location	Depth (m)	Temp (°C)	ORP (mV)	Sp Cond (µS/cm)	рН	ODO (% Sat)	ODO (mg/L)	TDS (mg/L)	Turbidity (FNU)	Secchi (in)
8/5/2021	RL MAR	2.708	26.4	166.6	255.9	8.13	59.2	4.76	166	22.62	` ,
9/14/2021	REN-1	0.091	24.2	182.5	252.6	7.54	80.5	6.75	164	7.72	
9/14/2021	REN-1	1.093	24.9	75.7	239.1	8.92	121.5	10.05	155	14.22	
9/14/2021	REN-2	1.155	24.5	94.6	246.8	8.32	94.5	7.87	160	8.6	39
9/14/2021	REN-2	2.034	24.4	109.1	248.2	7.86	72.2	6.04	161	8.33	
9/14/2021	REN-2	3.084	24.1	120.4	249	7.52	45.1	3.79	162	8.1	
9/14/2021	REN-2	4.096	24	122.4	249.3	7.49	41.2	3.47	162	7.36	
9/14/2021	REN-2	5.059	23.9	123.3	249.7	7.48	37.4	3.15	162	7.47	
9/14/2021	REN-2	6.202	23.9	126.2	251.4	7.44	31	2.61	163	9.19	
9/14/2021	REN-3	1.122	24.9	76.9	239.1	8.91	121.8	10.07	155	14.16	14
9/14/2021	REN-3	2.071	24.7	82.1	239.6	8.85	111.6	9.28	156	15.14	
9/14/2021	REN-3	3.172	24.3	98.6	240.6	8.4	90.9	7.61	156	21.16	
9/14/2021	REN-4	1.068	24.6	105	240	8.59	102.3	8.51	156	13.58	15
9/14/2021	REN-5	0.29	21.9	137	399.6	7.4	47.6	4.17	260	10.56	
9/14/2021	REN-7	0.312	23.8	54.4	613.8	7.72	87.1	7.35	399	6.3	
9/14/2021	REN-8	1.202	25.1	86.6	227.6	8.92	102.8	8.48	148	18.57	
9/14/2021	REN-8	2.155	25.1	87.6	227.7	8.88	98.9	8.16	148	20.98	
9/14/2021	REN-8	3.211	24.8	101	217.5	8.58	79.9	6.62	141	26.1	
9/14/2021	RL MAR	1.041	24.2	136.2	249.7	7.73	61.8	5.17	162	6.49	
9/14/2021	RL MAR	2.195	24	143.9	253.3	7.47	25.4	2.14	165	10.9	

APPENDIX B: LABORATORY DATA



Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 5/25/21

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

www.ardlinc.com

Date: 6/24/21

Lab Name: ARDL, Inc.

ARDL Report No.: 8703

CASE NARRATIVE

Customer Sample No.	<u>Date</u> Collected	<u>Lab ID</u> <u>Number</u>	Analyses Requested
REN-1	5/25/21	8703-01	NP Pesticides, Metals(1), Inorganics(2)
REN-2-0	5/25/21	8703-02	NP Pesticides, Inorganics(2)(3), E Coli
REN-2-5	5/25/21	8703-03	Metals(1), Inorganics(2)
REN-3	5/25/21	8703-04	NP Pesticides, Inorganics(2)(3)
REN-4	5/25/21	8703-05	NP Pesticides, Inorganics(2)(3)
REN-5	5/25/21	8703-06	NP Pesticides, Inorganics(2), E Coli
REN-7	5/25/21	8703-07	NP Pesticides, Inorganics(2), E Coli
REN-8	5/25/21	8703-08	NP Pesticides, Inorganics(2)(3)
REN-15-0	5/25/21	8703-09	NP Pesticides, Inorganics(2)(3)
REN-RL-MAR	5/25/21	8703-10	E Coli

- Including iron and manganese.
- (2) Including ammonia, nitrate, 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.

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.

DUPLICATE

Duplicate analyses are reported as MS/MSD. RPD of the duplicate analyses met criteria, except atrazine (47%) and metolachlor (38%). The parent sample results are flagged with a 'J' qualifier as appropriate.

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

Page 1 of 2

Project Name: Rend Lake ARDL Report No.: 8703

CASE NARRATIVE (Continued)

INTERNAL STANDARDS

All internal standard criteria were met.

SURROGATES

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 undetected.

LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

MATRIX SPIKE

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, 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.
- J 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

8703

N:\ARDL Case Narratives\ARDL Data Package Contents.pdf - Revised June 21, 2019

Authorized By: DSD-QAO

Lab Report No: 008703 Report Date: 06/04/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICI	DES (82	70SIM-MO	D)
Project No.:		Analytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	REN-1		ARDL I	Lab No.:	00870	03-01	THE PARTY OF THE P
Desc/Location:	REND LAKE		Lab Fi	llename:	E0603	3105	
Sample Date:	05/25/2021		Recei	ved Date:	05/2	5/2021	
Sample Time:	1220		Prep.	Date:	05/2	6/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	1000 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B113	39	
% 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	0.330	J	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	0.220	J	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	81%	Ì

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: 008703	703						K.	Report Date:	: 06/15/2021)21
Project Name: REND LAKE Project No:	63						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	lcs 00308
ARDL No: 008703-01 Field ID: REN-1 Received: 05/25/2021	21	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:	oc'n: REND LAKE Date: 05/25/2021 Time: 1220	LAKE /2021			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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0400 0.00400 0.020 0.0950 0.00800 4.0 1.0	0.0500 0.0500 0.030 0.100 4.00 1.00		0.396 1.58 0.29 4.94 0.144 9.2 ND	MG/L MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE	6010C 6010C 350.1 GREEN 365.2 160.2 160.4	05/27/21 05/27/21 NA NA 06/01/21 NA NA	05/28/21 05/28/21 06/03/21 05/26/21 05/26/21 05/26/21 05/26/21	P7521 P7521 06035926 06015920 06035925 06015916 06015917

(a) DOD and/or NELAC Accredited Analyte.

Sample 008703-01, Inorganic Analyses

Lab Report No: 008703 Report Date: 06/04/2021

Project Name: Project No.:	REND LAKE	Anal Analytical Me	-	P PESTICII	DES (827	70SIM-MO	D)
-	fied - IL100308	-	ethod: 3				
Field ID:	REN-2-0		ARDL	Lab No.:	00870	03-02	
Desc/Location:	REND LAKE		Lab F	ilename:	E0603	3108	
Sample Date:	05/25/2021		Recei	ved Date:	05/25	5/2021	
Sample Time:	0930		Prep.	Date:	05/2	6/2021	
Matrix:	WATER		Analy	sis Date:	06/03	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B113	39	
% 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	0.367		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	0.256		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
					<u> </u>		
IIDDOCATE DECOV	EDIEC.	Lim	i + c		Po	0111+0	

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	86%	

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: 008	008703						K.	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:	ы						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDI No: 008703-02	2	Samp]	Sampling Loc'n:		REND LAKE			Matrix:	: WATER	
Field ID: REN-2-0 Received: 05/25/2021	21	Samp	Sampling Date: Sampling Time:		05/25/2021 0930			Moisture:	: NA	
Analyte	TOD	TOO	Flag	Result	Units	Prep	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.020	0.030		ND	MG/L	NONE	350.1	NA	06/03/21	06035926
Chlorophyll-a, Correcte	1.0	1.00		9.1	MG/CU.M.	10200H	10200H	05/26/21	06/03/21	06145940
E. Coliform	1.0	1.00		425	COL/100 ML	NONE	1604	NA	05/25/21	05275908
Nitrate as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	05/26/21	06015920
Pheophytin-a	1.0	1.00		3.6	MG/CU.M.	10200H	10200H	05/26/21	06/03/21	06145940
Phosphorus	0.00800	0.0100		0.0571	MG/L	365.2	365.2	06/01/21	06/02/21	06035925
Solids, Total Suspended	4.0	4.00		5.2	MG/I	NONE	160.2	NA	05/26/21	06015916
Solids, Volatile Suspen	1.0	1.0		ND	MG/L	NONE	160.4	NA	05/26/21	06015917
Total Organic Carbon	0.500	1.00		8.9	MG/I	NONE	415.1	NA	06/04/21	06145939
A the second										

(a) DOD and/or NELAC Accredited Analyte.

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

Lab Report No: 008703	703						ĸ	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:							Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-03 Field ID: REN-2-5 Received: 05/25/2021	211	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:	'n: REND LAKE te: 05/25/2021 me: 0945	LAKE /2021			Matrix: Moisture:	: WATER : NA	
Analyte	ГОР	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0400 0.00400 0.020 0.0190 0.00800 4.0 1.0	0.0500 0.00500 0.030 0.0200 0.0100 4.00 1.00		0.380 0.717 0.15 ND 0.096 11.2 ND 5.9	MG/L MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE	6010C 6010C 350.1 GREEN 365.2 160.2 160.4	05/27/21 05/27/21 NA NA 06/01/21 NA NA	05/28/21 05/28/21 06/03/21 05/26/21 06/02/21 05/26/21 05/26/21	P7521 P7521 06035926 06015920 06035925 06015916 06015917
					And the second s					

(a) DOD and/or NELAC Accredited Analyte.

Sample 008703-03, Inorganic Analyses

Lab Report No: 008703 Report Date: 06/04/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical Mo	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	REN-3		ARDL 1	Lab No.:	00870	03-04	
Desc/Location:	REND LAKE		Lab F	llename:	E0603	3109	
Sample Date:	05/25/2021		Recei	ved Date:	05/25	5/2021	
Sample Time:	1035		Prep.	Date:	05/26	5/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1133	39	
% 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	0.822		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	0.444		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	56%	

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: 008703	703						щ	Report Date: 06/15/2021	. 06/15/2	021
Project Name: REND LAKE Project No:	되						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-04 Field ID: REN-3 Received: 05/25/2021	4 21	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:	'n: REND LAKE te: 05/25/2021 me: 1035	LAKE /2021			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	ÖOT	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.020 1.0 0.0190 1.0 0.00800 5.0 1.0	0.030 1.00 0.0200 1.00 0.0100 5.00 1.00		00.01 ND ND 0.0787 9.5 5.0 6.0	MG/CU.M. MG/CU.M. MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE	350.1 10200H GREEN 10200H 365.2 160.2 160.4	NA 05/26/21 NA 05/26/21 06/01/21 NA NA	06/03/21 06/03/21 05/26/21 06/02/21 05/26/21 05/26/21 05/26/21	06035926 06145940 06015920 06145940 06035925 06015916 06015917

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008703 Report Date: 06/04/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICIO	DES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certif	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-4		ARDL I	Lab No.:	00870	03-05	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0603	3110	
Sample Date:	05/25/2021		Receiv	red Date:	05/25	5/2021	
Sample Time:	1058		Prep.	Date:	05/26	5/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	900 mL		Instru	ment ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1133	39	
% 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	1.30		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	0.933		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	008703						д	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:	4KE						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-05 Field ID: REN-4 Received: 05/25/2021	-05	Samp. Sami Sami	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 05/25/2021 1058			Matrix: Moisture:	: WATER	
Analyte	TOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.020	0.030		0.038	MG/L	NONE	350.1	NA	06/03/21 06035926	06035926
Chlorophyll-a, Correcte	te 1.0	1.00		12.7	MG/CU.M.	10200H	10200H	05/26/21	06/03/21	06145940
Nitrate as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	05/26/21	06015920
Pheophytin-a	1.0	1.00		2.5	MG/CU.M.	10200H	10200H	05/26/21	06/03/21	06145940
Phosphorus	0.00800	0.0100		0.0744	MG/L	365.2	365.2	06/01/21	06/02/21	06035925
Solids, Total Suspended	ed 4.0	4.00		8.0	MG/L	NONE	160.2	NA	05/26/21	06015916
Solids, Volatile Suspen	n 1.0	1.0		4.4	MG/I	NONE	160.4	NA	05/26/21	06015917
Total Organic Carbon	0.500	1.00		6.7	MG/L	NONE	415.1	NA	06/04/21	06145939

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008703 Report Date: 06/04/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICIO	DES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certif	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-5		ARDL I	Lab No.:	00870	3-06	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0603	3111	
Sample Date:	05/25/2021		Recei	red Date:	05/25	5/2021	
Sample Time:	0825		Prep.	Date:	05/26	5/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1133	39	
% 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	3.04		UG/L	1
Metribuzin		0.200	0.200	0.330		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	0.940		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%	

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: 008703	703						щ	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:	EJ						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-06 Field ID: REN-5 Received: 05/25/2021	6 21	Sampl Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 05/25/2021 0825			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen E. Coliform Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.020 1.0 0.0190 0.00800 4.0 1.0	0.030 1.00 0.0200 0.0100 4.00 1.0		0.17 575 0.431 0.161 22.4 ND	MG/L COL/100 ML MG/L MG/L MG/L MG/L	NONE NONE NONE 365.2 NONE NONE	350.1 1604 GREEN 365.2 160.2 160.4	NA NA NA 06/01/21 NA NA	06/03/21 05/25/21 05/26/21 06/02/21 05/26/21 05/26/21	06035926 05275908 06015920 06035925 06015916 06015917

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008703 Report Date: 06/04/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICIO	ES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-7		ARDL I	Lab No.:	00870	3-07	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0603	3112	
Sample Date:	05/25/2021		Recei	red Date:	05/25	5/2021	
Sample Time:	1310		Prep.	Date:	05/26	5/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	1000 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1133	39	
% 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	1.64		UG/L	1
Metribuzin		0.200	0.200	0.470		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	0.720		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	81%	
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: 008703	703						М	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:							Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-07 Field ID: REN-7 Received: 05/25/2021	21	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 05/25/2021 1310			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen E. Coliform Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.020 1.0 0.0190 0.00800 4.0 1.0	0.030 1.00 0.0200 0.0100 4.00 1.0		0.1 275 0.543 0.148 13.2 ND 6.9	MG/L COL/100 ML MG/L MG/L MG/L MG/L	NONE NONE NONE 365.2 NONE NONE	350.1 1604 GREEN 365.2 160.2 160.4	NA NA NA 06/01/21 NA NA	06/03/21 06035926 05/25/21 05275908 05/26/21 06015920 06/02/21 06035925 05/26/21 06015916 05/26/21 06015917 06/04/21 06145939	06035926 05275908 06015920 06035925 06015916 06015917

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008703 Report Date: 06/04/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-8		ARDL I	Lab No.:	00870	03-08	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0603	3113	
Sample Date:	05/25/2021		Recei	red Date:	05/25	5/2021	
Sample Time:	1012		Prep.	Date:	05/26	5/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	800 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1133	39	
% 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	1.85		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	0.600		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	84%	İ
			l

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

⁽a) DOD-QSM Accredited Analyte.

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

Lab Report No: 008703	703						Ľ.	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:	63						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-08 Field ID: REN-8 Received: 05/25/2021	8 22	Samp Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 05/25/2021 1012			Matrix: Moisture:	: WATER : NA	
Analyte	TOD	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.020 1.0 0.0190 1.0 0.00800 5.0 1.0	0.030 1.00 0.0200 1.00 0.0100 5.00 1.0		0.051 38.6 ND 6.7 0.122 13.5 8.5 7.6	MG/CU.M. MG/CU.M. MG/CU.M. MG/L MG/L MG/L MG/L	NONE 10200H NONE 10200H 365.2 NONE NONE	350.1 10200H GREEN 10200H 365.2 160.2 160.4	NA 05/26/21 NA 05/26/21 06/01/21 NA NA	06/03/21 06035926 06/03/21 06145940 05/26/21 06015920 06/03/21 06145940 06/02/21 06035925 05/26/21 06015916 05/26/21 06015917 06/04/21 06145939	06035926 06145940 06015920 06145940 06035925 06015917 06145939

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008703 Report Date: 06/04/2021

Project Name: Project No.:	REND LAKE	Analytical Me	_	PESTICII 270C	DES (82	70SIM-MO	D)
-	fied - IL100308	-	ethod: 35				
Field ID:	REN-15-0		ARDL I	Lab No.:	00870	03-09	
Desc/Location:	REND LAKE		Lab F	ilename:	E0603	3114	
Sample Date:	05/25/2021		Receiv	ved Date:	05/25	5/2021	
Sample Time:	1115		Prep.	Date:	05/2	5/2021	
Matrix:	WATER		Analys	sis Date:	06/03	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1133	39	
% 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	1.26		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	0.933		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	76%	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

Lab Report No: 008703	3703						K,	Report Date:	: 06/15/2021	021
Project Name: REND LAKE Project No:	巴巴						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008703-09 Field ID: REN-15-0 Received: 05/25/2021	99	Sampling Samplin Samplin	ampling Loc'n: Sampling Date: Sampling Time:	'n: REND LAKE te: 05/25/2021 me: 1115	LAKE /2021			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	ŎOI	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.020 0.0380 1.0 0.00800 5.0 1.0	0.030 1.00 0.0400 1.00 0.0100 5.00 1.0		ND 13.6 3.18 ND 0.0787 8.0 ND 6.5	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 365.2 160.2 160.4 415.1	NA 05/26/21 NA 05/26/21 06/01/21 NA NA	06/03/21 06/03/21 05/26/21 06/03/21 05/26/21 05/26/21 05/26/21	06035926 06145940 06015920 06145940 06035925 06015916 06015917

(a) DOD and/or NELAC Accredited Analyte.

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

Report Date: 06/15/2021	Analysis: Inorganics NELAC Certified - IL100308	: WATER	Analysis Run Date Number	05/25/21 05275908
sport Date	Analysis ELAC Certi	Matrix: Moisture:	Prep Date	NA
Re	N		Analysis Method	1604
			Prep Method	NONE
		REND LAKE 05/25/2021 1125	Units	COL/100 ML NONE
			Result	375
		ampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Samp San San	TOO	1.00
8703	ΚΕ	10 MAR 321	TOD	1.0
No: 00	REND LAKE	008703-10 REN-RL-MAR 05/25/2021	ب ه	
Lab Report No: 008703	Project Name: Project No:	ARDL No: 008703-10 Field ID: REN-RL-MAR Received: 05/25/2021	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: 008703 Report Date: 06/04/2021

-	REND LAKE	_	is: NP PEST	CICIDES (82	270SIM-M	OD)
Project No.:		Analytical Meth				
NELAC Certi:	fied - IL100308	Prep Meth	od: 3510C			
Field ID:	NA		ARDL Lab No	008	703-01B1	
Desc/Location:	NA		Lab Filenam	e: E060	03103	
Sample Date:	NA		Received Da	te: NA		
Sample Time:	NA		Prep. Date:	05/2	26/2021	
Matrix:	QC Material		Analysis Da	te: 06/0	03/2021	
Amount Used:	1000 mL		Instrument	ID: AG5		
Final Volume:	1 mL		QC Batch:	B113	339	
% 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:	Limits	Results	
Triphenylphosphate	30-130	96%	j

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

⁽a) DOD-QSM Accredited Analyte.

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

Lab Report No: 008703

62864 Mt. Vernon, IL Report Date: 06/15/2021

Project Name:	REND LAKE	AKE						NELA	C Certifi	NELAC Certified - IL100308
Analyte	LOD	TOO	Blank Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
(a) Iron (a) Manganese Ammonia Nitrogen Chlorophyll-a, Corre	0.040 0.004 0.020 1.0	0.050 0.005 0.030 1.0		MG/L MG/L MG/L MG/CU.M.	3010A 3010A NONE 10200H	6010C 6010C 350.1 10200H	05/27/21 05/27/21 NA 05/26/21	05/28/21 05/28/21 06/03/21 06/03/21	P7521 P7521 06035926 06145940	008703-01B1 008703-01B1 008703-01B1 008703-09B1
Nitrate as Nitrogen Pheophytin-a Phosphorus	0.019	0.020	9 9 9	MG/L MG/CU.M. MG/L	NONE 10200H 365.2	GREEN 10200H 365.2	NA 05/26/21 06/01/21		06015920 06145940 06035925	008703-04B1 008703-09B1 008701-02B1
Solids, Total Suspen Solids, Volatile Sus Total Organic Carbon	1.0 1.0 0.50	1.0	ON ON ON ON	MG/L MG/L MG/L	NONE NONE NONE	160.2 160.4 415.1	NA NA NA	05/26/21 05/26/21 06/04/21	06015916 06015917 06145939	008703-07B1 008703-07B1 008703-01B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008703

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

62864

Lab Report No: 008703							Rep	ort Date:	Report Date: 06/04/2021	21
Project Name: REND LAKE Project No.:	And	Analysis: NP PESTICIDES (8270SIM-MOD)	PESTICIL	ES (8270S)	IM-MOD)	Anal	ytical Me Prep Me	Analytical Method: 8270C Prep Method: 3510C	000	
Matrix: QC Material Amount Used: 1000 mL		QC Batch: Level:		B11339 LOW		Prep. Date: Analysis Da	Prep. Date: Analysis Date:	05/26/2021 06/03/2021		
Parameter	Spike Result	Spike Level	Spike % Rec	Duplicate Result	Duplicate Level	Duplicate % Rec	Recovery	RPD	RPD Limit	1
Trifluralin	3.48	4	87	1	;		30-130	;		
Atrazine	3.41	4	85	1	1	;	30-130	1	!	
Metribuzin	3.37	4	84	;	!	1.	30-130	1	1	
Alachlor	3.45	4	86	1	ì	ì	30-130	1	;	
Metolachlor	3.33	4	83	!	1	;	30-130	1	!	
Chlorpyrifos	3.31	4	83	!	ì	1	30-130	1	was and	
Cyanazine	3.51	4	88	i	1	1	30-130	1	1 8	
Pendimethalin	3.51	4	88	1	}	;	30-130	1	1	
	THE PERSON NAMED IN									

R &R Limits	30-130	
Duplicate %R	1	
Spike %R	86.3	
SURROGATE RECOVERIES:	Triphenylphosphate	

^{&#}x27;*' indicates a recovery outside of standard limits. Spike Blanks for 008703-01, NP PESTICIDES (8270SIM-MOD)

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

1	308								
Report Date: 06/15/2021	NELAC Certified - IL100308	QC Lab	Number	008703-01C1	008703-01C1	008703-01C1	008703-04C1	008701-02C1	008703-01C1
Report Da	NELAC Cer	Analytical	Run	P7521	P7521	06035926	06015920	06035925	06145939
		Mean	% Rec	1	ì	!	}	}	1
		* Rec	Limits	87-115	90-114	80-120	80-120	80-120	76-120
		LCS 2	% Rec	day day	1	1	;	;	i 1
		LCS 2	Level	1	1	}	;	1	ŧ I
		LCS 2	Result		;	;	1	;	1
		LCS 1	% Rec	105	108	109	110	100	86
		LCS 1	Level	5.0	0.75	1.0	1.0	0.67	20.0
18703	REND LAKE	LCS 1	Result	5.2	0.81	1.1	1.1	0.67	19.6
Lab Report No: 008703	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Phosphorus	Total Organic Carbon

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

Inorganic LCS Results for 008703

⁽a) DOD and/or NELAC Accredited Analyte

	ARDI, INC.	INC.	MATRIX SE 400 Aviat	SPIKE/SPI	SPIKE/SPIKE DUPLICATE ation Drive; P.O. Box	CATE REPORT Box 1566		Mt. Vernon, IL		62864	
Lab Report No: 008	008703								ť	Date:	06/04/2021
Project Name: REND LAKE Project No.:	LAKE		Analysis:	NP PESTI	PESTICIDES (827	(8270SIM-MOD)	7	Analytical Method: Prep Method:	ical Method: Prep Method:	1: 8270C 1: 3510C	
Field ID: REN-1 Desc/Location: REND LAKE	-1 D LAKE		Prep. Amount	Prep. Date: Amount Used:	05/26/2021 1000 mL		ARI	ARDL Lab No.: Lab Filename:		008703-01	
Date: Time:	05/25/2021 1220		% Moistur QC Batch:	Moisture: Batch:	NA B11339		Rec	Received Date: Analysis Date:		05/25/2021 06/03/2021	
Matrix: WATER	gR		revel:	:	LOW						
		Sample	MS	MS	MS	MSD	MSD	MSD	% Rec		RPD
Parameter		Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin		QN	2.8	4	70	2.34	4	58.5	30-130	17.9	30
Atrazine		0.330	2.78	4	61.3	1.73	4	35	30-130	46.6 *	30
Metribuzin		ND	2.43	4	8.09	1.5	4	37.5	30-130	47.3 *	30
Alachlor		QN	2.78	4	69.5	1.86	4,	46.5	30-130	39.7 *	30
Metolachlor		0.220	3.03	4	70.3	2.07	4	46.3	30-130	37.6 *	30
Chlorpyrifos	10	QN	2.6	4	65	2.16	4	54	30-130	18.5	30
Cyanazine		ND	2.61	4	65.3	1.66	4	41.5	30-130	44.5 *	30
Pendimethalin		QN	2.73	4	68.3	2.24	4	26	30-130	19.7	30

SURROGATE RECOVERIES:	MS &R	MSD %R	%R Limits
Triphenylphosphate	71	53	30-130

^{&#}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.

	00308				10				10
5/2021	NELAC Certified - IL100308	QC Lab	Number	008703-01MS	008703-01MS	008703-01MS	008703-04MS	008703-05MS	008703-01MS
Report Date: 06/15/2021	Certifi		Run	P7521	P7521	06035926	06015920	06035925	06145939
t Date	NELAC	RPD	Limit	20	20	20	20	20	20
Repor			RPD		2	က	m	3	0
		% Rec	Limits	87-115	90-114	75-125	75-125	75-125	76-120
		MSD	% Rec	105	109	93	82	101	102
		MSD	Level	1.0	0.50	2.0	1.0	0.83	5.0
		MSD	Result	1.4	2.1	2.1	0.82	0.91	10.6
		MS	% Rec	104	103	96	83	104	102
		MS SE	Level	1.0	0.50	2.0	1.0	0.83	5.0
		MS	Result	1.4	2.1	2.2	0.83	0.93	10.6
m	REND LAKE	Sample	Result	0.40	1.6	0.29	NO	0.074	5.5
lo: 00870:		Sample	Matrix	WATER	WATER	WATER	WATER	WATER	WATER
Lab Report No: 008703	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Phosphorus	Total Organic Carbon

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

⁽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: 008703	3						Report Date: 06/15/2021	06/15/2021
Project Name: REND LAKE	LAKE						NELAC Certified - IL100308	ed - IL100308
Analyte	Sample Conc'n I	Sample First Conc'n Duplicate	Second Duplicate	Units	Percent Diff	Mean (Smp, D1, D2)	Analytical Run	QC Lab Number
Chlorophyll-a, Corrected 13.6	13.6	14.5		MG/CU.M.	9		06145940	008703-09D1
Pheophytin-a	N	0	!	MG/CU.M.	NC	;	06145940	008703-09D1
Solids, Total Suspended	13.2	12.4	!	MG/L	9	;	06015916	008703-07D1
Solids, Volatile Suspend	ND	0	!	MG/L	NC	;	06015917	008703-07D1

(a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008703



Including as appropriate:

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

ARDL Data Package 8703

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 8703

SAMPLENS (Signature) Fig. Sample Sample	PROJECT Rend Lake						S	/												HZ	PRESERVATION	NOII
DATE TIME DATE TIME DATE TIME DATE TIME DATE		7 78	1			V.	SYCH	997 1	N-EHN	150	W.	OS								ICED	SPE CHEN ADDE FINA KNK	CIFY IICALS D AND C pH IF
1035 X		DATE	TIME			SS	MOINT	SON	MAN	64%	5 W	W.					SA	REMARKS OR AMPLE LOCA	TION			
035 X	Ren – 1	5/25		×	×		X	X	X		×					+				×		
1035	-2-			×	×	×	×	X	V	×										×		
1055	2-		825	×	×	M		×	×											×		
105\$ X X X X X X X X X			1035	×	×		_		V											×		
	Ren – 4	_	1058	×	×				V											×		
			25.80	×	×	.	_		V	×										×		
1012 X	1		1316	×	×		_		V	×										×		
Date Time Received by: (Signature) Date Time Shipping Ticket No.			10(2	×	×	_	_		M											×		
Date Time Received by: (Signature) Date Time Received by: (Signature) Date Time Shipping Ticket No.	\text{den} − 15- 0		1115	×	×	_			×											×		
Date Time Received by: (Signature) Date Time Received by: (Signature) Date Time Shipping Ticket No.	Ren-RL-Mar	_	has	×						×										×		
Date Time Received by: (Signature) Date Time Received by: (Signature) Date Time Shipping Ticket No.																-						
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Date Time Received by: (Signature) Date Time Received by: (Signature) Date Time Shipping Ticket No.																						
Date Time Sl25/4 (347)	(elinquished by: (Signature)	Date	_	Recely	ed by:	Sighath	rie C	R	EMAI	RKS/S	SPECL	4L IN	STRU	CTIOI	NS:							
ecerved for Laborators by: Date Time	Selinquished by: (Signature)	Date	-	Receiv	ed by: (Signati	ure)															
	Secreted for Laborators by:	Date	Time 7 (34)		ng Ticke	t No.																

COOLER RECEIPT REPORT ARDL, INC.

ARI	dl#: <u>8703</u>	Cooler#Blve	_	
		Number of Coolers in St		
Pro	ject: Kend Lake	Date Received: 05/25	5/2021	
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened:	5/25/2021(Signature) DC	$\mathcal{B}_{}$	٠
1.	Did cooler come with a shipping slip (airbill, etc.)?	X	YES NO	
	Did cooler come with a shipping slip (airbill, etc.)?	_ Courier-DSL)	-
2.	Were custody seals on outside of cooler?		YES 🔞 N/A	A.
	How many and where?,Seal I	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?			
5.	Were custody papers sealed in a plastic bag?Handdelive	red :	YES NO	
6.	Were custody papers filled out properly (ink, signed, etc.)?		ÆŠ NO N/A	4
7.	Were custody papers signed in appropriate place by ARDL personnel?		YES NO N/A	4
8.	Was project identifiable from custody papers? If YES, enter project nar	me at the top of this form	YES NO N/A	}
9.	Was a separate container provided for measuring temperature? YES	SNOObserved Cooler]	Temp. 1.0 C Saws C Correction factor 0.0 C	L ND
В.	LOG-IN PHASE: Date samples were logged-in: 05/25/202/	(Signature)	Correction factor O. (7)	
10.	Describe type of packing in cooler: Loose Ice		Western Charles and Control of the C	-
11.	Were all samples sealed in separate plastic bags?		YES N//	Α
12.	Did all containers arrive unbroken and were labels in good condition?.		VES NO	
13.	Were sample labels complete?		(ÉS) NO	
14.	Did all sample labels agree with custody papers?			
15.	Were correct containers used for the tests indicated?		(VES) NO	
16.	Was pH correct on preserved water samples?		YÉS NO N/	Α
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/	\triangle
	Comments and/or Corrective Action:	Samp	ole Transfer	
		Fraction	Fraction	
-			Area#	-
	•	walk-in		_
		D By	Ву	
		On	On	1
-		105/25/2021		
		Chain-of-Custody	V#	>
(E	By: Signature) Date:			

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COOLER RECEIPT REPORT ARDL, INC.

ARI	DL #: <u>8703</u>	Cooler # Rod		
	David Lake	Number of Coolers in Shipment: 2 Date Received: 05/25/2021		
Pro	ject: Kend Lake			
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 05/2	5/202/(Signature)		
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES	(NO)	
	If YES, enter carrier name and airbill number here:	Courier - DSD	·	
2.	Were custody seals on outside of cooler?	YES	6	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?	,(YĒS)	NO	
5.	Were custody papers sealed in a plastic bag? Hand delivered	YES	(NO)	ı
6.	Were custody papers filled out properly (ink, signed, etc.)?		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 a	t the top of this formYES	NO Sa	N/A
9.	Was a separate container provided for measuring temperature? YES	NO Observed Cooler Temp. / 2	۰۰. م	Tem
В.	LOG-IN PHASE: Date samples were logged-in: 05/25/2021	(Signature) DCB Correction factor_	<u></u>	c /
10.	Describe type of packing in cooler: LCOSE CE			
11.	Were all samples sealed in separate plastic bags?	YES	() N/A
12.	Did all containers arrive unbroken and were labels in good condition?	(ES) ио	
13,	Were sample labels complete?	YES) NO	
14.	Did all sample labels agree with custody papers?	VES	NO	
15.	Were correct containers used for the tests indicated?	(FES	NO	
16.	Was pH correct on preserved water samples?	YÉS) 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:	Sample Transfer		
		Fraction Fraction		
-		Area#		
		Walk-In		
		By By		
		On On On		
_		()5/25/2021		
		Chain-of-Custody#		
(E	By: Signature) Date:			Management de

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

www.ardlinc.com

Date: 8/3/21

Lab Name: ARDL, Inc.

ARDL Report No.: 8734

Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 7/8/21

CASE NARRATIVE

Customer Sample No.	<u>Date</u> <u>Collected</u>	<u>Lab ID</u> <u>Number</u>	Analyses Requested
REN-1	7/08/21	8734-01	NP Pesticides, Metals(1), Inorganics(2)
REN-2-0	7/08/21	8734-02	NP Pesticides, Inorganics(2)(3)
REN-2-5	7/08/21	8734-03	Metals(1), Inorganics(2)
REN-3	7/08/21	8734-04	NP Pesticides, Inorganics(2)(3)
REN-4	7/08/21	8734-05	NP Pesticides, Inorganics(2)(3)
REN-5	7/08/21	8734-06	NP Pesticides, Inorganics(2)
REN-7	7/08/21	8734-07	NP Pesticides, Inorganics(2)
REN-8	7/08/21	8734-08	NP Pesticides, Inorganics(2)(3)
REN-15-0	7/08/21	8734-09	NP Pesticides, Inorganics(2)(3)
REN-RL-MAR	7/08/21	8734-10	E Coli

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

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.

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: Rend Lake ARDL Report No.: 8734

CASE NARRATIVE (Continued)

DUPLICATE

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

INTERNAL STANDARDS

All internal standard criteria were met.

SURROGATES

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 undetected.

LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

MATRIX SPIKE

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, TSS and TVSS. RPD on all duplicate analyses were within control limits, except pheophytin-a. The parent sample has been flagged appropriately with a 'J' qualifier.

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

Field Sample Results Batch QC Prep Blank

Including as appropriate:

LCS/Spike Blank

Matrix QC MS/MSD

Sample Duplicate

ARDL Data Package

8734

N:\ARDL Case Narratives\ARDL Data Package Contents.pdf - Revised June 21, 2019

Authorized By: DSD-QAO

Lab Report No: 008734 Report Date: 07/22/2021

Project Name: Project No.:	REND LAKE	Analytical Me	-	PESTICII	DES (82	70SIM-MO	D)
-	fied - IL100308	-	ethod: 35				
Field ID:	REN-1		ARDL I	Lab No.:	00873	34-01	
Desc/Location:	REND LAKE		Lab F	llename:	E0723	1114	
Sample Date:	07/08/2021		Receiv	ved Date:	07/08	3/2021	
Sample Time:	1245		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analys	sis Date:	07/23	1/2021	
Amount Used:	800 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B113	68A	
% 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	1.05		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	0.438		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	1
Triphenylphosphate	30-130	83%	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: 008734	1734						μ,	Report Date:	: 07/30/2021	021
Project Name: REND LAKE Project No:	E						4	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008734-01 Field ID: REN-1 Received: 07/08/2021	11	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 07/08/2021 1245			Matrix: Moisture:	:: WATER	
Analyte	TOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0400 0.00400 0.0200 0.0190 0.00800 1 4.0 4.0	0.0500 0.00500 0.0300 0.0200 0.0100 4.00 1.00		0.205 1.04 0.368 0.121 0.165 6.4 ND	MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE	6010C 6010C 350.1 GREEN 365.2 160.2 160.4	07/19/21 07/19/21 NA NA 07/26/21 NA NA	07/20/21 07/20/21 07/14/21 07/20/21 07/27/21 07/09/21 07/09/21	P7553 P7553 07156051 07236089 07276100 07136030 07136031

(a) DOD and/or NELAC Accredited Analyte.

Sample 008734-01, Inorganic Analyses

Lab Report No: 008734 Report Date: 07/22/2021

-	REND LAKE		-	PESTICII	DES (82	70SIM-MO	D)
Project No.:	fied - IL100308	Analytical Me					
NELAC CEPEL	ried - Irionans	Prep Me	ethod: 35	510C			
Field ID:	REN-2-0		ARDL 1	Lab No.:	00873	34-02	
Desc/Location:	REND LAKE		Lab F:	llename:	E0723	1117	
Sample Date:	07/08/2021		Recei	red Date:	07/08	3/2021	
Sample Time:	1000		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analys	sis Date:	07/23	L/2021	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1136	58A	
% Moisture:	NA		Level	:	LOM		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin	AAAA MAAA MAAA MAAA MAAA MAAA MAAA MAA	0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.690		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	0.310		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	71%	j
			- 1

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

⁽a) DOD-QSM Accredited Analyte.

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

Lab Report No: 008734	734						щ	Report Date:	: 07/30/2021	021
Project Name: REND LAKE Project No:	H						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008734-02 Field ID: REN-2-0 Received: 07/08/2021	2.2.2.1	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 07/08/2021 1000			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	OOT	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 4.0 4.0	0.0300 1.00 0.0200 1.00 4.00 4.00	ы	0.0641 23.6 0.069 2.5 0.113 5.2 ND 5.8	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 365.2 160.2 160.4 415.1	NA 07/09/21 NA 07/09/21 07/26/21 NA NA	07/14/21 07156051 07/13/21 07146048 07/20/21 07236089 07/13/21 07146048 07/27/21 07276100 07/09/21 07136030 07/09/21 07136031 07/11/21 07166059	07156051 07146048 07236089 07146048 07276100 07136031 07136031

(a) DOD and/or NELAC Accredited Analyte.

Sample 008734-02, Inorganic Analyses

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

Lab Report No: 008	008734						н	Report Date:	: 07/30/2021	021
Project Name: REND LAKE Project No:	(E						4	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008734-03 Field ID: REN-2-5 Received: 07/08/2021)3)21	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 07/08/2021 1000			Matrix: Moisture:	: WATER : NA	
Analyte	LOD	ŎOI	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0400 0.00400 0.0200 0.0190 0.00800 1 4.0 4.0	0.0500 0.00500 0.0300 0.0200 0.0100 4.00 1.00		0.111 0.290 0.159 0.101 0.113 ND ND ND	MG/L MG/L MG/L MG/L MG/L MG/L MG/L	3010A 3010A NONE NONE 365.2 NONE NONE	6010C 6010C 350.1 GREEN 365.2 160.2 160.4	07/19/21 07/19/21 NA NA 07/26/21 NA NA	07/20/21 07/20/21 07/14/21 07/20/21 07/27/21 07/09/21 07/09/21	P7553 P7553 07156051 07236089 07276100 07136030 07136031

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008734 Report Date: 07/22/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	ES (827	70SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-3		ARDL I	Lab No.:	00873	34-04	
Desc/Location:	REND LAKE		Lab Fi	lename:	E0721	1118	
Sample Date:	07/08/2021		Recei	red Date:	07/08	3/2021	
Sample Time:	1100		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analys	sis Date:	07/21	1/2021	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	В1136	58A	
% 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	1.08		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	0.478		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	79%	

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

⁽a) DOD-QSM Accredited Analyte.

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

Lab Report No: 008734	734						р.	Report Date:	: 07/30/2021	021
Project Name: REND LAKE Project No:	ы						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008734-04 Field ID: REN-3 Received: 07/08/2021	21	Sampl Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 07/08/2021 1100			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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 4.0 4.0	0.0300 1.00 0.0200 1.00 4.00 4.00 1.00		0.0465 63.5 ND 2.4 0.174 23.2 10.4 8.0	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 365.2 160.2 160.4 415.1	NA 07/09/21 NA 07/09/21 07/26/21 NA NA	07/14/21 07/13/21 07/20/21 07/13/21 07/27/21 07/09/21 07/09/21	07156051 07146048 07236089 07146048 07276100 07136031 07166059

(a) DOD and/or NELAC Accredited Analyte.

Sample 008734-04, Inorganic Analyses

Lab Report No: 008734 Report Date: 07/22/2021

Project Name:	REND LAKE		-	PESTICII	DES (827	0SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-4		ARDL I	Lab No.:	00873	34-05	
Desc/Location:	REND LAKE		Lab Fi	ilename:	E0721	1119	
Sample Date:	07/08/2021		Recei	red Date:	07/08	3/2021	
Sample Time:	1125		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analys	sis Date:	07/23	L/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1136	68A	
% 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	0.767		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	0.633		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	65%	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: 008734	734						μ,	Report Date:	: 07/30/2021	021
Project Name: REND LAKE Project No:	ъì						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008734-05 Field ID: REN-4 Received: 07/08/2021	5 21	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 07/08/2021 1125			Matrix: Moisture:	MATER NA	
Analyte	LOD	дол	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 4.0 4.0	0.0300 1.00 0.0200 1.00 4.00 4.00		ND 48.8 ND 4.4 0.20 18.4 8.8	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	350.1 10200H GREEN 10200H 365.2 160.2 160.4	NA 07/09/21 NA 07/09/21 07/26/21 NA NA	07/14/21 07156051 07/13/21 07146048 07/20/21 07236089 07/13/21 07146048 07/27/21 07276100 07/09/21 07136030 07/09/21 07136031 07/11/21 07166059	07156051 07146048 07236089 07146048 07276100 07136030 07136031

(a) DOD and/or NELAC Accredited Analyte.

Sample 008734-05, Inorganic Analyses

Lab Report No: 008734 Report Date: 07/22/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-5		ARDL I	Lab No.:	00873	34-06	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0721	.120	
Sample Date:	07/08/2021		Receiv	red Date:	07/08	3/2021	
Sample Time:	0845		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analys	sis Date:	07/21	/2021	
Amount Used:	800 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1136	58A	
% 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	0.425		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	0.688		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	1
Triphenylphosphate	30-130	76%	
			1

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

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

Date: 07/30/2021	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA	p Analysis Run e Date Number	(7) (4/21 07156051 07/20/21 07236089 (721 07/27/21 07276100 07/09/21 07136030 07/09/21 07136031 07/11/21 07166059
Report Date:	Anal NELAC C	Ma Mois	Analysis Prep Method Date	350.1 NA GREEN NA 365.2 07/26/21 160.2 NA 160.4 NA 415.1 NA
			Prep A	NONE NONE 365.2 NONE NONE
		REND LAKE 07/08/2021 0845	Units	MG/L MG/L MG/L MG/L MG/L
			Result	0.157 0.268 0.208 10.8 ND 8.2
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Samp Samp Samp	ðo1	0.0300 0.0200 0.0100 4.00 4.00
734		2 11	TOD	0.0200 0.0190 0.00800 4.0 4.0
Lab Report No: 008734	Project Name: REND LAKE Project No:	ARDL No: 008734-06 Field ID: REN-5 Received: 07/08/2021	Analyte	Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008734 Report Date: 07/22/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-7		ARDL I	Lab No.:	00873	34-07	
Desc/Location:	REND LAKE		Lab Fi	ilename:	E0721	121	
Sample Date:	07/08/2021		Recei	red Date:	07/08	3/2021	
Sample Time:	1350		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analys	sis Date:	07/21	L/2021	
Amount Used:	1000 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1136	68A	
% 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	0.270		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	1.09		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%	j

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: REND LAKE Project No: ARDL No: 008734-07 Field ID: REN-7 Received: 07/08/2021 Analyte Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended	LOD 0.0200 0.0190 0.00800	Samples Sample	Sampling Loc'n: Sampling Date: Sampling Time: Q Flag Re 300 0. 200 0	1.n: REND LAKE The: 07/08/2021 The: 1350 The: 1350 The color of the co	JAKE /2021 Units MG/L MG/L MG/L	Prep Method NONE NONE 365.2	Analysis Method 350.1 GREEN 365.2 160.2	Analysis: Inorganics NELAC Certified - IL100308 Matrix: WATER Moisture: NA Prep Analysis Ru Date Date Numb NA 07/20/21 07156 NA 07/20/21 07236 NA 07/20/21 07236 NA 07/20/21 07236	: Inorganics fied - IL100308 : WATER : NA Analysis Run Date Number 07/14/21 07156051 07/20/21 07236089 07/27/21 07136030	Run Number 07156051 07276100 07136030
Solids, Volatile Suspen		4.00		N ON	MG/L	NONE	160.4	NA		07136031
Total Organic Carbon	0.500	1.00		7.9	MG/L	NONE	415.1	NA	07/11/21	07166059

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008734 Report Date: 07/22/2021

Project Name:	REND LAKE		Analysis:	NP PESTICI	DES (827	OSIM-MO	D)
Project No.:		Analytica	al Method:	8270C			
NELAC Certi:	fied - IL100308	Pre	ep Method:	3510C			
Field ID:	REN-8		ARD	L Lab No.:	00873	34-08	
Desc/Location:	REND LAKE		Lab	Filename:	E0721	122	
Sample Date:	07/08/2021		Rec	eived Date:	07/08	3/2021	
Sample Time:	1033		Pre	p. Date:	07/12	2/2021	
Matrix:	WATER		Ana	lysis Date:	07/23	1/2021	
Amount Used:	1000 mL		Ins	trument ID:	AG5		
Final Volume:	1 mL		QC	Batch:	B1136	68A	
% Moisture:	NA		Lev	el:	LOW		
					Data		Dilution
Parameter		LO	D LOÇ	? Result	Flag	Units	Factor
Trifluralin		0.2	00 0.20	0 ND		UG/L	1
Atrazine		0.2	00 0.20	0.370		UG/L	1
Metribuzin		0.2	00 0.20	0 ND		UG/L	1
Alachlor		0.2	00 0.20	0 ND		UG/L	1
Metolachlor		0.2	00 0.20	0.260		UG/L	1
Chlorpyrifos		0.2	00 0.20	0 ND		UG/L	1
Cyanazine		0.2	00 0.20	0 ND		UG/L	1
Pendimethalin		0.2	00 0.20	00 ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	52%	

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

⁽a) DOD-QSM Accredited Analyte.

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

Report Date: 07/30/2021	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA	Prep Analysis Run Date Date Number	NA 07/14/21 07156051 07/09/21 07/13/21 07146048 NA 07/20/21 07236089 07/26/21 07/13/21 07146048 07/26/21 07/27/21 07276100 NA 07/09/21 07136031 NA 07/09/21 07136031 NA 07/11/21 07166059
Repo	A	Σ	Analysis Method	350.1 10200H 07 GREEN 10200H 07 365.2 07 160.2 160.4
			Prep Method	NONE 10200H NONE 10200H 365.2 NONE NONE
		REND LAKE 07/08/2021 1033	Units	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L
			Result	ND 108 ND 8.2 0.174 14.4 10.8
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Samp Sam Sam	TOO	0.0300 1.00 1.00 0.0100 4.00 1.00
34		н	LOD	0.0200 1.00 0.0190 1.00 0.00800 4.0
Lab Report No: 008734	Project Name: REND LAKE Project No:	ARDL No: 008734-08 Field ID: REN-8 Received: 07/08/2021	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008734 Report Date: 07/22/2021

Project Name:	REND LAKE	Ana	lysis: NF	PESTICII	DES (827	0SIM-MO	D)
Project No.:		Analytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	REN-15-0		ARDL 1	Lab No.:	00873	34-09	· · · · · · · · · · · · · · · · · · ·
Desc/Location:	REND LAKE		Lab F	ilename:	E0721	123	
Sample Date:	07/08/2021		Recei	ved Date:	07/08	3/2021	
Sample Time:	1100		Prep.	Date:	07/12	2/2021	
Matrix:	WATER		Analy	sis Date:	07/23	1/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1136	58A	
% 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	0.944		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	0.411		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.

⁽a) DOD-QSM Accredited Analyte.

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

Project Name: REND LAKE	Lab Report No: 008734	734						Щ	Report Date:	: 07/30/2021	021
34-09 Sampling Loc'n: REND LAKE 8/2021 Sampling Date: 07/08/2021 8/2021 Sampling Date: 07/08/2021 8/2021 Sampling Time: 1100 LOQ Flag Result Units Method Method Date Date 1.00		ы						Z	Analysis ELAC Certi	: Inorgan fied - IL1	ics 00308
LOD LOQ Flag Result Units Method Method Date Date Date		9	Sampl Samp Samp	ing Loc ling Da		LAKE 3/2021			Matrix Moisture		
ecte 1.00 1.00 ND MG/L NONE 350.1 NA 07/14/21 0.0190 0.0200 ND MG/L NONE GREEN NA 07/20/21 1.00 1.00 3.0 MG/CU.M. 10200H 10200H 07/09/21 07/20/21 nded 4.0 0.0100 0.161 MG/L 365.2 365.2 07/26/21 07/27/21 spen 4.0 4.00 10.0 MG/L NONE 160.2 NA 07/09/21 n 0.500 1.00 MG/L NONE 160.4 NA 07/09/21	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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0	0.0300 1.00 1.00 0.0100 4.00 4.00		ND 59.0 ND 3.0 0.161 22.4 10.0 8.0	MG/CU.M. 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 365.2 160.2 160.4	NA 07/09/21 NA 07/09/21 07/26/21 NA NA	07/14/21 07/13/21 07/20/21 07/13/21 07/27/21 07/09/21 07/09/21	07156051 07146048 07236089 07146048 07276100 07136031 07136031

(a) DOD and/or NELAC Accredited Analyte.

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

Report Date: 07/30/2021	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER	Analysis Run Date Number	07/08/21 07136036
port Dat	Analysi LAC Cert	Matrix: Moisture:	Prep Date	NA
Re	NE		Prep Analysis Method Method	1604
			Prep Method	NONE
		LAKE 8/2021	Units	COL/100 ML
		Sampling Loc'n: REND LAKE Sampling Date: 07/08/2021 Sampling Time: 1150	Result	6.0
		ampling Loc'n: Sampling Date: Sampling Time:	Flag	
	-	Samp Sami Sami	TOO	1.00
734	ы	0 AR 21	LOD	1.0
No: 008	REND LAK	008734-10 REN-RL-MAR 07/08/2021	Φ	
Lab Report No: 008734	Project Name: REND LAKE Project No:	ARDL No: 008734-10 Field ID: REN-RL-MA: Received: 07/08/202	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

Sample 008734-10, Inorganic Analyses

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

Lab Report No: 008733 Report Date: 07/22/2021

	SHELBYVILLE LAK	_	sis: NP PEST	ICIDES (8	270SIM-M	IOD)
Project No.:		Analytical Met				
NELAC Certi:	fied - IL100308	Prep Metl	hod: 3510C			
Field ID:	NA	***************************************	ARDL Lab No	008	733-01B1	
Desc/Location:	NA		Lab Filenam	e: E07	21103	
Sample Date:	NA		Received Da	te: NA		
Sample Time:	NA		Prep. Date:	07/	12/2021	
Matrix:	QC Material		Analysis Da	te: 07/	21/2021	
Amount Used:	1000 mL		Instrument	ID: AG5		
Final Volume:	1 mL		QC Batch:	B11	368	
% 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:	Limits	Results	
Triphenylphosphate	30-130	82%	Ì

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

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

62864

Lab Report No: 008734	734							Report Date:		07/30/2021
Project Name:	REND LAKE	AKE						NELA	C Certifi	NELAC Certified - IL100308
Analyte	LOD	ЙOЛ	Blank Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
(a) Iron	0.040	0.050	QN	MG/L	3010A	6010C	07/19/21	07/20/21	P7553	008732-01B1
(a) Manganese	0.004	0.005	NO	MG/L	3010A	6010C	07/19/21	07/20/21	P7553	008732-01B1
Ammonia Nitrogen	0.020	0:030	QN	MG/L	NONE	350.1	NA	07/14/21 07156051	07156051	008734-01B1
Chlorophyll-a, Corre	1.0	1.0	ON	MG/CU.M.	10200H	10200H	07/09/21	07/13/21	07146048	008734-02B1
Nitrate as Nitrogen	0.019	0.020	R	MG/L	NONE	GREEN	NA	07/20/21	07236089	008734-02B1
Pheophytin-a	1.0	1.0	N	MG/CU.M.	10200H	10200H	07/09/21	07/13/21	07146048	008734-02B1
Phosphorus	0.008	0.010	NO	MG/L	365.2	365.2	07/26/21	07/27/21	07276100	008734-01B1
Solids, Total Suspen	1.0	1.0	QN	MG/L	NONE	160.2	NA	07/09/21	07136030	008734-02B1
Solids, Volatile Sus	1.0	1.0	QN	MG/L	NONE	160.4	NA	07/09/21	07136031	008734-02B1
Total Organic Carbon	0.50	1.0	ON	MG/L	NONE	415.1	NA	07/11/21	07166059	008733-08B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008734

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

62864

Lab Report No: 008733	o: 008733							Rep	ort Date:	Report Date: 07/22/2021
Project Name: Project No.:	Project Name: SHELBYVILLE LAKE/KAS Project No.:		Analysis: NP PESTICIDES (8270SIM-MOD)	PESTICID	ES (8270S)	IM-MOD)	Anal	rtical Me Prep Me	Analytical Method: 8270C Prep Method: 3510C	00. 00.
Matrix: Amount Used:	QC Material 1000 mL		QC Batch: Level:		B11368 LOW		Prep. Date: Analysis Da	Date: is Date:	Prep. Date: 07/12/2021 Analysis Date: 07/21/2021	11
	D roment rot rot	Spike	Spike	Spike	Duplicate	Duplicate	Duplicate % Rec	Recovery	נםמ	RPD
	raramerer	Nesda.	דעייי	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	DESCRIPTION	דפיים	200	STILLE	2	7 11111
	Trifluralin	3.38	4	85	1	1	1	30-130	3	!
	Atrazine	3.54	4	68	1	1	1	30-130	!	1
	Metribuzin	3.54	4	68	!	1	1	30-130	1	1
	Alachlor	3.67	4	92	!	!	1	30-130	i	!!
-	Metolachlor	3.49	4	8.7	1	1	;	30-130	1	1
	Chlorpyrifos	3.36	4	84	1	;	1	30-130	}	1
	Cyanazine	3.54	4	68	1	1	1	30-130	1	1
P	Pendimethalin	3.42	4	86	!	1	1	30-130	!	1

%R Limits 30-130

Duplicate %R

Spike %R 87.3

SURROGATE RECOVERIES:

Triphenylphosphate

(a) DOD-QSM Accredited Analyte.

^{&#}x27;*' indicates a recovery outside of standard limits. Spike Blanks for 008733-01, NP PESTICIDES (8270SIM-MOD)

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

	_								
Report Date: 07/30/2021	NELAC Certified - IL100308	QC Lab	Number	008732-01C1	008732-01C1	008734-01C1	008734-02C1	008734-01C1	008733-08C1
Report Da	NELAC Cer	Analytical	Run	P7553	P7553	07156051	07236089	07276100	07166059
		Mean	% Rec	1	1	1	i	1	1
		% Rec	Limits	87-115	90-114	80-120	80-120	80-120	76-120
		LCS 2	% Rec	1	;	1	1	î I	1
		LCS 2	Level	1	;	;	i i	1	ł
		LCS 2	Result		ļ	ì	1	1	ĵ į
		LCS 1	% Rec	86	102	66	95	66	102
		LCS 1	Level	5.0	0.75	1.0	1.0	0.67	20.0
18734	REND LAKE	LCS 1	Result	4.9	0.76	0.99	0.95	99.0	20.3
Lab Report No: 008734	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Phosphorus	Total Organic Carbon

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

⁽a) DOD and/or NELAC Accredited Analyte

MATRIX SPIKE/SPIKE DUPLICATE REPOR
/SPIKE
/SPIKE
MATRIX SPIKE/SPIKE
MATRIX SPIKE,
MATRIX

Report Date: 07/22/2021 Mt. Vernon, IL 62864 400 Aviation Drive; P.O. Box 1566 ARDL, INC. Lab Report No: 008734

Project Name: REND LAKE Project No.:	END LAKE	Ana	Analysis: NP	PESTICIDES		(8270SIM-MOD)		Analytica	Analytical Method: Prep Method:	: 8270C : 3510C	
Field ID: Desc/Location: REN-1 Sample Date: 07/08/202 Sample Time: 1245 Matrix: WATER	REN-1 REND LAKE 07/08/2021 1245 WATER		Prep. Date: Amount Used: % Moisture: QC Batch: Level:	e e e	07/12/2021 800 mL NA B11368A LOW		AR La Re An	ARDL Lab No.: Lab Filename: Received Date: Analysis Date:		008734-01 07/08/2021 07/21/2021	
	Sample	le	MS	MS	MS	MSD	MSD	MSD	% Rec		RPD
Parameter	ster Result	1t	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin	ralin		4.26	5	85.3	4.04	5	80.8	30-130	5.4	30
Atrazine	1.05	2	5.2	2	83	5.06	ις	80.3	30-130	2.7	30
Metribuzin	ND		4.29	2	85.8	4.15	ιΩ	83	30-130	3.3	30
Alachlor	lor		4.61	2	92.3	4.56	ιΩ	91.3	30-130	1.1	30
Metolachlor	thlor 0.438	38	4.68	S	84.8	4.54	ις	82	30-130	ĸ	30
Chlorpyrifos	ND		4.03	5	80.5	3.93	ιΩ	78.5	30-130	2.5	30
Cyanazine	ND		4.39	2	87.8	4.26	S	85.3	30-130	2.9	30
Pendimethalin	halin		4.15	5	83	4.06	ιΩ	81.3	30-130	2.1	30

%R Limits	30-130	
MSD %R	82	
MS &R	85	
SURROGATE RECOVERIES:	Triphenylphosphate	

⁽a) DOD-QSM Accredited Analyte. 'nc' indicates sample >4X spike level.

^{&#}x27;*' indicates a recovery outside of standard limits.
Matrix Spikes for 008734-01, NP PESTICIDES (8270SIM-MOD)

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

	OIMS	01MS	01MS	02MS	OIMS
QC Lab Number	008734-01MS	008734-01MS	008734-01MS	008734-02MS	008734-01MS
Run	P7553	P7553	07156051	07236089	07276100
RPD Limit	20	20	20	20	20
RPD	0	0	4	н	П
% Rec Limits	87-115	90-114	75-125	75-125	75-125
MSD % Rec	97	104	64	75	100
MSD Level	1.0	0.50	2.0	1.0	0.83
MSD Result	1.2	1.6	2.3	0.82	н
MS Rec	76	103	102	92	66
MS Level	1.0	0.50	2.0	1.0	0.83
MS Result	1.2	1.6	2.4	0.83	0.99
Sample Result	0.21	1.0	0.37	0.069	0.17
Sample Matrix	WATER	WATER	WATER	WATER	WATER
Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Phosphorus

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

⁽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: 008734	34						Report Date: 07/30/2021	07/30/2021
Project Name: REND LAKE	LAKE						NELAC Certifi	NELAC Certified - IL100308
		- Constitution of the Cons						
	Sample	First	Second		Percent	Mean	Analytical	QC Lab
Analyte	Conc'n	Conc'n Duplicate Duplicate	Duplicate	Units	Diff	(Smp, D1, D2)	Run	Number
Chlorophyll-a, Corrected	23.6	23.6	1	MG/CU.M.	0	1	07146048	008734-02D1
Pheophytin-a	2.5	4.4	1	MG/CU.M.	55*	1	07146048	008734-02D1
Solids, Total Suspended	5.2	5.2	1	MG/L	0	1	07136030	008734-02D1
Solids, Volatile Suspend	ND	ND		MG/L	NC	1	07136031	008734-02D1

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

Sample Duplicates for 008734



Sample Receipt Information

Including as appropriate:

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

ARDL Data Package

8734

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

(618) 244-3235 Phone

(618) 244-1149 Fax

CHAIN OF CUSTODY RECORD

SPECIFY CHEMICALS ADDED AND FINAL PH IF KNOWN PRESERVATION ICED × × × × × × × × × × SAMPLE LOCATION REMARKS OR REMARKS/SPECIAL INSTRUCTIONS: × × × × XXX × × × × × × × × × × × X × × × Shipping Ticket No. × Received by; NO. OF CONTAINERS GKAB × × × × × × × × × × COWP 7/3/31 1350 1000 1135 5480 mg/1 00(11/6/8/1 150 1384 1000 TIME 118/21 1/8/J 18 All Slewnerman 5768[2] PBI DATE SAMPLE NUMBER C Ren-RL-Mar 0 -3 Ren - 15-0 -5 Rend Lake Ren-2Ren-2Ren - 4 3 Ren - 8 Ren-3o Ren – 5 7 Ren – 7 PROJECT Ren-

o Lender Order No:

COOLER RECEIPT REPORT ARDL, INC.

Number of Coolers in Shipment: Date Received: 07/08/2021 A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 07/08/202 signature) Lid cooler come with a shipping slip (airbill, etc.)? If YES, enter carrier name and airbill number here: ARD COULET VALUE Were custody seals on outside of cooler? How many and where? Seal Date: Seal Name: Were custody seals unbroken and intact at the date and time of arrival? Did you screen samples for radioactivity using a Geiger Counter? Were custody papers sealed in a plastic bag? HAND ADDIVIDUAL Were custody papers filled out properly (ink, signed, etc.)? Were custody papers signed in appropriate place by ARDL personnel? Was project identifiable from custody papers? If YES, enter project name at the top of this form.
A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 0.7/08/202 signature) CB 1. Did cooler come with a shipping slip (airbill, etc.)? YES NO If YES, enter carrier name and airbill number here: ARD COUNTEL VALUE 2. Were custody seals on outside of cooler? Seal Date: Seal Name: 3. Were custody seals unbroken and intact at the date and time of arrival? YES NO 4. Did you screen samples for radioactivity using a Geiger Counter? Seal Name: NO 5. Were custody papers sealed in a plastic bag? Hand defined and time of arrival? YES NO 6. Were custody papers filled out properly (ink, signed, etc.)? YES NO 7. Were custody papers signed in appropriate place by ARDL personnel? YES NO N//
1. Did cooler come with a shipping slip (airbill, etc.)? YES NO If YES, enter carrier name and airbill number here: ARD CONTEXT VALUE 2. Were custody seals on outside of cooler? Seal Date: Seal Name: 3. Were custody seals unbroken and intact at the date and time of arrival? YES NO 4. Did you screen samples for radioactivity using a Geiger Counter? YES NO 5. Were custody papers sealed in a plastic bag? Hand Aphilled YES NO 6. Were custody papers filled out properly (ink, signed, etc.)? YES NO 7. Were custody papers signed in appropriate place by ARDL personnel? YES NO NAME OF THE STORY OF
2. Were custody seals on outside of cooler?
2. Were custody seals on outside of cooler?
2. Were custody seals on outside of cooler?
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 filled out properly (ink, signed, etc.)? 7. Were custody papers signed in appropriate place by ARDL personnel? 8. NO 8. NO 9.
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 filled out properly (ink, signed, etc.)? 7. Were custody papers signed in appropriate place by ARDL personnel? 8. NO 8. NO 9.
4. Did you screen samples for radioactivity using a Geiger Counter? 5. Were custody papers sealed in a plastic bag? Hand Aphileson (No. 1) 6. Were custody papers filled out properly (ink, signed, etc.)? NO. N/. 7. Were custody papers signed in appropriate place by ARDL personnel? NO. N/.
6. Were custody papers filled out properly (ink, signed, etc.)? 7. Were custody papers signed in appropriate place by ARDL personnel? NO N/A
6. Were custody papers filled out properly (ink, signed, etc.)? 7. Were custody papers signed in appropriate place by ARDL personnel? NO N/A
7. Were custody papers signed in appropriate place by ARDL personnel?
9. Was a separate container provided for measuring temperature? YES NO Observed Cooler Temp. 12 C
B. LOG-IN PHASE: Date samples were logged-in: 07/08/201 (Signature) DCB Correction factor 0.0 0
10. Describe type of packing in cooler: LCCSe /ce
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 #:YES NO (N
19. Was the ARDL project coordinator notified of any deficiencies?YES NO No.
Comments and/or Corrective Action: Sample Transfer
Fraction Fraction
/-\// Area,#
Walk-In
By A By
On On
07/08/2021
Chain-of-Custody #
(By: Signature) Date:

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COOLER RECEIPT REPORT ARDL, INC.

ARI	DL#: 8734	Cooler # Blue 1
Pro	ect. Rend Lake	Number of Coolers in Shipment: Date Received: <u>07/08/202/</u>
Α.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 071	08/201(Signature) DB
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES (NO
	Did cooler come with a shipping slip (airbill, etc.)?	corier-Valerie
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?	(YES) NO
5.	Were custody papers sealed in a plastic bag? Hand defiver	ed yes (NO)
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 a	<u>~</u>
9.	Was a separate container provided for measuring temperature? YES	NOV Observed Cooler Temp. Of C
В.	LOG-IN PHASE: Date samples were logged-in: 07/08/2021	(Signature) OCB Correction factor 0.0 C
10.	Describe type of packing in cooler: Loose /ce	
11.	Were all samples sealed in separate plastic bags?	YES (O) N/A
12.	Did all containers arrive unbroken and were labels in good condition?	YES NO
13.	Were sample labels complete?	NO
14.	Did all sample labels agree with custody papers?	YES NO
15.	Were correct containers used for the tests indicated?	NO
16.	Was pH correct on preserved water samples?	YES 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 NA
	Comments and/or Corrective Action:	Sample Transfer
		Fraction Fraction
-		Area#
		Walk-In
		By O.D By
		On On
-		07/08/2021
		Chain-of-Custody #
(E	By: Signature) Date:	oriali or outledy ii

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

www.ardlinc.com

Customer Name: SLCOE

Date: 8/30/21

Project Name: Rend Lake

Lab Name: ARDL, Inc.

Samples Received at ARDL: 8/5/21

ARDL Report No.: 8760

CASE NARRATIVE

Customer Sample No.	<u>Date</u> Collected	<u>Lab ID</u> <u>Number</u>	Analyses Requested
REN-1	8/05/21	8760-01	NP Pesticides, Metals(1), Inorganics(2)
REN-2-0	8/05/21	8760-02	NP Pesticides, Inorganics(2)(3)
REN-2-5	8/05/21	8760-03	Metals(1), Inorganics(2)
REN-3	8/05/21	8760-04	NP Pesticides, Inorganics(2)(3)
REN-4	8/05/21	8760-05	NP Pesticides, Inorganics(2)(3)
REN-5	8/05/21	8760-06	NP Pesticides, Inorganics(2)
REN-7	8/05/21	8760-07	NP Pesticides, Inorganics(2)
REN-8	8/05/21	8760-08	NP Pesticides, Inorganics(2)(3)
REN-15-0	8/05/21	8760-09	NP Pesticides, Inorganics(2)(3)
REN-RL-MAR	8/05/21	8760-10	E Coli

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

Due to delays in receipt of these samples from the common carrier, the cooler exceeded temperature requirements prior to being received by the accredited laboratory for TOC. The results are flagged appropriately.

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. The ICV passed all criteria.

CONTINUING CALIBRATION

The continuing calibration verification (CCV) passed criteria for all analytes, except as noted below. The following table shows the exceedances of the CCVs (±20%).

<u>Analyte</u>	CCV
Trifluralin	+26%

The results are flagged with a 'Q' qualifier as appropriate.

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

Page 1 of 3

Project Name: Rend Lake ARDL Report No.: 8760

CASE NARRATIVE (Continued)

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.

DUPLICATE

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

INTERNAL STANDARDS

All internal standard criteria were met.

SURROGATES

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 undetected.

LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

MATRIX SPIKE

Percent recoveries of all matrix spikes and matrix spike duplicates were within control limits, except 2 of 2 for nitrate. The parent sample has been flagged appropriately with a 'J' qualifier.

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 parameter was analyzed for but not detected.
- J 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.
- @ Improper sample preservation, cooler temperature high, was noted. Analysis performed as directed.

Project Name: Rend Lake ARDL Report No.: 8760

CASE NARRATIVE (Continued)

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 8760

Lab Report No: 008760 Report Date: 08/12/2021

3	REND LAKE		-	PESTICII	DES (82	70SIM-MO	D)		
Project No.:		Analytical Method: 8270C							
NELAC Certi:	fied - IL100308	Prep Me	ethod: 35	510C					
Field ID:	REN-1		ARDL I	Lab No.:	00876	50-01			
Desc/Location:	REND LAKE		Lab F	llename:	E081	1105			
Sample Date:	08/05/2021		Receiv	ved Date:	08/05	5/2021			
Sample Time:	1300		Prep.	Date:	08/09	9/2021			
Matrix:	WATER		Analys	sis Date:	08/13	1/2021			
Amount Used:	900 mL		Instr	ument ID:	AG5				
Final Volume:	1 mL	QC Batch: B11385							
% Moisture:	NA		Level	:	LOM				
					Data		Dilution		
Parameter		LOD	LOQ	Result	Flag	Units	Factor		
Trifluralin		0.222	0.222	ND		UG/L	1		
Atrazine		0.222	0.222	0.444		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	51%	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

1	308		Run Number	P7570 P7570 08096152 08206173 08236177 08176165 08176166
08/30/2021	Inorganics ed - IL1003	WATER NA	Analysis Date Nu	08/10/21 E 08/10/21 B 08/09/21 08/08/11/21 08/08/11/21 08
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Au Date	08/09/21 00 08/09/21 00 NA 00 NA 00 NA 00 NA 00 NA 00
Rej	NE		Analysis Method	6010C 6010C 350.1 GREEN 365.2 160.2 160.4
			Prep Method	3010A 3010A NONE NONE 365.2 NONE NONE
		AKE 2021	Units	MG/L MG/L MG/L MG/L MG/L MG/L
		n: REND LAKE :e: 08/05/2021 ne: 1300	Result	0.129 2.10 0.53 ND 0.329 12.7 ND 6.8
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	©.
		Sampl Samp Samp	TOO	0.0500 0.00500 0.0300 0.0100 6.67 6.67
09,			LOD	0.0400 0.00400 0.0200 0.0190 0.00800 6.67 6.67
Lab Report No: 008760	Project Name: REND LAKE Project No:	ARDL No: 008760-01 Field ID: REN-1 Received: 08/05/2021	Analyte	(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen
La	Projec Proj	A Fi		(a) Iron (a) Mangan Ammonia Ni Nitrate as Phosphorus Solids, To Solids, Vo

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008760 Report Date: 08/12/2021

Project No.:	REND LAKE	Analytical Me	-		DES (827	70SIM-MO	D)	
Field ID:	REN-2-0		ARDL 1	Lab No.:	00876	50-02		
Desc/Location:	REND LAKE		Lab F:	ilename:	E0811	1108		
Sample Date:	08/05/2021		Recei	ved Date:	08/05	5/2021		
Sample Time: 1015 Prep. Date: 08/09/2021								
Matrix:	WATER		Analys	sis Date:	08/13	1/2021		
Amount Used:	900 mL		Instr	ument ID:	AG5			
Final Volume:	1 mL		QC Bat	tch:	B11385			
% 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	0.556		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	0.278		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 RECOV	ERIES:	Lim	its		Re	sults		

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	55%	

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

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

	308		Run Number	08096152 08126162 08206173 08126162 08236177 08116155 08306206
/2021	anics 11003			
: 08/30/2021	: Inorganics fied - IL1003	MATER NA	Analysis Date	08/09/21 08/12/21 08/11/21 08/13/21 08/09/21 08/09/21 08/09/21
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA 08/06/21 NA 08/06/21 08/12/21 NA NA
Ř	[N		Analysis Method	350.1 10200H GREEN 10200H 365.2 160.2 160.4
			Prep Method	NONE 10200H NONE 10200H 365.2 NONE NONE
		REND LAKE 08/05/2021 1015	Units	MG/L MG/CU.M. MG/L MG/L MG/L MG/L MG/L
			Result	0.0219 75.3 ND 6.0 0.204 11.2 8.4
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	b @
		Sampl Samp Samp	ŏoı	0.0300 1.00 1.00 0.0100 4.00 4.00
097	ы	2 1	LOD	0.0200 1.00 0.0190 1.00 4.00 4.00
No: 008760	REND LAKE	008760-02 REN-2-0 08/05/2021	t e	en Correcte rogen Suspended le Suspen
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus 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

Report Date: 08/30/2021	Analysis: Inorganics NELAC Certified - IL100308	Sampling Loc'n: REND LAKE Sampling Date: 08/05/2021 Sampling Time: 1015	Prep Analysis Prep Analysis Run D LOQ Flag Result Units Method Method Date Date Number	400 0.0500 0.119 MG/L 3010A 6010C 08/09/21 08/10/21 P7570	400 0.00500 0.536 MG/L 3010A 6010C 08/09/21 08/10/21 P7570	20 0.030 0.2 MG/L NONE 350.1 NA 08/09/21 08096152	190 0.0200 J ND MG/L NONE GREEN NA 08/11/21 08206173	800 0.0100 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 08236177	.0 10.0 10.0 MG/L NONE 160.2 NA 08/09/21 08116155	.0 10.0 ND MG/L NONE 160.4 NA 08/09/21 08116156	00
		ling Loc'n bling Date					ט				Ф
		Sampl Samp Sampl Sampl	TOO	0.0500	0.00500	0:030	0.0200	0.0100	10.0	10.0	1.00
760	ы	21	LOD	0.0400	0.00400	0.020	0.0190	0.00800	10.0	10.0	0.500
Lab Report No: 008760	Project Name: REND LAKE Project No:	ARDL No: 008760-03 Field ID: REN-2-5 Received: 08/05/2021	Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Phosphorus	Solids, Total Suspended	Solids, Volatile Suspen	Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008760 Report Date: 08/12/2021

Project Name:	REND LAKE	Ana	lysis: NI	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical M	ethod: 82	270C			
NELAC Certi:	fied - IL100308	Prep M	ethod: 35	510C			
Field ID:	REN-3		ARDL 1	Lab No.:	00876	50-04	
Desc/Location:	REND LAKE		Lab F:	ilename:	E0811	L109	
Sample Date:	08/05/2021		Recei	ved Date:	08/05	5/2021	
Sample Time:	1105		Prep.	Date:	08/09	9/2021	
Matrix:	WATER		Analys	sis Date:	08/11	L/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	B1138			
% Moisture:	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin	H-44-H-31-H-31-H-31-H-31-H-31-H-31-H-31-	0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.644		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	0.511		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	72%	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

021	ics 00308			Run	Number	08096152	08126162	08206173	08126162	08236177	08116155	08116156	08306206
08/30/2021	: Inorganics Tied - IL1003	WATER		Analysis	Date	08/09/21	08/12/21	08/11/21	08/12/21	08/13/21	08/09/21	08/09/21	08/22/21
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:		Prep	Date	NA	08/06/21	NA	08/06/21	08/12/21	NA	NA	NA
Re	NE			Analysis	Method	350.1	10200H	GREEN	10200H	365.2	160.2	160.4	415.1
				Prep	Method	NONE	10200H	NONE	10200H	365.2	NONE	NONE	NONE
		REND LAKE 08/05/2021			Units	MG/L	MG/CU.M.	MG/L	MG/CU.M.	MG/L	MG/I	MG/I	MG/L
					Result	ND	59.0	ND	7.1	0.187	15.5	9.5	7.2
		ng I ing	FIIG		Flag	A Principal Control of the Control o							മ
		Sampli Sampl	Sampr		LOQ	0.0300	1.00	0.0200	1.00	0.0100	5.00	5.00	1.00
09.		r	٠,		TOD	0.0200	1.00	0.0190	1.00	0.00800.0	5.00	5.00	0.500
Lab Report No: 008760	Project Name: REND LAKE Project No:		receιveα: 08/03/2021		Analyte	Ammonia Nitrogen	Chlorophyll-a, Correcte	Nitrate as Nitrogen	Pheophytin-a	Phosphorus	Solids, Total Suspended	Solids, Volatile Suspen	Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008760 Report Date: 08/12/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	DES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-4		ARDL I	Lab No.:	00876	50-05	
Desc/Location:	REND LAKE		Lab Fi	ilename:	E0811	1110	
Sample Date:	08/05/2021		Receiv	red Date:	08/05	5/2021	
Sample Time:	1135		Prep.	Date:	08/09	9/2021	
Matrix:	WATER		Analys	sis Date:	08/11	1/2021	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1138	35	
% 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	0.533		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	0.611		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%	
			- 1

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

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

Sampling Time: 1135 Prep Analysis A	Lab Report No: 008760 Project Name: REND LAKE Project No:	0	S. Comes R.	ָרָ בַּרַ	A REND TAKE	1.AKF		ц 2	Report Date: Analysis: NELAC Certif: Matrix:	Report Date: 08/30/2021 Analysis: Inorganics NELAC Certified - IL100308 Matrix: WATER	021 ics 00308
LOD Flag Result Units Analysis Prep Analysis Analysis 0.0200 0.0300 ND MG/L NONE 350.1 NA 08/09/21 1.00 1.00 ND MG/L NONE GREEN NA 08/11/21 0.0190 0.0200 ND MG/L NONE GREEN NA 08/11/21 1.00 1.00 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 5.00 5.00 10.0 MG/L NONE 160.2 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 5.00 1.00 7.0 MG/L NONE 160.4 NA 08/09/21	08/05/2021		Samp	ling Dalling Ti		,/2021			Moisture		
0.0200 0.0300 ND MG/L NONE 350.1 NA 08/09/21 1.00 1.00 51.7 MG/CU.M. 10200H 10200H 08/06/21 08/12/21 0.0190 0.0200 ND MG/L NONE GREEN NA 08/11/21 1.00 1.00 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 5.00 5.00 10.0 MG/L NONE 160.2 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21		TOD	TOO	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
1.00 1.00 51.7 MG/CU.M. 10200H 10200H 08/06/21 08/12/21 0.0190 0.0200 ND MG/L NONE GREEN NA 08/11/21 0.00800 0.0100 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 5.00 5.00 10.0 MG/L NONE 160.4 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21		0.0200	0.0300		ND	MG/L	NONE	350.1	NA	1	08096152
0.0190 0.0200 ND MG/L NONE GREEN NA 08/11/21 1.00 1.00 11.8 MG/CU.M. 10200H 10200H 08/06/21 08/12/21 0.00800 0.0100 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 5.00 5.00 10.0 MG/L NONE 160.2 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21	Chlorophyll-a, Correcte	1.00	1.00		51.7	MG/CU.M.	10200H	10200H	08/06/21		08126162
1.00 1.00 11.8 MG/CU.M. 10200H 10200H 08/06/21 08/12/21 0.00800 0.0100 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 5.00 5.00 10.0 MG/L NONE 160.2 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21		0.0190	0.0200		ND	MG/I	NONE	GREEN	NA	08/11/21	08206173
0.00800 0.0100 0.204 MG/L 365.2 365.2 08/12/21 08/13/21 5.00 5.00 10.0 MG/L NONE 160.2 NA 08/09/21 5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21		1.00	1.00		11.8	MG/CU.M.	10200H	10200H	08/06/21		08126162
5.00 5.00 10.0 MG/L NONE 160.2 NA 08/09/21 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21	0	.00800	0.0100		0.204	MG/L	365.2	365.2	08/12/21	08/13/21	08236177
5.00 5.00 7.0 MG/L NONE 160.4 NA 08/09/21 0.500 1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21	Solids, Total Suspended	5.00	5.00		10.0	MG/L	NONE	160.2	NA	08/09/21	08116155
1.00 @ 7.5 MG/L NONE 415.1 NA 08/22/21	Solids, Volatile Suspen	5.00	5.00		7.0	MG/L	NONE	160.4	NA	08/09/21	08116156
	0	0.500	1.00	ര	7.5	MG/L	NONE	415.1	NA		08306206

(a) DOD and/or NELAC Accredited Analyte.

Sample 008760-05, Inorganic Analyses

Lab Report No: 008760 Report Date: 08/12/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICIO	ES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certif	Fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-5		ARDL I	Lab No.:	00876	50-06	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0811	1111	
Sample Date:	08/05/2021		Recei	red Date:	08/05	5/2021	
Sample Time:	0910		Prep.	Date:	08/09	9/2021	
Matrix:	WATER		Analys	sis Date:	08/11	1/2021	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1138	35	
% 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	65%	
			1

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: 08/30/2021	Analysis: Inorganics NELAC Certified - IL100308	REND LAKE 08/05/2021 0910	Prep Analysis Prep Analysis Run Units Method Method Date Date Number	MG/L NONE 350.1 NA 08/09/21 08096152 MG/L NONE GREEN NA 08/11/21 08206173 MG/L 365.2 365.2 08/12/21 08/13/21 08236177 MG/L NONE 160.2 NA 08/09/21 08116155 MG/L NONE 160.4 NA 08/09/21 08116156 MG/L NONE 415.1 NA 08/22/21 08306206
		Sampling Loc'n: REND Sampling Date: 08/01 Sampling Time: 0910	Flag Result	0.0638 0.252 0.165 107 ND
		Samplin Sampli Sampli	I OOT	0.0300 0.0200 0.0100 6.67 6.67
09,		1	LOD	0.0200 0.0190 0.00800 6.67 6.67
Lab Report No: 008760	Project Name: REND LAKE Project No:	ARDL No: 008760-06 Field ID: REN-5 Received: 08/05/2021	Analyte	Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Sample 008760-06, Inorganic Analyses

Lab Report No: 008760 Report Date: 08/12/2021

Project Name:	REND LAKE	Anal	Lysis: NE	PESTICIE	ES (827	OSIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-7		ARDL I	Lab No.:	00876	50-07	***************************************
Desc/Location:	REND LAKE		Lab Fi	llename:	E0811	112	
Sample Date:	08/05/2021		Recei	ved Date:	08/05	5/2021	
Sample Time:	1345		Prep.	Date:	08/09	9/2021	
Matrix:	WATER		Analys	sis Date:	08/11	1/2021	
Amount Used:	800 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1138	35	
% Moisture:	NA		Level	:	LOM		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin	40-02 p/A/A-044400/110 //Allinony 15-11-1	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	76%	

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

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

П	308		Run Number	08096152 08206173 08236177 08116155 08116156
08/30/2021	Inorganics d - IL1003	ER		
	: Ino fied -	: WATER	Analysis Date	08/09/21 08/11/21 08/13/21 08/09/21 08/09/21
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA NA 08/12/21 NA NA NA
Ж	Z		Analysis Method	350.1 GREEN 365.2 160.2 160.4 415.1
			Prep Method	NONE NONE 365.2 NONE NONE
		.AKE /2021	Units	MG/L MG/L MG/L MG/L MG/L
		n: REND LAKE e: 08/05/2021 e: 1345	Result	0.0913 1.02 0.152 14.0 ND 6.4
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	ල
		Sampli Sampl	ЙOЛ	0.0300 0.0200 0.0100 4.00 1.00
09		-	LOD	0.0200 0.0190 0.00800 4.00 4.00
t No: 008760	REND LAKE	008760-07 REN-7 08/05/2021	yte	
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008760 Report Date: 08/12/2021

Project Name:	REND LAKE	Ana	Lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-8		ARDL I	Lab No.:	00876	50-08	
Desc/Location:	REND LAKE		Lab F	ilename:	E0813	1113	
Sample Date:	08/05/2021		Receiv	red Date:	08/05	5/2021	
Sample Time:	1040		Prep.	Date:	08/09	9/2021	
Matrix:	WATER		Analys	sis Date:	08/13	1/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1138	35	
% Moisture:	NA		Level	:	LOM		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.222	0.222	ND		UG/L	1
Atrazine		0.222	0.222	0.556		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	0.822		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	77%	
			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: REND LAKE Project No:							Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008760-08 Field ID: REN-8 Received: 08/05/2021		Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 08/05/2021 1040			Matrix: Moisture:	: WATER	
Analyte	LOD	ТОО	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen Chlorophyll-a, Correcte Nitrate as Nitrogen Pheophytin-a Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 4.00 4.00	0.0300 1.00 0.0200 1.00 4.00 4.00	ල	0.0313 48.1 ND 7.2 0.174 15.6 8.0	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 365.2 160.2 160.4	NA 08/06/21 NA 08/06/21 08/12/21 NA NA	08/09/21 08/12/21 08/11/21 08/12/21 08/09/21 08/09/21	08096152 08126162 08206173 08126162 08236177 08116155 08116156

(a) DOD and/or NELAC Accredited Analyte.

Sample 008760-08, Inorganic Analyses

Lab Report No: 008760 Report Date: 08/12/2021

Project Name:	REND LAKE	Ana	lysis: NE	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-15-0		ARDL 1	Lab No.:	00876	50-09	
Desc/Location:	REND LAKE		Lab F:	llename:	E0813	L114	
Sample Date:	08/05/2021		Recei	red Date:	08/05	5/2021	
Sample Time:	1105		Prep.	Date:	08/09	9/2021	
Matrix:	WATER		Analys	sis Date:	08/13	1/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1138	35	
% 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	0.622		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	0.511		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	68%	ĺ

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.

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

Report Date: 08/30/2021	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA	Analysis Prep Analysis Run Method Date Date Number	1604 NA 08/05/21 08066141
			Prep Analysis Method Method	NONE
		LAKE 5/2021	Units	COL/100 ML
		n: REND :e: 08/08	Result	3.0
		Sampling Loc'n: REND LAKE Sampling Date: 08/05/2021 Sampling Time: 1200	Flag	
		Samp Samj Samj	TOO	1.00
09		4 ↔	TOD	1.00
No: 0087	REND LAKE	008760-10 REN-RL-MAR 08/05/2021	Ψ.	
Lab Report No: 008760	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

Sample 008760-10, Inorganic Analyses

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

Lab Report No: 008760 Report Date: 08/12/2021

Project Name: Project No.:	REND LAKE	Analys Analytical Meth	is: NP PEST od: 8270C	CICIDES (82	270SIM-M	OD)
NELAC Certi	fied - IL100308	Prep Meth	od: 3510C			
Field ID:	NA		ARDL Lab No	008	760-01B1	
Desc/Location:	NA		Lab Filenam	ne: E081	11103	
Sample Date:	NA		Received Da	ite: NA		
Sample Time:	NA		Prep. Date:	08/0	09/2021	
Matrix:	QC Material		Analysis Da	ite: 08/	11/2021	
Amount Used:	1000 mL		Instrument	ID: AG5		
Final Volume:	1 mL		QC Batch:	B11:	385	
% 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:	Limits	Results	- 1
Triphenylphosphate	30-130	91%	İ
			- 1

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

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

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

Lab Report No: 008760

08/30/2021

Report Date:

Project Name:	REND LAKE	AKE						NELP	AC Certifi	NELAC Certified - IL100308
Analyte	TOD	ŎOT	Blank Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
(a) Iron	0.040	0.050	ND	MG/L	3010A	6010C	08/09/21	08/10/21	P7570	008756-01B1
(a) Manganese	0.004	0.005	ND	MG/L	3010A	6010C	08/09/21	08/10/21	P7570	008756-01B1
Ammonia Nitrogen	0.020	0.030	ND	MG/L	NONE	350.1	NA	08/09/21	08096152	008760-01B1
Chlorophyll-a, Corre	1.0	1.0	ND	MG/CU.M.	10200H	10200H	08/06/21	08/12/21	08126162	008760-02B1
Nitrate as Nitrogen	0.019	0.020	NO	MG/L	NONE	GREEN	NA	08/11/21	08206173	008760-03B1
Pheophytin-a	1.0	1.0	ΩN	MG/CU.M.	10200H	10200H	08/06/21	08/12/21	08126162	008760-02B1
Phosphorus	0.008	0.010	ND	MG/L	365.2	365.2	08/12/21	08/13/21	08236177	008756-01B1
Solids, Total Suspen	1.0	1.0	ND	MG/L	NONE	160.2	NA	08/09/21	08116155	008760-04B1
Solids, Total Suspen	1.0	1.0	ND	MG/L	NONE	160.2	NA	08/11/21	08176165	008760-01B1
Solids, Volatile Sus	1.0	1.0	ND	MG/L	NONE	160.4	NA	08/09/21	08116156	008760-04B1
Solids, Volatile Sus	1.0	1.0	NO	MG/L	NONE	160.4	NA	08/11/21	08176166	008760-01B1
Total Organic Carbon	0.50	1.0	ND	MG/L	NONE	415.1	NA	08/22/21	08306206	008760-01B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008760

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

62864

		%R Limits	Duplicate %R		Spike %R		SURROGATE RECOVERIES:	SURROGA
!!	30-130	:	:	:	8.7	4	3.47	Pendimethalin
	30-130	1	1	!	86	4	3.42	Cyanazine
:	30-130	!	!	}	82	4	3.28	Chlorpyrifos
:	30-130	;	;	}	83	4	3.32	Metolachlor
-	30-130	}	1	!	93	4	3.71	Alachlor
:	30-130	1	!	1	85	4	3.4	Metribuzin
;	30-130	}	!	;	85	4	3.39	Atrazine
1	30-130	1	ļ	1	88	4	3.5	Trifluralin
RPD Limit	Recovery Limits	Duplicate % Rec	Duplicate Level	Duplicate Result	Spike % Rec	Spike Level	Spike Result	Parameter
08/09/2021 08/11/2021	Prep. Date: Analysis Date:	Prep. Date: Analysis Da		8 2	. B11385 LOW	QC Batch: Level:		Matrix: QC Material Amount Used: 1000 mL
ethod: 8270C ethod: 3510C	Analytical Method: Prep Method:	Anal	IM-MOD)	PESTICIDES (8270SIM-MOD)	PESTICIDE	Analysis: NP F	Ana	Project Name: REND LAKE Project No.:
Report Date: 08/12/2021	Rep							Lab Report No: 008760

%R Limits	30-130
Duplicate %R	;
Spike %R	81.5
SURROGATE RECOVERIES:	Triphenylphosphate

^{&#}x27;*' indicates a recovery outside of standard limits. Spike Blanks for 008760-01, NP PESTICIDES (8270SIM-MOD)

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

Lab Report No: 008760	09								Report Da	Report Date: 08/30/2021
Project Name:	REND LAKE								NELAC Cer	NELAC Certified - IL100308
	6	Ç	C C	C C C	C C	() ()	e E	2		,, ,,
	T S T	TCS T	T SOT	7 5 7	TCS Z	LCS Z	% Xec	Mean	Analytical	UC Lab
Analyte	Result	Level	% Rec	Result	Level	% Rec	Limits	% Rec	Run	Number
(a) Iron	4.8	5.0	95	;	!	1	87-115	;	P7570	008756-01C1
(a) Manganese	0.75	0.75	66	!	1	1	90-114	1	P7570	008756-01C1
Ammonia Nitrogen	1.0	1.0	100	1	!	i	80-120	1	08096152	008760-01C1
Nitrate as Nitrogen	0.97	1.0	76	;	1	ŀ	80-120	!	08206173	008760-03C1
Phosphorus	69.0	0.67	103	ļ	}	1	80-120	;	08236177	008756-01C1
Total Organic Carbon	19.7	20.0	66	;	1	1	85-115	į	08306206	008760-01C1

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

⁽a) DOD and/or NELAC Accredited Analyte

ARDL, INC. Lab Report No: 008760	INC.	MATRIX SPIKE 400 Aviation	IKE/SPI ion Dri	SPIKE/SPIKE DUPLICATE ation Drive; P.O. Box	CATE REPORT Box 1566	ORT 6 Mt.	Vernon,	IL Report	62864 Date:	08/12/2021
Project Name: REND LAKE Project No.:		Analysis:	NP PESTI	PESTICIDES (82)	(8270SIM-MOD)		Analytical Prep	Method:	1: 8270C 1: 3510C	
Field ID: REN-1 Desc/Location: REND LAKE		Prep. Amount	Date: Used:	08/09/2021 900 mL		Į A	ARDL Lab No.: Lab Filename:		008760-01	
Sample Date: 08/05/2021 Sample Time: 1300		% Moistur QC Batch:	 Ø	NA B11385		Re Ar	Received Dar Analysis Dar	Date: 08/C Date: 08/1	08/05/2021 08/11/2021	
Matrix: WATER		Level:		LOW						
	Sample	MS	MS	WS	MSD	MSD	MSD	% Rec		RPD
Parameter	Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin	QN	2.89	4.44	65	3.52	4.44	79.3	30-130	19.8	30
Atrazine	0.444	3.54	4.44	8.69	4.19	4.44	84.3	30-130	16.7	30
Metribuzin	QN	2.9	4.44	65.3	3.4	4.44	76.5	30-130	15.9	30
Alachlor	QN	3.36	4.44	75.5	3.71	4.44	83.5	30-130	10.1	30
Metolachlor	0.233	3.37	4.44	70.5	3.82	4.44	80.8	30-130	12.7	30
Chlorpyrifos	QN	2.81	4.44	63.3	3.11	4.44	70	30-130	10.1	30
Cyanazine	QN	3.03	4.44	68.3	3.61	4.44	81.3	30-130	17.4	30
Pendimethalin	QN	2.89	4.44	65	3.47	4.44	78	30-130	18.2	30

SURROGATE RECOVERIES: MS &R MSD &R &R Limits
Triphenylphosphate 65 76 30-130

Matrix Spikes for 008760-01, NP PESTICIDES (8270SIM-MOD)

'*' 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.

Report Date: 08/30/2021 Lab Report No: 008760 NELAC Certified - IL100308 008760-03MS 008760-01MS 008760-01MS 008760-01MS 008760-01MS 008760-04MS QC Lab Number 08306206 08206173 08236177 08096152 P7570 P7570 Run Limit RPD 0 2 6 2 1 1 RPD 87-115 75-125 75-125 75-125 76-120 90-114 Limits % Rec 91 101 103 74 * 104 104 % Rec MSD 2.0 0.83 1.0 Level MSD 1.0 0.74 Result MSD 90 98 100 70 * 102 % Rec MS 1.0 0.50 2.0 1.0 Level MS 2.6 0.70 1.0 Result MS REND LAKE 0.53 0.19 2.1 ND Result Sample WATER WATER WATER WATER WATER WATER Matrix Sample Project Name: Nitrate as Nitrogen Total Organic Carbon Ammonia Nitrogen (a) Manganese Phosphorus (a) Iron Analyte

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

(a) DOD and/or NELAC Accredited Analyte.

Inorganic Matrix Spikes for 008760

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

Lab Report No: 008760	0						Report Date: 08/30/2021	08/30/2021
Project Name: REND LAKE	LAKE						NELAC Certifi	NELAC Certified - IL100308
	Sample	Sample First	Second	0 + •	Percent	Mean (Sm. 100)	Analytical	QC Lab
		I	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 110		(aut au dime)	in .	10000
Chlorophyll-a, Corrected	75.3	70.8	1	MG/CU.M.	9	!	08126162	008760-02D1
	0.9	6.1		MG/CU.M.	2	1	08126162	008760-02D1
Solids, Total Suspended	15.5	15.5	!	MG/L	0	-	08116155	008760-04D1
Solids, Volatile Suspend	9.5	9.5		MG/L	0	1	08116156	008760-04D1

(a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008760



Sample Receipt Information

Including as appropriate:

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

ARDL Data Package 8760

N:\ARDL Case Narratives\ARDL Data Package Contents.pdf - Revised June 21, 2019

Authorized By: DSD-QAO

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

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

PRESERVATION	SPECIFY CHEMICALS ADDED AND FINAL PHE KNOWN																
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	REMARKS OR SAMPLE LOCATION	The state of the s	10. WHY														
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1	DATE	(12/5/8	15/21	115/21	(R)5/B	\$151g	3	815/21	\$1210°1	815/21	8/5/41				SATA L	9/5/2	Date (19/05/2)
Rend Lake	Ren breeling Kelbb Renters Sample number	Ren – 1	Ren - 2 - 0	Ren-2-5	Ren – 3	4	Ren – 5	-7	8	Ren – 15-0	L-Mar				Relinquished by: (Signature)	92 Relinquished by (Signature)	- Received for Laboratory by:

o PURCHASE ORDER NO:

COOLER RECEIPT REPORT ARDL, INC.

ARI	DL#: 8760		Cod	oler# Re	d	_		
	Δ				olers in Shipi			_
Pro	ject: Kend Lake		Dat	e Received	1: <u>08/09</u>	5/202/		
Α.	PRELIMINARY EXAMINATION PHA	SE: Date cooler was opened:						Market III Tilles
1.						YES	(NO)
	Did cooler come with a shipping slip (a	l airbill number here:	$\mathcal{L}_{\mathcal{O}}$	rier	Dear	\	-	
2.	Were custody seals on outside of coo						NO	N/A
		,Seal					elijahan persentan aranga	
3.	Were custody seals unbroken and inte						NO	NA
	Did you screen samples for radioactiv							
4.	Were custody papers sealed in a plas	ticy using a Geiger Counter?	re and			VES	_	
5.							(A)	, ,,,,,
6.	Were custody papers filled out proper					\simeq		N/A
7.	Were custody papers signed in appro						NO	N/A
8.	Was project identifiable from custody					, /	NO	N/A
9.	Was a separate container provided for	, .			Cor	rection factor_	<u>ි</u> ලු.ල	c
B.	LOG-IN PHASE: Date samples were	logged-in: <u>08/05/202</u>	(Signa	ture) (X	15			
10.	Describe type of packing in cooler:	lose lee						
11.	Were all samples sealed in separate	plastic bags?				YES	NO) N/A
12.	Did all containers arrive unbroken and	d were labels in good condition? .				YES	ОИ	
13.	Were sample labels complete?					YES	NO	
14.	Did all sample labels agree with custo	ody papers?				YES) NO	
15.	Were correct containers used for the	tests indicated?				YES) NO	
16.	Was pH correct on preserved water s	amples?				YES) NO	N/A
17.	Was a sufficient amount of sample se	ent for tests indicated?				YES) ио	
18.	Were bubbles absent in VOA sample	s? If NO, list by sample #:				YES	NO	N/A
19.	Was the ARDL project coordinator no	tified of any deficiencies?				YES	NO	(N/A)
	Comments and/or C	orrective Action:			Sample	Transfer		$\widetilde{}$
				Fraction	•	Fraction		
				Area #		Area#		
				lah l	c-In	7,1100.11		
				Ву		Ву	NY/801	
-				DCB		On		
				1	5/2021	1		
				Chain-c	of-Custody#			
(E	3y: Signature)	Date:						

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COOLER RECEIPT REPORT ARDL, INC.

ARI	DL#: 8760	Cooler# BUC	·		
	ect: Rand Lake	Number of Coolers in Shipm			-
Pro _.		Date Received 08/65/2	021_		
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 03/65	2021 (Signature) XB			
1.	Did cooler come with a shipping slip (airbill, etc.)?		(ES)	NO	
	If YES, enter carrier name and airbill number here:	Courier-Dean			
2.	Were custody seals on outside of cooler?		YES	NO	N/A)
	How many and where?,Seal Date:	,Seal Name:			M _{inis} gadau y earr
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?	·····-j·······	ES	NO	
5.	Were custody papers sealed in a plastic bag?Hand delivere	2d	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	t the top of this form	YES	NO	N/A
9.	Was a separate container provided for measuring temperature? YES	Corre	ection factor C	20	C
В.	LOG-IN PHASE: Date samples were logged-in: 05/05/2021	(Signature) CB	ection factor	21()	
10.	Describe type of packing in cooler: LOSE 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?		(ÉS)	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?		Eay	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 7			
		Fraction	Fraction		
		Area# // /	Area #		
_		Walk-In	Dy		
		Mess	Ву		
		On	On		
		108/05/2021		1	
		Chain-of-Custody #			
(E	y: Signature) Date:				

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

www.ardlinc.com

Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 9/14/21

Date: 10/21/21

Lab Name: ARDL, Inc.

ARDL Report No.: 8848

CASE NARRATIVE

Customer Sample No.	<u>Date</u> <u>Collected</u>	<u>Lab ID</u> <u>Number</u>	Analyses Requested
REN-1	9/14/21	8848-01	NP Pesticides, Metals(1), Inorganics(2)
REN-2-0	9/14/21	8848-02	NP Pesticides, Inorganics(2)(3)
REN-2-5	9/14/21	8848-03	Metals(1), Inorganics(2)
REN-3	9/14/21	8848-04	NP Pesticides, Inorganics(2)(3)
REN-4	9/14/21	8848-05	NP Pesticides, Inorganics(2)(3)
REN-5	9/14/21	8848-06	NP Pesticides, Inorganics(2)
REN-7	9/14/21	8848-07	NP Pesticides, Inorganics(2)
REN-8	9/14/21	8848-08	NP Pesticides, Inorganics(2)(3)
REN-15-0	9/14/21	8848-09	NP Pesticides, Inorganics(2)(3)
REN-RL-MAR	9/14/21	8848-10	E. Coli

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

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

The quality control data are summarized as follows:

NP PEST FRACTION - METHOD 8270 SIM

HOLDING TIME

Samples were prepared and analyzed within method specified holding times.

INITIAL CALIBRATION

The initial calibration passed criteria. The ICV passed criteria.

CONTINUING CALIBRATION

The continuing calibration verification (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: Rend Lake ARDL Report No.: 8848

CASE NARRATIVE (Continued)

DUPLICATE

Duplicate analyses are reported as MS/MSD. RPD of the duplicate analyses met criteria, except atrazine with an RPD of 33.2. The parent sample results are flagged with a 'J' qualifier as appropriate.

INTERNAL STANDARDS

All internal standard criteria were met.

SURROGATES

All surrogate recovery criteria were met.

INORGANICS FRACTION

PREPARATION BLANK

Results of the preparation blanks were undetected.

LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

MATRIX SPIKE

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, 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.
- J 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.

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

8848

Lab Report No: 008848 Report Date: 09/24/2021

Project Name:	REND LAKE		_	PESTICIE	DES (827	0SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270C			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-1		ARDL I	Lab No.:	00884	18-01	
Desc/Location:	REND LAKE		Lab Fi	llename:	E0923	3105	
Sample Date:	09/14/2021		Receiv	red Date:	09/14	1/2021	
Sample Time:	1141		Prep.	Date:	09/16	5/2021	
Matrix:	WATER		Analys	sis Date:	09/23	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1140	07	
% 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	0.633	J	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	63%	

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

⁽a) DOD-QSM Accredited Analyte.

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

Tablic No. 000040	o #						r,	Report Date:	10/00/2021	127
Project Name: REND LAKE Project No:	ជ						Z	Analysis: WELAC Certif	Analysis: Inorganics NELAC Certified - IL100308	ics 30308
ARDL No: 008848-01		Sampl	Sampling Loc'n:	'n: REND LAKE	LAKE			Matrix:	: WATER	
Field ID: REN-1		Samp	Sampling Date:	ate: 09/14/2021	/2021			Moisture:	: NA	
Received: 09/14/2021	21	Samp	Sampling Time:	Lme: 1141						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	TOO	Flag	Result	Units	Method	Method	Date	Date	Number
(a) Iron	0.0400	0.0500		0.286	MG/L	3010A	6010C	09/15/21	09/21/21	P7616
(a) Manganese	0.00400	0.00500		0.633	MG/L	3010A	6010C	09/15/21	09/21/21	P7616
Ammonia Nitrogen	0.0200	0.0300		0.301	MG/L	NONE	350.1	NA	09/20/21	09216310
Nitrate as Nitrogen	0.0190	0.0200		0.058	MG/L	NONE	GREEN	NA	10/01/21	10056382
Phosphorus	0.00800	0.0100		0.26	MG/L	365.2	365.2	10/04/21	10/05/21	10076396
Solids, Total Suspended	6.67	6.67		12.7	MG/L	NONE	160.2	NA	09/20/21	09246332
Solids, Volatile Suspen	6.67	6.67		ND	MG/L	NONE	160.4	NA	09/20/21	09246333
Total Organic Carbon	0.500	1.00		6.5	MG/L	NONE	415.1	NA	09/19/21 (09246337

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

Project No.:	fied - IL100308	Analytical Me	ethod: 82 ethod: 35				
NELAC CELLI.	ried - Illiousus	rep M	ethod: 3	3100			
Field ID:	REN-2-0		ARDL 1	Lab No.:	00884	18-02	
Desc/Location:	REND LAKE		Lab F:	ilename:	E0923	3108	
Sample Date:	09/14/2021		Recei	ved Date:	09/14	1/2021	
Sample Time:	0933		Prep.	Date:	09/16	5/2021	
Matrix:	WATER		Analy	sis Date:	09/23	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1140	7	
% 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	0.611		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	61%	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: 008848	848						μ.,	Report Date:	: 10/08/2021	021
Project Name: REND LAKE Project No:	H						2	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008848-02 Field ID: REN-2-0 Received: 09/14/2021	2 21	Samp Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 09/14/2021 0933			Matrix: Moisture:	MATER NA	
Analyte	TOD	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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 4.00 4.00	0.0300 1.00 0.0200 1.00 4.00 4.00 1.00		0.0316 104 0.077 15.1 0.239 11.6 8.0 7.0	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	350.1 10200H GREEN 10200H 365.2 160.2 160.4 415.1	NA 09/15/21 NA 09/15/21 10/04/21 NA NA	09/20/21 10/04/21 10/01/21 10/05/21 09/20/21 09/20/21	09216310 10066383 10056382 10066383 10076396 09246333 09246333

(a) DOD and/or NELAC Accredited Analyte.

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

21	cs 0308		Run Number	P7616 P7616 09216310 10056382 10076396 09246332 09246333
10/08/2021	Inorganics ied - IL1003	WATER	Analysis Date	09/21/21 09/21/21 09/20/21 0 10/01/21 1 10/05/21 1 09/20/21 0 09/20/21 0
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	09/15/21 09/15/21 NA NA 10/04/21 NA NA
ፈ	N N		Analysis Method	6010C 6010C 350.1 GREEN 365.2 160.2 160.4
			Prep Method	3010A 3010A NONE NONE 365.2 NONE NONE
		AKE 2021	Units	MG/L MG/L MG/L MG/L MG/L MG/L
		n: REND LAKE e: 09/14/2021 e: 0942	Result	0.202 0.538 0.188 0.048 0.234 10.0 7.33 6.7
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Sampl Samp Samp	ÕOI	0.0500 0.00500 0.0300 0.0200 0.0100 6.67 6.67
48		н	LOD	0.0400 0.00400 0.0200 0.0190 0.00800 6.67 6.67
Lab Report No: 008848	Project Name: REND LAKE Project No:	ARDL No: 008848-03 Field ID: REN-2-5 Received: 09/14/2021	Analyte	(a) Iron (a) Manganese Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

Project Name: Project No.:	REND LAKE	Ana Analytical M	_	P PESTICIE	ES (82	70SIM-MO	D)
-	fied - IL100308	-	ethod: 35				
Field ID:	REN-3		ARDL 1	Lab No.:	00884	18-04	
Desc/Location:	REND LAKE		Lab F:	ilename:	E0923	3109	
Sample Date:	09/14/2021		Recei	ved Date:	09/14	1/2021	
Sample Time:	1202		Prep.	Date:	09/1	5/2021	
Matrix:	WATER		Analy	sis Date:	09/23	3/2021	
Amount Used:	800 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1140	07	
% 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	0.600		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 RECOV	ERIES:	Lim	its		Rea	sults	

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	65%	
			ı

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: 008848	848						щ	Report Date:	: 10/08/2021	021
Project Name: REND LAKE Project No:	ы ы						N	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008848-04 Field ID: REN-3 Received: 09/14/2021	4 21	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 09/14/2021 1202			Matrix: Moisture:	:: WATER	
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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 4.00 4.00 0.500	0.0300 1.00 0.0200 1.00 0.0100 4.00 1.00		0.0398 97.1 0.030 14.7 0.247 23.6 11.2 8.2	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 365.2 160.2 160.4 415.1	NA 09/15/21 NA 09/15/21 10/04/21 NA NA	09/20/21 10/04/21 10/01/21 10/04/21 10/05/21 09/20/21 09/20/21	09216310 10066383 10056382 10066383 10076396 09246333 09246333

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

3	REND LAKE			PESTICIE	DES (827	OSIM-MO	D)
Project No.:		Analytical Me					
NELAC Certi:	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-4		ARDL I	Lab No.:	00884	18-05	
Desc/Location:	REND LAKE		Lab Fi	ilename:	E0923	3110	
Sample Date:	09/14/2021		Recei	red Date:	09/14	1/2021	
Sample Time:	1219		Prep.	Date:	09/16	5/2021	
Matrix:	WATER		Analys	sis Date:	09/23	3/2021	
Amount Used:	800 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1140)7	
% 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	0.463		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	54%	

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: 008848	848						ř.	Report Date:	: 10/08/2021	021
Project Name: REND LAKE Project No:	ы						2	Analysis: ELAC Certif	Analysis: Inorganics NELAC Certified - IL100308	ics 00308
ARDL No: 008848-05 Field ID: REN-4 Received: 09/14/2021	5	Sampl Samp Samp	Sampling Loc'n: Sampling Date: Sampling Time:		REND LAKE 09/14/2021 1219			Matrix: Moisture:	MATER 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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 6.67 6.67	0.0300 1.00 0.0200 1.00 0.0100 6.67 6.67	ה	0.0224 86.2 ND 17.3 0.239 21.3 10.0	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 365.2 160.2 160.4 415.1	NA 09/15/21 NA 09/15/21 10/04/21 NA NA	09/20/21 10/04/21 10/01/21 10/04/21 10/05/21 09/20/21 09/20/21	09216310 10066383 10056382 10066383 10076396 09246333 09246333

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

Project Name: Project No.:	REND LAKE	Anal Analytical Me	-	PESTICIE 270C	ES (827	70SIM-MO	D)
NELAC Certi:	fied - IL100308	-	ethod: 35				
Field ID:	REN-5	A A A A A A A A A A A A A A A A A A A	ARDL I	Lab No.:	00884	18-06	1, 1,
Desc/Location:	REND LAKE		Lab Fi	ilename:	E0923	3111	
Sample Date:	09/14/2021		Receiv	ved Date:	09/14	1/2021	
Sample Time:	0824		Prep.	Date:	09/1	5/2021	
Matrix:	WATER		Analys	sis Date:	09/23	3/2021	
Amount Used:	800 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1140	07	
% 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

The second of the second of	SURROGATE RECOVERIES:	Limits	Results	
irrphenylphosphate	Triphenylphosphate	30-130	76%	1

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

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

10/08/2021	Inorganics d - IL100308	~	ls Run Number	09/20/21 09216310 10/01/21 10056382 10/05/21 10076396 09/20/21 09246332 09/20/21 09246333
	: Inorg	: WAIER	Analysis Date	09/20/21 10/01/21 10/05/21 09/20/21 09/20/21
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA NA 10/04/21 NA NA NA
r.	Z		Analysis Method	350.1 GREEN 365.2 160.2 160.4 415.1
			Prep Method	NONE NONE 365.2 NONE NONE NONE
		LAKE /2021	Units	MG/L MG/L MG/L MG/L MG/L MG/L
		'n: REND LAKE te: 09/14/2021 me: 0824	Result	0.0983 0.225 0.17 20.4 ND
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Sampl Samp Samp	OOI	0.0300 0.0200 0.0100 4.00 1.00
348		2 17	ГОР	0.0200 0.0190 0.00800 4.00 4.00 0.500
Lab Report No: 008848	Project Name: REND LAKE Project No:	ARDL No: 008848-06 Field ID: REN-5 Received: 09/14/2021	Analyte	Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

Project Name: Project No.:	REND LAKE	Ana Analytical Mo	-	PESTICII	DES (827	70SIM-MO	D)
	fied - IL100308	-					
NELAC Cerci	ried - IPI00209	Prep M	ethod: 3	510C			
Field ID:	REN-7		ARDL	Lab No.:	00884	48-07	
Desc/Location:	REND LAKE		Lab F	ilename:	E0923	3112	
Sample Date:	09/14/2021		Recei	ved Date:	09/14	4/2021	
Sample Time:	1311		Prep.	Date:	09/1	6/2021	
Matrix:	WATER		Analy	sis Date:	09/23	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1140	07	
% 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 RECOV	ERIES:	Lim	its		Re	sults	

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

30-130

Triphenylphosphate

74%

⁽a) DOD-QSM Accredited Analyte.

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

021	ics 00308		Run Number	09216310 10056382 10076396 09246332 09246333
: 10/08/2021	: Inorganics fied - IL1003	. WATER . NA	Analysis Date	09/20/21 10/01/21 10/05/21 09/20/21 09/20/21
Report Date:	Analysis: Inorganics NELAC Certified - IL100308	Matrix: Moisture:	Prep Date	NA NA 10/04/21 NA NA NA
Ŗ	[N		Analysis Method	350.1 GREEN 365.2 160.2 160.4 415.1
			Prep Method	NONE NONE 365.2 NONE NONE NONE
		.АКЕ '2021	Units	MG/L MG/L MG/L MG/L MG/L
		'n: REND LAKE te: 09/14/2021 me: 1311	Result	0.0641 1.33 0.152 7.2 ND 6.5
		Sampling Loc'n: Sampling Date: Sampling Time:	Flag	
		Sampl Samp Samp	TOO	0.0300 0.0200 0.0100 1.33 1.33
348		. 11	TOD	0.0200 0.0190 0.00800 1.33 1.33 0.500
Lab Report No: 008848	Project Name: REND LAKE Project No:	ARDL No: 008848-07 Field ID: REN-7 Received: 09/14/2021	Analyte	Ammonia Nitrogen Nitrate as Nitrogen Phosphorus Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

Project Name: Project No.:	REND LAKE	Anal Analytical Me	-	PESTICIE	ES (827	OSIM-MO	D)
-	fied - IL100308	_	ethod: 35				
Field ID:	REN-8		ARDL I	Lab No.:	00884	18-08	
Desc/Location:	REND LAKE		Lab Fi	lename:	E0923	3113	
Sample Date:	09/14/2021		Receiv	ved Date:	09/14	1/2021	
Sample Time:	1002		Prep.	Date:	09/1	5/2021	
Matrix:	WATER		Analys	sis Date:	09/23	3/2021	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	ch:	B1140	07	
% 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	0.644		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.

⁽a) DOD-QSM Accredited Analyte.

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

No: 008848 Report Date: 10/08/2021	REND LAKE Analysis: Inorganics NELAC Certified - IL100308	008848-08 Sampling Loc'n: REND LAKE Matrix: WATER REN-8 Sampling Date: 09/14/2021 Moisture: NA 09/14/2021 Sampling Time: 1002	Prep Analysis Prep Analysis Run e LOD LOQ Flag Result Units Method Method Date Date Number	Correcte 1.00 1.00 0.0394 MG/L NONE 350.1 NA 09/20/21 09216310 Correcte 1.00 1.00 1.21 MG/CU.M. 10200H 10200H 09/15/21 10/04/21 10065383
Lab Report No: 008848	Project Name: REND LAKE Project No:	ARDL No: 008848-08 Field ID: REN-8 Received: 09/14/2021	Analyte	Ammonia Nitrogen Chlorophyll-a, Correcte 1. Nitrate as Nitrogen 0.0 Pheophytin-a 1. Phosphorus Solids, Total Suspended 5. Carbon Cotal Ordanic Carbon 0.55

(a) DOD and/or NELAC Accredited Analyte.

Lab Report No: 008848 Report Date: 09/24/2021

Project Name: Project No.:	REND LAKE	Analytical Mo	-	PESTICII 270C	DES (82)	70SIM-MO	D)
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
Field ID:	REN-15-0		ARDL I	Lab No.:	00884	18-09	
Desc/Location:	REND LAKE		Lab F	ilename:	E0923	3114	
Sample Date:	09/14/2021		Recei	ved Date:	09/14	4/2021	
Sample Time:	1223		Prep.	Date:	09/1	6/2021	
Matrix:	WATER		Analys	sis Date:	09/23	3/2021	
Amount Used:	900 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	tch:	B1140	07	
% 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	0.622		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	0.244		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	73%	

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: 008848	848						щ	Report Date:	: 10/08/2021	021
Project Name: REND LAKE Project No:	ы						Z	Analysis: Inorganics NELAC Certified - IL100308	: Inorganics fied - IL1003	ics 00308
ARDL No: 008848-09 Field ID: REN-15-0 Received: 09/14/2021	9	Sampling Samplir Samplir	1 5 2 2		REND LAKE 09/14/2021 1223			Matrix: Moisture:	:: WATER	
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 Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon	0.0200 1.00 0.0190 1.00 0.00800 6.67 6.67	0.0300 1.00 0.0200 1.00 0.0100 6.67 6.67		ND 89.0 ND 16.5 0.243 20.7 9.33	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 365.2 160.2 160.4 415.1	NA 09/15/21 NA 09/15/21 10/04/21 NA NA	09/20/21 10/04/21 10/01/21 10/05/21 09/20/21 09/20/21	09216310 10066383 10056382 10066383 10076396 09246332 09246333

(a) DOD and/or NELAC Accredited Analyte.

Sample 008848-09, Inorganic Analyses

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

Report Date: 10/08/2021	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER isture: NA	Analysis Run Date Number	09/14/21 09166291
port Date	Analysis	Matrix: Moisture:	Prep Date	NA
Re	HZ		Prep Analysis Method Method	1604
			Prep Method	NONE
		REND LAKE 09/14/2021 1028	Units	COL/100 ML
		n: REND	Result	20.0
		Sampling Loc'n: REND LAKE Sampling Date: 09/14/202 Sampling Time: 1028	Flag	
		Samp Sam Sam	ООТ	1.0
848	ш	0 AR 21	TOD	1.0
No: 008848	REND LAKE	008848-10 REN-RL-MAR 09/14/2021	t e	
Lab Report No:	Project Name: Project No:	ARDL No: Field ID: Received:	Analyte	E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

Sample 008848-10, Inorganic Analyses

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

Lab Report No: 008848 Report Date: 09/24/2021

Project No.:	REND LAKE	Analytical Met	sis: NP PEST hod: 8270C hod: 3510C	CICIDES (82	270SIM-M	OD)
Field ID: Desc/Location: Sample Date: Sample Time: Matrix: Amount Used: Final Volume: % Moisture:	NA NA NA QC Material 1000 mL 1 mL NA		ARDL Lab No Lab Filenam Received Da Prep. Date: Analysis Da Instrument QC Batch: Level:	ne: E092 te: NA 09/2 te: 09/2	348-01B1 23103 16/2021 23/2021 407	
Parameter		LOD	LOQ	Result	Data Flag	Units
Trifluralin Atrazine Metribuzin Alachlor Metolachlor Chlorpyrifos Cyanazine Pendimethalin		0.200 0.200 0.200 0.200 0.200 0.200 0.200	0.200 0.200 0.200 0.200 0.200 0.200 0.200 0.200	ND ND ND ND ND ND ND ND		UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L
SURROGATE RECOV Triphenylphosph		Limit		Re	esults 84%	

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

⁽a) DOD-QSM Accredited Analyte.

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

Lab Report No: 008848

Report Date: 10/08/2021

62864

Project Name:	REND LAKE	AKE						NELA	C Certifi	NELAC Certified - IL100308
Analyte	TOD	TOO	Blank Result	Units	Prep	Analysis Method	Prep Date	Analysis Date	Run	QC Lab Number
(a) Iron	0.040	0.050	N ON	MG/L	3010A	6010C	09/15/21	09/21/21	P7616	008823-01B1
(a) Manganese	0.004	0.005	ON	MG/L	3010A	6010C	09/15/21	09/21/21	P7616	008823-01B1
Ammonia Nitrogen	0.020	0.030	N	MG/L	NONE	350.1	NA	09/20/21	09216310	008848-01B1
Chlorophyll-a, Corre	1.0	1.0	ND	MG/CU.M.	10200H	10200H	09/15/21	10/04/21	10066383	008848-02B1
Nitrate as Nitrogen	0.019	0.020	ND	MG/L	NONE	GREEN	NA	10/01/21	10056382	008848-03B1
Pheophytin-a	1.0	1.0	N	MG/CU.M.	10200H	10200H	09/15/21	10/04/21	10066383	008848-02B1
Phosphorus	0.008	0.010	ND	MG/L	365.2	365.2	10/04/21	10/05/21	10076396	008847-03B1
Solids, Total Suspen	1.0	1.0	ND	MG/L	NONE	160.2	NA	09/20/21	09246332	008848-01B1
Solids, Volatile Sus	1.0	1.0	ND	MG/L	NONE	160.4	NA	09/20/21	09246333	008848-01B1
Total Organic Carbon	0.50	1.0	ND	MG/L	NONE	415.1	NA	09/19/21 09246337	09246337	008847-01B1

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008848

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

62864

Lab Report No:	. 008848							Rej	port Date:	Report Date: 09/24/2021
Project Name: REND LAKE Project No.:	REND LAKE	An	Analysis: NP	PESTICID	PESTICIDES (8270SIM-MOD)	IM-MOD)	Anal	Analytical Method: Prep Method:	ical Method: 8270C Prep Method: 3510C	00. 00.
Matrix: Amount Used:	QC Material 1000 mL		QC Batch: Level:		B11407 LOW		Prep. Date: Analysis Da	Date: is Date:	Prep. Date: 09/16/2021 Analysis Date: 09/23/2021	21
		Spike	Spike	Spike	Duplicate	Duplicate	Duplicate	Recovery		RPD
	Parameter	Result	Level	* Rec	Result	Level	% Rec	Limits	RPD	Limit
I	Trifluralin	4.14	4	104				30-130		
	Atrazine	3.97	4	66	1	1	}	30-130	;	1
	Metribuzin	4.07	4	102	i	1	!	30-130	1	1
	Alachlor	4.7	4	118	ì	!	!	30-130	1	ŀ
A	Metolachlor	4.09	4	102	i i	1	!	30-130	1	1
Ü	Chlorpyrifos	4	4	100	1	!	1	30-130	1	1
	Cyanazine	4.44	4	111	1	!	!	30-130	}	1
P. P.	Pendimethalin	4.17	4	104	i i	1	1	30-130	1	:

%R Limits 30-130

Duplicate %R

Spike %R 85.3

SURROGATE RECOVERIES:

Triphenylphosphate

(a) DOD-QSM Accredited Analyte.

^{&#}x27;*' indicates a recovery outside of standard limits. Spike Blanks for 008848-01, NP PESTICIDES (8270SIM-MOD)

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

	8								
Report Date: 10/08/2021	NELAC Certified - IL100308	QC Lab	Number	008823-01C1	008823-01C1	008848-01C1	008848-03C1	008847-03C1	008847-01C1
Report Da	NELAC Cer	Analytical	Run	P7616	P7616	09216310	10056382	10076396	09246337
		Mean	% Rec	1	1	1	;	1	1
		* Rec	Limits	87-115	90-114	80-120	80-120	80-120	76-120
		LCS 2	% Rec	1	1	-	}	1	1
		LCS 2	Level	1	;	ì	ì	1	1
		LCS 2	Result		;	ł	ł	ł	1
		LCS 1	% Rec	100	104	104	96	86	103
		LCS 1	Level	5.0	0.75	1.0	1.0	0.67	20.0
8848	REND LAKE	LCS 1	Result	5.0	0.78	1.0	96.0	0.65	20.6
Lab Report No: 008848	Project Name:		Analyte	(a) Iron	(a) Manganese	Ammonia Nitrogen	Nitrate as Nitrogen	Phosphorus	Total Organic Carbon

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

⁽a) DOD and/or NELAC Accredited Analyte

ARDL,	ARDL, INC.	MATRIX SPIKE, 400 Aviation	PIKE/SP	SPIKE/SPIKE DUPLICATE ation Drive; P.O. Box	ICATE REPORT . Box 1566	RT Mt.	Vernon, IL	<u> </u>	62864 Date:	1000/80/80
臼		Analysis:	NP	PESTICIDES (82	(8270SIM-MOD)	A.	Analytical Method: Prep Method:	ical Method:	8270C 3510C	
Field ID: REN-1 Desc/Location: REND LAKE Sample Date: 09/14/2021 Sample Time: 1141 Matrix: WATER		Prep. Amount % Mois QC Bat Level:	Prep. Date: Amount Used: % Moisture: QC Batch: Level:	09/16/2021 900 mL NA B11407 LOW	1	ARD Lab Rec Ana	ARDL Lab No.: Lab Filename: Received Date: Analysis Date:		008848-01 09/14/2021 09/23/2021	
Parameter	Sample Result	MS Result	MS	MS Rec	MSD Result	MSD Level	MSD * Rec	% Rec Limits	RPD	RPD Limit
Trifluralin	GN	3.9	4.44	87.8	3.11	4.44	70	30-130	22.5	30
Atrazine Metribuzin	0.633 ND	4.76	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	92.8	3.4	4.44	62.3	30-130	33.2 *	30
Alachlor	Q.	4.42	4.44	99.5	3.66	4.44		30-130	19	30
Metolachlor	0.233	4.23	4.44	06	3.44	4.44	72.3	30-130	20.5	30
Chlorpyrifos	QN	3.77	4.44	84.8	3.03	4.44	68.3	30-130	21.6	30
Cyanazine	QN	4.53	4.44	102	3.18	4.44	71.5	30-130	35.2 *	30
Pendimethalin	ND	3.94	4.44	88.8	3.18	4.44	71.5	30-130	21.5	30

%R Limits	30-130	
MSD %R	57	
MS %R	73	
SURROGATE RECOVERIES:	Triphenylphosphate	

⁽a) DOD-QSM Accredited Analyte.

^{&#}x27;nc' indicates sample >4X spike level.

^{&#}x27;*' indicates a recovery outside of standard limits.
Matrix Spikes for 008848-01, NP PESTICIDES (8270SIM-MOD)

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

Report Date: 10/08/2021 Lab Report No: 008848

Project Name:		REND LAKE									NELAC	Certifi	NELAC Certified - IL100308
Analyte	Sample Matrix	Sample Result	MS Result	MS Level	MS % Rec	MSD Result	MSD Level	MSD % Rec	% Rec Limits	RPD	RPD Limit	Run	QC Lab Number
(a) Iron	WATER	0.29	1.2	1.0	91	1.2	1.0	91	87-115	П	20	P7616	008848-01MS
(a) Manganese	WATER	0.63	1.1	0.50	96	1.1	0.50	96	90-114	0	20	P7616	008848-01MS
Ammonia Nitrogen	WATER	0.30	2.3	2.0	100	2.3	2.0	100	75-125	0	20	09216310	008848-01MS
Nitrate as Nitrogen	WATER	0.048	0.87	1.0	82	08.0	1.0	75	75-125	ω	20	10056382	008848-03MS
Phosphorus	WATER	0.24	1.1	0.83	100	1.1	0.83	102	75-125	н	20	10076396	008848-02MS

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

⁽a) DOD and/or NELAC Accredited Analyte.

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

62864

Report Date: 10/08/2021	NELAC Certified - IL100308	Analytical QC Lab Run Number	10066383 008848-02D1	10066383 008848-02D1	09246332 008848-01D1	09246333 008848-01D1
Repo	NELA		- 10	10		- 09
		Mean (Smp, D1, D2)		1	1	ı
		Percent Diff	-	2	9	NC
		Units	MG/CU.M.	MG/CU.M.	MG/L	MG/L
		Second Duplicate	1	i	ļ	!
		First Ouplicate	105	14.8	12.0	ND
æ	LAKE	Sample Conc'n I	104	15.1	12.7	NO
Lab Report No: 008848	Project Name: REND LAKE	Analyte	Chlorophyll-a, Corrected	Pheophytin-a	Solids, Total Suspended	Solids, Volatile Suspend

(a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008848

Sample Receipt Information

Including as appropriate:

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

ARDL Data Package 8848

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

COMPANY COMP
X X X X X X X X X X X X X X X X X X X
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X X X X X X X X X X
REMARKS/SPECIAL INSTRUCTIONS: #Preserved with H ₂ SO ₄ #Preserved with H _N O ₃
7
7
7
7
3
3
3

COOLER RECEIPT REPORT ARDL, INC.

If YES, enter carrier name and airbill number here: ARD CUTTEN VALUE Were custody seals on outside of cooler?	ARI	DL#: <u>8848</u>	Cooler# Rod 1	
Did cooler come with a shipping slip (airbill, etc.)? YES NO	Pro _.	ect: Rend Lake	00/11/2021	Andread activities and and
If YES, enter carrier name and airbilt number here: AND COUNTEL Were custody seals on outside of cooler?	A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened	202 (Signature) SCB	
Were custody seals on outside of cooler?	1.	Did cooler come with a shipping slip (airbill, etc.)?		NÓ)
Were custody seals on outside of cooler? How many and where? Seal Date: Seal Name: VES NO A Did you screen samples for radioactivity using a Geiger Counter? Were custody spaers sealed in a plastic bag? Were custody papers sealed in a plastic bag? Were custody papers signed in appropriate place by ARDL personnel? Was project identifiable from custody papers? If YES, enter project name at the top of this form. Was a separate container provided for measuring temperature? YES NO Observed Cooler Temp. LOG-IN PHASE: Date samples were logged-in: Did all containers arrive unbroken and were labels in good condition? Were sample labels agree with custody papers? Did all sample labels agree with custody papers? Were correct containers used for the tests indicated? Was a sufficient amount of sample sent for tests indicated? Was a sufficient amount of sample sent for tests indicated? Comments and/or Corrective Action: Sample Transfer Faction Fraction Area # Were Subdes absent in VOA samples? If NO ist by sample #: YES NO Comments and/or Corrective Action:		If YES, enter carrier name and airbill number here:	Courier-Valerie	
How many and where? Seal Date: Seal Name: YES NO A Were custody seals unbroken and intact at the date and time of arrival? Were custody papers sealed in a plastic bag?	2.			NO N/A
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?		How many and where? ,Seal Date	: ,Seal Name:	
4. Did you screen samples for radioactivity using a Geiger Counter? Were custody papers sealed in a plastic bag?Hazzaddululuda YES NO Were custody papers filled out properly (ink, signed, etc.)? Were custody papers signed in appropriate place by ARDL personnel? Were custody papers signed in appropriate place by ARDL personnel? Was project identifiable from custody papers? If YES, enter project name at the top of this form	3.			NO MA
Were custody papers sealed in a plastic bag?Ha.//ddeliver.co	4.			NO
6. Were custody papers filled out properly (ink, signed, etc.)?	5.	Were custody papers sealed in a plastic bag? Hand delive	res (NO)
7. Were custody papers signed in appropriate place by ARDL personnel?	6.			
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? YESNOObserved Cooler TempC_C_Correction factorOO_C 10. Describe type of packing in cooler:OSC_C_CORRECTION factorOO_C 11. Were all samples sealed in separate plastic bags?	7.		<u>~</u>	NO N/A
9. Was a separate container provided for measuring temperature? YES_NO_Observed Cooler Temp. O. Correction factor C., C. C. Correction factor C., C. C. Correction factor C., C. C. Correction factor C., C. C. Correction factor C., C. C. C. Correction factor C., C. C. C. Correction factor C., C. C. C. C. C. C. C. C. C. C. C. C. C.	8.		\sim	NO N/A
B. LOG-IN PHASE: Date samples were logged-in: 01/14/02 (Signature) LOGS 10. Describe type of packing in cooler: LOGS CC 11. Were all samples sealed in separate plastic bags?	9.		NO Observed Cooler Temp. O. C.	
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?	В.	LOG-IN PHASE: Date samples were logged-in:	(Signature) Correction factor (<u>5.0</u> c
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. Was the ARDL project coordinator notified of any deficiencies? 19. Was the ARDL project coordinator notified of any deficiencies? 19. Comments and/or Corrective Action: 10. Sample Transfer 11. Fraction 12. NO 13. Were sample labels agree with custody papers? 14. NO 15. NO 16. Was pH correct on preserved water samples? 16. NO 17. NO 18. Were bubbles absent in VOA samples? If NO, list by sample #: 19. VES NO 10. NO 10. NO 10. NO 11. NO 12. NO 13. NO 14. NO 15. NO 16. Was pH correct on preserved water samples? 16. NO 17. NO 18. Were bubbles absent in VOA samples? If NO, list by sample #: 19. VES NO 10. NO 10. NO 10. NO 11. NO 12. NO 13. NO 14. NO 15. NO 16. Was pH correct on preserved water samples? 16. NO 17. NO 18. NO 18. Were bubbles absent in VOA samples? If NO, list by sample #: 19. NO 10. NO 1	10.	Describe type of packing in cooler: LOOSE CE		
13. Were sample labels complete?	11.	Were all samples sealed in separate plastic bags?	YES (NO N/A
14. Did all sample labels agree with custody papers?	12.	Did all containers arrive unbroken and were labels in good condition?	(ES)	NO
15. Were correct containers used for the tests indicated?	13.	Were sample labels complete?	<u> </u>	NO
16. Was pH correct on preserved water samples?	14.	Did all sample labels agree with custody papers?	VES	NO
17. Was a sufficient amount of sample sent for tests indicated?	15.	Were correct containers used for the tests indicated?	(FES)	NO
18. Were bubbles absent in VOA samples? If NO, list by sample #:	16.	Was pH correct on preserved water samples?		NO N/A
19. Was the ARDL project coordinator notified of any deficiencies?	17.	Was a sufficient amount of sample sent for tests indicated?	(Fig.	NO
Comments and/or Corrective Action: Sample Transfer Fraction Area # Area # On On On On On On On On On O	18.	Were bubbles absent in VOA samples? If NO, list by sample #:	YES	NO WA
Fraction Fraction Area # Area # By By On On On	19.	Was the ARDL project coordinator notified of any deficiencies?	YES	NO NA
Area # Area # By By On On On On		Comments and/or Corrective Action:	Sample Transfer	
Moulk-In By DCB On ON ON			Fraction Fraction	
OCB on 09/14/2021 on			Area# Area#	
OCB on 09/14/2021 on	_		Walk-In	
09/14/2021			I BY NOR BY	1
Chain-of-Custody #			On (21/14/2021) On	
Chain-of-Custody #			Chain of Custodia!	- Section 1 and 1
(By: Signature) Date:	/F	By: Signature) Date:	Gnain-ot-Gustody #	

COOLER RECEIPT REPORT ARDL, INC.

ARI	DL#: <u>8848</u>	Cooler # Red Z
Proj	ect: Rend Lake	Number of Coolers in Shipment: Date Received:
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 09/	14/1207 (Signature) DCB
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES (NO)
	If YES, enter carrier name and airbill number here:	Courier-Valorie
2.	Were custody seals on outside of cooler?	
•	•	,Seal Name:YES NO NA
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?	YES NO
5.		
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 a	t the top of this form
9.	Was a separate container provided for measuring temperature? YES	NOObserved Cooler TempCCCCCCC _
В.	LOG-IN PHASE: Date samples were logged-in:	(Signature)
10.	Describe type of packing in cooler: Loose ce	
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?	
13.	Were sample labels complete?	(YES) NO
14.	Did all sample labels agree with custody papers?	(YE) NO
15.	Were correct containers used for the tests indicated?	(YES) NO
16.	Was pH correct on preserved water samples?	
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:	Sample Transfer
		Fraction Fraction
		Area# A Area#
		Walk-In
		ВУ
		On On
		09/14/2021
-		Chain-of-Custody #
(E	By: Signature) Date:	