2022 Water Quality Report



U.S. Army Corps of Engineers Saint Louis District

Rend Lake Water Quality Conditions: 1972-2022



November 2023

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Prepared for

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EXECUTIVE SUMMARY

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

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

The National Water Quality Inventory Report to Congress (305(b) report) is the primary vehicle for informing law makers and the public about general water quality conditions in the United States. This document characterizes our water quality, identifies widespread water quality problems of national significance and describes various programs implemented to restore and protect our waters. Currently the Illinois Environmental Protection Agency (IEPA, 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 2022 revealed the following concerns at Rend Lake: phosphorus, chlorophyll, bacteria, and total dissolved solids.

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

This report is intended to document and assess water quality conditions occurring at Rend Lake. The report describes conditions observed in 2022, as well as baseline data collected from 1971-2021. 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

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

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

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

METHODS AND ANALYSIS: WATER QUALITY

Data Collection and Historical Reference Data

During 2022, 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 1972 (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 2021 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 1mg/L, while most inland fish species require a minimum DO of 4mg/L. The DO water quality criteria for Illinois is \geq 5mg/L.

Potential of Hydrogen (pH) is a measure of how acidic or basic water is. Potential of Hydrogen is reported on a logarithmic scale ranging from 0 - 14, with 7.0 being neutral. As pH increases from 7.0, water increases in alkalinity, whereas a decrease from 7.0 indicates an increase in acidity. Since pH is measured on a logarithmic scale, every

one-unit change in pH indicates a 10-fold change in acidity; thus, a pH of 6.0 is ten times more acidic than a pH of 7.0 and a pH of 4.0 would be one-thousand times more than a pH of 7.0.

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

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

Conductivity 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.

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

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

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

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

Total Phosphorus (TP) is analyzed as phosphorus and has been monitored due to the potential for uptake by nuisance algae. Levels of phosphate can indicate the potential for rapid growth of algae (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.

Pheophytin a (PHEO a) 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:</u>

TSI (Seechi Depth) = 10(6 - (In SD/In 2))

- TSI (Chlorophyll-a) = TSI(Chl) = $10(6 ((2.04 0.68 \ln Chl)/\ln 2))$
- TSI (Total Phosphorus) = $TSI(TP) = 10(6 (\ln (48/TP)/\ln 2))$

where In indicates the Natural Logarithm

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

TSI	Trophic Condition
0-40	Oligotrophic
40-50	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

Metric	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/cm ³ (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	рН	Multiparameter Meter	Range: 6.5 – 9.0pH	Illinois EPA
Specific Conductivity	SpCond	Multiparameter Meter	500 μS/cm	
Temperature	Тетр	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

Metric	Abbreviation	Analysis Method	Water Quality Criteria	<u>Source</u>
Total Organic Carbon	тос	EPA Method 415.1		
Total Iron	TFe	EPA Method 6010C	< 1 mg/L	Illinois EPA
Total Phosphorus	ТР	EPA Method 365.2	Less than 0.05 mg/L	Illinois EPA
Total Suspended Solids	TSS	EPA Method 160.2		
			< 1.1 µg/L: chronic or < 26 µg/L acute (aquatic	
Trifluralin		EPA Method 8270C	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: 1986–2021

Oxidation Reduction Potential: 2022



Specific Conductivity: 1974-2021



Specific Conductivity: 2022





	Historical Re	ference 197		<u>2022</u>			
	Location	Mean	Median	n	Mean	Median	n
ORP	MAR	198.38	180.60	13	147.93	148.05	4
	RB	259.05	239.50	120			
	RS	259.11	255.00	470	184.09	182.75	16
	TR	274.32	279.50	132	223.80	242.25	4
	TRIB	311.59	338.00	200	254.41	260.20	8
SpCond	MAR	251.27	255.20	14	271.50	274.60	4
	RB	324.38	322.50	178			
	RS	326.06	320.50	776	271.33	273.90	16
	TR	350.85	329.00	235	272.80	275.00	4
	TRIB	693.58	624.00	385	510.35	556.75	8

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



Temperature: 1972-2021





Temperature: 2022

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

	Historical Re	ference 197		<u>2022</u>			
	Location	Mean	Median	n	Mean	Median	n
DO	MAR	7.05	7.92	14	7.84	7.68	4
	RS	9.07	8.90	720	8.25	8.41	16
	TR	8.16	8.13	230	7.72	7.72	4
	TRIB	7.14	6.80	353	7.38	7.37	8
Temp	MAR	21.99	23.17	14	23.24	24.43	4
	RS	20.20	22.12	784	23.51	24.67	16
	TR	18.77	20.85	240	23.29	23.95	4
	TRIB	16.88	19.00	388	20.27	22.38	8

* The DO standard was not exceeded in 2022. The temperature standard (rise of 2.8° C above the natural temperatures) was not exceeded in 2022. 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).

	Historical F	Reference 19		<u>2022</u>			
	Location	Mean	Median	n	Mean	Median	n
pН	MAR	7.98	7.93	13	7.84	7.68	4
	RS	7.82	7.77	770	8.25	8.41	16
	TR	7.42	7.40	237	7.72	7.72	4
	TRIB	7.28	7.20	373	7.38	7.37	8

*The pH standard of 6.5-9 was not exceeded in 2022.



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











	Historical Re		<u>2022</u>				
	Location	Mean	Median	n	Mean	Median	n
NO3-N	RS	0.12	0.04	778	0.04	0.03	12
	TR	0.18	0.10	242	0.08	0.07	3
	TRIB	0.87	0.52	383	0.85	0.60	6
NH3N	RS	0.06	0.03	711	0.05	0.03	12
	TR	0.12	0.07	210	0.06	0.05	3
	TRIB	0.59	0.12	319	0.06	0.05	6

*All 2022 observations of nitrate and ammonia nitrogen were within the water quality standard.



Total Phosphorus: 1972-2021





Total Phosphorus: 2022

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

Historical Reference 1972-2021						<u>2022</u>	
	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	814	0.19	0.18	12
	TR	0.12	0.09	246	0.22	0.24	3
	TRIB	0.53	0.18	395	0.13	0.13	6

*Total phosphorus exceeded the standard of 0.05 mg/L for all locations in 2022. Orthophosphate was not sampled in 2022. 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 Reference 1974-2021						<u>2022</u>	
	Location	Mean	Median	n	Mean	Median	n
Chl_a	RS	25.14	18.90	529	56.55	70.80	12
	TR	15.85	15.85	2	39.80	35.70	3
	TRIB	2.60	2.60	2	1.83	1.50	6

*The reference standard for chlorophyll-a of 25mg/cm³ was exceeded at the tailrace and lake sites throughout 2022. This study does not acknowledge a standard for pheophytin.

Secchi Depth: 2022





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



Turbidity: 2018-2021



Location





	Historical Re	ference 200		<u>2022</u>			
	Location	Mean	Median	n	Mean	Median	n
TDS	MAR	163.36	166.00	14	176.50	178.50	4
	RB	100.57	150.50	20			
	RS	104.25	149.00	101	176.44	178.00	16
	TR	111.56	155.00	25	177.00	178.50	4
	TRIB	186.85	186.00	52	331.88	362.00	8
FNU	MAR	6.71	6.81	14	6.30	4.71	4
	RS	13.85	13.02	64	11.59	13.64	16
	TR	8.76	7.76	16	7.94	7.21	4
	TRIB	38.89	15.12	32	56.13	12.31	8

* The TDS standard of 500 mg/L was exceeded once in the REN-7 tributary in 2022. This study does not acknowledge a standard for turbidity (FNU).



	Historical Re	ference 197	<u>74-2021</u>			<u>2022</u>	
	Location	Mean	Median	n	Mean	Median	n
TSS	RB	21.06	11.25	182	15.87	11.80	3
	RS	19.69	15.60	758	17.89	15.00	12
	TR	16.80	13.00	227	15.30	13.60	3
	TRIB	49.62	30.00	344	12.43	11.25	6

*The mean total suspended solids data measured in 2022 were less than the historical data. There is no numeric standard for TSS.



	Historical Reference 1984-2021					<u>2022</u>	
	Location	Mean	Median	n	Mean	Median	n
TOC	RS	6.77	6.30	557	6.63	6.60	12
	TR	6.32	5.50	158	5.70	5.80	3
	TRIB	8.70	7.60	217	6.42	6.25	6

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



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





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



*The standards for iron and manganese were not exceeded in 2022.







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

	Historical Re	ference 20	<u>01-2021</u>			<u>2022</u>	
	Location	Mean	Median	n	Mean	Median	n
Atrazine	RS	0.77	0.56	264	0.37	0.36	4
	TR	0.51	0.50	66	0.20	0.20	1
	TRIB	1.23	0.50	127	1.62	1.62	2

*Atrazine was detected but did not exceed the standard in 2022.



	Historical Re	ference 200		<u>2022</u>			
	Location	Mean	Median	n	Mean	Median	n
Metolachlor	RS	0.33	0.22	152	0.23	0.22	4
	TR	0.26	0.22	38	0.20	0.20	1
	TRIB	0.84	0.22	74	0.97	0.97	2

*Metolachlor was detected but did not exceed the standard in 2022.



Me	tri	buz	in	2022	

TR

Location

TRIB

	Historical Re	ference 19	<u>98-2021</u>			<u>2022</u>	
	Location	Mean	Median	n	Mean	Median	n
Metribuzin	RS	0.21	0.20	160	0.21	0.21	4
	TR	0.21	0.21	40	0.20	0.20	1
	TRIB	0.26	0.20	78	0.21	0.21	2
*Motribuzin was	detected but did no	t avcaad the st	tandard in 2022				

*Metribuzin was detected but did not exceed the standard in 2022.



Surface Water E. Coli: 2022



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

	Historical Re	eference 1996	<u>5-2021</u>		2	2022	
	Location	Mean	Median	n	Mean	Median	n
E col	REN-5	575.00	575.00	1	575.00	550.00	3
	REN-7	275.00	275.00	1	616.67	750.00	3
	REN-8	24.92	5.00	13			
	RL-MAR	51.85	16.50	52	54.33	48.00	3
*Racteria levi	els exceeded the star	ndard in hoth tribu	Itaries in 2022				

teria levels exceeded the standard in both tributaries in 2022

2022 Swimming Beach Bacteria Levels (E. Coli / 100mL)									
	Dale M	liller	North Ma	ircum	Sandusky				
	Shallow	Deep	Shallow	nallow Deep		Deep			
5/10/2022	1	1	4.1	2	2	1			
5/24/2022	5.2	2	1	1	1	1			
6/6/2022	5.2	4.1	1	5.2	2	1			
6/21/2022	1	1	1	1	7.5	7.5			
7/5/2022	3.1	18.5	6.3	2	5.2	1			
7/19/2022					365.4	58.1			
7/20/2022	1	1	2	1	1732.9	1			
7/21/2022					1	1			
8/2/2022	1	3.1	8.4	5.2	198.9	8.6			
8/15/2022	3.1	1	2	1	8.5	4.1			
8/29/2022	1	1	1	6.3	5.1	1			

*Bacteria levels at the swimming beaches were exceeded at Sandusky twice in July.

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 phosphorus, bacteria, and total dissolved solids were evident. In addition, CHL_a and subsequent TSI levels were indicative of a hyper eutrophic system.

TP levels have surpassed the 0.05 mg/L criterion for several years. In 2022 the TP criterion was exceeded at all locations with a mean surface concentration across all sites of 0.18 mg/L compared to the historical mean of 0.23 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 2022. The 2022 surface reservoir mean CHL_a concentration (56.55 mg/cm³) was greater than twice the historical surface reservoir mean (25.14 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 2022 TSI level, an average of the individual trophic state indexes for secchi depth, CHL_a, and TP, for Rend Lake was 73.34. 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 2022 with the exception of Sandusky Beach. The standard of 235 col/100 mL was exceeded July 19 and July 20, but returned to normal levels shortly after. In the tributaries, E coli levels were above the standard multiple times while the marina bacteria results were within the standard. Rain and/or high flow occurred immediately before or during the first two sampling events, while the last two events were during low flow. Bacteria levels can be highly variable across time and locations. 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. Total dissolved solids (TDS) measurements taken by USACE are not analyzed by a lab. They are calculated off of the specific conductivity field sensor, which is based on the level of dissolved salts measured. The reference standard for TDS is the maximum level allowed in drinking water, which is not a recreational water quality standard. However, since Rend lake is used for a drinking water source, it can be a relevant indicator of general water quality. TDS was observed above the standard of 500 mg/L in the tributary REN-5 once in September 2022. Previously, TDS had only been exceeded once before (2018) in the other tributary REN-7. In both the historical data record and the 2022 sampling year TDS is greater in the tributaries than the other locations. These small exceedances are not a major concern, but continued monitoring is important to assess trends over time.

All remaining parameters evaluated during the 2022 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 the following have been implemented 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. The next sediment sampling is scheduled for 2024.

Given the hypereutrophic status of Rend Lake Total Nitrogen (TN) has been added to the monitoring program. Similarly, CHL_a has been added to every sample site. Currently CHL_a is only sampled at the lake sites and not the tributaries or lake discharge. This will allow for a trophic status comparison between the tributaries, lake, and discharge.

WORKS CITED

- Carlson, R. E. (1977). A Trophic State Index for Lakes1. Limnology and Oceanography, 22(2), 361-369.
- USACE. (2018). Engineering and Design: Water Quality Management. USACE ER 1110-2-8154. Washington D.C.
- USACE. (1987). Engineering and Design: Reservoir Water Quality Analysis. USACE ER 1110-2-1201. Washington D.C.
- Hudson, H. (1998). Illinois Environmental Protection Acency. Common Lake Water Quality Parameters. Lake Notes.
- IEPA. (2020). <u>https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx</u>

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)
6/2/2022	REN-1	1.1	23.0	261.9	259.1	7.98	100	8.55	168	6.67	
6/2/2022	REN-2	1.0	24.5	187.5	257.6	8.82	131	10.95	167	2.76	30
6/2/2022	REN-3	1.0	24.6	196.3	270.9	8.06	103	8.54	176	8.22	23
6/2/2022	REN-4	1.2	24.6	114.8	286.4	7.8	97	8.09	186	9	23
6/2/2022	REN-5	0.3	22.4	301.6	547.9	7.33	44	3.81	356	12.47	
6/2/2022	REN-7	0.6	24.0	162.1	704.5	7.41	69	5.82	458	8.97	
6/2/2022	REN-8	1.1	25.5	206.4	259.3	8.01	103	8.4	169	7.87	20
6/2/2022	RL MAR	0.9	24.3	107.8	257.9	8.76	128	10.74	168	3.54	
7/18/2022	REN-1	0.4	25.9	148.5	282.1	7.53	77	6.24	183	7.19	
7/18/2022	REN-2	1.1	26.1	204.2	277.3	7.85	70	5.7	180	5.64	24
7/18/2022	REN-3	1.1	26.2	151.3	289.1	8.46	70	5.66	188	14.62	14
7/18/2022	REN-4	1.1	26.4	128.5	295.1	8.6	85	6.87	192	14.68	14
7/18/2022	REN-5	1.9	22.6	215.6	179.2	7.21	58	5.03	117	225.37	
7/18/2022	REN-7	0.3	23.1	174.3	187.5	7.46	66	5.68	122	159.17	
7/18/2022	REN-8	1.1	26.9	177.7	276.1	8.63	95	7.6	179	15.51	12
7/18/2022	RL MAR	1.1	25.6	100.2	278.9	7.39	32	2.63	181	4.86	
8/22/2022	REN-1	0.1	24.9	262.2	272.5	7.46	84	6.93	177	7.22	
8/22/2022	REN-2	1.0	25.1	293.4	271.7	7.43	60	4.92	177	5.32	24
8/22/2022	REN-3	1.0	24.7	216.6	270.3	8.39	81	6.74	176	13.33	16
8/22/2022	REN-4	1.1	24.4	211.8	238.9	7.46	59	4.94	155	17.27	18
8/22/2022	REN-5	0.2	20.9	359.7	554.2	7.21	42	3.76	360	12.21	
8/22/2022	REN-7	0.0	22.4	289.9	576.7	7.32	59	5.1	375	7.24	
8/22/2022	REN-8	1.1	25.3	211.7	257.2	8.59	90	7.4	167	13.94	11
8/22/2022	RL MAR	0.9	24.6	188.3	271.9	7.25	32	2.69	177	4.55	
9/28/2022	REN-1	0.5	19.4	222.6	277.5	7.9	93	8.2	180	10.68	
9/28/2022	REN-2	1.0	19.5	178	276.5	8	86	7.91	180	9.65	20
9/28/2022	REN-3	1.0	17.2	147.4	276.2	8.42	92	8.89	180	15.23	14
9/28/2022	REN-4	1.0	17.0	143.6	261	8.72	105	10.12	170	15.96	17
9/28/2022	REN-5	0.2	12.6	301.6	559.3	7.53	59	6.25	364	12.4	

Date	Location	Depth	Temp (°C)	ORP (mV)	Sp Cond	nH	ODO (% Sat)	ODO (mg/L)	TDS (mg/L)	Turbidity	Secchi
Date	Location	(111)	(0)	(1114)	(µ0/cm)	PII	(<i>7</i> 0 Oat)	(iiig/ ⊑)	(mg/ L)	(110)	(111)
9/28/2022	REN-7	0.5	14.2	230.5	773.5	7.58	77	7.86	503	11.23	
9/28/2022	REN-8	1.0	18.0	176.2	277.7	8.76	89	8.38	181	16.36	15
9/28/2022	RL MAR	1.1	18.5	195.4	277.3	7.97	80	7.53	180	12.23	

APPENDIX B: LABORATORY DATA



Environmental | Analytical | Management | Safety

Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 6/2/22

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

www.ardlinc.com

Date: 7/1/22

Lab Name: ARDL, Inc.

ARDL Report No.: 8932

CASE NARRATIVE

Customer	Date	Lab ID	
Sample No.	<u>Collected</u>	<u>Number</u>	Analyses Requested
REN-1	6/02/22	8932-01	NP Pesticides, Metals (1), Inorganics (2)(3)
REN-2-0	6/02/22	8932-02	NP Pesticides, Inorganics (2)(3)
REN-2-5	6/02/22	8932-03	Metals (1), Inorganics (2)
REN-3	6/02/22	8932-04	NP Pesticides, Inorganics (2)(3)
REN-4	6/02/22	8932-05	NP Pesticides, Inorganics (2)(3)
REN-5	6/02/22	8932-06	NP Pesticides, Inorganics (2)(3), Chloride, E. Coli
REN-7	6/02/22	8932-07	NP Pesticides, Inorganics (2)(3), E. Coli
REN-8	6/02/22	8932-08	NP Pesticides, Inorganics (2)(3)
REN-15-0	6/02/22	8932-09	NP Pesticides, Inorganics (2)(3)
REN-RL-MAR	6/02/22	8932-10	E. Coli

(1) Including iron and manganese.

(2) Including ammonia*, nitrate, nitrite, TKN*, total phosphorus*, TOC*, TSS and TVSS.

(3) Including chlorophyll-a corrected and pheophytin-a.

* Analyzed by an accredited subcontract laboratory.

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.

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

Project Name: Rend Lake

ARDL Report No.: 8932

CASE NARRATIVE (Continued)

INTERNAL STANDARDS

All internal standard criteria were met.

SURROGATES

All surrogate recovery criteria were met.

INORGANIC FRACTION

PREPARATION BLANK

Results of the preparation blanks were undetected, except for total phosphorus which was detected at the MDL. The data is flagged appropriately with a 'B' qualifier in the associated samples.

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 ammonia. The parent sample has been flagged appropriately with a 'J' qualifier. Matrix QC for TOC were performed on a batch specific basis. Please refer to ARDL Report 8931 for these data.

DUPLICATE

All duplicate analyses are reported as MS/MSD except chlorophyll-a corrected, pheophytin-a, TOC, TSS and TVSS. RPD on all duplicate analyses were within control limits, except for 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.
- 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.
- B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

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

Page 2 of 2



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 8932

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

Authorized By: DSD-QAO

Lab Report No:	008932	Repo	ort Date:	06/07/	2022			
Project Name:	REND LAKE	Ana	lysis: NH	PESTICIE)ES (82	70SIM-MC	D)	
Project No.:		Analytical Me	ethod: 82	270D				
NELAC Certit	fied - IL100308	Prep M	ethod: 35	510C				
Field ID:	REN-1		ARDL I	ab No.:	00893	32-01		
Desc/Location:	REND LAKE		Lab Fi	lename:	E0606	5205		
Sample Date:	06/02/2022		Receiv	ved Date:	06/02	2/2022		
Sample Time:	1006		Prep.	Date:	06/00	5/2022		
Matrix:	WATER		Analys	sis Date:	06/00	5/2022		
Amount Used:	1000 mL		Instru	ument ID:	AG5			
Final Volume:	1 mL		QC Bat	cch:	B1149	91		
<pre>% Moisture:</pre>	NA		Level:		LOW			
					Data		Dilution	
Parameter		LOD	LOQ .	Result	Flag	Units	Factor	
Trifluralin		0.200	0.200	ND		UG/L	1	
Atrazine		0.200	0.200	ND		UG/L	1	
Metribuzin		0.200	0.200	ND		UG/L	1	
Alachlor		0.200	0.200	ND		UG/L	1	
Metolachlor		0.200	0.200	ND		UG/L	1	
Chlorpyrifos		0.200	0.200	ND		UG/L	1	
Cyanazine		0.200	0.200	ND		UG/L	1	
Pendimethalin		0.200	0.200	ND		UG/L	1	
SURROGATE RECOVI	ERIES:	Lim	its		Res	sults		
Triphenylphospha	ate	30-3	130		68%			

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008932-01, NP PESTICIDES (8270SIM-MOD)

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

> 008932 Lab Report No:

06/30/2022 Report Date: 1

1

Project Name: Project No:	REND LAKE	.1						N	Analysis ELAC Certi	: Inorgan fied - IL1	ics 00308
ARDL No: Field ID: Received:	008932-01 REN-1 06/02/202	5	Sampl Samp Samp	ing Lo Ling D Ling T	c'n: REND ate: 06/02 ime: 1006	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Analyt	O)	LOD	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron		0.0400	0.0500		0.342	MG/L	3010A	6010C	06/06/22	06/07/22	P7776
(a) Manganese		0.00400	0.00500		0.359	MG/L	3010A	6010C	06/06/22	06/07/22	P7776
Ammonia Nitroge	c	0.100	0.100		ND	MG/L	NONE	350.1	NA	06/09/22	06146713
Chlorophyll-a,	Correcte	1.00	1.00		18.3	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Kjeldahl Nitrog	en	1.00	1.00		ND	MG/L	351.2	351.2	06/07/22	06/08/22 (06146714
Nitrate as Nitro	ogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	06/15/22 (06286777
Nitrite as Nitro	ogen	0.0200	0.0200		ND	MG/L	NONE	354.1	NA	06/03/22 (06216750
Pheophytin-a		1.00	1.00		11.2	MG/CU.M.	10200H	10200H	06/03/22	06/15/22 (06176726
Phosphorus		0.0720	0.100	щ	0.103	MG/L	365.2	365.2	06/07/22	06/08/22 (06146716
Solids, Total S	uspended	2.00	2.00		13.6	MG/L	NONE	160.2	NA	06/03/22 (06086699
Solids, Volatil	e Suspen	2.00	2.00		4.0	MG/L	NONE	160.4	NA	06/03/22 (0086700
Total Organic Ca	arbon	0.500	1.00		5.8	MG/L	NONE	415.1	NA	06/17/22 (06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-01, Inorganic Analyses

Ч of Page 1

Lab Report No:	008932	Rep	ort Date	: 06/07/	2022			
Project Name:	REND LAKE	Ana	lysis: NI	P PESTICIE	DES (827	70SIM-MO	D)	
Project No.:		Analytical M	ethod: 82	270D				
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C				
Field ID:	REN-2-0		ARDL 1	Lab No.:	00893	32-02		
Desc/Location:	REND LAKE		Lab F:	ilename:	E0606	5208		
Sample Date:	06/02/2022		Receiv	ved Date:	06/02	2/2022		
Sample Time:	1310		Prep.	Date:	06/06	5/2022		
Matrix:	WATER		Analys	sis Date:	06/06	5/2022		
Amount Used:	900 mL		Instru	ument ID:	AG5			
Final Volume:	1 mL		QC Bat	tch:	B1149	€1		
<pre>% Moisture:</pre>	NA		Level	:	LOW			
<pre>% Moisture: NA Parameter</pre>				Data		Dilution		
	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		Rea	sults		
SURROGATE RECOVERIES: Triphenylphosphate		30-	130		KESULTS 65%			

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008932-02, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008932

REND LAKE

Project Name:

Report Date: 06/30/2022

Analysis: Inorganics

Project No:							Z	ELAC Certi	fied - IL	00308
ARDL No: 008932-02 Field ID: REN-2-0		Samp1 Samp	ing Lo(ling Di	c'n: REND ate: 06/02	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Received: 06/02/202	22	samp	ling T:	ime: 1310						
Analyte	LOD	год	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.100	0.100		QN	MG/L	NONE	350.1	NA	06/09/22	06146713
Chlorophyll-a, Correcte	1.00	1.00		10.5	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Kjeldahl Nitrogen	1.00	1.00		DN	MG/L	351.2	351.2	06/07/22	06/08/22	06146714
Nitrate as Nitrogen	0.0190	0.0200		DN	MG/L	NONE	GREEN	NA	06/15/22	06286777
Nitrite as Nitrogen	0.0200	0.0200		ND	MG/L	NONE	354.1	NA	06/03/22	06216750
Pheophytin-a	1.00	1.00		4.9	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Phosphorus	0.0720	0.100	дB	0.081	MG/L	365.2	365.2	06/07/22	06/08/22	06146716
Solids, Total Suspended	1.33	1.33		8.0	MG/L	NONE	160.2	NA	06/03/22	06086699
Solids, Volatile Suspen	1.33	1.33		4.93	MG/L	NONE	160.4	NA	06/03/22	06086700
Total Organic Carbon	0.500	1.00		6.2	MG/L	NONE	415.1	NA	06/17/22	06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-02, Inorganic Analyses

Lab Report No: 008932

REND LAKE

Project Name:

Report Date: 06/30/2022

Analysis: Inorganics NELAC Certified - IL100308

coject No:							2	VELAC Certi	fied - ILJ	00308
L No: 008932-	.03	Sampl	ling Loc	c'n: REND	LAKE			Matrix	C: WATER	
ld ID: REN-2-5 sived: 06/02/2	022	Samr Samr	pling Da	ate: 06/02 ime: 1310	/2022			Moisture	e: NA	
Analyte	LOD	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
ч	0.0400	0.0500		0.285	MG/L	3010A	6010C	06/06/22	06/07/22	P7776
ganese	0.00400	0.00500		0.286	MG/L	3010A	6010C	06/06/22	06/07/22	P7776
Nitrogen	0.100	0.100		ND	MG/L	NONE	350.1	NA	06/09/22	06146713
l Nitrogen	1.00	1.00		ND	MG/L	351.2	351.2	06/07/22	06/08/22	06146714
as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	06/15/22	06286777
e as Nitrogen	0.0200	0.0200		ND	MG/L	NONE	354.1	NA	06/03/22	06216750
rus	0.0720	0.100	дB	0.077	MG/L	365.2	365.2	06/07/22	06/08/22	06146716
Total Suspende	d 2.00	2.00		11.8	MG/L	NONE	160.2	NA	06/03/22	06086699
Volatile Suspe	n 2.00	2.00		4.2	MG/L	NONE	160.4	NA	06/03/22	06086700
rganic Carbon	0.500	1.00		6.0	MG/L	NONE	415.1	NA	06/17/22	06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-03, Inorganic Analyses

Lab Report No:	008932	Rep	ort Date	: 06/07/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82'	70SIM-MC	D)
Project No.:		Analytical M	ethod: 82	270D			
NELAC Certi	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-3		ARDL	Lab No.:	00893	32-04	
Desc/Location:	REND LAKE		Lab F:	ilename:	E060	5209	
Sample Date:	06/02/2022		Recei	ved Date:	06/02	2/2022	
Sample Time:	1415		Prep.	Date:	06/00	5/2022	
Matrix:	WATER		Analy	sis Date:	06/00	6/2022	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B1149	91	
<pre>% Moisture:</pre>	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	0.410		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		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 RECOV	ERIES:	Lim	its		Rea	sults	
Triphenylphosph	ate	30-	130			72%	

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

(a) DoD and/or NELAC Accredited Analyte.

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Sample 008932-04, NP PESTICIDES (8270SIM-MOD)

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

> 008932 Lab Report No:

REND LAKE

Project Name:

06/30/2022 Report Date: Analysis: Inorganics

Project No:							Ч	ELAC Certi	fied - ILl	00308
ARDL No: 008932-04 Field ID: REN-3	t	Samp1 Samp	ing Loc	'n: REND ate: 06/02	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Received: 06/02/202	22	Samp	ling Ti	me: 1415						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ГОО	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.100	0.100		QN	MG/L	NONE	350.1	NA	06/09/22	06146713
Chlorophyll-a, Correcte	1.00	1.00		18.3	MG/CU.M.	10200H	10200Н	06/03/22	06/15/22	06176726
Kjeldahl Nitrogen	1.00	1.00		DN	MG/L	351.2	351.2	06/07/22	06/08/22	06146714
Nitrate as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	06/15/22	06286777
Nitrite as Nitrogen	0.0200	0.0200		DN	MG/L	NONE	354.1	NA	06/03/22	06216750
Pheophytin-a	1.00	1.00	Ъ	5.5	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Phosphorus	0.0720	0.100	дB	0.089	MG/L	365.2	365.2	06/07/22	06/08/22	06146716
Solids, Total Suspended	2.00	2.00		13.6	MG/L	NONE	160.2	NA	06/03/22	06086699
Solids, Volatile Suspen	2.00	2.00		5.2	MG/L	NONE	160.4	NA	06/03/22	06086700

06/17/22 06226755

NA NA

160.4 415.1

NONE

MG/L MG/L

5.2 6.6

2.00

0.500 2.00

Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-04, Inorganic Analyses

SURROGATE RECOVERIES: Triphenylphosphate		30-	130			538	
SURROGATE RECOVI	ERIES:	Lim	its		Res	sults	
		0.200	0.200	ND		UG/L	I
Cyanazıne Dondimetheli-		0.200	0.200	ND		UG/L	1
Chiorpyrifos		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	0.250		UG/L	1 1 1
Alachlor		0.200	0.200	ND		UG/L	
Metribuzin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.540		UG/L	1
Trifluralin		0.200	0.200	ND		UG/L	1
Parameter		LOD	LOQ	Result	Flag	Units	Factor
					Data		Dilution
<pre>% Moisture: NA Parameter</pre>	NA		Level	:	LOW		
Final Volume:	1 mL		QC Bat	tch:	B1149	91	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Matrix:	WATER		Analy	sis Date:	06/00	5/2022	
Sample Time:	1445		Prep.	Date:	06/00	5/2022	
Sample Date:	06/02/2022		Recei	ved Date:	06/02	2/2022	
Desc/Location:	REND LAKE		Lab F	ilename:	E0600	5210	
Field ID:	REN-4		ARDL	Lab No.:	00893	32-05	
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C			
Project No.:		Analytical M	ethod: 8	270D			
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82'	70SIM-MC)D)
Lab Report No:	008932	Rep	ort Date	: 06/07/	2022		

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

(a) DoD and/or NELAC Accredited Analyte.

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Sample 008932-05, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008932

REND LAKE

Project Name: Project No:

Report Date: 06/30/2022

NELAC Certified - IL100308

Analysis: Inorganics

ARDL No: 008932-05	D	Sampl	ing Loc	c'n: REND	LAKE			Matrix	: WATER	
Field ID: REN-4		Samp	ling Da	ate: 06/02	2/2022			Moisture	: NA	
Received: 06/02/202	22	Samp	Ting T	ime: 1445						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ТОQ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.100	0.100	Ŀ	ND	MG/L	NONE	350.1	NA	06/09/22 (06146713
Chlorophyll-a, Correcte	1.00	1.00		12.0	MG/CU.M.	10200H	10200H	06/03/22	06/15/22 (06176726
Kjeldahl Nitrogen	0.500	1.00	IJ	0.50	MG/L	351.2	351.2	06/07/22	06/08/22 (06146714
Nitrate as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	06/15/22 (06286777
Nitrite as Nitrogen	0.0200	0.0200		ND	MG/L	NONE	354.1	NA	06/03/22 (06216750
Pheophytin-a	1.00	1.00		6.5	MG/CU.M.	10200H	10200H	06/03/22	06/15/22 (06176726
Phosphorus	0.0720	0.100	В	0.099	MG/L	365.2	365.2	06/07/22	06/08/22 (06146716
Solids, Total Suspended	2.00	2.00		15.0	MG/L	NONE	160.2	NA	06/03/22 (06086699
Solids, Volatile Suspen	2.00	2.00		5.6	MG/L	NONE	160.4	NA	06/03/22 (06086700
Total Organic Carbon	0.500	1.00		6.9	MG/L	NONE	415.1	NA	06/17/22 0	06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-05, Inorganic Analyses

Lab Report No:	008932	Repo	ort Date	: 06/07/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82'	70SIM-MC	DD)
Project No.:		Analytical Me	ethod: 82	270D			
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-5	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	ARDL	Lab No.:	00893	32-06	
Desc/Location:	REND LAKE		Lab F	ilename:	E060	5211	
Sample Date:	06/02/2022		Receiv	ved Date:	06/0:	2/2022	
Sample Time:	0900		Prep.	Date:	06/00	6/2022	
Matrix:	WATER		Analy	sis Date:	06/00	6/2022	
Amount Used:	1000 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bai	tch:	B114	91	
<pre>% Moisture:</pre>	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	1.83		UG/L	1
Metribuzin		0.200	0.200	0.220		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	1.22		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 RECOV	ERIES:	Lim	its		Rea	sults	
Triphenylphospha	ate	30-3	130			60%	

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

(a) DoD and/or NELAC Accredited Analyte.

Lab Report No: 008932

REND LAKE

Project Name: Project No:

Report Date: 06/30/2022

Analysis: Inorganics NELAC Certified - IL100308

ARDL No: 008932-06 Field ID: REN-5 Received: 06/02/202	22	Sampl Samp Samp	ing Loc ling Da ling Ti	c'n: REND ate: 06/02 ime: 0900	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Analyte	гор	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.100	0.100		ND	MG/L	NONE	350.1	NA	06/09/22 (06146713
Chloride	4.00	5.00		29.7	MG/L	NONE	300.0	NA	06/20/22 (06216739
Chlorophyll-a, Correcte	1.00	1.00		1.4	MG/CU.M.	10200H	10200H	06/03/22	06/15/22 (06176726
E. Coliform	1.00	1.00		550	COL/100 ML	NONE	1604	NA	06/02/22 (06066695
Kjeldahl Nitrogen	1.00	1.00		UN	MG/L	351.2	351.2	06/07/22	06/08/22 (06146714
Nitrate as Nitrogen	0.0190	0.0200		0.202	MG/L	NONE	GREEN	NA	06/15/22 (06286777
Nitrite as Nitrogen	0.0200	0.0200		0.042	MG/L	NONE	354.1	NA	06/03/22 0	06216750
Pheophytin-a	1.00	1.00		ND	MG/CU.M.	10200H	10200H	06/03/22	06/15/22 0	06176726
Phosphorus	0.0720	0.100	ф	0.163	MG/L	365.2	365.2	06/07/22	06/08/22 0	06146716
Solids, Total Suspended	2.00	2.00		17.2	MG/L	NONE	160.2	NA	06/03/22 0	06086699
Solids, Volatile Suspen	2.00	2.00		2.4	MG/L	NONE	160.4	NA	06/03/22 0	06086700
Total Organic Carbon	0.500	1.00		8.0	MG/L	NONE	415.1	NA	06/17/22 0	06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-06, Inorganic Analyses

Lab Report No:	008932	Rep	ort Date	: 06/07/	2022		
Project Name:	REND LAKE	Ana	lysis: NI	P PESTICII	DES (82'	70SIM-MC))
Project No.:		Analytical M	ethod: 82	270D			
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-7		ARDL 1	Lab No.:	00893	32-07	
Desc/Location:	REND LAKE		Lab F:	ilename:	E060	5212	
Sample Date:	06/02/2022		Receiv	ved Date:	06/02	2/2022	
Sample Time:	1605		Prep.	Date:	06/00	5/2022	
Matrix:	WATER		Analys	sis Date:	06/00	5/2022	
Amount Used:	1000 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	cch:	B1149	91	
<pre>% Moisture:</pre>	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	1.41		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	0.720		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 RECOVI	ERIES:	Lim	its		Res	sults	
Triphenylphospha	ate	30-1	130		ţ	59%	

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008932-07, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008932

REND LAKE

Project Name:

Report Date: 06/30/2022

Analysis: Inorganics

I

Project No:							Z	ELAC Certi	fied - IL1	00308
ARDL No: 008932-07 Field ID: REN-7		Samp] Samp	ing Lo	c'n: REND ate: 06/0	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Received: 06/02/202	22	Samp	T guild	ime: 1605						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	LOQ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.100	0.100		QN	MG/L	NONE	350.1	NA	06/09/22	06146713
Chlorophyll-a, Correcte	1.00	1.00		1.3	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
E. Coliform	1.00	1.00		225	COL/100 ML	NONE	1604	NA	06/02/22	06066695
Kjeldahl Nitrogen	0.500	1.00	Ъ	0.50	MG/L	351.2	351.2	06/07/22	06/08/22	06146714
Nitrate as Nitrogen	0.0190	0.0200		0.879	MG/L	NONE	GREEN	NA	06/15/22	06286777
Nitrite as Nitrogen	0.0200	0.0200		0.045	MG/L	NONE	354.1	NA	06/03/22	06216750
Pheophytin-a	1.00	1.00		DN	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Phosphorus	0.0720	0.100	щ	0.136	MG/L	365.2	365.2	06/07/22	06/08/22	06146716
Solids, Total Suspended	1.33	1.33		19.6	MG/L	NONE	160.2	NA	06/03/22	06086699
Solids, Volatile Suspen	1.33	1.33		2.13	MG/L	NONE	160.4	NA	06/03/22	06086700
Total Organic Carbon	0.500	1.00		6.8	MG/L	NONE	415.1	NA	06/17/22	06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-07, Inorganic Analyses

Lab Report No: 008932

Report Date: 06/07/2022

Project Name:	REND LAKE	Ana	Lysis: NH	PESTICII	DES (827	70SIM-MO	D)
Project No.:		Analytical Me	ethod: 82	270D			
NELAC Certi	fied - IL100308	Prep Me	ethod: 35	510C			
		e					
Field ID:	REN-8		ARDL I	Lab No.:	00893	32-08	
Desc/Location:	REND LAKE		Lab Fi	ilename:	E0606	5213	
Sample Date:	06/02/2022		Receiv	ved Date:	06/02	2/2022	
Sample Time:	1345		Prep.	Date:	06/06	5/2022	
Matrix:	WATER		Analys	sis Date:	06/06	5/2022	
Amount Used:	900 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	cch:	B1149	91	
<pre>% Moisture:</pre>	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	0.311		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	63%

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

(a) DoD and/or NELAC Accredited Analyte.

1

Sample 008932-08, NP PESTICIDES (8270SIM-MOD)

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

> 008932 Lab Report No:

06/30/2022 Report Date:

Project Name: REND Project No:	I.AKE							Z	Analysis WELAC Certi	: Inorgan fied - ILl	ics 00308
ARDL No: 0089 Field ID: REN- Received: 06/0	32-08 8 2/2022		Sampl Samp Samp	ing Lo ling D ling T	c'n: REND ate: 06/0 ime: 1345	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Analyte		LOD	ГОО	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen		0.100	0.100		QN	MG/L	NONE	350.1	NA	06/09/22	06146713
Chlorophyll-a, Corr	ecte	1.00	1.00		22.2	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Kjeldahl Nitrogen		0.500	1.00	Ь	0.70	MG/L	351.2	351.2	06/08/22	06/09/22	06146715
Nitrate as Nitrogen		0.0190	0.0200		QN	MG/L	NONE	GREEN	NA	06/15/22	06286777
Nitrite as Nitrogen		0.0200	0.0200		ND	MG/L	NONE	354.1	NA	06/03/22	06216750
Pheophytin-a		1.00	1.00		11.5	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Phosphorus		0.0720	0.100	മ	0.121	MG/L	365.2	365.2	06/07/22	06/08/22	06146716
Solids, Total Suspe	nded	2.00	2.00		15.0	MG/L	NONE	160.2	NA	06/03/22	06086699
Solids, Volatile Su	spen	2.00	2.00		7.8	MG/L	NONE	160.4	NA	06/03/22	06086700
Total Organic Carbo	u	0.500	1.00		7.8	MG/L	NONE	415.1	NA	06/17/22	06226755

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-08, Inorganic Analyses

Page 1 of 1

06/03/22 06086699 06/03/22 06086700 06/17/22 06226755

Lab Report No:	008932	Re	port Date	: 06/07/	2022		
Project Name: Project No.: NELAC Certi	REND LAKE fied - IL100308	An Analytical Prep	alysis: N Method: 8 Method: 3	P PESTICII 270D 510C	DES (82)	70SIM-MC	(םי
Field ID: Desc/Location: Sample Date: Sample Time: Matrix: Amount Used:	REN-15-0 REND LAKE 06/02/2022 1345 WATER 1000 mL		ARDL Lab F Recei Prep. Analy Instr	Lab No.: ilename: ved Date: Date: sis Date: ument ID:	00893 E060 06/03 06/04 06/04 AG5	32-09 6214 2/2022 6/2022 6/2022	
Final Volume: % Moisture:	1 mL NA		QC Ba Level	tch: :	B114 LOW	91	
Parameter		LOD	LOQ	Result	Data Flag	Units	Dilution Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	0.390		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1

SURROGATE RECOVERIES:	Limits	Results
Triphenylphosphate	30-130	63%

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008932-09, NP PESTICIDES (8270SIM-MOD)

008932 Lab Report No:

06/30/2022 Report Date: 1

1

06/17/22 06226755

NA

415.1

NONE

MG/L

7.7

1.00

0.500

Total Organic Carbon

Project Name: F Project No:	REND LAKE							Z	Analysis JELAC Certi	: Inorgan fied - IL1	ics 00308
ARDL No: (Field ID: F Received: (008932-05 REN-15-0 06/02/202	5	Sampl Samp Samp	ling Lo ling Da ling T:	c'n: REND ate: 06/02 ime: 1345	LAKE 2/2022			Matrix Moisture	: WATER : NA	
Analyte	m	LOD	ΓΟŐ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitroger	-	0.100	0.100		QN	MG/L	NONE	350.1	NA	06/09/22	06146713
Chlorophyll-a, C	Correcte	1.00	1.00		20.3	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Kjeldahl Nitroge	ne	0.500	1.00	Ь	0.60	MG/L	351.2	351.2	06/07/22	06/08/22	06146714
Nitrate as Nitro	ogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	06/15/22	06286777
Nitrite as Nitro	ngen	0.0200	0.0200		ND	MG/L	NONE	354.1	NA	06/03/22	06216750
Pheophytin-a		1.00	1.00		12.6	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726
Phosphorus		0.0720	0.100	ф	0.103	MG/L	365.2	365.2	06/07/22	06/08/22	06146716
Solids, Total Su	lspended	2.22	2.22		14.4	MG/L	NONE	160.2	NA	06/03/22	06086699
Solids, Volatile	e Suspen	2.22	2.22		7.56	MG/L	NONE	160.4	NA	06/03/22	06086700

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-09, Inorganic Analyses

	Report Date: 06/30/2022	Analysis: Inorganics NELAC Certified - IL100308	Matrix: WATER Moisture: NA
ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864			pling Loc'n: REND LAKE mpling Date: 06/02/2022 mpling Time: 1515
	Lab Report No: 008932	Project Name: REND LAKE Project No:	ARDL No:008932-10SampField ID:REN-RL-MARSamReceived:06/02/2022Sam

AnalyteLODLOQFlagResultPrepAnalysisRunE. Coliform1.001.0086.0COL/100MLNONE1604NA06/02/2206066695		1			•						
E. Coliform 1.00 1.00 86.0 COL/100 ML NONE 1604 NA 06/02/22 06066695	Analyte	ГОД	ТОО	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Numbe <i>r</i>
	E. Coliform	1.00	1.00		86.0	COL/100 ML	NONE	1604	NA	06/02/22 (6066695

(a) DOD and/or NELAC Accredited Analyte.

Sample 008932-10, Inorganic Analyses

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

Lab Report No: 008932

Report Date: 06/07/2022

Project Name:	REND LAKE	Analy	sis: NP PEST	ICIDES (8	270SIM-M	(םכ
Project No.:		Analytical Met	hod: 8270D			
NELAC Certi	fied - IL100308	Prep Met	hod: 3510C			
·····						
Field ID:	NA		ARDL Lab No	.: 008	932-01B1	
Desc/Location:	NA		Lab Filename	e: E06	06203	
Sample Date:	NA		Received Dat	te: NA		
Sample Time:	NA		Prep. Date:	06/	06/2022	
Matrix:	QC Material		Analysis Dat	te: 06/	06/2022	
Amount Used:	1000 mL		Instrument	ID: AG5		
Final Volume:	1 mL		QC Batch:	B11-	491	
% 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	78%

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

(a) DoD and/or NELAC Accredited Analyte.

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

Lab Report No: 008932

Report Date: 06/30/2022

Project Name: REND LAKE

NELAC Certified - IL100308

			Blank		Prep	Analysis	Prep	Analysis		QC Lab	1
Analyte	LOD	год	Result	Units	Method	Method	Date	Date	Run	Number	
(a) Iron	0.040	0.050	QN	MG/L	3010A	6010C	06/06/22	06/07/22	P7776	008932-01B1	1
(a) Manganese	0.004	0.005	ND	MG/L	3010A	6010C	06/06/22	06/07/22	P7776	008932-01B1	
Ammonia Nitrogen	0.10	0.10	DN	MG/L	NONE	350.1	NA	06/09/22	06146713	008931-01B1	
Chloride	0.80	1.0	QN	MG/L	NONE	300.0	NA	06/20/22	06216739	008932-06B1	
Chlorophyll-a, Corre	1.0	1.0	QN	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726	008932-04B1	
E. Coliform	1.0	1.0	ND	COL/100 ML	NONE	1604	NA	06/02/22	06066695	008932-06B1	
Kjeldahl Nitrogen	1.0	1.0	DN	MG/L	351.2	351.2	06/07/22	06/08/22	06146714	008931-01B1	
Kjeldahl Nitrogen	0.50	1.0	DN	MG/L	351.2	351.2	06/08/22	06/09/22	06146715	008932-08B1	
Nitrate as Nitrogen	0.019	0.020	ND	MG/L	NONE	GREEN	NA	06/15/22	06286777	008930-01B1	
Nitrite as Nitrogen	0.020	0.020	DN	MG/L	NONE	354.1	NA	06/03/22	06216750	008932-01B1	
Pheophytin-a	1.0	1.0	DN	MG/CU.M.	10200H	10200H	06/03/22	06/15/22	06176726	008932-04B1	
Phosphorus	0.072	0.10	0.072	MG/L	365.2	365.2	06/07/22	06/08/22	06146716	008932-08B1	
Solids, Total Suspen	1.0	1.0	QN	MG/L	NONE	160.2	NA	06/03/22	06086699	008932-08B1	
Solids, Volatile Sus	1.0	1.0	DN	MG/L	NONE	160.4	NA	06/03/22	06086700	008932-08B1	
Total Organic Carbon	0.50	1.0	DN	MG/L	NONE	415.1	NA	06/17/22	06226755	008931-02B1	

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008932

	ARDL, INC	BLA1	NK SPIKE Aviatio	/SPIKE I n Drive;	DUPLICAT ; P.O. B	E REPORT ox 1566	Mt. Ve	rnon, Il	г 62864	
Lab Report No: 0089	13.2							Rep	ort Date:	06/07/2022
Project Name: REND I Project No.:	AKE	Ana	lysis: NP	PESTICID	ES (8270S	(DOM-MI	Anal	ytical Me Prep Me	thod: 827 thod: 351	0D 0C
Matrix: QC Ma Amount Used: 1000	terial mL		QC Batcl Level:	h: B11 LOW	491		Prep.] Analys	Date: is Date:	06/06/202 06/06/202	0.0
Parameter		Spike Result	Spike Level	Spike % Rec	Duplicate Result	Duplicate Level	Duplicate % Rec	Recovery Limits	RPD	RPD Limit
Trifluralir		3.28	ಳ	82	1	i i	5	30-130	1	
Atrazine		3.25	4	81	1	k F	ł	30-130	;	1
Metribuzir	ſ	3.07	4	77		1	1 2	30-130	:	
Alachlor		3.24	4	81	:	;	:	30-130	:	:
Metolachloi	u	3.08	4	77	;	;	;	30-130		1
Chlorpyrif	SC	2.95	4	74	1			30-130	;	;
Cyanazine Pendimethali	g	3.11 2.93	4 4	73	: ;	: :	: :	30-130	1 1	· · ·
- 10110110110170-7		cc.7	ť	67	8	-	1	067-06	T P	
	SURROGATE	RECOVERIES :		Spik	e %R Dupl	icate %R	%R Limits			
	Triphenyl	phosphate		73	.5	1	30-130			
(a) DoD and/or NELAC Accredi*' indicates a recovery outSpike Blanks for 008932-01,	ited Analyte. sside of standard NP PESTICIDES (82	limits. 270SIM-MOD)								Page 1 of 1

ARDL Report 8932 - Page 24 of 32

No: 008932 me: REND LAKE Amalytical 06/30/2022 me: REND LAKE Itself Itself 06/30/2023 me: REND LAKE Amalytical 06/30/2023 me: REND LAKE Itself Itself </th <th>ARL</th> <th>DL, INC.</th> <th>400 Av</th> <th>riation</th> <th>υ μεινε</th> <th>. н. О.</th> <th>ROX</th> <th>0001</th> <th>ыс. У</th> <th></th> <th>£0070</th>	ARL	DL, INC.	400 Av	riation	υ μεινε	. н. О.	ROX	0001	ыс. У		£0070
e: REND LAKE NELAC Certified - IL100308 ICS I ICS I ICS I ICS I ICS I C IA ICS I ICS I ICS I ICS I C IA Analytical QC IAb Result Level % Rec Mean Analytical QC IAb Result Level % Rec Mean Analytical QC IAb 8-31 ILS I ILS I ICS I ICS I ICS I ICS I ILD I 9-31 ILS I ILS I ILS I ILS I ILD I	00 :00	8932								Report Da	te: 06/30/2022
LCS I LCI I <th< th=""><th> e</th><th>REND LAKE</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>NELAC Cer</th><th>:tified - IL100308</th></th<>	 e	REND LAKE								NELAC Cer	:tified - IL100308
Result Level % Rec Limits % Rec Run Number 5.3 5.0 105 59-115 7776 008932-01C1 0.82 0.75 109 90-114 7776 008932-01C1 13.5 14.0 97 10 99-110 1776 008932-01C1 13.5 14.0 97 10 114 10 08931-01C1 13.5 14.0 97 10 06146713 008932-06C1 13.5 14.0 97 10 06146715 008932-01C1 10.4 10.0 104 10 06146714 008932-01C1 10.4 10.0 101 10 06146714 008932-01C1 10.4 10.0 101 10 10 06146714 008932-01C1 10.		LCS 1	LCS 1	LCS 1	LCS 2	LCS 2	LCS 2	ж Ке	Mean	Analytical	QC Lab
5.3 5.0 105 6 87-115 7776 008932-01C1 0.82 0.75 109 90-114 7776 008932-01C1 0.99 1.0 99 90-114 7776 008932-01C1 13.5 14.0 99 14 0 97 0 10 00932-06C1 13.5 14.0 97 10 06146713 008932-06C1 13.5 14.0 97 10 10 063932-06C1 13.5 14.0 97 10 06146713 008932-06C1 10.4 10.0 104 10 06216719 008932-08C1 10.0 10.0 104 10 10 06146714 008932-01C1 10.0 10.0 104 10 10 06146714 008932-01C1 10.0 10.0 101 <td></td> <td>Result</td> <td>Level</td> <td>% Rec</td> <td>Result</td> <td>Level</td> <td>% Rec</td> <td>Limits</td> <td>% Rec</td> <td>Run</td> <td>Number</td>		Result	Level	% Rec	Result	Level	% Rec	Limits	% Rec	Run	Number
0.82 0.75 109 90-114 P7776 008932-01C1 0.99 1.0 99 90-110 P7776 008932-01C1 13.5 14.0 97 90-110 06146713 008932-06C1 13.5 14.0 97 90-110 06146715 008932-06C1 10.4 10.0 104 80-120 06146715 008932-06C1 10.4 10.0 104 80-120 06146714 008931-01C1 10.1 1.0 101 80-120 06146714 008931-01C1 1.0 1.0 101 80-120 06286777 008932-01C1 1.0 1.0 101 80-120 06286777 008932-01C1 1.0 1.0		5.3	5.0	105	1	1	1	87-115	1	P7776	008932-01C1
0.99 1.0 99 80-120 06146713 008931-01C1 13.5 14.0 97 90-110 06146713 008932-06C1 10.4 10.0 104 80-120 06146715 008932-06C1 10.4 10.0 104 10 0.04 06146715 008932-08C1 10.4 10.0 104 80-120 06146714 008931-01C1 10.1 1.0 101 80-120 06146717 008931-01C1 1.0 1.0 101 80-120 06286777 008932-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 101 - 06232-01C1		0.82	0.75	109		-	ł	90-114		P7776	008932-01C1
13.5 14.0 97 90-110 06216739 008932-06C1 10.4 10.0 104 80-120 06146715 008932-08C1 10.4 10.0 104 80-120 06146714 008931-01C1 10.4 10.0 101 80-120 06146714 008931-01C1 1.0 1.0 101 80-120 06286777 008930-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 101 80-120 06216776 008932-01C1		0.99	1.0	66	ł	ł	!	80-120	1	06146713	008931-01C1
10.4 10.0 104 80-120 06146715 008932-08C1 10.4 10.0 104 80-120 06146714 008931-01C1 1.0 1.0 101 80-120 06286777 008930-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 104 80-120 06146716 008932-01C1		13.5	14.0	97	1	ł		90-110	ł	06216739	008932-06C1
10.4 10.0 104 80-120 06146714 008931-01C1 1.0 1.0 101 80-120 06286777 008930-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 104 80-120 06146716 008932-08C1		10.4	10.0	104	ł	ł	ł	80-120	ł	06146715	008932-08C1
1.0 1.0 101 80-120 06286777 008930-01C1 1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 1.0 104 80-120 06146716 008932-08C1		10.4	10.0	104	ł		1	80-120	ł	06146714	008931-01C1
1.0 1.0 101 80-120 06216750 008932-01C1 1.0 1.0 104 80-120 06146716 008932-08C1		1.0	1.0	101	1		!	80-120		06286777	008930-01C1
1.0 1.0 104 80-120 06146716 008932-08C1		1.0	1.0	101	1	;	!	80-120	ł	06216750	008932-01C1
		1.0	1.0	104	-	!	!	80-120	1	06146716	008932-08C1
1 19.3 20.0 97 18.6 20.0 93 76-120 95 06226755 008931-02C1	-	19.3	20.0	97	18.6	20.0	93	76-120	95	06226755	008931-02C1
	alues tá	abulated above ma:	rked with	an asteris	ik are outs	ide of acc	eptable li	imits.			
lues tabulated above marked with an asterisk are outside of acceptable limits. 'or NELAC Accredited Analyte	'or NEL	AC Accredited Ana	lyte								

Inorganic LCS Results for 008932

Page 1 of 1

ARDL Report 8932 - Page 25 of 32

R	ARDL,	INC.	MATRIX S 400 Avia	PIKE/SP tion Dr	IKE DUPL] ive; P.O.	CCATE REPO Box 1566	RT M	t. Verno	n, IL	52864	
Lab Report No: 008932									Report	Date: (6/08/2022
Project Name: REND LAKI Project No.:	ы		Analysis:	NP PEST	ICIDES (82	70SIM-MOD)		Analytic Pr	al Methoó ep Methoó	: 8270D	
Field ID: REN-1			Prek	Date:	06/06/202	2	14	RDL Lab N	0.89	32-01	
Uesc/Location: KENU LAI Sample Date: 06/02/2(КЕ 022		Amou % Mc	int Usea: Disture:	NA NA		- 4	lab Filena Seceived D	me: ate: 06/0	2/2022	
Sample Time: 1006 Matrix: WATER			QC I Leve	<pre>satch: e1:</pre>	B11491 LOW		1	malysis D	ate: 06/0	6/2022	
		Sample	SM	SM	WS	MSD	MSD	USM	% Rec		RPD
Parameter		Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin		en se	2.91	4	72.8	2.48	4	62	30-130	16	30
Atrazine		£	3.06	4	76.5	2.36	4	59	30-130	25.8	30
Metribuzin		CIN	2.75	4	68.8	2.08	4	52	30-130	27.7	30
Alachlor		QN	2.85	4	71.3	2.44	4	61	30-130	15.5	30
Metolachlor		QN	2.89	4	72.3	2.45	4	61.3	30-130	16.5	30
Chlorpyrifos		QN	2.54	4	63.5	2.22	4	55.5	30-130	13.4	30
Cyanazine		QN	2.78	4	69.5	2.09	4	52.3	30-130	28.3	30
Pendimethalin		QN	2.54	4	63.5	2.16	4	54	30-130	16.2	30
	SURRO	GATE RECOVE	RIES:		MS &R	MSD %R	\$R Li	mits			
	Triph	enylphospha	te		66	56	30-1	30			

(a) DoD and/or NELAC Accredited Analyte.

'nc' indicates sample >4X spike level.

'*' indicates a recovery outside of standard limits. Matrix Spikes for 008932-01, NP PESTICIDES (8270SIM-MOD)

Page 1 of 1

ARDL Report 8932 - Page 26 of 32

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

Lab Report No: 008932

Report Date: 06/30/2022

Project Name: REND LAKE

NELAC Certified - IL100308

Analyte	Sample Matrix	Sample Result	MS Result	MS Level	MS & Rec	MSD Result	MSD Level	MSD % Rec	% Rec Limits	Day	RPD Limit	Run	QC Lab Number
(a) Iron	WATER	0.34	1.4	1.0	108	1.4	1.0	102	87-115	5	20	P7776	008932-01MS
(a) Manganese	WATER	0.36	0.91	0.50	111	0.88	0.50	104	90-114	т	20	P7776	008932-01MS
Ammonia Nitrogen	WATER	DN	1.2	2.0	61 *	1.2	2.0	62 *	75-125	2	20	06146713	008932-05MS
Chloride	WATER	29.7	37.2	8.0	94	37.9	8.0	103	75-125	2	20	06216739	008932-06MS
Kjeldahl Nitrogen	WATER	J 0.70	9.8	10.0	16	9.7	10.0	06	75-125	1	20	06146715	008932-08MS
Vitrate as Nitrogen	WATER	ΠN	0.78	1.0	78	0.77	1.0	77	75-125	1	20	06286777	008932-01MS
Vitrite as Nitrogen	WATER	UN	1.0	1.0	100	1.0	1.0	103	75-125	ю	20	06216750	008932-01MS
Phosphorus	WATER	0.12	1.1	1.0	93	1.1	1.0	100	75-125	7	20	06146716	008932-08MS

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 008932

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

Lab Report No: 008932

06/30/2022 Report Date:

> REND LAKE Project Name:

NELAC Certified - IL100308

Analyte	Sample Conc'n	First Duplicate	Second Duplicate	Units	Percent Diff	Mean (Smp,D1,D2)	Analytical Run	QC Lab Number	
Chlorophyll-a, Corrected	18.3	21.7	1	MG/CU.M.	17	1	06176726	008932-04D1	
Pheophytin-a	5.5	1.3	1	MG/CU.M.	124*	1	06176726	008932-04D1	
Solids, Total Suspended	15.0	15.2	1	MG/L	Ч	-	06086699	008932-08D1	
Solids, Volatile Suspend	7.8	8.0		MG/L	С	-	06086700	008932-08D1	
Total Organic Carbon	6.9	6.9	1	MG/L	0	1	06226755	008932-05D1	

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

Sample Duplicates for 008932



Sample Receipt Information

Including as appropriate:

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

ARDL Data Package 8932

Authorized By: DSD-QAO

6932 CHAIN OF CUSTODY RECORD	PRESERVATION	EECIFY SPECIFY CHEMICALS ADDED AND FINAL PH IF KNOWN	REMARKS OR SAMPLE LOCATION	X	X	X	X	X	X	X	X	X	X							
			New Color	X					X								AL INSTRUCTIONS:	504 103		
гпоп, L 62864 4-1149 Fax		NE NE NE	001×131×121×121×121×121×121×121×121×121×12	X X X X	X X X	X X X	X X X	X X X	X X X X	X x x x	X X X	X X X	X				REMARKS/SPECI	*Preserved with H2 #Preserved with HN		
00 Aviation Drive, Mt. V 3235 Phone (618) 24	SAEL	CONTAIN	ANO. OF GRAB COMP	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X X	X X X X	X				Received by: (Signature)	Received by: (Signature)	Shipping Ticket No.	
P.O. Box 1566, 4		,	DATE TIME	6/3 1006	0121 6/3	613 1310	91/11 e/9	CHAI 6/9	6/3/22/0400	813 1602	R3 1345	5421 875	6/2 1515				id all lels	Date Time 6/2 /035	Date Time	
ARDL, Inc	PROJECT Rend Lake	SAMPLERS: (Signature) Kaleb gakers Ocelur revur	SAMPLE NUMBER	Ren – 1	$\operatorname{Ren} - 2 - 0$	Ren – 2 – 5	Ren – 3	Ren – 4	Ren - 5	Ren-7	Ren – 8	Ren – 15- 0	Ren-RL-Mar		RD	Re	BRelinquished by: (Signature)	Content of Signature)	Received for Laboratory by: Stynamuch MUMUNIA	PURCHASE ORDER NO:

	COOLER RECEIPT R	EPORT			
ARI	AKDL, INC.	Cooler# Rve_1			
7 41 41		Number of Coolers in Shipment:	7		
Pro	ject: <u>Rend Lake</u>	Date Received: <u>06/02/2022</u>	-		
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened	2 <u>022 (</u> Signature) <u>DCB</u>			
1.	Did cooler come with a shipping slip (airbill, etc.)?	YE	s (NO)
	If YES, enter carrier name and airbill number here: <u>ARD</u> Co	urier- Jordan W	<i>v</i>		
2.	Were custody seals on outside of cooler?	YE	S	NO	N/A
	How many and where?,Seal Date:,	"Seal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?	YE	S	NO (NÀ
4.	Did you screen samples for radioactivity using a Geiger Counter?		S	NO	
5.	Were custody papers sealed in a plastic bag?	Z.C.	s (NO	
6.	Were custody papers filled out properly (ink, signed, etc.)?		S	NO	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?		5)	NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name at the	he top of this form	S	NO	N/A
9.	Was a separate container provided for measuring temperature? YES	NO Observed Cooler Temp		0	C
B.	LOG-IN PHASE: Date samples were logged-in: DU022022 (S				
10.	Describe type of packing in cooler: LOOSE Ice.				
11.	Were all samples sealed in separate plastic bags?	Ye	S	NO	N/A
12.	Did all containers arrive unbroken and were labels in good condition?		S	NO	
13.	Were sample labels complete?		S	NO	
14.	Did all sample labels agree with custody papers?		3	NO	
15.	Were correct containers used for the tests indicated?		s)	NO	
16.	Was pH correct on preserved water samples?		3	NO	N/A
17.	Was a sufficient amount of sample sent for tests indicated?		5	NO	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	Ye	ES	NO	(N/A)
19.	Was the ARDL project coordinator notified of any deficiencies?		S)	NO	N/A
	Comments and/or Corrective Action:	Sample Transfer			
	7 and 1 and not lich and	Fraction Fraction	1		
-	- contacted and isted and	Area # / / Area #	╀		
	hain; both ecoli for samples	Walkin			
k	10-5 and lon-7 recordiply	DIR			
	and such respectively.	On On	\uparrow		
-		Cel02/2072	1		
		Chain-of-Custody #			
(1	By: Signature) DCB Date D6 02 2022				

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	<u>COOLER RECEIPT</u> <u>ARDL, INC.</u>	REPC	<u>DRT</u>				
ARI	DL #: <u>8932</u>	Cool	ler # \underline{B}	lue 2	2		
Pro	oject: <u>Renel Lake</u>	Date	e Receiv	ed: <u>06/07</u>	2/2022		_
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened:	2/201	ZSignatu	ire) <u>LCB</u>			
1.	Did cooler come with a shipping slip (airbill, etc.)?				YE§	(NO)
	If YES, enter carrier name and airbill number here: ARD (001	er-	Jordon	n. W.		
2.	Were custody seals on outside of cooler?				YES	NO	
	How many and where?,Seal Date:		,s	eal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?				YES	NO	$\langle \rangle$
4.	Did you screen samples for radioactivity using a Geiger Counter?		;			NO	
5.	Were custody papers sealed in a plastic bag?	red			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?) _{NO}	N/A
8.	Was project identifiable from custody papers? If YES, enter project name at	t the top	of this forr	n	YES) NO	N/A
9.	Was a separate container provided for measuring temperature? YES	NO		erved Cooler Ter	np. 2,6	6 0	0
В.	LOG-IN PHASE: Date samples were logged-in: 06/02/2022	(Signatu	ire 🟒	3			C
10.	Describe type of packing in cooler: <u>LOOSC</u> <u>Ice</u>						
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?					NO	
14.	Did all sample labels agree with custody papers?				ÉS	NO	
15.	Were correct containers used for the tests indicated?					NO	
16.	Was pH correct on preserved water samples?		•••••) NO	N/A
17.	Was a sufficient amount of sample sent for tests indicated?		••••••		ÆS) 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:		Fraction	Sample	Transfer		
					Fraction		
			Area #	AL /	Area #		
			By ().	lk In	Ву		
			DCA)			
			°°ll	02/2022	On		
			Chain	-of-Custody #			
(E	By: Signature) Date:						

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Environmental | Analytical | Management | Safety

Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 07/18/2022

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

www.ardlinc.com

Date: 8/17/2022

Lab Name: ARDL, Inc.

ARDL Report No.: 8944

CASE NARRATIVE

Customer	Date	Lab ID	
Sample No.	<u>Collected</u>	<u>Number</u>	Analyses Requested
REN-1	7/18/22	8944-01	NP Pesticides, Metals(1), Inorganics(2)(3)
REN-2-0	7/18/22	8944-02	NP Pesticides, Inorganics(2)(3)
REN-2-5	7/18/22	8944-03	Metals(1), Inorganics(2)
REN-3	7/18/22	8944-04	NP Pesticides, Inorganics(2)(3)
REN-4	7/18/22	8944-05	NP Pesticides, Inorganics(2)(3)
REN-5	7/18/22	8944-06	NP Pesticides, Inorganics(2)(3), E Coli, Chloride
REN-7	7/18/22	8944-07	NP Pesticides, Inorganics(2)(3), E Coli
REN-8	7/18/22	8944-08	NP Pesticides, Inorganics(2)(3)
REN-15-0	7/18/22	8944-09	NP Pesticides, Inorganics(2)(3)
REN-RL-MAR	7/18/22	8944-10	E Coli

(1) Including iron and manganese.

(2) Including ammonia*, nitrate, nitrite, total phosphorus*, TKN*, TOC*, TSS and TVSS.

(3) Including chlorophyll-a corrected and pheophytin-a.

* Analyzed by an accredited subcontract laboratory.

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.

"Test everything, keep the good" 1 Thes. 5:21
Project Name: Rend Lake

ARDL Report No.: 8944

CASE NARRATIVE (Continued)

INTERNAL STANDARDS

All internal standard criteria were met.

SURROGATES

All surrogate recovery criteria were met.

INORGANIC FRACTION

<u>PREPARATION BLANK</u> 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 ammonia. The parent sample has been flagged appropriately with a 'J' qualifier.

DUPLICATE

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

Page 2 of 2



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 8944

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

Authorized By: DSD-QAO

ARDL Report 8944

Lab Report No:	008944	Rep	ort Date	: 08/04/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82'	70SIM-MC	DD)
Project No.:		Analytical M	ethod: 8	270D			
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-1		ARDL	Lab No.:	00894	14-01	
Desc/Location:	REND LAKE		Lab F	ilename:	E0803	3205	
Sample Date:	07/18/2022		Recei	ved Date:	07/18	3/2022	
Sample Time:	1252		Prep.	Date:	07/19	9/2022	
Matrix:	WATER		Analy	sis Date:	08/03	3/2022	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B115)2	
<pre>% Moisture:</pre>	NA		Level	:	LOW		
					Data		Dilution
Parameter		LOD	LOQ	Result	Flag	Units	Factor
Trifluralin		0.200	0.200	ND		UG/L	1
Atrazine		0.200	0.200	ND		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1
SURROGATE RECOV	ERIES:	Lim	its		Rea	sults	Jea
Triphenylphosph	ate	30-	130			178	2 ¹

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008944-01, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008944

REND LAKE

Project Name:

Report Date: 08/16/2022

Analysis: Inorganics

Project No:							4	VELAC Certi	fied - ILJ	00308
ARDL No: 008944-01 Field ID: REN-1		Samp] Samp	ing Loo	c'n: REND ate: 07/18	LAKE 3/2022			Matrix Moisture	K: WATER S: NA	
Received: 07/18/202	22	Samp	ling T	ime: 1252						
		-				Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	год	Flag	Result	Units	Method	Method	Date	Date	Number
(a) Iron	0.0400	0.0500		0.276	MG/L	3010A	6010C	07/25/22	07/27/22	P7794
(a) Manganese	0.00400	0.00500		0.771	MG/L	3010A	6010C	07/25/22	07/27/22	P7794
Ammonia Nitrogen	0.0500	0.200	Ŀ	0.163	MG/L	NONE	350.1	NA	08/01/22	R315153
Chlorophyll-a, Correcte	1.00	1.00		30.3	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Kjeldahl Nitrogen	0.480	1.00		1.0	MG/L	351.2	351.2	07/25/22	07/26/22	194960
Nitrate as Nitrogen	0.0190	0.0200		0.053	MG/L	NONE	GREEN	NA	07/19/22	07226888
Nitrite as Nitrogen	0.0190	0.0190		QN	MG/L	NONE	354.1	NA	07/19/22	07226889
Pheophytin-a	1.00	1.00		15.2	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Phosphorus	0.0660	0.100		0.227	MG/L	365.4	365.4	07/25/22	07/26/22	194958
Solids, Total Suspended	3.70	3.70		11.1	MG/L	NONE	160.2	NA	07/19/22	07256891
Solids, Volatile Suspen	3.70	3.70		4.44	MG/L	NONE	160.4	NA	07/19/22	07256892
Total Organic Carbon	0.400	1.00		5.6	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-01, Inorganic Analyses

Lab Report No:	008944	Rep	ort Date	: 08/04/	2022		
Project Name: Project No.: NELAC Certi	REND LAKE fied - IL100308	Ana Analytical M Prep M	lysis: NI Method: 82 Method: 39	P PESTICII 270D 510C	DES (827	70SIM-MO	D)
Field ID: Desc/Location: Sample Date: Sample Time: Matrix: Amount Used: Final Volume: % Moisture:	REN-2-0 REND LAKE 07/18/2022 1020 WATER 1000 mL 1 mL NA		ARDL 1 Lab F: Receiv Prep. Analys Instru QC Bat Level	Lab No.: ilename: ved Date: Date: sis Date: ument ID: tch: ;	00894 E0803 07/18 07/19 08/03 AG5 B1150 LOW	14-02 3208 3/2022 9/2022 3/2022 3/2022	
Parameter		LOD	LOQ	Result	Data Flag	Units	Dilution Factor
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 0.200 0.200 0.200	ND ND ND ND ND ND ND		UG/L UG/L UG/L UG/L UG/L UG/L UG/L	1 1 1 1 1 1 1 1

SURROGATE RECOVERIES:	Limits	Results	
Triphenylphosphate	30-130	54%	

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008944-02, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008944

Report Date: 08/16/2022

R315	08/01/22	NA	350.1	NONE	MG/L	ND		0.200	0.0500	gen	Ammonia Nitrog
Ru Numb	Analysis Date	Prep Date	Analysis Method	Prep Method	Units	Result	Flag	год	LOD	yte	Analy
	K: WATER D: NA	Matrix Moisture			LAKE //2022	'n: REND te: 07/18 me: 1020	pling Loc mpling Da mpling Ti	Sam Sar Sar	-02 0 2022	008944 REN-2- 07/18/	ARDL No: Field ID: Received:
nics 100308	s: Inorga fied - IL	Analysis ELAC Certi	NE						AKE	REND L	Project Name: Project No:

Analyte	LOD	TOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0500	0.200		ND	MG/L	NONE	350.1	NA	08/01/22	R315153
Chlorophyll-a, Correcte	1.00	1.00		47.4	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Kjeldahl Nitrogen	0.480	1.00		1.0	MG/L	351.2	351.2	07/25/22	07/26/22	194960
Nitrate as Nitrogen	0.0190	0.0200		UN	MG/L	NONE	GREEN	NA	07/19/22	07226888
Nitrite as Nitrogen	0.0190	0.0190		UN	MG/L	NONE	354.1	NA	07/19/22	07226889
Pheophytin-a	1.00	1.00		10.1	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Phosphorus	0.0660	0.100		0.186	MG/L	365.4	365.4	07/25/22	07/26/22	194958
Solids, Total Suspended	2.94	2.94		7.06	MG/L	NONE	160.2	NA	07/19/22	07256891
Solids, Volatile Suspen	2.94	2.94		5.29	MG/L	NONE	160.4	NA	07/19/22	07256892
Total Organic Carbon	0.400	1.00		5.69	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-02, Inorganic Analyses

008944 Lab Report No:

08/16/2022 Report Date:

Project Name: Project No:	REND LAKE							4	Analysis WELAC Certi	:: Inorgan fied - ILI	nics L00308
ARDL No: Field ID:	008944-03 REN-2-5		Sampl Samp	ing Lo	c'n: REND ate: 07/18	LAKE /2022			Matrix Moisture	:: WATER : NA	
Received:	07/18/202	2	Samp	ling T	ime: 1014						
							Prep	Analysis	Prep	Analysis	Run
Analy	te	LOD	ТОŎ	Flag	Result	Units	Method	Method	Date	Date	Number
(a) Iron		0.0400	0.0500		0.112	MG/L	3010A	6010C	07/25/22	07/27/22	P7794
(a) Manganese		0.00400	0.00500		0.383	MG/L	3010A	6010C	07/25/22	07/27/22	P7794
Ammonia Nitrog	en	0.0500	0.200		ND	MG/L	NONE	350.1	NA	08/01/22	R315153
Kjeldahl Nitro	gen	0.480	1.00	Ŀ	0.90	MG/L	351.2	351.2	07/25/22	07/26/22	194963
Nitrate as Nit.	rogen	0.0190	0.0200		0.027	MG/L	NONE	GREEN	NA	07/19/22	072268888
Nitrite as Nit.	rogen	0.0190	0.0190		ND	MG/L	NONE	354.1	NA	07/19/22	07226889
Phosphorus		0.0660	0.100		0.161	MG/L	365.4	365.4	07/25/22	07/26/22	194962
Solids, Total	Suspended	4.00	4.00		7.6	MG/L	NONE	160.2	NA	07/19/22	07256891
Solids, Volati.	le Suspen	4.00	4.00		4.8	MG/L	NONE	160.4	NA	07/19/22	07256892
Total Organic	Carbon	0.400	1.00		5.8	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-03, Inorganic Analyses

Lab Report No:	008944	Rep	ort Date	: 08/04/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82	70SIM-MC	DD)
Project No.:		Analytical M	ethod: 8	270D			
NELAC Certi:	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-3		ARDL	Lab No.:	0089	44-04	
Desc/Location:	REND LAKE		Lab F	ilename:	E0803	3209	
Sample Date:	07/18/2022		Recei	ved Date:	07/1	8/2022	
Sample Time:	1120		Prep.	Date:	07/1	9/2022	
Matrix:	WATER		Analy	sis Date:	08/03	3/2022	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B115	02	
<pre>% Moisture:</pre>	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	0.420		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1
SURROGATE RECOVI	ERIES:	Lim	its		Re	sults	
Triphenylphospha	ate	30-3	130		!	56%	

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

(a) DoD and/or NELAC Accredited Analyte.

Lab Report No: 008944

Report Date: 08/16/2022

Rur Numbe	Analysis Date	Prep Date	Analysis Method	Prep Method	Units	Result	Flag	TOQ	LOD	/te	Anal
					0	e: 112(mpling Tim	Sai	/2022	07/18	Received:
	.x: WATER e: NA	Matri Moistur) LAKE 18/2022	n: RENI e: 07/1	pling Loc' mpling Dat	Sam Sa	4-04	00894 REN-3	ARDL No: Field ID:
00308	ified - IL1	ILAC Cert	NE								Project No:
lics	.s: Inorgar	Analysi							LAKE	REND	Project Name:

R315153 07226888 ч 07/20/22 07226872 07226889 07226872 07256891 07256892 R314934 194963 194962 08/01/22 07/26/22 07/26/22 07/19/22 07/19/22 07/20/22 07/19/22 07/19/22 07/26/22 07/19/22 07/25/22 07/25/22 07/19/22 NA NA NA NA NA NA 10200H 10200H 351.2 350.1 354.1 365.4 160.2 160.4 9060 GREEN 10200H 10200H 351.2 NONE NONE NONE 365.4 NONE NONE NONE MG/CU.M. MG/CU.M. MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L 0.253 1.4 ND ND 18.9 81.9 20.4 12.0 7.4 QN 0.0200 0.0190 1.00 0.200 1.00 0.100 4.00 4.00 0.0190 0.0500 0.0190 0.0660 1.00 0.480 1.00 4.00 4.00 0.400 Chlorophyll-a, Correcte Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon Nitrate as Nitrogen Nitrite as Nitrogen Kjeldahl Nitrogen Ammonia Nitrogen Pheophytin-a Phosphorus

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-04, Inorganic Analyses

Lab Report No:	008944	Repo	ort Date	: 08/04/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82'	70SIM-MC	DD)
Project No.:		Analytical M	ethod: 82	270D			
NELAC Certi	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-4		ARDL	Lab No.:	00894	44-05	
Desc/Location:	REND LAKE		Lab F:	llename:	E0803	3210	
Sample Date:	07/18/2022		Receiv	ved Date:	07/18	8/2022	
Sample Time:	1145		Prep.	Date:	07/19	9/2022	
Matrix:	WATER		Analy	sis Date:	08/03	3/2022	
Amount Used:	1000 mL		Instru	ument ID:	AG5		
Final Volume:	1 mL		QC Bat	cch:	B1150	02	
<pre>% Moisture:</pre>	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	0.530		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1
SURROGATE RECOVI	ERIES:	Lim	its		Rea	sults	· .
Triphenylphospha	ate	30-3	130		(548	

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

(a) DoD and/or NELAC Accredited Analyte.

008944 Lab Report No:

08/16/2022 Report Date:

Project Name: 1 Project No:	REND LAKE							Z	Analysis JELAC Certi	:: Inorgar fied - IL1	lics 00308
ARDL No: (Field ID: 1 Received: (008944-05 REN-4 07/18/202	N	Samp. Samr Samr	ling Loc ling Da ling Ti	:'n: REND ate: 07/18 me: 1145	LAKE 3/2022			Matrix Moisture	C: WATER S: NA	
Analyte	U	LOD	ГОО	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitroge	с	0.0500	0.200		QN	MG/L	NONE	350.1	NA	08/01/22	R315153
Chlorophyll-a, (Correcte	1.00	1.00		92.8	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Kjeldahl Nitroge	en	0.480	1.00		1.6	MG/L	351.2	351.2	07/25/22	07/26/22	194963
Nitrate as Nitro	ogen	0.0190	0.0200		ND	MG/L	NONE	GREEN	NA	07/19/22	07226888
Nitrite as Nitro	ogen	0.0190	0.0190		ND	MG/L	NONE	354.1	NA	07/19/22	07226889
Pheophytin-a		1.00	1.00		38.6	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Phosphorus		0.0660	0.100		0.301	MG/L	365.4	365.4	07/25/22	07/26/22	194962
Solids, Total Su	uspended	4.55	4.55		21.8	MG/L	NONE	160.2	NA	07/19/22	07256891
Solids, Volatile	e Suspen	4.55	4.55		12.7	MG/L	NONE	160.4	NA	07/19/22	07256892
Total Organic Ca	arbon	0.400	1.00		7.8	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-05, Inorganic Analyses

Lab Report No:	008944	Rep	ort Date	: 08/04/	2022		
Project Name: Project No.: NELAC Certi:	REND LAKE fied - IL100308	Ana Analytical M Prep M	lysis: Ni ethod: 82 ethod: 33	P PESTICII 270D 510C	DES (82'	70SIM-MC	(ם)
Field ID: Desc/Location: Sample Date: Sample Time: Matrix: Amount Used: Final Volume: % Moisture:	REN-5 REND LAKE 07/18/2022 0905 WATER 1000 mL 1 mL NA		ARDL I Lab F Receiv Prep. Analys Instru QC Bat Level	Lab No.: ilename: ved Date: Date: sis Date: ument ID: tch: :	00894 E0803 07/12 07/12 08/03 AG5 B1156 LOW	44-06 3211 8/2022 9/2022 3/2022 02	
Parameter		LOD	LOQ	Result	Data Flag	Units	Dilution Factor
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 0.200 0.200	ND ND ND 2.73 ND ND ND		UG/L UG/L UG/L UG/L UG/L UG/L UG/L	1 1 1 1 1 1 1
SURROGATE RECOVI	ERIES:	Lim 30-	its 130		Rea	sults 50%	

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

(a) DoD and/or NELAC Accredited Analyte.

Lab Report No: 008944

REND LAKE

Project Name:

Report Date: 08/16/2022

Inorganics

Analysis:

Project No:								4	ELAC Certi	fied - IL1(00308
ARDL No: 00	8944-06		Sampl	ing Loc	c'n: REND	LAKE			Matrix	: WATER	
Field ID: RE	N-5		Samp	ling Di	ate: 07/18	3/2022			Moisture	: NA	
Received: 07	/18/202	2	Samp	ling T	ime: 0905						
							Prep	Analysis	Prep	Analysis	Run
Analyte		LOD	LOQ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen		0.0500	0.200	Ь	0.070	MG/L	NONE	350.1	NA	08/01/22	R315153
Chloride		0.800	1.00		7.46	MG/L	NONE	300.0	NA	08/03/22 (08046925
Chlorophyll-a, Co	rrecte	1.00	1.00	Ŀ	11.3	MG/CU.M.	10200H	10200H	07/19/22	07/20/22 (07226872
E. Coliform		1.00	1.00		10.1	COL/100 ML	NONE	1604	NA	07/18/22 (07206867
Kjeldahl Nitrogen		0.480	1.00		1.42	MG/L	351.2	351.2	07/25/22	07/26/22	194963
Nitrate as Nitrog	en	0.0190	0.0200		0.298	MG/L	NONE	GREEN	NA	07/19/22 (07226888
Nitrite as Nitrog	en	0.0190	0.0190		0.023	MG/L	NONE	354.1	NA	07/19/22 (07226889
Pheophytin-a		1.00	1.00	Ŀ	4.5	MG/CU.M.	10200H	10200H	07/19/22	07/20/22 (07226872
Phosphorus		0.0660	0.100		0.54	MG/L	365.4	365.4	07/25/22	07/26/22	194962
Solids, Total Sus	pended	16.7	16.7		348	MG/L	NONE	160.2	NA	07/19/22 (07256891
Solids, Volatile	Suspen	16.7	16.7		18.3	MG/L	NONE	160.4	NA	07/19/22 (07256892
Total Organic Car	uoq.	0.400	1.00		8.5	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

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Sample 008944-06, Inorganic Analyses

Lab Report No:	008944	Ret	ort Date	: 08/04/	2022			
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82	70SIM-MC	D)	
Project No.:		Analytical M	lethod: 82	270D				
NELAC Certi	fied - IL100308	Prep M	lethod: 3	510C				
Field TD.	סביאן 7		זממא	I ab No i	0089	44-07		
Peca/Logation.	RENT LAVE		Lab F:	ilename:	5000	3010		
Sample Date:	07/18/2022		Bacei	red Date.	07/1	9212 9/2022		
Sample Time:	1355		Bren	Date:	07/1	9/2022		
Matrix.	WATER		Analy:	sis Date.	08/0	3/2022		
Amount Used:	1000 mT		Instri	ument TD:	AG5	0,1011		
Final Volume:	1 mJ		OC Bai	t.ch:	B115	02		
% Moisture:	NA		Level	:	LOW	-		
					Data		Dilutic	m
Parameter		LOD	LOQ	Result	Flag	Units	Factor	
Trifluralin		0.200	0.200	ND		UG/L	1	
Atrazine		0.200	0.200	0.350		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	0.700		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	66%	

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008944-07, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008944

REND LAKE

Project Name:

Report Date: 08/16/2022

Inorganics

Analysis:

Project No:							4	VELAC Certi	fied - IL	100308
ARDL No: 008944-07 Field ID: REN-7		Samp] Samp	ing Loc	:'n: REND ate: 07/1	LAKE 8/2022			Matrix Moisture	: WATER : NA	
Received: 07/18/202	5	Samp	ling Ti	ime: 1355						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ΓΟŐ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.0500	0.200	Ŀ	0.10	MG/L	NONE	350.1	NA	08/01/22	R315153
Chlorophyll-a, Correcte	1.00	1.00		6.7	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
E. Coliform	1.00	1.00		12100	COL/100 ML	NONE	1604	NA	07/18/22	07206867
Kjeldahl Nitrogen	0.480	1.00		1.3	MG/L	351.2	351.2	07/25/22	07/26/22	194963
Nitrate as Nitrogen	0.0190	0.0200		1.13	MG/L	NONE	GREEN	NA	07/19/22	07226888
Nitrite as Nitrogen	0.0190	0.0190		0.039	MG/L	NONE	354.1	NA	07/19/22	07226889
Pheophytin-a	1.00	1.00		ND	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Phosphorus	0.0660	0.100		0.384	MG/L	365.4	365.4	07/25/22	07/26/22	194962
Solids, Total Suspended	11.1	11.1		203	MG/L	NONE	160.2	NA	07/19/22	07256891
Solids, Volatile Suspen	11.1	11.1		13.3	MG/L	NONE	160.4	NA	07/19/22	07256892
Total Organic Carbon	0.400	1.00		8.2	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-07, Inorganic Analyses

Lab Report No:	008944	Rep	ort Date	: 08/04/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82	70SIM-MC	D)
Project No.:		Analytical M	ethod: 8	270D			
NELAC Certi	fied - IL100308	Prep M	ethod: 3	510C			
Field ID:	REN-8		ARDL	Lab No.:	00894	44-08	
Desc/Location:	REND LAKE		Lab F	ilename:	E0803	3213	
Sample Date:	07/18/2022		Recei	ved Date:	07/1	8/2022	
Sample Time:	1050		Prep.	Date:	07/1	9/2022	
Matrix:	WATER		Analy	sis Date:	08/03	3/2022	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Ba	tch:	B115	02	
<pre>% Moisture:</pre>	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	0.480		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1
SURROGATE RECOV	ERIES:	Lim	its		Rea	sults	
Triphenylphosph	ate	30-	130			748	

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

(a) DoD and/or NELAC Accredited Analyte.

Sample 008944-08, NP PESTICIDES (8270SIM-MOD)

Lab Report No: 008944

REND LAKE

Project Name:

Report Date: 08/16/2022

Inorganics

Analysis:

						4	NELAC Certi	fied - IL	100308
m	Samp	ling Loo Jing Da	c'n: REND ate: 07/18	LAKE 8/2022			Matrix Moisture	K: WATER e: NA	
22	Sam	ling T	ime: 1050						
					Prep	Analysis	Prep	Analysis	Run
LOD	год	Flag	Result	Units	Method	Method	Date	Date	Number
0.0500	0.200		ND	MG/L	NONE	350.1	NA	08/01/22	R315153
1.00	1.00		115	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
0.480	1.00		1.6	MG/L	351.2	351.2	07/25/22	07/26/22	194963
0.0190	0.0200		ΠN	MG/L	NONE	GREEN	NA	07/19/22	07226888
0.0190	0.0190		DN	MG/L	NONE	354.1	NA	07/19/22	07226889
1.00	1.00		38.1	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
0.0660	0.100		0.208	MG/L	365.4	365.4	07/25/22	07/26/22	194962
5.26	5.26		24.2	MG/L	NONE	160.2	NA	07/19/22	07256891
5.26	5.26		11.1	MG/L	NONE	160.4	NA	07/19/22	07256892
0.400	1.00		7.7	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-08, Inorganic Analyses

Lab Report No:	008944	Repo	ort Date	: 08/04/	2022		
Project Name:	REND LAKE	Ana	lysis: N	P PESTICII	DES (82	70SIM-MC)D)
Project No.:		Analytical Me	ethod: 8	270D			
NELAC Certi:	fied - IL100308	Prep Me	ethod: 3	510C			
Field ID:	REN-15-0		ARDL	Lab No.:	0089	44-09	
Desc/Location:	REND LAKE		Lab F	ilename:	E0803	3214	
Sample Date:	07/18/2022		Recei	ved Date:	07/1	8/2022	
Sample Time:	1109		Prep.	Date:	07/1	9/2022	
Matrix:	WATER		Analy	sis Date:	08/03	3/2022	
Amount Used:	1000 mL		Instr	ument ID:	AG5		
Final Volume:	1 mL		QC Bai	tch:	B115	02	
<pre>% Moisture:</pre>	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	0.510		UG/L	1
Metribuzin		0.200	0.200	ND		UG/L	1
Alachlor		0.200	0.200	ND		UG/L	1
Metolachlor		0.200	0.200	ND		UG/L	1
Chlorpyrifos		0.200	0.200	ND		UG/L	1
Cyanazine		0.200	0.200	ND		UG/L	1
Pendimethalin		0.200	0.200	ND		UG/L	1
SURROGATE RECOVI	ERIES:	Lim:	its		Rea	sults	-
Triphenylphospha	ate	30-3	130			71%	

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

(a) DoD and/or NELAC Accredited Analyte.

Lab Report No: 008944

REND LAKE

Project Name:

Report Date: 08/16/2022

Inorganics

Analysis:

Project No:								Z	IELAC Certi	fied - ILl	00308
ARDL No: 008	8944-09		Samp	ling Loc	c'n: REND	LAKE			Matrix	: WATER	
Field ID: REN	N-15-0		Sam	pling Da	ate: 07/18	3/2022			Moisture	: NA	
Received: 07/	/18/202	5	Sam	iling Ti	ime: 1109						
							Prep	Analysis	Prep	Analysis	Run
Analyte		LOD	ТОQ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen		0.0500	0.200		QN	MG/L	NONE	350.1	NA	08/01/22	R315153
Chlorophyll-a, Con	rrecte	1.00	1.00		81.1	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Kjeldahl Nitrogen		0.480	1.00		1.3	MG/L	351.2	351.2	07/25/22	07/26/22	194963
Nitrate as Nitroge	en	0.0190	0.0200		DN	MG/L	NONE	GREEN	NA	07/19/22	07226888
Nitrite as Nitroge	na	0.0190	0.0190		UN	MG/L	NONE	354.1	NA	07/19/22	07226889
Pheophytin-a		1.00	1.00		26.8	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872
Phosphorus		0.0660	0.100		0.244	MG/L	365.4	365.4	07/25/22	07/26/22	194962
Solids, Total Susp	pended	4.00	4.00		20.4	MG/L	NONE	160.2	NA	07/19/22	07256891
Solids, Volatile S	Suspen	4.00	4.00		11.6	MG/L	NONE	160.4	NA	07/19/22	07256892
Total Organic Carb	uoc	0.400	1.00		7.8	MG/L	NONE	9060	NA	07/26/22	R314934

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-09, Inorganic Analyses

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

Lab Report No: 008944

Report Date: 08/16/2022

cs)308		Run Jumber
: Inorgani(fied - IL10(: WATER : NA	Analysis Date N
Analysis LAC Certi	Matrix Moisture	Prep Date
NEJ		Analysis Method
		Prep Method
	ND LAKE /18/2022 10	Units
	'n: RE te: 07 me: 12	Result
	pling Loc mpling Da mpling Tin	Flag
	Sam Sar Sar	ГОQ
F1	0 4R 22	LOD
REND LAKI	008944-1(REN-RL-MA 07/18/202	۵
Project Name: Project No:	ARDL No: Field ID: Received:	Analyt

07/18/22 07206867

NA

1604

NONE

COL/100 ML

70.0

1.00

1.00

E. Coliform

(a) DOD and/or NELAC Accredited Analyte.

Sample 008944-10, Inorganic Analyses

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

Lab Report No: 008944 Report Date: 08/04/2022 Project Name: Analysis: NP PESTICIDES (8270SIM-MOD) REND LAKE Project No.: Analytical Method: 8270D NELAC Certified - IL100308 Prep Method: 3510C Field ID: NA ARDL Lab No.: 008944-01B1 Desc/Location: NA Lab Filename: E0803203 Sample Date: NA Received Date: NA Sample Time: Prep. Date: 07/19/2022 NA Matrix: QC Material Analysis Date: 08/03/2022 Amount Used: 1000 mL Instrument ID: AG5 Final Volume: 1 mL QC Batch: B11502 % Moisture: NA Level: LOW Data Parameter LOD LOQ Result Flag Units Trifluralin UG/L 0.200 0.200 NDAtrazine UG/L 0.200 0.200 ND Metribuzin UG/L 0.200 0.200 NDAlachlor 0.200 0.200 ND UG/L Metolachlor 0.200 0.200 ND UG/L Chlorpyrifos UG/L 0.200 0.200 ND Cyanazine 0.200 ND UG/L 0.200 Pendimethalin 0.200 ND UG/L 0.200 SURROGATE RECOVERIES: Limits Results Triphenylphosphate 30-130 96%

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

(a) DoD and/or NELAC Accredited Analyte.

Blank for Run B11502, NP PESTICIDES (8270SIM-MOD)

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

Lab Report No: 008944

Report Date: 08/16/2022

БТ

LAKE
REND
Name:
ect
roj

NELAC Certified - IL100308

			Blank		Prep	Analysis	Prep	Analysis		QC Lab	
Analyte	LOD	LOQ	Result	Units	Method	Method	Date	Date	Run	Number	
(a) Iron	0.040	0.050	QN	MG/L	3010A	6010C	07/25/22	07/27/22	P7794	008944-01B1	
(a) Manganese	0.004	0.005	DN	MG/L	3010A	6010C	07/25/22	07/27/22	P7794	008944-01B1	
Ammonia Nitrogen	0.025	0.10	DN	MG/L	NONE	350.1	NA	08/01/22	R315153	008944-01B1	
Chloride	0.80	1.0	DN	MG/L	NONE	300.0	NA	08/03/22	08046925	008944-06B1	
Chlorophyll-a, Corre	1.0	1.0	ΠN	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872	008944-06B1	
E. Coliform	1.0	1.0	DN	COL/100 ML	NONE	1604	NA	07/18/22	07206867	008944-06B1	
Kjeldahl Nitrogen	0.48	1.0	ND	MG/L	351.2	351.2	07/25/22	07/26/22	194960	008944-01B1	
Kjeldahl Nitrogen	0.48	1.0	ND	MG/L	351.2	351.2	07/25/22	07/26/22	194963	008944-06B1	
Nitrate as Nitrogen	0.019	0.020	DN	MG/L	NONE	GREEN	NA	07/19/22	07226888	008944-01B1	
Nitrite as Nitrogen	0.019	0.019	ND	MG/L	NONE	. 354.1	NA	07/19/22	07226889	008944-01B1	
Pheophytin-a	1.0	1.0	DN	MG/CU.M.	10200H	10200H	07/19/22	07/20/22	07226872	008944-06B1	
Phosphorus	0.066	0.10	ND	MG/L	365.4	365.4	07/25/22	07/26/22	194958	008944-01B1	
Phosphorus	0.066	0.10	QN	MG/L	365.4	365.4	07/25/22	07/26/22	194962	008944-06B1	
Solids, Total Suspen	1.0	1.0	QN	MG/L	NONE	160.2	NA	07/19/22	07256891	008944-06B1	
Solids, Volatile Sus	1.0	1.0	ND	MG/L	NONE	160.4	NA	07/19/22	07256892	008944-06B1	
Total Organic Carbon	0.40	1.0	ND	MG/L	NONE	9060	NA	07/26/22	R314934	008944-02B1	

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008944

	ARDL,	INC. 4	LANK SP 00 Avia	IKE/SPIKE tion Driv	: DUPLICAT e; P.O. I	FE REPORT 30x 1566	Mt. Ve	rnon,	LL 62864	
Lab Report No: 00	18944							Re	port Date:	08/04/2022
Project Name: RENI Project No.:) LAKE	Z	Analysis:	NP PESTIC	IDES (82705	(TOM-MI	Anal	ytical M Prep M	ethod: 827 ethod: 351	0D 0C
Matrix: QC	Material		бс в Ос	atch: B	11502		Prep.	Date:	07/19/202	5
Amount Used: 100	00 mL		Leve	1: г	МО		Analys	is Date:	08/03/202	N
		Spike	Spike	Spike	Duplicate	Duplicate	Duplicate	Recovery		RPD
Parame!	ter	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Triflur	alin	2.94	4	74	:	:	1	30-130	1	1
Atraz:	ine	3.44	4	86	1	!	1	30-130	1	1
Metrib	nizı	3.18	4	80	1	!	1	30-130	ļ	1
Alach.	lor	3.35	4	84	ŧ	:	5 3	30-130	-	8
Metolaci	hlor	3.39	4	85	:	1	:	30-130	;	-
Chlorpy.	rifos	3.21	4	80	!	:	!	30-130	;	:
Cyanaz:	ine	3.33	4	83	;	:	;	30-130	;	
Pendimetl	halin	2.86	4	72	1	1	;	30-130	:	;
	SURRO	GATE RECOVERI	ES :	ά (pike %R Dup	licate %R	%R Limits			
	Triph	envlnhosnhate		Ĩ	84.3	ł	30-130			
(a) Don and/or NELigC Locy	redited Analvte.									

1.1. indicates a recovery outside of standard limits.

Spike Blanks for 008944-01, NP PESTICIDES (8270SIM-MOD)

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Page 1 of 1

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ARDL Report 8944

ARD	L, INC.	400 Av	LABORA riation	LTORY C I Drive	ONTROL ; P.O.	Box 1	.566 .566	DRT Mt.V∈	rnon, II	62864	
Lab Report No: 008	944								Report Da	te: 08/16/2022	
Project Name:	REND LAKE								NELAC Cer	tified - IL100308	
	LCS 1	LCS 1	LCS 1	LCS 2	LCS 2	LCS 2	% Rec	Mean	Analytical	QC Lab	
Analyte	Result	Level	% Rec	Result	Level	% Rec	Limits	% Rec	Run	Number	
(a) Iron	4.9	5.0	98	-	-		87-115	-	P7794	008944-01C1	1
(a) Manganese	0.76	0.75	102	ł	1	!	90-114	1	P7794	008944-01C1	
Ammonia Nitrogen	1.1	1.0	107	ł	1	ł	90-110	ł	R315153	008944-01C1	
Chloride	13.0	14.0	93	ł	ł	ł	90-110	ł	08046925	008944-06C1	
Kjeldahl Nitrogen	10.4	10.0	104	ł	ł	ł	90-110	ł	194960	008944-01C1	
Kjeldahl Nitrogen	10.2	10.0	102		1	-	90-110	-	194963	008944-06C1	
Nitrate as Nitrogen	0.99	1.0	66	1	ł	1	80-120	ł	07226888	008944-01C1	
Nitrite as Nitrogen	06.0	1.0	06	1	;	ł	80-120	ł	07226889	008944-01C1	
Phosphorus	1.1	1.0	105	1	!	ł	85-115	1	194958	008944-01C1	
Phosphorus	0.99	1.0	66	1	ł	ł	85-115	ł	194962	008944-06C1	
Total Organic Carbon	27.6	27.2	101	1	ł	ł	90-110	ł	R314934	008944-02C1	
NOTE: Any values ta (a) DOD and/or NELA	bulated above ma C Accredited Ana	ırked with lvte	an asteris	k are outs	ide of acc	eptable li	mits.				
		~~ 7+									

Inorganic LCS Results for 008944

ARDL	, INC.	400 Z	LX SPI) Aviati(KE/SPI on Dri	IKE DUPLI Ve; P.O.	CATE REF Box 156	PORT 56 M	t. Verno	n, IL (52864	
Lab Report No: 008944									Report	Date: (8/04/2022
Project Name: REND LAKE Project No.:		Anal	ysis: N	PESTI	CIDES (827	(DOM-MISO)		Analytic Pr	al Method ep Method	: 8270D : 3510C	
Field ID: REN-1 Desc/Location: REND LAKE			Prep. I Amount	Date: Used:	07/19/2022 1000 mL		I I	RDL Lab N ab Filena	lo.: 0089 me:	44-01	
Sample Date: 07/18/2022 Sample Time: 1252			% Moist	cure:	NA B11502		ци	leceived D	ate: 07/1 ate: 08/0	3/2022	
Matrix: WATER			Level:	• • • •	TOW		٩				
	Sample	6)	SM	WS	SM	MSD	USM	USM	\$ Rec		RPD
Parameter	Result	ре ре	lesult	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit
Trifluralin	R		2.56	4	64	2.75	4	68.8	30-130	7.2	30
Atrazine	CN N		3.22	4	80.5	3.34	4	83.5	30-130	3.7	30
Metribuzin	CIN		2.72	4	68	2.85	4	71.3	30-130	4.7	30
Alachlor	QN		3.11	4	77.8	2.93	4	73.3	30-130	9	30
Metolachlor	QN		3.14	4	78.5	3.11	4	77.8	30-130	г	30
Chlorpyrifos	CIN		2.8	4	70	2.86	4	71.5	30-130	2.1	30
Cyanazine	CN N		3.1	4	77.5	3.23	4	80.8	30-130	4.1	30
Pendimethalin	CN		2.43	4	60.8	2.61	4	65.3	30-130	7.1	30
					4						
	RROGATE RECO	VERIES:			MS %R	MSD &R	&R Li	nits			
Ę	iphenylphospl	hate			71	75	30-1	30			

(a) DOD and/or NELAC Accredited Analyte.

'nc' indicates sample >4X spike level.

'*' indicates a recovery outside of standard limits.

Matrix Spikes for 008944-01, NP PESTICIDES (8270SIM-MOD)

Page 1 of 1

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ARDL Report 8944

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

Lab Report No: 008944

REND LAKE

Project Name:

Report Date: 08/16/2022

NELAC Certified - IL100308

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	م (<i>مس</i> دی	e [cumeS	v م	су Х	W	CISM	USW	LISM	C Q Q Q		Uda		OC Lab
Analyte	Matrix	Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit	Run	Number
(a) Iron	WATER	0.28	1.3	1.0	101	1.3	1.0	102	87-115	-	20	P7794	008944-01MS
(a) Manganese	WATER	0.77	1.3	0.50	106	1.3	0.50	109	90-114	ч	20	P7794	008944-01MS
Ammonia Nitrogen	WATER	J 0.16	3.0	4.0	× 0 <i>L</i>	2.9	4.0	* 69	90-110	7	10	R315153	008944-01MS
Chloride	WATER	7.5	14.3	8.0	86	14.3	8.0	85	75-125	0	20	08046925	008944-06MS
Kjeldahl Nitrogen	WATER	1.4	10.9	10.0	95	10.9	10.0	94	90-110	1	15	194963	008944-06MS
Nitrate as Nitrogen	WATER	0.053	0.95	1.0	89	0.98	1.0	92	75-125	ы	20	07226888	008944-01MS
Nitrite as Nitrogen	WATER	ND	0.91	1.0	06	16.0	1.0	06	75-125	0	20	07226889	008944-01MS
Phosphorus	WATER	0.54	1.5	1.0	97	1.5	1.0	66	85-115	Ч	15	194962	008944-06MS
Total Organic Carbon	WATER	5.7	10.5	5.0	76	10.5	5.0	57	85-115	0	10	R314934	008944-02MS

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 008944

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

Lab Report No: 008944

Report Date: 08/16/2022

Project Name: REND LAKE

NELAC Certified - IL100308

	Sample	First	Second		Percent	Mean	Analytical	QC Lab
Analyte	Conc'n	Duplicate	Duplicate	Units	Diff	(Smp, D1, D2)	Run	Number
Chlorophyll-a, Corrected	11.3	9.1	1	MG/CU.M.	22*	1	07226872	008944-06D1
Pheophytin-a	4.5	3.6	!	MG/CU.M.	22*	-	07226872	008944-06D1
Solids, Total Suspended	348	343	!	MG/L	1	;	07256891	008944-06D1
Solids, Volatile Suspend	18.3	18.3	!	MG/L	0	I	07256892	008944-06D1

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Ч Page 1 of See Case Narrative for exceptions. * indicates that agreement between duplicates is greater than 20%. (a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008944

Sample Receipt Information

Including as appropriate:

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

ARDL Data Package 8944

CHAIN OF CUSTODY RECORD	PRESERVATION	CHEMICALS CHEMICALS ADDED AND CHEMICALS ADDED AND FINAL PH IF KNOWN	/ REMARKS OR SAMPLE LOCATION	X	X	X	X	X	X	X	X	X	X					
52864 BOUND			A A A A A A A A A A A A A A A A A A A			X	X	X			X	X	X			EMARKS/SPECIAL INSTRUCTIONS: reserved with H2SO4 reserved with HNO3		
ox 1566, 400 Aviation Drive, Mt. Vernon, IL 6 618) 244-3235 Phone (618) 244-1149 Fa	N EKS			X X X X X X X X	X X X X X X V OCO	oly x x x x x	X X X X X X QCI	X X X X X X X	X X X X X X X	355 x X X X X X	X X X X X X X	X X X X X X X	X			Time Received by (Sgnature) RE 410 BOM (Signature) *P Time Received by (Signature) #P	1 ime Shipping 1 icket No.	
ARDL, Inc. P.O.B.	PROJECT Rend Lake	SAMPLERS: (Signature)	SAMPLE NUMBER DATE	Ren – 1 $7/(3/3)$	$\frac{Ren-2-0}{i}$	Ren – 2 – 5	Ren – 3	Ren – 4	o Ren – 5 / 6	1 Ren – 7	Ren – 8	Ren – 15- 0	bRen-RL-Mar			 Relinquished by: (Signature) Date	Accelered for Laboratory by: Date OSIGNATION OWNEWER DAVIDUAL	66 66 FPURCHASE ORDER NO:

	COOLER RECEIPT	REPORT
	ARDL, INC.	\sim 1
ARI	DL #:	Cooler # Ked
	∂ $($ $)$ $($ $)$	Number of Coolers in Shipment:
Pro	ject: Kend Lake	Date Received: 0-7-/18/2022
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened	Elzozz(Signature) DCB
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES NO
	If YES, enter carrier name and airbill number here: ARDL	Courier-Valerie
2.	Were custody seals on outside of cooler?	YES NO (NA)
	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?	
5.	Were custody papers sealed in a plastic bag?	Led YES
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	NO Observed Cooler TempCC
В.	LOG-IN PHASE: Date samples were logged-in: 07/18/2022	
10.	Describe type of packing in cooler: LOOSE LCE	·
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?	
14.	Did all sample labels agree with custody papers?	
15.	Were correct containers used for the tests indicated?	YES NO
16.	Was pH correct on preserved water samples?	PES NO N/A
17.	Was a sufficient amount of sample sent for tests indicated?	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	YES NO NA
19.	Was the ARDL project coordinator notified of any deficiencies?	YES NO NA
	Comments and/or Corrective Action:	Sample Transfer
		Fraction Fraction
		Area # / / Area #
		Walk-In By
-		On On On
		U+/18/2022
		Chain-of-Custody #
	By: Signature) Date:]

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	COOLER RECEIPT	REPORT			
ARI	DL #: 8944	Cooler # <u>Light</u> Number of Coolers in S	<u>Slue</u> hipment: 3	2	
Pro	ect: Rend Lake	Date Received: 07	18/2022		_
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened:	8/2022(Signature)	3		
1.	Did cooler come with a shipping slip (airbill, etc.)? If YES, enter carrier name and airbill number here: <u>ARDL</u>	Courier-Valeie	•YES	NO)
2.	Were custody seals on outside of cooler?		YES	NO	N/A
	How many and where?,Seal Date	:,Seal Name:			***********
3.	Were custody seals unbroken and intact at the date and time of arrival?		YES	NO	(NA)
4.	Did you screen samples for radioactivity using a Geiger Counter?			NO	\bigcirc
5.	Were custody papers sealed in a plastic bag? Hand Chelive	ud	YES	NO	>
6.	Were custody papers filled out properly (ink, signed, etc.)?) NO	N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?) NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name a	t the top of this form) NO	N/A
9.	Was a separate container provided for measuring temperature? YES		Temp. <u>47</u>	عد م-	mple_
В.	LOG-IN PHASE: Date samples were logged-in: 07/18/2022		Correction factor_	0.0	em
10.	Describe type of packing in cooler: LOUSE Ice				
11.	Were all samples sealed in separate plastic bags?		YES) 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?		ČES) NO	
15.	Were correct containers used for the tests indicated?			ло С	
16.	Was pH correct on preserved water samples?			NO	N/A
17.	Was a sufficient amount of sample sent for tests indicated?) NO	•
18.	Were bubbles absent in VOA samples? If NO, list by sample #:		YES	S NO	N/A
19.	Was the ARDL project coordinator notified of any deficiencies?		YES	S NO	A
	Comments and/or Corrective Action:	Sam	ole Transfer		
			Fraction	Í	
		Area\# 1 1	Area #	<u> </u>	
		Walk-m			
		DCR	ВУ		
		07/18/2022	On		
		Chain-of-Custody		اردون وهند سطنتارون ی	•
(E	y: Signature) Date:]			

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	COOLER RECEIPT	REPORT
	Ooul ARDL, INC.	:
ARI	DL#: 0944	Cooler # Bue
		Number of Coolers in Shipment:
Pro	ject: Kend Lake	Date Received: 07/BZ022
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened	<u> 9/2022 (Signature)</u>
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES (Кб)
	If YES, enter carrier name and airbill number here: <u>ARD</u>	Courier-Valerie
2.	Were custody seals on outside of cooler?	YES NO (N/A)
	How many and where?,Seal Date	,Seal Name:
3.	Were custody seals unbroken and intact at the date and time of arrival?	YES NO NA
4.	Did you screen samples for radioactivity using a Geiger Counter?	NO NO
5.	Were custody papers sealed in a plastic bag? Hand deliver	ud
6.	Were custody papers filled out properly (ink, signed, etc.)?	ÉS NO N/A
7.	Were custody papers signed in appropriate place by ARDL personnel?	ÝES NO N/A
8.	Was project identifiable from custody papers? If YES, enter project name a	at the top of this form
9.	Was a separate container provided for measuring temperature? YES	NO Observed Cooler Temp. 5.1 C Source for the
В.	LOG-IN PHASE: Date samples were logged-in: 07/18/2022	(Signature) ACB Correction factor 0.0 C
10.	Describe type of packing in cooler: LOUSE Ice	
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?	ÝES NO
16.	Was pH correct on preserved water samples?	
17.	Was a sufficient amount of sample sent for tests indicated?	
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	YES NO (N/A)
19.	Was the ARDL project coordinator notified of any deficiencies?	YES NO N/A
	Comments and/or Corrective Action:	Sample Transfer
		Fraction Fraction
		Area#
-		Nalkin By
		I DCB I I
		On On
-		$\square \bigcirc + 11012022 \qquad \bigcirc \qquad$
		Chain-of-Custody #
(E	By: Signature) Date:	

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Environmental | Analytical | Management | Safety

Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 8/22/2022

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

www.ardlinc.com

Date: 9/22/2022

Lab Name: ARDL, Inc.

ARDL Report No.: 8980

CASE NARRATIVE

Customer	Date	Lab ID	
Sample No.	<u>Collected</u>	<u>Number</u>	Analyses Requested
REN-1	8/22/22	8980-01	Metals(1), Inorganics(2) (3)
REN-2-0	8/22/22	8980-02	Inorganics(2)(3)
REN-2-5	8/22/22	8980-03	Metals(1), Inorganics(2)
REN-3	8/22/22	8980-04	Inorganics(2)(3)
REN-4	8/22/22	8980-05	Inorganics(2)(3)
REN-5	8/22/22	8980-06	Inorganics(2)(3), E. Coli, Chloride
REN-7	8/22/22	8980-07	Inorganics(2)(3), E. Coli
REN-8	8/22/22	8980-08	Inorganics(2)(3)
REN-15-0	8/22/22	8980-09	Inorganics(2)(3)
REN-RL-MAR	8/22/22	8980-10	E. Coli
REN-15-0 REN-RL-MAR	8/22/22 8/22/22 8/22/22	8980-08 8980-09 8980-10	Inorganics(2)(3) Inorganics(2)(3) E. Coli

(1) Including iron and manganese.

(2) Including ammonia*, nitrate*, nitrite, total phosphorus*, TKN*, TOC*, TSS and TVSS.

(3) Including chlorophyll-a corrected and pheophytin-a.

* Analyzed by an accredited subcontract laboratory.

The quality control data are summarized as follows:

PREPARATION BLANK

Results of the preparation blanks were undetected.

LABORATORY CONTROL SAMPLE

Percent recoveries of all LCS analyses were within control limits.

MATRIX SPIKE

The sample result for chloride was greater than 4 times the spike amount; therefore, percent recovery was not considered. Percent recovery of all other matrix spikes and matrix spike duplicates were within control limits, except 2 of 2 for ammonia. The parent sample for ammonia has been flagged appropriately with a 'J' qualifier.

DUPLICATE

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

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

Project Name: Rend Lake

ARDL Report No.: 8980

CASE NARRATIVE (Continued)

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

Page 2 of 2

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 8980 - Inorganic

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

Authorized By: DSD-QAO

ARDL Report 8980 - Page 3 of 21

0086800 Lab Report No:

REND LAKE

Project Name:

09/22/2022 Report Date: Analysis: Inorganics

Project No:							4	VELAC Certi	fied - IL1	00308
ARDL No: 008980-0.	1	Sampl	ling Lo	c'n: REND	LAKE			Matrix	: WATER	
Field ID: REN-1 Received: 08/22/202	22	Samr Samr	pling D T. prilo	ate: 08/22 ime: 1250	2/2022			Moisture	NA :	
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ГОQ	Flag	Result	Units	Method	Method	Date	Date	Number
(a) Iron	0.0400	0.0500		0.233	MG/L	3010A	6010C	08/24/22	08/30/22	P7827
(a) Manganese	0.00400	0.00500		0.624	MG/L	3010A	6010C	08/24/22	08/30/22	P7827
Ammonia Nitrogen	0.0270	0.100	Ŀ	QN	MG/L	NONE	350.1	NA	08/29/22	R316348
Chlorophyll-a, Correcte	1.00	1.00		35.7	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Kjeldahl Nitrogen	0.475	1.00		1.3	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitrogen	00600.0	0.0500		0.147	MG/L	NONE	353.2	NA	08/30/22	R316439
Nitrite as Nitrogen	0.0190	0.0200		0.031	MG/L	NONE	354.1	NA	08/23/22	08247018
Pheophytin-a	1.00	1.00		23.4	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Phosphorus	0.0660	0.100		0.325	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total Suspended	2.70	2.70		11.9	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatile Suspen	2.70	2.70		5.14	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic Carbon	0.450	1.00		5.47	MG/L	NONE	9060	NA	08/30/22	R316448

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-01, Inorganic Analyses

Page 1 of 1
Lab Report No: 008980

Report Date: 09/22/2022

REND LAKE							N	Analysis ELAC Certi	: Inorgar fied - ILJ	iics 00308
008980-02 REN-2-0 08/22/202	5	Samp Samj Samj	ling Loo pling Da pling Ti	c'n: REN ate: 08/ ime: 100	D LAKE 22/2022 5			Matrix Moisture	: WATER : NA	
Ð	LOD	ΓοΟ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
u	0.0270	0.100		QN	MG/L	NONE	350.1	NA	08/29/22	R316348
Correcte	1.00	1.00		74.1	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
len	0.475	1.00		1.6	MG/L	351.2	351.2	08/26/22	08/29/22	196059
ogen	0.00900	0.0500		0.136	MG/L	NONE	353.2	NA	08/30/22	R316439
ogen	0.0190	0.0200		0.043	MG/L	NONE	354.1	NA	08/23/22	08247018
	1.00	1.00		34.3	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
	0.0660	0.100		0.331	MG/L	365.4	365.4	08/26/22	08/29/22	196058
uspended	2.00	2.00		9.4	MG/L	NONE	160.2	NA	08/23/22	09157065
e Suspen	2.00	2.00		6.8	MG/L	NONE	160.4	NA	08/23/22	09157066
	REND LAKE 008980-02 REN-2-0 08/22/202 08/22/202 correcte ien ogen ogen uspended e Suspen	REND LAKE 008980-02 REN-2-0 08/22/2022 ie LOD in 0.0270 Correcte 1.00 ien 0.475 ogen 0.0190 ien 0.0190 ien 0.0190 uspended 2.00 e Suspen 2.00	REND LAKE 008980-02 Samp 08/22/2022 Samp 100 1.00 100 1.00 000900 0.0500 000900 0.0500 000900 0.00500 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 00000 0.0000 <td< td=""><td>REND LAKE 008980-02 Sampling Loc 08/22/2022 Sampling D 08/22/2022 Sampling D 08/22/2022 Sampling T 08/22/2022 Sampling D 000000 1.000 000000 0.1000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000</td><td>REND LAKE 008980-02 Sampling Loc'n: REN 008980-02 Sampling Loc'n: REN 08/22/2022 Sampling Time: 100 100 1.00 74.1 100 1.00 1.6 0.0190 0.0200 0.136 0.0190 0.0200 0.136 0.00660 0.100 0.34.3 uspended 2.00 2.00 9.4 6.8 2.00 2.00 6.8</td><td>REND LAKE 008980-02 Sampling Loc'n: REND LAKE 008980-02 Sampling Loc'n: REND LAKE REN-2-0 Sampling Date: 08/22/2022 08/22/2022 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 08/22/2022 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 REN-2-0 Sampling Time: 08/22/2022 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 REN-2-0 Sampling Time: 08/22/2022 REN-2-0 Sampling Time: 08/22/2022 REN-2-0 Sampling Time: 1005 Ren-2-0 1.00 1.00 1.6 Ren-2-0 0.0190 0.0200 0.136 MG/L Ren-2-0 0.100 0.100 0.331 MG/L Ren-2-0 2.00 2.00 0.331 MG/L</td><td>REND LAKE 008980-02 Sampling Loc'n: REND LAKE 008980-02 Sampling Date: 08/22/2022 REN-2-0 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 00000 0.100 ND n 0.0270 0.100 n 0.0270 0.100 n 0.043 MG/L none 0.043 MG/L none 0.0190 0.0200 000660 0.100 0.031 000660 0.100 0.34.3 none 0.0331 MG/L none 0.0000 0.331 none 0.000</td><td>REND LAKE REND LAKE 008980-02 Sampling Loc'n: REND LAKE 008/22/2022 Sampling Date: 08/22/2022 REN-2-0 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 000000 0.000 00000 0.000 00000 0.000 00000 0.000 00000 0.000 000000 0.000 000000 0.000 000000 0.000 000000 0.000 000000 0.000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00</td><td>REND LAKE Analysis 008980-02 Sampling Loc'n: REND LAKE NBLAC Certi 008980-02 Sampling Loc'n: REND LAKE NBLAC Certi 08/22/2022 Sampling Date: 08/22/2022 Matrix 08/22/2022 Sampling Time: 1005 Matrix 08/22/2022 Sampling Time: 1005 Prep Analysis 08/22/2022 Sampling Time: 1005 NO Matrix 00000 LOQ Flag Result Units Method Method m 0.0270 0.100 ND MG/L NONE 350.1 NA m 0.0270 0.100 ND MG/L NONE 350.1 NA correcte 1.00 1.00 1.00 0.0136 08/21.2 08/26/22 m 0.475 1.00 0.136 MG/L NONE 359.1 NA ogen 0.0190 0.0200 0.136 0.0126 08/26/22 NA off 0.0190 0.0200 0.136 0.0126 08/26/22 NA off 0.00660 0.100 0.04</td><td>REND LAKE Analysis: Inorgan 008980-02 Sampling Loc'n: REND LAKE NELAC Certified - ILL 008980-02 Sampling Tote: 08/22/2022 Matrix: WATER 008/22/2022 Sampling Time: 1005 Matrix: WATER 08/22/2022 Sampling Time: 1005 08/22/2022 08/22/2022 Sampling Time: 1005 08/22/2022 08/22/2022 Sampling Time: 1005 08/22/2022 08/22/2022 Sampling Time: 1005 NONE e LOD LOD Flag e LOD NONE S0.1 m 0.0270 0.100 ND m 0.0270 0.100 ND m 0.0270 0.100 ND m 0.475 1.00 10200H NA m 0.475 1.00 0.0270 0.133 corecte 1.00 1.00 0.0200 0.0270 0.0270</td></td<>	REND LAKE 008980-02 Sampling Loc 08/22/2022 Sampling D 08/22/2022 Sampling D 08/22/2022 Sampling T 08/22/2022 Sampling D 000000 1.000 000000 0.1000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.00000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000	REND LAKE 008980-02 Sampling Loc'n: REN 008980-02 Sampling Loc'n: REN 08/22/2022 Sampling Time: 100 100 1.00 74.1 100 1.00 1.6 0.0190 0.0200 0.136 0.0190 0.0200 0.136 0.00660 0.100 0.34.3 uspended 2.00 2.00 9.4 6.8 2.00 2.00 6.8	REND LAKE 008980-02 Sampling Loc'n: REND LAKE 008980-02 Sampling Loc'n: REND LAKE REN-2-0 Sampling Date: 08/22/2022 08/22/2022 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 08/22/2022 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 REN-2-0 Sampling Time: 08/22/2022 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 REN-2-0 Sampling Time: 08/22/2022 REN-2-0 Sampling Time: 08/22/2022 REN-2-0 Sampling Time: 1005 Ren-2-0 1.00 1.00 1.6 Ren-2-0 0.0190 0.0200 0.136 MG/L Ren-2-0 0.100 0.100 0.331 MG/L Ren-2-0 2.00 2.00 0.331 MG/L	REND LAKE 008980-02 Sampling Loc'n: REND LAKE 008980-02 Sampling Date: 08/22/2022 REN-2-0 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 00000 0.100 ND n 0.0270 0.100 n 0.0270 0.100 n 0.043 MG/L none 0.043 MG/L none 0.0190 0.0200 000660 0.100 0.031 000660 0.100 0.34.3 none 0.0331 MG/L none 0.0000 0.331 none 0.000	REND LAKE REND LAKE 008980-02 Sampling Loc'n: REND LAKE 008/22/2022 Sampling Date: 08/22/2022 REN-2-0 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 08/22/2022 Sampling Time: 1005 REN-2-0 Sampling Time: 1005 000000 0.000 00000 0.000 00000 0.000 00000 0.000 00000 0.000 000000 0.000 000000 0.000 000000 0.000 000000 0.000 000000 0.000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 000000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00000 0.0000 0.00	REND LAKE Analysis 008980-02 Sampling Loc'n: REND LAKE NBLAC Certi 008980-02 Sampling Loc'n: REND LAKE NBLAC Certi 08/22/2022 Sampling Date: 08/22/2022 Matrix 08/22/2022 Sampling Time: 1005 Matrix 08/22/2022 Sampling Time: 1005 Prep Analysis 08/22/2022 Sampling Time: 1005 NO Matrix 00000 LOQ Flag Result Units Method Method m 0.0270 0.100 ND MG/L NONE 350.1 NA m 0.0270 0.100 ND MG/L NONE 350.1 NA correcte 1.00 1.00 1.00 0.0136 08/21.2 08/26/22 m 0.475 1.00 0.136 MG/L NONE 359.1 NA ogen 0.0190 0.0200 0.136 0.0126 08/26/22 NA off 0.0190 0.0200 0.136 0.0126 08/26/22 NA off 0.00660 0.100 0.04	REND LAKE Analysis: Inorgan 008980-02 Sampling Loc'n: REND LAKE NELAC Certified - ILL 008980-02 Sampling Tote: 08/22/2022 Matrix: WATER 008/22/2022 Sampling Time: 1005 Matrix: WATER 08/22/2022 Sampling Time: 1005 08/22/2022 08/22/2022 Sampling Time: 1005 08/22/2022 08/22/2022 Sampling Time: 1005 08/22/2022 08/22/2022 Sampling Time: 1005 NONE e LOD LOD Flag e LOD NONE S0.1 m 0.0270 0.100 ND m 0.0270 0.100 ND m 0.0270 0.100 ND m 0.475 1.00 10200H NA m 0.475 1.00 0.0270 0.133 corecte 1.00 1.00 0.0200 0.0270 0.0270

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-02, Inorganic Analyses

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08/30/22 R316448

NA

9060

NONE

MG/L

5.5

1.00

0.450

Total Organic Carbon

Lab Report No: 008980

REND LAKE

Project Name:

Report Date: 09/22/2022

Inorganics

Analysis:

Project No:								4	VELAC Certi	fied - IL	.00308
ARDL No:	008980-03		Samp]	ing Loo	c'n: REND	LAKE			Matrix	K: WATER	
Field ID: Received:	REN-2-5 08/22/202	2	Samp Samp	ling Da	ate: 08/22 ime: 1005	:/2022			Moisture	: NA	
Analyt	Ð	LOD	ΓΟΔ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron		0.0400	0.0500		0.174	MG/L	3010A	6010C	08/24/22	08/30/22	P7827
(a) Manganese		0.00400	0.00500		0.509	MG/L	3010A	6010C	08/24/22	08/30/22	P7827
Ammonia Nitroge	n	0.0270	0.100		ND	MG/L	NONE	350.1	NA	08/29/22	R316348
Kjeldahl Nitroç	yen.	0.475	1.00		1.2	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitr	rogen	00600.0	0.0500		0.136	MG/L	NONE	353.2	NA	08/30/22	R316439
Nitrite as Nitr	rogen	0.0190	0.0200		0.035	MG/L	NONE	354.1	NA	08/23/22	08247018
Phosphorus		0.0660	0.100		0.299	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total S	uspended	2.00	2.00		11.0	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatil	e Suspen	2.00	2.00		5.2	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic C	larbon	0.450	1.00		5.4	MG/L	NONE	9060	NA	08/30/22	R316448

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-03, Inorganic Analyses

Lab Report No: 008980

REND LAKE

Project Name:

Report Date: 09/22/2022

Analysis: Inorganics

Project No:							Z	ELAC Certi	fied - IL	100308
ARDL No: 008980-04		Sampl	ing Lo	c'n: REND	LAKE			Matrix	:: WATER	
Field ID: REN-3		Samp	ling D	ate: 08/22	2/2022			Moisture	: NA	
Received: 08/22/202	22	Samp	ling T	ime: 1110						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ГОД	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.0270	0.100		QN	MG/L	NONE	350.1	NA	08/29/22	R316348
Chlorophyll-a, Correcte	1.00	1.00		52.9	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Kjeldahl Nitrogen	0.475	1.00		1.37	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitrogen	00600.0	0.0500	Ŀ	0.026	MG/L	NONE	353.2	NA	08/30/22	R316439
Nitrite as Nitrogen	0.0190	0.0200		DN	MG/L	NONE	354.1	NA	08/23/22	08247018
Pheophytin-a	1.00	1.00		15.9	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Phosphorus	0.0660	0.100		0.196	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total Suspended	2.04	2.04		12.7	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatile Suspen	2.04	2.04		10.6	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic Carbon	0.450	1.00		6.6	MG/L	NONE	9060	NA	08/30/22	R316448

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-04, Inorganic Analyses

Lab Report No: 008980

REND LAKE

Project Name:

Report Date: 09/22/2022

Inorganics

Analysis:

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-05, Inorganic Analyses

086800 Lab Report No:

09/22/2022 Report Date: I

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Project Name: REN Project No:	ID LAKE							Z	Analysis ELAC Certi	:: Inorgar fied - IL1	ics 00308
ARDL No: 008	980-06		Samp]	ing Lo	c'n: REND) LAKE			Matrix	.: WATER	
Field ID: REN Received: 08/	1-5 '22/202	N	Samp Samp	ling D ling T	ate: 08/2 ime: 0852	2/2022			Moisture	NA :	
							Prep	Analysis	Prep	Analysis	Run
Analyte		LOD	ΓοÕ	Flag	Result	Units	Method	Method	Date	Date	Number
(a) Chloride		1.60	2.00		32.2	MG/L	NONE	300.0	NA	09/15/22	09217087
Ammonia Nitrogen		0.0270	0.100		DN	MG/L	NONE	350.1	NA	08/29/22	R316348
Chlorophyll-a, Cor	recte	1.00	1.00		3.7	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
E. Coliform		1.00	1.00		425	COL/100 ML	NONE	1604	NA	08/22/22	08247017
Kjeldahl Nitrogen		0.475	1.00	Ŀ	0.80	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitroge	u	00600.0	0.0500		0.311	MG/L	NONE	353.2	NA	08/30/22	R316439
Nitrite as Nitroge	u	0.0190	0.0200		DN	MG/L	NONE	354.1	NA	08/23/22	08247018
Pheophytin-a		1.00	1.00		DN	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Phosphorus		0.0660	0.100		0.115	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total Susp	ended	1.00	1.00		6.7	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatile S	uspen	1.00	1.00		DN	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic Carb	uo	0.450	1.00		6.2	MG/L	NONE	9060	NA	08/30/22	R316448

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-06, Inorganic Analyses

Lab Report No: 008980

REND LAKE

Project Name:

Report Date: 09/22/2022

Inorganics

Analysis:

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Project No:							Z	ELAC Certi	fied - ILl	00308
ARDL No: 008980-07		Samp	Ling Loo	c'n: REND	LAKE			Matrix	: WATER	
Field ID: REN-7		Sam	bling Di	ate: 08/2	2/2022			Moisture	: NA	
Received: 08/22/202	52	Sam	ling T	ime: 1345						
						Prep	Analysis	Prep	Analysis	Run
Analyte	LOD	ТоÕ	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen	0.0270	0.100		DN	MG/L	NONE	350.1	NA	08/29/22	R316348
Chlorophyll-a, Correcte	1.00	1.00		2.0	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
E. Coliform	1.00	1.00		875	COL/100 ML	NONE	1604	NA	08/22/22	08247017
Kjeldahl Nitrogen	0.475	1.00		1.2	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitrogen	0.0900	0.500		2.04	MG/L	NONE	353.2	NA	08/31/22	R316494
Nitrite as Nitrogen	0.0190	0.0200		0.023	MG/L	NONE	354.1	NA	08/23/22	08247019
Pheophytin-a	1.00	1.00		1.5	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Phosphorus	0.0660	0.100		0.122	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total Suspended	1.11	1.11		8.56	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatile Suspen	1.11	1.11		1.33	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic Carbon	0.450	1.00		6.3	MG/L	NONE	9060	NA	08/30/22	R316448

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-07, Inorganic Analyses

0089800 Lab Report No:

09/22/2022 Report Date:

Project Name: REND Project No:	LAKE							4	Analysis IELAC Certi	: Inorgan fied - IL	lics .00308
ARDL No: 00898	80-08		Sampl	ing Lo	c'n: REND	LAKE			Matrix	: WATER	
Field ID: REN-8	80		Samp	ling D	ate: 08/22	:/2022			Moisture	: NA	
Received: 08/22	2/2022		Samp	ling T	ime: 1035						
							Prep	Analysis	Prep	Analysis	Run
Analyte		TOD	год	Flag	Result	Units	Method	Method	Date	Date	Number
Ammonia Nitrogen		0.0270	0.100		ND	MG/L	NONE	350.1	NA	08/29/22	R316348
Chlorophyll-a, Corre	ecte	1.00	1.00		80.1	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Kjeldahl Nitrogen	0	.475	1.00		2.0	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitrogen	0.	00600	0.0500	5	0.033	MG/L	NONE	353.2	NA	08/30/22	R316439
Nitrite as Nitrogen	0	.0190	0.0200		ΠŊ	MG/L	NONE	354.1	NA	08/23/22	08247019
Pheophytin-a		1.00	1.00		35.8	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Phosphorus	0	.0660	0.100		0.356	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total Susper	nded	4.00	4.00		29.2	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatile Sus	spen	4.00	4.00		15.2	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic Carbor	0	.450	1.00		7.2	MG/L	NONE	9060	NA	08/30/22	R316448

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-08, Inorganic Analyses

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

> 0086800 Lab Report No:

REND LAKE

Project Name:

09/22/2022 Report Date: Inorganics

Analysis:

Project No:							Z	ELAC Certi	fied - ILl	00308
ARDL No: 008980-	60	Sampl	ing Lo	c'n: REND	LAKE			Matrix	: WATER	
Field ID: REN-15-0 Received: 08/22/20	0 022	Samp Samp	ling Di Ting T	ate: 08/22 ime: 1035	1/2022			Moisture	: NA	
Analyte	LOD	год	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	0.100		DN	MG/L	NONE	350.1	NA	08/29/22	R316348
Chlorophyll-a, Correct	e 1.00	1.00		74.0	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Kjeldahl Nitrogen	0.475	1.00		2.0	MG/L	351.2	351.2	08/26/22	08/29/22	196059
Nitrate as Nitrogen	00600.0	0.0500	Ŀ	0.027	MG/L	NONE	353.2	NA	08/30/22	R316439
Nitrite as Nitrogen	0.0190	0.0200		QN	MG/L	NONE	354.1	NA	08/23/22	08247019
Pheophytin-a	1.00	1.00		29.6	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064
Phosphorus	0.0660	0.100		0.342	MG/L	365.4	365.4	08/26/22	08/29/22	196058
Solids, Total Suspended	1 4.00	4.00		22.0	MG/L	NONE	160.2	NA	08/23/22	09157065
Solids, Volatile Susper	1 4.00	4.00		11.2	MG/L	NONE	160.4	NA	08/23/22	09157066
Total Organic Carbon	0.450	1.00		6.8	MG/L	NONE	9060	NA	08/30/22	R316448

Total Organic Carbon

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-09, Inorganic Analyses

	09/22/2022
	Report Date:
ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, Illinois 62864	080
	008

Lab Report No:

Project Name:	REND LAKE							ME	Analysis	:: Inorgan	ics
FTOJECL NO.								- N	THAC CETER	דחד – האדד	
ARDL No:	008980-10		Samp	ling Loc	'n: RENI) LAKE			Matrix	:: WATER	
Field ID:	REN-RL-MAI	Ľ.	Sam	pling Da	te: 08/2	22/2022			Moisture	e: NA	
Received:	08/22/202:	N	Sam	iling Ti	me: 1157						
							Prep	Analysis	Prep	Analysis	Run
Analy	te	LOD	TOQ	Flag	Result	Units	Method	Method	Date	Date	Number
E. Coliform		1.00	1.00		29.0	COL/100 ML	NONE	1604	NA	08/22/22	38247017

(a) DOD and/or NELAC Accredited Analyte.

Sample 008980-10, Inorganic Analyses

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

Lab Report No: 008980

Report Date: 09/23/2022

Project Name: REND LAKE

NELAC Certified - IL100308

											- 1
			Blank		Prep	Analysis	Prep	Analysis		QC Lab	
Analyte	LOD	ГОQ	Result	Units	Method	Method	Date	Date	Run	Number	
(a) Iron	0.040	0.050	QN	MG/L	3010A	6010C	08/24/22	08/30/22	P7827	008980-01B1	1
(a) Manganese	0.004	0.005	ΠN	MG/L	3010A	6010C	08/24/22	08/30/22	P7827	008980-01B1	
(a) Chloride	0.80	1.0	DN	MG/L	NONE	300.0	NA	09/15/22	09217087	008980-06B1	
Ammonia Nitrogen	0.027	0.10	DN	MG/L	NONE	350.1	NA	08/29/22	R316348	008980-01B1	
Chlorophyll-a, Corre	1.0	1.0	DN	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064	008980-09B1	
Kjeldahl Nitrogen	0.48	1.0	DN	MG/L	351.2	351.2	08/26/22	08/29/22	196059	008980-04B1	
Nitrate as Nitrogen	0.009	0.050	DN	MG/L	NONE	353.2	NA	08/31/22	R316494	008980-07B1	
Nitrate as Nitrogen	0.009	0.050	DN	MG/L	NONE	353.2	NA	08/30/22	R316439	008981-05B1	
Nitrite as Nitrogen	0.019	0.020	ND	MG/L	NONE	354.1	NA	08/23/22	08247019	008980-07B1	
Nitrite as Nitrogen	0.019	0.020	DN	MG/L	NONE	354.1	NA	08/23/22	08247018	008980-01B1	
Pheophytin-a	1.0	1.0	DN	MG/CU.M.	10200H	10200H	08/23/22	08/31/22	09157064	008980-09B1	
Phosphorus	0.066	0.10	QN	MG/L	365.4	365.4	08/26/22	08/29/22	196058	008980-04B1	
Solids, Total Suspen	1.0	1.0	QN	MG/L	NONE	160.2	NA	08/23/22	09157065	008980-09B1	
Solids, Volatile Sus	1.0	1.0	DN	MG/L	NONE	160.4	NA	08/23/22	09157066	008980-09B1	
Total Organic Carbon	0.45	1.0	DN	MG/L	NONE	9060	NA	08/30/22	R316448	008980-01B1	

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008980

AR	DF, INC.	400 A1	LABOR? riatior	ATORY C 1 Drive	CONTROL	Box	LE REP(1566	DRT Mt.V€	rnon, IL	62864
Lab Report No: 0(08980								Report Da	te: 09/22/2022
Project Name:	REND LAKE								NELAC Cer	tified - IL100308
Analyte	LCS 1 Result	LCS 1 Level	LCS 1 % Rec	LCS 2 Result	LCS 2 Level	LCS 2 % Rec	<pre>% Rec Limits</pre>	Mean * Rec	Analytical Run	QC Lab Number
(a) Iron	4.8	5.0	96	1			87-115		P7827	008980-01C1
(a) Manganese	0.75	0.75	100	-	ł		90-114	ł	P7827	008980-01C1
(a) Chloride	15.0	14.0	107	ł	ł	ł	87-111	ł	09217087	008980-06C1
Ammonia Nitrogen	1.0	1.0	101	ł	ł	***	90-110	}	R316348	008980-01C1
Kjeldahl Nitrogen	10.8	10.0	108	!	-	1	90-110	1	196059	008980-04C1
Nitrate as Nitrogen	0.48	0.50	96	1	ł	ł	90-110	ł	R316494	008980-07C1
Nitrate as Nitrogen	0.47	0.50	94		ł	1	90-110	!	R316439	008981-05C1
Nitrite as Nitrogen	0.99	1.0	66	ł	ł	ł	80-120	1	08247019	008980-07C1
Nitrite as Nitrogen	1.0	1.0	101	1	ł	ł	80-120	ł	08247018	008980-01C1
Phosphorus	1.0	1.0	100	-	1	ł	85-115	ł	196058	008980-04C1
Total Organic Carbon	27.1	27.2	100	-	!	ł	90-110	ł	R316448	008980-01C1
NOTE: Any values (a) DOD and/or NE	tabulated above ma LAC Accredited Ana	arked with ilyte	an asteris	sk are outs	ide of acc	eptable li	imits.			
Inorganic LCS Res	sults for 008	980								Page 1 of 1

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

Lab Report No: 008980

Report Date: 09/22/2022

REND LAKE

Project Name:

N

IL100308
I.
Certified
NELAC

	Sample	Sample	WS	W	SM	MSD	MSD	MSD	* Rec		RPD		QC Lab
Analyte	Matrix	Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit	Run	Number
(a) Iron	WATER	0.23	1.3	1.0	107	1.3	1.0	104	87-115	2	20	P7827	008980-01MS
(a) Manganese	WATER	0.62	1.2	0.50	112	1.2	0.50	108	90-114	2	20	P7827	008980-01MS
(a) Chloride	WATER	32.2	39.3	8.0	89	40.0	8.0	98	87-111	2	20	09217087	008980-06MS
Ammonia Nitrogen	WATER	ND	1.5	2.0	75 *	1.4	2.0	72 *	90-110	4	10	R316348	008980-01MS
Kjeldahl Nitrogen	WATER	1.4	11.0	10.0	97	11.0	10.0	96	90-110	1	15	196059	008980-04MS
Nitrate as Nitrogen	WATER	2.0	4.5	2.5	86	4.5	2.5	86	90-110	0	10	R316494	008980-07MS
Nitrite as Nitrogen	WATER	0.031	1.0	1.0	100	1.0	1.0	100	75-125	0	20	08247018	008980-01MS
Phosphorus	WATER	0.20	1.2	1.0	96	1.2	1.0	98	85-115	2	15	196058	008980-04MS
Total Organic Carbon	WATER	5.5	10.1	5.0	92	10.1	5.0	63	85-115	г	10	R316448	008980-01MS

Inorganic Matrix Spikes for 008980

(a) DOD and/or NELAC Accredited Analyte.

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

Page 1 of 1

ARDL Report 8980 - Page 16 of 21

		œ		
364	09/22/2022	ed - IL10030	QC Lab Number	Q60-086800 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-08000 Q60-000000 Q60-000000000000000000000
on, IL 628	Report Date:	WELAC Certifi	Analytical Run	09157064 09157064 09157065 09157066
5 Mt. Vern			Mean (Smp,D1,D2)	
FE REPORI Box 1566			Percent Diff	к к 0 0 4
DUPLICA ve; P.O.			Units	MG/CU.M. MG/L MG/L MG/L
SAMPLE Ition Dri			Second Duplicate	
400 Avia			First Duplicate	58.6 229.5 11.6 11.6
INC.	0	LAKE	Sample Conc'n	74.0 22.0 11.2 11.2
ARDL,	Lab Report No: 00898	Project Name: REND	Analyte	Chlorophyll-a, Corrected Pheophytin-a Solids, Total Suspended Solids, Volatile Suspend

Page 1 of 1 * indicates that agreement between duplicates is greater than 20%. See Case Narrative for exceptions.
(a) DOD and/or NELAC Accredited Analyte
Sample Duplicates for 008980

Sample Receipt Information

Including as appropriate:

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

ARDL Data Package 8980 - Inorganic

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

Authorized By: DSD-QAO

nC. P.O.E	L. Inc. P.O.F	sox 1566, 400 Aviation Drive, M	013/ United Store ALC 10/ 2013
		P.O.1	

30x 1566, 400 Aviation Drive, Mt. Vernon, IL 62864 (618) 244-3235 Phone (618) 244-1149 Fax

CORO CHAIN OF CUSTODY RECORD



COOLER RECEIPT REPORT ARDL, INC.

ARI	dl #: <u>8980</u>	Cooler # Blue 1	2		
Pro	ect: Rend Lake	Number of Coolers in Shipm Date Received:	ient: <u>2</u> 2022		_
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened:	22/2022_(Signature)			
1.	Did cooler come with a shipping slip (airbill, etc.)?		YES	NO)
	If YES, enter carrier name and airbill number here:	Courier - Valer	le.	<u> </u>	
2.	Were custody seals on outside of cooler?	-	YES	NO	(N/A)
	How many and where?	te:,Seal Name:			
3.	Were custody seals unbroken and intact at the date and time of arrival?		YES	NO	(NA)
4.	Did you screen samples for radioactivity using a Geiger Counter?,		YES	NO	\smile
5.	Were custody papers sealed in a plastic bag?	ered	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?			NO	N/A
8.	Was project identifiable from custody papers? If YES, enter project name	at the top of this form	YES	NO	N/A
9.	Was a separate container provided for measuring temperature? YES_	NO Observed Cooler Temp	. <u>2. </u>	ຼິສເ	imple
В.	LOG-IN PHASE: Date samples were logged-in: 08/22/2022.	(Signature) DCB	ection factor	0.0	
10.	Describe type of packing in cooler: Lace				
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?		YES	NO	
13.	Were sample labels complete?		YES)	NO	
14.	Did all sample labels agree with custody papers?			NO	
15.	Were correct containers used for the tests indicated?		ÆS	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 #:	Concentrationers from the second s	YES	NO	N/A
19.	Was the ARDL project coordinator notified of any deficiencies?		YES	NO	(N/A)
	Comments and/or Corrective Action:	Sample T	ransfer		
		Fraction	Fraction		
		Area # A I	Area #		
		Walk-11			
		ByDCB	Ву		
		On 0872/202 2	On		
				1	
		Chain-of-Custody #			
(E	By: Signature) Date:				

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

	COOLER RECEIPT	<u>r REPORT</u>
ARI	DL #: <u>8980</u>	Cooler # <u>Green 1</u> Number of Coolers in Spipment: <u>2</u>
Proj	ect: Rend Lake	Date Received: 08/22/2022
A.		22/2022 (Signature) DB
1.	I Did cooler come with a shipping slip (airbill, etc.)?	YES (NO)
	If YES, enter carrier name and airbill number here: ARDL	Courier - Valerie
2.	Were custody seals on outside of cooler?	YES NO NA
	How many and where?,Seal Dat	te:,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?	NO NO
5.	Were custody papers sealed in a plastic bag?	Led 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?	ĒŠ NO N/A
8.	Was project identifiable from custody papers? If YES, enter project name	e at the top of this form
9.	Was a separate container provided for measuring temperature? YES	NO Observed Cooler TempOO Correction factor
В.	LOG-IN PHASE: Date samples were logged-in	_(Signature)_DCBCOnection factorC
10.	Describe type of packing in cooler: LOOSE Ice	
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?	ÉS NO
14.	Did all sample labels agree with custody papers?	YES NO
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?	ÉS NO
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	YES NO (NA)
19.	Was the ARDL project coordinator notified of any deficiencies?	YES NO NA
	Comments and/or Corrective Action:	Sample Transfer
		Fraction Fraction
-	•	Area # Area #
		By By By
		$\square DCB \square$
		OB 22/2.2
		Chain-of-Custody #
(E	y: Signature) Date:	

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



Environmental | Analytical | Management | Safety

Customer Name: SLCOE

Project Name: Rend Lake

Samples Received at ARDL: 9/28/2022

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

www.ardlinc.com

Date: 11/7/2022

Lab Name: ARDL, Inc.

ARDL Report No.: 8019

CASE NARRATIVE

Customer	Date	Lab ID	
Sample No.	<u>Collected</u>	<u>Number</u>	Analyses Requested
REN-1	9/28/22	8019-01	Metals(1), Inorganics(2)(3)
REN-2	9/28/22	8019-02	Inorganics(2)(3)
REN-2-5	9/28/22	8019-03	Metals(1), Inorganics(2)
REN-3	9/28/22	8019-04	Inorganics(2)(3)
REN-4	9/28/22	8019-05	Inorganics(2)(3)
REN-5	9/28/22	8019-06	Inorganics(2)(3), E. Coli, Chloride
REN-7	9/28/22	8019-07	Inorganics(2)(3), E. Coli
REN-8	9/28/22	8019-08	Inorganics(2)(3)
REN-15-0	9/28/22	8019-09	Inorganics(3), TSS, TVSS and Nitrite
REN-RL-MAR	9/28/22	8019-10	E. Coli

(1) Including iron and manganese.

(2) Including ammonia*, nitrate*, nitrite, total phosphorus*, TKN*, TOC*, TSS and TVSS.

(3) Including chlorophyll-a corrected and pheophytin-a.

* Analyzed by an accredited subcontract laboratory.

The quality control data are summarized as follows:

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

DUPLICATE

All duplicate analyses are reported as MS/MSD except chlorophyll-a corrected, pheophytin-a, TSS and TVSS. RPD on all duplicate analyses except pheophytin-a were within control limits. The parent sample has been flagged appropriately with a 'J' qualifier.

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

Project Name: Rend Lake

ARDL Report No.: 8019

CASE NARRATIVE (Continued)

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

Page 2 of 2

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 8019 - Inorganics

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

Authorized By: DSD-QAO ARDL Report 8019 - Page 3 of 21

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

> 008019 Lab Report No:

REND LAKE

Project Name:

Report Date: 11/07/2022

Analysis: Inorganics

09/29/22 10287215 09/29/22 10287216

10/05/22 198375

10/04/22

365.4 160.2 160.4 415.1

365.2 NONE

MG/L MG/L

0.241

0.100

0.0660

Solids, Total Suspended Solids, Volatile Suspen Total Organic Carbon

Phosphorus

NONE

MG/L MG/L

20.4 8.0 5.82

4.00 4.00 1.00

4.00 0.500 4.00

NA NA NA

R319003

10/04/22

	01 Sa	tmpling	J Loc'n:	: REND	LAKE		4	WELAC Certi Matrix	fied - IL. :: WATER	100308
Sampling 022 Sampling	ampling ampling	or of	Jate Time	: 09/28 : 1247	/2022			Moisture	NA:	
LOD LOQ F1	ΕŢ	<u> </u>	ag Ré	esult	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
0.0400 0.0500	0			0.468	MG/L	3010A	6010C	10/10/22	10/11/22	P7879A
0.00400 0.00500	0		0	0.486	MG/L	3010A	6010C	10/10/22	10/11/22	P7879A
0.0270 0.100 J	Ŀ	5		0.054	MG/L	NONE	350.1	NA	10/03/22	R318902D
e 1.00 1.00			Ŷ	65.4	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
0.475 1.00 J	Ŀ	5	0	0.80	MG/L	351.2	351.2	10/04/22	10/05/22	198377
0.00900 0.0500	0		0	0.071	MG/L	NONE	353.2	NA	10/04/22	R318949
0.0200 0.0200	0			ND	MG/L	NONE	354.1	NA	09/29/22	10287218
1.00 1.00			(')	30.9	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-01, Inorganic Analyses

Ч оf Page 1

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

> 008019 Lab Report No:

Report Date: 11/07/2022

Project Name: REND LAK Project No:	ы						Z	Analysis ELAC Certi	:: Inorgan fied - IL1	ics 00308
ARDL No: 008019-0 Field ID: REN-2 Received: 09/28/20	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Samp] Samp Samp	Ling Loo Jing Da Ling Ti	c'n: REND ate: 09/28 ime: 1000	LAKE 3/2022			Matrix Moisture	:: WATER :: NA	
Analyte	LOD	год	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	0.100		QN	MG/L	NONE	350.1	NA	10/03/22	R318902D
Chlorophyll-a, Correcte	1.00	1.00		76.9	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Kjeldahl Nitrogen	0.475	1.00	Ь	0.80	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	00600.0	0.0500		0.057	MG/L	NONE	353.2	NA	10/04/22	R318949
Nitrite as Nitrogen	0.0200	0.0200		0.030	MG/L	NONE	354.1	NA	09/29/22	10287218
Pheophytin-a	1.00	1.00		44.2	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Phosphorus	0.0660	0.100		0.235	MG/L	365.2	365.4	10/04/22	10/05/22	198375
Solids, Total Suspended	2.86	2.86		18.9	MG/L	NONE	160.2	NA	09/29/22	10287215
Solids, Volatile Suspen	2.86	2.86		7.14	MG/L	NONE	160.4	NA	09/29/22	10287216
Total Organic Carbon	0.500	1.00		5.8	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-02, Inorganic Analyses

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

> 008019 Lab Report No:

REND LAKE

Project Name:

Report Date: 11/07/2022

Analysis: Inorganics

Project No:							Z	IELAC Certi	fied - IL	100308
ARDL No: 008019-03	3	Samp]	ing Lo	c'n: REND	LAKE			Matrix	C: WATER	
Field ID: REN-2-5 Received: 09/28/202	22	Samp Samp	oling D Ding T	ate: 09/28 ime: 1005	/2022			Moisture	: NA	
Analyte	TOD	год	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
(a) Iron	0.0400	0.0500		0.651	MG/L	3010A	6010C	10/10/22	10/11/22	P7879A
(a) Manganese	0.00400	0.00500		0.517	MG/L	3010A	6010C	10/10/22	10/11/22	P7879A
Ammonia Nitrogen	0.0270	0.100		ND	MG/L	NONE	350.1	NA	10/03/22	R318902D
Kjeldahl Nitrogen	0.475	1.00	Ŀ	0.828	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	00600.0	0.0500		0.077	MG/L	NONE	353.2	NA	10/04/22	R318949
Nitrite as Nitrogen	0610.0	0.0200		0.021	MG/L	NONE	354.1	NA	09/29/22	10287218
Phosphorus	0.0660	0.100		0.226	MG/L	365.2	365.4	10/04/22	10/05/22	198375
Solids, Total Suspended	4.00	4.00		24.8	MG/L	NONE	160.2	NA	09/29/22	10287215
Solids, Volatile Suspen	4.00	4.00		7.6	MG/L	NONE	160.4	NA	09/29/22	10287216
Total Organic Carbon	0.500	1.00		5.9	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-03, Inorganic Analyses

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

> 008019 Lab Report No:

REND LAKE

Project Name:

Report Date: 11/07/2022

Analysis: Inorganics

Т

T

Project No:							Ч	WELAC Certi	fied - IL1.	00308
ARDL No: 008019-04 Field ID: REN-3 Received: 09/28/202	22	Sampl Samp Samp	ling Lo Ding D Ting T	c'n: REND ate: 09/2 ime: 1103	LAKE 8/2022			Matrix Moisture	:: WATER : NA	
Analyte	LOD	ГОД	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	0.100		QN	MG/L	NONE	350.1	NA	10/03/22	R318902D
Chlorophyll-a, Correcte	1.00	1.00		78.0	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Kjeldahl Nitrogen	0.475	1.00		1.1	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	00600.0	0.0500	Ŀ	0.035	MG/L	NONE	353.2	NA	10/04/22	R318949
Nitrite as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	354.1	NA	09/29/22	10287218
Pheophytin-a	1.00	1.00		25.2	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Phosphorus	0.0660	0.100		0.162	MG/L	365.2	365.4	10/04/22	10/05/22	198375
Solids, Total Suspended	4.00	4.00		24.8	MG/L	NONE	160.2	NA	09/29/22	10287215
Solids, Volatile Suspen	4.00	4.00		10.8	MG/L	NONE	160.4	NA	09/29/22	10287216
Total Organic Carbon	0.500	1.00		6.7	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-04, Inorganic Analyses

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

> 008019 Lab Report No:

REND LAKE

Project Name:

11/07/2022 Report Date: Analysis: Inorganics

Project No:							Z	ELAC Certi	fied - IL1	00308
ARDL No: 008019-05 Field ID: REN-4	10	Samp] Samp	ing Lo	c'n: REND ate: 09/28	LAKE 3/2022			Matrix Moisture	: WATER : NA	
Received: 09/28/202	22	Samp	T guild	ime: 1128						
Analyte	LOD	ТОД	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	0.100		QN	MG/L	NONE	350.1	NA	10/03/22	R318902D
Chlorophyll-a, Correcte	1.00	1.00		72.0	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Kjeldahl Nitrogen	0.475	1.00	Ŀ	1.0	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	0.00900	0.0500	Ŀ	0.033	MG/L	NONE	353.2	NA	10/04/22	R318949
Nitrite as Nitrogen	0.0190	0.0200		QN	MG/L	NONE	354.1	NA	09/29/22	10287218
Pheophytin-a	1.00	1.00		14.6	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Phosphorus	0.0660	0.100		0.168	MG/L	365.2	365.4	10/04/22	10/05/22	198375
Solids, Total Suspended	4.00	4.00		28.0	MG/L	NONE	160.2	NA	09/29/22	10287215
Solids, Volatile Suspen	4.00	4.00		11.2	MG/L	NONE	160.4	NA	09/29/22	10287216
Total Organic Carbon	0.500	1.00		6.6	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-05, Inorganic Analyses

Page 1 of 1

008019 Lab Report No:

11/07/2022 Report Date:

Project Name: REND LAKE Project No:	ы						N	Analysis ELAC Certi	: Inorgan fied - IL1	ics 00308
ARDL No: 008019-06 Field ID: REN-5 Received: 09/28/202	22	Sampl Samp Samp	ing Loc Ling Da Ling Ti	c'n: REND ate: 09/28 Lme: 0843	LAKE 3/2022			Matrix Moisture	: WATER : NA	
Analyte	LOD	ΓΟĎ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	00100	F-	0,060	MG/T.	NONE	350.1	NA	10/03/22	318902D
Chloride	2.40	3.00)	26.6	MG/L	NONE	300.0	NA	10/13/22	10287219
Chlorophyll-a, Correcte	1.00	1.00		DN	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
E. Coliform	1.00	1.00		750	COL/100 ML	NONE	1604	NA	09/28/22	10287214
Kjeldahl Nitrogen	0.475	1.00	Ь	0.70	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	00600.0	0.0500		0.23	MG/L	NONE	353.2	NA	10/04/22	R318949
Nitrite as Nitrogen	0.0190	0.0200		DN	MG/L	NONE	354.1	NA	09/29/22	10287218
Pheophytin-a	1.00	1.00		ND	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	0287213
Phosphorus	0.165	0.250		QN	MG/L	365.2	365.4	10/13/22	10/14/22	198484
Solids, Total Suspended	1.33	1.33		9.6	MG/L	NONE	160.2	NA	09/29/22	.0287215
Solids, Volatile Suspen	1.33	1.33		ND	MG/L	NONE	160.4	NA	09/29/22	0287216
Total Organic Carbon	0.500	1.00		5.7	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-06, Inorganic Analyses

Lab Report No: 008019

Report Date: 11/07/2022

NELAC Certified - IL100308 Analysis: Inorganics WATER NA Matrix: Moisture: 09/28/2022 REND LAKE Sampling Date: Sampling Loc'n: REND LAKE 008019-07 REN-7 ARDL No: Field ID: Project Name: Project No:

Received: 09/28/202:	2	samp	ling Ti	me: 1347						
Analyte	LOD	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	0.100	Ŀ	0.030	MG/L	NONE	350.1	NA	10/03/22	R318902D
Chlorophyll-a, Correcte	1.00	1.00		1.6	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
E. Coliform	1.00	1.00		750	COL/100 ML	NONE	1604	NA	09/28/22	10287214
Kjeldahl Nitrogen	0.475	1.00	D	0.80	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	0.180	1.00		1.43	MG/L	NONE	353.2	NA	10/04/22	R318949
Nitrite as Nitrogen	0.0190	0.0200		DN	MG/L	NONE	354.1	NA	09/29/22	10287218
Pheophytin-a	1.00	1.00		UN	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Phosphorus	0.0660	0.100		0.102	MG/L	365.2	365.4	10/04/22	10/05/22	198375
Solids, Total Suspended	1.33	1.33		12.9	MG/L	NONE	160.2	NA	09/29/22	10287215
Solids, Volatile Suspen	1.33	1.33		1.73	MG/L	NONE	160.4	NA	09/29/22	10287216
Total Organic Carbon	0.500	1.00		5.5	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-07, Inorganic Analyses

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

> 008019 Lab Report No:

REND LAKE

Project Name:

11/07/2022 Report Date: Analysis: Inorganics

Project No:							N	ELAC Certi	fied - IL1	00308
ARDL No: 008019-08 Field ID: REN-8 Received: 09/28/202	7	Samp] Samp Samp	ling Loc pling Da ping Ti	c'n: REND ate: 09/28 Lme: 1025	LAKE \$/2022			Matrix Moisture	: WATER : NA	
Analyte	LOD	год	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Ammonia Nitrogen	0.0270	0.100		DN	MG/L	NONE	350.1	NA	10/03/22 1	318902D
Chlorophyll-a, Correcte	1.00	1.00		112	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213
Kjeldahl Nitrogen	0.475	1.00		1.4	MG/L	351.2	351.2	10/04/22	10/05/22	198377
Nitrate as Nitrogen	0.0450	0.250	Ь	0.051	MG/L	NONE	353.2	NA	10/10/22	R319251
Nitrite as Nitrogen	0.0190	0.0200		ND	MG/L	NONE	354.1	NA	09/29/22	10287218
Pheophytin-a	1.00	1.00	Ь	25.7	MG/CU.M.	10200H	10200H	09/29/22	10/07/22 :	10287213
Phosphorus	0.0660	0.100		0.206	MG/L	365.2	365.4	10/04/22	10/05/22	198375
Solids, Total Suspended	4.00	4.00		25.2	MG/L	NONE	160.2	NA	09/29/22	10287215
Solids, Volatile Suspen	4.00	4.00		13.2	MG/L	NONE	160.4	NA	09/29/22	L0287216
Total Organic Carbon	0.500	1.00		7.2	MG/L	NONE	415.1	NA	10/04/22	R319003

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-08, Inorganic Analyses

Page 1 of 1

Lab Report No: 008019

Report Date: 11/07/2022

Project Name: F Project No:	REND LAKE							N	Analysis ELAC Certi	: Inorgan fied - IL1	ics 00308
ARDL No: (Field ID: F Received: C	008019-09 REN-15-0 19/28/2022	5	Samp Samr Samr	ling Loc pling Da pling Ti	"n: REND tte: 09/28 me: 1140	LAKE 1/2022			Matrix Moisture	:: WATER :: NA	
Analyte	0	LOD	LOQ	Flag	Result	Units	Prep Method	Analysis Method	Prep Date	Analysis Date	Run Number
Chlorophyll-a, C	Correcte	1.00	1.00		74.0	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	0287213
Nitrite as Nitrc	gen	0.0190	0.0200		DN	MG/L	NONE	354.1	NA	09/29/22	0287218
Pheophytin-a		1.00	1.00		16.1	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	0287213
Solids, Total Su	ıspended	4.00	4.00		28.0	MG/L	NONE	160.2	NA	09/29/22	.0287215
Solids, Volatile	Suspen	4.00	4.00		11.6	MG/L	NONE	160.4	NA	09/29/22	.0287216

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-09, Inorganic Analyses

(a) DOD and/or NELAC Accredited Analyte.

Sample 008019-10, Inorganic Analyses

Page 1 of 1

ARDL Report 8019 - Page 13 of 21

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

Lab Report No: 008019

Report Date: 11/07/2022

Project Name: REND LAKE

NELAC Certified - IL100308

											- 1
			Blank		Prep	Analysis	Prep	Analysis		QC Lab	
Analyte	LOD	LOQ	Result	Units	Method	Method	Date	Date	Run	Number	1
(a) Iron	0.040	0.050	QN	MG/L	3010A	6010C	10/10/22	10/11/22	P7879A	008019-01B1	
(a) Manganese	0.004	0.005	DN	MG/L	3010A	6010C	10/10/22	10/11/22	P7879A	008019-01B1	
Ammonia Nitrogen	0.027	0.10	ПD	MG/L	NONE	350.1	NA	10/03/22	R318902D	008017-01B1	
Chloride	0.80	1.0	DN	MG/L	NONE	300.0	NA	10/13/22	10287219	008019-06B1	
Chlorophyll-a, Corre	1.0	1.0	DN	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213	008019-08B1	
Kjeldahl Nitrogen	0.48	1.0	QN	MG/L	351.2	351.2	10/04/22	10/05/22	198377	008019-03B1	
Nitrate as Nitrogen	0.009	0.050	DN	MG/L	NONE	353.2	NA	10/10/22	R319251	008019-08B1	
Nitrate as Nitrogen	0.009	0.050	QN	MG/L	NONE	353.2	NA	10/04/22	R318949	008017-01B1	
Nitrite as Nitrogen	0.020	0.020	DN	MG/L	NONE	354.1	NA	09/29/22	10287218	008019-01B1	
Pheophytin-a	1.0	1.0	ND	MG/CU.M.	10200H	10200H	09/29/22	10/07/22	10287213	008019-08B1	
Phosphorus	0.066	0.10	DN	MG/L	365.2	365.4	10/04/22	10/05/22	198375	008019-03B1	
Phosphorus	0.066	0.10	DN	MG/L	365.2	365.4	10/13/22	10/14/22	198484	008017-06B1	
Solids, Total Suspen	1.0	1.0	DN	MG/L	NONE	160.2	NA	09/29/22	10287215	008019-03B1	
Solids, Volatile Sus	1.0	1.0	DN	MG/L	NONE	160.4	NA	09/29/22	10287216	008019-03B1	
Total Organic Carbon	0.50	1.0	DN	MG/L	NONE	415.1	NA	10/04/22	R319003	008017-01B1	

(a) DOD and/or NELAC Accredited Analyte Inorganic Method Blanks for 008019

ARD	L, INC.	400 Av	LABORA riation	TORY C Drive	ONTROL ; P.O.	SAMPI Box 1	LE REPO	DRT Mt. V€	rnon, IL	62864
Lab Report No: 006	019								Report Da	te: 11/08/2022
Project Name:	REND LAKE								NELAC Cer	tified - IL100308
	LCS 1	LCS 1	LCS 1	LCS 2	LCS 2	LCS 2	% Rec	Mean	Analytical	QC Lab
Analyte	Result	Level	% Rec	Result	Level	% Rec	Limits	% Rec	Run	Number
(a) Iron	5.3	5.0	105	4	-	-	87-115	1	P7879A	008019-01C1
(a) Manganese	0.80	0.75	107	ł	ł	ł	90-114	ł	P7879A	008019-01C1
Ammonia Nitrogen	1.1	1.0	108	ł	1	ł	90-110	1	R318902D	008017-01C1
Chloride	13.6	14.0	97	ł	1	ł	90-110	ł	10287219	008019-06C1
Kjeldahl Nitrogen	9.8	10.0	86	ł	1	ł	90-110	ł	198377	008019-03C1
Nitrate as Nitrogen	0.54	0.50	107	ł	1	ł	90-110	1	R319251	008019-08C1
Nitrate as Nitrogen	0.52	0.50	105	ł	-	ł	90-110	*	R318949	008017-01C1
Nitrite as Nitrogen	0.92	1.0	92	ł		ł	80-120	1	10287218	008019-01C1
Phosphorus	0.94	1.0	94	I	ł	ł	85-115	ł	198375	008019-03C1
Phosphorus	0.91	1.0	91	ł	ł	1	85-115	1	198484	008017-06C1
Total Organic Carbon	60.2	59.3	102	1	ł	1	90-110	ł	R319003	008017-01C1
NOTE: Any values ta (a) DOD and/or NELA	bulated above m. C Accredited An	arked with alyte	an asteris	k are outsi	ide of acce	eptable li	mits.			

Page 1 of 1

Inorganic LCS Results for 008019

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

Lab Report No: 008019

REND LAKE

Project Name:

Report Date: 11/08/2022

NELAC Certified - IL100308

	Sample	Sample	MS	MS	WS	MSD	MSD	MSD	% Rec		RPD		QC Lab
Analyte	Matrix	Result	Result	Level	% Rec	Result	Level	% Rec	Limits	RPD	Limit	Run	Number
(a) Iron	WATER	0.47	1.5	1.0	108	1.5	1.0	66	87-115	9	20	P7879A	008019-01MS
(a) Manganese	WATER	0.49	0.98	0.50	100	0.98	0.50	98	90-114	1	20	P7879A	008019-01MS
Ammonia Nitrogen	WATER	J 0.054	1.6	2.0	* LT	1.6	2.0	× 6 <i>L</i>	90-110	2	10	R318902D	008019-01MS
Chloride	WATER	26.6	35.0	8.0	105	34.7	8.0	102	75-125	1	20	10287219	008019-06MS
Kjeldahl Nitrogen	WATER	J 0.83	9.9	10.0	91	9.9	10.0	91	90-110	0	15	198377	008019-03MS
Nitrate as Nitrogen	WATER	0.071	0.35	0.25	110	0.34	0.25	107	90-110	2	10	R318949	008019-01MS
Nitrate as Nitrogen	WATER	J 0.051	1.3	1.3	101	1.4	1.3	111 *	90-110	თ	10	R319251	008019-08MS
Nitrite as Nitrogen	WATER	QN	0.93	1.0	93	0.93	1.0	93	75-125	0	20	10287218	008019-01MS
Phosphorus	WATER	0.23	1.2	1.0	94	1.2	1.0	98	85-115	m	15	198375	008019-03MS
Total Organic Carbon	WATER	5.8	10.4	5.0	92	10.6	5.0	95	85-115	1	10	R319003	008019-01MS

Inorganic Matrix Spikes for 008019

(a) DOD and/or NELAC Accredited Analyte.

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

364	11/08/2022	ed - IL100308	QC Lab Number	008019-08D1 008019-08D1 008019-03D1 008019-03D1
on, IL 628	Report Date:	NELAC Certifi	Analytical Run	10287213 10287215 10287216 10287216
Mt. Vern			Mean (Smp,D1,D2)	
TE REPORI Box 1566			Percent Diff	4 v v v * v v
DUPLICAJ Ve; P.O.			Units	MG/CU.M. MG/L MG/L MG/L
SAMPLE tion Driv			Second Duplicate	
400 Avia			First Duplicate	97.5 26.0 8.0 8.0
INC.	6	LAKE	Sample Conc'n	112 25.7 7.6 7.6
ARDL,	Lab Report No: 00801	Project Name: REND	Analyte	Chlorophyll-a, Corrected Pheophytin-a Solids, Total Suspended Solids, Volatile Suspend

Page 1 of 1 See Case Narrative for exceptions. * indicates that agreement between duplicates is greater than 20%. (a) DOD and/or NELAC Accredited Analyte Sample Duplicates for 008019

ARDL Report 8019 - Page 17 of 21

Sample Receipt Information

Including as appropriate:

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

ARDL Data Package 8019 - Inorganics

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 8019

SAMPLERS: (Signature) See (brult-s Kolub Robers SAMPLE NUMBER DATE			SAB		* 1		1	1	/	/	/	1	/	/	1	/			PRES	ERVATION
SAMPLE NUMBER DATE			SCONTAIN	~3/	ZON, CO	0812	*N	NEHNY			0.	O	1						ICED	SPECIFY CHEMICAL ADDED AN FINAL PH I KNOWN
	TIME	GRAB COMP	IO 'ON	U SSI	4014	30	SON.		el Fe	5%	SAUS		1			SAN	REMARKS OR IPLE LOCATION			
Ren-1 9/28/22	ち わや 1	X		XX	X	X	X	X		X			-						X	
Ren-2-0	1000	х		XX	X	X	X												×	
Ren – 2 – 5	1005	X	14	X	X	X	X	X											X	
Ren – 3	1103	X	14	XX	X	X	X												X	
Ren – 4	821	X	14	XX	X	Х	X												X	
Ren – 5	2280	X	14	XX	X	X	X		X		X								×	
Ren – 7	[747	X	14	XX	X	Х	X		X										×	
Ren – 8	1015	X	14	XX	X	X	X							-					X	
Ren – 15- 0	11 40	X	14	XX	-	-	X												X	
Ren-RL-Mar	1200	X			B	2	d a	4	X										X	
					•															
				_																
RDL																				
Backinguished by: (Signature)	Time	Receiv	ed by	signa	ure	· .	REM	LRKS	SPEC	IAL D	NSTR	UCTIC	:SNC	4	-12	50	The G	lows		4
Children by: (Signature) - Date	Time +	Receiv	ed by:	Pis	(anne)	W	*Prese	rved v	vith H vith H	2504 NO3		20	t +	okt		2 0 0 A	er Nos	SHN	2	20/30/4
Accessing for Laboratory by: Date Designments DULL BU DA DA UNIVUMBAN CO 28/22	Time \20	Shippi	ng Tick	et No.										2 h		150				
COOLER RECEIPT REPORT																				
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ARDL, INC.																				
ARI	n# 8019	Ier # TYPON])																
		Num	ber of Coolers in \$hipm	ient:	•	_														
Dro	hend lake	Det	19/281	20172		-														
PIU	ect. <u>I what Luck</u>		$\frac{1}{1} \frac{1}{1} \frac{1}$																	
Α.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 09/2	8 2022																		
1.	Did cooler come with a shipping slip (airbill, etc.)?	·		YES	NO)														
	If YES, enter carrier name and airbill number here: \underline{ARDL}	Cour	Ter-Valerie																	
2.	Were custody seals on outside of cooler?			YES	NO															
	How many and where?,Seal Date	e:	,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?				NO															
5.	Were custody papers sealed in a plastic bag?	ud		YES	NO)														
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	at the top	of this form	YES	NQ	N/A	,													
9.	Was a separate container provided for measuring temperature? YES	NO	Observed Cooler Temp	0.8	c C	angu	2													
В.	LOG-IN PHASE: Date samples were logged-in: 09/28/2022	_(Signat	ure)DB	ection factor	0.0	C	lemp													
10.	Describe type of packing in cooler: <u>LOOSE</u> <u>Ice</u>																			
11.	Were all samples sealed in separate plastic bags?			YES	(Nb) _{N/A}														
12.	Did all containers arrive unbroken and were labels in good condition?) NO															
13.	Were sample labels complete?				NO NO															
14.	Did all sample labels agree with custody papers?) NO															
15.	Were correct containers used for the tests indicated?				NO															
16.	Was pH correct on preserved water samples?				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?) NO	N/A														
	Comments and/or Corrective Action:		Sample 7	ransfer																
			Fraction	Fraction																
			Area # / /	Area #																
		_	Walk-In	By																
			Per	5,																
			On Agandaraa	On																
		-	0/28/2022																	
			Chain-of-Custody #																	
(E	By: Signature) Date:																			

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

	COOLER RECEIPT REPORT							
ARDL, INC.								
AR	DL #: OOI	Cooler # BIVE 2 2						
Number of Coolers in Shipment:								
Proj	ect: Kend Lake	Date Received: 09/28/2022						
A.	PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 09/28	<u> 3 2022 (Signature) DCB</u>						
1.	/ Did cooler come with a shipping slip (airbill, etc.)?							
	If YES, enter carrier name and airbill number here: ARDL (2000rier - Valerie						
2.	Were custody seals on outside of cooler?	YES NO (N/A)						
	How many and where?,Seal Date	,Seal Name:						
З.	Were custody seals unbroken and intact at the date and time of arrival?	YES NO (NA)						
4.	Did you screen samples for radioactivity using a Geiger Counter?	YES NO						
5.	Were custody papers sealed in a plastic bag?Haud defuel	LC						
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	at the top of this form						
9.								
В.	LOG-IN PHASE: Date samples were logged-in: 0/28/28/2022	_(Signature)						
10.	Describe type of packing in cooler: LOOSE Icc							
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?	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?							
18.	Were bubbles absent in VOA samples? If NO, list by sample #:	YES NO (NA)						
19.	Was the ARDL project coordinator notified of any deficiencies?							
	Comments and/or Corrective Action:	Sample Transfer						
		Fraction Fraction						
		Area# / / Area#						
		Walk-in						
		BY AR BY						
		On On On						
		U 2 2 2						
		Chain-of-Custody #						
(E	y: Signature) Date:							

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