ILUKA

RECEIVED PRO
OCT 20 2014

October 15, 2014

Laura Galli
VPDES Permit Writer
DEQ-PRO
4949-A Cox Road
Glen Allen, VA 23060

Re: VPDES Permit VA0092436 Renewal Application
Iluka Resources Inc. Brink Mine Concentrator Plant
5945 Brink Road
Emporia, Virginia 23847

Dear Ms. Galli:

Iluka Resources Inc. is pleased to submit the attached Virginia Pollution Discharge Elimination System (VPDES) Individual Permit Renewal Application and supporting laboratory reports. The following attachments are included with this submission:

Attachment 1: United States Environmental Protection Agency (USEPA) Form 1 General Information
Attachment 2: EPA Form 2 C, Outfalls 101 and 002
Attachment 3: Supporting Laboratory Reports for Outfalls 101 and 002
Attachment 4: EPA Form 2 F, Outfall 001
Attachment 5: Supporting Laboratory Reports for Outfall 001
Attachment 6: VPDES Permit Application Addendum
Attachment 7: Public Notice Billing Information

We are requesting that an additional outfall to be added to the permit. The outfall will be labeled Outfall 002, the location can be view in the attached maps. The source water that has the potential to discharge through this outfall would be the same quality water that has the potential to discharge through Outfall 101. This outfall will only be utilized during inclement weather or other incident where it would be deemed appropriate per the permit.

The quantitative levels for Dissolved Silver and Total Recoverable Selenium on the Attachment A forms for Outfall 101 and Outfall 002 have not been met. It is understood that the Department of Environmental Quality may consider the QL's provided as actual detections and may use these concentrations to calculate potential limits for the respective parameters. A laboratory will be sourced that can meet the quantitative levels, but Iluka doesn't want to risk a delay in the permit renewal or a possibility of not having the current permit administratively continued in the event that the renewal is not issued prior to the current permits expiration.

If you have any questions regarding these applications or if you require additional information, please do not hesitate to contact me in the office at 434-348-4316, on my mobile at 804-721-7312, or via email at kevin.rideout@iluka.com.

Regards,

Kevin Rideout
Environmental Superintendent
Iluka Resources Inc.

Cc: (pdf copy) Shane Tilka, US General Manager, Iluka Resources

Attachment 1:

EPA Form 1

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F VA0092436 D

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
	16	17	18		19	20	21
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
	22	23	24		25	26	27
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
	28	29	30		31	32	33
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
	34	35	36		37	38	39
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
	40	41	42		43	44	45

III. NAME OF FACILITY

C 1 SKIP: Iluka Brink Concentrator

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: Kevin Rideout, Environmental Superintendent

B. PHONE *(area code & no.)*: (434) 348-4316

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX: 12472 St. John Church Road

B. CITY OR TOWN: Stony Creek

C. STATE: VA

D. ZIP CODE: 23882

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5945 Brink Road

B. COUNTY NAME: Greensville

C. CITY OR TOWN: Emporia

D. STATE: VA

E. ZIP CODE: 23847

F. COUNTY CODE *(if known)*: 081

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
7 1099 (specify) Miscellaneous Metal Ores	7 (specify)
C. THIRD	**D. FOURTH**
7 (specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: 8 Iluka Resources Inc.

B. Is the name listed in Item VIII-A also the owner? ☑ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

P (specify)

D. PHONE *(area code & no.)*: A (434) 348-4300

E. STREET OR P.O. BOX: 12472 St. John Church Road

F. CITY OR TOWN: B Stony Creek

G. STATE: VA

H. ZIP CODE: 23882

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	9 N	VA0092436	
D. PSD *(Air Emissions from Proposed Sources)*	9 P		
B. UIC *(Underground Injection of Fluids)*	9 U		
E. OTHER *(specify)*	9	VAR051881	(specify) Industrial Stormwater discharge to surface water
C. RCRA *(Hazardous Wastes)*	9 R		
E. OTHER *(specify)*	9		(specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

Iluka Resources Inc. leases mining rights in Greensville, VA for the pupose of mining and the separation of mineral sands (titanium-beraing ilemenite and zircon). The ore is removed from a shallow, unconsolidated ore body situated in the innermost Coastal Plain physiogaphic province near the Fall Zone (the geologic boundary between the Coastal Plain and Piedmont physiographic provinces) using dry mining techniques. The ore is then processed at the Brink Concentrator Plant using a variety of wet gravity separation methods to produce a mineral sand concentrate. This is then trucked to the Mineral Separation Plant (MSP) located in Stony Creek, VA for further processing.

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Shane Tilka US General Manager	Shane Tilka	10/20/2014

COMMENTS FOR OFFICIAL USE ONLY

C

Attachment 2:

EPA Form 2C

Outfalls 101 & 002

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
VA0092436

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM **2C** NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
101	36	37	26	77	37	43	Unnamed Tributary to Fountains Creek
001	36	37	28	77	37	44	Unnamed Tributary to Fountains Creek
002	36	37	23	77	37	56	Unnamed Tributary to Fountains Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
101	Process Water	917 gpm	Gravity Concentration in Settling Ponds	1-G	1-U
				4-A	4-C
001	Process Water Outfall 101 (internal)	917 gpm	Gravity Concentration in Settling Ponds	1-G	1-U
				4-A	4-C
	Stormwater	55 gpm (average flow taken	Gravity COncentration in Settling Pond	1-U	4-A
		from 2010 - 2014 DMR's)		4-C	
002 (new)	Process Water	917 gpm	Gravity Concentration in Settling Pond	1-G	1-U
				4-A	4-C

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☑ YES (*complete the following table*) ☐ NO (*go to Section III*)

1. OUTFALL NUMBER (*list*)	2. OPERATION(s) CONTRIBUTING FLOW (*list*)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (*specify average*)	b. MONTHS PER YEAR (*specify average*)	a. FLOW RATE (*in mgd*)		B. TOTAL VOLUME (*specify with units*)		C. DURATION (*in days*)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
101	Process Water	(0.2 days per week) Discharge of 36 weeks in the last 208 weeks.	8 months per year average	1.103 mgd	2.880 mgd	1.103 mgd	2.880 mgd	1 day
002	Process Water (New Emergency Outfall)	Same as Outfall 101	Same as Outfall 101	Same as Outfall 101	Same as Outfall 101	Same as Outfall 101	Same as Outfall 101	Same as Outfall 101

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ YES (*complete Item III-B*) ☑ NO (*go to Section IV*)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (*or other measure of operation*)?

☐ YES (*complete Item III-C*) ☑ NO (*go to Section IV*)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (*list outfall numbers*)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (*specify*)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (*complete the following table*) ☑ NO (*go to Item IV-B*)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (*or other environmental projects which may affect your discharges*) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

 CONTINUE ON PAGE 3

EPA I.D. NUMBER (*copy from Item I of Form 1*)
VA0092436

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
N/A	N/A	N/A	N/A

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (*list all such pollutants below*) ☑ NO (*go to Item VI-B*)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☑ YES (*identify the test(s) and describe their purposes below*) ☐ NO (*go to Section VIII*)

An Acute Toxicity Test per EPA Methods 2002.0 and 2000.0 are requried quarterly from Outfall 101 whenever a discharge occurs during that quarter. There have been seven (7) test performed on discharging waters through Outfall 101 and all have resulted in 100% NOAEC.

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☑ YES (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☐ NO (*go to Section IX*)

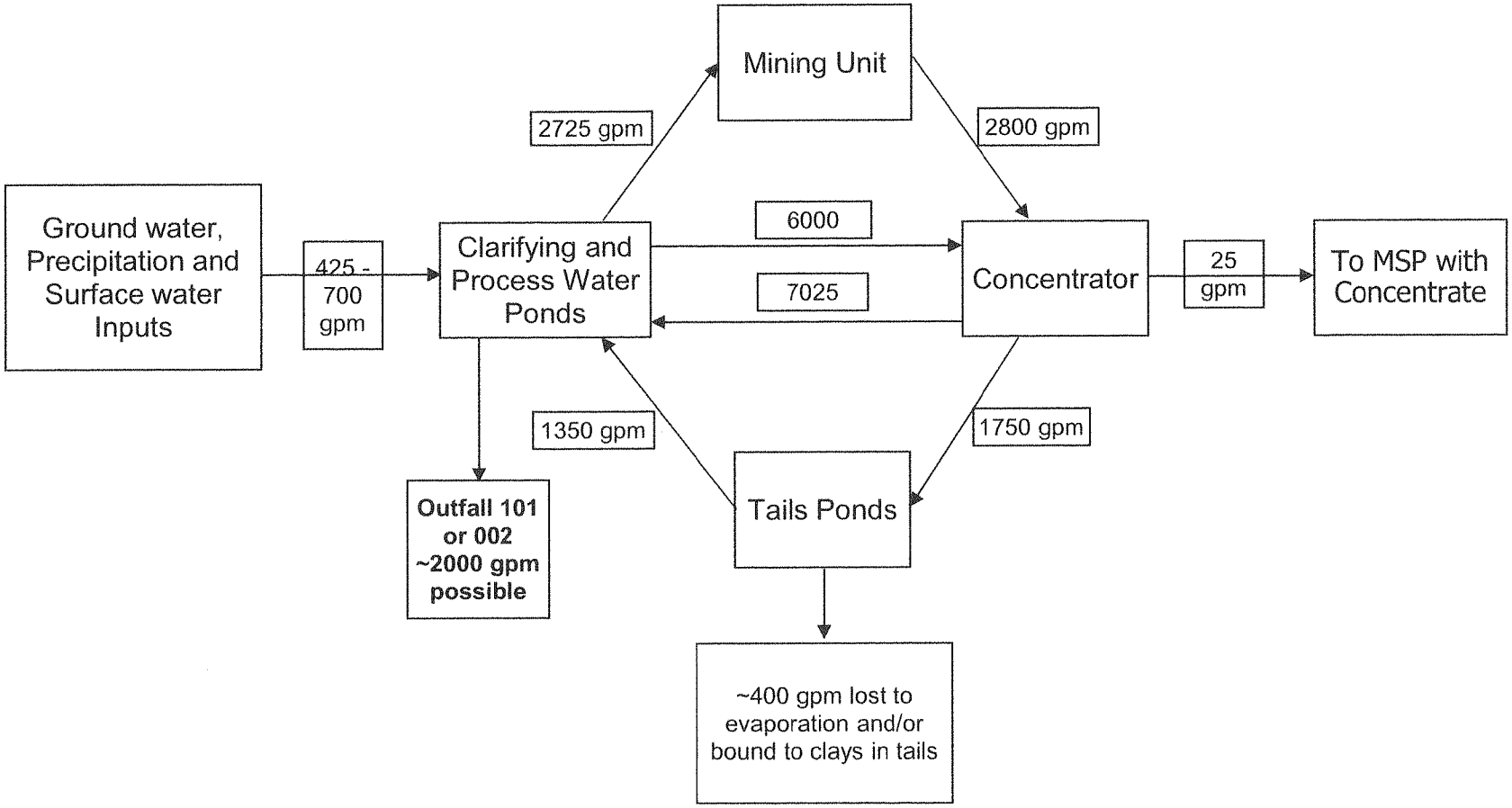
A. NAME	B. ADDRESS	C. TELEPHONE (*area code & no.*)	D. POLLUTANTS ANALYZED (*list*)
Coastal Bioanalysts, Inc	6400 Enterprise Court, Gloucester, VA 23061	(804)694-8285	Acute Toxixity Test
Air, Water, and Soil Laboratories, Inc	1941 Reymet Rd Richmond, VA 23237	1.866.358.8318	Any pollultant listed in the current VPDES Permit or within the Attachment A Form. (AWS, Primary, and Pace)
Primary Laboratories	7423 Lee Davis Rd, Mechanicsville, VA 23111	(804) 559-9004	
Pace Analytical Services, Inc	9800 Kincey Ave, Suite 100 Huntersville, NC. 28078	(704) 875-9092	

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (*type or print*)	B. PHONE NO. (*area code & no.*)
Shane Tilka, US General Manager	434 348 4302
C. SIGNATURE	D. DATE SIGNED
	10/20/2014

Typical Process Water Flow Schematic
Iluka Resources Brink Concentrator Plant
Greensville County, Virginia



Description of Plant Operations

The following describe the operations that will occur within the confines of the Plant, including the Concentrator Plant operation and stormwater management.

Mine Concentrator Plant

Upon excavation, the mineral sand ore will be immediately dumped into a mobile mining unit where the ore will be slurried and pumped to the mine concentrator plant. At the Concentrator Plant, the initial treatment process consists of passing the slurried ore through a trommel screen. The trommel screen separates the feed into undersize (quartz sand, mineral sands, and kaolinitic clay) and oversize (rocks, gravel, roots and clay balls). Most of the oversize from the trommel goes out to tails (mine pit) and the remainder is collected and disposed as backfill in pits or used around the plant for road base and other uses. The undersize fraction from the trommel screen is used as concentrator feed. The concentrator feed is then pumped to hydrocyclones that remove the majority of clay from the sands. The clay fraction is directed to the cyclone overflow and the sands are contained in the cyclone underflow.

The underflow is directed to a sump and then pumped to a series of spiral gravity separators, which separate the higher specific gravity (SG) mineral sands (SG>3.5) from the lighter specific gravity quartz sands (SG<2.6). The lower SG sands will become tailings which are pumped back to the mine pit. The spiral separators upgrade the percent mineral sands in the concentrator feed from approximately 15% to 90%. The mineral sand concentrate is then fed through a hydrosizer, which removes additional fine to very fine quartz sand grains from the concentrate. The quartz sand from the spiral separators and hydrosizer are processed through a tailings cyclone, which dewaters the sands to a percent solids of approximately 75%. The tailings are pumped to tailings pits for disposal. The mineral sand concentrate is then pumped

to a central stockpile and dewatered by cyclones before being loaded onto trucks with a front end loader and hauled to the Mineral Separation Plant located approximately 30 miles away in Stony Creek.

The clay from the hydrocyclone overflow is pumped to a thickener. The addition of a flocculent increases the percent solids of the clay from approximately 5% to 30%, effectively dewatering the clays. Water from the process is returned to the Clarifying Pond for reuse. The thickened clay is then pumped to the total tailings sump along with the dewatered sands from the tailings cyclone. The resultant mixture is then pumped at approximately 30 – 40% solids to the active reclamation cell. Excess water is decanted, collected in a sump and pumped back to the Clarifying Pond at the concentrator site and recycled.

Approximately 90% of the water utilized in the mining process is recycled, with the only losses expected in the tailings entrained in the clay particles, in the concentrate stockpile, and through evaporation. Make-up water will be provided by pumping from make-up sources, including a well field and surface water bodies to the Clarifying and Process Water Ponds for storage and use as needed.

Stormwater Management

The process water management system is designed to minimize the need for water consumption (from surface water or groundwater wells). Iluka discharges process water under a VPDES Permit from Outfall 101. Stormwater runoff will be routed through stabilized channels and sediment basins. This stormwater will be comprised of rainfall runoff (uncontaminated stormwater) that has not come into contact with the mining process and has not commingled with process water. Stormwater on the site is discharges through Outfalls 003 and 004, which are covered under the General VPDES Permit for the site.

Attachment 2:

EPA Form 2C

Outfalls 101 and 002

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): VA0092436

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 101

PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCEN-TRATION	b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	<25						2	mg/L				
c. Total Organic Carbon (*TOC*)	<1						1	mg/L				
d. Total Suspended Solids (*TSS*)	29.2				15.3		8	mg/L				
e. Ammonia (*as N*)	<.10						2	mg/L				
f. Flow	VALUE 2.88		VALUE		VALUE 1.32		6	MGD		VALUE		
g. Temperature (*winter*)	VALUE 11.4		VALUE		VALUE 9.2		13	°C		VALUE		
h. Temperature (*summer*)	VALUE 30.6		VALUE		VALUE 25.5		14	°C		VALUE		
i. pH	MINIMUM 6.04	MAXIMUM 8.36	MINIMUM	MAXIMUM			12	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCEN-TRATION	b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)		X	<0.10						1	mg/L				
b. Chlorine, Total Residual		X	<0.024						1	mg/L				
c. Color		X	No Detect						1	units				
d. Fecal Coliform	X		5						1	CFU/100m				
e. Fluoride (16984-48-8)		X	<0.050						1	mg/L				
f. Nitrate-Nitrite (*as N*)	X		3.7						1	mg/L				

CONTINUE ON REVERSE

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	X		2.5						1	mg/L				
h. Oil and Grease		X	<5.0						1	mg/L				
i. Phosphorus (as P), Total (7723-14-0)		X	<0.050						1	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)	X		7.4						1	mg/L				
l. Sulfide (as S)		X	<0.10						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)		X	<1.0						1	mg/L				
n. Surfactants		X	<0.100						1	mg/L				
o. Aluminum, Total (7429-90-5)	X		316						1	ug/L				
p. Barium, Total (7440-39-3)	X		15.8						1	ug/L				
q. Boron, Total (7440-42-8)		X	<50.0						1	ug/L				
r. Cobalt, Total (7440-48-4)		X	<5.0						1	ug/L				
s. Iron, Total (7439-89-6)	X		384						1	ug/L				
t. Magnesium, Total (7439-95-4)	X		968						1	ug/L				
u. Molybdenum, Total (7439-98-7)		X	<5.0						1	ug/L				
v. Manganese, Total (7439-96-5)	X		13.1						1	ug/L				
w. Tin, Total (7440-31-5)		X	<5.0						1	ug/L				
x. Titanium, Total (7440-32-6)		X	<5.0						1	ug/L				

 CONTINUE ON PAGE V-3

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
VA0092436	002

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<5.0						1	ug/L				
2M. Arsenic, Total (7440-38-2)	X			<10.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	X			<1.0						1	ug/L				
4M. Cadmium, Total (7440-43-9)	X			<1.0						1	ug/L				
5M. Chromium, Total (7440-47-3)	X			<5.0						1	ug/L				
6M. Copper, Total (7440-50-8)	X			<5.0						1	ug/L				
7M. Lead, Total (7439-92-1)	X			<5.0						1	ug/L				
8M. Mercury, Total (7439-97-6)	X			<0.20						1	ug/L				
9M. Nickel, Total (7440-02-0)	X			<5.0						1	ug/L				
10M. Selenium, Total (7782-49-2)	X			<10.0						1	ug/L				
11M. Silver, Total (7440-22-4)	X			<5.0						1	ug/L				
12M. Thallium, Total (7440-28-0)	X			<10.0						1	ug/l				
13M. Zinc, Total (7440-66-6)	X			<10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	X			<0.0050						1	mg/L				
15M. Phenols, Total	X			0.018						1	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	X			DESCRIBE RESULTS Negative Result											

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<5.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	X			<50.0						1	ug/L				
3V. Benzene (71-43-2)	X			<2.0						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)				DELISTED	02-4-81	ANALYSIS	NOT	REQUIRED	FOR	THIS					
5V. Bromoform (75-25-2)	X			<2.0						2	ug/L				
6V. Carbon Tetrachloride (56-23-5)	X			<2.0						2	ug/L				
7V. Chlorobenzene (108-90-7)	X			<2.0						2	ug/L				
8V. Chlorodibromomethane (124-48-1)	X			<1.0						1	ug/L				
9V. Chloroethane (75-00-3)	X			<2.0						2	ug/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<2.0						2	ug/L				
11V. Chloroform (67-66-3)	X			<2.0						2	ug/L				
12V. Dichlorobromomethane (75-27-4)	X			<1.0						1	ug/L				
13V. Dichlorodifluoromethane (75-71-8)				DELISTED	01-8-81	ANALYSIS	NOT	REQUIRED	FOR	THIS					
14V. 1,1-Dichloroethane (75-34-3)	X			<2.0						2	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<2.0						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<1.0						1	ug/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<1.0						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<2.0						1	ug/L				
19V. Ethylbenzene (100-41-4)	X			<2.0						2	ug/L				
20V. Methyl Bromide (74-83-9)	X			<1.0						1	ug/L				
21V. Methyl Chloride (74-87-3)	X			<2.0						2	ug/L				

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)	X			<2.0						2	ug/L				
23V 1,1,2,2-Tetrachloroethane (79-34-5)	X			<2.0						2	ug/L				
24V. Tetrachloro-ethylene (127-18-4)	X			<1.0						1	ug/L				
25V. Toluene (108-88-3)	X			<1.0						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<1.0						1	ug/L				
27V. 1,1,1-Trichloro-ethane (71-55-6)	X			<2.0						2	ug/L				
28V. 1,1,2-Trichloro-ethane (79-00-5)	X			<2.0						2	ug/L				
29V Trichloro-ethylene (79-01-6)	X			<1.0						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)				*DELISTED*	*01-8-81*	ANALYSIS	NOT	REQUIRED	FOR	THIS					
31V. Vinyl Chloride (75-01-4)	X			<2.0						2	ug/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0						1	ug/L				
2A. 2,4-Dichloro-phenol (120-83-2)	X			<5.0						1	ug/L				
3A. 2,4-Dimethyl-phenol (105-67-9)	X			<10						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<50						1	ug/L				
5A. 2,4-Dinitro-phenol (51-28-5)	X			<50						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	X			<5.0						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	X			<50.0						1	ug/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<10						1	ug/L				
9A. Pentachloro-phenol (87-86-5)	X			<10.0						1	ug/L				
10A. Phenol (108-95-2)	X			0.018		.009				2	ug/L				
11A. 2,4,6-Trichloro-phenol (88-05-2)	X			<10						1	ug/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0						1	ug/L				
2B. Acenaphtylene (208-96-8)	X			<5.0						1	ug/L				
3B. Anthracene (120-12-7)	X			<5.0						1	ug/L				
4B. Benzidine (92-87-5)	X			<50.0						1	ug/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<5.0						1	ug/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<5.0						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10.0						1	ug/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<5.0						1	ug/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<5.0						1	ug/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<10.0						1	ug/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<5.0						1	ug/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<5.0						1	ug/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<5.0						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<5.0						1	ug/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0						1	ug/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0						1	ug/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0						1	ug/L				
18B. Chrysene (218-01-9)	X			<5.0						1	ug/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<5.0						1	ug/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<1.0						1	ug/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<1.0						1	ug/L				

CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)	X			<1.0						1	ug/L				
23B. 3,3-Dichloro-benzidine (91-94-1)	X			<10.0						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	X			<5.0						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	X			<5.0						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<10.0						1	ug/L				
27B. 2,4-Dinitro-toluene (121-14-2)	X			<5.0						1	ug/L				
28B. 2,6-Dinitro-toluene (606-20-2)	X			<5.0						1	ug/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<5.0						1	ug/L				
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)	X			<10.0						1	ug/L				
31B. Fluoranthene (206-44-0)	X			<5.0						1	ug/L				
32B. Fluorene (86-73-7)	X			<5.0						1	ug/L				
33B. Hexachloro-benzene (118-74-1)	X			<5.0						1	ug/L				
34B. Hexachloro-butadiene (87-68-3)	X			<5.0						1	ug/L				
35B. Hexachloro-cyclopentadiene (77-47-4)	X			<10.0						1	ug/L				
36B Hexachloro-ethane (67-72-1)	X			<5.0						1	ug/L				
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)	X			<5.0						1	ug/L				
38B. Isophorone (78-59-1)	X			<10.0						1	ug/L				
39B. Naphthalene (91-20-3)	X			<5.0						1	ug/L				
40B. Nitrobenzene (98-95-3)	X			<5.0						1	ug/L				
41B. N-Nitro-sodimethylamine (62-75-9)	X			<5.0						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0						1	ug/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitro-sodiphenylamine (86-30-6)	X			<10.0						1	ug/L				
44B. Phenanthrene (85-01-8)	X			<5.0						1	ug/L				
45B. Pyrene (129-00-0)	X			<5.0						1	ug/L				
46B. 1,2,4-Tri-chlorobenzene (120-82-1)	X			<5.0						1	ug/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)	X			<0.050						2	ug/L				
2P. α-BHC (319-84-6)	X			<0.050						2	ug/L				
3P. β-BHC (319-85-7)	X			<0.050						2	ug/L				
4P. γ-BHC (58-89-9)	X			<0.050						2	ug/L				
5P. δ-BHC (319-86-8)	X			<0.050						2	ug/L				
6P. Chlordane (57-74-9)	X			<0.50						2	ug/L				
7P. 4,4'-DDT (50-29-3)	X			<0.050						2	ug/L				
8P. 4,4'-DDE (72-55-9)	X			<0.050						2	ug/L				
9P. 4,4'-DDD (72-54-8)	X			<0.050						2	ug/L				
10P. Dieldrin (60-57-1)	X			<0.050						2	ug/L				
11P. α-Endosulfan (115-29-7)	X			<0.050						2	ug/L				
12P. β-Endosulfan (115-29-7)	X			<0.050						2	ug/L				
13P. Endosulfan Sulfate (1031-07-8)	X			<0.050						2	ug/L				
14P. Endrin (72-20-8)	X			<0.050						2	ug/L				
15P. Endrin Aldehyde (7421-93-4)	X			<0.050						2	ug/L				
16P. Heptachlor (76-44-8)	X			<0.050						2	ug/L				

CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
VA0092436	101

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)	X			<0.050						2	ug/L				
18P. PCB-1242 (53469-21-9)	X			<0.50						2	ug/L				
19P. PCB-1254 (11097-69-1)	X			<0.50						2	ug/L				
20P. PCB-1221 (11104-28-2)	X			<0.50						2	ug/L				
21P. PCB-1232 (11141-16-5)	X			<0.50						2	ug/L				
22P. PCB-1248 (12672-29-6)	X			<0.50						2	ug/L				
23P. PCB-1260 (11096-82-5)	X			<0.50						2	ug/L				
24P. PCB-1016 (12674-11-2)	X			<0.50						2	ug/L				
25P. Toxaphene (8001-35-2)	X			<0.50						2	ug/L				

ATTACHMENT A
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY CRITERIA MONITORING

Effective January 1, 2012, all analyses shall be in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

A listing of Virginia Environmental Laboratory Accreditation Program (VELAP) certified and/or accredited laboratories can be found at the following website:
http://www.dgs.state.va.us/DivisionofConsolidatedLaboratoryServices/Services/EnvironmentalLaboratoryCertification/tabid/1059/Default.aspx

Please be advised that additional water quality analyses may be necessary and/or required for permitting purposes.

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
			METALS			
7440-36-0	Antimony, dissolved	(3)	1.4	<0.50	G or C	1/5 YR
7440-38-2	Arsenic, dissolved	(3)	1.0	<0.50	G or C	1/5 YR
7440-43-9	Cadmium, dissolved	(3)	0.3	<0.3	G or C	1/5 YR
16065-83-1	Chromium III, dissolved [6]	(3)	3.6	<0.010	G or C	1/5 YR
18540-29-9	Chromium VI, dissolved [8]	(3)	1.6	<0.025	G or C	1/5 YR
7440-50-8	Copper, dissolved	(3)	0.50	<0.50	G or C	1/5 YR
7439-92-1	Lead, dissolved	(3)	0.50	<0.50	G or C	1/5 YR
7439-97-6	Mercury, dissolved	(3)	1.0	<0.02	G or C	1/5 YR
7440-02-0	Nickel, dissolved	(3)	0.94	1.5	G or C	1/5 YR
7782-49-2	Selenium, Total Recoverable	(3)	2.0	<0.50	G or C	1/5 YR (FW)
7440-22-4	Silver, dissolved	(3)	0.20	<0.050	G or C	1/5 YR
7440-28-0	Thallium, dissolved	(3)	(4)	<2.0	G or C	1/5 YR
7440-66-6	Zinc, dissolved	(3)	3.6	5.4	G or C	1/5 YR
			PESTICIDES/PCBs			
309-00-2	Aldrin	608/625	0.05	<0.050	G or C	1/5 YR
57-74-9	Chlordane	608/625	0.2	<0.20	G or C	1/5 YR
2921-88-2	Chlorpyrifos (synonym = Dursban)	622	(4)	<0.2	G or C	1/5 YR
72-54-8	DDD	608/625	0.1	<0.050	G or C	1/5 YR
72-55-9	DDE	608/625	0.1	<0.050	G or C	1/5 YR
50-29-3	DDT	608/625	0.1	<0.050	G or C	1/5 YR

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
8065-48-3	Demeton (synonym = Dementon-O,S)	622	(4)	<1.0	G or C	1/5 YR
333-41-5	Diazinon	622	(4)	<1.0	G or C	1/5 YR
60-57-1	Dieldrin	608/625	0.1	<0.050	G or C	1/5 YR
959-98-8	Alpha-Endosulfan (synonym = Endosulfan I)	608/625	0.1	<0.050	G or C	1/5 YR
33213-65-9	Beta-Endosulfan (synonym = Endosulfan II)	608625	0.1	<0.050	G or C	1/5 YR
1031-07-8	Endosulfan Sulfate	608/625	0.1	<0.050	G or C	1/5 YR
72-20-8	Endrin	608/625	0.1	<0.050	G or C	1/5 YR
7421-93-4	Endrin Aldehyde	608/625	(4)	<0.050	G or C	1/5 YR
86-50-0	Guthion (synonym = Azinphos Methyl)	622	(4)	<1	G or C	1/5 YR
76-44-8	Heptachlor	608/625	0.05	<0.050	G or C	1/5 YR
1024-57-3	Heptachlor Epoxide	608/625	(4)	<0.050	G or C	1/5 YR
319-84-6	Hexachlorocyclohexane Alpha-BHC	608/625	(4)	<0.050	G or C	1/5 YR
319-85-7	Hexachlorocyclohexane Beta-BHC	608/625	(4)	<0.050	G or C	1/5 YR
58-89-9	Hexachlorocyclohexane Gamma-BHC (syn. = Lindane)	608/625	(4)	<0.050	G or C	1/5 YR
143-50-0	Kepone	8081 Extended/ 8270C/8270D	(4)	<10.1	G or C	1/5 YR
121-75-5	Malathion	614	(4)	<1	G or C	1/5 YR
72-43-5	Methoxychlor	608.2	(4)	<0.15	G or C	1/5 YR
2385-85-5	Mirex	8081 Extended/ 8270C/8270D	(4)	<0.15	G or C	1/5 YR
56-38-2	Parathion (synonym = Parathion Ethyl)	614	(4)	>1	G or C	1/5 YR
1336-36-3	PCB, total	608/625	7.0	<.50	G or C	1/5 YR
8001-35-2	Toxaphene	608/625	5.0	<.20	G or C	1/5 YR
	MISCELLANEOUS					
776-41-7	Ammonia as NH3-N	350.1	200	<.10	C	1/5 YR
16887-00-6	Chloride	(3)	(4)	4.7 mg/L	C	1/5 YR (FW and PWS)
7782-50-5	Chlorine, Total Residual	(3)	100	<0.024	G	1/5 YR
57-12-5	Cyanide, Free[8]	ASTM 4282-02	10.0	<5	G	1/5 YR
N/A	*E. coli / Enterococcus* (N/CML)	(3)	(4)	1.0 MPN/100ml	G	1/5 YR
18496-25-8	Sulfide, dissolved[7]	SM 4500 S^2 B	100	<1.0	G or C	1/5 YR
60-10-5	Tributyltin	(5)	(4)	<0.03	G or C	1/5 YR
471-34-1	Hardness (mg/L as $CaCO_3$)	(3)	(4)	1540	G or C	1/5 YR (FW & TZs)

Shane Tilka

Name of Principal Executive Officer or Authorized Agent & Title

Shane Tilka 10/20/2014

Signature of Principal Executive Officer or Authorized Agent & Date

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. Sec. 1001 and 33 U.S.C. Sec. 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

FOOTNOTES:

(1) Quantification level (QL) means the minimum levels, concentrations, or quantities of a target variable (e.g. target analyte) that can be reported with a specified degree of confidence in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

The quantification levels indicated for the metals are actually Specific Target Values developed for this permit. The Specific Target Value is the approximate value that may initiate a wasteload allocation analysis. Target values are not wasteload allocations or effluent limitations. The Specific Target Values are subject to change based on additional information such as hardness data, receiving stream flow, and design flows.

Units for the quantification level are micrograms/liter unless otherwise specified.

Quality control and quality assurance information (i.e. laboratory certificates of analysis) shall be submitted to document that the required quantification level has been attained.

(2) Sample Type

G = Grab = An individual sample collected in less than 15 minutes. Substances specified with "grab" sample type shall only be collected as grabs. The permittee may analyze multiple grabs and report the average results provided that the individual grab results are also reported. For grab metals samples, the individual samples shall be filtered and preserved immediately upon collection.

C = Composite = A 24-hour **(PW - Revise as required to require same composite duration as BOD_5)** composite unless otherwise specified. The composite shall be a combination of individual samples, taken proportional to flow, obtained at hourly or smaller time intervals. The individual samples may be of equal volume for flows that do not vary by +/- 10 percent over a 24-hour period.

(3) A specific analytical method is not specified; however, an appropriate method to meet the QL shall be selected from any approved method presented in 40 CFR Part 136.

(4) The QL is at the discretion of the permittee. If the test result is less than the method QL, a "<[QL]" shall be reported where the actual analytical test QL is substituted for [QL].

(5) Analytical Methods: Analysis of Butyltins in Environmental Systems by the Virginia Institute of Marine Science, dated November 1996 (currently the only Virginia Environmental Laboratory Accreditation Program (VELAP) accredited method).

(6) Both Chromium III and Chromium VI may be measured by the total chromium analysis. The total chromium analytical test QL shall be less than or equal to the lesser of the Chromium III or Chromium VI method QL listed above. If the result of the total chromium analysis is less than the analytical test QL, both Chromium III and Chromium VI can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

(7) Dissolved sulfide may be measured by the total sulfide analysis. The total sulfide analytical test QL shall be less than or equal to the dissolved sulfide method QL listed above. If the result of the total sulfide analysis is less than the analytical test QL, dissolved sulfide can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

(8) Free cyanide may be measured by the total cyanide analysis. The total cyanide analytical test QL shall be less than or equal to the free cyanide method QL listed above. If the result of the total cyanide analysis is less than the analytical test QL, free cyanide can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item I of Form I*): VA0092436

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO.: 002 (New Outfall)

PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	<25						2	mg/L				
c. Total Organic Carbon (*TOC*)	<1						1	mg/L				
d. Total Suspended Solids (*TSS*)	29.2				15.3		8	mg/L				
e. Ammonia (*as N*)	<.10						2	mg/L				
f. Flow	VALUE 2.88		VALUE		VALUE 1.32		6	MGD		VALUE		
g. Temperature (*winter*)	VALUE 11.4		VALUE		VALUE 9.2		13	°C		VALUE		
h. Temperature (*summer*)	VALUE 30.6		VALUE		VALUE 25.5		14	°C		VALUE		
i. pH	MINIMUM 6.04	MAXIMUM 8.36	MINIMUM	MAXIMUM			12	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)		X	<0.10						1	mg/L				
b. Chlorine, Total Residual		X	<0.024						1	mg/L				
c. Color		X	No Detect						1	units				
d. Fecal Coliform	X		5						1	CFU/100m				
e. Fluoride (16984-48-8)		X	<0.050						1	mg/L				
f. Nitrate-Nitrite (*as N*)	X		3.7						1	mg/L				

CONTINUE ON REVERSE

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)	X		2.5						1	mg/L				
h. Oil and Grease		X	<5.0						1	mg/L				
i. Phosphorus (as P), Total (7723-14-0)		X	<0.050						1	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)	X		7.4						1	mg/L				
l. Sulfide (*as S*)		X	<0.10						1	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)		X	<1.0						1	mg/L				
n. Surfactants		X	<0.100						1	mg/L				
o. Aluminum, Total (7429-90-5)	X		316						1	ug/L				
p. Barium, Total (7440-39-3)	X		15.8						1	ug/L				
q. Boron, Total (7440-42-8)		X	<50.0						1	ug/L				
r. Cobalt, Total (7440-48-4)		X	<5.0						1	ug/L				
s. Iron, Total (7439-89-6)	X		384						1	ug/L				
t. Magnesium, Total (7439-95-4)	X		968						1	ug/L				
u. Molybdenum, Total (7439-98-7)		X	<5.0						1	ug/L				
v. Manganese, Total (7439-96-5)	X		13.1						1	ug/L				
w. Tin, Total (7440-31-5)		X	<5.0						1	ug/L				
x. Titanium, Total (7440-32-6)		X	<5.0						1	ug/L				

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
VA0092436	002

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<5.0						1	ug/L				
2M. Arsenic, Total (7440-38-2)	X			<10.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	X			<1.0						1	ug/L				
4M. Cadmium, Total (7440-43-9)	X			<1.0						1	ug/L				
5M. Chromium, Total (7440-47-3)	X			<5.0						1	ug/L				
6M. Copper, Total (7440-50-8)	X			<5.0						1	ug/L				
7M. Lead, Total (7439-92-1)	X			<5.0						1	ug/L				
8M. Mercury, Total (7439-97-6)	X			<0.20						1	ug/L				
9M. Nickel, Total (7440-02-0)	X			<5.0						1	ug/L				
10M. Selenium, Total (7782-49-2)	X			<10.0						1	ug/L				
11M. Silver, Total (7440-22-4)	X			<5.0						1	ug/L				
12M. Thallium, Total (7440-28-0)	X			<10.0						1	ug/l				
13M. Zinc, Total (7440-66-6)	X			<10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	X			<0.0050						1	mg/L				
15M. Phenols, Total	X			0.018						1	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	X			DESCRIBE RESULTS Negative Result											

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<5.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	X			<50.0						1	ug/L				
3V. Benzene (71-43-2)	X			<2.0						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)				DELISTED	02-4-81	ANALYSIS	NOT	REQUIRED	FOR	THIS					
5V. Bromoform (75-25-2)	X			<2.0						2	ug/L				
6V. Carbon Tetrachloride (56-23-5)	X			<2.0						2	ug/L				
7V. Chlorobenzene (108-90-7)	X			<2.0						2	ug/L				
8V. Chlorodibromomethane (124-48-1)	X			<1.0						1	ug/L				
9V. Chloroethane (75-00-3)	X			<2.0						2	ug/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<2.0						2	ug/L				
11V. Chloroform (67-66-3)	X			<2.0						2	ug/L				
12V. Dichlorobromomethane (75-27-4)	X			<1.0						1	ug/L				
13V. Dichlorodifluoromethane (75-71-8)				DELISTED	01-8-81	ANALYSIS	NOT	REQUIRED	FOR	THIS					
14V. 1,1-Dichloroethane (75-34-3)	X			<2.0						2	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<2.0						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<1.0						1	ug/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<1.0						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<2.0						1	ug/L				
19V. Ethylbenzene (100-41-4)	X			<2.0						2	ug/L				
20V. Methyl Bromide (74-83-9)	X			<1.0						1	ug/L				
21V. Methyl Chloride (74-87-3)	X			<2.0						2	ug/L				

 CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)	X			<2.0						2	ug/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<2.0						2	ug/L				
24V. Tetrachloro-ethylene (127-18-4)	X			<1.0						1	ug/L				
25V. Toluene (108-88-3)	X			<1.0						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<1.0						1	ug/L				
27V. 1,1,1-Trichloro-ethane (71-55-6)	X			<2.0						2	ug/L				
28V. 1,1,2-Trichloro-ethane (79-00-5)	X			<2.0						2	ug/L				
29V Trichloro-ethylene (79-01-6)	X			<1.0						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)				DELISTED	01-8-81	ANALYSIS	NOT	REQUIRED	FOR	THIS					
31V. Vinyl Chloride (75-01-4)	X			<2.0						2	ug/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0						1	ug/L				
2A. 2,4-Dichloro-phenol (120-83-2)	X			<5.0						1	ug/L				
3A. 2,4-Dimethyl-phenol (105-67-9)	X			<10						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<50						1	ug/L				
5A. 2,4-Dinitro-phenol (51-28-5)	X			<50						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	X			<5.0						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	X			<50.0						1	ug/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<10						1	ug/L				
9A. Pentachloro-phenol (87-86-5)	X			<10.0						1	ug/L				
10A. Phenol (108-95-2)	X			0.018		.009				2	ug/L				
11A. 2,4,6-Trichloro-phenol (88-05-2)	X			<10						1	ug/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0						1	ug/L				
2B. Acenaphtylene (208-96-8)	X			<5.0						1	ug/L				
3B. Anthracene (120-12-7)	X			<5.0						1	ug/L				
4B. Benzidine (92-87-5)	X			<50.0						1	ug/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<5.0						1	ug/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<5.0						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10.0						1	ug/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<5.0						1	ug/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<5.0						1	ug/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<10.0						1	ug/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<5.0						1	ug/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<5.0						1	ug/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<5.0						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<5.0						1	ug/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0						1	ug/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0						1	ug/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0						1	ug/L				
18B. Chrysene (218-01-9)	X			<5.0						1	ug/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<5.0						1	ug/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<1.0						1	ug/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<1.0						1	ug/L				

CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)	X			<1.0						1	ug/L				
23B. 3,3-Dichloro-benzidine (91-94-1)	X			<10.0						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	X			<5.0						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	X			<5.0						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<10.0						1	ug/L				
27B. 2,4-Dinitro-toluene (121-14-2)	X			<5.0						1	ug/L				
28B. 2,6-Dinitro-toluene (606-20-2)	X			<5.0						1	ug/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<5.0						1	ug/L				
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)	X			<10.0						1	ug/L				
31B. Fluoranthene (206-44-0)	X			<5.0						1	ug/L				
32B. Fluorene (86-73-7)	X			<5.0						1	ug/L				
33B. Hexachloro-benzene (118-74-1)	X			<5.0						1	ug/L				
34B. Hexachloro-butadiene (87-68-3)	X			<5.0						1	ug/L				
35B. Hexachloro-cyclopentadiene (77-47-4)	X			<10.0						1	ug/L				
36B Hexachloro-ethane (67-72-1)	X			<5.0						1	ug/L				
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)	X			<5.0						1	ug/L				
38B. Isophorone (78-59-1)	X			<10.0						1	ug/L				
39B. Naphthalene (91-20-3)	X			<5.0						1	ug/L				
40B. Nitrobenzene (98-95-3)	X			<5.0						1	ug/L				
41B. N-Nitro-sodimethylamine (62-75-9)	X			<5.0						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0						1	ug/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)	X			<10.0						1	ug/L				
44B. Phenanthrene (85-01-8)	X			<5.0						1	ug/L				
45B. Pyrene (129-00-0)	X			<5.0						1	ug/L				
46B. 1,2,4-Tri-chlorobenzene (120-82-1)	X			<5.0						1	ug/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)	X			<0.050						2	ug/L				
2P. α-BHC (319-84-6)	X			<0.050						2	ug/L				
3P. β-BHC (319-85-7)	X			<0.050						2	ug/L				
4P. γ-BHC (58-89-9)	X			<0.050						2	ug/L				
5P. δ-BHC (319-86-8)	X			<0.050						2	ug/L				
6P. Chlordane (57-74-9)	X			<0.50						2	ug/L				
7P. 4,4'-DDT (50-29-3)	X			<0.050						2	ug/L				
8P. 4,4'-DDE (72-55-9)	X			<0.050						2	ug/L				
9P. 4,4'-DDD (72-54-8)	X			<0.050						2	ug/L				
10P. Dieldrin (60-57-1)	X			<0.050						2	ug/L				
11P. α-Enosulfan (115-29-7)	X			<0.050						2	ug/L				
12P. β-Endosulfan (115-29-7)	X			<0.050						2	ug/L				
13P. Endosulfan Sulfate (1031-07-8)	X			<0.050						2	ug/L				
14P. Endrin (72-20-8)	X			<0.050						2	ug/L				
15P. Endrin Aldehyde (7421-93-4)	X			<0.050						2	ug/L				
16P. Heptachlor (76-44-8)	X			<0.050						2	ug/L				

 CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
VA0092436	101

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)	X			<0.050						2	ug/L				
18P. PCB-1242 (53469-21-9)	X			<0.50						2	ug/L				
19P. PCB-1254 (11097-69-1)	X			<0.50						2	ug/L				
20P. PCB-1221 (11104-28-2)	X			<0.50						2	ug/L				
21P. PCB-1232 (11141-16-5)	X			<0.50						2	ug/L				
22P. PCB-1248 (12672-29-6)	X			<0.50						2	ug/L				
23P. PCB-1260 (11096-82-5)	X			<0.50						2	ug/L				
24P. PCB-1016 (12674-11-2)	X			<0.50						2	ug/L				
25P. Toxaphene (8001-35-2)	X			<0.50						2	ug/L				

ATTACHMENT A
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY CRITERIA MONITORING

Effective January 1, 2012, all analyses shall be in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

A listing of Virginia Environmental Laboratory Accreditation Program (VELAP) certified and/or accredited laboratories can be found at the following website:
http://www.dgs.state.va.us/DivisionofConsolidatedLaboratoryServices/Services/EnvironmentalLaboratoryCertification/tabid/1059/Default.aspx

Please be advised that additional water quality analyses may be necessary and/or required for permitting purposes.

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
			METALS			
7440-36-0	Antimony, dissolved	(3)	1.4	<0.50	G or C	1/5 YR
7440-38-2	Arsenic, dissolved	(3)	1.0	<0.50	G or C	1/5 YR
7440-43-9	Cadmium, dissolved	(3)	0.3	<0.3	G or C	1/5 YR
16065-83-1	Chromium III, dissolved [6]	(3)	3.6	<0.010	G or C	1/5 YR
18540-29-9	Chromium VI, dissolved [6]	(3)	1.6	<0.025	G or C	1/5 YR
7440-50-8	Copper, dissolved	(3)	0.50	<0.50	G or C	1/5 YR
7439-92-1	Lead, dissolved	(3)	0.50	<0.50	G or C	1/5 YR
7439-97-6	Mercury, dissolved	(3)	1.0	<0.02	G or C	1/5 YR
7440-02-0	Nickel, dissolved	(3)	0.94	1.5	G or C	1/5 YR
7782-49-2	Selenium, Total Recoverable	(3)	2.0	<0.50	G or C	1/5 YR (FW)
7440-22-4	Silver, dissolved	(3)	0.20	<0.050	G or C	1/5 YR
7440-28-0	Thallium, dissolved	(3)	(4)	<2.0	G or C	1/5 YR
7440-66-6	Zinc, dissolved	(3)	3.6	5.4	G or C	1/5 YR
			PESTICIDES/PCBs			
309-00-2	Aldrin	608/625	0.05	<0.050	G or C	1/5 YR
57-74-9	Chlordane	608/625	0.2	<0.20	G or C	1/5 YR
2921-88-2	Chlorpyrifos (synonym = Dursban)	622	(4)	<0.2	G or C	1/5 YR
72-54-8	DDD	608/625	0.1	<0.050	G or C	1/5 YR
72-55-9	DDE	608/625	0.1	<0.050	G or C	1/5 YR
50-29-3	DDT	608/625	0.1	<0.050	G or C	1/5 YR

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
8065-48-3	Demeton (synonym = Dementon-O,S)	622	(4)	<1.0	G or C	1/5 YR
333-41-5	Diazinon	622	(4)	<1.0	G or C	1/5 YR
60-57-1	Dieldrin	608/625	0.1	<0.050	G or C	1/5 YR
959-98-8	Alpha-Endosulfan (synonym = Endosulfan I)	608/625	0.1	<0.050	G or C	1/5 YR
33213-65-9	Beta-Endosulfan (synonym = Endosulfan II)	608625	0.1	<0.050	G or C	1/5 YR
1031-07-8	Endosulfan Sulfate	608/625	0.1	<0.050	G or C	1/5 YR
72-20-8	Endrin	608/625	0.1	<0.050	G or C	1/5 YR
7421-93-4	Endrin Aldehyde	608/625	(4)	<0.050	G or C	1/5 YR
86-50-0	Guthion (synonym = Azinphos Methyl)	622	(4)	<1	G or C	1/5 YR
76-44-8	Heptachlor	608/625	0.05	<0.050	G or C	1/5 YR
1024-57-3	Heptachlor Epoxide	608/625	(4)	<0.050	G or C	1/5 YR
319-84-6	Hexachlorocyclohexane Alpha-BHC	608/625	(4)	<0.050	G or C	1/5 YR
319-85-7	Hexachlorocyclohexane Beta-BHC	608/625	(4)	<0.050	G or C	1/5 YR
58-89-9	Hexachlorocyclohexane Gamma-BHC (syn. = Lindane)	608/625	(4)	<0.050	G or C	1/5 YR
143-50-0	Kepone	8081 Extended/ 8270C/8270D	(4)	<10.1	G or C	1/5 YR
121-75-5	Malathion	614	(4)	<1	G or C	1/5 YR
72-43-5	Methoxychlor	608.2	(4)	<0.15	G or C	1/5 YR
2385-85-5	Mirex	8081 Extended/ 8270C/8270D	(4)	<0.15	G or C	1/5 YR
56-38-2	Parathion (synonym = Parathion Ethyl)	614	(4)	>1	G or C	1/5 YR
1336-36-3	PCB, total	608/625	7.0	<.50	G or C	1/5 YR
8001-35-2	Toxaphene	608/625	5.0	<.20	G or C	1/5 YR
MISCELLANEOUS						
776-41-7	Ammonia as NH3-N	350.1	200	<.10	C	1/5 YR
16887-00-6	Chloride	(3)	(4)	4.7 mg/L	C	1/5 YR (FW and PWS)
7782-50-5	Chlorine, Total Residual	(3)	100	<0.024	G	1/5 YR
57-12-5	Cyanide, Free [8]	ASTM 4282-02	10.0	<5	G	1/5 YR
N/A	*E. coli / Enterococcus* (N/CML)	(3)	(4)	1.0 MPN/100ml	G	1/5 YR
18496-25-8	Sulfide, dissolved [7]	SM 4500 S^2 B	100	<1.0	G or C	1/5 YR
60-10-5	Tributyltin	(5)	(4)	<0.03	G or C	1/5 YR
471-34-1	Hardness (mg/L as $CaCO_3$)	(3)	(4)	1540	G or C	1/5 YR (FW & TZs)

Name of Principal Executive Officer or Authorized Agent & Title

Signature of Principal Executive Officer or Authorized Agent & Date

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. Sec. 1001 and 33 U.S.C. Sec. 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

FOOTNOTES:

(1) Quantification level (QL) means the minimum levels, concentrations, or quantities of a target variable (e.g. target analyte) that can be reported with a specified degree of confidence in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

The quantification levels indicated for the metals are actually Specific Target Values developed for this permit. The Specific Target Value is the approximate value that may initiate a wasteload allocation analysis. Target values are not wasteload allocations or effluent limitations. The Specific Target Values are subject to change based on additional information such as hardness data, receiving stream flow, and design flows.

Units for the quantification level are micrograms/liter unless otherwise specified.

Quality control and quality assurance information (i.e. laboratory certificates of analysis) shall be submitted to document that the required quantification level has been attained.

(2) Sample Type

G = Grab = An individual sample collected in less than 15 minutes. Substances specified with "grab" sample type shall only be collected as grabs. The permittee may analyze multiple grabs and report the average results provided that the individual grab results are also reported. For grab metals samples, the individual samples shall be filtered and preserved immediately upon collection.

C = Composite = A 24-hour **(PW - Revise as required to require same composite duration as BOD_5)** composite unless otherwise specified. The composite shall be a combination of individual samples, taken proportional to flow, obtained at hourly or smaller time intervals. The individual samples may be of equal volume for flows that do not vary by +/- 10 percent over a 24-hour period.

(3) A specific analytical method is not specified; however, an appropriate method to meet the QL shall be selected from any approved method presented in 40 CFR Part 136.

(4) The QL is at the discretion of the permittee. If the test result is less than the method QL, a "<[QL]" shall be reported where the actual analytical test QL is substituted for [QL].

(5) Analytical Methods: Analysis of Butyltins in Environmental Systems by the Virginia Institute of Marine Science, dated November 1996 (currently the only Virginia Environmental Laboratory Accreditation Program (VELAP) accredited method).

(6) Both Chromium III and Chromium VI may be measured by the total chromium analysis. The total chromium analytical test QL shall be less than or equal to the lesser of the Chromium III or Chromium VI method QL listed above. If the result of the total chromium analysis is less than the analytical test QL, both Chromium III and Chromium VI can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

(7) Dissolved sulfide may be measured by the total sulfide analysis. The total sulfide analytical test QL shall be less than or equal to the dissolved sulfide method QL listed above. If the result of the total sulfide analysis is less than the analytical test QL, dissolved sulfide can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

(8) Free cyanide may be measured by the total cyanide analysis. The total cyanide analytical test QL shall be less than or equal to the free cyanide method QL listed above. If the result of the total cyanide analysis is less than the analytical test QL, free cyanide can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

Attachment 3:

Supporting Laboratory Reports for Outfalls 101 & 002

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 25, 2014

Kevin Rideout

RE: Project: BRINK RENEWAL
Pace Project No.: 92224819

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK RENEWAL
Pace Project No.: 92224819

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Asheville Certification IDs
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK RENEWAL
Pace Project No.: 92224819

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92224819001	BRINK PROCESS POND	EPA 200.8	CRT	2	PASI-O
		EPA 200.8	CRT	1	PASI-O
		EPA 353.2	DMN	3	PASI-A

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK RENEWAL
Pace Project No.: 92224819

Sample: BRINK PROCESS POND **Lab ID: 92224819001** Collected: 11/10/14 08:50 Received: 11/10/14 11:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Chromium	**<0.50**	ug/L	1.0	1	11/14/14 09:40	11/17/14 14:34	7440-47-3	
Selenium	**<0.50**	ug/L	1.0	1	11/14/14 09:40	11/17/14 14:34	7782-49-2	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Silver, Dissolved	**<0.050**	ug/L	0.10	1	11/17/14 12:01	11/17/14 17:09	7440-22-4	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**3.7**	mg/L	0.020	1		11/11/14 21:50		M1
Nitrogen, Nitrite	ND	mg/L	0.020	1		11/11/14 21:50		
Nitrogen, NO2 plus NO3	**3.7**	mg/L	0.020	1		11/11/14 21:50		M1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK RENEWAL
Pace Project No.: 92224819

QC Batch: MPRP/21496
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 92224819001

METHOD BLANK: 1057013
Matrix: Water
Associated Lab Samples: 92224819001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	ug/L	<0.50	1.0	11/17/14 14:11	
Selenium	ug/L	<0.50	1.0	11/17/14 14:11	

LABORATORY CONTROL SAMPLE: 1057014

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	ug/L	50	49.3	99	85-115	
Selenium	ug/L	50	51.2	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057017 1057018

Parameter	Units	92224973002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium	ug/L	ND	50	50	46.2	45.8	91	90	70-130	.8	
Selenium	ug/L	18.1	50	50	61.1	62.7	86	89	70-130	3	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057167 1057168

Parameter	Units	35163328001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium	ug/L	0.50U	50	50	46.6	48.5	92	96	70-130	4	
Selenium	ug/L	0.50U	50	50	48.2	49.7	96	99	70-130	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK RENEWAL
Pace Project No.: 92224819

QC Batch: MPRP/21535
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 92224819001

METHOD BLANK: 1058859
Matrix: Water
Associated Lab Samples: 92224819001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Silver, Dissolved	ug/L	<0.050	0.10	11/17/14 17:02	

LABORATORY CONTROL SAMPLE & LCSD: 1058860 1058861

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Silver, Dissolved	ug/L	5	4.8	4.6	96	91	85-115	5	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK RENEWAL
Pace Project No.: 92224819

QC Batch: WETA/20872
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 92224819001

METHOD BLANK: 1327768
Matrix: Water
Associated Lab Samples: 92224819001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.020	11/11/14 21:47	
Nitrogen, Nitrite	mg/L	ND	0.020	11/11/14 21:47	
Nitrogen, NO2 plus NO3	mg/L	ND	0.020	11/11/14 21:47	

LABORATORY CONTROL SAMPLE: 1327769

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	2.5	2.6	103	90-110	
Nitrogen, Nitrite	mg/L	1	1.0	101	90-110	
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1327770 1327771

Parameter	Units	92224819001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Nitrate	mg/L	3.7	2.5	2.5	5.9	5.9	87	87	90-110	0	M1
Nitrogen, Nitrite	mg/L	ND	1	1	1.0	1.0	103	101	90-110	2	
Nitrogen, NO2 plus NO3	mg/L	3.7	2.5	2.5	5.9	5.9	87	87	90-110	0	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1327772 1327773

Parameter	Units	92224963002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Nitrate	mg/L	5.7	2.5	2.5	8.5	8.5	112	112	90-110	0	M1
Nitrogen, Nitrite	mg/L	ND	1	1	1.1	1.0	105	104	90-110	2	
Nitrogen, NO2 plus NO3	mg/L	5.7	2.5	2.5	8.5	8.5	112	112	90-110	0	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK RENEWAL
Pace Project No.: 92224819

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: ICPM/8808

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK RENEWAL
Pace Project No.: 92224819

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92224819001	BRINK PROCESS POND	EPA 200.8	MPRP/21496	EPA 200.8	ICPM/8791
92224819001	BRINK PROCESS POND	EPA 200.8	MPRP/21535	EPA 200.8	ICPM/8808
92224819001	BRINK PROCESS POND	EPA 353.2	WETA/20872		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1828746

Section A Required Client Information:
Company: Iluka Resources Inc
Address: 12472 St. John Church Rd, Stony Creek, VA 23882
Email To: kevin.rideout@iluka.com
Phone: 434.345.4316 Fax:
Requested Due Date/TAT: ASAP (3 day)

Section B Required Project Information:
Report To: Kevin Rideout
Copy To:
Purchase Order No.: 4500344234
Project Name: Brink Renewal
Project Number:

Section C Invoice Information:
Attention: Dawn Hall
Company Name: Iluka
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: [X] NPDES [ ] GROUND WATER [ ] DRINKING WATER [ ] UST [ ] RCRA [ ] OTHER

Site Location STATE: VA

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	Requested Analysis Filtered (Y/N): Diss. Silver	[redacted]	Total Chromium	Nitrate	Nitrite	Fecal Coliform	Total Selenium	Residual Chlorine (Y/N)	Project No./ Lab I.D.
1	Brink Process Pond	WW	G			11-10-14	8:50		6		✓	✓							✓	[redacted]	✓	✓	✓	✓	✓		
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

9222481 9

The quantitation limits below need to be met. Please call 804.721.7312 if they cannot be met.

Diss Silver: 0.20 ug/L
[redacted]
Selenium: 2.0 ug/L
Chromium: Low as possible

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	James W Braban / Iluka	11/10/14	10:42	Preston B. Haville	11-10-14	10:42				
	Preston B. Haville	11-10-14	11:47	Randal Burrows	11-10	11:47	3.9			

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: James W Braban
SIGNATURE of SAMPLER: James W Braban
DATE Signed (MM/DD/YY): 11-10-14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: March 13, 2013 Page 1 of 2
	Document No.: F-EDN-CS-003-rev.09	Issuing Authorities: Pace Eden Quality Office

Client Name: ILUKA

Where Received: ☐ Huntersville ☐ Asheville ☑ Eden ☐ Raleigh

Courier (circle): Fed Ex UPS USPS Client Commercial (Pace) Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Thermometer Used: IR Gun ED007 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 1.8 C Biological Tissue is Frozen: Yes No N/A

Temp should be above freezing to 6°C Comments:

Date and Initials of person examining contents: 11/10/14

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☐No ☑N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WW	☑Yes ☐No ☐N/A	12.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	Initial when completed SS
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: BLG Date: 11/10/14

SRF Review: JHO Date: 11/11/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

UNIVERSAL LABORATORIES

REPORT OF ANALYSIS

Order ID: UL1411082

(REPORT DATE)
12-Nov-14

TO: Pace Analytical
9800 Kincey Avenue, Suite 100

Huntersville NC 28078

ATTN: Terri Page

FaxNumber:
E-MAIL

This report contains the analytical results for Project Id N/A
designated as UL Order Id **UL14110** and received on *Monday, November 10, 2014*
The results contained in this report relate only to the samples identified on this order. The analytical results meet all requirements of NELAC unless specifically stated. This report shall not be reproduced except in full.

The data in this report has been reviewed and validated by:

Carol Kleemeier — Signature
Carol Kleemeier — Name
Pres/Tech Director — Title

ANALYTICAL DATA REPORT

UL ORDER ID UL14110

UL Sample Number UL1411082-001
Grab Date/Time: 11/10/2014 08:50:00
Composite Start: N/A
Composite Stop: N/A
Collected By: Client

Sample Site: Iluka Brink Process Pond
Client Sample ID: Iluka Brink Process Pond
Sample Matrix: Wastewater

Parameter	Test Result	Units	RL	Analysis Date/Time	Analyst	Comment
SM-9222 D						
Fecal Coliform	5	CFU/100m	1	11/10/2014 16:33:00	LS	

Comments for UL1411082-001
No comments

ANALYTICAL DATA REPORT

UL ORDER ID UL14110

Analytical Methods Reference

VDEH Lab# 00030 VELAP ID 460036 NCDW Lab # 51706 NCWW Lab # 543

Description:	Prep Method:	Method	Reference	accredited/status
Wastewater				
Fecal Coliform (MF)		SM-9222 D	1997	Accredited

NOTE: Analysis is performed according to Universal Laboratories Standard Operating Procedures which are based on the analytical methods referenced above

GLOSSARY OF TERMS AND ABBREVIATIONS

RL (Reporting Limit): The minimum levels, concentrations, or quantities of target analyte that can be reported with a specified degree of confidence Generally the number is near or equal to the lowest calibration standard run with the analytical batch.

MDL (Method Detection Limit): The constituent concentration that, when processed through the complete method, produces a signal with a 99% probability that it is different from the blank.

LCS (Laboratory Control Sample): is a sample matrix free from the analytes of interest, spiked with verified amounts of analytes.

MS (Matrix Spike): a sample prepared by adding a known mass of target analyte to a specific amount of sample for which an independent estimate of target analyte concentration is available.

MSD (Matrix Spike Duplicate): is a replicate matrix spike prepared in the laboratory and anlyzed to obtain a measure of the precision recovery for each analye.

Surrogate is a substance with properties that mimic the analyte of interest.It is unlikely to be found in environmental samples and is added to them for quality control purposes

IS (Internal Standard): is a known amount of standard added to a test portion of the sample as a reference for evaluation and controlling the precision and bias of the applied analytical method.

RPD (Relative Percent Difference) is the difference between a set of sample duplicates or sample spike duplicates

ICV (Initial Calibration Verification) CCV (Continuing Calibration Verification) FCV (Final Calibration Verification)

Method Blank is a sample matrix similar to the batch of associated samples that is free from analytes of interest and is processed simultaneously with and under the same conditions as samples.

Trip Blank is a sample of analyte free media collected in the same type of container that is required for the analytical test, taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures

Holding Time is the maximum times that samples may be held prior to analysis and still be considered valid or not compromised

ug/L=ppb ug/kg=ppb mg/kg=ppm mg/L=ppm

HAM= Analyzed in Hampton Lab

FRED= Analyzed in Fredericksburg Lab

QC Flag	Description
B	Analyte found in method blank
H	Holding time exceeded
L	LCS outside acceptable limits
V	ICV/CCV/FCV outside acceptable limits
D	RPD outside acceptable limits
MS	Matrix spike recovery outside acceptable limits
J	Result above calibration curve approximate value
QC	Method QC Criteria not met
MI	Matrix Interference
S	Surrogate outside acceptable limits
IS	Internal standard outside acceptable limits
*	VELAP accreditation not available
**	VELAP not accredited
T	value is betw een the RL and MDL

Pace Analytical®
www.pacelabs.com

UL

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

021411082

Page: of

1829295

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company:	Report To:	Attention:
Address: Pace	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other Thio	Requested Analysis Filtered (Y/N): Analysis Test (Y/N)	Fecal Coliform	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Tluka Brink Process Pond	WW	G			11-10	850										X		X		
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Rachel Burnes	11-10-14	1205	Sasha Wilder	11-10-14	1205	
	Sasha Wilder	11-10-14	1325	[signature]	11/10/14	1325	1°C

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 25, 2014

Kevin Rideout

RE: Project: BRINK RENEWAL
Pace Project No.: 92224819

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project BRINK RENEWAL
Pace Project No.: 92224819

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Asheville Certification IDs
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification # 356
Virginia/VELAP Certification #: 460222

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK RENEWAL
Pace Project No.: 92224819

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92224819001	BRINK PROCESS POND	EPA 200.8	CRT	2	PASI-O
		EPA 200.8	CRT	1	PASI-O
		EPA 353.2	DMN	3	PASI-A

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK RENEWAL
Pace Project No.: 92224819

Sample: BRINK PROCESS POND Lab ID: 92224819001 Collected: 11/10/14 08:50 Received: 11/10/14 11:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Chromium	<0.50	ug/L	1.0	1	11/14/14 09:40	11/17/14 14:34	7440-47-3	
Selenium	<0.50	ug/L	1.0	1	11/14/14 09:40	11/17/14 14:34	7782-49-2	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Silver, Dissolved	<0.050	ug/L	0.10	1	11/17/14 12:01	11/17/14 17:09	7440-22-4	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	3.7	mg/L	0.020	1		11/11/14 21:50		M1
Nitrogen, Nitrite	ND	mg/L	0.020	1		11/11/14 21:50		
Nitrogen, NO2 plus NO3	3.7	mg/L	0.020	1		11/11/14 21:50		M1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK RENEWAL
Pace Project No.: 92224819

QC Batch: MPRP/21496 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Associated Lab Samples: 92224819001

METHOD BLANK: 1057013 | Matrix: Water
Associated Lab Samples: 92224819001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	ug/L	<0.50	1.0	11/17/14 14:11	
Selenium	ug/L	<0.50	1.0	11/17/14 14:11	

LABORATORY CONTROL SAMPLE: 1057014

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	ug/L	50	49.3	99	85-115	
Selenium	ug/L	50	51.2	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057017 1057018

Parameter	Units	92224973002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium	ug/L	ND	50	50	46.2	45.8	91	90	70-130	.8	
Selenium	ug/L	18.1	50	50	61.1	62.7	86	89	70-130	3	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057167 1057168

Parameter	Units	35163328001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium	ug/L	0.50U	50	50	46.6	48.5	92	96	70-130	4	
Selenium	ug/L	0.50U	50	50	48.2	49.7	96	99	70-130	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK RENEWAL
Pace Project No.: 92224819

QC Batch: MPRP/21535 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 92224819001

METHOD BLANK: 1058859 | Matrix: Water
Associated Lab Samples: 92224819001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Silver, Dissolved	ug/L	<0.050	0.10	11/17/14 17:02	

LABORATORY CONTROL SAMPLE & LCSD: 1058860 1058861

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Silver, Dissolved	ug/L	5	4.8	4.6	96	91	85-115	5	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK RENEWAL
Pace Project No.: 92224819

QC Batch: WETA/20872
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 92224819001

METHOD BLANK: 1327768
Matrix: Water
Associated Lab Samples: 92224819001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.020	11/11/14 21:47	
Nitrogen, Nitrite	mg/L	ND	0.020	11/11/14 21:47	
Nitrogen, NO2 plus NO3	mg/L	ND	0.020	11/11/14 21:47	

LABORATORY CONTROL SAMPLE: 1327769

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	2.5	2.6	103	90-110	
Nitrogen, Nitrite	mg/L	1	1.0	101	90-110	
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1327770 1327771

Parameter	Units	92224819001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Nitrate	mg/L	3.7	2.5	2.5	5.9	5.9	87	87	90-110	0	M1
Nitrogen, Nitrite	mg/L	ND	1	1	1.0	1.0	103	101	90-110	2	
Nitrogen, NO2 plus NO3	mg/L	3.7	2.5	2.5	5.9	5.9	87	87	90-110	0	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1327772 1327773

Parameter	Units	92224963002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Nitrate	mg/L	5.7	2.5	2.5	8.5	8.5	112	112	90-110	0	M1
Nitrogen, Nitrite	mg/L	ND	1	1	1.1	1.0	105	104	90-110	2	
Nitrogen, NO2 plus NO3	mg/L	5.7	2.5	2.5	8.5	8.5	112	112	90-110	0	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project BRINK RENEWAL
Pace Project No. 92224819

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: ICPM/8808

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.,

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK RENEWAL
Pace Project No.: 92224819

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92224819001	BRINK PROCESS POND	EPA 200.8	MPRP/21496	EPA 200.8	ICPM/8791
92224819001	BRINK PROCESS POND	EPA 200.8	MPRP/21535	EPA 200.8	ICPM/8808
92224819001	BRINK PROCESS POND	EPA 353.2	WETA/20872		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1828746

Section A Required Client Information:
Company: Iluka Resources Inc
Address: 12472 St. John Church Rd
Stony Creek, VA 23882
Email To: Kevin.rideout@iluka.com
Phone: 434.348.4316 Fax:
Requested Due Date/TAT: ASAP (3day)

Section B Required Project Information:
Report To: Kevin Rideout
Copy To:
Purchase Order No.: 4500344234
Project Name: Brink Renewal
Project Number:

Section C Invoice Information:
Attention: Dawn Hall
Company Name: Iluka
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☒ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: VA

9222 4819

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (use valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Diss. Silver	[illegible]	Total Chromium	Nitrate	Nitrite	Fecal Coliform	Total Selenium	Residual Chlorine (Y/N)	Project No./ Lab I.D.
1	BRINK Process Pond	WW	G			11-10-14	8:50		G		✓	✓							✓	[illegible]	✓	✓	✓	✓	✓		Diss Silver: 0.20 ug/L
2																											[illegible]
3																											Selenium: 2.0 ug/L
4																											Chromium: Low as possible
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

The quantitative limits below need to be met. Please call 804.721.7312 if they cannot be met.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	James W Barbour / Iluka	11/10/14	10:42	Preston B. Haville	11-10-14	10:42				
	Preston B. Haville	11-10-14	11:47	Kashel Burrows	11-10	11:47	3.9			

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: James W Barbour
SIGNATURE of SAMPLER: James W Barbour
DATE Signed (MM/DD/YY): 11-10-14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: March 13, 2013 Page 1 of 2
	Document No.: F-EDN-CS-003-rev.09	Issuing Authorities: Pace Eden Quality Office

Client Name: ILUKA

Where Received: ☐ Huntersville ☐ Asheville ☑ Eden ☐ Raleigh

Courier (circle): Fed Ex UPS USPS Client Commercial (Pace) Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Thermometer Used: IR Gun ED007 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 1.8 C Biological Tissue is Frozen: Yes No N/A

Date and initials of person examining contents: SS 11/10/14

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☐No ☑N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-includes date/time/ID/Analysis Matrix: WW		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	Initial when completed SS
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: BLG Date: 11/10/14

SRF Review: HO Date: 11/11/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

UNIVERSAL LABORATORIES

REPORT OF ANALYSIS

Order ID: UL1411082

(REPORT DATE)
12-Nov-14

TO: Pace Analytical
9800 Kincey Avenue, Suite 100

Huntersville NC 28078

ATTN: Terri Page

FaxNumber:
E-MAIL

This report contains the analytical results for Project Id N/A
designated as UL Order Id **UL14110** and received on *Monday, November 10, 2014*
The results contained in this report relate only to the samples identified on this order. The analytical results meet all requirements of NELAC unless specifically stated. This report shall not be reproduced except in full.

The data in this report has been reviewed and validated by:

Carol Kleemeier — Signature
Carol Kleemeier — Name
Pres/Tech Director — Title

ANALYTICAL DATA REPORT

UL ORDER ID UL14110

UL Sample Number	UL1411082-001	Sample Site:	Iluka Brink Process Pond
Grab Date/Time:	11/10/2014 08:50:00	Client Sample ID:	Iluka Brink Process Pond
Composite Start:	N/A	Sample Matrix:	Wastewater
Composite Stop:	N/A		
Collected By:	Client		

Parameter	Test Result	Units	RL	Analysis Date/Time	Analyst	Comment
SM-9222 D						
Fecal Coliform	5	CFU/100m	1	11/10/2014 16:33:00	LS	

Comments for UL1411082-001

No comments

ANALYTICAL DATA REPORT

UL ORDER ID UL14110

Analytical Methods Reference

VDEH Lab# 00030 VELAP ID 460036 NCDW Lab # 51706 NCWW Lab # 543

Description:	Prep Method:	Method	Reference	accredited/status
Wastewater				
Fecal Coliform (MF)		SM-9222 D	1997	Accredited

NOTE: Analysis is performed according to Universal Laboratories Standard Operating Procedures which are based on the analytical methods referenced above

GLOSSARY OF TERMS AND ABBREVIATIONS

RL (Reporting Limit): The minimum levels, concentrations, or quantities of target analyte that can be reported with a specified degrees of confidence.Generally this number is near or equal to the lowest calibration standard run with the analytical batch.

MDL (Method Detection Limit): The constituent concentration that, when processed through the complete method, produces a signal with a 99% probability that it is different from the blank.

LCS (Laboratory Control Sample): is a sample matrix free from the analytes of interest, spiked with verified amounts of analytes.

MS (Matrix Spike): a sample prepared by adding a known mass of target analyte to a specific amount of sample for which an independent estimate of target analyte concentration is available.

MSD (Matrix Spike Duplicate): is a replicate matrix spike prepared in the laboratory and anlyzed to obtain a measure of the precision recovery for each analyte.

Surrogate is a substance with properties that mimic the analyte of interest.It is unlikely to be found in environmental samples and is added to them for quality control purposes

IS (Internal Standard): is a known amount of standard added to a test portion of the sample as a reference for evaluation and controlling the precision and bias of the applied analytical method.
RPD (Relative Percent Difference) is the difference between a set of sample duplicates or sample spike duplicates

ICV (Initial Calibration Verification) CCV (Continuing Calibration Verification) FCV (Final Calibration Verification)

Method Blank is a sample matrix similar to the batch of associated samples that is free from analytes of interest and is processed simultaneously with and under the same conditions as samples.

Trip Blank is a sample of analyte free media collected in the same type of container that is required for the analytical test, taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures

Holding Time is the maximum times that samples may be held prior to analysis and still be considered valid or not compromised

ug/L=ppb ug/kg=ppb mg/kg=ppm mg/L=ppm

HAM= Analyzed in Hampton Lab

FRED= Analyzed in Fredericksburg Lab

QC Flag	Description
B	Analyte found in method blank
H	Holding time exceeded
L	LCS outside acceptable limits
V	ICV/CCV/FCV outside acceptable limits
D	RPD outside acceptable limits
MS	Matrix spike recovery outside acceptable limits
J	Result above calibration curve approximate value
QC	Method QC Criteria not met
MI	Matrix Interference
S	Surrogate outside acceptable limits
IS	Internal standard outside acceptable limits
*	VELAP accreditation not available
**	VELAP not accredited
T	value is betw een the RL and MDL

Pace Analytical®
www.pacelabs.com

UL

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

021411082

Page: of

1829295

Section A Required Client Information:
Company:
Address: Pace
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To:
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____
Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other Thio	Requested Analysis Filtered (Y/N) Analysis Test Y/N	Fecal Coliform	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Tluka Brink Process Pond	WW	G			11-10	850										X		X		
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Rachel Burrows	11-10-14	1205	Sasha Wells	11-10-14	1205	
	Sasha Wells	11-10-14	1325	[signature]	11-10-14	1325	PC

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 24, 2014

Kevin Rideout

,

RE: Project: Brink Process Water
Pace Project No.: 92195730

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brittany L Gibson

Brittany Gibson for
Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Brink Process Water
Pace Project No.: 92195730

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

Eden Certification IDs
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Brink Process Water
Pace Project No.: 92195730

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92195730001	Brink Process Water	SM 3500-Cr D	JTF	1	PASI-E
		EPA 200.7	JMW	4	PASI-A
		EPA 200.7	JMW	12	PASI-A
		EPA 245.1	MTS	1	PASI-A
92195730002	Brink Process Water	EPA 625	RES	58	PASI-C
		SM 4500-CN-E	JDA	1	PASI-A
92195730003	Brink Process Water	EPA 608	RES	27	PASI-C
		EPA 8081	RES	7	PASI-C
		EPA 8082	EJK	8	PASI-C
		SM 4500-Cl G	MDW	1	PASI-A
		EPA 350.1	AES2	1	PASI-A
		SM 4500-Cl-E	DMN	1	PASI-A

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Brink Process Water
Pace Project No.: 92195730

Sample: Brink Process Water **Lab ID: 92195730001** Collected: 04/02/14 10:15 Received: 04/02/14 13:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Chromium, Hexavalent	Analytical Method: SM 3500-Cr D							
Chromium, Hexavalent	**0.014**	mg/L	0.010	1		04/03/14 08:45	18540-29-9	
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Beryllium	ND	ug/L	1.0	1	04/04/14 09:00	04/04/14 23:56	7440-41-7	
Cadmium	ND	ug/L	1.0	1	04/04/14 09:00	04/04/14 23:56	7440-43-9	
Magnesium	**225**	ug/L	100	1	04/04/14 09:00	04/04/14 23:56	7439-95-4	
Hardness, Total (SM 2340B)	**1540**	ug/L	662	1	04/04/14 09:00	04/04/14 23:56		
200.7 MET ICP, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Antimony, Dissolved	ND	ug/L	5.0	1	04/16/14 11:30	04/16/14 15:50	7440-36-0	
Arsenic, Dissolved	ND	ug/L	10.0	1	04/16/14 11:30	04/16/14 15:50	7440-38-2	
Cadmium, Dissolved	ND	ug/L	1.0	1	04/16/14 11:30	04/16/14 15:50	7440-43-9	
Chromium, Dissolved	ND	ug/L	5.0	1	04/16/14 11:30	04/16/14 15:50	7440-47-3	
Copper, Dissolved	ND	ug/L	5.0	1	04/16/14 11:30	04/16/14 15:50	7440-50-8	
Lead, Dissolved	ND	ug/L	5.0	1	04/16/14 11:30	04/16/14 15:50	7439-92-1	
Nickel, Dissolved	ND	ug/L	5.0	1	04/16/14 11:30	04/16/14 15:50	7440-02-0	
Selenium, Dissolved	ND	ug/L	10.0	1	04/16/14 11:30	04/16/14 15:50	7782-49-2	
Silver, Dissolved	ND	ug/L	5.0	1	04/16/14 11:30	04/16/14 15:50	7440-22-4	
Thallium, Dissolved	ND	ug/L	10.0	1	04/16/14 11:30	04/16/14 15:50	7440-28-0	
Hardness, Total (SM 2340B), Dissolved	**1180**	ug/L	662	1	04/16/14 11:30	04/16/14 15:50		
Zinc, Dissolved	ND	ug/L	10.0	1	04/16/14 11:30	04/16/14 15:50	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	04/04/14 21:00	04/07/14 14:09	7439-97-6	

Sample: Brink Process Water **Lab ID: 92195730002** Collected: 04/02/14 10:15 Received: 04/02/14 13:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Acenaphthene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	83-32-9	
Acenaphthylene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	208-96-8	
Anthracene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	120-12-7	
Benzo(a)anthracene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	56-55-3	
Benzo(a)pyrene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	101-55-3	
Butylbenzylphthalate	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	108-60-1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Brink Process Water
Pace Project No.: 92195730

Sample: Brink Process Water **Lab ID: 92195730002** Collected: 04/02/14 10:15 Received: 04/02/14 13:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
2-Chloronaphthalene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	91-58-7	
2-Chlorophenol	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	7005-72-3	
Chrysene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	25.0	1	04/04/14 10:45	04/08/14 06:01	91-94-1	
2,4-Dichlorophenol	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	120-83-2	
Diethylphthalate	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	105-67-9	
Dimethylphthalate	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	131-11-3	
Di-n-butylphthalate	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	1	04/04/14 10:45	04/08/14 06:01	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	1	04/04/14 10:45	04/08/14 06:01	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	606-20-2	
Di-n-octylphthalate	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	117-81-7	
Fluoranthene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	206-44-0	
Fluorene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	87-68-3	
Hexachlorobenzene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	77-47-4	
Hexachloroethane	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	193-39-5	
Isophorone	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	78-59-1	
Naphthalene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	91-20-3	
Nitrobenzene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	98-95-3	
2-Nitrophenol	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	1	04/04/14 10:45	04/08/14 06:01	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	86-30-6	
Pentachlorophenol	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	87-86-5	
Phenanthrene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	85-01-8	
Phenol	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	108-95-2	
Pyrene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1	04/04/14 10:45	04/08/14 06:01	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1	04/04/14 10:45	04/08/14 06:01	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	62	%	10-120	1	04/04/14 10:45	04/08/14 06:01	4165-60-0	
2-Fluorobiphenyl (S)	59	%	15-120	1	04/04/14 10:45	04/08/14 06:01	321-60-8	
Terphenyl-d14 (S)	85	%	11-131	1	04/04/14 10:45	04/08/14 06:01	1718-51-0	
Phenol-d6 (S)	23	%	10-120	1	04/04/14 10:45	04/08/14 06:01	13127-88-3	
2-Fluorophenol (S)	33	%	10-120	1	04/04/14 10:45	04/08/14 06:01	367-12-4	
2,4,6-Tribromophenol (S)	61	%	10-137	1	04/04/14 10:45	04/08/14 06:01	118-79-6	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Brink Process Water
Pace Project No.: 92195730

Sample: Brink Process Water **Lab ID: 92195730002** Collected: 04/02/14 10:15 Received: 04/02/14 13:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		04/13/14 12:42	57-12-5	

Sample: Brink Process Water **Lab ID: 92195730003** Collected: 04/02/14 10:15 Received: 04/02/14 13:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
608 GCS Pesticides and PCBs	Analytical Method: EPA 608 Preparation Method: EPA 3535							
Aldrin	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	309-00-2	
alpha-BHC	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	319-84-6	
beta-BHC	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	319-85-7	
delta-BHC	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	319-86-8	
gamma-BHC (Lindane)	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	58-89-9	
Chlordane (Technical)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	57-74-9	
4,4'-DDD	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	72-54-8	
4,4'-DDE	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	72-55-9	
4,4'-DDT	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	50-29-3	
Dieldrin	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	60-57-1	
Endosulfan I	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	959-98-8	
Endosulfan II	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	33213-65-9	
Endosulfan sulfate	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	1031-07-8	
Endrin	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	72-20-8	
Endrin aldehyde	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	7421-93-4	
Heptachlor	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	76-44-8	
Heptachlor epoxide	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	1024-57-3	
PCB-1016 (Aroclor 1016)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	11096-82-5	
Toxaphene	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 18:50	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	56	%	20-110	1	04/07/14 16:00	04/15/14 18:50	877-09-8	
Decachlorobiphenyl (S)	55	%	20-138	1	04/07/14 16:00	04/15/14 18:50	2051-24-3	
8081 Organochlorine Pesticides	Analytical Method: EPA 8081 Preparation Method: EPA 3510							
Chlordane (Technical)	ND	ug/L	0.20	1	04/07/14 16:00	04/15/14 18:50	57-74-9	
Hexachlorobenzene	ND	ug/L	0.050	1	04/07/14 16:00	04/15/14 18:50	118-74-1	
Methoxychlor	ND	ug/L	0.15	1	04/07/14 16:00	04/15/14 18:50	72-43-5	
Mirex	ND	ug/L	0.15	1	04/07/14 16:00	04/15/14 18:50	2385-85-5	
Toxaphene	ND	ug/L	0.20	1	04/07/14 16:00	04/15/14 18:50	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	56	%	20-130	1	04/07/14 16:00	04/15/14 18:50	877-09-8	
Decachlorobiphenyl (S)	55	%	20-130	1	04/07/14 16:00	04/15/14 18:50	2051-24-3	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Brink Process Water
Pace Project No.: 92195730

Sample: Brink Process Water **Lab ID: 92195730003** Collected: 04/02/14 10:15 Received: 04/02/14 13:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.50	1	04/07/14 16:00	04/15/14 20:45	11096-82-5	
Surrogates								
Decachlorobiphenyl (S)	57	%	10-132	1	04/07/14 16:00	04/15/14 20:45	2051-24-3	
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G							
Chlorine, Total Residual	ND	mg/L	0.024	1		04/04/14 12:20	7782-50-5	H1
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.10	1		04/07/14 13:13	7664-41-7	
4500 Chloride	Analytical Method: SM 4500-Cl-E							
Chloride	**4.7**	mg/L	1.0	1		04/16/14 16:32	16887-00-6	

This report shall not be reproduced except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: EDEN/14202 | Analysis Method: SM 3500-Cr D
QC Batch Method: SM 3500-Cr D | Analysis Description: Chromium, Hexavalent by 3500
Associated Lab Samples: 92195730001

METHOD BLANK: 1170472 | Matrix: Water
Associated Lab Samples: 92195730001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	04/03/14 08:45	

LABORATORY CONTROL SAMPLE: 1170473

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	.5	0.51	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1170474 1170475

Parameter	Units	92195730001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	mg/L	0.014	.5	.5	0.54	0.54	106	105	75-125	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: MERP/6427 | Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 | Analysis Description: 245.1 Mercury - Dissolved
Associated Lab Samples: 92195730001

METHOD BLANK: 1172330 | Matrix: Water
Associated Lab Samples: 92195730001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	ND	0.20	04/07/14 14:04	

LABORATORY CONTROL SAMPLE: 1172331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	2.5	2.5	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1172332 1172333

Parameter	Units	92195730001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury, Dissolved	ug/L	ND	2.5	2.5	2.5	2.5	101	100	70-130	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: MPRP/15595 | Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 | Analysis Description: 200.7 MET
Associated Lab Samples: 92195730001

METHOD BLANK: 1171446 | Matrix: Water
Associated Lab Samples: 92195730001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Beryllium	ug/L	ND	1.0	04/04/14 22:16	
Cadmium	ug/L	ND	1.0	04/04/14 22:16	
Hardness, Total (SM 2340B)	ug/L	ND	662	04/04/14 22:16	
Magnesium	ug/L	ND	100	04/04/14 22:16	

LABORATORY CONTROL SAMPLE: 1171447

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Beryllium	ug/L	500	491	98	85-115	
Cadmium	ug/L	500	492	98	85-115	
Hardness, Total (SM 2340B)	ug/L		33200			
Magnesium	ug/L	5000	5120	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1171448 1171449

Parameter	Units	92195986001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Beryllium	ug/L	ND	500	500	500	484	100	97	70-130	3	
Cadmium	ug/L	ND	500	500	493	481	99	96	70-130	2	
Hardness, Total (SM 2340B)	ug/L	10700			43500	42400				2	
Magnesium	ug/L	1080	5000	5000	6090	5950	100	97	70-130	2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1171450 1171451

Parameter	Units	92195986011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Beryllium	ug/L	1.2	500	500	418	424	83	85	70-130	1	
Cadmium	ug/L	7.8	500	500	418	423	82	83	70-130	1	
Hardness, Total (SM 2340B)	ug/L	14900			41600	41900				1	
Magnesium	ug/L	1550	5000	5000	5630	5660	82	82	70-130	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: MPRP/15702
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 MET Dissolved
Associated Lab Samples: 92195730001

METHOD BLANK: 1179405
Matrix: Water
Associated Lab Samples: 92195730001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	ND	5.0	04/16/14 15:35	
Arsenic, Dissolved	ug/L	ND	10.0	04/16/14 15:35	
Cadmium, Dissolved	ug/L	ND	1.0	04/16/14 15:35	
Chromium, Dissolved	ug/L	ND	5.0	04/16/14 15:35	
Copper, Dissolved	ug/L	ND	5.0	04/16/14 15:35	
Hardness, Total (SM 2340B), Dissolved	ug/L	ND	662	04/16/14 16:49	
Lead, Dissolved	ug/L	ND	5.0	04/16/14 15:35	
Nickel, Dissolved	ug/L	ND	5.0	04/16/14 15:35	
Selenium, Dissolved	ug/L	ND	10.0	04/16/14 15:35	
Silver, Dissolved	ug/L	ND	5.0	04/16/14 15:35	
Thallium, Dissolved	ug/L	ND	10.0	04/16/14 15:35	
Zinc, Dissolved	ug/L	ND	10.0	04/16/14 15:35	

LABORATORY CONTROL SAMPLE: 1179406

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	500	486	97	85-115	
Arsenic, Dissolved	ug/L	500	468	94	85-115	
Cadmium, Dissolved	ug/L	500	471	94	85-115	
Chromium, Dissolved	ug/L	500	464	93	85-115	
Copper, Dissolved	ug/L	500	478	96	85-115	
Hardness, Total (SM 2340B), Dissolved	ug/L		30600			
Lead, Dissolved	ug/L	500	468	94	85-115	
Nickel, Dissolved	ug/L	500	470	94	85-115	
Selenium, Dissolved	ug/L	500	474	95	85-115	
Silver, Dissolved	ug/L	250	237	95	85-115	
Thallium, Dissolved	ug/L	500	491	98	85-115	
Zinc, Dissolved	ug/L	500	460	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1179407 1179408

Parameter	Units	92195730001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Antimony, Dissolved	ug/L	ND	500	500	457	456	91	91	70-130	0	
Arsenic, Dissolved	ug/L	ND	500	500	441	434	88	87	70-130	1	
Cadmium, Dissolved	ug/L	ND	500	500	443	441	89	88	70-130	1	
Chromium, Dissolved	ug/L	ND	500	500	436	432	87	86	70-130	1	
Copper, Dissolved	ug/L	ND	500	500	448	444	90	89	70-130	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1179407 1179408

Parameter	Units	92195730001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Hardness, Total (SM 2340B), Dissolved	ug/L	1180			30000	29700				1	
Lead, Dissolved	ug/L	ND	500	500	440	435	88	87	70-130	1	
Nickel, Dissolved	ug/L	ND	500	500	443	439	89	88	70-130	1	
Selenium, Dissolved	ug/L	ND	500	500	448	443	89	88	70-130	1	
Silver, Dissolved	ug/L	ND	250	250	224	222	89	89	70-130	1	
Thallium, Dissolved	ug/L	ND	500	500	462	462	92	92	70-130	0	
Zinc, Dissolved	ug/L	ND	500	500	437	434	87	86	70-130	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: OEXT/26893 | Analysis Method: EPA 608
QC Batch Method: EPA 3535 | Analysis Description: 608 GCS Pest PCB
Associated Lab Samples: 92195730003

METHOD BLANK: 1173041 | Matrix: Water
Associated Lab Samples: 92195730003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
4,4'-DDD	ug/L	ND	0.050	04/15/14 15:18	
4,4'-DDE	ug/L	ND	0.050	04/15/14 15:18	
4,4'-DDT	ug/L	ND	0.050	04/15/14 15:18	
Aldrin	ug/L	ND	0.050	04/15/14 15:18	
alpha-BHC	ug/L	ND	0.050	04/15/14 15:18	
beta-BHC	ug/L	ND	0.050	04/15/14 15:18	
Chlordane (Technical)	ug/L	ND	0.50	04/15/14 15:18	
delta-BHC	ug/L	ND	0.050	04/15/14 15:18	
Dieldrin	ug/L	ND	0.050	04/15/14 15:18	
Endosulfan I	ug/L	ND	0.050	04/15/14 15:18	
Endosulfan II	ug/L	ND	0.050	04/15/14 15:18	
Endosulfan sulfate	ug/L	ND	0.050	04/15/14 15:18	
Endrin	ug/L	ND	0.050	04/15/14 15:18	
Endrin aldehyde	ug/L	ND	0.050	04/15/14 15:18	
gamma-BHC (Lindane)	ug/L	ND	0.050	04/15/14 15:18	
Heptachlor	ug/L	ND	0.050	04/15/14 15:18	
Heptachlor epoxide	ug/L	ND	0.050	04/15/14 15:18	
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	04/15/14 15:18	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	04/15/14 15:18	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	04/15/14 15:18	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	04/15/14 15:18	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	04/15/14 15:18	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	04/15/14 15:18	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	04/15/14 15:18	
Toxaphene	ug/L	ND	0.50	04/15/14 15:18	
Decachlorobiphenyl (S)	%	72	20-138	04/15/14 15:18	
Tetrachloro-m-xylene (S)	%	81	20-110	04/15/14 15:18	

LABORATORY CONTROL SAMPLE: 1173042

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	ug/L	.25	0.21	86	31-141	
4,4'-DDE	ug/L	.25	0.21	84	30-145	
4,4'-DDT	ug/L	.25	0.21	86	25-160	
Aldrin	ug/L	.25	0.16	63	42-122	
alpha-BHC	ug/L	.25	0.20	82	37-134	
beta-BHC	ug/L	.25	0.22	91	17-147	
delta-BHC	ug/L	.25	0.23	91	19-140	
Dieldrin	ug/L	.25	0.22	87	36-146	
Endosulfan I	ug/L	.25	0.22	90	45-153	
Endosulfan II	ug/L	.25	0.22	89	1-202	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

LABORATORY CONTROL SAMPLE: 1173042

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endosulfan sulfate	ug/L	.25	0.23	92	26-144	
Endrin	ug/L	.25	0.23	93	30-147	
Endrin aldehyde	ug/L	.25	0.19	75	50-150	
gamma-BHC (Lindane)	ug/L	.25	0.21	84	32-127	
Heptachlor	ug/L	.25	0.18	74	34-111	
Heptachlor epoxide	ug/L	.25	0.20	82	41-126	
Decachlorobiphenyl (S)	%			73	20-138	
Tetrachloro-m-xylene (S)	%			80	20-110	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: OEXT/26850 Analysis Method: EPA 625
QC Batch Method: EPA 625 Analysis Description: 625 MSS
Associated Lab Samples: 92195730002

METHOD BLANK: 1171631 Matrix: Water
Associated Lab Samples: 92195730002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	04/09/14 08:53	
2,4,6-Trichlorophenol	ug/L	ND	10.0	04/09/14 08:53	
2,4-Dichlorophenol	ug/L	ND	5.0	04/09/14 08:53	
2,4-Dimethylphenol	ug/L	ND	10.0	04/09/14 08:53	
2,4-Dinitrophenol	ug/L	ND	50.0	04/09/14 08:53	
2,4-Dinitrotoluene	ug/L	ND	5.0	04/09/14 08:53	
2,6-Dinitrotoluene	ug/L	ND	5.0	04/09/14 08:53	
2-Chloronaphthalene	ug/L	ND	5.0	04/09/14 08:53	
2-Chlorophenol	ug/L	ND	5.0	04/09/14 08:53	
2-Nitrophenol	ug/L	ND	5.0	04/09/14 08:53	
3,3'-Dichlorobenzidine	ug/L	ND	25.0	04/09/14 08:53	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	04/09/14 08:53	
4-Bromophenylphenyl ether	ug/L	ND	5.0	04/09/14 08:53	
4-Chloro-3-methylphenol	ug/L	ND	5.0	04/09/14 08:53	
4-Chlorophenylphenyl ether	ug/L	ND	5.0	04/09/14 08:53	
4-Nitrophenol	ug/L	ND	50.0	04/09/14 08:53	
Acenaphthene	ug/L	ND	5.0	04/09/14 08:53	
Acenaphthylene	ug/L	ND	5.0	04/09/14 08:53	
Anthracene	ug/L	ND	5.0	04/09/14 08:53	
Benzo(a)anthracene	ug/L	ND	5.0	04/09/14 08:53	
Benzo(a)pyrene	ug/L	ND	5.0	04/09/14 08:53	
Benzo(b)fluoranthene	ug/L	ND	5.0	04/09/14 08:53	
Benzo(g,h,i)perylene	ug/L	ND	5.0	04/09/14 08:53	
Benzo(k)fluoranthene	ug/L	ND	5.0	04/09/14 08:53	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	04/09/14 08:53	
bis(2-Chloroethyl) ether	ug/L	ND	5.0	04/09/14 08:53	
bis(2-Chloroisopropyl) ether	ug/L	ND	5.0	04/09/14 08:53	
bis(2-Ethylhexyl)phthalate	ug/L	ND	5.0	04/09/14 08:53	
Butylbenzylphthalate	ug/L	ND	5.0	04/09/14 08:53	
Chrysene	ug/L	ND	5.0	04/09/14 08:53	
Di-n-butylphthalate	ug/L	ND	5.0	04/09/14 08:53	
Di-n-octylphthalate	ug/L	ND	5.0	04/09/14 08:53	
Dibenz(a,h)anthracene	ug/L	ND	5.0	04/09/14 08:53	
Diethylphthalate	ug/L	ND	5.0	04/09/14 08:53	
Dimethylphthalate	ug/L	ND	5.0	04/09/14 08:53	
Fluoranthene	ug/L	ND	5.0	04/09/14 08:53	
Fluorene	ug/L	ND	5.0	04/09/14 08:53	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	04/09/14 08:53	
Hexachlorobenzene	ug/L	ND	5.0	04/09/14 08:53	
Hexachlorocyclopentadiene	ug/L	ND	10.0	04/09/14 08:53	
Hexachloroethane	ug/L	ND	5.0	04/09/14 08:53	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	04/09/14 08:53	
Isophorone	ug/L	ND	10.0	04/09/14 08:53	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

METHOD BLANK: 1171631 Matrix: Water
Associated Lab Samples: 92195730002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
N-Nitroso-di-n-propylamine	ug/L	ND	5.0	04/09/14 08:53	
N-Nitrosodimethylamine	ug/L	ND	5.0	04/09/14 08:53	
N-Nitrosodiphenylamine	ug/L	ND	10.0	04/09/14 08:53	
Naphthalene	ug/L	ND	5.0	04/09/14 08:53	
Nitrobenzene	ug/L	ND	5.0	04/09/14 08:53	
Pentachlorophenol	ug/L	ND	10.0	04/09/14 08:53	
Phenanthrene	ug/L	ND	5.0	04/09/14 08:53	
Phenol	ug/L	ND	5.0	04/09/14 08:53	
Pyrene	ug/L	ND	5.0	04/09/14 08:53	
2,4,6-Tribromophenol (S)	%	74	10-137	04/09/14 08:53	
2-Fluorobiphenyl (S)	%	78	15-120	04/09/14 08:53	
2-Fluorophenol (S)	%	46	10-120	04/09/14 08:53	
Nitrobenzene-d5 (S)	%	80	10-120	04/09/14 08:53	
Phenol-d6 (S)	%	33	10-120	04/09/14 08:53	
Terphenyl-d14 (S)	%	96	11-131	04/09/14 08:53	

LABORATORY CONTROL SAMPLE: 1171632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	39.5	79	44-142	
2,4,6-Trichlorophenol	ug/L	50	41.0	82	37-144	
2,4-Dichlorophenol	ug/L	50	39.5	79	1-191	
2,4-Dimethylphenol	ug/L	50	36.6	73	32-119	
2,4-Dinitrophenol	ug/L	250	213	85	1-181	
2,4-Dinitrotoluene	ug/L	50	45.4	91	39-139	
2,6-Dinitrotoluene	ug/L	50	45.1	90	50-158	
2-Chloronaphthalene	ug/L	50	39.8	80	60-118	
2-Chlorophenol	ug/L	50	37.4	75	23-134	
2-Nitrophenol	ug/L	50	39.8	80	29-182	
3,3'-Dichlorobenzidine	ug/L	100	87.7	88	1-262	
4,6-Dinitro-2-methylphenol	ug/L	100	95.3	95	1-181	
4-Bromophenylphenyl ether	ug/L	50	40.4	81	53-127	
4-Chloro-3-methylphenol	ug/L	100	82.1	82	22-147	
4-Chlorophenylphenyl ether	ug/L	50	42.6	85	25-158	
4-Nitrophenol	ug/L	250	88.5	35	1-132	
Acenaphthene	ug/L	50	38.6	77	47-145	
Acenaphthylene	ug/L	50	40.3	81	33-145	
Anthracene	ug/L	50	42.8	86	1-166	
Benzo(a)anthracene	ug/L	50	46.2	92	33-143	
Benzo(a)pyrene	ug/L	50	47.8	96	17-163	
Benzo(b)fluoranthene	ug/L	50	45.1	90	24-159	
Benzo(g,h,i)perylene	ug/L	50	53.0	106	1-219	
Benzo(k)fluoranthene	ug/L	50	43.5	87	11-162	
bis(2-Chloroethoxy)methane	ug/L	50	40.4	81	33-184	
bis(2-Chloroethyl) ether	ug/L	50	41.1	82	12-158	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

LABORATORY CONTROL SAMPLE: 1171632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
bis(2-Chloroisopropyl) ether	ug/L	50	38.5	77	36-166	
bis(2-Ethylhexyl)phthalate	ug/L	50	45.0	90	8-158	
Butylbenzylphthalate	ug/L	50	43.1	86	1-152	
Chrysene	ug/L	50	47.1	94	17-168	
Di-n-butylphthalate	ug/L	50	40.0	80	1-118	
Di-n-octylphthalate	ug/L	50	46.3	93	4-146	
Dibenz(a,h)anthracene	ug/L	50	53.9	108	1-227	
Diethylphthalate	ug/L	50	40.8	82	1-114	
Dimethylphthalate	ug/L	50	41.8	84	1-112	
Fluoranthene	ug/L	50	43.9	88	26-137	
Fluorene	ug/L	50	42.1	84	59-121	
Hexachloro-1,3-butadiene	ug/L	50	38.4	77	24-116	
Hexachlorobenzene	ug/L	50	39.5	79	1-152	
Hexachlorocyclopentadiene	ug/L	50	41.9	84	25-150	
Hexachloroethane	ug/L	50	36.1	72	40-113	
Indeno(1,2,3-cd)pyrene	ug/L	50	54.7	109	1-171	
Isophorone	ug/L	50	44.6	89	21-196	
N-Nitroso-di-n-propylamine	ug/L	50	38.3	77	1-230	
N-Nitrosodimethylamine	ug/L	50	25.5	51	25-150	
N-Nitrosodiphenylamine	ug/L	50	34.6	69	25-150	
Naphthalene	ug/L	50	38.8	78	21-133	
Nitrobenzene	ug/L	50	42.5	85	35-180	
Pentachlorophenol	ug/L	100	76.4	76	14-176	
Phenanthrene	ug/L	50	42.3	85	54-120	
Phenol	ug/L	50	19.4	39	5-112	
Pyrene	ug/L	50	45.7	91	52-115	
2,4,6-Tribromophenol (S)	%			80	10-137	
2-Fluorobiphenyl (S)	%			82	15-120	
2-Fluorophenol (S)	%			50	10-120	
Nitrobenzene-d5 (S)	%			81	10-120	
Phenol-d6 (S)	%			36	10-120	
Terphenyl-d14 (S)	%			91	11-131	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1171633 1171634

Parameter	Units	92196018004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trichlorobenzene	ug/L	ND	100	100	65.3	73.6	65	74	44-142	12	
2,4,6-Trichlorophenol	ug/L	ND	100	100	70.9	72.9	71	73	37-144	3	
2,4-Dichlorophenol	ug/L	ND	100	100	65.2	68.6	65	69	1-191	5	
2,4-Dimethylphenol	ug/L	ND	100	100	65.7	66.1	66	66	32-119	1	
2,4-Dinitrophenol	ug/L	ND	500	500	386	404	77	81	1-181	4	
2,4-Dinitrotoluene	ug/L	ND	100	100	92.5	86.8	92	87	39-139	6	
2,6-Dinitrotoluene	ug/L	ND	100	100	85.8	83.1	86	83	50-158	3	
2-Chloronaphthalene	ug/L	ND	100	100	64.0	71.7	64	72	60-118	11	
2-Chlorophenol	ug/L	ND	100	100	57.9	69.2	58	69	23-134	18	
2-Nitrophenol	ug/L	ND	100	100	64.7	74.8	65	75	29-182	14	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No : 92195730

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1171633 1171634

Parameter	Units	92196018004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
3,3'-Dichlorobenzidine	ug/L	ND	200	200	133	128	66	64	1-262	4	
4,6-Dinitro-2-methylphenol	ug/L	ND	200	200	144	162	72	81	1-181	12	
4-Bromophenylphenyl ether	ug/L	ND	100	100	66.7	70.7	67	71	53-127	6	
4-Chloro-3-methylphenol	ug/L	ND	200	200	169	145	85	72	22-147	16	
4-Chlorophenylphenyl ether	ug/L	ND	100	100	80.9	76.6	81	77	25-158	5	
4-Nitrophenol	ug/L	ND	500	500	266	268	53	54	1-132	1	
Acenaphthene	ug/L	ND	100	100	68.1	69.6	68	70	47-145	2	
Acenaphthylene	ug/L	ND	100	100	70.2	70.9	70	71	33-145	1	
Anthracene	ug/L	ND	100	100	75.8	80.0	76	80	1-166	5	
Benzo(a)anthracene	ug/L	ND	100	100	81.7	89.1	82	89	33-143	9	
Benzo(a)pyrene	ug/L	ND	100	100	84.8	94.5	85	95	17-163	11	
Benzo(b)fluoranthene	ug/L	ND	100	100	78.5	86.2	78	86	24-159	9	
Benzo(g,h,i)perylene	ug/L	ND	100	100	82.4	98.7	82	99	1-219	18	
Benzo(k)fluoranthene	ug/L	ND	100	100	77.7	90.7	78	91	11-162	15	
bis(2-Chloroethoxy)methane	ug/L	ND	100	100	65.9	70.5	66	70	33-184	7	
bis(2-Chloroethyl) ether	ug/L	ND	100	100	61.8	73.1	62	73	12-158	17	
bis(2-Chloroisopropyl) ether	ug/L	ND	100	100	55.5	64.4	56	64	36-166	15	
bis(2-Ethylhexyl)phthalate	ug/L	ND	100	100	78.1	83.7	78	84	8-158	7	
Butylbenzylphthalate	ug/L	ND	100	100	76.5	83.4	76	83	1-152	9	
Chrysene	ug/L	ND	100	100	83.8	91.5	84	91	17-168	9	
Di-n-butylphthalate	ug/L	ND	100	100	74.2	79.3	74	79	1-118	7	
Di-n-octylphthalate	ug/L	ND	100	100	80.3	85.9	80	86	4-146	7	
Dibenz(a,h)anthracene	ug/L	ND	100	100	86.5	102	86	102	1-227	17	
Diethylphthalate	ug/L	ND	100	100	80.7	76.6	81	77	1-114	5	
Dimethylphthalate	ug/L	ND	100	100	76.8	76.6	77	77	1-112	0	
Fluoranthene	ug/L	ND	100	100	83.0	95.4	83	95	26-137	14	
Fluorene	ug/L	ND	100	100	79.6	76.2	80	76	59-121	4	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	62.4	73.1	62	73	24-116	16	
Hexachlorobenzene	ug/L	ND	100	100	68.6	72.6	69	73	1-152	6	
Hexachlorocyclopentadiene	ug/L	ND	100	100	56.7	72.2	57	72	25-150	24	
Hexachloroethane	ug/L	ND	100	100	58.0	68.0	58	68	40-113	16	
Indeno(1,2,3-cd)pyrene	ug/L	ND	100	100	87.3	104	87	104	1-171	17	
Isophorone	ug/L	ND	100	100	75.9	77.7	76	78	21-196	2	
N-Nitroso-di-n-propylamine	ug/L	ND	100	100	58.9	64.6	59	65	1-230	9	
N-Nitrosodimethylamine	ug/L	ND	100	100	47.0	53.7	47	54	25-150	13	
N-Nitrosodiphenylamine	ug/L	ND	100	100	57.6	59.9	58	60	25-150	4	
Naphthalene	ug/L	ND	100	100	65.3	70.5	65	70	21-133	8	
Nitrobenzene	ug/L	ND	100	100	66.8	74.5	67	74	35-180	11	
Pentachlorophenol	ug/L	ND	200	200	125	142	63	71	14-176	13	
Phenanthrene	ug/L	ND	100	100	75.8	79.9	76	80	54-120	5	
Phenol	ug/L	ND	100	100	38.8	48.2	39	48	5-112	22	
Pyrene	ug/L	ND	100	100	86.5	92.4	86	92	52-115	7	
2,4,6-Tribromophenol (S)	%						85	80	10-137		
2-Fluorobiphenyl (S)	%						64	72	15-120		
2-Fluorophenol (S)	%						45	54	10-120		
Nitrobenzene-d5 (S)	%						65	73	10-120		
Phenol-d6 (S)	%						37	46	10-120		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1171633 1171634

Parameter	Units	92196018004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Terphenyl-d14 (S)	%						78	86	11-131		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: OEXT/26894 | Analysis Method: EPA 8081
QC Batch Method: EPA 3510 | Analysis Description: 8081A GCS Pesticides
Associated Lab Samples: 92195730003

METHOD BLANK: 1173043 | Matrix: Water
Associated Lab Samples: 92195730003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlordane (Technical)	ug/L	ND	0.20	04/15/14 15:18	
Hexachlorobenzene	ug/L	ND	0.050	04/15/14 15:18	
Methoxychlor	ug/L	ND	0.15	04/15/14 15:18	
Mirex	ug/L	ND	0.15	04/15/14 15:18	
Toxaphene	ug/L	ND	0.20	04/15/14 15:18	
Decachlorobiphenyl (S)	%	72	20-130	04/15/14 15:18	
Tetrachloro-m-xylene (S)	%	81	20-130	04/15/14 15:18	

LABORATORY CONTROL SAMPLE: 1173044

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Hexachlorobenzene	ug/L	.25	0.17	68	20-150	
Methoxychlor	ug/L	.74	0.60	81	20-150	
Mirex	ug/L	.74	0.65	87	20-150	
Decachlorobiphenyl (S)	%			73	20-130	
Tetrachloro-m-xylene (S)	%			80	20-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1173045 1173046

Parameter	Units	92195993004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Hexachlorobenzene	ug/L	ND	.5	.5	0.33	0.37	66	74	20-150	11	
Methoxychlor	ug/L	ND	1.5	1.5	1.2	1.3	81	88	20-150	7	
Mirex	ug/L	ND	1.5	1.5	1.3	1.4	87	92	20-150	6	
Decachlorobiphenyl (S)	%						71	75	20-130		
Tetrachloro-m-xylene (S)	%						73	81	20-130		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: OEXT/26895 | Analysis Method: EPA 8082
QC Batch Method: EPA 3510 | Analysis Description: 8082 GCS PCB
Associated Lab Samples: 92195730003

METHOD BLANK: 1173049 | Matrix: Water
Associated Lab Samples: 92195730003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	04/15/14 16:40	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	04/15/14 16:40	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	04/15/14 16:40	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	04/15/14 16:40	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	04/15/14 16:40	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	04/15/14 16:40	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	04/15/14 16:40	
Decachlorobiphenyl (S)	%	82	10-132	04/15/14 16:40	

LABORATORY CONTROL SAMPLE: 1173050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	5	4.4	89	50-150	
PCB-1260 (Aroclor 1260)	ug/L	5	4.6	91	50-150	
Decachlorobiphenyl (S)	%			83	10-132	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1173051 1173052

Parameter	Units	92195993004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
PCB-1016 (Aroclor 1016)	ug/L	ND	10	10	7.1	6.7	71	67	50-150	5	
PCB-1260 (Aroclor 1260)	ug/L	ND	10	10	8.0	7.7	80	77	50-150	3	
Decachlorobiphenyl (S)	%						71	71	10-132		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: WET/30365
QC Batch Method: SM 4500-Cl G
Analysis Method: SM 4500-Cl G
Analysis Description: 4500CL G Chlorine, Total Residual
Associated Lab Samples: 92195730003

METHOD BLANK: 1171728
Matrix: Water
Associated Lab Samples: 92195730003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	ND	0.024	04/04/14 12:20	

SAMPLE DUPLICATE: 1171729

Parameter	Units	92195730003 Result	Dup Result	RPD	Qualifiers
Chlorine, Total Residual	mg/L	ND	ND		H1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: WETA/18613
QC Batch Method: EPA 350.1
Analysis Method: EPA 350.1
Analysis Description: 350.1 Ammonia
Associated Lab Samples: 92195730003

METHOD BLANK: 1172732
Matrix: Water
Associated Lab Samples: 92195730003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	04/07/14 13:03	

LABORATORY CONTROL SAMPLE: 1172734

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.2	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1172735 1172736

Parameter	Units	92195686001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	0.12	5	5	5.6	5.6	110	110	90-110	0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1172737 1172738

Parameter	Units	92195784001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.6	5.6	112	112	90-110	1	M1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: WETA/18710 | Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E | Analysis Description: 4500 Chloride
Associated Lab Samples: 92195730003

METHOD BLANK: 1179255 | Matrix: Water
Associated Lab Samples: 92195730003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/16/14 16:20	

LABORATORY CONTROL SAMPLE: 1179256

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1179257 1179258

Parameter	Units	92195024001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chloride	mg/L	2.1	20	20	23.2	23.3	106	106	75-125	0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1179259 1179260

Parameter	Units	92195702004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chloride	mg/L	3.0	20	20	23.4	23.4	102	102	75-125	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Water
Pace Project No.: 92195730

QC Batch: WETA/18661
QC Batch Method: SM 4500-CN-E
Analysis Method: SM 4500-CN-E
Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 92195730002

METHOD BLANK: 1176729
Matrix: Water
Associated Lab Samples: 92195730002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	04/13/14 12:29	

LABORATORY CONTROL SAMPLE: 1176730

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.1	0.11	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1176731 1176732

Parameter	Units	92195918001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cyanide	mg/L	0.010	.1	.1	0.036	0.037	26	27	75-125	1	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1176733 1176734

Parameter	Units	92195747001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cyanide	mg/L	0.043	.1	.1	0.065	0.070	22	26	75-125	7	M1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Brink Process Water
Pace Project No.: 92195730

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine(8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-E	Pace Analytical Services - Eden

ANALYTE QUALIFIERS

H1	Analysis conducted outside the EPA method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

This report shall not be reproduced, except in full
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Brink Process Water
Pace Project No.: 92195730

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92195730001	Brink Process Water	SM 3500-Cr D	EDEN/14202		
92195730003	Brink Process Water	EPA 3535	OEXT/26893	EPA 608	GCSV/17255
92195730003	Brink Process Water	EPA 3510	OEXT/26894	EPA 8081	GCSV/17256
92195730003	Brink Process Water	EPA 3510	OEXT/26895	EPA 8082	GCSV/17258
92195730001	Brink Process Water	EPA 200.7	MPRP/15595	EPA 200.7	ICP/14133
92195730001	Brink Process Water	EPA 200.7	MPRP/15702	EPA 200.7	ICP/14219
92195730001	Brink Process Water	EPA 245.1	MERP/6427	EPA 245.1	MERC/6196
92195730002	Brink Process Water	EPA 625	OEXT/26850	EPA 625	MSSV/8951
92195730003	Brink Process Water	SM 4500-Cl G	WET/30365		
92195730003	Brink Process Water	EPA 350.1	WETA/18613		
92195730003	Brink Process Water	SM 4500-Cl-E	WETA/18710		
92195730002	Brink Process Water	SM 4500-CN-E	WETA/18661		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

ATTACHMENT A
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY CRITERIA MONITORING

Effective January 1, 2012, all analyses shall be in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

A listing of Virginia Environmental Laboratory Accreditation Program (VELAP) certified and/or accredited laboratories can be found at the following website:
http://www.dgs.state.va.us/DivisionofConsolidatedLaboratoryServices/Services/EnvironmentalLaboratoryCertification/tabid/1059/Default.aspx

Please be advised that additional water quality analyses may be necessary and/or required for permitting purposes.

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
		METALS				
7440-36-0	Antimony, dissolved	(3)	1.4		G or C	1/5 YR
7440-38-2	Arsenic, dissolved	(3)	1.0		G or C	1/5 YR
7440-43-9	Cadmium, dissolved	(3)	0.3		G or C	1/5 YR
16065-83-1	Chromium III, dissolved [6]	(3)	3.6		G or C	1/5 YR
18540-29-9	Chromium VI, dissolved [6]	(3)	1.6		G or C	1/5 YR
7440-50-8	Copper, dissolved	(3)	0.50		G or C	1/5 YR
7439-92-1	Lead, dissolved	(3)	0.50		G or C	1/5 YR
7439-97-6	Mercury, dissolved	(3)	1.0		G or C	1/5 YR
7440-02-0	Nickel, dissolved	(3)	0.94		G or C	1/5 YR
7782-49-2	Selenium, Total Recoverable	(3)	2.0		G or C	1/5 YR (FW)
7440-22-4	Silver, dissolved	(3)	0.20		G or C	1/5 YR
7440-28-0	Thallium, dissolved	(3)	(4)		G or C	1/5 YR
7440-66-6	Zinc, dissolved	(3)	3.6		G or C	1/5 YR
		PESTICIDES/PCBs				
309-00-2	Aldrin	608/625	0.05		G or C	1/5 YR
57-74-9	Chlordane	608/625	0.2		G or C	1/5 YR
2921-88-2	Chlorpyrifos (synonym = Dursban)	622	(4)		G or C	1/5 YR
72-54-8	DDD	608/625	0.1		G or C	1/5 YR
72-55-9	DDE	608/625	0.1		G or C	1/5 YR
50-29-3	DDT	608/625	0.1		G or C	1/5 YR

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
8065-48-3	Demeton (synonym = Dementon-O,S)	622	(4)		G or C	1/5 YR
333-41-5	Diazinon	622	(4)		G or C	1/5 YR
60-57-1	Dieldrin	608/625	0.1		G or C	1/5 YR
959-98-8	Alpha-Endosulfan (synonym = Endosulfan I)	608/625	0.1		G or C	1/5 YR
33213-65-9	Beta-Endosulfan (synonym = Endosulfan II)	608625	0.1		G or C	1/5 YR
1031-07-8	Endosulfan Sulfate	608/625	0.1		G or C	1/5 YR
72-20-8	Endrin	608/625	0.1		G or C	1/5 YR
7421-93-4	Endrin Aldehyde	608/625	(4)		G or C	1/5 YR
86-50-0	Guthion (synonym = Azinphos Methyl)	622	(4)		G or C	1/5 YR
76-44-8	Heptachlor	608/625	0.05		G or C	1/5 YR
1024-57-3	Heptachlor Epoxide	608/625	(4)		G or C	1/5 YR
319-84-6	Hexachlorocyclohexane Alpha-BHC	608/625	(4)		G or C	1/5 YR
319-85-7	Hexachlorocyclohexane Beta-BHC	608/625	(4)		G or C	1/5 YR
58-89-9	Hexachlorocyclohexane Gamma-BHC (syn. = Lindane)	608/625	(4)		G or C	1/5 YR
143-50-0	Kepone	8081 Extended/ 8270C/8270D	(4)		G or C	1/5 YR
121-75-5	Malathion	614	(4)		G or C	1/5 YR
72-43-5	Methoxychlor	608.2	(4)		G or C	1/5 YR
2385-85-5	Mirex	8081 Extended/ 8270C/8270D	(4)		G or C	1/5 YR
56-38-2	Parathion (synonym = Parathion Ethyl)	614	(4)		G or C	1/5 YR
1336-36-3	PCB, total	608/625	7.0		G or C	1/5 YR
8001-35-2	Toxaphene	608/625	5.0		G or C	1/5 YR
	MISCELLANEOUS					
776-41-7	Ammonia as NH3-N	350.1	200		C	1/5 YR
16887-00-6	Chloride	(3)	(4)		C	1/5 YR (FW and PWS)
7782-50-5	Chlorine, Total Residual	(3)	100		G	1/5 YR
57-12-5	Cyanide, Free [8]	ASTM 4282-02	10.0		G	1/5 YR
N/A	*E. coli* / *Enterococcus* (N/CML)	(3)	(4)		G	1/5 YR
18496-25-8	Sulfide, dissolved [7]	SM 4500 S^2 B	100		G or C	1/5 YR
60-10-5	Tributyltin	(5)	(4)		G or C	1/5 YR
471-34-1	Hardness (mg/L as $CaCO_3$)	(3)	(4)		G or C	1/5 YR (FW & TZs)

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 3.1 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:_____

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: _____ Date: _____

SRF Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

_____

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T		
			1			2		1		1															
2		1			1																				

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1786178

Section A Required Client Information:
Company: Iluka Resources Inc
Address: 12472 St. John Church Rd
Stony Creek, VA 23882
Email To: kevin.rideout@iluka.com
Phone: 434. 348.4316 Fax:
Requested Due Date/TAT: 10 days

Section B Required Project Information:
Report To: Kevin.rideout@iluka.com
Copy To:
Purchase Order No.: 4500 344 234
Project Name: Brink Process Water (Attachment A)
Project Number:

Section C Invoice Information:
Attention: Dawn Hall
Company Name: Iluka Resources
Address: Same as client
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Brink VA

92R5730

Please see attachment for specific analysis. Thanks

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Metals	Diss Metals	Pesticides/PCB's	Free Cyanide	TRC	Chloride	Ammonia	Tributyltin	Hardness (mg/L as $CaCO_3$)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Process Pond	WW	G			4/2/14	10:15	✓	12	✓		✓							✓	✓	✓	✓	✓			✓	✓		
2	(Attachment A)																												
3		WW	C	4/1/14	10:30	4/2/14	9:30	✓	2			✓												✓	✓				
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Kevin Rideout / Iluka	4/2/14	11:50	Preston B. Hamlett	4-2-14	11:50				
	Preston B. Hamlett	4-2-14	1:00	Rachel Burnett	4-2-14	1300	3.1			
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Rideout
SIGNATURE of SAMPLER: Kevin Rideout
DATE Signed (MM/DD/YY): 4/2/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical®
www.pacelabs.com

Ship To:
Pace Analytical Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174
Phone (386)672-5668

INTER_LABORATORY WORK ORDER # 92195730
(To be completed by sending lab)

Sending Project No	92195730
Receiving Project No	
Check Box for Consolidated Invoice	☐
Date Prepared	04/02/14
REQUESTED COMPLETION DATE	**4/16/2014**

Sending Region	IR92-Charlotte	Sending Project Mgr.	Chris Derouen
Receiving Region	IR35-Ormond Beach	External Client	ILUKA
State of Sample Origin	VA	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight Cert. Needed _____

WORK REQUESTED

Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Unit Price	Amount
200.8 Se, Ag	BP3N		HNO3	1	$48.00	$48.00
					TOTAL	$48.00

Special Requirements: _____

Receiving Region Department	Acctg. Code	Totals from above	Revenue Allocation	
			Receiving Region (80%)	Client Services Dept. Sending Region (20%)
Metals	20	$48.00	$38.40	$9.60
* Custom Revenue Allocation	TOTAL	$48.00	$38.40	$9.60

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Chain of Custody Included: ☐ Yes ☐ No Return Samples to Sending Region: ☐ Yes ☐ No

Matrix: ☐ Soil ☐ Water ☐ Air ☐ Other (identify) _____

CONFIRMATION OF WORK COMPLETED

Date Completed: _____ Receiving Project Manager: _____

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 92195730 **Workorder Name:** Brick Process Water **Owner Received Date:** 4/2/2014 **Results Requested By:** 4/16/2014

Report To	Subcontract To
Chris Derouen Pace Analytical Services, Inc. 9800 Kincey Ave., Suite 100 Huntersville, NC 28078 Phone (704)875-9092 Fax (704)875-9091	Pace Analytical Ormond Beach 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668

Requested Analysis

Preserved Containers

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3						Si 200.8	Ag											LAB USE ONLY
1	Brick Process Water	PS	4/2/2014 10:15	92195730001	Water	1						X	X											
2																								
3																								
4																								
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1				
2				
3				

Comments

Cooler Temperature on Receipt °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

7	Amber Liter	Iluka
1	500	Brink Cooler
1	H_2SO_4	
1	NaOH	
2	HNO_3	

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1786178

Section A Required Client Information:

Company: Iluka Resources Inc
Address: 12472 St. John Church Rd
Stony Creek, VA 23882
Email To: Kevin.rideout@iluka.com
Phone: 434.348.4316 Fax:
Requested Due Date/TAT: 10 days

Section B Required Project Information:

Report To: Kevin.rideout@iluka.com
Copy To:
Purchase Order No.: 4500344234
Project Name: Brink Process Water (Attachment A)
Project Number:

Section C Invoice Information:

Attention: Dawn Hall
Company Name: Iluka Resources
Address: Same as client
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Brink VA

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Total Metals	Diss Metals	Pesticides/PCB's	[redacted]	Free Cyanide	TRC	Chloride	Ammonia	Tributyltin	Hardness (mg/L as $CaCO_3$)		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Process Pond	WW	G	[redacted]		4/2/14	10:15	✓	12	✓		✓							✓	✓	✓	[redacted]	✓	✓			✓	✓			Please see attachment for specific analysis. Thanks
2	(Attachment A)							[redacted]	[redacted]																						
3		WW	C	4/1/14	10:30	4/2/14	9:30	/	2			✓													✓	✓					
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Kevin Rideout / Iluka	4/2/14	11:50	Preston B. Hamlet	4-2-14	11:50	
	Preston B. Hamlet	4-2-14	1:00	Rachel Burnett	4-2-14	1300	

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Rideout

SIGNATURE of SAMPLER: Kevin Rideout DATE Signed (MM/DD/YY): 4/2/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
9800 Kincey Ave Suite 100
Huntersville, NC 28078
(704)875-9092

April 25, 2014

Kevin Rideout

,

RE: Project: BRINK ATTACHMENT A
Pace Project No.: 92197852

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on April 17, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK ATTACHMENT A
Pace Project No.: 92197852

Eden Certification IDs
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738

North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK ATTACHMENT A
Pace Project No.: 92197852

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92197852001	BRINK ATTACHMENT A	SM 9223 D - 2004	JTF	2	PASI-E

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK ATTACHMENT A
Pace Project No.: 92197852

Sample: BRINK ATTACHMENT A **Lab ID: 92197852001** Collected: 04/17/14 10:00 Received: 04/17/14 12:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
MBIO E.coli (Quantitation)	Analytical Method: SM 9223 D - 2004 Preparation Method: SM 9223 D - 2004							
Total Coliforms	**34.5**	MPN/100mL	1.0	1	04/17/14 16:45	04/18/14 16:55		
E.coli	**1.0**	MPN/100mL	1.0	1	04/17/14 16:45	04/18/14 16:55		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK ATTACHMENT A
Pace Project No.: 92197852

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine(8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-E Pace Analytical Services - Eden

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK ATTACHMENT A
Pace Project No.: 92197852

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92197852001	BRINK ATTACHMENT A	SM 9223 D - 2004	EDEN/14349	SM 9223 D - 2004	EDEN/14350

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1719938

Section A Required Client Information:

Company: Iluka Resources
Address: 12472 St John Church Rd
Stony Creek VA, 23882
Email To: Kevin.Rideout@iluka.com
Phone: 434-348-4316 Fax:
Requested Due Date/TAT: 5 Days

Section B Required Project Information:

Report To: Kevin.Rideout@iluka.com
Copy To: David.Blackwell@iluk.com
Purchase Order No.: 4500344234
Project Name: Brink Attachment A
Project Number:

Section C Invoice Information:

Attention: Dawn Hall
Company Name: Iluka Resources
Address: 12472 St John Church Rd
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Brink VA

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ (Y/N) Dissolved Sulfide	E. coli	Enterococci	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Attachment A	WW	G			4/17/14	10:00	15	3								✓	✓	✓	✓		92197852
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Dawn B Blackwell	4/17/14	11:05	Preston B. Hamlett	4-17-14	11:05	
	Preston B Hamlett	4-17-14	1200	Rachel Burress	4-17	1200	3.6

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____ C

Corrected Cooler Temp.: 3.6 C Biological Tissue is Frozen: Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents: _____

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☐Yes	☑No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A	6. E. coli, Enterococci
Rush Turn Around Time Requested:	☑Yes	☑No	☐N/A	7. 5 day TAT
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☐No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

CURF Review: BLG Date: 4/17/14

SRF Review: CLH Date: 4/17/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Pace Analytical www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T		
1			1																				2		

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

May 19, 2014

Kevin Rideout

RE: Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on May 02, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brittany L Gibson

Brittany Gibson for
Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

Eden Certification IDs
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92199633001	BRINK PROCESS WATER	SM 2540D	CHM	1	PASI-E
		EPA 200.7	JMW	22	PASI-A
		EPA 245.1	MTS	1	PASI-A
		40CFR PART 432.2	SAE	1	PASI-A
		EPA 300.0	SAE	1	PASI-A
		EPA 350.1	AES2	1	PASI-A
		EPA 351.2	JDA	1	PASI-A
		EPA 353.2	DMN	1	PASI-A
		EPA 365.1	JDA	1	PASI-A
		EPA 420.4	DMN	1	PASI-A
		SM 4500-CN-E	JDA	1	PASI-A
		SM 5220D	SAE	1	PASI-A
92199633002	BRINK PROCESS WATER	EPA 1664B	CLW	1	PASI-C
92199633003	BRINK PROCESS WATER	SM 4500-S2D	SAE	1	PASI-A
		SM 5310B	AGS	1	PASI-O
92199633004	BRINK PROCESS WATER	EPA 608	RES	27	PASI-C
		EPA 624	GAW	24	PASI-C

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Sample: BRINK PROCESS WATER **Lab ID: 92199633001** Collected: 05/01/14 17:00 Received: 05/02/14 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D TSS, Low-Level, Eden	Analytical Method: SM 2540D							
Total Suspended Solids	**10.7**	mg/L	1.4	1		05/06/14 12:34		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Aluminum	**316**	ug/L	100	1	05/07/14 13:30	05/09/14 17:50	7429-90-5	
Antimony	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-36-0	
Arsenic	ND	ug/L	10.0	1	05/07/14 13:30	05/09/14 17:50	7440-38-2	
Barium	**15.8**	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-39-3	
Beryllium	ND	ug/L	1.0	1	05/07/14 13:30	05/09/14 17:50	7440-41-7	
Boron	ND	ug/L	50.0	1	05/07/14 13:30	05/09/14 17:50	7440-42-8	
Cadmium	ND	ug/L	1.0	1	05/07/14 13:30	05/09/14 17:50	7440-43-9	
Chromium	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-47-3	
Cobalt	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-48-4	
Copper	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-50-8	
Iron	**384**	ug/L	50.0	1	05/07/14 13:30	05/09/14 17:50	7439-89-6	
Lead	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7439-92-1	
Magnesium	**968**	ug/L	100	1	05/07/14 13:30	05/09/14 17:50	7439-95-4	
Manganese	**13.1**	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7439-96-5	
Molybdenum	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7439-98-7	
Nickel	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-02-0	
Selenium	ND	ug/L	10.0	1	05/07/14 13:30	05/09/14 17:50	7782-49-2	
Silver	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-22-4	
Thallium	ND	ug/L	10.0	1	05/07/14 13:30	05/09/14 17:50	7440-28-0	
Tin	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-31-5	
Titanium	ND	ug/L	5.0	1	05/07/14 13:30	05/09/14 17:50	7440-32-6	
Zinc	ND	ug/L	10.0	1	05/07/14 13:30	05/09/14 17:50	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	05/07/14 19:00	05/08/14 19:50	7439-97-6	
Total Nitrogen Calculation	Analytical Method: 40CFR PART 432.2							
Total Nitrogen	**2.5**	mg/L	0.12	1		05/13/14 14:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**7.4**	mg/L	2.0	1		05/10/14 02:36	14808-79-8	
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.10	1		05/08/14 12:54	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	ND	mg/L	0.50	1		05/13/14 11:12	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	**2.1**	mg/L	0.020	1		05/09/14 18:02		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Sample: BRINK PROCESS WATER **Lab ID: 92199633001** Collected: 05/01/14 17:00 Received: 05/02/14 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
365.1 Phosphorus, Total	Analytical Method: EPA 365.1							
Phosphorus	ND	mg/L	0.050	1		05/13/14 15:31	7723-14-0	
420.4 Phenolics, Total	Analytical Method: EPA 420.4							
Phenol	**0.018**	mg/L	0.0050	1		05/14/14 17:36	108-95-2	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		05/12/14 16:11	57-12-5	
5220D COD	Analytical Method: SM 5220D							
Chemical Oxygen Demand	ND	mg/L	25.0	1		05/13/14 14:22		

Sample: BRINK PROCESS WATER **Lab ID: 92199633002** Collected: 05/01/14 17:00 Received: 05/02/14 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
HEM, Oil and Grease	Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		05/07/14 10:54		

Sample: BRINK PROCESS WATER **Lab ID: 92199633003** Collected: 05/01/14 17:00 Received: 05/02/14 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D							
Sulfide	ND	mg/L	0.10	1		05/07/14 17:01	18496-25-8	
5310B TOC	Analytical Method: SM 5310B							
Total Organic Carbon	ND	mg/L	1.0	1		05/12/14 19:18	7440-44-0	

Sample: BRINK PROCESS WATER **Lab ID: 92199633004** Collected: 05/01/14 17:00 Received: 05/02/14 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
608 GCS Pesticides and PCBs	Analytical Method: EPA 608 Preparation Method: EPA 3510							
Aldrin	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	309-00-2	
alpha-BHC	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	319-84-6	
beta-BHC	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	319-85-7	
delta-BHC	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	319-86-8	
gamma-BHC (Lindane)	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	58-89-9	
Chlordane (Technical)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	57-74-9	
4,4'-DDD	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	72-54-8	
4,4'-DDE	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	72-55-9	
4,4'-DDT	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	50-29-3	
Dieldrin	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	60-57-1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Sample: BRINK PROCESS WATER **Lab ID: 92199633004** Collected: 05/01/14 17:00 Received: 05/02/14 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
608 GCS Pesticides and PCBs	Analytical Method: EPA 608 Preparation Method: EPA 3510							
Endosulfan I	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	959-98-8	
Endosulfan II	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	33213-65-9	
Endosulfan sulfate	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	1031-07-8	
Endrin	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	72-20-8	
Endrin aldehyde	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	7421-93-4	
Heptachlor	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	76-44-8	
Heptachlor epoxide	ND	ug/L	0.10	1	05/07/14 12:50	05/10/14 01:28	1024-57-3	
PCB-1016 (Aroclor 1016)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	11096-82-5	
Toxaphene	ND	ug/L	1.0	1	05/07/14 12:50	05/10/14 01:28	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	70	%	20-110	1	05/07/14 12:50	05/10/14 01:28	877-09-8	
Decachlorobiphenyl (S)	72	%	20-138	1	05/07/14 12:50	05/10/14 01:28	2051-24-3	
624 Volatile Organics	Analytical Method: EPA 624							
Acrolein	ND	ug/L	5.0	1		05/12/14 16:24	107-02-8	
Acrylonitrile	ND	ug/L	50.0	1		05/12/14 16:24	107-13-1	
Benzene	ND	ug/L	2.0	1		05/12/14 16:24	71-43-2	
Bromoform	ND	ug/L	2.0	1		05/12/14 16:24	75-25-2	
Carbon tetrachloride	ND	ug/L	2.0	1		05/12/14 16:24	56-23-5	
Chlorobenzene	ND	ug/L	2.0	1		05/12/14 16:24	108-90-7	
Chloroethane	ND	ug/L	2.0	1		05/12/14 16:24	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	5.0	1		05/12/14 16:24	110-75-8	
Chloroform	ND	ug/L	2.0	1		05/12/14 16:24	67-66-3	
Chloromethane	ND	ug/L	2.0	1		05/12/14 16:24	74-87-3	
Dichlorodifluoromethane	ND	ug/L	2.0	1		05/12/14 16:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	2.0	1		05/12/14 16:24	75-34-3	
1,3-Dichloropropane	ND	ug/L	2.0	1		05/12/14 16:24	142-28-9	
Ethylbenzene	ND	ug/L	2.0	1		05/12/14 16:24	100-41-4	
Methylene Chloride	ND	ug/L	2.0	1		05/12/14 16:24	75-09-2	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	1		05/12/14 16:24	630-20-6	
Toluene	ND	ug/L	2.0	1		05/12/14 16:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	2.0	1		05/12/14 16:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	1		05/12/14 16:24	79-00-5	
Trichlorofluoromethane	ND	ug/L	2.0	1		05/12/14 16:24	75-69-4	
Vinyl chloride	ND	ug/L	2.0	1		05/12/14 16:24	75-01-4	
Surrogates								
4-Bromofluorobenzene (S)	92	%	70-130	1		05/12/14 16:24	460-00-4	
Toluene-d8 (S)	98	%	70-130	1		05/12/14 16:24	2037-26-5	
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		05/12/14 16:24	17060-07-0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: EDEN/14489
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D TSS, Low Level, Eden
Associated Lab Samples: 92199633001

METHOD BLANK: 1191979
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	05/06/14 12:33	

LABORATORY CONTROL SAMPLE: 1191980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	246	98	80-120	

SAMPLE DUPLICATE: 1191981

Parameter	Units	92199637002 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	181	161	12	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: GCSV/17502 — Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B — Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 92199633002

METHOD BLANK: 1192695 — Matrix: Water
Associated Lab Samples: 92199633002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	05/07/14 10:51	

LABORATORY CONTROL SAMPLE: 1192696

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	36.1	90	78-114	

MATRIX SPIKE SAMPLE: 1192697

Parameter	Units	92199908002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	40	119	106	78-114	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: MERP/6562
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Associated Lab Samples: 92199633001

METHOD BLANK: 1192489
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	05/07/14 15:35	

LABORATORY CONTROL SAMPLE: 1192490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.8	111	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1192491 1192492

Parameter	Units	92199643001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.8	2.7	110	109	70-130	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: MPRP/15891
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 MET
Associated Lab Samples: 92199633001

METHOD BLANK: 1192985
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	100	05/09/14 16:33	
Antimony	ug/L	ND	5.0	05/09/14 16:33	
Arsenic	ug/L	ND	10.0	05/09/14 16:33	
Barium	ug/L	ND	5.0	05/09/14 16:33	
Beryllium	ug/L	ND	1.0	05/09/14 16:33	
Boron	ug/L	ND	50.0	05/09/14 16:33	
Cadmium	ug/L	ND	1.0	05/09/14 16:33	
Chromium	ug/L	ND	5.0	05/09/14 16:33	
Cobalt	ug/L	ND	5.0	05/09/14 16:33	
Copper	ug/L	ND	5.0	05/09/14 16:33	
Iron	ug/L	ND	50.0	05/09/14 16:33	
Lead	ug/L	ND	5.0	05/09/14 16:33	
Magnesium	ug/L	ND	100	05/09/14 16:33	
Manganese	ug/L	ND	5.0	05/09/14 16:33	
Molybdenum	ug/L	ND	5.0	05/09/14 16:33	
Nickel	ug/L	ND	5.0	05/09/14 16:33	
Selenium	ug/L	ND	10.0	05/09/14 16:33	
Silver	ug/L	ND	5.0	05/09/14 16:33	
Thallium	ug/L	ND	10.0	05/09/14 16:33	
Tin	ug/L	ND	5.0	05/09/14 16:33	
Titanium	ug/L	ND	5.0	05/09/14 16:33	
Zinc	ug/L	ND	10.0	05/09/14 16:33	

LABORATORY CONTROL SAMPLE: 1192986

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	5000	4970	99	85-115	
Antimony	ug/L	500	520	104	85-115	
Arsenic	ug/L	500	493	99	85-115	
Barium	ug/L	500	501	100	85-115	
Beryllium	ug/L	500	488	98	85-115	
Boron	ug/L	500	501	100	85-115	
Cadmium	ug/L	500	499	100	85-115	
Chromium	ug/L	500	486	97	85-115	
Cobalt	ug/L	500	499	100	85-115	
Copper	ug/L	500	506	101	85-115	
Iron	ug/L	5000	4780	96	85-115	
Lead	ug/L	500	500	100	85-115	
Magnesium	ug/L	5000	4740	95	85-115	
Manganese	ug/L	500	480	96	85-115	
Molybdenum	ug/L	500	515	103	85-115	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

LABORATORY CONTROL SAMPLE: 1192986

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nickel	ug/L	500	492	98	85-115	
Selenium	ug/L	500	509	102	85-115	
Silver	ug/L	250	246	98	85-115	
Thallium	ug/L	500	482	96	85-115	
Tin	ug/L	500	504	101	85-115	
Titanium	ug/L	500	492	98	85-115	
Zinc	ug/L	500	485	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1192987 1192988

Parameter	Units	92199730003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum	ug/L	433	5000	5000	5510	5480	101	101	70-130	0	
Antimony	ug/L	ND	500	500	530	524	105	104	70-130	1	
Arsenic	ug/L	ND	500	500	508	502	101	100	70-130	1	
Barium	ug/L	29.0	500	500	534	532	101	101	70-130	0	
Beryllium	ug/L	ND	500	500	492	492	98	98	70-130	0	
Boron	ug/L	238	500	500	739	743	100	101	70-130	1	
Cadmium	ug/L	2.0	500	500	506	502	101	100	70-130	1	
Chromium	ug/L	18.8	500	500	501	500	96	96	70-130	0	
Cobalt	ug/L	ND	500	500	496	494	99	99	70-130	0	
Copper	ug/L	238	500	500	752	752	103	103	70-130	0	
Iron	ug/L	3090	5000	5000	7820	7780	95	94	70-130	1	
Lead	ug/L	17.0	500	500	506	504	98	97	70-130	0	
Magnesium	ug/L	3770	5000	5000	8430	8410	93	93	70-130	0	
Manganese	ug/L	74.8	500	500	547	547	95	94	70-130	0	
Molybdenum	ug/L	202	500	500	716	715	103	103	70-130	0	
Nickel	ug/L	5.8	500	500	493	494	97	98	70-130	0	
Selenium	ug/L	ND	500	500	516	511	103	102	70-130	1	
Silver	ug/L	ND	250	250	247	247	99	99	70-130	0	
Thallium	ug/L	ND	500	500	466	465	93	93	70-130	0	
Tin	ug/L	ND	500	500	501	503	100	100	70-130	0	
Titanium	ug/L	5.6	500	500	496	495	98	98	70-130	0	
Zinc	ug/L	237	500	500	707	715	94	96	70-130	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1192989 1192990

Parameter	Units	92199916002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum	ug/L	74.2J	5000	5000	4960	4950	98	98	70-130	0	
Antimony	ug/L	ND	500	500	521	516	104	103	70-130	1	
Arsenic	ug/L	ND	500	500	502	497	100	99	70-130	1	
Barium	ug/L	0.71J	500	500	497	496	99	99	70-130	0	
Beryllium	ug/L	ND	500	500	484	485	97	97	70-130	0	
Boron	ug/L	839	500	500	1340	1340	101	101	70-130	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1192989 1192990

Parameter	Units	92199916002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cadmium	ug/L	ND	500	500	495	491	99	98	70-130	1	
Chromium	ug/L	0.88J	500	500	481	481	96	96	70-130	0	
Cobalt	ug/L	0.70J	500	500	490	489	98	98	70-130	0	
Copper	ug/L	0.61J	500	500	504	499	101	100	70-130	1	
Iron	ug/L	974	5000	5000	5630	5640	93	93	70-130	0	
Lead	ug/L	ND	500	500	482	483	96	96	70-130	0	
Magnesium	ug/L	1930	5000	5000	6550	6550	92	92	70-130	0	
Manganese	ug/L	7.3	500	500	477	476	94	94	70-130	0	
Molybdenum	ug/L	ND	500	500	517	517	103	103	70-130	0	
Nickel	ug/L	3.1J	500	500	484	484	96	96	70-130	0	
Selenium	ug/L	ND	500	500	510	505	102	101	70-130	1	
Silver	ug/L	ND	250	250	244	242	97	97	70-130	0	
Thallium	ug/L	ND	500	500	447	449	89	90	70-130	0	
Tin	ug/L	10.1	500	500	508	509	99	100	70-130	0	
Titanium	ug/L	0.26J	500	500	490	490	98	98	70-130	0	
Zinc	ug/L	29.1	500	500	513	515	97	97	70-130	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: MSV/26770
QC Batch Method: EPA 624
Analysis Method: EPA 624
Analysis Description: 624 MSV
Associated Lab Samples: 92199633004

METHOD BLANK: 1196495
Matrix: Water
Associated Lab Samples: 92199633004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	2.0	05/12/14 11:33	
1,1,1-Trichloroethane	ug/L	ND	2.0	05/12/14 11:33	
1,1,2-Trichloroethane	ug/L	ND	2.0	05/12/14 11:33	
1,1-Dichloroethane	ug/L	ND	2.0	05/12/14 11:33	
1,3-Dichloropropane	ug/L	ND	2.0	05/12/14 11:33	
2-Chloroethylvinyl ether	ug/L	ND	5.0	05/12/14 11:33	
Acrolein	ug/L	ND	5.0	05/12/14 11:33	
Acrylonitrile	ug/L	ND	50.0	05/12/14 11:33	
Benzene	ug/L	ND	2.0	05/12/14 11:33	
Bromoform	ug/L	ND	2.0	05/12/14 11:33	
Carbon tetrachloride	ug/L	ND	2.0	05/12/14 11:33	
Chlorobenzene	ug/L	ND	2.0	05/12/14 11:33	
Chloroethane	ug/L	ND	2.0	05/12/14 11:33	
Chloroform	ug/L	ND	2.0	05/12/14 11:33	
Chloromethane	ug/L	ND	2.0	05/12/14 11:33	
Dichlorodifluoromethane	ug/L	ND	2.0	05/12/14 11:33	
Ethylbenzene	ug/L	ND	2.0	05/12/14 11:33	
Methylene Chloride	ug/L	ND	2.0	05/12/14 11:33	
Toluene	ug/L	ND	2.0	05/12/14 11:33	
Trichlorofluoromethane	ug/L	ND	2.0	05/12/14 11:33	
Vinyl chloride	ug/L	ND	2.0	05/12/14 11:33	
1,2-Dichloroethane-d4 (S)	%	97	70-130	05/12/14 11:33	
4-Bromofluorobenzene (S)	%	101	70-130	05/12/14 11:33	
Toluene-d8 (S)	%	97	70-130	05/12/14 11:33	

LABORATORY CONTROL SAMPLE: 1196496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.7	93	70-130	
1,1,1-Trichloroethane	ug/L	20	16.8	84	52-162	
1,1,2-Trichloroethane	ug/L	20	19.8	99	52-150	
1,1-Dichloroethane	ug/L	20	18.1	91	59-155	
1,3-Dichloropropane	ug/L	20	19.7	98	70-130	
2-Chloroethylvinyl ether	ug/L	40	33.2	83	1-305	
Acrolein	ug/L	100	87.9	88	15-152	
Acrylonitrile	ug/L	100	94.7	95	75-132	
Benzene	ug/L	20	20.8	104	37-151	
Bromoform	ug/L	20	17.6	88	45-169	
Carbon tetrachloride	ug/L	20	16.6	83	70-140	
Chlorobenzene	ug/L	20	19.5	98	37-160	
Chloroethane	ug/L	20	17.5	88	14-230	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

LABORATORY CONTROL SAMPLE: 1196496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroform	ug/L	20	18.4	92	51-138	
Chloromethane	ug/L	20	15.1	75	1-273	
Dichlorodifluoromethane	ug/L	20	19.2	96	70-130	
Ethylbenzene	ug/L	20	19.2	96	37-162	
Methylene Chloride	ug/L	20	18.8	94	1-221	
Toluene	ug/L	20	19.8	99	47-150	
Trichlorofluoromethane	ug/L	20	17.5	87	17-181	
Vinyl chloride	ug/L	20	20.1	100	1-251	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 1197329

Parameter	Units	92200726001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L			52.5			
1,1,1-Trichloroethane	ug/L			52.4			
1,1,2-Trichloroethane	ug/L			55.2			
1,1-Dichloroethane	ug/L			52.2			
1,3-Dichloropropane	ug/L			53.8			
2-Chloroethylvinyl ether	ug/L			ND			
Acrolein	ug/L			226			
Acrylonitrile	ug/L			252			
Benzene	ug/L			62.0			
Bromoform	ug/L			47.5			
Carbon tetrachloride	ug/L			52.4			
Chlorobenzene	ug/L			54.9			
Chloroethane	ug/L			50.1			
Chloroform	ug/L			52.9			
Chloromethane	ug/L			45.9			
Dichlorodifluoromethane	ug/L			73.9			
Ethylbenzene	ug/L			52.9			
Methylene Chloride	ug/L			48.1			
Toluene	ug/L	ND	20	59.6	291	47-162	M0
Trichlorofluoromethane	ug/L			56.3			
Vinyl chloride	ug/L			64.4			
1,2-Dichloroethane-d4 (S)	%				94	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 1197330

Parameter	Units	92200726003 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L		ND		
1,1,1-Trichloroethane	ug/L		ND		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

SAMPLE DUPLICATE: 1197330

Parameter	Units	92200726003 Result	Dup Result	RPD	Qualifiers
1,1,2-Trichloroethane	ug/L		ND		
1,1-Dichloroethane	ug/L		ND		
1,3-Dichloropropane	ug/L		ND		
2-Chloroethylvinyl ether	ug/L		ND		
Acrolein	ug/L		ND		
Acrylonitrile	ug/L		ND		
Benzene	ug/L		ND		
Bromoform	ug/L		ND		
Carbon tetrachloride	ug/L		ND		
Chlorobenzene	ug/L		ND		
Chloroethane	ug/L		ND		
Chloroform	ug/L		9.2		
Chloromethane	ug/L		ND		
Dichlorodifluoromethane	ug/L		ND		
Ethylbenzene	ug/L		ND		
Methylene Chloride	ug/L		ND		
Toluene	ug/L	ND	ND		
Trichlorofluoromethane	ug/L		ND		
Vinyl chloride	ug/L		ND		
1,2-Dichloroethane-d4 (S)	%	97	93	4	
4-Bromofluorobenzene (S)	%	91	101	10	
Toluene-d8 (S)	%	98	97	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: OEXT/27487
QC Batch Method: EPA 3510
Associated Lab Samples: 92199633004

Analysis Method: EPA 608
Analysis Description: 608 GCS Pest PCB

METHOD BLANK: 1192995
Associated Lab Samples: 92199633004

Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
4,4'-DDD	ug/L	ND	0.050	05/09/14 18:45	
4,4'-DDE	ug/L	ND	0.050	05/09/14 18:45	
4,4'-DDT	ug/L	ND	0.050	05/09/14 18:45	
Aldrin	ug/L	ND	0.050	05/09/14 18:45	
alpha-BHC	ug/L	ND	0.050	05/09/14 18:45	
beta-BHC	ug/L	ND	0.050	05/09/14 18:45	
Chlordane (Technical)	ug/L	ND	0.50	05/09/14 18:45	
delta-BHC	ug/L	ND	0.050	05/09/14 18:45	
Dieldrin	ug/L	ND	0.050	05/09/14 18:45	
Endosulfan I	ug/L	ND	0.050	05/09/14 18:45	
Endosulfan II	ug/L	ND	0.050	05/09/14 18:45	
Endosulfan sulfate	ug/L	ND	0.050	05/09/14 18:45	
Endrin	ug/L	ND	0.050	05/09/14 18:45	
Endrin aldehyde	ug/L	ND	0.050	05/09/14 18:45	
gamma-BHC (Lindane)	ug/L	ND	0.050	05/09/14 18:45	
Heptachlor	ug/L	ND	0.050	05/09/14 18:45	
Heptachlor epoxide	ug/L	ND	0.050	05/09/14 18:45	
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	05/09/14 18:45	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	05/09/14 18:45	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	05/09/14 18:45	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	05/09/14 18:45	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	05/09/14 18:45	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	05/09/14 18:45	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	05/09/14 18:45	
Toxaphene	ug/L	ND	0.50	05/09/14 18:45	
Decachlorobiphenyl (S)	%	79	20-138	05/09/14 18:45	
Tetrachloro-m-xylene (S)	%	46	20-110	05/09/14 18:45	

LABORATORY CONTROL SAMPLE: 1192996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	ug/L	.25	0.23	91	31-141	
4,4'-DDE	ug/L	.25	0.22	87	30-145	
4,4'-DDT	ug/L	.25	0.24	97	25-160	
Aldrin	ug/L	.25	0.13	53	42-122	
alpha-BHC	ug/L	.25	0.21	83	37-134	
beta-BHC	ug/L	.25	0.21	84	17-147	
delta-BHC	ug/L	.25	0.22	91	19-140	
Dieldrin	ug/L	.25	0.21	84	36-146	
Endosulfan I	ug/L	.25	0.21	84	45-153	
Endosulfan II	ug/L	.25	0.22	89	1-202	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

LABORATORY CONTROL SAMPLE: 1192996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endosulfan sulfate	ug/L	.25	0.23	93	26-144	
Endrin	ug/L	.25	0.23	93	30-147	
Endrin aldehyde	ug/L	.25	0.18	73	50-150	
gamma-BHC (Lindane)	ug/L	.25	0.21	83	32-127	
Heptachlor	ug/L	.25	0.16	65	34-111	
Heptachlor epoxide	ug/L	.25	0.21	86	41-126	
Decachlorobiphenyl (S)	%			85	20-138	
Tetrachloro-m-xylene (S)	%			79	20-110	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WET/30889
QC Batch Method: SM 4500-S2D
Analysis Method: SM 4500-S2D
Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 92199633003

METHOD BLANK: 1192840
Matrix: Water
Associated Lab Samples: 92199633003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.10	05/07/14 17:01	

LABORATORY CONTROL SAMPLE: 1192841

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	.5	0.53	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1192842 1192843

Parameter	Units	92199614001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Sulfide	mg/L	ND	.5	.5	0.58	0.58	115	115	75-125	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18930
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92199633001

METHOD BLANK: 1194865
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	2.0	05/09/14 23:26	

LABORATORY CONTROL SAMPLE: 1194866

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	19.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1194867 1194868

Parameter	Units	92200402001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Sulfate	mg/L	6.9	20	20	27.4	27.3	103	102	90-110	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18918 | Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 | Analysis Description: 350.1 Ammonia
Associated Lab Samples: 92199633001

METHOD BLANK: 1194034 | Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	05/08/14 12:45	

LABORATORY CONTROL SAMPLE: 1194035

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1194036 1194037

Parameter	Units	92200341001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	0.10	5	5	5.6	5.5	110	108	90-110	2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1194038 1194039

Parameter	Units	92199872009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	18.1	5	5	23.3	23.3	104	103	90-110	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18957 | Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 | Analysis Description: 351.2 TKN
Associated Lab Samples: 92199633001

METHOD BLANK: 1196286 | Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	05/13/14 11:03	

LABORATORY CONTROL SAMPLE: 1196287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.2	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1196288 1196289

Parameter	Units	92200490001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	ND	10	10	10.9	10.8	105	104	90-110	1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18947
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 92199633001

METHOD BLANK: 1195932
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.020	05/09/14 17:45	

LABORATORY CONTROL SAMPLE: 1195933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.4	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1195934 1195935

Parameter	Units	92200426003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.052	2.5	2.5	2.2	2.2	87	86	75-125	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1195936 1195937

Parameter	Units	92200426004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.39	2.5	2.5	2.6	2.6	87	87	75-125	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18974
QC Batch Method: EPA 365.1
Analysis Method: EPA 365.1
Analysis Description: 365.1 Phosphorus, Total
Associated Lab Samples: 92199633001

METHOD BLANK: 1197034
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	05/13/14 15:12	

LABORATORY CONTROL SAMPLE: 1197035

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.6	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1197036 1197037

Parameter	Units	92200430003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Phosphorus	mg/L	0.053	2.5	2.5	2.6	2.6	104	102	90-110	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1197038 1197039

Parameter	Units	92200495004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Phosphorus	mg/L	0.071	2.5	2.5	2.7	2.6	104	102	90-110	2	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18987
QC Batch Method: EPA 420.4
Analysis Method: EPA 420.4
Analysis Description: 420.4 Phenolics
Associated Lab Samples: 92199633001

METHOD BLANK: 1198250
Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phenol	mg/L	ND	0.0050	05/14/14 17:27	

LABORATORY CONTROL SAMPLE: 1198251

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenol	mg/L	.05	0.050	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1198252 1198253

Parameter	Units	92199916003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Phenol	mg/L	0.093	.05	.05	0.075	0.072	-35	-41	90-110	4	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1198254 1198255

Parameter	Units	92200273002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Phenol	mg/L	0.063	.05	.05	0.056	0.062	-14	-2	90-110	10	M1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18959 — Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-E — Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 92199633001

METHOD BLANK: 1196332 — Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	05/12/14 16:02	

LABORATORY CONTROL SAMPLE: 1196333

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.1	0.092	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1196334 — 1196335

Parameter	Units	92200156001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cyanide	mg/L	ND	.1	.1	0.10	0.11	104	105	75-125	2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1196336 — 1196337

Parameter	Units	92199789001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cyanide	mg/L	ND	.1	.1	0.094	0.089	93	88	75-125	5	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/18977 | Analysis Method: SM 5220D
QC Batch Method: SM 5220D | Analysis Description: 5220D COD
Associated Lab Samples: 92199633001

METHOD BLANK: 1197061 | Matrix: Water
Associated Lab Samples: 92199633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	05/13/14 14:22	

LABORATORY CONTROL SAMPLE: 1197062

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	735	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1197063 1197064

Parameter	Units	92200431004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chemical Oxygen Demand	mg/L	80.0	750	750	815	815	98	98	75-125	0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1197065 1197066

Parameter	Units	92200495007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chemical Oxygen Demand	mg/L	263	750	750	1020	1020	100	100	75-125	0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

QC Batch: WETA/35754 | Analysis Method: SM 5310B
QC Batch Method: SM 5310B | Analysis Description: 5310B TOC
Associated Lab Samples: 92199633003

METHOD BLANK: 899994 | Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/12/14 18:12	

LABORATORY CONTROL SAMPLE: 899995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	20	19.6	98	90-110	

MATRIX SPIKE SAMPLE: 899997

Parameter	Units	35136701001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	3.5	20	22.9	97	80-120	

MATRIX SPIKE SAMPLE: 899999

Parameter	Units	35136518002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	1.3	20	20.0	93	80-120	

SAMPLE DUPLICATE: 899996

Parameter	Units	35136701001 Result	Dup Result	RPD	Qualifiers
Total Organic Carbon	mg/L	3.5	3.4	3	

SAMPLE DUPLICATE: 899998

Parameter	Units	35136518002 Result	Dup Result	RPD	Qualifiers
Total Organic Carbon	mg/L	1.3	1.3	5	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine(8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-E	Pace Analytical Services - Eden
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK PROCESS WATER
Pace Project No.: 92199633

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92199633001	BRINK PROCESS WATER	SM 2540D	EDEN/14489		
92199633002	BRINK PROCESS WATER	EPA 1664B	GCSV/17502		
92199633004	BRINK PROCESS WATER	EPA 3510	OEXT/27487	EPA 608	GCSV/17518
92199633001	BRINK PROCESS WATER	EPA 200.7	MPRP/15891	EPA 200.7	ICP/14380
92199633001	BRINK PROCESS WATER	EPA 245.1	MERP/6562	EPA 245.1	MERC/6326
92199633001	BRINK PROCESS WATER	EPA 625	OEXT/27482	EPA 625	MSSV/9084
92199633004	BRINK PROCESS WATER	EPA 624	MSV/26770		
92199633003	BRINK PROCESS WATER	SM 4500-S2D	WET/30889		
92199633001	BRINK PROCESS WATER	40CFR PART 432.2	WET/30994		
92199633001	BRINK PROCESS WATER	EPA 300.0	WETA/18930		
92199633001	BRINK PROCESS WATER	EPA 350.1	WETA/18918		
92199633001	BRINK PROCESS WATER	EPA 351.2	WETA/18957		
92199633001	BRINK PROCESS WATER	EPA 353.2	WETA/18947		
92199633001	BRINK PROCESS WATER	EPA 365.1	WETA/18974		
92199633001	BRINK PROCESS WATER	EPA 420.4	WETA/18987		
92199633001	BRINK PROCESS WATER	SM 4500-CN-E	WETA/18959		
92199633001	BRINK PROCESS WATER	SM 5220D	WETA/18977		
92199633003	BRINK PROCESS WATER	SM 5310B	WETA/35754		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1719936

Section A Required Client Information:

Company: Iluka
Address: 12472 St. John Church Rd. Stony Creek VA 23882
Email To: Kevin.rideout@iluka.com
Phone: 434.348.4316 Fax: 434.246.3039
Requested Due Date/TAT: 10

Section B Required Project Information:

Report To: Kevin Rideout
Copy To:
Purchase Order No.: 4500344234
Project Name:
Project Number:

Section C Invoice Information:

Attention: Dawn Hall
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

[X] NPDES [ ] GROUND WATER [ ] DRINKING WATER
[ ] UST [ ] RCRA [ ] OTHER

Site Location: BRINK
STATE: VA

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Dioxin	T. Phos/T. Nitrogen	Ammonia/Nitrate-Nitrite	Sulfide/Cyanide	Total Metals	BOD	MBAS	Phenols	Sulfate/Sulfide	625	TSS/Tox	O&G	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	BRINK Process Water (BPW)	WW	C	4/30/14	18:00	5/1/14	17:00	20	13	✓		✓		✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		921 99633
2		WW	G			5/1/14	17:00	20	1																				✓		
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Kevin Rideout / Iluka	5-2-14	9:50	Preston B. Hanally	5-2-14	7:50	
	Preston B. Hanally	5-2-14	9:25	Rachel Burnett	5-2-14	925	1.8

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Rideout
SIGNATURE of SAMPLER: Kevin Rideout
DATE Signed (MM/DD/YY): 5/1/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical® www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

here Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

ourier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

stody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

cking Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

cle Thermometer Used: (RMD001) RMD002 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

mp Correction Factor: Add / Subtract _____ C

rrected Cooler Temp.: 1.8 C Biological Tissue is Frozen: Yes No N/A

ap should be above freezing to 6°C

Date and Initials of person examining contents:_____

		Comments:
ain of Custody Present:	☑Yes ☐No ☐N/A	1.
ain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
ain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
mpler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
mples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
ort Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6. BOD, MBAS
sh Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
ficient Volume:	☑Yes ☐No ☐N/A	8.
rect Containers Used:	☑Yes ☐No ☐N/A	9.
Pace Containers Used:	☑Yes ☐No ☐N/A	
tainers Intact:	☑Yes ☐No ☐N/A	10.
ered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
mple Labels match COC:	☑Yes ☐No ☐N/A	12.
Includes date/time/ID/Analysis Matrix: WW		
ontainers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
ontainers needing preservation are found to be in pliance with EPA recommendation.	☐Yes ☐No ☑N/A	
tions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
mples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
dspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Blank Present:	☐Yes ☐No ☑N/A	16.
Blank Custody Seals Present	☐Yes ☐No ☑N/A	
e Trip Blank Lot # (if purchased):		

nt Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

mments/ Resolution: _____

JRF Review: BLG Date: 5/2/14

SRF Review: [illegible] Date: 5/5/14

lote: Whenever there is a discrepancy affecting North Carolina ompliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Pace Analytical www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T	NaOH+Zn Acetate	
1		2		3	1	1		1		2	~~1~~			1		1								1	
2											1														

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

25 ml Plastic Unp: BP4U
50 ml Plastic Unp: BP3U
100 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
50 ml Plastic H2SO4: BP3S
50 ml Plastic HNO3: BP3N
50 ml Plastic ZN Acetate: BP3Z
50 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

UNIVERSAL LABORATORIES

REPORT OF ANALYSIS

Order ID: 1405018

(REPORT DATE)
14-May-14

TO: ***Pace Analytical (Primary)***
7423 Lee Davis Road

Mechanicsville VA 23111
ATTN: Terri Page

FaxNumber: (804) 559-9306
E-MAIL

This report contains the analytical results for Project Id N/A
designated as UL Order Id **1405018** and received on *Friday, May 02, 2014*
The results contained in this report relate only to the samples identified on this order. The analytical results meet all requirements of NELAC unless specifically stated. This report shall not be reproduced except in full.

The data in this report has been reviewed and validated by:

Carol Kleemeier — Signature
Carol Kleemeier — Name
Pres/Tech Director — Title

ANALYTICAL DATA REPORT

UL ORDER ID 1405018

UL Sample Number 1405018-001

Grab Date/Time: 5/1/2014 5:00:00 P

Composite Start: N/A

Composite Stop: N/A

Collected By: CLIENT

Sample Site: ILUKA BPW 92199633

Client Sample ID: ILUKA BPW 92199633

Sample Matrix: Wastewater

Parameter	Test Result	Units	RL	Analysis Date/Time	Analyst	Comment
EPA 625						
2,3,7,8-TCDD	negative			5/12/2014 9:11:00 PM	BD	
SM-5210						
BOD5	<2	mg/L	2	5/3/2014 3:27:00 PM	SW	

Comments for 1405018-001

No comments

ANALYTICAL DATA REPORT

UL ORDER ID 1405018

Analytical Methods Reference

VDEH Lab# 00030 VELAP ID 460036 NCDW Lab # 51706 NCWW Lab # 543

Description:	Prep Method:	Method	Reference	accredited/status
Wastewater				
Biochemical Oxygen Demand	SM 5210 B	SM-5210	2011	Accredited
Dioxin Screen	extract	EPA 625	40 CFR part 136 App. A	Accredited

NOTE: Analysis is performed according to Universal Laboratories Standard Operating Procedures which are based on the analytical methods referenced above

GLOSSARY OF TERMS AND ABBREVIATIONS

RL (Reporting Limit): The minimum levels, concentrations, or quantities of target analyte that can be reported with a specified degrees of confidence.Generally this number is near or equal to the lowest calibration standard run with the analytical batch.

MDL (Method Detection Limit): The constituent concentration that, when processed through the complete method, produces a signal with a 99% probability that it is different from the blank.

LCS (Laboratory Control Sample): is a sample matrix free from the analytes of interest, spiked with verified amounts of analytes.

MS (Matrix Spike): a sample prepared by adding a known mass of target analyte to a specific amount of sample for which an independant estimate of target analyte concentration is available.

MSD (Matrix Spike Duplicate): is a replicate matrix spike prepared in the laboratory and anlyzed to obtain a measure of the precision recovery for each analtye.

Surrogate is a substance with properties that mimic the analyte of interest.It is unlikely to be found in environmental samples and is added to them for quality control purposes

IS (Internal Standard): is a known amount of standard added to a test portion of the sample as a reference for evaluation and controlling the precsion and bias of the applied analytical method.

RPD (Relative Percent Difference) is the difference between a set of sample duplicates or sample spike duplicates

ICV (Initial Calibration Verification) CCV (Continuing Calibration Verification) FCV (Final Calibration Verification)

Method Blank is a sample matrix smilar to the batch of associated samples that is free from analytes of interest and is processed simultaneously with and under the same conditions as samples.

Trip Blank is a sample of analyte free media collected in the same type of container that is required for the analytical test, taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures

Holding Time is the maximum times that samples may be held prior to analysis and still be considered valid or not compromised

ug/L=ppb ug/kg=ppb mg/kg=ppm mg/L=ppm

HAM= Analyzed in Hampton Lab

FRED= Analyzed in Fredericksburg Lab

QC Flag	Description
B	Analyte found in method blank
H	Holding time exceeded
L	LCS outside acceptable limits
V	ICV/CCV/FCV outside acceptable limits
D	RPD outside acceptable limits
MS	Matrix spike recovery outside acceptable limits
J	Result above calibration curve approximate value
QC	Method QC Critera not met
MI	Matrix Interference
S	Surrogate outside acceptable limits
IS	Internal standard outside acceptable limits
*	VELAP accreditation not available
**	VELAP not accredited
T	Value is between the RL and MDL

Pace Analytical®
www.pacelabs.com

UL

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1405018

Page: of

1793918

Section A
Required Client Information:

Company:
Address: Pace
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B
Required Project Information:

Report To:
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C
Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location
STATE: _____

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes
MATRIX / CODE
Drinking Water DW
Water WT
Waste Water WW
Product P
Soil/Solid SL
Oil OL
Wipe WP
Air AR
Tissue TS
Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	BOD	TCDD Dioxin	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
D 1	Iluka BPW	WW	C	4-30	1800	5-1	1700		2	X									X	X		
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Rachel Bunum	5-2-14	1250		5/2/14	1250
		5/2/14	1430	M	5/2/14	16:30

SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15 May 2007

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

May 08, 2014

Terri Page
Pace Analytical Eden
205 East Meadow Rd.
Eden, NC 27288
TEL: (336) 623-8921
FAX:

RE: 92199633 Brink Process Water

Order No.: 14050488

Dear Terri Page:

Summit Environmental Technologies, Inc. received 1 sample(s) on 5/6/2014 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

3310 Win St.
Cuyahoga Falls, Ohio 44223

A2LA 0724.01, Alabama 41600, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704466-11-5, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Workorder Sample Summary

WO#: **14050488**
08-May-14

CLIENT: Pace Analytical Eden
Project: 92199633 Brink Process Water

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
14050488-001	92199633001		5/1/2014 5:00:00 PM	5/6/2014 9:45:00 AM	Non-Potable Water

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Case Narrative

WO#: **14050488**
Date: **5/8/2014**

CLIENT: Pace Analytical Eden
Project: 92199633 Brink Process Water

This report in its entirety consists of the documents listed below. All documents contain the Summit Environmental Technologies, Inc. Work Order Number assigned to this report.

Paginated Report including: Cover Letter, Case Narrative, Analytical Results, Applicable Quality Control Summary Reports and copies of the Chain of Custody Documents supplied with this sample set.

Concentrations reported with a J flag in the Qual field are values below the Limit of Quantitation (LOQ) but greater than the established Limit of Detection (LOD). There is greater uncertainty associated with these results and data should be considered as estimated.

Method numbers, unless specified as SM (Standard Methods) or ASTM, are EPA methods.

Estimated uncertainty values are available upon request.

Any comments or problems with the analytical events associated with this report are noted below.

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

WO#: **14050488**
Date Reported: **5/8/2014**
Company: Pace Analytical Eden
Address: 205 East Meadow Rd.
Eden NC 27288
Received: 5/6/2014
Project#: 92199633 Brink

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92199633001	001	5/1/2014	Sulfite	ND	mg/L	Non-Potable Water	EPA 377 1	1	1.0	5/6/2014	JLD

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUM

Client: Pace Analytical Eden
Project: 92199633 Brink Process Water **TestCode:**

Sample ID **MB-R17622** SampType: **MBLK** TestCode: **Sulfite_NPW(** Units: **mg/L** Prep Date:
Client ID: **PBW** Batch ID: **R17622** TestNo: **E377.1** Analysis Date: **5/6/2014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val
Sulfite	ND	1.0						

Sample ID **LCS-R17622** SampType: **LCS** TestCode: **Sulfite_NPW(** Units: **mg/L** Prep Date:
Client ID: **LCSW** Batch ID: **R17622** TestNo: **E377.1** Analysis Date: **5/6/2014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val
Sulfite	5.4	1.0	5.000	0	108	90	110	

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	C	Value is below Mini
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected bel
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	O	RSD is greater than
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepte
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits	U	Samples with CalcV

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 92199633 **Workorder Name:** BRINK PROCESS WATER **Results Requested** 5/16/2014

Report Two Sets To

Terri Page
Pace Analytical Eden
205 East Meadow Road
Suite A
Eden, NC 27288
Phone (336)623-8921
Email: terri.page@pacelabs.com

Summit Enviro.

P.O. eds60451

	Sample ID	Date/Time	Lab ID	Matrix	HNO3	Unpreserved					X Sulfite												LAB USE ONLY
1	BRINK PROCESS WATER	5/1/2014 17:00	92199633001	Water																			
2																							
3																							
4																							
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1				
2				
3			Jackie Rapile	5/6/14/0940

Comments: $30.00

Cooler Temperature on Receipt 3.1 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

14050488-001J

Rev. 12
Date: 07/27/13

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Initials of person inspecting cooler and samples: [illegible]

Client: Pace

Order Number: _____

Date Received: 5-6-14 Time Received: 0945 Date cooler(s) opened and samples inspected: 5-6-14

Number of Coolers/Boxes: 1 N/A

Shipper: FED EX UPS DHL Airborne US Postal Walk-in Pickup Other: _____

Packaging: Peanuts Bubble Wrap Paper Foam None Other: _____

Tape on cooler/box	Y	N	N/A
Custody Seals intact	Y	N	N/A
C-O-C in plastic	Y	N	N/A
Ice ✓ Blue ice _____	present / absent / melted	N/A	
Sample Temperature IR Gun #18020459 CF 0.0 °C 3.1 °C			N/A
Radiological Testing instrument serial #35127 (see page 3 for scan results)	Y	N	N/A

**Use 1 sheet per sample for Radiological Testing. If sample is HOT, the Radiological Safety Officer must be notified immediately.

C-O-C filled out properly	Y	N	N/A
Samples in separate bags	Y	N	N/A
Sample containers intact*	Y	N	N/A

*If no, list broken sample(s) _____

Sample label(s) complete (ID, date, etc.)	Y	N	N/A
Label(s) agree with C-O-C	Y	N	N/A
Correct containers used	Y	N	N/A
Sufficient sample received	Y	N	N/A
Bubbles absent from 40 mL vials**	Y	N	N/A

** Samples with bubbles <6mm are acceptable. Indicate bubble size if >6mm: _____

Was client contacted about samples	Y	N
Will client send new samples	Y	N

Client contact: _____

Date/Time: _____

Logged in by: _____

Comments: _____

Summit Environmental Technologies, Inc.
Sample Receipt

pH test on samples

Client ID	Test	pH
92199633001	Sulfite	6

Radiological scan on sample

Client ID	scan	CPM

Analytics Corporation
10329 Stony Run Lane
Ashland, VA 23005
Phone: (804) 365-3000
Fax: (908) 365-3002

May 09, 2014

DAVID STONEMAN
PACE ANALYTICAL
7130 MECHANICSVILLE TURNPIKE
Mechanicsville, VA 23111

Purchase Order:
Client ID: BRINK PROCESS
Work Order: 1020787

Dear DAVID STONEMAN

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, May 02, 2014. The signature below certifies that the results are based on the referenced methods and applicable certifications or accreditations are noted for each parameter reported (see key at end of report).

Unless otherwise specified all analyses of solid materials are based on dry weight.

Reported results relate only to the items tested, as received by the laboratory.

On-site analysis (analysis ASAP) is recommended for the following tests: pH, temperature, dissolved oxygen, residual chlorine and sulfite. When performed off-site, these tests do not meet NELAC standards.

Abbreviations:ug/L = micrograms per Liter, mg/L = milligrams per Liter, ug/g = micrograms per gram, mg/kg = milligrams per kilogram ug/wp = micrograms per wipe, ug/ml = micrograms per millimeter, uS/cm = microsiemens per centimeter at 25 degrees Celcius ppb = parts per billion, DF = Dilution Factor.

If you have any questions concerning this report, please feel free to call Client Services at 1-800-888-8061.

Sincerely,

Dawn Casto
Technical Director (or designee)

Enclosures

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Analytics Corporation

Analytics Corporation
10329 Stony Run Lane
Ashland, VA 23005
Phone: (804) 365-3000
Fax: (908) 365-3002

ANALYTICAL RESULTS

Workorder: 1020787 BRINK PROCESS

Lab ID:	1020787001	Date Received:	05/02/2014 9:50	Matrix	Aqueous Liquid
Sample ID:	BRINK PROCESS	Date Collected:	05/01/2014 17:00	Sample Type:	NA

Parameters	Results	Units	Report Limi	DF	Prepared	By	Analyzed	By	Qual	Certifications
Analytical Method: SM5540C-2011					Preparation Method: SM5540C-2011					
Surfactants (MBAS)	<0.100	mg/L	0.100	1	05/02/2014	19:15 TTW	5/8/2014	16:25 TTW		V

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Analytics Corporation

Analytics Corporation
10329 Stony Run Lane
Ashland, VA 23005
Phone: (804) 365-3000
Fax: (908) 365-3002

ANALYTICAL RESULTS

Workorder: 1020787 BRINK PROCESS

Qualifiers

--

Certification Index:

V = Virginia (NELAC) - 1 VAC 30-46 H 1, Laboratory ID: 460160, Certificate #: 2770

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Analytics Corporation

Pace Analytical®
www.pacelabs.com

ANALYTICS

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1793917

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company:	Report To:	Attention:
Address: PACE	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location
STATE: _____

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes
MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): MBAS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	BRINK PROCESS	WT				5-1-14	17:00		1									X		
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		5-2-14					
	Richard Cutler	5/2/14	9:50	Richard Cutler	5/2/14	950	1C

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

ANALYTICS

Sample Container Receipt Form

Version 6-24-2011

Work Order: 1020787

Customer Name: PRIMARY LABORATORIES INC 45839195 STAND

CLIENT SAMPLE ID	LAB CONTAINER ID	TYPE OF CONTAINER	QTY	Temp(C)	pH	Chlorine on Arrival (ppm)	Condition Code	Preservative
BRINK PROCESS	1020787001-A	1000P	1	1	8		OK	COOL

Notes

Sample Custodian Signature	Richard Carlin RICHARD CARLIN	Date:	5/2/11

Version 11-13-2011 CML

Pace Analytical Services, Inc.
9800 Kincey Ave Suite 100
Huntersville, NC 28078
(704)875-9092

June 02, 2014

Kevin Rideout

RE: Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on May 07, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brittany L Gibson

Brittany Gibson for
Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced except in full
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Eden Certification IDs
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738

North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92200137001	BRINK PROCESS WATER	SM 2120E Color ADMI	CHM	4	PASI-E
		EPA 608	RES	27	PASI-C
		EPA 624	MCK	24	PASI-C
		EPA 900.0	JMR	2	PASI-PA
		EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	JAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 300.0	JNZ	2	PASI-O
		SM 5220D	SMW	1	PASI-A

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Sample: BRINK PROCESS WATER **Lab ID: 92200137001** Collected: 05/06/14 15:00 Received: 05/07/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2120E Color ADMI	Analytical Method: SM 2120E Color ADMI							
Color, ADMI	ND	units	25.0	1		05/08/14 10:38		
Adjusted Color, ADMI	ND	units	25.0	1		05/08/14 10:38		
pH	**7.3**	units	1.0	1		05/08/14 10:38		
Adjusted pH, ADMI	**7.6**	units	1.0	1		05/08/14 10:38		
608 GCS Pesticides and PCBs	Analytical Method: EPA 608 Preparation Method: EPA 3510							
Aldrin	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	309-00-2	
alpha-BHC	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	319-84-6	
beta-BHC	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	319-85-7	
delta-BHC	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	319-86-8	
gamma-BHC (Lindane)	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	58-89-9	
Chlordane (Technical)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	57-74-9	
4,4'-DDD	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	72-54-8	
4,4'-DDE	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	72-55-9	
4,4'-DDT	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	50-29-3	
Dieldrin	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	60-57-1	
Endosulfan I	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	959-98-8	
Endosulfan II	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	33213-65-9	
Endosulfan sulfate	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	1031-07-8	
Endrin	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	72-20-8	
Endrin aldehyde	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	7421-93-4	
Heptachlor	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	76-44-8	
Heptachlor epoxide	ND	ug/L	0.050	1	05/09/14 11:30	05/14/14 02:27	1024-57-3	
PCB-1016 (Aroclor 1016)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	11096-82-5	
Toxaphene	ND	ug/L	0.50	1	05/09/14 11:30	05/14/14 02:27	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	66	%	20-110	1	05/09/14 11:30	05/14/14 02:27	877-09-8	
Decachlorobiphenyl (S)	66	%	20-138	1	05/09/14 11:30	05/14/14 02:27	2051-24-3	
624 Volatile Organics	Analytical Method: EPA 624							
Acrolein	ND	ug/L	5.0	1		05/14/14 23:23	107-02-8	
Acrylonitrile	ND	ug/L	50.0	1		05/14/14 23:23	107-13-1	
Benzene	ND	ug/L	2.0	1		05/14/14 23:23	71-43-2	
Bromoform	ND	ug/L	2.0	1		05/14/14 23:23	75-25-2	
Carbon tetrachloride	ND	ug/L	2.0	1		05/14/14 23:23	56-23-5	
Chlorobenzene	ND	ug/L	2.0	1		05/14/14 23:23	108-90-7	
Chloroethane	ND	ug/L	2.0	1		05/14/14 23:23	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	5.0	1		05/14/14 23:23	110-75-8	
Chloroform	ND	ug/L	2.0	1		05/14/14 23:23	67-66-3	
Chloromethane	ND	ug/L	2.0	1		05/14/14 23:23	74-87-3	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Sample: BRINK PROCESS WATER **Lab ID: 92200137001** Collected: 05/06/14 15:00 Received: 05/07/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624							
Dichlorodifluoromethane	ND	ug/L	2.0	1		05/14/14 23:23	75-71-8	
1,1-Dichloroethane	ND	ug/L	2.0	1		05/14/14 23:23	75-34-3	
1,3-Dichloropropane	ND	ug/L	2.0	1		05/14/14 23:23	142-28-9	
Ethylbenzene	ND	ug/L	2.0	1		05/14/14 23:23	100-41-4	
Methylene Chloride	ND	ug/L	2.0	1		05/14/14 23:23	75-09-2	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	1		05/14/14 23:23	630-20-6	
Toluene	ND	ug/L	2.0	1		05/14/14 23:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	2.0	1		05/14/14 23:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	1		05/14/14 23:23	79-00-5	
Trichlorofluoromethane	ND	ug/L	2.0	1		05/14/14 23:23	75-69-4	
Vinyl chloride	ND	ug/L	2.0	1		05/14/14 23:23	75-01-4	
Surrogates								
4-Bromofluorobenzene (S)	90	%	70-130	1		05/14/14 23:23	460-00-4	
Toluene-d8 (S)	96	%	70-130	1		05/14/14 23:23	2037-26-5	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		05/14/14 23:23	17060-07-0	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	0.10	1		05/18/14 02:16	24959-67-9	
Fluoride	ND	mg/L	0.050	1		05/18/14 02:16	16984-48-8	
5220D COD	Analytical Method: SM 5220D							
Chemical Oxygen Demand	ND	mg/L	25.0	1		05/25/14 13:00		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: EDEN/14523 | Analysis Method: SM 2120E Color ADMI
QC Batch Method: SM 2120E Color ADMI | Analysis Description: 2120E Color ADMI
Associated Lab Samples: 92200137001

METHOD BLANK: 1194437 | Matrix: Water
Associated Lab Samples: 92200137001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Color, ADMI	units	ND	25.0	05/08/14 10:12	

LABORATORY CONTROL SAMPLE: 1194438

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Color, ADMI	units	125	124	99	90-110	

SAMPLE DUPLICATE: 1194439

Parameter	Units	92200115001 Result	Dup Result	RPD	Qualifiers
Color, ADMI	units	50.0	50.0	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: MSV/26820 | Analysis Method: EPA 624
QC Batch Method: EPA 624 | Analysis Description: 624 MSV
Associated Lab Samples: 92200137001

METHOD BLANK: 1198952 | Matrix: Water
Associated Lab Samples: 92200137001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	2.0	05/14/14 13:57	
1,1,1-Trichloroethane	ug/L	ND	2.0	05/14/14 13:57	
1,1,2-Trichloroethane	ug/L	ND	2.0	05/14/14 13:57	
1,1-Dichloroethane	ug/L	ND	2.0	05/14/14 13:57	
1,3-Dichloropropane	ug/L	ND	2.0	05/14/14 13:57	
2-Chloroethylvinyl ether	ug/L	ND	5.0	05/14/14 13:57	
Acrolein	ug/L	ND	5.0	05/14/14 13:57	
Acrylonitrile	ug/L	ND	50.0	05/14/14 13:57	
Benzene	ug/L	ND	2.0	05/14/14 13:57	
Bromoform	ug/L	ND	2.0	05/14/14 13:57	
Carbon tetrachloride	ug/L	ND	2.0	05/14/14 13:57	
Chlorobenzene	ug/L	ND	2.0	05/14/14 13:57	
Chloroethane	ug/L	ND	2.0	05/14/14 13:57	
Chloroform	ug/L	ND	2.0	05/14/14 13:57	
Chloromethane	ug/L	ND	2.0	05/14/14 13:57	
Dichlorodifluoromethane	ug/L	ND	2.0	05/14/14 13:57	
Ethylbenzene	ug/L	ND	2.0	05/14/14 13:57	
Methylene Chloride	ug/L	ND	2.0	05/14/14 13:57	
Toluene	ug/L	ND	2.0	05/14/14 13:57	
Trichlorofluoromethane	ug/L	ND	2.0	05/14/14 13:57	
Vinyl chloride	ug/L	ND	2.0	05/14/14 13:57	
1,2-Dichloroethane-d4 (S)	%	92	70-130	05/14/14 13:57	
4-Bromofluorobenzene (S)	%	100	70-130	05/14/14 13:57	
Toluene-d8 (S)	%	96	70-130	05/14/14 13:57	

LABORATORY CONTROL SAMPLE: 1198953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.3	92	70-130	
1,1,1-Trichloroethane	ug/L	20	17.4	87	52-162	
1,1,2-Trichloroethane	ug/L	20	20.7	103	52-150	
1,1-Dichloroethane	ug/L	20	17.9	89	59-155	
1,3-Dichloropropane	ug/L	20	20.3	102	70-130	
2-Chloroethylvinyl ether	ug/L	40	39.8	100	1-305	
Acrolein	ug/L	100	89.6	90	15-152	
Acrylonitrile	ug/L	100	98.1	98	75-132	
Benzene	ug/L	20	22.2	111	37-151	
Bromoform	ug/L	20	15.1	76	45-169	
Carbon tetrachloride	ug/L	20	16.2	81	70-140	CC
Chlorobenzene	ug/L	20	20.3	101	37-160	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

LABORATORY CONTROL SAMPLE: 1198953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroethane	ug/L	20	17.7	89	14-230	
Chloroform	ug/L	20	18.8	94	51-138	
Chloromethane	ug/L	20	14.3	71	1-273	
Dichlorodifluoromethane	ug/L	20	20.1	100	70-130	
Ethylbenzene	ug/L	20	20.2	101	37-162	
Methylene Chloride	ug/L	20	18.4	92	1-221	
Toluene	ug/L	20	20.7	104	47-150	
Trichlorofluoromethane	ug/L	20	18.7	93	17-181	
Vinyl chloride	ug/L	20	20.0	100	1-251	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			98	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: OEXT/27553 | Analysis Method: EPA 608
QC Batch Method: EPA 3510 | Analysis Description: 608 GCS Pest PCB
Associated Lab Samples: 92200137001

METHOD BLANK: 1195303 | Matrix: Water
Associated Lab Samples: 92200137001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
4,4'-DDD	ug/L	ND	0.050	05/13/14 17:52	
4,4'-DDE	ug/L	ND	0.050	05/13/14 17:52	
4,4'-DDT	ug/L	ND	0.050	05/13/14 17:52	
Aldrin	ug/L	ND	0.050	05/13/14 17:52	
alpha-BHC	ug/L	ND	0.050	05/13/14 17:52	
beta-BHC	ug/L	ND	0.050	05/13/14 17:52	
Chlordane (Technical)	ug/L	ND	0.50	05/13/14 17:52	
delta-BHC	ug/L	ND	0.050	05/13/14 17:52	
Dieldrin	ug/L	ND	0.050	05/13/14 17:52	
Endosulfan I	ug/L	ND	0.050	05/13/14 17:52	
Endosulfan II	ug/L	ND	0.050	05/13/14 17:52	
Endosulfan sulfate	ug/L	ND	0.050	05/13/14 17:52	
Endrin	ug/L	ND	0.050	05/13/14 17:52	
Endrin aldehyde	ug/L	ND	0.050	05/13/14 17:52	
gamma-BHC (Lindane)	ug/L	ND	0.050	05/13/14 17:52	
Heptachlor	ug/L	ND	0.050	05/13/14 17:52	
Heptachlor epoxide	ug/L	ND	0.050	05/13/14 17:52	
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	05/13/14 17:52	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	05/13/14 17:52	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	05/13/14 17:52	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	05/13/14 17:52	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	05/13/14 17:52	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	05/13/14 17:52	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	05/13/14 17:52	
Toxaphene	ug/L	ND	0.50	05/13/14 17:52	
Decachlorobiphenyl (S)	%	76	20-138	05/13/14 17:52	
Tetrachloro-m-xylene (S)	%	67	20-110	05/13/14 17:52	

LABORATORY CONTROL SAMPLE: 1195304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	ug/L	.25	0.20	81	31-141	
4,4'-DDE	ug/L	.25	0.18	74	30-145	
4,4'-DDT	ug/L	.25	0.22	88	25-160	
Aldrin	ug/L	.25	0.11	43	42-122	
alpha-BHC	ug/L	.25	0.19	76	37-134	
beta-BHC	ug/L	.25	0.18	74	17-147	
delta-BHC	ug/L	.25	0.19	77	19-140	
Dieldrin	ug/L	.25	0.19	75	36-146	
Endosulfan I	ug/L	.25	0.19	75	45-153	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

LABORATORY CONTROL SAMPLE: 1195304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endosulfan II	ug/L	.25	0.20	82	1-202	
Endosulfan sulfate	ug/L	.25	0.22	88	26-144	
Endrin	ug/L	.25	0.20	81	30-147	
Endrin aldehyde	ug/L	.25	0.20	80	50-150	
gamma-BHC (Lindane)	ug/L	.25	0.18	74	32-127	
Heptachlor	ug/L	.25	0.12	50	34-111	
Heptachlor epoxide	ug/L	.25	0.18	74	41-126	
Decachlorobiphenyl (S)	%			74	20-138	
Tetrachloro-m-xylene (S)	%			73	20-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: WETA/35959
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92200137001

METHOD BLANK: 905706
Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	0.10	05/17/14 20:42	
Fluoride	mg/L	ND	0.050	05/17/14 20:42	

LABORATORY CONTROL SAMPLE: 905707

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	10	9.9	99	90-110	
Fluoride	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 905708 905709

Parameter	Units	35136674002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Bromide	mg/L	0.98	10	10	11.0	10.8	100	99	90-110	1	
Fluoride	mg/L	0.53	5	5	5.3	5.2	95	94	90-110	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 905710 905711

Parameter	Units	35137268001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Bromide	mg/L	0.35	10	10	10.5	10.7	102	103	90-110	1	
Fluoride	mg/L	0.15	5	5	4.9	4.9	94	96	90-110	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: WETA/19090 | Analysis Method: SM 5220D
QC Batch Method: SM 5220D | Analysis Description: 5220D COD
Associated Lab Samples: 92200137001

METHOD BLANK: 1205583 | Matrix: Water
Associated Lab Samples: 92200137001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	05/25/14 13:00	

LABORATORY CONTROL SAMPLE: 1205584

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	769	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1205585 | 1205586

Parameter	Units	92200137001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chemical Oxygen Demand	mg/L	ND	750	750	796	796	106	106	75-125	0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1205587 | 1205588

Parameter	Units	92200621006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chemical Oxygen Demand	mg/L	154	750	750	971	971	109	109	75-125	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Sample: BRINK PROCESS WATER **Lab ID: 92200137001** Collected: 05/06/14 15:00 Received: 05/07/14 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**1.99 ± 1.55 (2.98)** **C:NA T:NA**	pCi/L	05/17/14 12:45	12587-46-1	
Gross Beta	EPA 900.0	**2.63 ± 0.996 (1.63)** **C:NA T:NA**	pCi/L	05/17/14 12:45	12587-47-2	
Radium-226	EPA 903.1	**0.907 ± 0.857 (0.973)** **C:NA T:89%**	pCi/L	05/29/14 14:59	13982-63-3	
Radium-228	EPA 904.0	**0.577 ± 0.530 (0.959)** **C:75% T:69%**	pCi/L	05/30/14 11:56	15262-20-1	
Total Radium	Total Radium Calculation	**1.48 ± 1.39 (1.93)**	pCi/L	06/02/14 12:02	7440-14-4	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: RADC/19768 | Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 | Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 92200137001

METHOD BLANK: 729218 | Matrix: Water
Associated Lab Samples:

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.085 ± 0.613 (1.61) C:NA T:NA	pCi/L	05/17/14 12:44	
Gross Beta	0.844 ± 0.903 (1.92) C:NA T:NA	pCi/L	05/17/14 12:44	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: RADC/19759 | Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 | Analysis Description: 903.1 Radium-226
Associated Lab Samples: 92200137001

METHOD BLANK: 728787 | Matrix: Water
Associated Lab Samples:

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.160 ± 0.244 (0.640) C:NA T:94%	pCi/L	05/29/14 14:38	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

QC Batch: RADC/19760 | Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 | Analysis Description: 904.0 Radium 228
Associated Lab Samples: 92200137001

METHOD BLANK: 728788 | Matrix: Water
Associated Lab Samples:

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0336 ± 0.300 (0.709) C:79% T:88%	pCi/L	05/23/14 13:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit

RL - Reporting Limit

S - Surrogate

1,2-Diphenylhydrazine(8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-E	Pace Analytical Services - Eden
PASI-O	Pace Analytical Services - Ormond Beach
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

CC	The continuing calibration for this compound is outside of method control limits. The result is estimated.

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK PROCESS WATER
Pace Project No.: 92200137

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92200137001	BRINK PROCESS WATER	SM 2120E Color ADMI	EDEN/14523		
92200137001	BRINK PROCESS WATER	EPA 3510	OEXT/27553	EPA 608	GCSV/17569
92200137001	BRINK PROCESS WATER	EPA 624	MSV/26820		
92200137001	BRINK PROCESS WATER	EPA 900.0	RADC/19768		
92200137001	BRINK PROCESS WATER	EPA 903.1	RADC/19759		
92200137001	BRINK PROCESS WATER	EPA 904.0	RADC/19760		
92200137001	BRINK PROCESS WATER	Total Radium Calculation	RADC/19981		
92200137001	BRINK PROCESS WATER	EPA 300.0	WETA/35959		
92200137001	BRINK PROCESS WATER	SM 5220D	WETA/19090		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company: Iluka Resources
Address: 12472 St. John Church Rd
Stony Creek, VA 23882
Email To: Kevin.rideout@iluka.com
Phone: 434.348.4316 Fax:
Requested Due Date/TAT: 10

Section B Required Project Information:

Report To: Kevin Rideout
Copy To:
Purchase Order No.: 4500344234
Project Name: Brink Process Water
Project Number:

Section C Invoice Information:

Attention: Dawn Hall
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☒ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Brink VA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	Radio activity	608	624	Bromide	COD	Fluoride	Color	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Process Water (BPW)	WW	C	5/5/14	16:00	5/6/14	15:00	21.3	9	✓		✓					✓		✓	✓	✓	✓	✓	✓	✓		92200137
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Kevin Rideout/Iluka	5/7/14	7:58	Preston B. Hawille	5-7-14	7:58				
	Preston B. Hawille	5-7-14	9:00	Rachel Burness	5-7	900	4.9			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Rideout
SIGNATURE of SAMPLER: Kevin Rideout
DATE Signed (MM/DD/YY): 5/6/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 4.9 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:_____

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6. Color
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: BLG Date: 5/7/14

SRF Review: [illegible] Date: 5/8/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T	1 gal. cubitainer	
1		2	1		1					1						3								1	

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

May 09, 2014

Kevin Rideout

RE: Project: BRINK PROCESS WATER
Pace Project No.: 92200123

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on May 07, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brittany L Gibson

Brittany Gibson for
Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK PROCESS WATER
Pace Project No.: 92200123

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK PROCESS WATER
Pace Project No.: 92200123

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92200123001	BRINK PROCESS WATER	SM 4500-Cl G	MDW	1	PASI-A

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS WATER
Pace Project No.: 92200123

Sample: BRINK PROCESS WATER **Lab ID: 92200123001** Collected: 05/07/14 06:43 Received: 05/07/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G							
Chlorine, Total Residual	ND	mg/L	0.024	1		05/09/14 10:30	7782-50-5	H1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS WATER
Pace Project No.: 92200123

QC Batch: WET/30941
QC Batch Method: SM 4500-Cl G
Analysis Method: SM 4500-Cl G
Analysis Description: 4500CL G Chlorine, Total Residual
Associated Lab Samples: 92200123001

METHOD BLANK: 1195162
Matrix: Water
Associated Lab Samples: 92200123001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	ND	0.024	05/09/14 10:30	

SAMPLE DUPLICATE: 1195163

Parameter	Units	92200123001 Result	Dup Result	RPD	Qualifiers
Chlorine, Total Residual	mg/L	ND	ND		H1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK PROCESS WATER
Pace Project No.: 92200123

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine(8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

ANALYTE QUALIFIERS

H1 Analysis conducted outside the EPA method holding time.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK PROCESS WATER
Pace Project No.: 92200123

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92200123001	BRINK PROCESS WATER	SM 4500-Cl G	WET/30941		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:
Company: IluKa Resources Inc
Address: 12472 St. John Church Rd. Stony Creek, VA 23882
Email To: kevin.rideout@iluka.com
Phone: 434.348.4316 Fax:
Requested Due Date/TAT: 10

Section B Required Project Information:
Report To: Kevin Rideout
Copy To:
Purchase Order No.: 4500 344234
Project Name: BRINK Process Water
Project Number:

Section C Invoice Information:
Attention: Dawn Hall
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☒ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ____
Site Location STATE: BRINK VA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chlorine	Fecal Coliform	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	BRINK Process Water	WW	G			5/7/14	6:45	19	2								✓		✓	✓		9220123
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	David J. Blackwell	5/7/14	7:47	Preston B. Haville	5-7-14	7:58	
	Preston B. Haville	5-7-14	9:00	Rachel Burnett	5-7	900	4.9

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: David J. Blackwell
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 05/07/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 4.9 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:_____

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6. Fecal coli, chlorine
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WW	☑Yes ☐No ☐N/A	12.
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: BLG Date: 5/7/14

SRF Review: JW Date: 5/8/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

_____

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T		

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

UNIVERSAL LABORATORIES

REPORT OF ANALYSIS

Order ID: **1405255**

(REPORT DATE)
23-May-14

TO: Pace Analytical (Primary)
7423 Lee Davis Road

Mechanicsville VA 23111

ATTN: Terri Page

FaxNumber: (804) 559-9306
E-MAIL

This report contains the analytical results for Project Id N/A
designated as UL Order Id **1405255** and received on *Thursday, May 22, 2014*
The results contained in this report relate only to the samples identified on this order. The analytical results meet all requirements of NELAC unless specifically stated. This report shall not be reproduced except in full.

The data in this report has been reviewed and validated by:

Carol Kleemeier — Signature
Carol Kleemeier — Name
Pres/Tech Director — Title

ANALYTICAL DATA REPORT

UL ORDER ID 1405255

UL Sample Number 1405255-001

Grab Date/Time: 05/22/2014 06:30:00

Composite Start: N/A

Composite Stop: N/A

Collected By: CLIENT

Sample Site: ILUKA NEAR PUMP 92202447

Client Sample ID: ILUKA NEAR PUMP 92202447

Sample Matrix: Wastewater

Parameter	Test Result	Units	RL	Analysis Date/Time	Analyst	Comment
SM-3500 Cr/D						
Hexavalent Chromium (Total)	0.007	mg/L	0.005	05/22/2014 18:14:00	EK	

Comments for 1405255-001

No comments

ANALYTICAL DATA REPORT

UL ORDER ID 1405255

UL Sample Number 1405255-002

Grab Date/Time: 05/22/2014 06:30:00

Composite Start: N/A

Composite Stop: N/A

Collected By: CLIENT

Sample Site: ILUKA OUTFALL 92202447

Client Sample ID: ILUKA OUTFALL 92202447

Sample Matrix: Wastewater

Parameter	Test Result	Units	RL	Analysis Date/Time	Analyst	Comment
SM-3500 Cr/D						
Hexavalent Chromium (Total)	0.006	mg/L	0.005	05/22/2014 18:14:00	EK	

Comments for 1405255-002

No comments

ANALYTICAL DATA REPORT

UL ORDER ID 1405255

Analytical Methods Reference

VDEH Lab# 00030 VELAP ID 460036 NCDW Lab # 51706 NCWW Lab # 543

Description:	Prep Method:	Method	Reference	accredited/status
Wastewater				
Hexavalent Chromium (Total)		SM-3500 Cr/D	2011	Accredited

NOTE: Analysis is performed according to Universal Laboratories Standard Operating Procedures which are based on the analytical methods referenced above

GLOSSARY OF TERMS AND ABBREVIATIONS

RL (Reporting Limit): The minimum levels, concentrations, or quantities of target analyte that can be reported with a specified degree of confidence.Generally this number is near or equal to the lowest calibration standard run with the analytical batch.

MDL (Method Detection Limit). The constituent concentration that, when processed through the complete method, produces a signal with a 99% probability that it is different from the blank.

LCS (Laboratory Control Sample) is a sample matrix free from the analytes of interest spiked with verified amounts of analytes

MS (Matrix Spike): a sample prepared by adding a known mass of target analyte to a specific amount of sample for which an independant estimate of target analyte concentration is available.

MSD (Matrix Spike Duplicate) is a replicate matrix spike prepared in the laboratory and analyzed to obtain a measure of the precision recovery for each analtye.

Surrogate is a substance with properties that mimic the analyte of interest.It is unlikely to be found in environmental samples and is added to them for quality control purposes

IS (Internal Standard) is a known amount of standard added to a test portion of the sample as a reference for evaluation and controlling the precision and bias of the applied analytical method

RPD (Relative Percent Difference) is the difference between a set of sample duplicates or sample spike duplicates

ICV (Initial Calibration Verification) CCV (Continuing Calibration Verification) FCV (Final Calibration Verification)

Method Blank is a sample matrix similar to the batch of associated samples that is free from analytes of interest and is processed simultaneously with and under the same conditions as samples.

Trip Blank is a sample of analyte free media collected in the same type of container that is required for the analytical test taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures

Holding Time is the maximum times that samples may be held prior to analysis and still be considered valid or not compromised

ug/L=ppb ug/kg=ppb mg/kg=ppm mg/L=ppm

HAM= Analyzed in Hampton Lab

FRED= Analyzed in Fredericksburg Lab

QC Flag	Description
B	Analyte found in method blank
H	Holding time exceeded
L	LCS outside acceptable limits
V	ICV/CCV/FCV outside acceptable limits
D	RPD outside acceptable limits
MS	Matrix spike recovery outside acceptable limits
J	Result above calibration curve approximate value
QC	Method QC Critera not met
MI	Matrix Interference
S	Surrogate outside acceptable limits
IS	Internal standard outside acceptable limits
*	VELAP accreditation not available
**	VELAP not accredited
T	value is between the RL and MDL

Pace Analytical™
www.pacelabs.com

UL

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

140525

Section A Required Client Information:
Company:
Address: Pace
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To:
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

Page: of
1807576

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER
Site Location STATE:

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Hex. Chrome	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
A 1	Iluka Near Pump					5-22	6:30			X								X			
A 2	" outfall					5-22	630			X								X			
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Rachel Burnum	5-22	1240	[illegible]	5-22	1240	
	[illegible]	5-22	1357	[illegible]	5/22/14	13:57	

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek, VA 23832	Date Received:	August 5, 2014 8:45
		Date Issued:	August 19, 2014 15:38
		Project Number:	[none]
Submitted To:	Kevin Rideout	Purchase Order:	4500344238
Client Site I.D.:	Brink		

Enclosed are the results of analyses for samples received by the laboratory on 08/05/2014 08:45. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Ted Soyars

Ted Soyars
Laboratory Manager

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Air Water & Soil Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac
Commonwealth of Virginia, DCLS
Accreditation # 460021

CERTIFIED SWaM Small, Women and Minority-Owned
by the Virginia Department of Minority Business Enterprise

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Brink Process Water	14H0040-01	Waste Water	08/04/2014 09:35	08/05/2014 08:45
Brink Process Water	14H0040-02	Waste Water	08/04/2014 09:35	08/05/2014 08:45
Trip Blank	14H0040-03	Waste Water	07/28/2014 09:00	08/05/2014 08:45

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Analytical Results

Sample I.D. Brink Process Water **Laboratory Sample ID:** 14H0040-01

Date/Time Sampled: 08/04/2014 09:35

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Metals (Total) by EPA 200 Series Methods									
Selenium	01	EPA200.9 R2.2	<0.0030 mg/L		0.0030	1	08/05/14 15:00	08/12/14 17:09	MWL
Volatile Organic Compounds by GCMS									
1,1-Dichloroethane	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
1,1-Dichloroethylene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
1,2-Dichlorobenzene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
1,2-Dichloropropane	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
1,3-Dichlorobenzene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
1,3-Dichloropropene, Total	01	EPA624	<10.0 ug/L		10.0	1	08/06/14 21:53	08/06/14 21:53	MKD
1,4-Dichlorobenzene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Bromodichloromethane	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Bromomethane	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
cis-1,3-Dichloropropene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Dibromochloromethane	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Tetrachloroethylene (PCE)	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Toluene	01RE1	EPA624	<1.00 ug/L		1.00	1	08/08/14 20:44	08/08/14 20:44	MKD
trans-1,2-Dichloroethylene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
trans-1,3-Dichloropropene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Trichloroethylene	01	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:53	08/06/14 21:53	MKD
Surr: 1,2-Dichloroethane-d4	*01*	*EPA624*	*96.0 %*		*70-120*		*08/06/14 21:53*	*08/06/14 21:53*	*MKD*
Surr: 4-Bromofluorobenzene	*01*	*EPA624*	*97.9 %*		*75-120*		*08/06/14 21:53*	*08/06/14 21:53*	*MKD*
Surr: Dibromofluoromethane	*01*	*EPA624*	*91.0 %*		*80-119*		*08/06/14 21:53*	*08/06/14 21:53*	*MKD*
Surr: Toluene-d8	*01*	*EPA624*	*101 %*		*85-120*		*08/06/14 21:53*	*08/06/14 21:53*	*MKD*
Surr: 1,2-Dichloroethane-d4	*01RE1*	*EPA624*	*91.7 %*		*70-120*		*08/08/14 20:44*	*08/08/14 20:44*	*MKD*
Surr: 4-Bromofluorobenzene	*01RE1*	*EPA624*	*97.5 %*		*75-120*		*08/08/14 20:44*	*08/08/14 20:44*	*MKD*
Surr: Dibromofluoromethane	*01RE1*	*EPA624*	*90.8 %*		*80-119*		*08/08/14 20:44*	*08/08/14 20:44*	*MKD*
Surr: Toluene-d8	*01RE1*	*EPA624*	*100 %*		*85-120*		*08/08/14 20:44*	*08/08/14 20:44*	*MKD*
Semivolatile Organic Compounds by GCMS									
1,2-Diphenylhydrazine	01	EPA625	<10.0 ug/L		10.0	1	08/07/14 10:30	08/07/14 23:51	JHV

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Analytical Results

Sample I.D. Brink Process Water **Laboratory Sample ID:** 14H0040-01

Date/Time Sampled: 08/04/2014 09:35

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Semivolatile Organic Compounds by GCMS									
3,3'-Dichlorobenzidine	01	EPA625	<10.0 ug/L		10.0	1	08/07/14 10:30	08/07/14 23:51	JHV
4,6-Dinitro-2-methylphenol	01	EPA625	<50.0 ug/L		50.0	1	08/07/14 10:30	08/07/14 23:51	JHV
Benzidine	01	EPA625	<50.0 ug/L		50.0	1	08/07/14 10:30	08/07/14 23:51	JHV
Benzo (b) fluoranthene	01	EPA625	<10.0 ug/L		10.0	1	08/07/14 10:30	08/07/14 23:51	JHV
Di-n-butyl phthalate	01	EPA625	<10.0 ug/L		10.0	1	08/07/14 10:30	08/07/14 23:51	JHV
p-Chloro-m-cresol	01	EPA625	<10.0 ug/L		10.0	1	08/07/14 10:30	08/07/14 23:51	JHV
Surr: 2,4,6-Tribromophenol	*01*	*EPA625*	*71.3 %*		*40-125*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: 2-Fluorobiphenyl	*01*	*EPA625*	*30.3 %*		*23-87*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: 2-Fluorophenol	*01*	*EPA625*	*6.57 %*	*S*	*14-52*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: Nitrobenzene-d5	*01*	*EPA625*	*20.5 %*	*S*	*40-110*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: Phenol-d5	*01*	*EPA625*	*7.44 %*		*5-33*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: p-Terphenyl-d14	*01*	*EPA625*	*67.7 %*		*22-85*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Kepone	01	SW8270D	<10.1 ug/L		10.1	1	08/07/14 10:30	08/07/14 23:51	JHV
Surr: 2,4,6-Tribromophenol	*01*	*SW8270D*	*71.3 %*		*40-125*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: 2-Fluorobiphenyl	*01*	*SW8270D*	*30.3 %*		*23-87*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: 2-Fluorophenol	*01*	*SW8270D*	*6.57 %*	*S*	*14-52*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: Nitrobenzene-d5	*01*	*SW8270D*	*20.5 %*	*S*	*40-110*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: Phenol-d5	*01*	*SW8270D*	*7.44 %*		*5-33*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Surr: p-Terphenyl-d14	*01*	*SW8270D*	*67.7 %*		*22-85*		*08/07/14 10:30*	*08/07/14 23:51*	*JHV*
Wet Chemistry (Dissolved) Analysis									
Sulfide	01	SM18 4500-S2 F	<1.0 mg/L		1.0	1	08/08/14 15:13	08/08/14 15:13	TLA

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Analytical Results

Sample I.D. Brink Process Water **Laboratory Sample ID:** 14H0040-02

Date/Time Sampled: 08/04/2014 09:35

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Metals (Dissolved) by EPA 200 Series Methods									
Silver	02RE1	EPA200.9 R2.2	<0.0005 mg/L		0.0005	1	08/11/14 15:33	08/12/14 16:56	MWL
Arsenic	02	EPA200.9 R2.2	<0.0050 mg/L		0.0050	1	08/05/14 15:00	08/07/14 01:13	MWL
Cadmium	02	EPA200.9 R2.2	<0.0003 mg/L		0.0003	1	08/05/14 15:00	08/08/14 17:15	MWL
Chromium	02	EPA200.7 Rev 4.4	<0.0100 mg/L		0.0100	1	08/05/14 15:00	08/07/14 18:46	BG
Copper	02	EPA200.9 R2.2	<0.0030 mg/L		0.0030	1	08/05/14 15:00	08/06/14 12:40	MWL
Mercury	02	EPA245.1 R3.0	<0.0002 mg/L		0.0002	1	08/06/14 13:17	08/06/14 14:26	KEW
Nickel	02	EPA200.9 R2.2	<0.0030 mg/L		0.0030	1	08/05/14 15:00	08/08/14 16:20	MWL
Lead	02	EPA200.9 R2.2	<0.0020 mg/L		0.0020	1	08/05/14 15:00	08/08/14 09:32	MWL
Antimony	02	EPA200.9 R2.2	<0.0050 mg/L		0.0050	1	08/05/14 15:00	08/07/14 17:01	MWL
Thallium	02	EPA200.9 R2.2	<0.0020 mg/L		0.0020	1	08/05/14 15:00	08/06/14 16:40	MWL
Zinc	02	EPA200.7 Rev 4.4	<0.0100 mg/L		0.0100	1	08/05/14 15:00	08/07/14 18:46	BG
Metals (Dissolved) by Standard Methods methodology									
Chromium, Hexavalent	02	SM22 3500Cr B-2011	<0.005 mg/L		0.005	1	08/05/14 16:09	08/05/14 16:09	DC
Wet Chemistry (Dissolved) Analysis									
Chromium, Trivalent	02	SW7196A	<0.010 mg/L		0.010	1	08/18/14 11:46	08/18/14 11:46	EWS

AIR WATER SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Analytical Results

Sample I.D. Trip Blank **Laboratory Sample ID:** 14H0040-03

Date/Time Sampled: 07/28/2014 09:00

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds by GCMS									
1,1-Dichloroethane	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
1,1-Dichloroethylene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
1,2-Dichlorobenzene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
1,2-Dichloropropane	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
1,3-Dichlorobenzene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
1,3-Dichloropropene, Total	03	EPA624	<10.0 ug/L		10.0	1	08/06/14 21:07	08/06/14 21:07	MKD
1,4-Dichlorobenzene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Bromodichloromethane	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Bromomethane	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
cis-1,3-Dichloropropene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Dibromochloromethane	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Tetrachloroethylene (PCE)	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Toluene	03RE1	EPA624	<1.00 ug/L		1.00	1	08/08/14 20:20	08/08/14 20:20	MKD
trans-1,2-Dichloroethylene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
trans-1,3-Dichloropropene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Trichloroethylene	03	EPA624	<1.00 ug/L		1.00	1	08/06/14 21:07	08/06/14 21:07	MKD
Surr: 1,2-Dichloroethane-d4	*03*	*EPA624*	*89.4 %*		*70-120*		*08/06/14 21:07*	*08/06/14 21:07*	*MKD*
Surr: 4-Bromofluorobenzene	*03*	*EPA624*	*97.0 %*		*75-120*		*08/06/14 21:07*	*08/06/14 21:07*	*MKD*
Surr: Dibromofluoromethane	*03*	*EPA624*	*90.2 %*		*80-119*		*08/06/14 21:07*	*08/06/14 21:07*	*MKD*
Surr: Toluene-d8	*03*	*EPA624*	*101 %*		*85-120*		*08/06/14 21:07*	*08/06/14 21:07*	*MKD*
Surr: 1,2-Dichloroethane-d4	*03RE1*	*EPA624*	*90.6 %*		*70-120*		*08/08/14 20:20*	*08/08/14 20:20*	*MKD*
Surr: 4-Bromofluorobenzene	*03RE1*	*EPA624*	*100 %*		*75-120*		*08/08/14 20:20*	*08/08/14 20:20*	*MKD*
Surr: Dibromofluoromethane	*03RE1*	*EPA624*	*87.5 %*		*80-119*		*08/08/14 20:20*	*08/08/14 20:20*	*MKD*
Surr: Toluene-d8	*03RE1*	*EPA624*	*102 %*		*85-120*		*08/08/14 20:20*	*08/08/14 20:20*	*MKD*

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Dissolved) by EPA 200 Series Methods			**Preparation Method:**	**SW7470A**	
14H0040-02	20.0 mL / 20.0 mL	EPA245.1 R3.0	BXH0093	SXH0120	AH40027
14H0040-02	50.0 mL / 50.0 mL	EPA200.7 Rev 4.4	BXH0079	SXH0190	AH40032
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0117	AH40025
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0142	AH40030
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0147	AH40031
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0184	AH40033
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0193	AH40034
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0232	AH40044
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0241	AH40045
14H0040-02	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0246	AH40046
14H0040-02RE1	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0297	AH40057

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Dissolved) by Standard Methods methodology			**Preparation Method:**	**No Prep Wet Chem**	
14H0040-02	100 mL / 100 mL	SM22 3500Cr B-2011	BXH0067	SXH0094	AH40022

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 200 Series Methods			**Preparation Method:**	**EPA200.9/R2.2**	
14H0040-01	50.0 mL / 50.0 mL	EPA200.9 R2.2	BXH0080	SXH0327	AH40066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			**Preparation Method:**	**SW3510C**	
14H0040-01	990 mL / 1.00 mL	EPA625	BXH0128	SXH0211	AG40011
14H0040-01	990 mL / 1.00 mL	SW8270D	BXH0128	SXH0211	AG40011

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Subcontracted Analysis			**Preparation Method:**		
14H0040-01		EPA 614			
14H0040-01		EPA 622			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Subcontracted Analysis			**Preparation Method:**		
14H0040-01		NBSR85-3295			

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			**Preparation Method:**	**SW5030B**	
14H0040-01	5.00 mL / 5.00 mL	EPA624	BXH0162	SXH0207	AH40039
14H0040-01RE1	5.00 mL / 5.00 mL	EPA624	BXH0191	SXH0247	AH40039
14H0040-03	5.00 mL / 5.00 mL	EPA624	BXH0162	SXH0207	AH40039
14H0040-03RE1	5.00 mL / 5.00 mL	EPA624	BXH0191	SXH0247	AH40039

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry (Dissolved) Analysis			**Preparation Method:**	**No Prep Wet Chem**	
14H0040-01	200 mL / 200 mL	SM18 4500-S2 F	BXH0283	SXH0354	
14H0040-02	1.00 mL / 1.00 mL	SW7196A	BXH0342		

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Total) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0080 - EPA200.9/R2.2										
Blank (BXH0080-BLK9)				Prepared: 08/05/2014 Analyzed: 08/12/2014						
Selenium	<0.0030 mg/L	0.0030	mg/L							
LCS (BXH0080-BS9)				Prepared: 08/05/2014 Analyzed: 08/12/2014						
Selenium	0.0195 mg/L	0.0030	mg/L	0.0200		97.5	80-120			
LCS Dup (BXH0080-BSD9)				Prepared: 08/05/2014 Analyzed: 08/12/2014						
Selenium	0.0195 mg/L	0.0030	mg/L	0.0200		97.6	80-120	0.0683	20	
Matrix Spike (BXH0080-MS9)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/12/2014						
Selenium	0.0195 mg/L	0.0030	mg/L	0.0200	<0.0030 mg/L	97.7	75-125			
Matrix Spike Dup (BXH0080-MSD9)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/12/2014						
Selenium	0.0201 mg/L	0.0030	mg/L	0.0200	<0.0030 mg/L	101	75-125	2.99	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0079 - EPA200.2/R2.8										
Blank (BXH0079-BLK1)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	<0.0100 mg/L	0.0100	mg/L							
Zinc	<0.0100 mg/L	0.0100	mg/L							
LCS (BXH0079-BS1)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	0.504 mg/L	0.0100	mg/L	0.500		101	80-120			
Zinc	0.503 mg/L	0.0100	mg/L	0.500		101	80-120			
LCS Dup (BXH0079-BSD1)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	0.505 mg/L	0.0100	mg/L	0.500		101	80-120	0.273	20	
Zinc	0.503 mg/L	0.0100	mg/L	0.500		101	80-120	0.0925	20	
Matrix Spike (BXH0079-MS1)		Source: 14H0027-01		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	0.490 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	98.1	75-125			
Zinc	0.489 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	97.8	75-125			
Matrix Spike (BXH0079-MS2)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	0.504 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	101	75-125			
Zinc	0.503 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	101	75-125			
Matrix Spike Dup (BXH0079-MSD1)		Source: 14H0027-01		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	0.496 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	99.1	75-125	1.07	20	
Zinc	0.496 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	99.1	75-125	1.31	20	
Matrix Spike Dup (BXH0079-MSD2)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Chromium	0.501 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	100	75-125	0.531	20	
Zinc	0.500 mg/L	0.0100	mg/L	0.500	<0.0100 mg/L	99.9	75-125	0.615	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0080 - EPA200.9/R2.2										
Blank (BXH0080-BLK1)				Prepared: 08/05/2014 Analyzed: 08/06/2014						
Copper	<0.0030 mg/L	0.0030	mg/L							
Blank (BXH0080-BLK3)				Prepared: 08/05/2014 Analyzed: 08/06/2014						
Thallium	<0.0020 mg/L	0.0020	mg/L							
Blank (BXH0080-BLK4)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Arsenic	<0.0050 mg/L	0.0050	mg/L							
Blank (BXH0080-BLK5)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Antimony	<0.0050 mg/L	0.0050	mg/L							
Blank (BXH0080-BLK6)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Nickel	<0.0030 mg/L	0.0030	mg/L							
Blank (BXH0080-BLK7)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Lead	<0.0020 mg/L	0.0020	mg/L							
Blank (BXH0080-BLK8)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Cadmium	<0.0003 mg/L	0.0003	mg/L							
Blank (BXH0080-BLKA)				Prepared: 08/05/2014 Analyzed: 08/12/2014						
Silver	<0.0005 mg/L	0.0005	mg/L							
LCS (BXH0080-BS1)				Prepared: 08/05/2014 Analyzed: 08/06/2014						
Copper	0.0209 mg/L	0.0030	mg/L	0.0200		104	85-115			
LCS (BXH0080-BS3)				Prepared: 08/05/2014 Analyzed: 08/06/2014						
Thallium	0.0202 mg/L	0.0020	mg/L	0.0200		101	80-120			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0080 - EPA200.9/R2.2										
LCS (BXH0080-BS4)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Arsenic	0.0179 mg/L	0.0050	mg/L	0.0200		89.3	80-120			
LCS (BXH0080-BS5)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Antimony	0.0182 mg/L	0.0050	mg/L	0.0200		91.0	80-120			
LCS (BXH0080-BS6)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Nickel	0.0181 mg/L	0.0030	mg/L	0.0200		90.3	80-120			
LCS (BXH0080-BS7)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Lead	0.0194 mg/L	0.0020	mg/L	0.0200		97.2	80-120			
LCS (BXH0080-BS8)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Cadmium	0.0021 mg/L	0.0003	mg/L	0.00200		105	85-115			
LCS (BXH0080-BSA)				Prepared: 08/05/2014 Analyzed: 08/12/2014						
Silver	0.0021 mg/L	0.0005	mg/L	0.00200		105	80-120			
LCS Dup (BXH0080-BSD1)				Prepared: 08/05/2014 Analyzed: 08/06/2014						
Copper	0.0203 mg/L	0.0030	mg/L	0.0200		102	85-115	2.80	20	
LCS Dup (BXH0080-BSD3)				Prepared: 08/05/2014 Analyzed: 08/06/2014						
Thallium	0.0203 mg/L	0.0020	mg/L	0.0200		101	80-120	0.0818	20	
LCS Dup (BXH0080-BSD4)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Arsenic	0.0182 mg/L	0.0050	mg/L	0.0200		91.1	80-120	2.00	20	
LCS Dup (BXH0080-BSD5)				Prepared: 08/05/2014 Analyzed: 08/07/2014						
Antimony	0.0183 mg/L	0.0050	mg/L	0.0200		91.7	80-120	0.714	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0080 - EPA200.9/R2.2										
LCS Dup (BXH0080-BSD6)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Nickel	0.0193 mg/L	0.0030	mg/L	0.0200		96.3	80-120	6.36	20	
LCS Dup (BXH0080-BSD7)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Lead	0.0193 mg/L	0.0020	mg/L	0.0200		96.4	80-120	0.768	20	
LCS Dup (BXH0080-BSD8)				Prepared: 08/05/2014 Analyzed: 08/08/2014						
Cadmium	0.0021 mg/L	0.0003	mg/L	0.00200		106	85-115	0.830	20	
LCS Dup (BXH0080-BSDA)				Prepared: 08/05/2014 Analyzed: 08/12/2014						
Silver	0.0022 mg/L	0.0005	mg/L	0.00200		108	80-120	3.11	20	
Matrix Spike (BXH0080-MS1)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/06/2014						
Copper	0.0207 mg/L	0.0030	mg/L	0.0200	<0.0030 mg/L	103	70-130			
Matrix Spike (BXH0080-MS3)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/06/2014						
Thallium	0.0194 mg/L	0.0020	mg/L	0.0200	<0.0020 mg/L	96.8	75-125			
Matrix Spike (BXH0080-MS4)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Arsenic	0.0181 mg/L	0.0050	mg/L	0.0200	<0.0050 mg/L	90.5	75-125			
Matrix Spike (BXH0080-MS5)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Antimony	0.0189 mg/L	0.0050	mg/L	0.0200	<0.0050 mg/L	94.6	75-125			
Matrix Spike (BXH0080-MS6)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/08/2014						
Nickel	0.0177 mg/L	0.0030	mg/L	0.0200	<0.0030 mg/L	88.4	75-125			
Matrix Spike (BXH0080-MS7)		Source: 14H0044-01		Prepared: 08/05/2014 Analyzed: 08/08/2014						
Lead	0.0194 mg/L	0.0020	mg/L	0.0200	<0.0020 mg/L	97.1	75-125			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0080 - EPA200.9/R2.2										
Matrix Spike (BXH0080-MS8)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/08/2014						
Cadmium	0.0021 mg/L	0.0003	mg/L	0.00200	<0.0003 mg/L	104	70-130			
Matrix Spike (BXH0080-MSA)		**Source: 14H0040-02**		Prepared: 08/05/2014 Analyzed: 08/12/2014						
Silver	0.0022 mg/L	0.0005	mg/L	0.00200	<0.0005 mg/L	111	75-125			
Matrix Spike Dup (BXH0080-MSD1)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/06/2014						
Copper	0.0206 mg/L	0.0030	mg/L	0.0200	<0.0030 mg/L	103	70-130	0.687	20	
Matrix Spike Dup (BXH0080-MSD3)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/06/2014						
Thallium	0.0207 mg/L	0.0020	mg/L	0.0200	<0.0020 mg/L	104	75-125	6.68	20	
Matrix Spike Dup (BXH0080-MSD4)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Arsenic	0.0195 mg/L	0.0050	mg/L	0.0200	<0.0050 mg/L	97.4	75-125	7.31	20	
Matrix Spike Dup (BXH0080-MSD5)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/07/2014						
Antimony	0.0188 mg/L	0.0050	mg/L	0.0200	<0.0050 mg/L	93.9	75-125	0.721	20	
Matrix Spike Dup (BXH0080-MSD6)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/08/2014						
Nickel	0.0189 mg/L	0.0030	mg/L	0.0200	<0.0030 mg/L	94.3	75-125	6.50	20	
Matrix Spike Dup (BXH0080-MSD7)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/08/2014						
Lead	0.0214 mg/L	0.0020	mg/L	0.0200	<0.0020 mg/L	107	75-125	9.66	20	
Matrix Spike Dup (BXH0080-MSD8)		**Source: 14H0044-01**		Prepared: 08/05/2014 Analyzed: 08/08/2014						
Cadmium	0.0021 mg/L	0.0003	mg/L	0.00200	<0.0003 mg/L	106	70-130	1.97	20	
Matrix Spike Dup (BXH0080-MSDA)		**Source: 14H0040-02**		Prepared: 08/05/2014 Analyzed: 08/12/2014						
Silver	0.0023 mg/L	0.0005	mg/L	0.00200	<0.0005 mg/L	113	75-125	1.81	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0093 - SW7470A										
Blank (BXH0093-BLK1)				Prepared & Analyzed: 08/06/2014						
Mercury	<0.0002 mg/L	0.0002	mg/L							
LCS (BXH0093-BS1)				Prepared & Analyzed: 08/06/2014						
Mercury	0.0026 mg/L	0.0002	mg/L	0.00250		103	80-120			
LCS Dup (BXH0093-BSD1)				Prepared & Analyzed: 08/06/2014						
Mercury	0.0026 mg/L	0.0002	mg/L	0.00250		104	80-120	1.34	20	
Matrix Spike (BXH0093-MS1)		Source: 14H0052-01		Prepared & Analyzed: 08/06/2014						
Mercury	0.0028 mg/L	0.0002	mg/L	0.00250	<0.0002 mg/L	111	80-120			
Matrix Spike Dup (BXH0093-MSD1)		Source: 14H0052-01		Prepared & Analyzed: 08/06/2014						
Mercury	0.0026 mg/L	0.0002	mg/L	0.00250	<0.0002 mg/L	104	80-120	6.07	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Metals (Dissolved) by Standard Methods methodology - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0067 - No Prep Wet Chem										
Blank (BXH0067-BLK1)				Prepared & Analyzed: 08/05/2014						
Chromium, Hexavalent	<0.005 mg/L	0.005	mg/L							
LCS (BXH0067-BS1)				Prepared & Analyzed: 08/05/2014						
Chromium, Hexavalent	0.101 mg/L	0.005	mg/L	0.100		101	80-120			
LCS Dup (BXH0067-BSD1)				Prepared & Analyzed: 08/05/2014						
Chromium, Hexavalent	0.102 mg/L	0.005	mg/L	0.100		102	80-120	0.985	20	
Matrix Spike (BXH0067-MS1)		Source: 14H0040-02		Prepared & Analyzed: 08/05/2014						
Chromium, Hexavalent	0.101 mg/L	0.005	mg/L	0.100	<0.005 mg/L	101	80-120			
Matrix Spike Dup (BXH0067-MSD1)		Source: 14H0040-02		Prepared & Analyzed: 08/05/2014						
Chromium, Hexavalent	0.102 mg/L	0.005	mg/L	0.100	<0.005 mg/L	102	80-120	0.985	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0162 - SW5030B										
Blank (BXH0162-BLK1)				Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	<1.00 ug/L	1.00	ug/L							
1,1-Dichloroethylene	<1.00 ug/L	1.00	ug/L							
1,2-Dichlorobenzene	<1.00 ug/L	1.00	ug/L							
1,2-Dichloropropane	<1.00 ug/L	1.00	ug/L							
1,3-Dichlorobenzene	<1.00 ug/L	1.00	ug/L							
1,3-Dichloropropene, Total	<10.0 ug/L	10.0	ug/L							
1,4-Dichlorobenzene	<1.00 ug/L	1.00	ug/L							
Bromodichloromethane	<1.00 ug/L	1.00	ug/L							
Bromomethane	<1.00 ug/L	1.00	ug/L							
cis-1,3-Dichloropropene	<1.00 ug/L	1.00	ug/L							
Dibromochloromethane	<1.00 ug/L	1.00	ug/L							
Tetrachloroethylene (PCE)	<1.00 ug/L	1.00	ug/L							
Toluene	<1.00 ug/L	1.00	ug/L							
trans-1,2-Dichloroethylene	<1.00 ug/L	1.00	ug/L							
trans-1,3-Dichloropropene	<1.00 ug/L	1.00	ug/L							
Trichloroethylene	<1.00 ug/L	1.00	ug/L							
Surr: 1,2-Dichloroethane-d4	48.2		ug/L	50.0		96.3	70-120			
Surr: 4-Bromofluorobenzene	48.0		ug/L	50.0		96.0	75-120			
Surr: Dibromofluoromethane	47.3		ug/L	50.0		94.6	80-119			
Surr: Toluene-d8	50.6		ug/L	50.0		101	85-120			
LCS (BXH0162-BS1)				Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	53.0 ug/L		ug/L	50.0		106	70-135			
1,1-Dichloroethylene	55.9 ug/L		ug/L	50.0		112	70-130			
1,2-Dichlorobenzene	52.0 ug/L		ug/L	50.0		104	70-120			
1,2-Dichloropropane	50.9 ug/L		ug/L	50.0		102	75-125			
1,3-Dichlorobenzene	53.4 ug/L		ug/L	50.0		107	75-125			
1,4-Dichlorobenzene	52.1 ug/L		ug/L	50.0		104	75-125			
Bromodichloromethane	51.3 ug/L		ug/L	50.0		103	75-120			
Bromomethane	51.3 ug/L		ug/L	50.0		103	30-145			
cis-1,3-Dichloropropene	50.6 ug/L		ug/L	50.0		101	70-130			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0162 - SW5030B										
LCS (BXH0162-BS1)				Prepared & Analyzed: 08/06/2014						
Dibromochloromethane	53.8 ug/L		ug/L	50.0		108	60-135			
Tetrachloroethylene (PCE)	68.5 ug/L		ug/L	50.0		137	45-150			
Toluene	51.9 ug/L		ug/L	50.0		104	75-120			
trans-1,2-Dichloroethylene	51.4 ug/L		ug/L	50.0		103	60-140			
trans-1,3-Dichloropropene	52.5 ug/L		ug/L	50.0		105	55-140			
Trichloroethylene	51.7 ug/L		ug/L	50.0		103	70-125			
Surr: 1,2-Dichloroethane-d4	48.7		ug/L	50.0		97.5	70-120			
Surr: 4-Bromofluorobenzene	51.6		ug/L	50.0		103	75-120			
Surr: Dibromofluoromethane	48.2		ug/L	50.0		96.3	80-119			
Surr: Toluene-d8	49.7		ug/L	50.0		99.3	85-120			
LCS Dup (BXH0162-BSD1)				Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	51.9 ug/L		ug/L	50.0		104	70-135	2.11	30	
1,1-Dichloroethylene	53.7 ug/L		ug/L	50.0		107	70-130	4.07	30	
1,2-Dichlorobenzene	51.5 ug/L		ug/L	50.0		103	70-120	0.978	30	
1,2-Dichloropropane	47.9 ug/L		ug/L	50.0		95.8	75-125	6.04	30	
1,3-Dichlorobenzene	52.1 ug/L		ug/L	50.0		104	75-125	2.54	30	
1,4-Dichlorobenzene	50.8 ug/L		ug/L	50.0		102	75-125	2.52	30	
Bromodichloromethane	52.2 ug/L		ug/L	50.0		104	75-120	1.79	30	
Bromomethane	52.6 ug/L		ug/L	50.0		105	30-145	2.44	30	
cis-1,3-Dichloropropene	51.1 ug/L		ug/L	50.0		102	70-130	1.04	30	
Dibromochloromethane	52.9 ug/L		ug/L	50.0		106	60-135	1.84	30	
Tetrachloroethylene (PCE)	64.9 ug/L		ug/L	50.0		130	45-150	5.31	30	
Toluene	51.9 ug/L		ug/L	50.0		104	75-120	0.0327	30	
trans-1,2-Dichloroethylene	49.7 ug/L		ug/L	50.0		99.4	60-140	3.33	30	
trans-1,3-Dichloropropene	52.3 ug/L		ug/L	50.0		105	55-140	0.367	30	
Trichloroethylene	49.4 ug/L		ug/L	50.0		98.7	70-125	4.71	30	
Surr: 1,2-Dichloroethane-d4	47.9		ug/L	50.0		95.8	70-120			
Surr: 4-Bromofluorobenzene	48.9		ug/L	50.0		97.7	75-120			
Surr: Dibromofluoromethane	49.8		ug/L	50.0		99.6	80-119			
Surr: Toluene-d8	50.6		ug/L	50.0		101	85-120			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road • Richmond, Virginia 23230 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0162 - SW5030B										
Matrix Spike (BXH0162-MS1)		**Source: 14G0433-01**		Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	51.8 ug/L		ug/L	50.0	0.24 ug/L	103	70-135			
1,1-Dichloroethylene	50.8 ug/L		ug/L	50.0	< ug/L	102	70-130			
1,2-Dichlorobenzene	48.5 ug/L		ug/L	50.0	< ug/L	97.0	70-120			
1,2-Dichloropropane	48.8 ug/L		ug/L	50.0	< ug/L	97.6	75-125			
1,3-Dichlorobenzene	49.5 ug/L		ug/L	50.0	0.12 ug/L	98.7	75-125			
1,4-Dichlorobenzene	47.7 ug/L		ug/L	50.0	0.18 ug/L	95.1	75-125			
Bromodichloromethane	50.2 ug/L		ug/L	50.0	< ug/L	100	75-120			
Bromomethane	31.5 ug/L		ug/L	50.0	< ug/L	63.0	30-145			
cis-1,3-Dichloropropene	48.0 ug/L		ug/L	50.0	< ug/L	96.0	70-130			
Dibromochloromethane	47.9 ug/L		ug/L	50.0	< ug/L	95.9	60-135			
Tetrachloroethylene (PCE)	61.4 ug/L		ug/L	50.0	< ug/L	123	45-150			
Toluene	66.5 ug/L		ug/L	50.0	19.7 ug/L	93.5	75-120			
trans-1,2-Dichloroethylene	47.6 ug/L		ug/L	50.0	< ug/L	95.2	60-140			
trans-1,3-Dichloropropene	49.9 ug/L		ug/L	50.0	< ug/L	99.8	55-140			
Trichloroethylene	48.0 ug/L		ug/L	50.0	< ug/L	96.1	70-125			
Surr: 1,2-Dichloroethane-d4	48.8		ug/L	50.0		97.6	70-120			
Surr: 4-Bromofluorobenzene	50.7		ug/L	50.0		101	75-120			
Surr: Dibromofluoromethane	45.4		ug/L	50.0		90.8	80-119			
Surr: Toluene-d8	50.7		ug/L	50.0		101	85-120			
Matrix Spike (BXH0162-MS2)		**Source: 14H0026-04**		Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	49.5 ug/L		ug/L	50.0	< ug/L	98.9	70-135			
1,1-Dichloroethylene	52.7 ug/L		ug/L	50.0	< ug/L	105	70-130			
1,2-Dichlorobenzene	47.7 ug/L		ug/L	50.0	< ug/L	95.5	70-120			
1,2-Dichloropropane	49.6 ug/L		ug/L	50.0	< ug/L	99.3	75-125			
1,3-Dichlorobenzene	48.5 ug/L		ug/L	50.0	< ug/L	97.0	75-125			
1,4-Dichlorobenzene	47.0 ug/L		ug/L	50.0	< ug/L	94.0	75-125			
Bromodichloromethane	48.2 ug/L		ug/L	50.0	< ug/L	96.4	75-120			
Bromomethane	45.5 ug/L		ug/L	50.0	< ug/L	90.9	30-145			
cis-1,3-Dichloropropene	45.5 ug/L		ug/L	50.0	< ug/L	91.1	70-130			
Dibromochloromethane	46.2 ug/L		ug/L	50.0	< ug/L	92.3	60-135			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0162 - SW5030B										
Matrix Spike (BXH0162-MS2)		**Source: 14H0026-04**		Prepared & Analyzed: 08/06/2014						
Tetrachloroethylene (PCE)	61.1 ug/L		ug/L	50.0	< ug/L	122	45-150			
Toluene	99.6 ug/L		ug/L	50.0	49.4 ug/L	100	75-120			
trans-1,2-Dichloroethylene	46.5 ug/L		ug/L	50.0	< ug/L	93.0	60-140			
trans-1,3-Dichloropropene	45.8 ug/L		ug/L	50.0	< ug/L	91.6	55-140			
Trichloroethylene	46.3 ug/L		ug/L	50.0	< ug/L	92.6	70-125			
Surr: 1,2-Dichloroethane-d4	46.6		ug/L	50.0		93.2	70-120			
Surr: 4-Bromofluorobenzene	52.9		ug/L	50.0		106	75-120			
Surr: Dibromofluoromethane	46.5		ug/L	50.0		93.1	80-119			
Surr: Toluene-d8	49.8		ug/L	50.0		99.5	85-120			
Matrix Spike (BXH0162-MS3)		**Source: 14H0040-01**		Prepared & Analyzed: 08/07/2014						
1,1-Dichloroethane	20.7 ug/L		ug/L	20.0	< ug/L	103	70-135			
1,1-Dichloroethylene	20.9 ug/L		ug/L	20.0	< ug/L	105	70-130			
1,2-Dichlorobenzene	19.7 ug/L		ug/L	20.0	< ug/L	98.4	70-120			
1,2-Dichloropropane	19.1 ug/L		ug/L	20.0	< ug/L	95.6	75-125			
1,3-Dichlorobenzene	20.7 ug/L		ug/L	20.0	< ug/L	104	75-125			
1,4-Dichlorobenzene	19.5 ug/L		ug/L	20.0	< ug/L	97.7	75-125			
Bromodichloromethane	19.5 ug/L		ug/L	20.0	< ug/L	97.7	75-120			
Bromomethane	18.2 ug/L		ug/L	20.0	< ug/L	90.8	30-145			
cis-1,3-Dichloropropene	19.0 ug/L		ug/L	20.0	< ug/L	95.2	70-130			
Dibromochloromethane	19.4 ug/L		ug/L	20.0	< ug/L	97.1	60-135			
Tetrachloroethylene (PCE)	25.2 ug/L		ug/L	20.0	< ug/L	126	45-150			
Toluene	20.9 ug/L		ug/L	20.0	1.09 ug/L	99.2	75-120			
trans-1,2-Dichloroethylene	19.1 ug/L		ug/L	20.0	< ug/L	95.7	60-140			
trans-1,3-Dichloropropene	18.3 ug/L		ug/L	20.0	< ug/L	91.3	55-140			
Trichloroethylene	20.2 ug/L		ug/L	20.0	< ug/L	101	70-125			
Surr: 1,2-Dichloroethane-d4	45.4		ug/L	50.0		90.9	70-120			
Surr: 4-Bromofluorobenzene	49.6		ug/L	50.0		99.3	75-120			
Surr: Dibromofluoromethane	45.5		ug/L	50.0		91.1	80-119			
Surr: Toluene-d8	49.8		ug/L	50.0		99.7	85-120			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0162 - SW5030B										
Matrix Spike Dup (BXH0162-MSD1)		**Source: 14G0433-01**		Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	50.8 ug/L		ug/L	50.0	0.24 ug/L	101	70-135	1.87	30	
1,1-Dichloroethylene	51.6 ug/L		ug/L	50.0	< ug/L	103	70-130	1.68	30	
1,2-Dichlorobenzene	50.4 ug/L		ug/L	50.0	< ug/L	101	70-120	3.82	30	
1,2-Dichloropropane	48.2 ug/L		ug/L	50.0	< ug/L	96.5	75-125	1.16	30	
1,3-Dichlorobenzene	50.2 ug/L		ug/L	50.0	0.12 ug/L	100	75-125	1.42	30	
1,4-Dichlorobenzene	48.2 ug/L		ug/L	50.0	0.18 ug/L	96.0	75-125	1.00	30	
Bromodichloromethane	50.2 ug/L		ug/L	50.0	< ug/L	100	75-120	0.0398	30	
Bromomethane	39.7 ug/L		ug/L	50.0	< ug/L	79.5	30-145	23.1	30	
cis-1,3-Dichloropropene	48.7 ug/L		ug/L	50.0	< ug/L	97.4	70-130	1.44	30	
Dibromochloromethane	50.0 ug/L		ug/L	50.0	< ug/L	100	60-135	4.19	30	
Tetrachloroethylene (PCE)	64.0 ug/L		ug/L	50.0	< ug/L	128	45-150	4.12	30	
Toluene	57.5 ug/L		ug/L	50.0	19.7 ug/L	75.5	75-120	14.5	30	
trans-1,2-Dichloroethylene	48.0 ug/L		ug/L	50.0	< ug/L	96.1	60-140	0.954	30	
trans-1,3-Dichloropropene	51.0 ug/L		ug/L	50.0	< ug/L	102	55-140	2.27	30	
Trichloroethylene	50.7 ug/L		ug/L	50.0	< ug/L	101	70-125	5.34	30	
Surr: 1,2-Dichloroethane-d4	44.3		ug/L	50.0		88.6	70-120			
Surr: 4-Bromofluorobenzene	51.0		ug/L	50.0		102	75-120			
Surr: Dibromofluoromethane	44.5		ug/L	50.0		89.1	80-119			
Surr: Toluene-d8	49.9		ug/L	50.0		99.9	85-120			
Matrix Spike Dup (BXH0162-MSD2)		**Source: 14H0026-04**		Prepared & Analyzed: 08/06/2014						
1,1-Dichloroethane	53.0 ug/L		ug/L	50.0	< ug/L	106	70-135	6.92	30	
1,1-Dichloroethylene	55.1 ug/L		ug/L	50.0	< ug/L	110	70-130	4.53	30	
1,2-Dichlorobenzene	51.2 ug/L		ug/L	50.0	< ug/L	102	70-120	6.96	30	
1,2-Dichloropropane	52.5 ug/L		ug/L	50.0	< ug/L	105	75-125	5.71	30	
1,3-Dichlorobenzene	50.8 ug/L		ug/L	50.0	< ug/L	102	75-125	4.59	30	
1,4-Dichlorobenzene	48.5 ug/L		ug/L	50.0	< ug/L	96.9	75-125	3.02	30	
Bromodichloromethane	51.1 ug/L		ug/L	50.0	< ug/L	102	75-120	5.74	30	
Bromomethane	50.0 ug/L		ug/L	50.0	< ug/L	100	30-145	9.48	30	
cis-1,3-Dichloropropene	49.9 ug/L		ug/L	50.0	< ug/L	99.8	70-130	9.09	30	
Dibromochloromethane	48.2 ug/L		ug/L	50.0	< ug/L	96.4	60-135	4.38	30	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0162 - SW5030B										
Matrix Spike Dup (BXH0162-MSD2)		**Source: 14H0026-04**		Prepared & Analyzed: 08/06/2014						
Tetrachloroethylene (PCE)	63.2 ug/L		ug/L	50.0	< ug/L	126	45-150	3.38	30	
Toluene	104 ug/L		ug/L	50.0	49.4 ug/L	109	75-120	4.15	30	
trans-1,2-Dichloroethylene	49.6 ug/L		ug/L	50.0	< ug/L	99.2	60-140	6.41	30	
trans-1,3-Dichloropropene	50.0 ug/L		ug/L	50.0	< ug/L	100	55-140	8.79	30	
Trichloroethylene	51.2 ug/L		ug/L	50.0	< ug/L	102	70-125	10.1	30	
Surr: 1,2-Dichloroethane-d4	44.1		ug/L	50.0		88.2	70-120			
Surr: 4-Bromofluorobenzene	52.6		ug/L	50.0		105	75-120			
Surr: Dibromofluoromethane	46.7		ug/L	50.0		93.3	80-119			
Surr: Toluene-d8	49.1		ug/L	50.0		98.1	85-120			
Batch BXH0191 - SW5030B										
Blank (BXH0191-BLK1)				Prepared & Analyzed: 08/08/2014						
1,1-Dichloroethane	<1.00 ug/L	1.00	ug/L							
1,1-Dichloroethylene	<1.00 ug/L	1.00	ug/L							
1,2-Dichlorobenzene	<1.00 ug/L	1.00	ug/L							
1,2-Dichloropropane	<1.00 ug/L	1.00	ug/L							
1,3-Dichlorobenzene	<1.00 ug/L	1.00	ug/L							
1,3-Dichloropropene, Total	<10.0 ug/L	10.0	ug/L							
1,4-Dichlorobenzene	<1.00 ug/L	1.00	ug/L							J
Bromodichloromethane	<1.00 ug/L	1.00	ug/L							
Bromomethane	<1.00 ug/L	1.00	ug/L							
cis-1,3-Dichloropropene	<1.00 ug/L	1.00	ug/L							
Dibromochloromethane	<1.00 ug/L	1.00	ug/L							
Tetrachloroethylene (PCE)	<1.00 ug/L	1.00	ug/L							
Toluene	<1.00 ug/L	1.00	ug/L							
trans-1,2-Dichloroethylene	<1.00 ug/L	1.00	ug/L							
trans-1,3-Dichloropropene	<1.00 ug/L	1.00	ug/L							
Trichloroethylene	<1.00 ug/L	1.00	ug/L							
Surr: 1,2-Dichloroethane-d4	45.9		ug/L	50.0		91.9	70-120			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0191 - SW5030B										
Blank (BXH0191-BLK1)				Prepared & Analyzed: 08/08/2014						
Surr: 4-Bromofluorobenzene	48.3		ug/L	50.0		96.6	75-120			
Surr: Dibromofluoromethane	46.4		ug/L	50.0		92.9	80-119			
Surr: Toluene-d8	49.8		ug/L	50.0		99.6	85-120			
LCS (BXH0191-BS1)				Prepared & Analyzed: 08/08/2014						
1,1-Dichloroethane	52.8 ug/L		ug/L	50.0		106	70-135			
1,1-Dichloroethylene	53.9 ug/L		ug/L	50.0		108	70-130			
1,2-Dichlorobenzene	50.8 ug/L		ug/L	50.0		102	70-120			
1,2-Dichloropropane	51.3 ug/L		ug/L	50.0		103	75-125			
1,3-Dichlorobenzene	52.0 ug/L		ug/L	50.0		104	75-125			
1,4-Dichlorobenzene	50.1 ug/L		ug/L	50.0		100	75-125			
Bromodichloromethane	55.5 ug/L		ug/L	50.0		111	75-120			
Bromomethane	50.0 ug/L		ug/L	50.0		99.9	30-145			
cis-1,3-Dichloropropene	53.0 ug/L		ug/L	50.0		106	70-130			
Dibromochloromethane	53.3 ug/L		ug/L	50.0		107	60-135			
Tetrachloroethylene (PCE)	67.0 ug/L		ug/L	50.0		134	45-150			
Toluene	53.8 ug/L		ug/L	50.0		108	75-120			
trans-1,2-Dichloroethylene	48.0 ug/L		ug/L	50.0		96.1	60-140			
trans-1,3-Dichloropropene	55.1 ug/L		ug/L	50.0		110	55-140			
Trichloroethylene	52.2 ug/L		ug/L	50.0		104	70-125			
Surr: 1,2-Dichloroethane-d4	46.6		ug/L	50.0		93.2	70-120			
Surr: 4-Bromofluorobenzene	51.0		ug/L	50.0		102	75-120			
Surr: Dibromofluoromethane	45.3		ug/L	50.0		90.5	80-119			
Surr: Toluene-d8	50.1		ug/L	50.0		100	85-120			
LCS Dup (BXH0191-BSD1)				Prepared & Analyzed: 08/08/2014						
1,1-Dichloroethane	53.6 ug/L		ug/L	50.0		107	70-135	1.45	30	
1,1-Dichloroethylene	56.2 ug/L		ug/L	50.0		112	70-130	4.08	30	
1,2-Dichlorobenzene	52.5 ug/L		ug/L	50.0		105	70-120	3.24	30	
1,2-Dichloropropane	50.0 ug/L		ug/L	50.0		99.9	75-125	2.75	30	
1,3-Dichlorobenzene	52.6 ug/L		ug/L	50.0		105	75-125	1.29	30	
1,4-Dichlorobenzene	50.1 ug/L		ug/L	50.0		100	75-125	0.164	30	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0191 - SW5030B										
LCS Dup (BXH0191-BSD1)				Prepared & Analyzed: 08/08/2014						
Bromodichloromethane	54.5 ug/L		ug/L	50.0		109	75-120	1.77	30	
Bromomethane	51.8 ug/L		ug/L	50.0		104	30-145	3.64	30	
cis-1,3-Dichloropropene	53.2 ug/L		ug/L	50.0		106	70-130	0.388	30	
Dibromochloromethane	52.5 ug/L		ug/L	50.0		105	60-135	1.55	30	
Tetrachloroethylene (PCE)	68.4 ug/L		ug/L	50.0		137	45-150	2.09	30	
Toluene	52.6 ug/L		ug/L	50.0		105	75-120	2.27	30	
trans-1,2-Dichloroethylene	49.8 ug/L		ug/L	50.0		99.6	60-140	3.64	30	
trans-1,3-Dichloropropene	55.2 ug/L		ug/L	50.0		110	55-140	0.158	30	
Trichloroethylene	53.4 ug/L		ug/L	50.0		107	70-125	2.39	30	
Surr: 1,2-Dichloroethane-d4	47.7		ug/L	50.0		95.4	70-120			
Surr: 4-Bromofluorobenzene	51.0		ug/L	50.0		102	75-120			
Surr: Dibromofluoromethane	44.6		ug/L	50.0		89.1	80-119			
Surr: Toluene-d8	48.9		ug/L	50.0		97.8	85-120			
Matrix Spike (BXH0191-MS1)		Source: 14H0026-04RE1		Prepared & Analyzed: 08/08/2014						
1,1-Dichloroethane	54.3 ug/L		ug/L	50.0	< ug/L	109	70-135			
1,1-Dichloroethylene	53.4 ug/L		ug/L	50.0	< ug/L	107	70-130			
1,2-Dichlorobenzene	55.8 ug/L		ug/L	50.0	< ug/L	112	70-120			
1,2-Dichloropropane	53.4 ug/L		ug/L	50.0	< ug/L	107	75-125			
1,3-Dichlorobenzene	55.3 ug/L		ug/L	50.0	< ug/L	111	75-125			
1,4-Dichlorobenzene	53.9 ug/L		ug/L	50.0	< ug/L	108	75-125			
Bromodichloromethane	56.5 ug/L		ug/L	50.0	< ug/L	113	75-120			
Bromomethane	35.0 ug/L		ug/L	50.0	< ug/L	70.1	30-145			
cis-1,3-Dichloropropene	55.2 ug/L		ug/L	50.0	< ug/L	110	70-130			
Dibromochloromethane	56.7 ug/L		ug/L	50.0	< ug/L	113	60-135			
Tetrachloroethylene (PCE)	67.9 ug/L		ug/L	50.0	< ug/L	136	45-150			
Toluene	58.7 ug/L		ug/L	50.0	1.86 ug/L	114	75-120			
trans-1,2-Dichloroethylene	51.7 ug/L		ug/L	50.0	< ug/L	103	60-140			
trans-1,3-Dichloropropene	57.7 ug/L		ug/L	50.0	< ug/L	115	55-140			
Trichloroethylene	53.6 ug/L		ug/L	50.0	< ug/L	107	70-125			
Surr: 1,2-Dichloroethane-d4	927		ug/L	1000		92.7	70-120			

AIR WATER SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0191 - SW5030B										
Matrix Spike (BXH0191-MS1)		**Source: 14H0026-04RE1**		Prepared & Analyzed: 08/08/2014						
Surr: 4-Bromofluorobenzene	1010		ug/L	1000		101	75-120			
Surr: Dibromofluoromethane	907		ug/L	1000		90.7	80-119			
Surr: Toluene-d8	981		ug/L	1000		98.1	85-120			
Matrix Spike Dup (BXH0191-MSD1)		**Source: 14H0026-04RE1**		Prepared & Analyzed: 08/08/2014						
1,1-Dichloroethane	53.0 ug/L		ug/L	50.0	< ug/L	106	70-135	2.27	30	
1,1-Dichloroethylene	51.6 ug/L		ug/L	50.0	< ug/L	103	70-130	3.48	30	
1,2-Dichlorobenzene	51.5 ug/L		ug/L	50.0	< ug/L	103	70-120	8.07	30	
1,2-Dichloropropane	49.7 ug/L		ug/L	50.0	< ug/L	99.5	75-125	7.06	30	
1,3-Dichlorobenzene	51.3 ug/L		ug/L	50.0	< ug/L	103	75-125	7.59	30	
1,4-Dichlorobenzene	49.2 ug/L		ug/L	50.0	< ug/L	98.4	75-125	9.21	30	
Bromodichloromethane	54.5 ug/L		ug/L	50.0	< ug/L	109	75-120	3.43	30	
Bromomethane	41.9 ug/L		ug/L	50.0	< ug/L	83.8	30-145	17.8	30	
cis-1,3-Dichloropropene	51.9 ug/L		ug/L	50.0	< ug/L	104	70-130	6.15	30	
Dibromochloromethane	53.2 ug/L		ug/L	50.0	< ug/L	106	60-135	6.35	30	
Tetrachloroethylene (PCE)	63.9 ug/L		ug/L	50.0	< ug/L	128	45-150	6.15	30	
Toluene	55.0 ug/L		ug/L	50.0	1.86 ug/L	106	75-120	6.57	30	
trans-1,2-Dichloroethylene	47.8 ug/L		ug/L	50.0	< ug/L	95.6	60-140	7.85	30	
trans-1,3-Dichloropropene	54.0 ug/L		ug/L	50.0	< ug/L	108	55-140	6.67	30	
Trichloroethylene	50.6 ug/L		ug/L	50.0	< ug/L	101	70-125	5.84	30	
Surr: 1,2-Dichloroethane-d4	914		ug/L	1000		91.4	70-120			
Surr: 4-Bromofluorobenzene	1010		ug/L	1000		101	75-120			
Surr: Dibromofluoromethane	941		ug/L	1000		94.1	80-119			
Surr: Toluene-d8	992		ug/L	1000		99.2	85-120			

AIR WATER SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Semivolatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0128 - SW3510C										
Blank (BXH0128-BLK1)				Prepared & Analyzed: 08/07/2014						
1,2-Diphenylhydrazine	<10.0 ug/L	10.0	ug/L							
3,3'-Dichlorobenzidine	<10.0 ug/L	10.0	ug/L							
4,6-Dinitro-2-methylphenol	<50.0 ug/L	50.0	ug/L							
Benzidine	<50.0 ug/L	50.0	ug/L							
Benzo (b) fluoranthene	<10.0 ug/L	10.0	ug/L							
Di-n-butyl phthalate	<10.0 ug/L	10.0	ug/L							
Kepone	<10.0 ug/L	10.0	ug/L							
p-Chloro-m-cresol	<10.0 ug/L	10.0	ug/L							
Surr: 2,4,6-Tribromophenol	62.2		ug/L	100		62.2	40-125			
Surr: 2,4,6-Tribromophenol	62.2		ug/L	100		62.2	40-125			
Surr: 2-Fluorobiphenyl	25.2		ug/L	50.0		50.3	23-87			
Surr: 2-Fluorobiphenyl	25.2		ug/L	50.0		50.3	23-87			
Surr: 2-Fluorophenol	30.1		ug/L	100		30.1	14-52			
Surr: 2-Fluorophenol	30.1		ug/L	100		30.1	14-52			
Surr: Nitrobenzene-d5	23.9		ug/L	50.0		47.9	40-110			
Surr: Nitrobenzene-d5	23.9		ug/L	50.0		47.9	40-110			
Surr: Phenol-d5	16.9		ug/L	100		16.9	5-33			
Surr: Phenol-d5	16.9		ug/L	100		16.9	5-33			
Surr: p-Terphenyl-d14	39.4		ug/L	50.0		78.8	22-85			
Surr: p-Terphenyl-d14	39.4		ug/L	50.0		78.8	22-85			
LCS (BXH0128-BS1)				Prepared & Analyzed: 08/07/2014						
p-Chloro-m-cresol	44.9 ug/L	10.0	ug/L	100		44.9	19-91			
Surr: 2,4,6-Tribromophenol	73.2		ug/L	100		73.2	40-125			
Surr: 2,4,6-Tribromophenol	73.2		ug/L	100		73.2	40-125			
Surr: 2-Fluorobiphenyl	27.1		ug/L	50.0		54.3	23-87			
Surr: 2-Fluorobiphenyl	27.1		ug/L	50.0		54.3	23-87			
Surr: 2-Fluorophenol	36.9		ug/L	100		36.9	14-52			
Surr: 2-Fluorophenol	36.9		ug/L	100		36.9	14-52			
Surr: Nitrobenzene-d5	26.6		ug/L	50.0		53.3	40-110			
Surr: Nitrobenzene-d5	26.6		ug/L	50.0		53.3	40-110			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Semivolatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0128 - SW3510C										
LCS (BXH0128-BS1)				Prepared & Analyzed: 08/07/2014						
Surr: Phenol-d5	23.4		ug/L	100		23.4	5-33			
Surr: Phenol-d5	23.4		ug/L	100		23.4	5-33			
Surr: p-Terphenyl-d14	35.9		ug/L	50.0		71.8	22-85			
Surr: p-Terphenyl-d14	35.9		ug/L	50.0		71.8	22-85			
LCS (BXH0128-BS2)				Prepared: 08/07/2014 Analyzed: 08/08/2014						
p-Chloro-m-cresol	46.9 ug/L	10.0	ug/L	100		46.9	19-91			
Surr: 2,4,6-Tribromophenol	90.0		ug/L	100		90.0	40-125			
Surr: 2,4,6-Tribromophenol	90.0		ug/L	100		90.0	40-125			
Surr: 2-Fluorobiphenyl	24.3		ug/L	50.0		48.7	23-87			
Surr: 2-Fluorobiphenyl	24.3		ug/L	50.0		48.7	23-87			
Surr: 2-Fluorophenol	29.0		ug/L	100		29.0	14-52			
Surr: 2-Fluorophenol	29.0		ug/L	100		29.0	14-52			
Surr: Nitrobenzene-d5	22.0		ug/L	50.0		44.0	40-110			
Surr: Nitrobenzene-d5	22.0		ug/L	50.0		44.0	40-110			
Surr: Phenol-d5	19.0		ug/L	100		19.0	5-33			
Surr: Phenol-d5	19.0		ug/L	100		19.0	5-33			
Surr: p-Terphenyl-d14	46.8		ug/L	50.0		93.7	22-85			S
Surr: p-Terphenyl-d14	46.8		ug/L	50.0		93.7	22-85			S
LCS Dup (BXH0128-BSD1)				Prepared & Analyzed: 08/07/2014						
p-Chloro-m-cresol	31.7 ug/L	10.0	ug/L	100		31.7	19-91	34.5	20	P
Surr: 2,4,6-Tribromophenol	54.3		ug/L	100		54.3	40-125			
Surr: 2,4,6-Tribromophenol	54.3		ug/L	100		54.3	40-125			
Surr: 2-Fluorobiphenyl	16.4		ug/L	50.0		32.8	23-87			
Surr: 2-Fluorobiphenyl	16.4		ug/L	50.0		32.8	23-87			
Surr: 2-Fluorophenol	16.8		ug/L	100		16.8	14-52			
Surr: 2-Fluorophenol	16.8		ug/L	100		16.8	14-52			
Surr: Nitrobenzene-d5	15.5		ug/L	50.0		31.0	40-110			S
Surr: Nitrobenzene-d5	15.5		ug/L	50.0		31.0	40-110			S
Surr: Phenol-d5	11.0		ug/L	100		11.0	5-33			

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Semivolatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0128 - SW3510C										
LCS Dup (BXH0128-BSD1)				Prepared & Analyzed: 08/07/2014						
Surr: Phenol-d5	11.0		ug/L	100		11.0	5-33			
Surr: p-Terphenyl-d14	35.6		ug/L	50.0		71.3	22-85			
Surr: p-Terphenyl-d14	35.6		ug/L	50.0		71.3	22-85			
Matrix Spike (BXH0128-MS1)		**Source: 14H0055-03**		Prepared: 08/07/2014 Analyzed: 08/08/2014						
p-Chloro-m-cresol	<250 ug/L	250	ug/L	111	<250 ug/L	36.6	26-75			J
Surr: 2,4,6-Tribromophenol	126		ug/L	111		113	40-125			
Surr: 2,4,6-Tribromophenol	126		ug/L	111		113	40-125			
Surr: 2-Fluorobiphenyl	ND		ug/L	55.6			23-87			DS
Surr: 2-Fluorobiphenyl	ND		ug/L	55.6			23-87			DS
Surr: 2-Fluorophenol	ND		ug/L	111			14-52			DS
Surr: 2-Fluorophenol	ND		ug/L	111			14-52			DS
Surr: Nitrobenzene-d5	ND		ug/L	55.6			40-110			DS
Surr: Nitrobenzene-d5	ND		ug/L	55.6			40-110			DS
Surr: Phenol-d5	ND		ug/L	111			5-33			DS
Surr: Phenol-d5	ND		ug/L	111			5-33			DS
Surr: p-Terphenyl-d14	ND		ug/L	55.6			22-85			DS
Surr: p-Terphenyl-d14	ND		ug/L	55.6			22-85			DS
Matrix Spike Dup (BXH0128-MSD1)		**Source: 14H0055-03**		Prepared: 08/07/2014 Analyzed: 08/08/2014						
p-Chloro-m-cresol	<250 ug/L	250	ug/L	111	<250 ug/L	33.3	26-75	9.31	20	J
Surr: 2,4,6-Tribromophenol	116		ug/L	111		104	40-125			
Surr: 2,4,6-Tribromophenol	116		ug/L	111		104	40-125			
Surr: 2-Fluorobiphenyl	ND		ug/L	55.6			23-87			DS
Surr: 2-Fluorobiphenyl	ND		ug/L	55.6			23-87			DS
Surr: 2-Fluorophenol	ND		ug/L	111			14-52			DS
Surr: 2-Fluorophenol	ND		ug/L	111			14-52			DS
Surr: Nitrobenzene-d5	ND		ug/L	55.6			40-110			DS
Surr: Nitrobenzene-d5	ND		ug/L	55.6			40-110			DS
Surr: Phenol-d5	ND		ug/L	111			5-33			DS
Surr: Phenol-d5	ND		ug/L	111			5-33			DS

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Semivolatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0128 - SW3510C										
Matrix Spike Dup (BXH0128-MSD1)		**Source: 14H0055-03**		Prepared: 08/07/2014 Analyzed: 08/08/2014						
Surr: p-Terphenyl-d14	ND		ug/L	55.6			22-85			DS
Surr: p-Terphenyl-d14	ND		ug/L	55.6			22-85			DS

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Wet Chemistry (Dissolved) Analysis - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BXH0283 - No Prep Wet Chem										
Blank (BXH0283-BLK1)				Prepared & Analyzed: 08/08/2014						
Sulfide	<1.0 mg/L	1.0	mg/L							
LCS (BXH0283-BS1)				Prepared & Analyzed: 08/08/2014						
Sulfide	3.7 mg/L	1.0	mg/L	3.99		92.7	80-120			
LCS Dup (BXH0283-BSD1)				Prepared & Analyzed: 08/08/2014						
Sulfide	3.7 mg/L	1.0	mg/L	3.99		92.7	80-120	0.00	20	
Matrix Spike (BXH0283-MS1)		Source: 14H0040-01		Prepared & Analyzed: 08/08/2014						
Sulfide	3.8 mg/L	1.0	mg/L	3.99	<1.0 mg/L	94.2	75-125			
Matrix Spike Dup (BXH0283-MSD1)		Source: 14H0040-01		Prepared & Analyzed: 08/08/2014						
Sulfide	3.8 mg/L	1.0	mg/L	3.99	<1.0 mg/L	95.2	75-125	1.06	20	

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Certified Analyses included in this Report

Analyte	Certifications
EPA200.7 Rev 4.4 in Non-Potable Water	
Chromium	VELAP,NC
Zinc	VELAP,NC
EPA200.9 R2.2 in Non-Potable Water	
Antimony	VELAP,NC
Arsenic	VELAP,NC
Cadmium	VELAP,NC
Copper	VELAP,NC
Lead	VELAP,NC
Nickel	VELAP,NC
Selenium	VELAP,NC
Silver	VELAP,NC
Thallium	VELAP,NC
EPA245.1 R3.0 in Non-Potable Water	
Mercury	VELAP,NC
EPA624 in Non-Potable Water	
1,1-Dichloroethane	NC,VELAP
1,1-Dichloroethylene	NC,VELAP
1,2-Dichlorobenzene	NC,VELAP
1,2-Dichloropropane	NC,VELAP
1,3-Dichlorobenzene	NC,VELAP
1,3-Dichloropropene, Total	NC,VELAP
1,4-Dichlorobenzene	NC,VELAP
Bromodichloromethane	NC,VELAP
Bromomethane	NC,VELAP
cis-1,3-Dichloropropene	NC,VELAP
Dibromochloromethane	NC,VELAP
Tetrachloroethylene (PCE)	NC,VELAP
Toluene	NC,VELAP
trans-1,2-Dichloroethylene	NC,VELAP
trans-1,3-Dichloropropene	NC,VELAP
Trichloroethylene	NC,VELAP
EPA625 in Non-Potable Water	
1,2-Diphenylhydrazine	NC,VELAP
3,3'-Dichlorobenzidine	NC,VELAP
4,6-Dinitro-2-methylphenol	NC,VELAP

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Certified Analyses included in this Report

Analyte	Certifications
Benzidine	NC,VELAP
Benzo (b) fluoranthene	NC,VELAP
Di-n-butyl phthalate	NC,VELAP
p-Chloro-m-cresol	NC,VELAP
SM18 4500-S2 F in Non-Potable Water	
Sulfide	NC,VELAP
SM22 3500Cr B-2011 in Non-Potable Water	
Chromium, Hexavalent	VELAP
SW8270D in Non-Potable Water	
Kepone	VELAP,WVDEP,NC

Code	Description	Lab Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2014
NC	North Carolina DENR	495	12/31/2014
PADEP	NELAC-Pennsylvania	001	10/31/2014
VELAP	NELAC-Virginia Certificate #4337	460021	06/14/2015
WVDEP	West Virginia DEP	350	11/30/2014

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23230 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 14H0040

Client Name:	Iluka Resources, Inc. 12472 St. John Church Road Stony Creek VA, 23832	Date Received: Date Issued:	August 5, 2014 8:45 August 19, 2014 15:38
Submitted To:	Kevin Rideout	Project Number:	[none]
Client Site I.D.:	Brink	Purchase Order:	4500344238

Summary of Data Qualifiers

DS	Surrogate concentration reflects a dilution factor.
P	Duplicate analysis does not meet the acceptance criteria for precision
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifers
-RE	Denotes sample was re-analyzed
D.F.	Dilution Factor. Please also see the Preparation Factor in the Analysis Summary section.

AIR WATER & SOIL LABORATORIES, INC.

1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

PAGE ____ OF ____

COMPANY NAME: Iluka Resources Inc	INVOICE TO:	PROJECT NAME/Quote #:
CONTACT: Kevin Rideout	INVOICE CONTACT:	SITE NAME: Brink
ADDRESS: 12472 St. John Church Rd	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #: 434-348-4316	INVOICE PHONE #:	P.O. #: 4500 344 238
FAX #:	EMAIL: Kevin.Rideout@iluka.com	Pretreatment Program:
Is sample for compliance reporting? (YES) NO	Is sample from a chlorinated supply? YES (NO)	PWS I.D. #:
SAMPLER NAME (PRINT): David J. Blackwell	SAMPLER SIGNATURE: David Blackwell	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other WW

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE): Pesticides - 622 Pesticide - 614	SVOCs 625	Tributyltin (HCL)	Dissolved Sulfide (NaOH+ZnAc)	Dissolved metals (HNO3)	Total metals (HNO3)	VOC's - 624	VOC's - 624 (HCL)			COMMENTS: Preservative Codes: Nitric Acid, Hydrochloric Acid, Sulfuric Acid, Sodium Hydroxide, Ascorbic Acid, Zinc Acetate, Sodium Thiosulfate, DI Water. Please see attachment. PLEASE NOTE: PRESERVATIVES AFFECT REPORTING LIMITS, PLEASE RATE ACCORDINGLY
1) Brink Process Water	✓					8/4/14	0935	0935	WW	18	✓	✓	✓	✓	✓	✓	✓			✓
2)																					
3)																					
4)																					
5)																					
6)																					
7)																					
8)																					
9)																					
10)																					

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
David J. Blackwell	8/4/14 12:40	Kevin Rideout	8/4/14 12:40
Kevin Rideout	8-5-14 7:53	Preston B. Hamill	8-5-14 7:53
Preston B. Hamill	8-5-14 8:45	[illegible]	8/5/14 [illegible]

QC Data Package
Level I
Level II
Level III
Level IV

LAB USE ONLY
COOLER TEMP 5.1 °C
Iluka
14H0040
Brink VPDES Renewal
Recd: 08/05/2014 Due: 08/19/2014
v130325002

AWS COC v131205.xls

AIR WATER SOIL

1941 Reymet Road • Richmond, Virginia 23237 • Tel : (804) 358-8295 F

Iluka
Brink VPDES Renewal

14H0040

Recd: 08/05/2014 Due: 08/19/2014

v130325002

Sample Conditions Checklist

Opened by: (Initials) _____ Lab ID No.:

Date Cooler Opened: _____

		YES	NO	N/A
1.	How were samples received? Fed Ex ☐ UPS ☐ Courier ☐ Walk In ☒			
2.	Were custody seals used?	☐	☒	☐
3	If yes, are custody seals unbroken and intact at the date and time of arrival?	☐	☐	☒
4.	Are the custody papers filled out completely and correctly?	☒	☐	☐
5.	Do all bottle labels agree with custody papers?	☒	☐	☐
6.	Are the samples received on ice?	☒	☐	☐
7.	Is the temperature blank or representative sample within acceptable limits? (above freezing to 6°C)	☒	☐	☐
8.	Are all samples within holding time for requested laboratory tests?	☒	☐	☐
9	Is a sufficient amount of sample provided to perform the tests indicated?	☒	☐	☐
10	Are all samples in proper containers for the analyses requested?	☒	☐	☐
11	Are all samples appropriately preserved for the analyses requested?	☒	☐	☐
12	Are all volatile organic containers free of headspace?	☒	☐	☐
13	Is Trip blank provided with each VOC sample set? Circle applicable method: (Document if trip blank is not received with the sample set)	☐	☐	☐

EPA 8011 EPA 504 EPA 8260 EPA 624

RSK-175 EPA 8015 (GRO) EPA 8021

EPA 524 GRO Wisconsin DNR (water and/or methanol trip blank must be provided)

COMMENTS

Sample 14H0040-02B preserved @ 9:34 TA pH 4.39 OCR 3/5/14

Does die filtered in the lab ~~within holding time~~ outside 15 min holding time OCR 3/5/14

Trip blank received. Date + time recorded from container 8/5/14 9:30 RCV

FOR LAB USE ONLY:

CrVI preserved date/time: 8/5/14

Buffer Sol'n ID: 4F01197 Analyst intials: TA

1N NaOH ID: 4D01547 or 5N NaOH ID: /

THIS DOCUMENT IS UNCONTROLLED WHEN PRINTED
F1302 Sample Condition 3_0.xls

* See attached email * OCR 3/5/14

AIR WATER SOIL

Order ID 14H0040

Sample Preservation Log

Date Performed: 8/5/14

Sample Preservation Log
Form #: F1301
Rev # 3.0
Effective: Jan 14, 2014
Page 1 of 1

Analyst Performing Check: _____

P/A = Present/Absent

Sample ID	Container ID	Metals pH as Received < 2	Metals pH as Received Other	Metals Final pH (if adjust.)	Cyanide pH as Received > 12	Cyanide pH as Received Other	Cyanide Final pH (if adjust.)	Sulfide pH as Received > 9	Sulfide pH as Received Other	Sulfide Final pH (if adjust.)	Ammonia pH as Received < 2	Ammonia pH as Received Other	Ammonia Final pH (if adjust.)	TKN pH as Received < 2	TKN pH as Received Other	TKN Final pH (if adjust.)	Phos, Tot pH as Received < 2	Phos, Tot pH as Received Other	Phos, Tot Final pH (if adjust.)	NO3+NO2 pH as Received < 2	NO3+NO2 pH as Received Other	NO3+NO2 Final pH (if adjust.)	DRO pH as Received < 2	DRO pH as Received Other	DRO Final pH (if adjust.)	Pesticide (8081/608) Res.Cl as Received Present	Pesticide (8081/608) Res.Cl as Received Absent	Pesticide (8081/608) Res.Cl P/A (if adjust.)	SVOC (8270/625) Res.Cl as Received Present	SVOC (8270/625) Res.Cl as Received Absent	SVOC (8270/625) Res.Cl P/A (if adjust.)	pH as Received	pH as Received Other	Final pH (if adjust.)	pH as Received	pH as Received Other	Final pH (if adjust.)
01	N																													X							
01	G							X																													
01	E	X																																			
02	A	X																																			

NaOH ID: _____ HCL ID: _____

H2SO4 ID: _____ HNO3 ID: _____

Jessica Reich

From: Rideout, Kevin [Kevin.Rideout@iluka.com]
Sent: Tuesday, August 05, 2014 9:42 AM
To: Jessica Reich
Subject: RE: Brink VPDES
Follow Up Flag: Follow up
Flag Status: Completed

Thanks for catching that, please send a replacement bottle and we will resample for the Dissolved Hexavalent Chromium. Our courier will be stopping by again on Thursday, he can get the bottle then.

Thanks
Kevin

From: Jessica Reich [mailto:jreich@awslabs.com]
Sent: Tuesday, August 05, 2014 9:39 AM
To: Rideout, Kevin
Subject: Brink VPDES
Importance: High

Kevin,

We received your samples today, but I discovered an error. I neglected to include containers for Dissolved Hexavalent Chromium in your bottle kit. Luckily, we had enough unpreserved sample volume that we were able to lab filter the sample, preserve within the 24hr holding time and still analyze for Dissolved Hexavalent Chromium. However, there will be a notation on the sample conditions checklist that it was filtered outside the 15 minute holding time since it is supposed to be filtered in the field. Please accept my sincerest apologies for this error. Please confirm you would like us to proceed or let me know if you need replacement containers for re-sampling.

Best Regards,

Jessica Reich
Senior Project Manager
Air, Water and Soil Laboratories, Inc.
1941 Reymet Road
Richmond, VA 23237
(804) 358-8295

Confidentiality Notice

The information contained in this document is privileged, confidential, and protected under applicable law. It is intended solely for the individual or entity to whom it is addressed. If you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying of the communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately and destroy the document.

NOTICE - This message and any attached files may contain information that is confidential and/or subject of legal privileged intended only for use by the intended recipient. If you are not the intended recipient or the person responsible for delivering the message to the intended recipient, be advised that you have received this message in error and that any dissemination, copying or use of this message or attachment is strictly forbidden, as is the disclosure of the information therein. If you have received this message in error please notify the sender immediately and delete the message. All care has been taken to ensure that this message and any attachments are virus free. No responsibility is accepted for any virus infections caused by receipt of this message.

ATTACHMENT A
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY CRITERIA MONITORING

Effective January 1, 2012, all analyses shall be in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

A listing of Virginia Environmental Laboratory Accreditation Program (VELAP) certified and/or accredited laboratories can be found at the following website:
http://www.dgs.state.va.us/DivisionofConsolidatedLaboratoryServices/Services/EnvironmentalLaboratoryCertification/tabid/1059/Default.aspx

Please be advised that additional water quality analyses may be necessary and/or required for permitting purposes.

CASRN	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
	METALS					
7440-36-0	Antimony, dissolved	(3)	1.4		G or C	1/5 YR
7440-38-2	Arsenic, dissolved	(3)	1.0		G or C	1/5 YR
7440-43-9	Cadmium, dissolved	(3)	0.3		G or C	1/5 YR
16065-83-1	Chromium III, dissolved [(5)]	(3)	3.6		G or C	1/5 YR
18540-29-9	Chromium VI, dissolved [(5)]	(3)	1.6		G or C	1/5 YR
7440-50-8	Copper, dissolved	(3)	0.50		G or C	1/5 YR
7439-92-1	Lead, dissolved	(3)	0.50		G or C	1/5 YR
7439-97-6	Mercury, dissolved	(3)	1.0		G or C	1/5 YR
7440-02-0	Nickel, dissolved	(3)	0.94		G or C	1/5 YR
7782-49-2	Selenium, Total Recoverable	(3)	2.0		G or C	1/5 YR (FW)
7440-22-4	Silver, dissolved	(3)	0.20		G or C	1/5 YR
7440-28-0	Thallium, dissolved	(3)	(4)		G or C	1/5 YR
7440-66-6	Zinc, dissolved	(3)	3.6		G or C	1/5 YR
	PESTICIDES/PCBs					
309-00-2	Aldrin	608/625	0.05		G or C	1/5 YR
57-74-9	Chlordane	608/625	0.2		G or C	1/5 YR
2921-88-2	Chlorpyrifos (synonym = Dursban)	622	(4)		G or C	1/5 YR
72-54-8	DDD	608/625	0.1		G or C	1/5 YR
72-55-9	DDE	608/625	0.1		G or C	1/5 YR
50-29-3	DDT	608/625	0.1		G or C	1/5 YR

UNIVERSAL LABORATORIES

REPORT OF ANALYSIS

Order ID: 1408072

(REPORT DATE)
15-Aug-14

TO: Air Water & Soil Laboratories
1941 Reymet Road

Richmond VA 23237

ATTN: Jessica Reich

FaxNumber: (804) 358-8297
E-MAIL

This report contains the analytical results for Project Id N/A
designated as UL Order Id **1408072** and received on *Wednesday, August 06, 2014*
The results contained in this report relate only to the samples identified on this order. The analytical results meet all requirements of NELAC unless specifically stated. This report shall not be reproduced except in full.

The data in this report has been reviewed and validated by:

Signature

Danny Thornton, Jr.
Name

Project Supervisor
Title

ANALYTICAL DATA REPORT

UL ORDER ID **1408072**

Analytical Methods Reference

VDEH Lab# 00030 VELAP ID 460036 NCDW Lab # 51706 NCWW Lab # 543

Description:	*Prep Method:*	*Method*	*Reference*	*accredited/status*
Wastewater				
TBT Tributyltin	l q/l q	GC/FPD		Accredited

NOTE: Analysis is performed according to Universal Laboratories Standard Operating Procedures which are based on the analytical methods referenced above

GLOSSARY OF TERMS AND ABBREVIATIONS

RL (Reporting Limit): The minimum levels, concentrations or quantities of target analyte that can be reported with a specified degree of confidence Generally this number is near or equal to the lowest calibration standard run with the analytical batch

MDL (Method Detection Limit) The constituent concentration that when processed through the complete method produces a signal with a 99% probability that it is different from the blank.

LCS (Laboratory Control Sample) is a sample matrix free from the analytes of interest, spiked with verified amounts of analytes

MS (Matrix Spike) a sample prepared by adding a known mass of target analyte to a specific amount of sample for which an independant estimate of target analyte concentration is available.

MSD (Matrix Spike Duplicate) is a replicate matrix spike prepared in the laboratory and anlyzed to obtain a measure of the precision recovery for each analtye.

Surrogate is a substance with properties that mimic the analyte of interest It is unlikely to be found in environmental samples and is added to them for quality control purposes

IS (Internal Standard) is a known amount of standard added to a test portion of the sample as a reference for evaluation and controlling the precision and bias of the applied analytical method

RPD (Relative Percent Difference) is the difference between a set of sample duplicates or sample spike duplicates

ICV (Initial Calibration Verification) CCV (Continuing Calibration Verification) FCV (Final Calibration Verification)

Method Blank is a sample matrix similar to the batch of associated samples that is free from analytes of interest and is processed simultaneously with and under the same conditions as samples

Trip Blank Is a sample of analyte free media collected in the same type of container that is required for the analytical test taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures

Holding Time is the maximum times that samples may be held prior to analysis and still be considered valid or not compromised

ug/L=ppb ug/kg=ppb mg/kg=ppm mg/L=ppm

HAM= Analyzed in Hampton Lab

FRED= Analyzed in Fredericksburg Lab

QC Flag	Description
B	Analyte found in method blank
H	Holding time exceeded
L	LCS outside acceptable limits
V	ICV/CCV/FCV outside acceptable limits
D	RPD outside acceptable limits
MS	Matrix spike recovery outside acceptable limits
J	Result above calibration curve approximate value
QC	Method QC Critera not met
MI	Matrix Interference
S	Surrogate outside acceptable limits
IS	Internal standard outside acceptable limits
*	VELAP accreditation not available
**	VELAP not accredited
T	value is between the RL and MDL

AIR WATER & SOIL LABORATORIES, INC.

Universal Labs

1408072

1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

PAGE ____ OF ____

COMPANY NAME: AWS	INVOICE TO:	PROJECT NAME/Quote #:
CONTACT: Jessica Reich	INVOICE CONTACT:	SITE NAME:
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #: EMAIL:		Pretreatment Program:
Is sample for compliance reporting? YES NO	Is sample from a chlorinated supply? YES NO	PWS I.D. #
SAMPLER NAME (PRINT):	SAMPLER SIGNATURE:	Turn Around Time: 8/19/14 Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

ANALYSIS / (PRESERVATIVE)

	CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	TBT (A,B)								COMMENTS
1)	14H0040-01						8/4/14	0935			2	X								
2)																				
3)																				
4)																				
5)																				
6)																				
7)																				
8)																				
9)																				
10)																				

Preservative Codes N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol

PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
[signature]	8/5/14	UPS Next D	
UPS		[signature] UPS Mendy Hall	8/6/14 0820
Mendy Hall	8/6/14 1220	[signature]	8/6/14 1220

QC Data Package
Level I ☐
Level II ☐
Level III ☐
Level IV ☐

LAB USE ONLY

COOLER TEMP 3 °C

pH<2

AWS COC_v131206.xls

REPORT OF ANALYSIS

CLIENT: Air Water & Soil Laboratories, Inc.
ATTN: Jessica Reich
ADDRESS: 1941 Reymet Road
Richmond, VA 23237
PHONE: 804-358-8295
FAX: support@awslabs.com

Special Notes:

SAMPLE COLLECTED BY: CLIENT
GRAB COLLECTION:
Date: 8/4/2014 Time: 0935
COMPOSITE COLLECTION:
Start Date: Time:
End Date: Time:

PICK UP BY: UPS/UNIVERSAL
SAMPLE RECEIPT:
Date: 8/6/2014 Time: 1215
NUMBER OF CONTAINERS: 6
SAMPLE CONDITION: ☑ Good ☐ Other (See C-O-C)
REPORT NO: 14-11620 16:50

SAMPLE ID: 14H0040-01
SAMPLE NO: 14-11620

Parameter	Method Number	JRA QL	Result	Unit	Analyst	Date	Time
Organophosphorous Pesticides							
Guthion	622	1	< 1	ug/L	JFS	08/14/14	1637
Chlorpyrifos	622	0.2	< 0.2	ug/L	JFS	08/14/14	1637
Organophosphorus Pesticides							
Parathion	614	1	< 1	ug/L	JFS	08/14/14	1801
Malathion	614	1	< 1	ug/L	JFS	08/14/14	1801
Demeton	614	1	< 1	ug/L	JFS	08/14/14	1801
Diazinon	614	1	< 1	ug/L	JFS	08/14/14	1801

REPORT OF ANALYSIS

SAMPLE ID: 14H0040-01
SAMPLE NO: 14-11620

Parameter	Method Number	JRA QL	Result	Unit	Analyst	Date	Time

NOTES:

JRA Quantification Level is the concentration of the lowest calibration standard above zero with a reliable signal.

Reproduction of this report is not permitted, except in full, without written approval from James R Reed & Associates.

The results on this report relate only to the sample(s) provided for analysis.

Results conform to NELAC standards, where applicable, unless otherwise indicated.

Authorized By: Elaine Claiborne

Elaine Claiborne, Laboratory Director

Date: 18-Aug-14

James R. Reed & Associates
770 Pilot House Drive, Newport News, VA 23606
(757) 873-4703 ● Fax: (757) 873-1498

VELAP# 460013
EPA# VA00015

NELAP ACCREDITED TNI LABORATORY

AIR WATER SOIL LABORATORIES, INC.

James R Reed

1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

PAGE ____ OF ____

COMPANY NAME: AWS	INVOICE TO:	PROJECT NAME/Quote #:
CONTACT: JESSICA	INVOICE CONTACT:	SITE NAME:
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #: EMAIL: Support@AWSLABS.com		Pretreatment Program:
Is sample for compliance reporting? YES NO	Is sample from a chlorinated supply? YES NO	PWS I.D. #: 8/19/14
SAMPLER NAME (PRINT):	SAMPLER SIGNATURE:	Turn Around Time: Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D. (14H0620)	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE) Pest-622 (A1-3)	Carbaryl Chlorpyrifos (A1-3)	Pest 614	Demeton Diazinon Malathion Parathion				COMMENTS
1) 14H0040-01						8/14/14	0935		WW	6	X		X					
2)																		
3)																		
4)																		
5)																		
6)																		
7)																		
8)																		
9)																		
10)																		

Preservative Codes: N=Nitric Acid O=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol

PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS & PUMP RATE (L/min)

RELINQUISHED	DATE / TIME	RECEIVED	DATE / TIME
Nancy A	8/15/14	UPS Next Day	
UPS			8/16/14 1030
	8/16/14 1215	Chandler H.	8-6-14 @ 1215

QC Data Package: Level I ☐ Level II ☐ Level III ☐ Level IV ☐

LAB USE ONLY COOLER TEMP ____ °C

ARRIVAL TEMP 3.0°C
4X

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

October 01, 2014

Kevin Rideout

,

RE: Project: BRINK OUTFALL 101
Pace Project No.: 92218773

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92218773001	BRINK OUTFALL 101	EPA 624	GAW	27	PASI-C

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

Sample: BRINK OUTFALL 101 **Lab ID: 92218773001** Collected: 09/24/14 11:45 Received: 09/25/14 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624							
Acrolein	ND	ug/L	5.0	1		10/01/14 06:03	107-02-8	
Acrylonitrile	ND	ug/L	50.0	1		10/01/14 06:03	107-13-1	
Benzene	ND	ug/L	2.0	1		10/01/14 06:03	71-43-2	
Bromoform	ND	ug/L	2.0	1		10/01/14 06:03	75-25-2	
Carbon tetrachloride	ND	ug/L	2.0	1		10/01/14 06:03	56-23-5	
Chlorobenzene	ND	ug/L	2.0	1		10/01/14 06:03	108-90-7	
Chloroethane	ND	ug/L	2.0	1		10/01/14 06:03	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	5.0	1		10/01/14 06:03	110-75-8	
Chloroform	ND	ug/L	2.0	1		10/01/14 06:03	67-66-3	
Chloromethane	ND	ug/L	2.0	1		10/01/14 06:03	74-87-3	
Dichlorodifluoromethane	ND	ug/L	2.0	1		10/01/14 06:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	2.0	1		10/01/14 06:03	75-34-3	
1,2-Dichloroethene (Total)	ND	ug/L	2.0	1		10/01/14 06:03	540-59-0	
cis-1,2-Dichloroethene	ND	ug/L	2.0	1		10/01/14 06:03	156-59-2	
1,3-Dichloropropane	ND	ug/L	2.0	1		10/01/14 06:03	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		10/01/14 06:03	594-20-7	
Ethylbenzene	ND	ug/L	2.0	1		10/01/14 06:03	100-41-4	
Methylene Chloride	ND	ug/L	2.0	1		10/01/14 06:03	75-09-2	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	1		10/01/14 06:03	630-20-6	
Toluene	ND	ug/L	2.0	1		10/01/14 06:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	2.0	1		10/01/14 06:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	1		10/01/14 06:03	79-00-5	
Trichlorofluoromethane	ND	ug/L	2.0	1		10/01/14 06:03	75-69-4	
Vinyl chloride	ND	ug/L	2.0	1		10/01/14 06:03	75-01-4	
Surrogates								
4-Bromofluorobenzene (S)	97	%	70-130	1		10/01/14 06:03	460-00-4	
Toluene-d8 (S)	101	%	70-130	1		10/01/14 06:03	2037-26-5	
1,2-Dichloroethane-d4 (S)	92	%	70-130	1		10/01/14 06:03	17060-07-0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

QC Batch: MSV/28570 | Analysis Method: EPA 624
QC Batch Method: EPA 624 | Analysis Description: 624 MSV
Associated Lab Samples: 92218773001

METHOD BLANK: 1296506 | Matrix: Water
Associated Lab Samples: 92218773001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	2.0	10/01/14 03:18	
1,1,1-Trichloroethane	ug/L	ND	2.0	10/01/14 03:18	
1,1,2-Trichloroethane	ug/L	ND	2.0	10/01/14 03:18	
1,1-Dichloroethane	ug/L	ND	2.0	10/01/14 03:18	
1,2-Dichloroethene (Total)	ug/L	ND	2.0	10/01/14 03:18	
1,3-Dichloropropane	ug/L	ND	2.0	10/01/14 03:18	
2,2-Dichloropropane	ug/L	ND	5.0	10/01/14 03:18	
2-Chloroethylvinyl ether	ug/L	ND	5.0	10/01/14 03:18	
Acrolein	ug/L	ND	5.0	10/01/14 03:18	
Acrylonitrile	ug/L	ND	50.0	10/01/14 03:18	
Benzene	ug/L	ND	2.0	10/01/14 03:18	
Bromoform	ug/L	ND	2.0	10/01/14 03:18	
Carbon tetrachloride	ug/L	ND	2.0	10/01/14 03:18	
Chlorobenzene	ug/L	ND	2.0	10/01/14 03:18	
Chloroethane	ug/L	ND	2.0	10/01/14 03:18	
Chloroform	ug/L	ND	2.0	10/01/14 03:18	
Chloromethane	ug/L	ND	2.0	10/01/14 03:18	
cis-1,2-Dichloroethene	ug/L	ND	2.0	10/01/14 03:18	
Dichlorodifluoromethane	ug/L	ND	2.0	10/01/14 03:18	
Ethylbenzene	ug/L	ND	2.0	10/01/14 03:18	
Methylene Chloride	ug/L	ND	2.0	10/01/14 03:18	
Toluene	ug/L	ND	2.0	10/01/14 03:18	
Trichlorofluoromethane	ug/L	ND	2.0	10/01/14 03:18	
Vinyl chloride	ug/L	ND	2.0	10/01/14 03:18	
1,2-Dichloroethane-d4 (S)	%	89	70-130	10/01/14 03:18	
4-Bromofluorobenzene (S)	%	107	70-130	10/01/14 03:18	
Toluene-d8 (S)	%	99	70-130	10/01/14 03:18	

LABORATORY CONTROL SAMPLE: 1296507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.8	109	70-130	
1,1,1-Trichloroethane	ug/L	20	23.7	118	52-162	
1,1,2-Trichloroethane	ug/L	20	19.9	99	52-150	
1,1-Dichloroethane	ug/L	20	19.9	100	59-155	
1,2-Dichloroethene (Total)	ug/L	40	40.8	102	70-130	
1,3-Dichloropropane	ug/L	20	19.8	99	70-130	
2,2-Dichloropropane	ug/L	20	20.9	104	70-130	
2-Chloroethylvinyl ether	ug/L	40	32.7	82	1-305	
Acrolein	ug/L	100	83.5	83	15-152	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

LABORATORY CONTROL SAMPLE: 1296507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acrylonitrile	ug/L	100	87.1	87	75-132	
Benzene	ug/L	20	18.9	95	37-151	
Bromoform	ug/L	20	21.1	105	45-169	
Carbon tetrachloride	ug/L	20	25.1	126	70-140	
Chlorobenzene	ug/L	20	20.2	101	37-160	
Chloroethane	ug/L	20	21.2	106	14-230	
Chloroform	ug/L	20	21.5	108	51-138	
Chloromethane	ug/L	20	15.2	76	1-273	
cis-1,2-Dichloroethene	ug/L	20	20.6	103	68-146	
Dichlorodifluoromethane	ug/L	20	24.5	123	70-130	
Ethylbenzene	ug/L	20	20.0	100	37-162	
Methylene Chloride	ug/L	20	19.1	96	1-221	
Toluene	ug/L	20	19.6	98	47-150	
Trichlorofluoromethane	ug/L	20	24.8	124	17-181	
Vinyl chloride	ug/L	20	17.8	89	1-251	
1,2-Dichloroethane-d4 (S)	%			95	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE SAMPLE: 1296970

Parameter	Units	92218945002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	25.4	127	70-130	
1,1,1-Trichloroethane	ug/L	ND	20	28.8	144	46-171	
1,1,2-Trichloroethane	ug/L	ND	20	22.0	110	64-152	
1,1-Dichloroethane	ug/L	ND	20	23.3	116	43-172	
1,3-Dichloropropane	ug/L	ND	20	23.1	116	70-130	
2,2-Dichloropropane	ug/L	ND	20	26.6	133	70-130	M0
2-Chloroethylvinyl ether	ug/L	ND	40	ND	0	70-130	M0
Acrolein	ug/L	ND	100	82.3	82	70-130	
Acrylonitrile	ug/L	ND	100	98.0	98	70-130	
Benzene	ug/L	ND	20	22.2	111	54-163	
Bromoform	ug/L	ND	20	23.5	117	53-151	
Carbon tetrachloride	ug/L	ND	20	32.6	163	41-175	
Chlorobenzene	ug/L	ND	20	23.8	119	67-152	
Chloroethane	ug/L	ND	20	24.3	122	23-200	
Chloroform	ug/L	ND	20	24.9	125	51-166	
Chloromethane	ug/L	ND	20	15.8	79	40-175	
cis-1,2-Dichloroethene	ug/L	ND	20	22.9	115	45-174	
Dichlorodifluoromethane	ug/L	ND	20	32.1	160	70-130	M0
Ethylbenzene	ug/L	ND	20	24.2	121	57-152	
Methylene Chloride	ug/L	ND	20	19.8	99	40-167	
Toluene	ug/L	ND	20	22.4	112	47-162	
Trichlorofluoromethane	ug/L	ND	20	33.2	166	42-199	
Vinyl chloride	ug/L	ND	20	21.7	108	46-176	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

MATRIX SPIKE SAMPLE: 1296970

Parameter	Units	92218945002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane-d4 (S)	%				92	70-130	
4-Bromofluorobenzene (S)	%				106	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1296969

Parameter	Units	92218945001 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		
1,1,1-Trichloroethane	ug/L	ND	ND		
1,1,2-Trichloroethane	ug/L	ND	ND		
1,1-Dichloroethane	ug/L	ND	ND		
1,2-Dichloroethene (Total)	ug/L	ND	ND		
1,3-Dichloropropane	ug/L	ND	ND		
2,2-Dichloropropane	ug/L	ND	ND		
2-Chloroethylvinyl ether	ug/L	ND	ND		
Acrolein	ug/L	ND	ND		
Acrylonitrile	ug/L	ND	ND		
Benzene	ug/L	ND	ND		
Bromoform	ug/L	ND	ND		
Carbon tetrachloride	ug/L	ND	ND		
Chlorobenzene	ug/L	ND	ND		
Chloroethane	ug/L	ND	ND		
Chloroform	ug/L	ND	ND		
Chloromethane	ug/L	ND	ND		
cis-1,2-Dichloroethene	ug/L	ND	ND		
Dichlorodifluoromethane	ug/L	ND	ND		
Ethylbenzene	ug/L	ND	ND		
Methylene Chloride	ug/L	ND	ND		
Toluene	ug/L	ND	ND		
Trichlorofluoromethane	ug/L	ND	ND		
Vinyl chloride	ug/L	ND	ND		
1,2-Dichloroethane-d4 (S)	%	94	91	2	
4-Bromofluorobenzene (S)	%	97	106	8	
Toluene-d8 (S)	%	102	102	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK OUTFALL 101
Pace Project No.: 92218773

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92218773001	**BRINK OUTFALL 101**	EPA 624	MSV/28570		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1828771

Section A Required Client Information:

Company: Ilukka Resources Inc.
Address: 12472 St. John Church Rd
Stony Creek VA, 23882
Email To: Kevin.Rideout@ilukka.com
Phone: 434-348-4336 Fax:
Requested Due Date/TAT: 10 Days

Section B Required Project Information:

Report To: Kevin.Rideout@ilukka.com
Copy To:
Purchase Order No.: 4500344234
Project Name: Brink Outfall 101
Project Number:

Section C Invoice Information:

Attention: Dawn Hall
Company Name: Ilukka Resources Inc.
Address: 12472 St. John Church Rd
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: Brink VA

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): EPA Method 624	3-chloropropene	2-chloroethane	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Out fall 101	WW	G			9-24-14	11:45	14	4	2			2					✓	✓	✓		92218773
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	David Blackwell	9/25/14	0745	Preston B. Hamilla	9-25-14	8:00	
	Preston B. Hamilla	9-25-14	9:05	Rachel Burnett	9-25	905	3.5

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: David J. Blackwell
SIGNATURE of SAMPLER: David Blackwell DATE Signed (MM/DD/YY): 09/24/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS Client Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: RMD001 RMD002 **Type of Ice:** Wet Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 3.5 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and initials of person examining contents:_____

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: BLG Date: 9/25/14

SRF Review: JB Date: 9/25/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T		
1																2		2							

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

October 10, 2014

Kevin Rideout

,

RE: Project: BRINK PROCESS POND
Pace Project No.: 92219835

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on October 03, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full.
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK PROCESS POND
Pace Project No.: 92219835

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK PROCESS POND
Pace Project No.: 92219835

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92219835001	BRINK PROCESS POND	EPA 200.8	DRS	7	PASI-O

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK PROCESS POND
Pace Project No.: 92219835

Sample: BRINK PROCESS POND **Lab ID: 92219835001** Collected: 10/02/14 11:30 Received: 10/03/14 08:56 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Dissolved	ND	ug/L	0.50	1	10/08/14 23:30	10/09/14 17:45	7440-36-0	
Arsenic, Dissolved	ND	ug/L	0.50	1	10/08/14 23:30	10/09/14 17:45	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	1	10/08/14 23:30	10/09/14 17:45	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	1	10/08/14 23:30	10/09/14 17:45	7440-50-8	
Lead, Dissolved	ND	ug/L	0.50	1	10/08/14 23:30	10/09/14 17:45	7439-92-1	
Nickel, Dissolved	**1.5**	ug/L	0.62	1	10/08/14 23:30	10/09/14 17:45	7440-02-0	
Zinc, Dissolved	**5.4**	ug/L	2.5	1	10/08/14 23:30	10/09/14 17:45	7440-66-6	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK PROCESS POND
Pace Project No.: 92219835

QC Batch: MPRP/20924
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 92219835001

METHOD BLANK: 1022210
Matrix: Water
Associated Lab Samples: 92219835001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	ND	0.50	10/09/14 17:55	
Arsenic, Dissolved	ug/L	ND	0.50	10/09/14 17:55	
Chromium, Dissolved	ug/L	ND	0.50	10/09/14 17:55	
Copper, Dissolved	ug/L	ND	0.50	10/09/14 17:55	
Lead, Dissolved	ug/L	ND	0.50	10/09/14 17:55	
Nickel, Dissolved	ug/L	ND	0.62	10/09/14 17:55	
Zinc, Dissolved	ug/L	ND	2.5	10/09/14 17:55	

LABORATORY CONTROL SAMPLE: 1022211

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	50	48.9	98	85-115	
Arsenic, Dissolved	ug/L	50	49.2	98	85-115	
Chromium, Dissolved	ug/L	50	50.0	100	85-115	
Copper, Dissolved	ug/L	50	50.6	101	85-115	
Lead, Dissolved	ug/L	50	48.4	97	85-115	
Nickel, Dissolved	ug/L	50	51.3	103	85-115	
Zinc, Dissolved	ug/L	250	246	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1022536 1022537

Parameter	Units	92219933001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Antimony, Dissolved	ug/L	ND	50	50	49.6	49.8	95	95	70-130	.4	
Arsenic, Dissolved	ug/L	ND	50	50	48.6	50.2	92	95	70-130	3	
Chromium, Dissolved	ug/L	ND	50	50	49.7	50.3	98	99	70-130	1	
Copper, Dissolved	ug/L	ND	50	50	48.3	49.9	90	93	70-130	3	
Lead, Dissolved	ug/L	ND	50	50	49.2	51.1	98	102	70-130	4	
Nickel, Dissolved	ug/L	185	50	50	236	246	104	122	70-130	4	
Zinc, Dissolved	ug/L	42.0	250	250	254	261	85	88	70-130	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK PROCESS POND
Pace Project No.: 92219835

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1.2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK PROCESS POND
Pace Project No.: 92219835

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92219835001	**BRINK PROCESS POND**	EPA 200.8	MPRP/20924	EPA 200.8	ICPM/8580

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of
1725839

Section A Required Client Information:
Company: Iluka Resources Inc
Address: 12472 St. John Church rd
Stony Creek VA 23882
Email To: Kevin.rideout@iluka.com
Phone: 434-348-4316 Fax:
Requested Due Date/TAT: 5

Section B Required Project Information:
Report To: Kevin.rideout@iluka.com
Copy To: James.barbour@iluka.com
Purchase Order No.: 4500344234
Project Name: Brink Process pond
Project Number:

Section C Invoice Information:
Attention: Dawn Hall
Company Name: Iluka Resources
Address: 12472 St. John Church rd
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☒ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER
Site Location STATE: VA.

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): 92219835

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Dissolved Metals	Please See Attachment	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Process Pond	WW	G	10/2/14		10/2/14	11:30	24	2			✓							✓			
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Please See * Attached For limits

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
use method 200.8,	James W Barbour	10/3/14	7:46	Preston B. Haville	10-3-14	7:58	
report to MDL's	Preston B. Haville	10-3-14	8:56	[signature]	10-3-14	8:56	

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: James W Barbour
SIGNATURE of SAMPLER: James W Barbour
DATE Signed (MM/DD/YY): 10/3/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____ C

Corrected Cooler Temp.: 5.5 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:_____

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW		
All containers needing preservation have been checked.	☑Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: BLG **Date:** 10/3/14

SRF Review: _____ **Date:** _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T		
1						2																			

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

October 14, 2014

Kevin Rideout

RE: Project: Brink Process Pond
Pace Project No.: 92220167

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on October 07, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Brink Process Pond
Pace Project No.: 92220167

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Brink Process Pond
Pace Project No.: 92220167

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92220167001	**Brink Process Pond**	Trivalent Chromium Calculation	HEA	1	PASI-O
		EPA 200.8	HEA	1	PASI-O
		EPA 218.6	CLS	1	PASI-O

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Servi
9800 Kincey Ave. S
Huntersville, N
(704)875-9092

ANALYTICAL RESULTS

Project: Brink Process Pond
Pace Project No.: 92220167

Sample: Brink Process Pond **Lab ID: 92220167001** Collected: 10/06/14 10:14 Received: 10/07/14 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	mg/L	0.010	1		10/13/14 17:37	16065-83-1	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Chromium	ND	ug/L	1.0	1	10/11/14 10:35	10/13/14 12:10	7440-47-3	
Hexavalent Chromium 28 Day	Analytical Method: EPA 218.6							
Chromium, Hexavalent	ND	ug/L	0.025	1		10/10/14 20:22	18540-29-9	M1

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Pond
Pace Project No.: 92220167

QC Batch: MPRP/20982
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 92220167001

METHOD BLANK: 1026435
Matrix: Water
Associated Lab Samples: 92220167001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	ug/L	ND	1.0	10/13/14 11:23	

LABORATORY CONTROL SAMPLE: 1026436

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	ug/L	50	50.3	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1026437 1026438

Parameter	Units	92220819002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium	ug/L	ND	50	50	49.8	50.2	99	100	70-130	.7	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Brink Process Pond
Pace Project No.: 92220167

QC Batch: WETA/40217
QC Batch Method: EPA 218.6
Analysis Method: EPA 218.6
Analysis Description: Chromium, Hexavalent by IC 28 Day
Associated Lab Samples: 92220167001

METHOD BLANK: 1026090
Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	0.025	10/10/14 17:46	

LABORATORY CONTROL SAMPLE: 1026091

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	.075	0.070	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1026092 1026093

Parameter	Units	92220167001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	ND	.025	.025	0.029	0.027	115	110	90-110	4	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Brink Process Pond
Pace Project No.: 92220167

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Brink Process Pond
Pace Project No.: 92220167

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92220167001	Brink Process Pond	Trivalent Chromium Calculation	ICP/12859		
92220167001	Brink Process Pond	EPA 200.8	MPRP/20982	EPA 200.8	ICPM/8607
92220167001	Brink Process Pond	EPA 218.6	WETA/40217		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1725840

Section A Required Client Information:

Company: Iluka Resources
Address: 12472 St John Church Rd
Stony Creek VA 23882
Email To: Kevin.rideout@iluka.com
Phone: 434-348-4316 Fax:
Requested Due Date/TAT: 3 days

Section B Required Project Information:

Report To: Kevin.rideout@iluka.com
Copy To: James.barbour@iluka.com
Purchase Order No.: 4500344234
Project Name: Brink Process Pond
Project Number:

Section C Invoice Information:

Attention: Dawn Hall
Company Name: Iluka Resources
Address: Same Address
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Brink VA.

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Dissolved metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Process Pond	WW	G			10/6/14	[illegible]		2									✓		See Attached 92220167
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	James W Barbour	10/7/14	7:56	Preston B. Haworth	10-7-14	7:56	
	Preston B Haworth	10-7-14	9:15	Kacha Burnett	10-7	915	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: James W Barbour

SIGNATURE of SAMPLER: James W Barbour DATE Signed (MM/DD/YY): 10/6/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Tluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 3.9 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:_____

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☐No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):_____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: JW Date: 10/7/14

SRF Review: Date:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Attachment 4:

EPA Form 2F

Outfall 001

Please print or type in the unshaded areas only.

EPA ID Number (*copy from Item 1 of Form 1*)
VA0092436

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

FORM 2F NPDES

U.S. Environmental Protection Agency
Washington, DC 20460

Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. Outfall Number (*list*)	B. Latitude			C. Longitude			D. Receiving Water (*name*)
001	36	37	28	77	37	44	Unnamed Tributary to Fountains Creek

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
N/A	N/A	N/A	N/A		

B: You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfalls(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage of disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which received storm water discharges from the facility.

Continue on Page 2

Continued from the Front

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of imperious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface *(provide units)*	Total Area Drained *(provide units)*	Outfall Number	Area of Impervious Surface *(provide units)*	Total Area Drained *(provide units)*
001	0.45 acres	3.92 acres			

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas, and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

The drainage area for Outfall 001 includes internal access roads, a fire pump house and an Motor Control Center which are both housed within contained structures. The remaining area consist of vegetated berms and fallow land. Storm water from Brink Road (state roadway) does have the potential to enter the drainage area for Outfall 001.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table 2F-1
001	The fallow portion of the drainage area is vegetated and maintained by mowing. Ditches that lead to the settling basin have rock check dams to slow the water flow. Outfall 001 is constructed of rip rap with geotextile underlayment, followed by three pipes that convey the water under an internal roadway, followed by another area of rip rap beyond the roadway, prior to discharge. Sediment collected in the basin will be removed as needed and disposed of in the mines tailings ponds.	1-U

V. Nonstormwater Discharges

A. I certify under penalty of law hat the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharged from these outfall(s) are identified in either an accompanying Form 2C or From 2E application for the outfall.

Name and Official Title *(type or print)*	Signature	Date Signed
Kevin Rideout	Kevin Rideout	10/15/14

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

A visual inspection was completed on May 28, 2014 per the site SWPPP. The visual inspections are compelted annually. Outfall 001 and the outfalls covered under the sites General VPDES Permit.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

N/A

 Continue on Page 3

Continued from Page 2

EPA ID Number *(copy from Item 1 of Form 1)*
VA0092436

VII. Discharge Information

A, B, C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Table VII-A, VII-B, VII-C are included on separate sheets numbers VII-1 and VII-2.

E. Potential discharges not covered by analysis – is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

N/A

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

N/A

IX. Contract Analysis Information

Were any of the analyses reported in Item VII performed by a contract laboratory or consulting firm?

☐ Yes (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☐ No (*go to Section X*)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
Air, Water, and Soil Laboratories, Inc	1941 Reymet Rd Richmond, VA 23237	1.866.358.8318	Any pollultant listed in the current VPDES Permit or within the Attachment A Form. (AWS, Primary, and Pace)
Primary Laboratories	7423 Lee Davis Rd, Mechanicsville, VA 23111	(804) 559-9004	
Pace Analytical Services, Inc	9800 Kincey Ave, Suite 100 Huntersville, NC. 28078	(704) 875-9092	

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title (*Type Or Print*)	B. Area Code and Phone No.
Shane Tilka, US General Manager	(804) 348-4300
C. Signature	D. Date Signed
Shane Tilka	10/20/2014

EPA ID Number (*copy from Item 1 of Form 1*)
VAR000008276

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge information *(Continued from page 3 of Form 2F)*

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Oil and Grease	<5.0 mg/L	N/A			1	n/a
Biological Oxygen Demand (BOD5)	<2.0	<2.0			1	n/a
Chemical Oxygen Demand (COD)	<25.0 mg/L	<25.0 mg/L			1	n/a
Total Suspended Solids (TSS)	3.7 mg/L	2.7 mg/L			1	Drainage from unvegetated areas
Total Nitrogen	<0.12 mg/L	0.21 mg/L			1	Unknown
Total Phosphorus	<0.050 mg/L	<0.050 mg/L			1	n/a
pH	Minimum 6.42	Maximum 7.72	Minimum	Maximum	1	n/a

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Continue on Reverse

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event *(gallons/minute or specify units)*	6. Total flow from rain event *(gallons or specify units)*
6/4/2014	~360 minutes	0.17"	120 hours	~5 gallons per minute	~7,200 gallons

7. Provide a description of the method of flow measurement or estimate.

Estimates were made using a FP101 Global Flow Probe.

Attachment 5:

Supporting Laboratory Reports for Outfall 001

Pace Analytical Services, Inc.
9800 Kincey Ave Suite 100
Huntersville, NC 28078
(704)875-9092

June 26, 2014

Kevin Rideout

RE: Project: BRINK STORMWATER
Pace Project No.: 92204228

Dear Kevin Rideout:
Enclosed are the analytical results for sample(s) received by the laboratory on June 05, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Terri Page

Terri Page
terri.page@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BRINK STORMWATER
Pace Project No.: 92204228

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

Eden Certification IDs
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: BRINK STORMWATER
Pace Project No.: 92204228

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92204228001	BRINK STORMWATER	SM 2540D	JTF	1	PASI-E
		EPA 1664B	CLW	1	PASI-C
		40CFR PART 432.2	EWS	1	PASI-A
		EPA 351.2	JDA	1	PASI-A
		EPA 353.2	DMN	1	PASI-A
		EPA 365.1	JDA	1	PASI-A
		SM 5220D	EWS	1	PASI-A
92204228002	BRINK STORMWATER	SM 2540D	JTF	1	PASI-E
		EPA 1664B	CLW	1	PASI-C
		40CFR PART 432.2	EWS	1	PASI-A
		EPA 351.2	JDA	1	PASI-A
		EPA 353.2	DMN	1	PASI-A
		EPA 365.1	JDA	1	PASI-A
		SM 5220D	EWS	1	PASI-A

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: BRINK STORMWATER
Pace Project No.: 92204228

Sample: BRINK STORMWATER **Lab ID: 92204228001** Collected: 06/04/14 11:00 Received: 06/05/14 11:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D TSS, Low-Level, Eden	Analytical Method: SM 2540D							
Total Suspended Solids	**3.7**	mg/L	1.0	1		06/09/14 09:31		
HEM, Oil and Grease	Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		06/09/14 08:28		
Total Nitrogen Calculation	Analytical Method: 40CFR PART 432.2							
Total Nitrogen	ND	mg/L	0.12	1		06/16/14 14:30		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	ND	mg/L	0.50	1		06/16/14 09:34	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	ND	mg/L	0.020	1		06/13/14 21:02		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1							
Phosphorus	ND	mg/L	0.050	1		06/14/14 10:39	7723-14-0	
5220D COD	Analytical Method: SM 5220D							
Chemical Oxygen Demand	ND	mg/L	25.0	1		06/14/14 23:30		

Sample: BRINK STORMWATER **Lab ID: 92204228002** Collected: 06/05/14 10:00 Received: 06/05/14 11:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D TSS, Low-Level, Eden	Analytical Method: SM 2540D							
Total Suspended Solids	**2.7**	mg/L	1.0	1		06/09/14 09:31		
HEM, Oil and Grease	Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		06/09/14 08:28		
Total Nitrogen Calculation	Analytical Method: 40CFR PART 432.2							
Total Nitrogen	**0.21**	mg/L	0.12	1		06/16/14 14:30		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	ND	mg/L	0.50	1		06/16/14 09:35	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	**0.034**	mg/L	0.020	1		06/13/14 21:03		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1							
Phosphorus	ND	mg/L	0.050	1		06/14/14 10:40	7723-14-0	
5220D COD	Analytical Method: SM 5220D							
Chemical Oxygen Demand	ND	mg/L	25.0	1		06/14/14 23:30		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK STORMWATER
Pace Project No.: 92204228

QC Batch: EDEN/14777 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D TSS, Low Level, Eden
Associated Lab Samples: 92204228001, 92204228002

METHOD BLANK: 1216506 Matrix: Water
Associated Lab Samples: 92204228001, 92204228002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	06/09/14 09:23	

LABORATORY CONTROL SAMPLE: 1216507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	246	98	80-120	

SAMPLE DUPLICATE: 1216508

Parameter	Units	92203775001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	283	483	52	R1

SAMPLE DUPLICATE: 1216509

Parameter	Units	92204275001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	88.4	91.6	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK STORMWATER
Pace Project No.: 92204228

QC Batch: GCSV/17848
QC Batch Method: EPA 1664B
Analysis Method: EPA 1664B
Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 92204228001, 92204228002

METHOD BLANK: 1216470
Matrix: Water
Associated Lab Samples: 92204228001, 92204228002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	06/09/14 08:20	

LABORATORY CONTROL SAMPLE: 1216471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.6	99	78-114	

MATRIX SPIKE SAMPLE: 1216472

Parameter	Units	92204161001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	40	35.8	87	78-114	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK STORMWATER
Pace Project No.: 92204228

QC Batch: WETA/19314 — Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 — Analysis Description: 351.2 TKN
Associated Lab Samples: 92204228001, 92204228002

METHOD BLANK: 1221757 — Matrix: Water
Associated Lab Samples: 92204228001, 92204228002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	06/16/14 09:16	

LABORATORY CONTROL SAMPLE: 1221758

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221759 — 1221760

Parameter	Units	92204970001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	2.4	10	10	13.0	13.0	106	106	90-110	0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221761 — 1221762

Parameter	Units	92204196001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	2.6	10	10	11.5	12.8	89	102	90-110	11	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK STORMWATER
Pace Project No.: 92204228

QC Batch: WETA/19312 | Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 | Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 92204228001, 92204228002

METHOD BLANK: 1221679 | Matrix: Water
Associated Lab Samples: 92204228001, 92204228002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.020	06/13/14 20:37	

LABORATORY CONTROL SAMPLE: 1221680

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.4	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221681 1221682

Parameter	Units	92203619001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	9.7	2.5	2.5	11.5	11.4	69	69	75-125	0	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221683 1221684

Parameter	Units	92204073001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.039	2.5	2.5	2.3	2.2	89	88	75-125	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK STORMWATER
Pace Project No.: 92204228

QC Batch: WETA/19304 | Analysis Method: EPA 365.1
QC Batch Method: EPA 365.1 | Analysis Description: 365.1 Phosphorus, Total
Associated Lab Samples: 92204228001, 92204228002

METHOD BLANK: 1221179 | Matrix: Water
Associated Lab Samples: 92204228001, 92204228002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	06/14/14 10:20	

LABORATORY CONTROL SAMPLE: 1221180

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221181 1221182

Parameter	Units	92204000002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Phosphorus	mg/L	5.4	2.5	2.5	8.2	8.0	108	101	90-110	2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221183 1221184

Parameter	Units	92203619001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Phosphorus	mg/L	1.9	2.5	2.5	4.4	4.4	101	101	90-110	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BRINK STORMWATER
Pace Project No.: 92204228

QC Batch: WETA/19301 — Analysis Method: SM 5220D
QC Batch Method: SM 5220D — Analysis Description: 5220D COD
Associated Lab Samples: 92204228001, 92204228002

METHOD BLANK: 1221101 — Matrix: Water
Associated Lab Samples: 92204228001, 92204228002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	06/14/14 23:30	

LABORATORY CONTROL SAMPLE: 1221102

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	732	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221103 — 1221104

Parameter	Units	92204205001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chemical Oxygen Demand	mg/L	110	750	750	729	734	83	83	75-125	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1221105 — 1221106

Parameter	Units	92203867005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chemical Oxygen Demand	mg/L	7840	7500	7500	14400	14500	87	88	75-125	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BRINK STORMWATER
Pace Project No.: 92204228

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine(8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

LOD - Limit of Detection.

LOQ - Limit of Quantitation.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-E	Pace Analytical Services - Eden

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRINK STORMWATER
Pace Project No.: 92204228

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92204228001	BRINK STORMWATER	SM 2540D	EDEN/14777		
92204228002	BRINK STORMWATER	SM 2540D	EDEN/14777		
92204228001	BRINK STORMWATER	EPA 1664B	GCSV/17848		
92204228002	BRINK STORMWATER	EPA 1664B	GCSV/17848		
92204228001	BRINK STORMWATER	40CFR PART 432.2	WET/31594		
92204228002	BRINK STORMWATER	40CFR PART 432.2	WET/31594		
92204228001	BRINK STORMWATER	EPA 351.2	WETA/19314		
92204228002	BRINK STORMWATER	EPA 351.2	WETA/19314		
92204228001	BRINK STORMWATER	EPA 353.2	WETA/19312		
92204228002	BRINK STORMWATER	EPA 353.2	WETA/19312		
92204228001	BRINK STORMWATER	EPA 365.1	WETA/19304		
92204228002	BRINK STORMWATER	EPA 365.1	WETA/19304		
92204228001	BRINK STORMWATER	SM 5220D	WETA/19301		
92204228002	BRINK STORMWATER	SM 5220D	WETA/19301		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company:	Iluka Resources
Address:	12472 St. John Church Rd
	Stony Creek VA, 23882
Email To:	Kevin.Rideout@iluka.com
Phone:	434-348-4316
Fax:	
Requested Due Date/TAT:	10 Days

Section B Required Project Information:

Report To:	Kevin.Rideout@iluka.com
Copy To:	david.blackwell@iluka.com
Purchase Order No.:	4500 344 234
Project Name:	Brink Stormwater
Project Number:	

Section C Invoice Information:

Attention:	Dawn Hall
Company Name:	Iluka Resources
Address:	12472 St. John Church Rd
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: Brink VA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	TSS, BOD, Oil and grease, CaO, Total	Nitrogen, Total	Phosphorus	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Brink Stormwater	WW	G			6/4/14	11:00	27	4										✓	✓	✓	✓	92204228
2		WW	C	6/4/14	11:00	6/5/14	10:00	26	4										✓	✓	✓	✓	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	David Blackwell	6/5/14	11:05	Preston B. Hawille	6-5-14	11:05
	Preston B Hawille	6-5-14	11,55	Rachel Bennett	6-5	1155

SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David J. Blackwell

SIGNATURE of SAMPLER: David Blackwell

DATE Signed (MM/DD/YY): 6/5/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 1 of 2
	Document No.: F-RMD-CS-001-rev.01	Issuing Authorities: Pace Asheville Quality Office

Client Name: Iluka

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh ☑ Richmond, VA

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: (RMD001) RMD002 **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor: Add / Subtract _____C

Corrected Cooler Temp.: 1.4 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:_____

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6. BOD
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WW		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: BLG Date: 6/5/14

SRF Review: Date:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

OR

Handwrite project number (if no label available)

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 3, 2013 Page 2 of 2
	Document No.: F-RMD-CS-001-Rev.00	Issuing Authorities: Pace Asheville Quality Office

Sample Bottle Codes

Item#	BP4U	BP3U	BP2U	BP1U	BP3S	BP3N	BP3Z	BP3C	WGFU	AG1U	AG1H	AG2U	AG1S	AG3S	AG3A	DG9H	VG9T	VG9U	DG9S	VOAK(4vials per kit)	V/GK(3vials per kit)	SP5T	SP2T		
1				2	1						1														
2				2	1						1														

Client Sample ID(s)	Sample Discrepancy

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation Adjusted	Time Preservation Adjusted	Amount of Preservative added	Lot# of Preservative

Bottle Code Key

125 ml Plastic Unp: BP4U
250 ml Plastic Unp: BP3U
500 ml Plastic Unp: BP2U
1 Liter Plastic Unp: BP1U
250 ml Plastic H2SO4: BP3S
250 ml Plastic HNO3: BP3N
250 ml Plastic ZN Acetate: BP3Z
250 ml Plastic NaOH: BP3C
Wide mouthed glass jar unp: WGFU

1 Liter Amber Unp: AG1U
1 Liter Amber HCl: AG1H
500 ml Amber Unp: AG2U
1 Liter Amber H2SO4: AG1S
250 ml Amber H2SO4: AG3S
250 ml Amber NH4CL: AG3A
40 ml VOA HCl: DG9H
40 ml VOA Na2S2O3: VG9T
40 ml VOA Unp: VG9U

40 ml VOA H2SO4: DG9S
5035 Kit: VOAK
VPH / Gas Kit : V/GK
125 ml Sterile Plastic: SP5T
250 ml Sterile Plastic: SP2T

Analytics Corporation
10329 Stony Run Lane
Ashland, VA 23005
Phone: (804) 365-3000
Fax: (908) 365-3002

June 13, 2014

DAVID STONEMAN
PACE ANALYTICAL
7130 MECHANICSVILLE TURNPIKE
Mechanicsville, VA 23111

Purchase Order:
Client ID: ILUKA
Work Order: 1021332

Dear DAVID STONEMAN

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, June 06, 2014. The signature below certifies that the results are based on the referenced methods and applicable certifications or accreditations are noted for each parameter reported (see key at end of report).

Unless otherwise specified all analyses of solid materials are based on dry weight.

Reported results relate only to the items tested, as received by the laboratory.

On-site analysis (analysis ASAP) is recommended for the following tests: pH, temperature, dissolved oxygen, residual chlorine and sulfite. When performed off-site, these tests do not meet NELAC standards.

Abbreviations:ug/L = micrograms per Liter, mg/L = milligrams per Liter, ug/g = micrograms per gram, mg/kg = milligrams per kilogram ug/wp = micrograms per wipe, ug/ml = micrograms per millimeter, uS/cm = microsiemens per centimeter at 25 degrees Celcius ppb = parts per billion, DF = Dilution Factor.

If you have any questions concerning this report, please feel free to call Client Services at 1-800-888-8061.

Sincerely,

Dawn Casto
Technical Director (or designee)

Enclosures

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Analytics Corporation

Analytics Corporation
10329 Stony Run Lane
Ashland, VA 23005
Phone: (804) 365-3000
Fax: (908) 365-3002

ANALYTICAL RESULTS

Workorder: 1021332 ILUKA

Lab ID:	1021332001	Date Received:	06/06/2014 8:57	Matrix	Aqueous Liquid
Sample ID:	ILUKA BRINK STORMWATER	Date Collected:	06/05/2014 10:10	Sample Type:	COMP

Parameters	Results	Units	Report Limi	DF	Prepared	By	Analyzed	By	Qual	Certifications
Analytical Method: SM5210B-2011					Preparation Method: SM5210B-2011					
BOD	<2	mg/L	2.00	1	06/06/2014	11:30 TTW	6/11/2014	14:00 TTW		V

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Analytics Corporation

Analytics Corporation
10329 Stony Run Lane
Ashland, VA 23005
Phone: (804) 365-3000
Fax: (908) 365-3002

ANALYTICAL RESULTS

Workorder: 1021332 ILUKA

Batch Qualifiers

-- Batch: eWC-14725 The GGA analyzed by SM5210B recovered below the 85-115% QC limit with 71%

Qualifiers

--

Certification Index:

V = Virginia (NELAC) - 1 VAC 30-46 H 1, Laboratory ID: 460160, Certificate #: 2868

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Analytics Corporation

Pace Analytical
www.pacelabs.com

Analytics

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1807620

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company:	Report To:	Attention:
Address: Pace	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	BOD	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Iluka Brink Stormwater		C			6-5	10:10			X									X		
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Rachel Burners	6-6	8:57				
	Michele Childress	6/7/14	857				

8.5°C

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days

F-ALL-Q-020rev 07, 15-May-2007

ANALYTICS

Sample Container Receipt Form

Version 6-24-2011

Work Order: 1021332

Customer Name: PACE ANALYTICAL 45814990 4581499

CLIENT SAMPLE ID	LAB CONTAINER ID	TYPE OF CONTAINER	QTY	Temp(C)	pH	Chlorine on Arrival (ppm)	Condition Code	Preservative
ILUKA BRINK STOR	1021332001-A	1000P	1	8.5			OK	COOL

Notes

Sample Custodian Signature LaRoyal Roberts LAROYAL ROBERTS

Date: ~~6-5-14~~ LR 6-6-14

Version 11-13-2011 CML

Attachment 6:

VPDES Permit Application Addendum

VPDES Permit Application Addendum

1. **Entity to whom the permit is to be issued:** Iluka Resources Inc.

Who will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be the facility or property owner.

2. **Is this facility located within city or town boundaries?** Yes ☐ No ☒

3. **Provide the tax map parcel number for the land where the discharge is located.** 42-11-12

4. **For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities?** None

5. **What is the design average effluent flow of this facility?** ~3.6 MGD

   For industrial facilities, provide the max. 30-day average production level, include units:

   3.6 MGD is a worse case scenario during inclement weather.

   In addition to the design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels? Yes ☐ No ☒

   If "Yes", please identify the other flow tiers (in MGD) or production levels:

Please consider the following questions for both the flow tiers and the production levels (if applicable): Do you plan to expand operations during the next five years? Is your facility's design flowconsiderably greater than your current flow?

6. **Nature of operations generating wastewater:**

   Gravity separation and concentration of mineral sands and storm water.

   0 % of flow from domestic connections/sources

   Number of private residences to be served by the treatment works: N/A

   100% of flow from non-domestic connections/sources

7. **Mode of discharge:** ☐ Continuous ☒ Intermittent ☐ Seasonal

   Describe frequency and duration of intermittent or seasonal discharges:

   Average of one three day discharge per quarter.

8. **Identify the characteristics of the receiving stream at the point just above the facility's discharge point:**

   ___ Permanent stream, never dry

   X Intermittent stream, usually flowing, sometimes dry

   ___ Ephemeral stream, wet-weather flow, often dry

   ___ Effluent-dependent stream, usually or always dry without effluent flow

   ___ Lake or pond at or below the discharge point

   ___ Other:

9. **Approval Date(s):**

   O & M Manual 1/4/11 **Sludge/Solids Management Plan** N/A

   Have there been any changes in your operations or procedures since the above approval dates? Yes ☐ No ☒

Attachment 7:

Public Notice Billing Information

PUBLIC NOTICE BILLING INFORMATION

I hereby authorize the Department of Environmental Quality to have the cost of publishing a public notice billed to the Agent/Department shown below. The public notice will be published once a week for two consecutive weeks in The Independent Messenger in accordance with 9 VAC 25-31-290.C.2.

Agent/Department to be billed:	Kevin Rideout
Owner:	Iluka Resources Inc.
Agent/Department Address:	12472 St. John Church Road
	Stony Creek, VA 23882
Agent's Telephone No.:	434.348.4316
Printed Name:	Kevin Rideout
Authorizing Agent – Signature:	Kevin Rideout
Date:	7/29/2014

VPDES Permit No. VA0092436
Brink Mine Concentrator Site

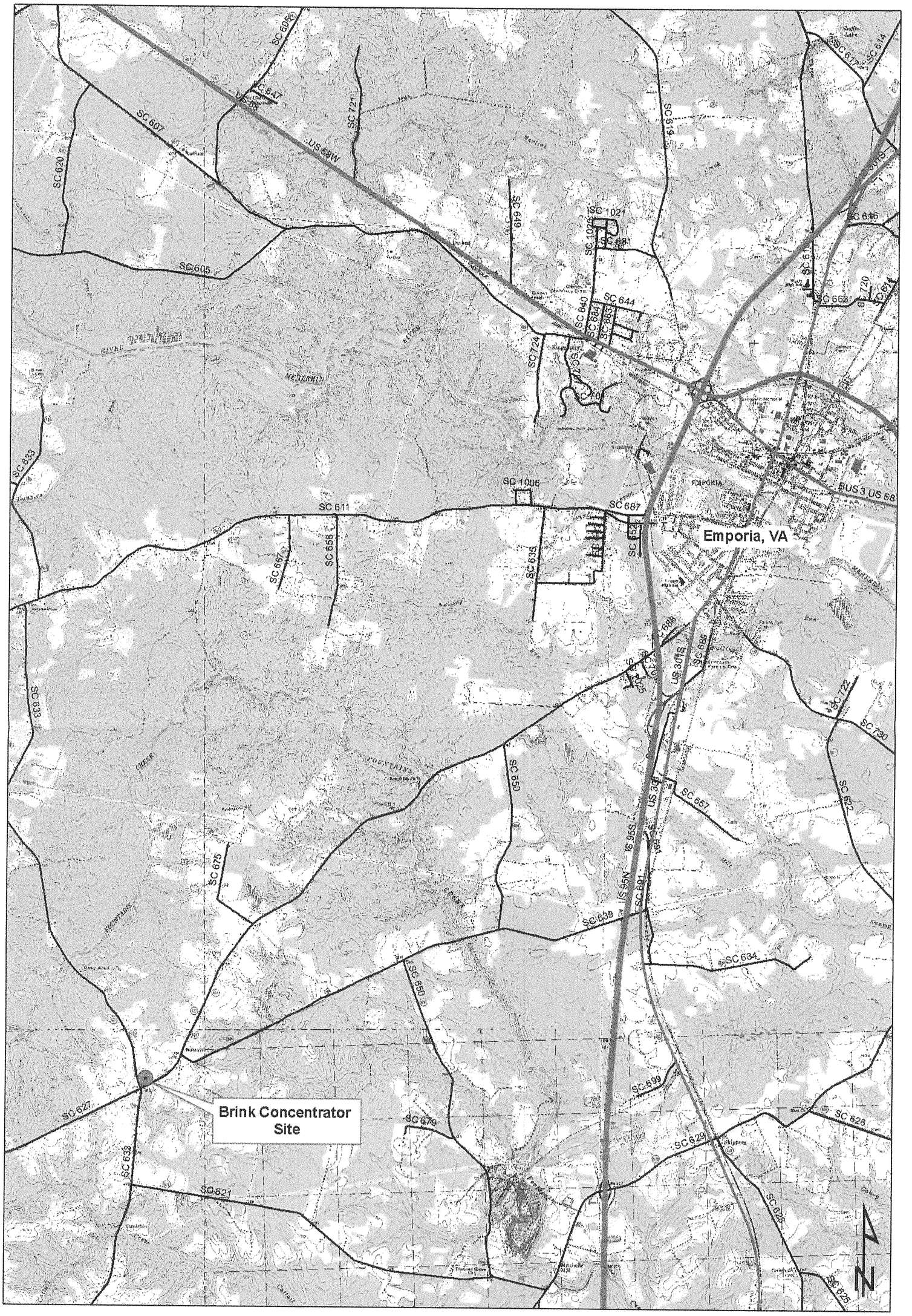


Figure 1.
Iluka Resources
Brink Concentrator Site
Locaton Map

0 0.5 1 2 Miles

ILUKA

Concentrator Site

Outfall Location

Springs/Surface Water Bodies

Drinking Water Wells

Topography

ILUKA RESOURCES INC.
12472 St. John Church Road Stony Creek, Virginia 23882-3239
Phone (434) 348-4300 FAX. (434) 246-3039

VIRGINIA OPERATIONS

Brink Concentrator Site

SCALE 1"=400'	DRAWING PATH	DRAFTED C. Miller	07-29-14	REVISED	
GRID		REVISED		REVISED	
FILE NAME		REVISED		REVISED	
		REVISED		APPROVED	