ADDENDUM No. 1

RFP No. # 21-12

Lab Information Management System Replacement

Due: March 31, 2021 at 2:00 P.M. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes 24 pages.**

The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- **Attachment B - Non-Discrimination Declaration of Compliance**
- **Attachment C - Living Wage Declaration of Compliance**
- **Attachment D - Vendor Conflict of Interest Disclosure Form**

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: What SCADA do you use?
Answer 1: Currently GE iFix but moving to VT Scada by Trihedral.

Question 2: Are you integrated with any instruments with current system? If you aren't, do you plan to have interfaces with instrumentation with new system. If so, can we get a list of those instruments.
Answer 2: Environmental services lab, water treatment plant (WTP) process lab, and wastewater treatment plant (WWTP) use wet chemistry methods (gravimetric methods, ion selective electrodes, pH meters, titrations, hach meters, DO probe, pH probe). We don't have big instrumentation such as GC-MS, LC-MS, ICP-MS, etc. We have smaller instrumentation. Not currently connected into LIMS. We send out samples for analysis of metals, inorganics, organics. This is not a terribly high requirement to do this.

Question 3: RFP specifies 10 concurrent users minimum. Can you specify the number who you have in the lab that might need access at any point in time?
Answer 3: The Environmental Lab uses LIMS all day. There are 4 full time chemists, and 2-3 are logged in at all times. 2-3 from the process lab are logged in at all times. At WWTP there will be at least 3 people logged in. There will likely also be one float who may be logged in. Lastly, an assistant plant manager, water quality manager,

and others also look at data periodically throughout day.

Question 4:   Mobile compatibility – can you expand on that? Looking to use LIMS remotely or on a mobile device or mobile device for field ops?

Answer 4:   We would like the ability to access LIMS information on our phones.

We would also like to have mobile access for field analysis so when technicians are out in our distribution system taking samples, they can input into LIMS directly rather than write in field on paper and input when they return to the office in an effort to minimize paperwork and potential for error. This also gives virtually instant access to data for those back at the plant.

Question 5:   Field samplers. How many do you have?

Answer 5:   Typically we have 1 technician who goes out to the field every day. There are other people in other divisions who go out as well. WTP may have 1-2 people out in the field collecting data at any time.

At WWTP we collect DO with a probe, but most samples come back to run in our process lab.

Question 6:   The letters for attachments do not match on RFP and PowerPoint.

Answer 6:   Follow the attachment letters published in RFP. Those are correct.

Question 7:   You want to use it prior to it being fully implemented?

Answer 7:   Yes, but not necessarily fully configured. A test instance that someone can perform simple functions is the outcome we are looking for.

Product demonstrations seem to be an area of concern, so we would like to clarify and streamline expectations for this. This is for shortlisted vendors only after interviews, not all vendors.

If you cannot meet these expectations, please indicate in your proposal what you are able to do instead.

- Items we would like to be able to see a demonstration for and be able to try ourselves with your product (video or recorded live meeting ok for demonstrations, with the ability to click through your software ourselves desired):
    - Data entry and csv data import (called SCADA data integration on RFP)
        - We want to see generic data entry/import tasks, not necessarily customized to our numbers or water data.
        - Automated sample log in
        - Data entry by lab members
        - QA/QC checks by supervisors of data entry
        - Import csv data
    - Creating and generating reports
        - Show how easy it is to create an ad hoc report of 3 different types of samples at a time
            - Ease of tracking data history/errors. (Example, error in typing in data, flag that it was changed)
            - Ease of tracking outlying values
            - Run various data queries and see different formats of viewing trends in data

- See how to save a data query to repeat regularly vs create a new data query for single use
  - Pull from data and QA/QC to create control charts and generate MDL, demonstrations of capabilities
    - LIMS configuration flexibility
      - Add/delete/modify without extensive training
      - Review training materials – how hard to learn to make a slight change using the available help documents
      - Allow innovation when new ideas arise
    - External-facing platform
      - Log in dummy sample, generate report, automatically pops up on website
    - Mobile compatibility
      - Field software – enter data such as pH in the field
      - Mobile version has the functionality we need from desktop version, such as trendline viewing, etc.

- Timeline: We asked for 1.5 months to test because all our staff who we want to be able to look at your software are not present on site at the same time.

Question 8:   Does Ann Arbor want a script to go with this demo? Because if the system has not been configured and your info isn't available and you haven't been trained on it then it is less likely that the experience will be as good as if it were configured for you. How important is the demo to Ann Arbor? Will the city consider that this is not a tool configured to you? Chris Couch - Would you want to give us a script and demo these for you rather than putting you in the seat with no training?
Answer 8:   Yes, we will use a script for product demonstration testing. See Answer 7.

Question 9:   Then you want access for your users to test it. You will do that for 1.5 months?
Answer 9:   Yes, the project team will test the potential systems. 1.5 months gives enough time for everyone to try it and provide feedback. See also Answer 7.

Question 10: SCADA data integration. How would vendor have integrated the SCADA system? Do we need to do the SCADA integration in this demo?
Answer 10:   No. We don't want it integrated as we do now. It is intended to describe how would the LIMS data and SCADA data come together for data reporting.

Question 11: Will the demo be installed on prem or is cloud ok?
Answer 11:   Preferably cloud from a security perspective.

Question 12: Looking to have this new system in the cloud or on prem?
Answer 12:   We haven't made a decision. We are looking for an objective solution which meets our requirements in the RFP.

Question 13: So you mentioned you are not necessarily interested in pulling SCADA data into LIMS. And earlier you talked about an external reporting platform. Are you mainly interested in how LIMS can export data into this other platform? Can you elaborate on that?
Answer 13:   We currently import SCADA data into our LIMS for reporting purposes and it has become problematic. Going into this next iteration we would like to separate SCADA and LIMS and use our big data platform, Yellowfin, for reporting.

Question 14: What data or how do you want the data to be structured so it could be accessible to the reporting platform for integration?

Answer 14: We have some flexibility in that. We have staff at City of Ann Arbor who are able to bring data in different formats into our big data environment.

Question 15: What is your time frame for making selection? When do you want to kick off?
Answer 15: As soon as possible after council authorization. We are set to go live in June of 2022. We are ready to get started once we make a decision.

Question 16: The City of Ann Arbor is looking for a COTS package but would they be open to accept a vendor that can offer a custom software solution?
Answer 16: As far as a solution is concerned the most important thing is that it meets the requirements in the RFP.

Question 17: What data elements are selected from the SCADA system?
Answer 17: At the WTP, the data that is currently brought in from the SCADA system includes daily totalized values for plant flows, bulk chemical usage, and filter runtime hours. Treatment information for our ozone and UV system operations are also brought in for regulatory reporting.

Question 18: What is meant by external-facing platform? How does this differ from the separately listed mobile capability?
Answer 18: In addition to mobile capability, we could envision using our LIMS system to help us report information to our customers. For example, we regularly report PFAS data on our website: https://www.a2gov.org/departments/water-treatment/Pages/default.aspx

Question 19: Does the requirement "Access to historic lab information from the previous LIMS using new system" mean that new solution will access the current database tables or the legacy data will be migrated to the new system for maintaining historical context?
Answer 19: We are looking for a recommendation on what to do with the historic information. We need access to the historic information and ideally all lab information would be accessible in one location.

Question 20: Question regarding the clause "The contractor shall not subcontract or assign any portion of any right or obligation under this agreement without prior written consent from the city".

May you please elaborate on this. What are the scope/limitations of this clause? How will you qualify a subcontractor?
Answer 20: The City would like to know all of the key players that are part of the proposal. If major subcontractors are anticipated to support the project delivery they must be identified. The City will review experience and references for key subcontractors at its discretion. The City will evaluate proposals received based on the evaluation criteria provided within the RFP Document.

Question 21: Page 6, Section H. Type of Contract – The City will not entertain changes to its Professional Services Agreement. Can we submit requested exceptions for consideration?
Answer 21: Contractor may request exceptions, but the City typically does not entertain changes to its Professional Services Agreement.

Question 22: Are any subcontracted laboratories used? If so, then how many?
Answer 22: The number may change over time, but there are generally three to five subcontract labs are used.

Question 23:   Has a budget been established? If so, then would the City provide the budget please?

Answer 23:   The project budget is $350,000 which includes all labor and materials for a complete installed system.

Question 24:   Other than SCADA, are there any additional systems/applications that Ann Arbor would like the LIMS to integrate with?

Answer 24:   We will integrate the data from the new LIMS system into our big data platform, Yellowfin.

At the WWTP we are using Rockwell Automation software called "FactoryTalk SE HMI system V.7"

Question 25   How many field samplers does Ann Arbor have?

Answer 25:   The WTP has approximately 11 people why may take samples in the field. Typically only one person is sampling at any given time.

Question 26:   Can you please provide examples of all the reports that the lab would like the LIMS to generate?

Answer 26:   See the appendix below for report samples and examples.

WTP does create reports of lead and copper concentrations for customers in word and laboratory reports in excel (examples included in appendix).

WTP also produces a monthly operating report for EGLE regulatory compliance through LIMS that is exported to excel and ultimately pdf, with 40 some sheets of different water quality parameters.

WWTP has two reports to run monthly. They currently are all excel files. The parameters vary slightly from month to month for the edmr but the monthly MOR report has all the same parameters. We also run reports like the wtp to review data from LIMS and SCADA for trending or operational changes.

Question 27:   Can you provide the instruments that would need to interface with the LIMS?

Answer 27:   No laboratory instruments currently interface with LIMS. The WTP has a Hach DR600 spectrophotometer, Shimadzu UV1800 spectrophotometer, Dionex ICS200 ion chromatograph, several VersaStar Pro meters, and various balances that could interface with the LIMS.

Question 28:   Do you have a preference for a traditional on-premise installation or a Cloud-subscription model?

Answer 28:   No preference as long as the solution meets the requirements in the RFP.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

Appendix – Example reports created by City of Ann Arbor

CITY OF ANN ARBOR, MICHIGAN
Public Services Area/Water Treatment
919 Sunset Road
Ann Arbor, Michigan 48103
Ph. (734) 994-2840 Fax (734) 994-0151

Web: www.a2gov.org

March 22, 2021

Ms. Jane Doe
123 Main Street
Ann Arbor, MI 48103

Subject: Notice of Lead and Copper Sample Results

Dear Resident,
The results of the sample collected at your home/business are listed in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. Not Detected: The contaminant was not detected at or above the detection limit of 1 ppb.	Lead (ppb)	15	0	Not Detected
	Copper (ppb)	1300	1300	4.5

Although your results are below established action levels, we would like to provide you with the following information about lead:

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and it can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

Reducing potential lead exposure from drinking water:

Run your water before drinking. The more time water has been sitting in your home's pipes, the more lead it may contain. Therefore, if your water has not been used for several hours, run the water before using it for drinking or cooking. This flushes lead-containing water from the pipes. Additional flushing may be required for homes that have been vacant or have a longer service line. It is generally recommended to run the water for 30 seconds to two minutes, or until it becomes cold or reaches a steady temperature

Do not boil water to remove lead. Boiling will not remove the lead.

Use cold water for drinking and cooking. Do not cook or drink water from the hot water tap. Lead dissolves more easily into hot water.

Use cold water for preparing baby formula. Do not use water from the hot tap to make baby formula. If you have a lead service line, consider using bottled water or a lead-reducing filter to prepare baby formula.

Clean your faucet aerator. As part of routine maintenance, the aerator on the end of your faucet should be removed at least every six months to rinse out any debris that may include particulate lead.

Consider using a water filter. Read packaging to find a filter that meets NSF/ANSI Standard 53 for the reduction of lead. Be sure to maintain and replace the filter device in accordance with the manufacturer's instructions to protect water quality.

Consider replacing older plumbing fixtures that likely contain lead. Older faucets, fittings, and valves sold before 20214 may contain higher levels of lead, even if marked "lead-free." Faucets, fittings, and valves sold after January 2014 are required to meet a more restrictive "lead-free" definition but may still contain up to 0.25 percent lead.

Flush your cold-water pipes after long periods of non-use. If you are moving into a new home or apartment or residence that has been unoccupied for some time, you should run all faucets an extended period of time, five minutes or more, before using any water for drinking or cooking.

Learn about your drinking water. Read the Consumer Confidence Report that is mailed to you each year or follow the Water Quality Report link from our website https://www.a2gov.org/departments/water-treatment/pages/default.aspx. If you wish to get your drinking water tested, contact us at 734-794-6426 or use a certified lab. To find a certified lab, go to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) home page, Michigan.gov/DrinkingWater and search "certified lab list."

To obtain more information about lead and copper in drinking water, visit on reducing lead exposure around your home and the health effects of lead, visit the EGLE web site at https://www.michigan.gov/egle/0,9429,7-135-3313_3675_76638---,00.html.

If you have any questions about these results, please contact me at (734) 794-6426.

Sincerely,

Brian Steglitz, PE
Water Treatment Services Manager
City of Ann Arbor Water Treatment Plant, WSSN: 00220

Environmental Services Laboratory
919 Sunset Road
Ann Arbor MI 48103-2924

734.994.6426 phone
734.994.0151 fax

Laboratory Report

Report Date: 01/06/21

Dear Ms. Doe,

The following report contains the analytical results for the samples you have submitted to our laboratory.

Unless otherwise noted in this report, all testing met Quality Control requirements, was performed within allowable hold times, and met all other applicable laboratory specifications.

Thank you for this opportunity to serve you. If you have any questions regarding this report, please feel free to contact us.

Respectfully,

Jim Bahen
Environmental Laboratory Supervisor

This report may not be reproduced, except in full, without written approval from Ann Arbor Environmental Laboratory Services.

Sample Analysis Report

Report Date:

Client Sample Information
Ms. Jane Doe
ABC Company
123 Main Street
Ann Arbor, MI 48103

Sample Information

Sample Name	Date/Time Sampled		Received	Analysis type	Lab Sample ID
PW-1R-12	01/05/21	11:10 AM	01/05/21	Standard	AH28476

Results

Analyte	Level Detected	Reporting Limit	Units	Qualifiers/Comments
Ammonia as N	14.4	0.5	mg/L	

Sample Analysis Report

Report Date: 01/06/21

Client Sample Information
Ms. Jane Doe
ABC Company
123 Main Street
Ann Arbor, MI 48103

Sample Information

Sample Name	Date/Time Sampled		Received	Analysis type	Lab Sample ID
PW-3R-12	01/05/21	11:55 AM	01/05/21	Standard	AH28477

Results

Analyte	Level Detected	Reporting Limit	Units	Qualifiers/Comments
Ammonia as N	27.1	0.5	mg/L	

CITY OF ANN ARBOR, MICHIGAN
Public Services Area/Water Treatment
919 Sunset Road
Ann Arbor, Michigan 48103
Ph. (734) 994-2840 Fax (734) 994-0151

Web: www.a2gov.org

February DMR Summary

Parameter	Quantity or Loading				Units	Quality or Concentration					Units
Flow 50050 Final Effluent (1)	(Report)	15.2 Max Monthly AVG	(Report)	17.7 Max Daily	MGD						
TSS 00530 Final Effluent (1)	7380	254 Max Monthly AVG	11072	538 Max 7-Day AVG	lbs/day	30	2 Max Monthly AVG	45	4 Max 7-Day AVG		mg/L
CBOD5 80082 Final Effluent (1)	3690	301 Max Monthly AVG	(Report)	897 Max Daily	lbs/day	15	2 Max Monthly AVG	(Report)	6 Max Daily		mg/L
T. PHOS 00665 Final Effluent (1)	(Report)	31 Max Monthly AVG	(Report)	121 Max Daily	lbs/day	1.0	0.3 Max Monthly AVG	(Report)	1.0 Max Daily		mg/L
T. PHOS 00665 Calculation (Y)						0.6	0.3 Max Annual AVG				mg/L
Total Mercury 71900 Final Effluent (1)	(Report)	0.0001 Max Monthly AVG	(Report)	0.0001 Max Daily	lbs/day	(Report)	0.55 Max Monthly AVG	(Report)	0.55 Max Daily		ng/L
Total Mercury 71900 Hg Calculation (X)	0.0074	0.0002 12-Month Roll AVG			lbs/day	30	1 12-Month Roll AVG				ng/L
Fecal Coliform 74055 Final Effluent (1)						200	21 Max Monthly GEO	400	29 Max 7-Day GEO		#/100mL
TSS MIN % Removal 81011 % Removal (K)						85	99 MIN Monthly % Rem.	(Report)	88 MIN Daily % Rem.		%
pH 00400 Final Effluent (1)						6.0	6.6 MIN Daily	9.0	7.1 Max Daily		SU
Dissolved Oxygen 00300 Final Effluent (1)						5.0	8.5 MIN Daily				mg/L

February-21

OUTFALL 001A

WWTP MOR Template Screenshots

Excel — WWTP MOR draft.xlsx - Read-Only

Cell: H42 — `=AVERAGE(H8:H38)`

West Plant Primary Effluent / RAS / WAS

(Year) (Month)	West Primary Effluent Flow 1 MGD	West Primary Effluent Flow 2 MGD	West 1 Primary Sludge GPD	West 2 Primary Sludge GPD	West RAS Flow to AT-W1 MGD	West RAS Flow to AT-W2 MGD
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Sheet tabs: Energy | PlantInfluent | Plant Ferric | **WestPlantPri Eff-RAS-WAS** | EastPlantPri Eff-RAS-WAS | TertiaryF&L | RAW_DATA | Centrifuges & Conveyors | GBT | Slu ...

Excel — WWTP MOR draft.xlsx - Read-Only

Cell: L32 — `=IF(ISBLANK(RAW_DATA!AM29/1000000),"",RAW_DATA!AM29/1000000)`

East Plant Primary Effluent / RAS / WAS

(Year) (Month)	Clarifier E1 Flow to Aeration Tank MGD	Clarifier E2 Flow to Aeration Tank MGD	Clarifier E3 Flow to Aeration Tank MGD	Clarifier E4 Flow to Aeration Tank MGD	East 1 Primary Sludge GPD	East 2 Primary Sludge GPD	East 3 Primary Sludge GPD	East 4 Primary Sludge GPD	East RAS Flow 1 MGD	East RAS Flow 2 MGD	East RAS Flow 3 MGD	East RA Flow 4 MGD
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												

Sheet tabs: Energy | PlantInfluent | Plant Ferric | WestPlantPri Eff-RAS-WAS | **EastPlantPri Eff-RAS-WAS** | TertiaryF&L | RAW_DATA | Centrifuges & Conveyors | GBT | Slu ...

TERTIARY FLOWS AND LEVELS

(Year)	Total Flow To Filters	Backwash Water Flow To Retention	PEW Flow North	PEW Flow South	PEW Pressure	Total Plant Effluent Flow	UV Chamber OverFlow DO
(Month)	MGD	MGD	MGD	MGD	PSI	MGD	PPM
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

Ann Arbor Wastewater Treatment Plant
Monthly Report

Monthly Report for Centrifuge Feed and Polymer

(Year)	Sludge Flow to Centrifuge 1	Sludge Flow to Centrifuge 2	Sludge Flow to Centrifuge 3	Centrifuge 1 Polymer Pump Flow Rate	Centrifuge 2 Polymer Pump Flow Rate	Centrifuge 3 Polymer Pump Flow Rate
(Month)	GPD	GPD	GPD	GPD	GPD	GPD
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Screenshot of Microsoft Excel — WWTP MOR draft.xlsx - Read-Only

Top window:

AutoSave Off — WWTP MOR draft.xlsx - Read-Only - Excel — Search — Eyer, Kevin

File | Home | Insert | Draw | Page Layout | Formulas | Data | Review | View | Help — Share — Comments

Cell reference: M17

	(Year)	WAS Feed to Gravity Belt Thickener	GBT Thickened WAS Flow	GBT 1 Polymer Flow	GBT 2 Polymer Flow	Flow to Liquid Truck Loading Station	Lime Flow to Holding Tanks West End	Lime Flow to Holding Tanks East End
	(Month)	MGD	GPD	GPD	GPD	Gallons	GPD	GPD
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							

Title rows:
Ann Arbor wastewater Treatment Plant
Monthly Report

Monthly Report for GBT, Truckloading, and Lime slurry System Data

Sheet tabs: Energy | PlantInfluent | Plant Ferric | WestPlantPri Eff-RAS-WAS | EastPlantPri Eff-RAS-WAS | TertiaryF&L | RAW_DATA | Centrifuges & Conveyors | GBT | Slu ...

Bottom window:

AutoSave Off — WWTP MOR draft.xlsx - Read-Only - Excel — Search — Eyer, Kevin

File | Home | Insert | Draw | Page Layout | Formulas | Data | Review | View | Help — Share — Comments

Cell reference: P47

Title rows:
Ann Arbor wastewater Treatment Plant
Monthly Report

Sludge Levels & Primary Sludge Data

(Year)	Primary Tanks																			
	Primary E1			Primary E2			Primary E3			Primary E4			Primary W1			Primary W2			Final E1	Final E2
(Month)	Feet	pH	Solids %	Feet	pH	Solids %	Feet	pH	Solids %	Feet	pH	Solids %	Feet	pH	Solids %	Feet	pH	Solids %	Feet	Feet
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				

Sheet tabs: Centrifuges & Conveyors | GBT | Sludge Levels | INF & East Lab Data | West & Final EFF Lab Data | RAS Lab Data | Oxic 3 Lab Data | CRT Lab Data | SRT Lab Da ...

M11 =IF(ISBLANK(RAW_OPS!L6),"",RAW_OPS!L6)

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

RAW/P.I. East/P.E. East/SEC EFF East

(Year)	RAW Influent					Primary Influent East					Primary Effluent East					Secondary
	B.O.D.-5	Total Suspend. Solids	Total PHOS	Volatile Suspend. Solids	pH	B.O.D.-5	Total Suspend. Solids	Total PHOS	Volatile Suspend. Solids	pH	B.O.D.-5	Total Suspend. Solids	Total PHOS	Volatile Suspend. Solids	pH	BOD to T. PHOS ratio	B.O.D.-5	Total Suspend. Solids	Total PHOS
(Month)	mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	SU		mg/L	mg/L	mg/L
1																#VALUE!			
2																#VALUE!			
3																#VALUE!			
4																#VALUE!			
5																#VALUE!			
6																#VALUE!			
7																#VALUE!			
8																#VALUE!			
9																#VALUE!			
10																#VALUE!			
11																#VALUE!			
12																#VALUE!			
13																#VALUE!			
14																#VALUE!			
15																#VALUE!			

Sheet tabs: Centrifuges & Conveyors | GBT | Sludge Levels | **INF & East Lab Data** | West & Final EFF Lab Data | RAS Lab Data | Oxic 3 Lab Data | CRT Lab Data | SRT Lab Da...

K39 =IF(ISBLANK(RAW_OPS!AD34),"",RAW_OPS!AD34)

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

P.E. West/SEC EFF West/Final Effluent

(Year)	Primary Effluent West						Secondary Effluent West						Final Effluent					
	B.O.D.-5	Total Suspend. Solids	Total PHOS	Volatile Suspend. Solids	pH	BOD to T. PHOS ratio	B.O.D.-5	Total Suspend. Solids	Total PHOS	Volatile Suspend. Solids	NH3 Ammonia	pH	B.O.D.-5	C.B.O.D.	Total PHOS	Total PHOS	Total Suspend. Solids	Volatile Suspend. Solids	NH3 Ammonia
(Month)	mg/L	mg/L	mg/L	mg/L	SU		mg/L	mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	lbs/day	mg/L	mg/L	mg/L
1						#VALUE!													
2						#VALUE!													
3						#VALUE!													
4						#VALUE!													
5						#VALUE!													
6						#VALUE!													
7						#VALUE!													
8						#VALUE!													
9						#VALUE!													
10						#VALUE!													
11						#VALUE!													
12						#VALUE!													
13						#VALUE!													
14						#VALUE!													
15						#VALUE!													

Sheet tabs: Centrifuges & Conveyors | GBT | Sludge Levels | INF & East Lab Data | **West & Final EFF Lab Data** | RAS Lab Data | Oxic 3 Lab Data | CRT Lab Data | SRT Lab Da...

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

RAS Lab Data

(Year)	East 1 RAS pH SU	East 1 RAS Total Suspend. Solids mg/L	East 1 RAS Volatile Suspend. Solids mg/L	East 2 RAS pH SU	East 2 RAS Total Suspend. Solids mg/L	East 2 RAS Volatile Suspend. Solids mg/L	East 3 RAS pH SU	East 3 RAS Total Suspend. Solids mg/L	East 3 RAS Volatile Suspend. Solids mg/L	East 4 RAS pH SU	East 4 RAS Total Suspend. Solids mg/L	East 4 RAS Volatile Suspend. Solids mg/L	West 1 RAS pH SU	West 1 RAS Total Suspend. Solids mg/L	West 1 RAS Volatile Suspend. Solids mg/L	West 2 RAS pH SU	West 2 RAS Total Suspend. Solids mg/L	West 2 RAS Volatile Suspend. Solids mg/L
(Month)																		
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

Oxic 3 Lab Data

(Year)	East 1 Oxic 3 ML TSS mg/L	East 1 Oxic 3 F:M ratio	East 1 Oxic 3 SC PO4 mg/L	East 1 Oxic 3 ML TVSS mg/L	East 2 Oxic 3 ML TSS mg/L	East 2 Oxic 3 F:M ratio	East 2 Oxic 3 SC PO4 mg/L	East 2 Oxic 3 ML TVSS mg/L	East 3 Oxic 3 ML TSS mg/L	East 3 Oxic 3 F:M ratio	East 3 Oxic 3 SC PO4 mg/L	East 3 Oxic 3 ML TVSS mg/L	East 4 Oxic 3 ML TSS mg/L	East 4 Oxic 3 F:M ratio	East 4 Oxic 3 SC PO4 mg/L	East 4 Oxic 3 ML TVSS mg/L	West 1 Oxic 3 ML TSS mg/L	West 1 Oxic 3 F:M ratio	West 1 Oxic 3 SC PO4 mg/L
(Month)																			
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Screenshot of Microsoft Excel — WWTP MOR draft.xlsx - Read-Only

CRT Lab Data sheet (top window)

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

CRT Lab Data

(Year)	East 1				East 2				East 3				East 4				West 1		
	WAS Flow	MLVSS	WAS	CRT	WAS Flow	MLVSS	WAS	CRT	WAS Flow	MLVSS	WAS	CRT	WAS Flow	MLVSS	WAS	CRT	WAS Flow	MLVSS	WAS
(Month)	MG	lbs	lbs/day	days	MG	lbs	lbs/day	days	MG	lbs	lbs/day	days	MG	lbs	lbs/day	days	MG	lbs	lbs/day
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Sheet tabs: Centrifuges & Conveyors | GBT | Sludge Levels | INF & East Lab Data | West & Final EFF Lab Data | RAS Lab Data | Oxic 3 Lab Data | CRT Lab Data | SRT Lab Da...

SRT Lab Data sheet (bottom window)

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

SRT Lab Data

(Year)	East 1				East 2				East 3				East 4				West 1				West 2		
	MLSS	WAS	EFF TSS	SRT	MLSS	WAS	EFF TSS	SRT	MLSS	WAS	EFF TSS	SRT	MLSS	WAS	EFF TSS	SRT	MLSS	WAS	EFF TSS	SRT	MLSS	WAS	EFF TSS
(Month)	lbs	lbs/day	lbs/day	days	lbs	lbs/day	lbs/day	days	lbs	lbs/day	lbs/day	days	lbs	lbs/day	lbs/day	days	lbs	lbs/day	lbs/day	days	lbs	lbs/day	lbs/day
1																							
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							
16																							
17																							
18																							
19																							
20																							
21																							
22																							

Sheet tabs: GBT | Sludge Levels | INF & East Lab Data | West & Final EFF Lab Data | RAS Lab Data | Oxic 3 Lab Data | CRT Lab Data | SRT Lab Data | Sludge-GBT-CFG Lab D...

Screenshot 1 — Sludge-GBT-CFG Lab Data

ANN ARBOR WASTEWATER TREATMENT PLANT
MONTHLY REPORT

Primary Sludge/GBT/CFG Lab Data

(Year)	Primary Sludge		GBT						CFG					
	East	West	Feed	Filtrate	Filtrate	Filtrate	Filtrate	Feed	Cake	Centrate	Centrate	Centrate	Centrate	Capture
	Primary	Primary	Tot.Sol.	pH	Total	PHOS	B.O.D. 5	Tot.Sol.	Tot. Sol.	B.O.D. 5	pH	PHOS	Tot. Sol.	Rate
	Tot.Sol.	Tot.Sol.			Solids									
(Month)	%	%	%	SU	%	mg/L	mg/L	%	%	mg/L	SU	mg/L	%	%
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														

Sheet tabs: CRT Lab Data | SRT Lab Data | **Sludge-GBT-CFG Lab Data** | E1 Correlation | E2 Correlation | E3 Correlation | E4 Correlation | W1 Correlation | W2 Correlation

Screenshot 2 — Energy

Ann Arbor wastewater Treatment Plant

Monthly Report

ENERGY CONSUMPTION

Electricity Supplied

(Year)	North Feed	South Feed	Total	DTE KWH	Generator Feed	Gen KWH	UV-1A	UV-1B	UV-2A	UV-2B	Generator# 1	Generator# 2
	DC-8266	DC-9798	Plant Influent	Used per MG Influent Treated		Used per MG Influent Treated	Power	Power	Power	Power		
(Month)	KWH	KWH	MGD		KWH		KWH	KWH	KWH	KWH	KWH	KWH
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												

Sheet tabs: **Energy** | PlantInfluent | Plant Ferric | WestPlantPri Eff-RAS-WAS | EastPlantPri Eff-RAS-WAS | TertiaryF&L | **RAW_DATA** | Centrifuges & Conveyors | GBT | Slu ...

Top spreadsheet (E1 Ferric to PO4):

	(Year)	SC-E1 PO4	Ferric Feed	BOD
			East 1	to
	(Month)			Total PHOS
day		mg/L	GPD	ratio
1				#VALUE!
2				#VALUE!
3				#VALUE!
4				#VALUE!
5				#VALUE!
6				#VALUE!
7				#VALUE!
8				#VALUE!
9				#VALUE!
10				#VALUE!
11				#VALUE!
12				#VALUE!
13				#VALUE!
14				#VALUE!
15				#VALUE!
16				#VALUE!
17				#VALUE!
18				#VALUE!
19				#VALUE!
20				#VALUE!
21				#VALUE!
22				#VALUE!

Chart title: E1 Ferric Feed & PO4

Sheet tabs: E4 Correlation | W1 Correlation | W2 Correlation | E1 Ferric to PO4 | E2 Ferric to PO4 | E3 Ferric to PO4 | E4 Ferric to PO4 | W1 Ferric to PO4 | W2 Ferric to PO4 ...

Bottom spreadsheet (W1 Ferric to PO4):

	(Year)	SC-W1 PO4	Ferric Feed	BOD
			West 1	to
	(Month)			Total PHOS
day		mg/L	GPD	ratio
1				#VALUE!
2				#VALUE!
3				#VALUE!
4				#VALUE!
5				#VALUE!
6				#VALUE!
7				#VALUE!
8				#VALUE!
9				#VALUE!
10				#VALUE!
11				#VALUE!
12				#VALUE!
13				#VALUE!
14				#VALUE!
15				#VALUE!
16				#VALUE!
17				#VALUE!
18				#VALUE!
19				#VALUE!
20				#VALUE!
21				#VALUE!
22				#VALUE!

Chart title: W1 Ferric Feed & PO4

Sheet tabs: E4 Correlation | W1 Correlation | W2 Correlation | E1 Ferric to PO4 | E2 Ferric to PO4 | E3 Ferric to PO4 | E4 Ferric to PO4 | W1 Ferric to PO4 | W2 Ferric to PO4 ...