

Preparing Effluent Toxics Data for Submission in Electronic Data Delivery (EDD) Format

Introductions

My name is Carter Thomas. I am a data steward for the Oregon Department of Environmental Quality. I work at the DEQ laboratory in Hillsboro, OR. I can be reached at carter.thomas@deq.oregon.gov if you have any questions.

If your questions concern NPDES permits, please include my colleague George Cannon, permit developer for Water Quality Permitting and Program Development, at George.CANNON@deq.oregon.gov

If you do not receive a timely response, please reach out to WQDataHelp@deq.oregon.gov

Accessibility (00:01:07)

This video, and its accompanying written document, are both available on the Oregon Department of Environmental Quality website. It can be found on the page titled "[Electronic Data Delivery for Toxics and Copper Biotic Ligand Model Monitoring.](#)"

This video, and the written document that accompanies it, is divided into chapters. The chapter titles are identical, and the information they contain is the same.

The video has subtitles. The video consists of a spoken narrative combined with a recording of my computer screen. The audio component is intended to be descriptive enough to be useful alone, without the visual component.

You can pause the video. YouTube, and video players such as VLC, allow you to slow down or accelerate the speed of the video and audio, in case you want to go slower or faster.

How to Use These Materials (00:02:14)

For this demonstration, I used a computer with Microsoft Excel, email, and internet access. These tools are not mandatory, and there are many other ways to achieve a similar result.

The process I demonstrate here is not mandatory. You are not required to follow these steps. There is no mandatory method or process for submitting an EDD, all that is required is that the final product be accurate and complete. To be complete, an EDD must meet the requirements of whatever permit, monitoring letter, or other relevant regulation applies.

This is only a demonstration, and the methods I'm using here are not mandatory. This is not the only way to fill out the EDD, it may not be the best for you. You are not required to follow these steps.

Disclaimers and Thanks (00:03:07)

I do not intend, and I am not authorized to, create regulations, modify permits, or verify compliance with any law or regulation. If anything in these materials contradicts other DEQ statements or publications, it is very

likely that those take precedent over this one. However, if you feel something I have said or written contradicts existing DEQ policy, please feel free to reach out and I will do my best to correct it.

The data used here is real, with some occasional changes made for the purpose of demonstration. I am very grateful to the owners for letting me make this video with it. I have blocked out names, facilities, and addresses wherever I noticed them.

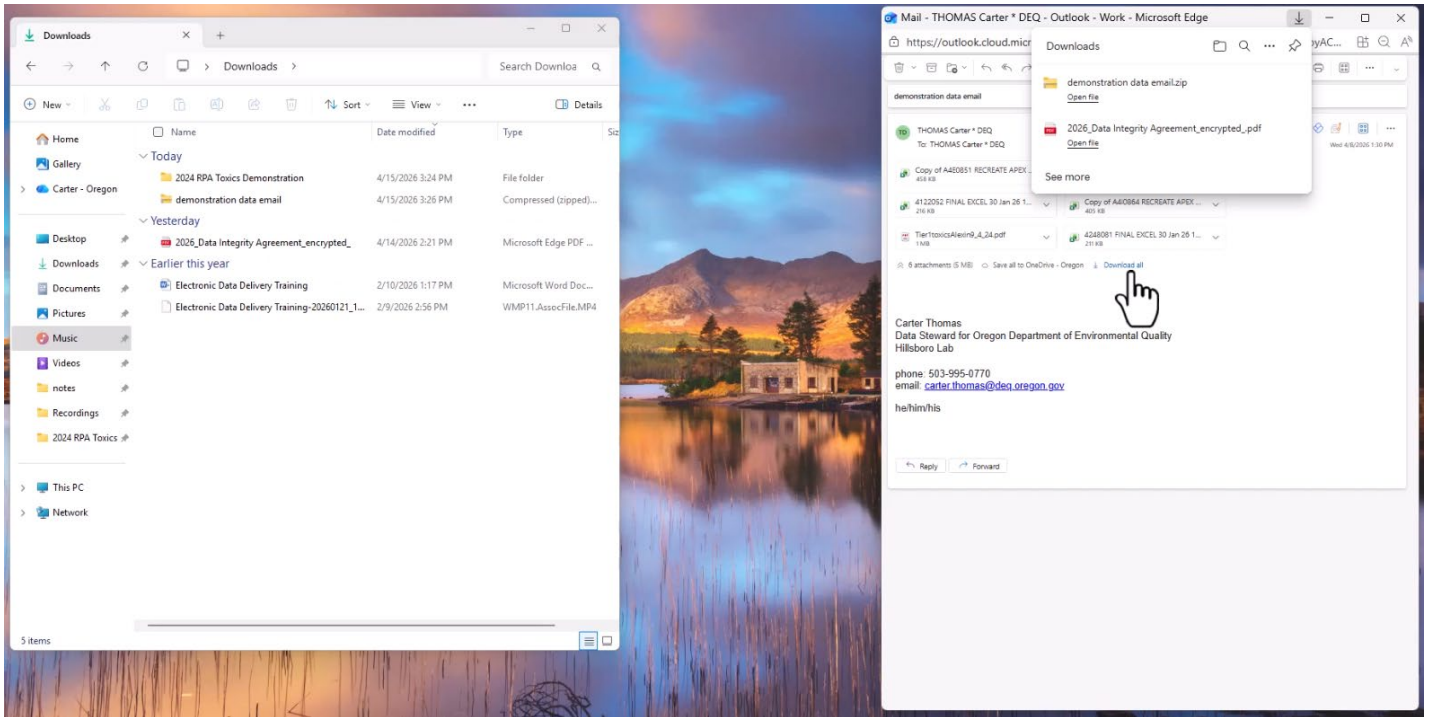
Contents

Preparing Effluent Toxics Data for Submission in Electronic Data Delivery (EDD) Format	1
Introductions (00:00:01)	1
Accessibility (00:01:07).....	1
How to Use These Materials (00:02:14)	1
Disclaimers and Thanks (00:03:07)	1
File Organizing (00:05:18).....	3
EDD Download and Review of the Tabs (00:12:52).....	8
Monitoring Locations (00:15:13).....	9
Result Location, Time, and Date (00:17:58)	9
Characteristics and Valid Values for Media Type, Activity Type, Sample Collection Method ID (00:23:47) ...	10
Demonstration on Misalignment When Using Copy & Paste (00:33:08)	13
Result Values and Units (00:33:43).....	13
Double-Check Your Units (00:35:25).....	14
Result Measure Qualifiers (00:36:51)	15
Detection and Reporting Limit Values (00:38:59).....	16
Method ID, Laboratory Name, Lab Sample ID (00:40:23).....	17
Review Your Results (00:42:34).....	18
Completing the Review Process (00:50:47)	19
A Different Dataset Already Mostly in EDD Format (00:52:08)	19
Conclusion (00:53:16).....	20
Non-discrimination Statement (00:53:39).....	20

File Organizing (00:05:18)

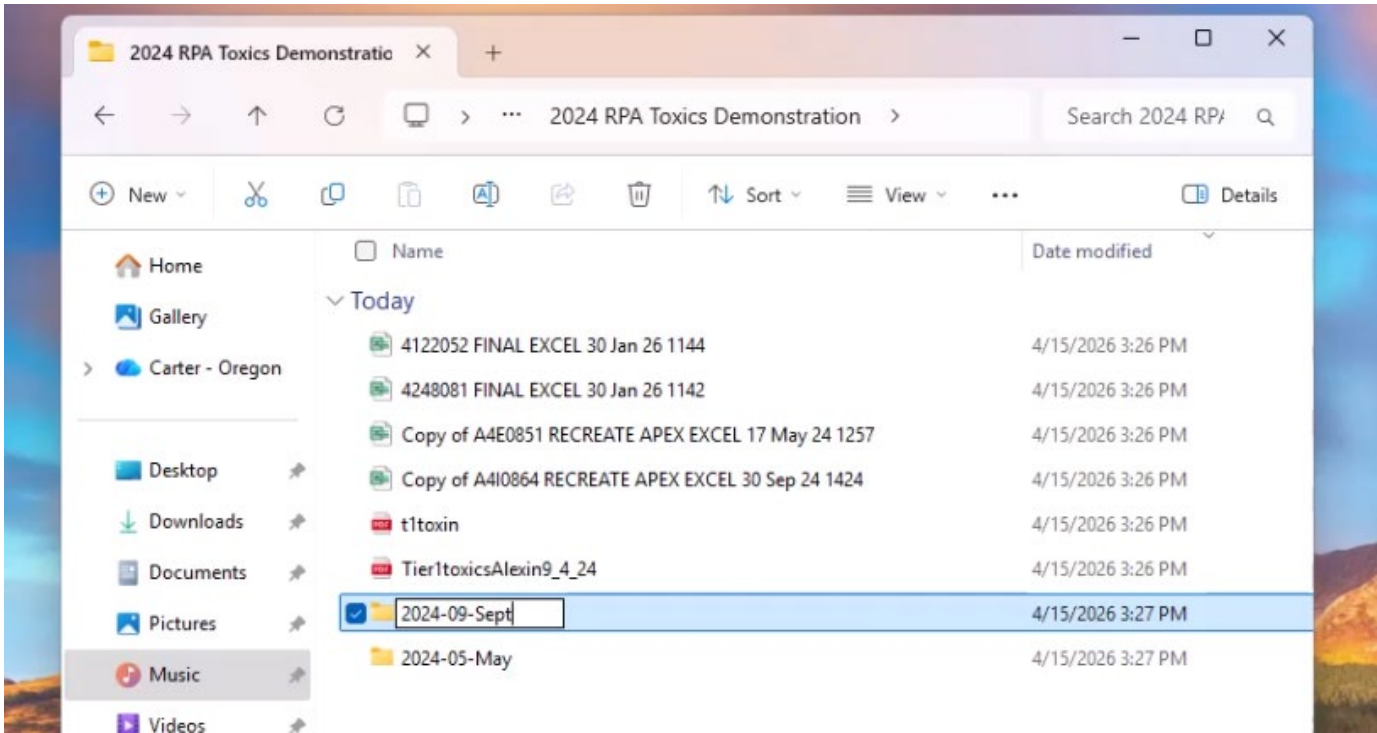
Ok, let's get started on our RPA Toxics EDD submission. Let's say you've just gotten your test results emailed to you. Here (below) on the right, you can see I've emailed myself a copy of the results I'm using in the demonstration. On the left is the folder I plan to use as my working folder. On the right, you can see they are all jumbled together.

This screenshot shows a folder called "Downloads" on the left, with a folder called "2024 RPA Toxics Demonstration" visible. On the right side, an email is open listing multiple .xlsx files with titles such as "Copy of A4E0851 RECREATE APEX..." and a PDF file called "Tier1toxicsAlexin9_4_24.pdf"



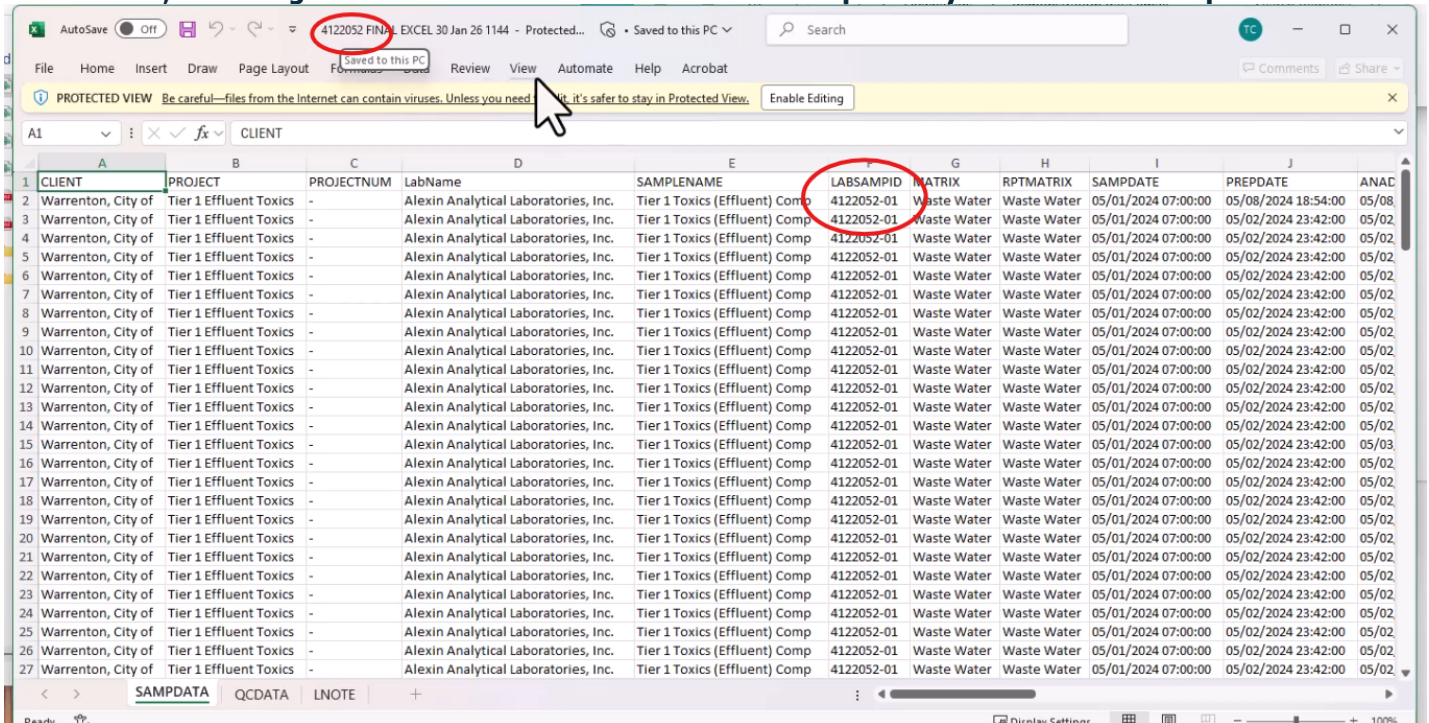
The first thing I'm going to do is download them all. In my case, it downloaded as a .zip file, so I'm going to have to extract the folder from the .zip file. I'll right click, "Extract all..." and select "Extract". In my case, it popped up as a folder. I'm going to move all the files into my working folder. Now I'm here looking for May 2024, so I'm going to make a subfolder, and as we go through the files, I'm going to drop them into the correct subfolder, so that we know we're working with just one month of data. Now I also think there is some data from September 2024, so I'm going to make a folder for that, too.

Screenshot of the 2024 RPA Toxics Demonstration folder, it is full of files. I have already made folders titled "2024-05-May" and "2024-09-Sept" which will be where we will keep the files we're working on.



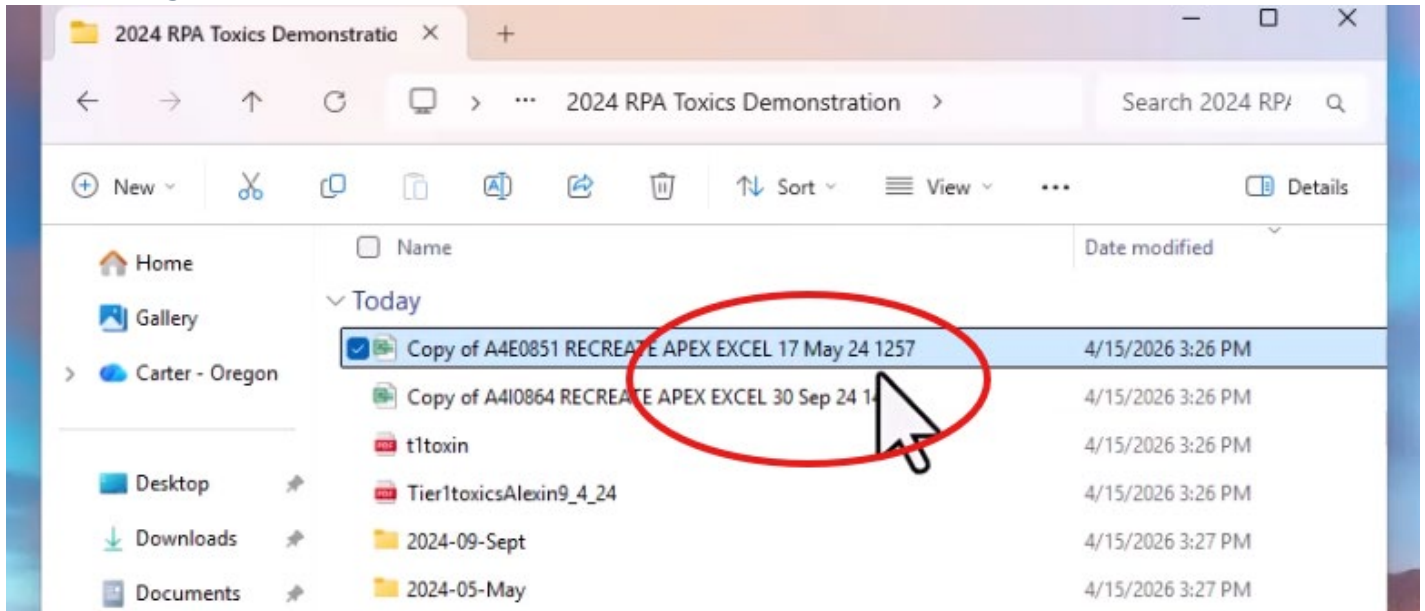
I'm going to go ahead and open up the first file, it's an Excel file with a filename that looks like probably a Laboratory ID, a month (I'm not sure this is necessarily the month the data is from). Let's find out by opening the Excel file. First, I see a lab sample ID that matches the title, that's good. I see a month, that's good. Real quickly scroll through to see how many total results. We have 159 results now. This data is not in the EDD format, we will need to move columns around, but it's a good start. Next, I will close that, and drop it in the relevant working folder.

Screenshot of spreadsheet full of data, with red circles indicating that the filename contains the Laboratory ID 4122052, matching a column called "LABSAMPID" which is probably short for Lab Sample ID.



The next one is the month I'm looking for but that's ok, we'll probably want this later, so I will drop it in its folder. Opening the next one, we have a lab sample ID we've seen before, plus a new lab sample ID number. My guess is this is a subcontracted dataset. You can see it's from the date column this is month we're looking for: May. Close that up and put it in the correct folder. You'll also note that the date is correct in the filename here, but you should always go into the file to check, because that's not always the case. The next one, we could maybe assume is September based on the filename, but I will go check it anyways. But going into that file marked "Sep", the Lab ID matches filename, correct sample date. Great. Dropping this into the September folder.

Screenshot of a file with "17 May 24" in the name, indicating that this file has accurate information in the filename. The next file says "30 Sep 24" in the name, but we still need to confirm that by opening the file and checking.



The next thing I'll do is look at these two lab reports, guessing one is May and the other is September. I paused the video here to block out some of the names, addresses, and contact information these lab reports... Ok, I'm back. Now (below) you're looking on the right at the t1toxin file, the filename wasn't necessarily descriptive. We can open it up and look at when the report was written, when the sample was received, when the data was analyzed, and when the data was sampled.

The lab report called t1toxin.pdf is open. This lab report shows when the report was written, when the sample was received, when the data was analyzed, when the data was sampled, and Lab Number.

The screenshot shows a Windows desktop with a file explorer window on the left and a web browser window on the right. The file explorer shows a folder named '2024 RPA Toxics Demonstration' with files like 't1toxin' and 'Tier1toxicsAlein9_4_24'. The web browser shows an 'ANALYSIS REPORT' for 't1toxin.pdf' with a table of chemical analysis results.

Lab Number	Sample Name	Method	Units	Result	MRL	Analysis Date/Time
4122052-01	Toxics (Effluent) Comp	SM 3500-C-B	mg/L	ND	0.00100	05/31/24 16:33
Metals (Total)						
Antimony	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Arsenic	EPA 200.8	mg/L	0.00111	0.00100	05/31/24 16:33	
Barium	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Beryllium	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Cadmium	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Chromium	SM 3500-C-B	mg/L	ND	0.00200	05/31/24 02:37	
Chromium (VI)	SM 3500-C-B	mg/L	0.00228	0.00500	05/02/24 16:04	
Chromium, Trivalent	SM 3500-C-B	mg/L	ND	0.00500	05/15/24 02:37	
Iron	EPA 200.8	mg/L	0.145	0.0250	05/31/24 16:33	
Lead	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Manganese	EPA 200.8	mg/L	0.0132	0.00100	05/31/24 16:33	
Mercury	EPA 16314-L	ng/L	0.720	0.500	05/08/24 18:54	
Nickel	EPA 200.8	mg/L	0.00106	0.00100	05/31/24 16:33	
Selenium	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Silver	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Thallium	EPA 200.8	mg/L	ND	0.00100	05/31/24 16:33	
Zinc	EPA 200.8	mg/L	0.395	0.00200	05/31/24 16:33	
Inorganics						
Ammonia	EPA 183.2	mg/L	52.0	4.00	05/03/24 13:26	
Phosphorus	EPA 365.3	mg/L	0.41	0.05	05/07/24 14:40	
Sulfide	EPA 376.2	mg/L	0.016	0.010	05/07/24 15:00	
Chlorinated Herbicides						
2,4,5-TP (Silvex)	EPA 815A	mg/L	ND	0.00019	05/08/24 19:59	
2,4-D	EPA 815A	mg/L	ND	0.00038	05/08/24 19:59	
Purceable Organic Compounds						
Benzene	EPA 624.1	mg/L	ND	0.000200	05/02/24 23:42	
Bromobenzene	EPA 624.1	mg/L	ND	0.000500	05/02/24 23:42	
Bromodichloromethane	EPA 624.1	mg/L	ND	0.00100	05/02/24 23:42	
Bromochloromethane	EPA 624.1	mg/L	ND	0.00100	05/02/24 23:42	
Bromoforn	EPA 624.1	mg/L	ND	0.00100	05/02/24 23:42	
Bromomethane	EPA 624.1	mg/L	ND	0.00500	05/02/24 23:42	

We recognize that lab ID number, that's great. We're pretty happy with this. Close it up and move it over to the May folder. Let's look in the next one: we have a lab number that matches the filename from September, normally I would not just trust the filename except we just looked and confirmed them a moment ago. In fact, we can see this filename says January, even though that's not the date of this sample. Again, we have to match up sample dates, report dates, lab numbers. So this one we're also happy with. We've now sorted everything, so we can start working with May.

Screenshot of a file with "30 Jan 26" in the name. This is not the date of the sample or the report, demonstrating that the name in the file is not always reliable.

The screenshot shows a Windows file explorer window with the address bar set to '2024-09-Sept'. The file list shows two files: 'Copy of A410864 RECREATE APEX EXCEL 30 Sep 24 1424' and '42411 FINAL EXCEL 30 Jan 26 1142'. The second file is highlighted, and a red circle is drawn around the date '30 Jan 26' in its name. A mouse cursor is pointing at the file name.

We have three files we're working with. Here's an example of a chain of custody record, within the lab report, it's definitely something DEQ will look at. Compare date, lab IDs, then when we're filling out the EDDs we'll be seeing if samples are grab or composite, and so forth. This is very important part of the lab report, you could write a whole additional video about filling out chain of custody forms. If this is not familiar, please reach out to DEQ or your lab and we'd be happy to give you advice.

Screenshot shows the 3 files from May in the 2024-05-May file, and a Chain of Custody Record on the right.

The screenshot shows a file explorer window on the left and a Chain of Custody Record form on the right.

File Explorer (2024-05-May):

Name	Date modified
Today	
t1toxin	4/15/2026 3:36 PM
4122052 FINAL EXCEL 30 Jan 26 1144	4/15/2026 3:36 PM
Copy of A4E0851 RECREATE APEX EXCEL 17 May 24 1257	4/15/2026 3:36 PM

Chain of Custody Record (Laboratory Job Number: 4122052-0103):

Client Contact Information: [Redacted]
 Results Reporting Information: [Redacted]
 Invoicing Information: [Redacted]

Sampling Location: WJTP
 Project Name: [Redacted]
 P.O. #: [Redacted]
 PWSID #: [Redacted]
 Permit #: [Redacted]

Send results to OR State Health Division? (Please circle) Yes No

Lab ID	Sample Identification	Number of vials/D per line for each sample	Date Collected	Time Collected	Sample Matrix	# of Test Units	Analysis Requested**
-01	Tier 1 Total Effluent 24 Composite Sample + Grab Samples "dive metals"		5-1-24	11:30 AM	WW	1	
-02	Gravimetric - Grab					15	
-03	Gravimetric Total Grab						
-04	Gravimetric Grab						
-05	All Grab Samples to be run from this time on on list						

Received by: [Redacted] Date/Time: 5-1-24
 Received by: [Redacted] Date/Time: 5-1-24

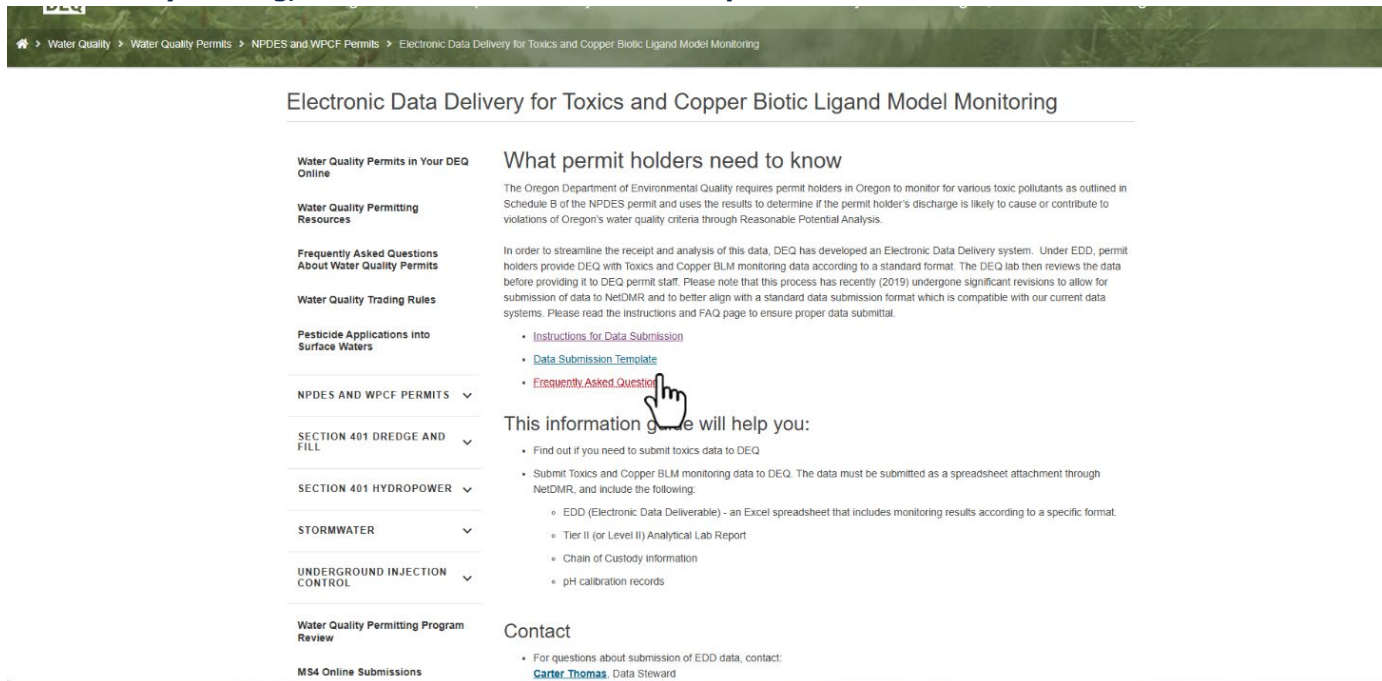
Temp. on receipt: 15.29
 Containers Inspected: 15

* The most current edition of EPA-823-G-03-003 was used when these samples were collected.
 ** Analyzes for SOC, Radioisotope, Pesticide, and Arsenites are subcontracted out to other approved laboratories.

EDD Download and Review of the Tabs (00:12:52)

Next, I'll show you how to find and download the Electronic Data Delivery (EDD) form for toxics data. In any search browser, you can search terms such as "Oregon DEQ toxics EDD" or "Oregon DEQ EDD download" to find the page we're looking for. The page we want is linked here: "[Electronic Data Delivery for Toxics and Copper Biotic Ligand Model Monitoring](#)" and can be accessed directly through that URL.

This image shows the Electronic Data Delivery for Toxics and Copper Biotic Ligand Model Monitoring page on the DEQ website (on May 8th, 2026). It has instructions for submission, the template, frequently asked questions, and contact information for DEQ staff. This is also where you can find this document that you are currently reading, as well as the video that accompanies this document.



I'm going to download the template, open it up and look at the tabs. You can see along the bottom there are a variety of tabs. We will be filling our data into tab six "Results", but the first one you will see is "Instructions". After "Instructions" is "Organization Details", where you'll fill out name, address, permit number, phone number. Then there is "Monitoring Location Instruction" and "Result Instruction" which will show you how to fill out the tabs that come after: the "Monitoring Locations" and "Results" tabs. After that is "Valid Values" which shows the allowable values that can go in Columns E, F, and G of the "Results" tab. Finally, we have two tabs full of example data that you can look at to see how the formatting should look when you're done.

Monitoring Locations (00:15:13)

Now I'm ready to start filling out the Monitoring Location tab, with the unique Monitoring Location IDs that describe the sites where I've been collecting the samples. I'll give you two different examples of two different formats that you can use (both of these sites don't really exist). The first one is in the Oregon DEQ format, which means it is a unique number that you've previously been given (meaning it is already in our database, we know where it is, and it is an agreed upon location). In this case, "10001-ORDEQ". Not every monitoring location has that, sometimes they are new, sometimes they haven't been added yet. That's ok, the alternative is to give your site some sort of unique and descriptive name. So, I'm going to call mine "City_of_Carter_STP_001" here. You can see that either of these two options is very specific about where the sample you've taken has been collected. What doesn't work is just putting something like "EFF" or "Effluent" which is just not specific enough. You have your two Monitoring Location IDs, then you can elaborate a bit on those names in the Monitoring Location Name tab (for example "Ambient Upstream Site 1 mile south on Carter River" and "City of Carter STP Outfall 001 Effluent"). For Latitude and Longitude, I'll put a fake example. For yours, we would need to see the real location of course. And then finally whatever extra comments you have can go in Comments, but the Comments column is optional.

Screenshot of Monitoring Location tab, I've put in "10001-ORDEQ" and "City_of_Carter_STP_001" in Column A, "Ambient Upstream Site 1 mile south on Carter River" and "City of Carter STP Outfall 001 Effluent" for Column B, and non-existent latitude and longitude values in Columns C and D. In Column E, I've filled "effluent" in one cell but not the other, indicating that this is an optional cell.

	A	B	C	D	E
1	Monitoring Location ID^	Monitoring Location Name^	Latitude^	Longitude^	Comments
2	10001-ORDEQ	Ambient Upstream Site 1 mile south	45.454545	-123.4567	
3	City_of_Carter_STP_001	City of Carter STP Outfall 001 Effluen	44.4444	-123.44444	effluent
4					
5					
6					
7					
8					
9					
10					
11					

Result Location, Time, and Date (00:17:58)

Now that I'm done editing these forms, I'm going to save this as a working file that has a different name from the template. So, I'll have the blank template available to myself, and I'll have the document that I'm working on which I will ultimately submit. To do this I click "Save as..." and find the folder I'm intending to work with, in this case "2024 RPA Toxics Demonstration" and then "2024-05-May" and change the filename to be something descriptive: "2024-05-May-City_of_Carter_EDD_Version_1_7_2026.xlsx" and click "Save".

Now I'm ready to move to the Results tab. The first column I'm going to work on in Results is Column A. We have Columns A, B, C, D all the way to Laboratory Sample ID (Column S). We'll have to fill these all out. I'll work left to right along the columns, then down the rows to check every single one. After all, you are going to be certifying that every single one of these cells is correct, so I want to make sure that I've reviewed everything, looked at every row, every column, and not made any mistakes.

Now the question is: how many rows are we going to need? I see that the raw data has headers in Row 1 (just like in the EDD). Row 159 is the last one. So, I need Row 2 through Row 159 to get all my data.

Screenshot shows that the raw data goes until Row 159.

Row	Analyte	Location	Method	Media Type	Collection Date
144	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
145	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
146	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
147	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
148	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
149	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
150	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
151	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
152	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
153	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
154	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
155	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
156	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
157	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
158	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
159	Tier 1 Effluent Toxics	Alexin Analytical Laboratories, Inc.	Tier 1 Toxics (Effluent) Comp	Water	05/01/2024 07:00:00
160					

This is not the only way, but to bring this data into the EDD, here is what I do: Select Cell A2, and drag all the way down A158 to get to Cell A159. Enter one of the cells the correct title, then hold Ctrl and hit Enter, and it will fill all of those cells. So, what's next? Sample Collection Date. I know from memory the sample date is May 1st, 2024, but I'm going to double check just to be sure I'm looking at the right data. I'm going to do the same thing again: Select Cell B2, click and drag down to Cell B159, click into the box and type the date out in year-month-day format, hit Ctrl + Enter and watch it all fill in.

Now for Time Zone (Column D). Most, but not all, of Oregon is in Pacific Time. The remainder is in Mountain Time. Depending on the time of year, you will either be in Savings time, or not. Here is the definition: "Daylight Savings Time (DST) is between the second Sunday in March, and the first Sunday in November." So, we'll enter into Cell C2 through C159 and put: "Pacific Savings Time", Ctrl + Enter.

Characteristics and Valid Values for Media Type, Activity Type, Sample Collection Method ID (00:23:47)

We're now going to be working on Columns E, F, and G: Media Type, Activity Type, and Sample Collection Method. These have the potential to cause a lot of confusion, so we've added a Valid Values tab. So, if you move one tab over from Results, you can see the acceptable answers for each of the cells in each of these columns.

For Media Type, the allowed values are Groundwater, Industrial Effluent, Leachate, Municipal Sewage Effluent, and Surface Water:

- If you are working in a wastewater treatment plant, you are likely handling Municipal Sewage Effluent.
- If you are working in an industrial facility, you are likely doing Industrial Effluent.
- If you are sampling a landfill, you are likely doing Groundwater or Leachate.
- If you are collecting Copper Biotic Ligand Model (BLM) ambient data, that is most likely Surface Water.

Column F (Activity Type) has descriptions and definitions that you can read in the Valid Values Tab. The valid values are Field Measurement/Observation, Sample-Routine, Sample-Composite Without Parents, and Quality Control Sample-Field Replicate. Each definition is available in the EDD.

Finally, Column G: Sample Collection Method ID. The three that we accept are Grab, Composite, or 24 Hr Sample. Note: when the sample collection method is Composite, it means we will have an Activity Type of Sample-Composite Without Parents (most likely), and Grab will (most likely) be Sample-Routine.

To make things more complicated, you won't be able to fill these columns out until you know which analyte and which sample each one is referring to. Whereas before, we were able to take all the times at once,

because we checked and saw they were all collected at the same time, not all of the samples have the same type (even though they were all done at the same time). In our case, total and free cyanide are going to be the ones that stand out as grab samples. So. I am going to go to the raw data file and get all of my analytes and also get the CAS number at the same time. I've gotten all of them, double-check that the rows are correct (as I do every time), hit Ctrl + C, bring them over to Analyte Name (Column H), and hit Ctrl + V. You can also right click and "Copy" and right click and "Paste", I use the keyboard shortcuts Ctrl + C and Ctrl + V.

So now that we have our analyte names, and we know where to check what their Laboratory IDs are, I'm also going to go over to the lab report (and the chain of custody form within the lab report), to see if I can get a little more information about what type each will be.

Here I've pulled up the chain of custody, and I see that cyanide (free and total) are marked as Grab, and the VOCs (which I don't think are in the dataset) were also done as Grab.

Editor's Note: I actually found this chain of custody very confusing. It looks like the laboratory had a hard time figuring out these samples (and I'm having trouble figuring out these samples). In the real world this would absolutely be a call to my laboratory (at minimum), and maybe a corrected version. I want to reiterate, please check with your lab and your DEQ to make sure your chain of custody forms are immaculate, these are one of the most important parts of the whole process. For the purpose of this video demonstration, I'm going to proceed with it as-is.

This image shows the data set we've been working with on the left, and a Chain of Custody Record on the right. The Chain of Custody form says "Composite Sample + Grab Samples" on the second row, which is confusing.

The image displays two side-by-side screenshots. On the left is an Excel spreadsheet with columns E through H. Column E contains 'Tier 1 Toxics (Effluent) Comp', column F contains '4122052-01', column G contains 'Water', and column H contains 'Waste Water'. The rows are numbered 1 through 24. Below the spreadsheet is a 'Chain of Custody Record' form. The form includes sections for 'Client Contact Information', 'Results Reporting Information', and 'Invoicing Information'. The 'SAMPLING INFORMATION' section contains 'Sampling Location: WJTP', 'Project Name: [redacted]', 'P.O. #: [redacted]', and 'Project #: [redacted]'. The 'Sample Specific Notes/Field Data' table has the following entries:

Lab ID	Sample Identification	Date Collected	Time Collected	Sample Matrix*	# of bottles
-01	Tier 1 Toxics Effluent	5-1-24	11:24 AM	WW	11
-02	24 Composite Sample + Grab Samples "diss. metals"				
-03	Cyanide free - Grab Cyanide Total Grab VOC - Grab All Grab Sample tubes Same time, times are on Vials				13

Right now, I have the "Tier 1 Toxics Effluent" which were done as a composite and are "-01" and "-02", and cyanide (which is "-03"). We can also pull up the lab report and can see that the metals and inorganics and so forth are given Laboratory ID "4122052-01", and the dissolved metals are "4122052-02". Those (written as "-01" and "-02") are marked as composites on the Chain of Custody, so we know everything done in those two samples are composites. The lab report also shows that everything done in "4122052-03" is a Grab.

Luckily the ordering of the samples here makes our life a little easier, because we'll be able to mark the two cyanides at the bottom. For Column G, we know the cyanides are Grab, I can select the Grab option, I know the rest are Composites (which won't always be true but is in this case). We've now filled Column G, which lets us move to filling out the cells in Column F, where the two cyanides determined to be Grabs are both Sample-Routine. Everything else (in this case) is a Sample-Composite Without Parent. Finally, Media Type: We are working at Carter's Imaginary Wastewater Treatment Plant, so we are going to put these all as Municipal Sewage Effluent. Ctrl + Enter and type to fill them all out. Now I am going to take a second to review what I've done, make sure everything is properly aligned, before moving to Result Value. Again, before I finish, I will need to go row-by-row to make sure everything lines up.

I have CAS numbers, these are not actually required if there is no chance of ambiguity about which compound or analyte we are talking about, otherwise you must include the CAS number. Now that I'm pretty confident at first pass that we have everything in Column A through Column I lined up, I'm going to move on to Result Value.

Now that we're ready for Result Value, let's go back to the raw data. I'll find the Result column in the raw data. I've noticed a problem: these are not in the correct format. The non-detects should be written as a less-than sign (" $<$ ") followed by the detection limit value. There are also values missing entirely. Here are some options if this is the case: your lab should be able to provide you with the values in the correct format, otherwise if you have the technical ability to correct the non-detects you should do so. If neither of those are an option, you will have to reach out to your compliance inspector and/or your permit writer to get permission to submit your data to us in this format. What we don't want to see is any sort of manual entering of data, we would much rather get what the lab says. If you can get permission to vary from your permit, you are free to submit this to us at the lab. For the purpose of this demonstration, I am going to move them over as I've gotten them from the lab (after I've talked to my compliance inspector and my permit writer to submit them in that form). So, I now have all the results, and they line up with their relevant analyte.

Demonstration on Misalignment When Using Copy & Paste (00:33:08)

Now, for the purpose of this demonstration, I am going to show a very common mistake. I've selected the correct column, and pasted the values in. However, I forgot to scroll back to the top of the spreadsheet, so I've started at the wrong cell and misaligned the data. Now you can see when you scroll down the data extends past where it should, and more importantly, I've now put result values that do not line up with the correct analyte. So, I have to go back and delete that and do it right.

Screenshot shows a misaligned copy & paste error, where the results have been put in the wrong row (even though the column is correct).

Sample Collection	Sample Collection Time	Time Zone	Media Type	Activity Type	Sample Collection Method	Analyte Name	CAS Number	Result Value	Result Unit	Result Measure Qualifier	Detection Limit Value	Detection Limit Unit	Reporting Limit Value
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Hexachlorobenz	118-74-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Hexachlorobutadi	87-68-3						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Hexachlorocyclopi	77-47-4						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Hexachloroethane	67-72-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	2-Chloronaphthal	91-58-7						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	1,2,4-Trichloroben	120-82-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	4-Bromophenyl pf	101-55-3						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	4-Chlorophenyl pf	700-57-23						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Nitrobenzene	98-95-3						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	2,4-Dinitrotoluene	121-14-2						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	2,6-Dinitrotoluene	606-20-2						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Isophorone	78-59-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Azobenzene (1,2-f	103-33-3						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Benzidine	92-87-5						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	3,3'-Dichlorobenzi	91-94-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Pentachlorobenze	608-93-5						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	1,2,4,5-Tetrachlor	95-94-3						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	2,4,5-TP (Silvex)	93-72-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	2,4-D	94-75-7						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Chromium	7440-47-3						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Chromium (VI)	18540-29-9						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Chromium, Trivale	16065-83-1						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Hardness							
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Antimony	7440-36-0						
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Arsenic	7440-38-2	0.720					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Barium	7440-39-3	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Beryllium	7440-41-7	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Cadmium	7440-43-9	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Iron	7439-89-6	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Lead	7439-92-1	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Manganese	7439-96-5	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Nickel	7440-02-0	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Selenium	7782-49-2	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Silver	7440-22-4	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Thallium	7440-28-0	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Zinc	7440-66-6	ND					
5/1/2024	7:00	PST	Municipal Sew	Sample-Compo	Composite	Phosphorus	14265-44-2	ND					

Result Values and Units (00:33:43)

So, let's do it right: Select all the result values from the raw table, copy (with Ctrl + C), go back to the EDD, select the correct cell, and paste with Ctrl + V (or right-click and "Paste with Match Destination Format").

Now let's go grab some Result Units. In this case, due to the format of the data received, we will be able to fill three columns with the same units: Result Unit (Column K), Detection Limit Unit (Column N), and Reporting Limit Unit (Column P). Once again, make sure you're at cell 2, paste into Result Unit (Column K). We know in this case we can also use this value for Detection Limit Unit (Column N) and Reporting Limit Unit (Column P). However, that is not always the case. I have seen datasets that use different units for Result Unit (Column K), Detection Limit Unit (Column N), and Reporting Limit Unit (Column P), so be sure to check both the raw data file and the lab report.

Double-Check Your Units (00:35:25)

Another interesting thing to note is that this dataset uses milligrams per liter (mg/L) for each unit in this dataset, except mercury: which is in nanograms per liter (ng/L). In mercury's case, the method used was probably quite sensitive, so the measurements were taken in nanograms-per-liter. You can imagine, if this unit was wrong and given to us in milligrams-per-liter, you would be reporting a much higher mercury result than we really have. So be very careful with Result Unit (Column K), Detection Limit Unit (Column N), and Reporting Limit Unit (Column P), and check that they all match the lab report, and don't assume everything will be in mg/L.

This image shows that mercury is recorded in nanograms-per-liter, while the other analytes are measured in milligrams-per-liter. Additionally, in this case the units are the same for mercury in all of Columns K, N, and P but you can't assume this is always going to be true.

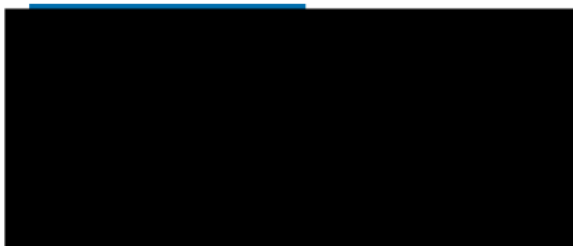
H	I	J	K	L	M	N	O	P	Q
Analyte Name*	CAS Number	Result Value*	Result Unit*	Result Measure Qualifier	Detection Limit Value	Detection Limit Unit	Reporting Limit Value	Reporting Limit Unit	Method ID*
Mercury	7439-97-6	0.720	ng/L		0.500	ng/L	0.500	ng/L	EPA 1631E-L
1,1,1,2-Tetrachlo	630-20-6	<0.000400	mg/L		0.000400	mg/L	0.000400	mg/L	EPA 624.1
1,1,1-Trichloroeth	71-55-6	<0.000400	mg/L		0.000400	mg/L	0.000400	mg/L	EPA 624.1
1,1,2,2-Tetrachlo	79-34-5	<0.000500	mg/L		0.000500	mg/L	0.000500	mg/L	EPA 624.1
1,1,2-Trichloroeth	79-00-5	<0.000500	mg/L		0.000500	mg/L	0.000500	mg/L	EPA 624.1
1,1-Dichloroetha	75-34-3	<0.000400	mg/L		0.000400	mg/L	0.000400	mg/L	EPA 624.1
1,1-Dichloroethyl	75-35-4	<0.000400	mg/L		0.000400	mg/L	0.000400	mg/L	EPA 624.1
1,1-Dichloroeth	563-58-6	<0.00100	mg/L		0.00100	mg/L	0.00100	mg/L	EPA 624.1

You should also check your permit, I've also seen some permits require specific units to be reported. If that's the case then that is what you must do, but feel free to see if your compliance inspector and/or permit writer is willing to let you report to us in the values and units that your lab gave you. Again, it is preferable to get permission to submit what your lab gave you, rather than manually changing results yourself and introducing possible transcription errors.

Result Measure Qualifiers (00:36:51)

Now after jumping around a bit, I'm going to get back to filling the EDD in from left to right by columns. The next one is Result Measure Qualifier (Column L). The Result Measure Qualifier is a code given to us by the lab to describe the sample. Not every analyte will have one. We'll go look at the raw data to see if any of the data was qualified in one way or another.

Screenshot of the qualifiers available in a lab report. In this example, the qualifiers listed are H-01, H-02, J, LI, Q-30, Q-52, R-02, SUB-10, and SUB-4.



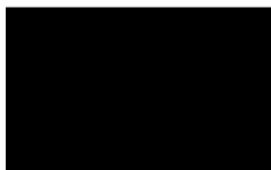
ANALYSIS REPORT

Reported: 04/11/2024

Received: 03/20/24

Work Order: 4080042

C
L
I
E
N
T



Project # : -

Permit # :

PO # :

Sampling Location: WWTP

Temperature Upon Receipt: 3.60 ± 1°C

H-01 Analyzed outside the recommended holding time.

H-02 This sample was extracted outside of the recommended holdint time.

J The reported value is greater than the Method Detection Limit but less than the Reporting Limit.

LI CCV or LCS results below acceptance limits, your results may be biased LOW.

Q-30 Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.

Q-52 Due to known erratic recoveries, the result and reporting levels for this analyte are reported as Estimated Values. This analyte may not have passed all QC requirements for this method.

R-02 The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

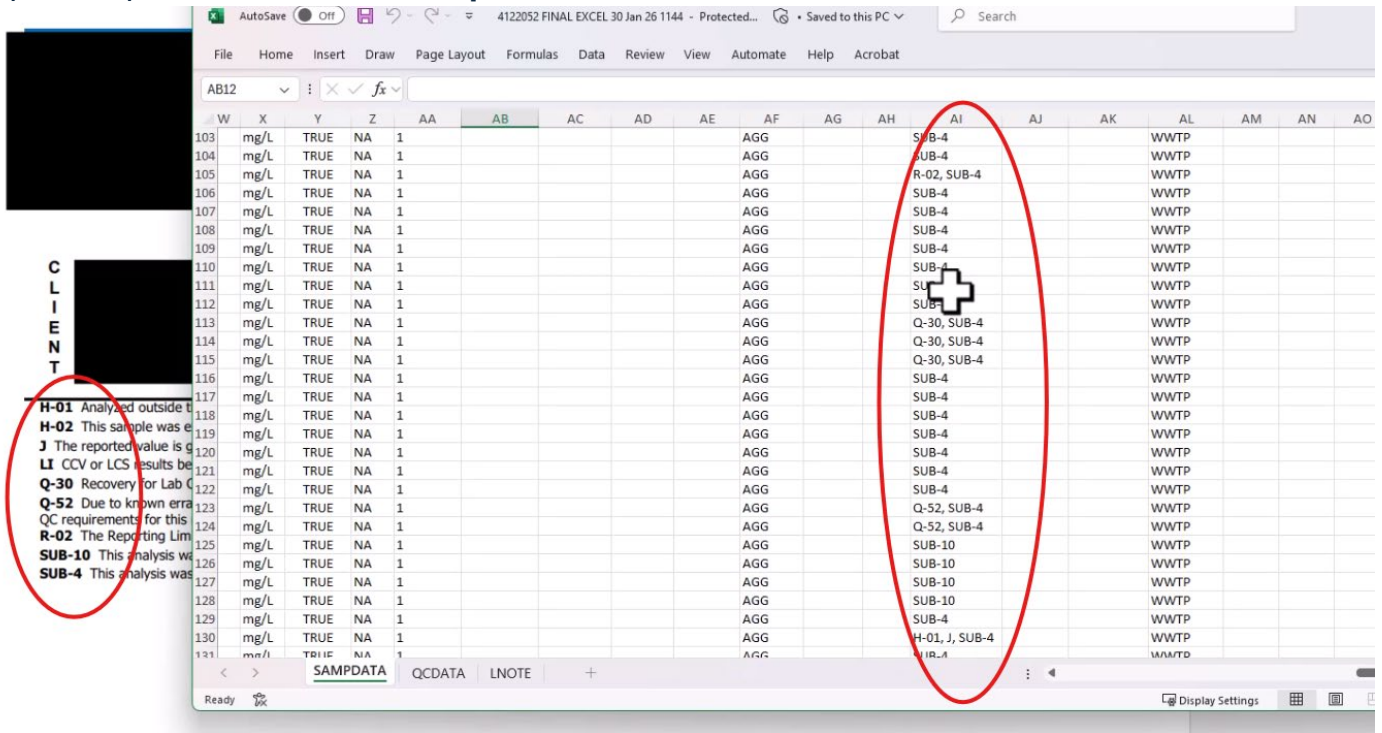
SUB-10 This analysis was subcontracted to ALS Environmental. ORELAP ID# WA 200001.

SUB-4 This analysis was subcontracted to APEX Laboratories ORELAP ID# OR100062

To help, I've gone into the lab report and pulled up the definitions of the codes this lab is using. These are not universal, each lab has their own, although many times they are shared or frequently seen across labs. We will need somewhere to have this definition of the qualifiers in case we don't know what they mean.

So, we'll go into our raw data to find the column that gives us these codes. In our raw data, I look through and see ANOTE (Column AI), appears to have the codes we're looking for. We can tell because they match the codes in the lab report we were looking for. I'm going to grab all of these, copy and paste them over to the EDD. Some of them do not have qualifiers, that is fine. I'll look through them, double check that they all match.

Screenshot with red circles showing how to recognize common lab qualifiers: H-01, H-02, J, LI, Q-30, Q-52, R-02, SUB-10, and SUB-4 are the examples in this case.



Detection and Reporting Limit Values (00:38:59)

Let's go find Detection Limit Value (Column N). In this case, some of the values are blank. Nearly all permit data is required to have a detection limit. So, you'll have to go and ask your lab to supply them if they didn't give them to you. In this case I am going to enter the results as Not Reported ("NR"), which is simply to help my computer system read the results, it is not sufficient to meet permit requirements. You will need to get detection limit values to meet permit requirements (most of the time).

I'm next going to find reporting limit values in the raw data. Reporting Limit is always equal to, or greater than, Detection Limit. As before, I'll grab them all, Ctrl + C and then Ctrl + V, and copy them into the correct column. Since we did the Detection Limit Unit (Column N) and Reporting Limit Unit (Column P) earlier, those are already in place.

Method ID, Laboratory Name, Lab Sample ID (00:40:23)

Now I have three more columns to do, and then we will go line-by-line checking analytes for anything that is missing (as there may be more details that need to be added). For Method ID (Column Q), certain methods are required for certain analytes under certain conditions. In this case, I'm going to use the column with short, compact names ("EPA 200.8" being one very common example).

Screenshot shows methods matched to other rows in the raw dataset. As an example, for "Phosphate as P" the method is "EPA 365.3", the method for "Sulfide" is "EPA 376.2" and the methods for Cyanide, Total" and "Cyanide, Free" are differentiated by a letter "C" versus letter "E"

	I	J	K	L	M	N	O	P	Q	R
3	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Antimony, Total 200.8	EPA 200.8	Default Prep Metals	Antimony	7440-36-0	FALSE
4	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Arsenic, Total 200.8	EPA 200.8	Default Prep Metals	Arsenic	7440-38-2	FALSE
5	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Barium, Total 200.8	EPA 200.8	Default Prep Metals	Barium	7440-39-3	FALSE
6	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Beryllium, Total 200.8	EPA 200.8	Default Prep Metals	Beryllium	7440-41-7	FALSE
7	05/01/2024 07:00:00	05/31/2024 16:33:04	05/31/2024 16:33:04	B422001	Cadmium, Total 200.8	EPA 200.8	Default Prep Metals	Cadmium	7440-43-9	FALSE
8	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Iron, Total 200.8	EPA 200.8	Default Prep Metals	Iron	7439-89-6	FALSE
9	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Lead, Total 200.8	EPA 200.8	Default Prep Metals	Lead	7439-92-1	FALSE
0	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Manganese, Total 200.8	EPA 200.8	Default Prep Metals	Manganese	7439-96-5	FALSE
1	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Nickel, Total 200.8	EPA 200.8	Default Prep Metals	Nickel	7440-02-0	FALSE
2	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Selenium, Total 200.8	EPA 200.8	Default Prep Metals	Selenium	7782-49-2	FALSE
3	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Silver, Total 200.8	EPA 200.8	Default Prep Metals	Silver	7440-22-4	FALSE
4	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Thallium, Total 200.8	EPA 200.8	Default Prep Metals	Thallium	7440-28-0	FALSE
5	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:33:04	B422001	Zinc, Total 200.8	EPA 200.8	Default Prep Metals	Zinc	7440-66-6	FALSE
6	05/01/2024 07:00:00	05/07/2024 14:40:00	05/07/2024 14:40:00	B419019	Phosphate as P	EPA 365.3	Default Prep Wet Chem	Phosphorus	14265-44-2	FALSE
7	05/01/2024 07:00:00	05/07/2024 15:00:00	05/07/2024 15:00:00	B419022	Sulfide	EPA 376.2	Default Prep Wet Chem	Sulfide	18496-25-8	FALSE
8	05/01/2024 07:00:00	05/02/2024 16:06:00	05/16/2024 00:38:00	B421042	Chromium, Dissolved Trivalent Package	SM 3500-Cr B	Sub Contracted	Chromium	7440-47-3	FALSE
9	05/01/2024 07:00:00	05/02/2024 16:06:00	05/02/2024 16:06:00	B421042	Chromium, Dissolved Trivalent Package	SM 3500-Cr B	Sub Contracted	Chromium (VI)	18540-29-9	FALSE
0	05/01/2024 07:00:00	05/02/2024 16:06:00	05/16/2024 00:38:00	B421042	Chromium, Dissolved Trivalent Package	SM 3500-Cr B	Sub Contracted	Chromium, Trivalent	16065-83-1	FALSE
1	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:36:50	B422001	Arsenic, Diss. 200.8	EPA 200.8	Default Prep Metals	Arsenic	7440-38-2	FALSE
2	05/01/2024 07:00:00	05/31/2024 16:36:50	05/31/2024 16:36:50	B422001	Cadmium, Diss. 200.8	EPA 200.8	Default Prep Metals	Cadmium	7440-43-9	FALSE
3	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:36:50	B422001	Lead, Diss 200.8	EPA 200.8	Default Prep Metals	Lead	7439-92-1	FALSE
4	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:36:50	B422001	Nickel, Diss. 200.8	EPA 200.8	Default Prep Metals	Nickel	7440-02-0	FALSE
5	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:36:50	B422001	Selenium, Diss. 200.8	EPA 200.8	Default Prep Metals	Selenium	7782-49-2	FALSE
6	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:36:50	B422001	Silver, Diss. 200.8	EPA 200.8	Default Prep Metals	Silver	7440-22-4	FALSE
7	05/01/2024 07:00:00	05/28/2024 08:20:00	05/31/2024 16:36:50	B422001	Zinc, Diss. 200.8	EPA 200.8	Default Prep Metals	Zinc	7440-66-6	FALSE
8	05/01/2024 07:00:00	05/07/2024 12:30:00	05/15/2024 15:34:00	B421007	Cyanide, Total	SM 450-CN C	Default Prep Wet Chem	Cyanide	57-12-5	FALSE
9	05/01/2024 07:00:00	05/07/2024 12:30:00	05/15/2024 15:34:00	B421007	Cyanide, Free	SM 450-CN E	Default Prep Wet Chem	Cyanide	57-12-5	FALSE

Laboratory name is the name of the lab that did these analyses. I'm going to use an imaginary lab name. In your case it should be the name of the lab that did it. The lab may report which subcontractors did which results here, or it may be the final lab that compiled all the data, both are acceptable answers. In my case, I am putting "Carter Laboratory" and filling that in every column.

Finally, Laboratory Sample IDs: This is something we've discussed a few times already. This column is what lets us link results in the EDD to the relevant lab report and the raw data. Let's go find that in the raw data (in my case, Column F). Select them all. Like we noted earlier, the cyanide results are "4122052-03" and the rest are "4122052-01" and "4122052-02", copy them over.

Review Your Results (00:42:34)

So now it's time to go back and review all the results line-by-line. To start, I noticed that cyanide is listed twice, despite having two different methods. This is also true for zinc, and some other ones. So, what's the deal with that? Likely, the answer is: sample fraction, but we'll always go to the lab report to confirm. Here's where I see what I think happened: the lab number that ends in "-01" has total metals, while the sample marked "-02" is dissolved metals. You'll need to distinguish between the two, because total copper, arsenic, or anything else can be a much different value from total.

Screenshot shows analyte names circled in red which need additional attention to differentiate between total and dissolved.

Activity Type^	Sample Collection Method^	Analyte Name^	CAS Number	Result Value^	Result Unit^	Result Measure Qualifier	Detection Limit Value^	Detection Limit Unit^	Reporting Limit Value^	Reporting Limit Unit^	Method ID^	Laboratory Name^	Laboratory Sample ID^
Sample-Compo Composite		Chromium, Trivalent	16065-83-1	ND	mg/L	SUB-4	NR	mg/L	0.00500	mg/L	SM 3500-Cr B	Carter Laboratory	4122052-01
Sample-Compo Composite		Hardness		52.0	mg/L		4.00	mg/L	4.00	mg/L	EPA 130.2	Carter Laboratory	4122052-01
Sample-Compo Composite		Antimony	7440-36-0	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Arsenic	7440-38-2	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Barium	7440-39-3	0.00111	mg/L		0.000100	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Beryllium	7440-41-7	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Cadmium	7440-43-9	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Iron	7439-89-6	0.145	mg/L		0.0100	mg/L	0.0250	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Lead	7439-92-1	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Manganese	7439-96-5	0.0132	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Nickel	7440-02-0	0.00106	mg/L		0.000100	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Selenium	7782-49-2	ND	mg/L		0.000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Silver	7440-22-4	ND	mg/L		0.000100	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Thallium	7440-28-0	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Zinc	7440-66-6	0.0395	mg/L		0.00100	mg/L	0.00200	mg/L	EPA 200.8	Carter Laboratory	4122052-01
Sample-Compo Composite		Phosphorus	14264-44-2	0.41	mg/L		0.05	mg/L	0.05	mg/L	EPA 365.3	Carter Laboratory	4122052-01
Sample-Compo Composite		Sulfide	18484-25-8	0.016	mg/L		0.010	mg/L	0.010	mg/L	EPA 376.2	Carter Laboratory	4122052-01
Sample-Compo Composite		Chromium	7440-47-3	ND	mg/L	SUB-4	0.00100	mg/L	0.00200	mg/L	SM 3500-Cr B	Carter Laboratory	4122052-02
Sample-Compo Composite		Chromium (VI)	1850-29-9	ND	mg/L	SUB-4	0.00200	mg/L	0.00500	mg/L	SM 3500-Cr B	Carter Laboratory	4122052-02
Sample-Compo Composite		Chromium, Trivalent	16065-83-1	ND	mg/L	SUB-4	NR	mg/L	0.00500	mg/L	SM 3500-Cr B	Carter Laboratory	4122052-02
Sample-Compo Composite		Arsenic	7440-38-2	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Compo Composite		Cadmium	7440-43-9	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Compo Composite		Lead	7439-92-1	ND	mg/L		0.0000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Compo Composite		Nickel	7440-02-0	ND	mg/L		0.000100	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Compo Composite		Selenium	7782-49-2	ND	mg/L		0.000500	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Compo Composite		Silver	7440-22-4	ND	mg/L		0.000100	mg/L	0.00100	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Compo Composite		Zinc	7440-66-6	0.0383	mg/L		0.00100	mg/L	0.00200	mg/L	EPA 200.8	Carter Laboratory	4122052-02
Sample-Routine Grab		Cyanide	57-12-5	ND	mg/L		0.0025	mg/L	0.020	mg/L	SM 4500-CN C	Carter Laboratory	4122052-03
Sample-Routine Grab		Cyanide	57-12-5	ND	mg/L		0.0025	mg/L	0.020	mg/L	SM 4500-CN E	Carter Laboratory	4122052-03

Generally, there are three ways to distinguish the characteristics: 1) Result Value, 2) Laboratory Sample ID, 3) Method ID.

In all we will need to fix:

- Arsenic – (Different lab IDs)
- Cadmium – (Different lab IDs)
- Chromium – Possibly confusing, could be called "Chromium, Total, Total" or "Chromium, Total, Dissolved"
- Chromium (VI) – (Different lab IDs)
- Chromium (III) – (Different lab IDs)
- Cyanide – (same result value and lab ID, remember to check the method!)
- Lead – (Different lab IDs)
- Nickel – (Different lab IDs)
- Selenium – (Different lab IDs)
- Silver – (Different lab IDs)
- Zinc – (Different lab IDs)

The rules for these are also available in the Results Instructions tab, which state: For metals, cyanide, and organic carbon, fraction is always required (most commonly, "Total" and "Dissolved"). If metal fraction is not included, the result means "Total".

Note: I will also fix the following, despite it not being strictly necessary according to the rules above.

- Barium
- Beryllium
- Iron
- Manganese
- Thallium

For "Cyanide, Total" and "Cyanide, Free" we can distinguish them by their different methods: SM 4500-CN C & SM 4500-CN E.

The last thing I want to point out is that even though we don't have any in this case, it is possible for a dissolved fraction to exceed total fraction. This can be possible within acceptable precision criteria, even though it seems impossible. Go ahead and submit to DEQ and it will be checked by our QA/QC process. It can also be marked with a qualifier if the lab gives it to you that way.

Completing the Review (00:50:47)

Now comes the final and most important part. I will go back to the top and starting at Row 1 check every cell in every column, every row. This data is being used for permitting purposes, it is going to be certified as accurate, so I want to be absolutely sure I haven't misaligned anything or made any other mistakes. I'll check the lab reports to confirm any changes I've made are correct, check 40 CFR 136 to confirm the methods are acceptable for my purposes. I'll check the detection limits and reporting limits go as low as required. I'll confirm the laboratory IDs are correct and properly aligned. I'll check for copy & paste errors, collection methods, time zones, etc.

A Different Dataset Already Mostly in EDD Format (00:52:08)

Now for my final example, I have got some extra results in from a different lab. This one is much closer to the complete EDD format. It will need to be put in the "Results" tab in the EDD, and there are corrections to make in Column A, D, E, F, and G. Once again, you'll have to look at the lab report to confirm everything matches and confirm you have a chain of custody that has been properly filled out.

This image shows an Excel file with three complete rows on the left, and a lab report on the right. This is intended to show that you can hope to get more usable data formats from your lab.

Monitoring Sample ID	Sample Time	Zone	Media	Ty	Activity	Ty	Sample ID	Analyte Name	CAS Num	Result Val	Rpt Units	Result Me	Detection
24050416-202405080730	PST	Water	Field Sam	NR			N-Nitrosopyrrolidine	930-55-2	<1.0	ng/l		1.0	n
24050416-202405080730	PST	Water	Field Sam	NR			N-Nitrosodiethylamine	55-18-5	<0.73	ng/l		0.73	n
24050416-202405080730	PST	Water	Field Sam	NR			N-Nitrosodi-n-butylam	924-16-3	<1.0	ng/l		1.0	n

Analyses		Method	NELAP Status	Result	DF	MDL	RL	Units	MCL	Date Analyzed	Analyst
SUB MISCELLANEOUS											
	N-nitrosodiethylamine	SUB-MISC		ND	1	0.730	2.00	ng/L		05/16/24 0:00	KHG
	N-Nitrosodi-n-butylamine	SUB-MISC		ND	1	1.00	2.00	ng/L		05/16/24 0:00	KHG
	N-nitrosopyrrolidine	SUB-MISC		ND	1	1.00	2.00	ng/L		05/16/24 0:00	KHG

Conclusion (00:53:16)

Thank you for taking the time to watch this video. I can be reached at carter.thomas@deq.oregon.gov if you have any questions.

If your questions concern NPDES permits, please include my colleague George Cannon, permit developer for Water Quality Permitting and Program Development, at George.CANNON@deq.oregon.gov

If you do not receive a timely response, please reach out to WQDataHelp@deq.state.or.us

This video, and its accompanying written document, are both available on the Oregon Department of Environmental Quality website on the page titled "[Electronic Data Delivery for Toxics and Copper Biotic Ligand Model Monitoring.](#)"

Non-discrimination Statement (00:53:39)

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